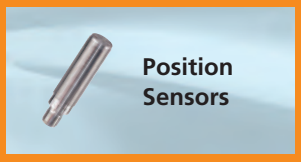

Position Sensors

Motion Control

Vision Sensors

Safety Technology

Process Sensors

Industrial Networks

IO-Link

RFID Systems

Machine Condition

Power Supplies

Wiring Technology

Quick lead time!

90% of orders shipped same or next day!

ifm.com/us

About ifm…

ifm is one of the world's largest manufacturers of industrial sensors and controls products, producing over 18.3 million products annually.

More than 6,500 ifm employees serve over 140,000 purchasing customers worldwide.

ifm has more than 70 subsidiaries located in all major countries.

Annual global sales exceed $850 million USD.

Our dedication to innovation, quality and customer support has made us a global market leader.

The ifm Commitment

ifm people. The ifm team of employees is committed to helping you succeed in your business. We directly service and work with over 26,000 customers in North America.

ifm products. For over 45 years, ifm has developed, manufactured, and marketed sensors to industries that include assembly and robotics, automotive, material handling, packaging, metal forming, plastics, and food and beverage. We offer a complete family of position sensors, fluid sensors, diagnostic systems, networking products, and wiring solutions.

Quality. There can be no compromise in the quality and reliability of sensors that are applied in your production facility. The ifm new product development process incorporates specific testing for sensors and controls to withstand environments with shock and vibration, electrical noise and temperature fluctuations.

Investment in R&D. Developing new products that increase uptime and productivity is a core belief of our company. We apply practical innovation to simplify technology and develop products that can have a positive impact on your production process.

Application know-how. We have over 45 years of experience in working with industrial automation applications. Our knowledgeable team of technical support engineers will work with you to recommend the right solution, the first time.

ifm business philosophy. ifm provides a knowledgeable and courteous service center team to assist with order placement and technical support. We offer an efficient distribution center for accurate and on-time delivery of products. ifm publishes list prices in literature and on our website, and we always stand behind the quality and performance of our products.

Global presence with local focus. With more than 6,500 dedicated ifm employees in over 70 countries, you can count on local support all over the world.

ifm – *close to you!*

Our people and our products are committed to helping you succeed in your business

Rich History… Promising Future

ifm electronic, the parent company of ifm efector, was founded in 1969.

For over 45 years, ifm has manufactured and marketed electronic sensors and controls for industrial automation applications.

ifm employs over 6,500 dedicated individuals who provide outstanding product support and technical service.

More than 140,000 customers purchase ifm products worldwide.

ifm North America, established in 1985, has a network of sales offices located in all major industrial markets throughout the US, Canada and Mexico.

Reliable Products… Innovative Design

ifm is currently one of the world's largest manufacturers of industrial sensors and controls, producing more than 18.3 million products annually.

ifm offers a broad product range that includes sensors and controls for industrial automation applications.

ifm's core competency for industrial product design is to develop products with robust housings, easy user interfaces and flexible output stages.

ifm makes large investments in R&D and employs over 820 development engineers. Our R&D team has more than 750 registered ifm patents worldwide.

ifm has received multiple awards for innovation and breakthrough technologies.

An ISO 9001:2008 compliant company.

Our dedication to innovation, quality and customer support has made ifm a global leader in sensors and controls.

ifm Global Presence

Whether you ship your machines internationally or have manufacturing plants all over the world, ifm has local support in over 70 countries.

You can count on ifm anywhere in the world.

ifm – *close to you!*

Reliable service from a dedicated team

Experience the benefits of working directly with the manufacturer

ifm provides high performance products at a great value to help you compete in your business. Since you're dealing directly with the manufacturer, you can expect immediate customer support and competitive pricing. There are no compromises when it comes to our customers' success!

Quality Assurance

Our products are manufactured with a high level of automation and lean manufacturing principles. ifm development engineers design and test sensors in conditions that far exceed actual application environments. There can be no compromises when it comes to uptime in your facility.

On-site sales support

You can count on our experienced team of ifm Sales Engineers to understand your applications and challenges. The ifm Direct Sales Team provides on-site application assistance and technical support throughout the U.S.

Our Mission:

We contribute to our customers' success by providing innovative solutions through continuous development of our people, products and processes.

The ifm Advantage

ifm has built a business model that focuses on working directly with our customers.

There are no compromises when it comes to our customers' success.

Markets include

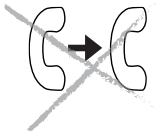
Assembly and robotics
Automotive
Food and beverage processing
Machine tool
Material handling
Mobile equipment
Packaging
Metal forming
Plastics

Service Center

You can count on our dedicated Service Center Team to provide easy order placement and knowledgeable technical support.

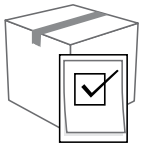
- Our customer service representatives can assist with order placement, product quotes and delivery information.
- Need help with an application? A team of experienced engineers is ready to assist you with technical questions and application solutions.

Our Service Center is staffed from 7:30 am to 6:30 pm EST and covers all time zones in the U.S.



We strive to provide a resolution the first time you call and avoid follow-up phone calls or transfers.

It's our goal to respond to your emails in 15 minutes. Your time is valuable.



Products are available from stock. 90% of customer orders are shipped complete within 24 hours.

You will receive a shipment tracking number within an hour of placing your order.

Your order will be shipped regular ground service. For faster delivery, we offer next business day delivery or 2-day. Just tell us your preference.

Get to know us…
Discoverifmus.com
800-441-8246

ifm's Sensors and Controls catalog represents our most popular products for industrial automation

IO-Link products

IO-Link
Pages: 6 - 21

A point-to-point communication interface that connects sensors and actuators to a control system.

Position sensors

Inductive sensors
Pages: 22 - 55

Non-contact inductive sensors detect metallic targets.

Capacitive sensors
Pages: 56 - 61

Capacitive sensors detect non-metallic targets, e.g. plastic, glass and wood.

Cylinder sensors
Pages: 62 - 71

Low-profile T-slot and C-slot cylinder sensors detect cylinder position.

Photoelectrics, lasers, fiber optics
Pages: 72 - 111

Visible red and laser provide long-range detection.

Distance, color and contrast
Pages: 112 - 117

Photoelectric solutions for long ranges, color and contrast applications

Ultrasonic sensors

Ultrasonic
Pages: 118 - 119

Ultrasonic object detection for long ranges and challenging surfaces.

Motion control

Encoders

Pages: 120 - 123

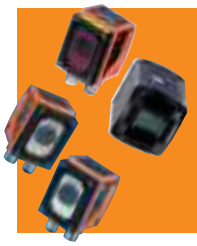
Encoders use magnetic technology to provide accurate position feedback of a rotating shaft.

Speed monitors
Pages: 124 - 125

Self-contained speed monitors detect rotational speed conditions.

Rotational and standstill monitor
Pages: 126 - 127

The speed monitors calculate rotational speed by evaluating pulses.



Vision sensors

efector dualis Contour sensors
Pages: 134 - 135

Detects and compares defined shapes to provide 100% inspection testing.

efector dualis Pixel Counter
Pages: 136 - 137

Analyzes the area of an object and identifies an object by counting pixels.

Multi-Code readers
Pages: 138 - 139

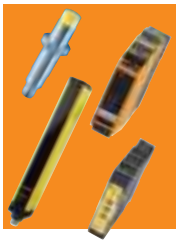
Identifies, qualifies and verifies 2D data matrix codes and 1D barcodes.

Illumination
Pages: 140 - 141

Illuminates the object and provides the correct amount of image brightness at various ranges.

3D Image Sensor
Pages: 142 - 143

3D Image Sensor evaluates shape, size and volume to identify objects in three dimensions.



Safety products

Inductive safety sensors
Pages: 144 - 145

Non-contact, fail-safe inductive sensors detect metal targets.

Light curtains
Pages: 146 - 151

Light curtains offer a hands-free solution to protect personnel.

Safety relays
Pages: 152 - 153

Multi-function safety relays connect safety devices.

Safety speed monitoring
Pages: 154 - 155

For safety-related maximum speed monitoring used in carousels or centrifuges.

For our complete list of sensors and controls products, visit our website

www.ifm.com/us

Process sensors

Pressure sensors
Pages: 156 - 175
Sensors and transmitters monitor system pressure in hydraulic and pneumatics.

Flow sensors
Pages: 176 - 191
Flow sensors, magmeters, and ultrasonic flow meters detect the flow rate of liquids and gases.

Level sensors
Pages: 192 - 207
Point and continuous level sensors detect level of liquids, powders, granular solids and plastics.

Temperature sensors
Pages: 208 - 225
Modular temperature monitoring products provide feedback in temperature control applications.

Industrial networks

AS-i networking
Pages: 226 - 239
Networks sensors and actuators with plug-and-play functionality.

Safety networking
Pages: 240 - 251
Safety at Work connects safety components directly to the AS-i network.

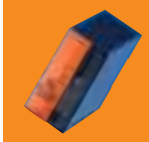
RFID systems

RFID
Pages: 252 - 253
A high frequency or UHF platform. The antennas are able to read/write multiple tags up to 10 meters.

Machine condition

Vibration sensors
Pages: 254 - 257
Continuously monitor machine's vibration level to prevent equipment failure.

efector Metris
Pages: 258 - 259
In-line flow meter monitors compressed air systems and specialty gases.



Power supplies

Power supplies
Pages: 260 - 263
Power supplies provide the voltage for sensors, actuators, and other electronic loads.

Wiring technology

M8 Pico cordsets
Pages: 264 - 265
Quick disconnect M8 Pico cordsets and field wirable connectors for electrical wiring.

M8 Pico wiring block systems
Pages: 266 - 269
Quick disconnect wiring blocks offer plug-and-play functionality.

M12 Micro cordsets
Pages: 270 - 273
4-pin Micro DC cordsets and field wirable connectors.

M12 Micro wiring block systems
Pages: 274 - 275
4-port and 8-port M12 Micro DC wiring blocks and patchcords.

1/2" Micro AC cordsets
Pages: 276 - 277
3-pin Micro AC cordsets and field wirable connectors.

IO-Link
The foundation of Industry 4.0

ifm offers a variety of IO-Link I/O master blocks and IO-Link compatible sensors.

Today's sensors have evolved from standard switches with simple on/off capabilities to highly intelligent devices with built-in microprocessors that process large amounts of data. This data has been trapped with no pathway to the control system ... until now.

Introducing IO-Link

IO-Link is a communication interface that unlocks trapped data in the existing sensor's electronics and transmits the data via a pure digital signal to the controller. By simply replacing the Ethernet I/O block with a version that has IO-Link capabilities and using IO-Link enabled sensors, the intelligence in industrial sensors is unlocked. IO-Link provides:

- Simple plug-and-play replacement of sensors; easy real-time recipe changes, and diagnostic feedback on the sensor's operation
- Continuous monitoring of machine vibration in real-time allowing equipment to be serviced as needed instead of at scheduled intervals
- A better understanding of the cost of production by monitoring energy usage
- Mass production of quality parts by determining exact tolerances
- Improved product efficiency by tracing valuable assets throughout the manufacturing process

The foundation of Industry 4.0 is utilizing real-time data from the plant floor. By having full access to sensor data and transmitting the data to the controller via IO-Link, plant operators can analyze the data to make adjustments to machines with greater accuracy, eliminate downtime and maximize overall equipment effectiveness.

IO-Link is a worldwide open-standard protocol for connecting sensors and devices and does not require any special wiring.

To get started...

Use an IO-Link master with existing wiring and IO-Link enabled sensors. LineRecorder device software offers easy and fast parameter setting, and more.

IO-Link sensors in this catalog are noted with the symbol

IO-Link | Position Sensors | Motion Control | Vision Sensors

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

IO-Link Benefits

Analog vs. IO-Link digital

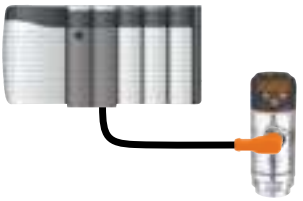
Conventional: Analog signals require multiple analog-to-digital conversions that affect the accuracy of the sensor's output signal.

IO-Link: Requires only one analog-to-digital conversion. This avoids conversion losses of up to 1% accuracy.

Sensor parameterization

Conventional: Change parameters via on-board pushbuttons.

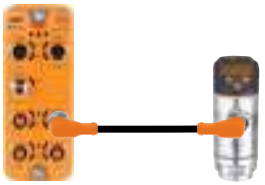
IO-Link: Sensors can be parameterized remotely by PLC.



Automatic device replacement

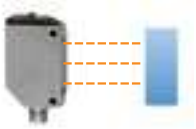
Conventional: If a sensor needs to be replaced, the sensor must be re-programmed with pushbuttons.

IO-Link: Data is automatically uploaded to a sensor. No need for manual parameterization.



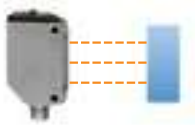
Diagnostic information for predictive maintenance

Conventional: It is not possible to obtain diagnostic information without changing or adding wiring in the PLC.



Ex. Clean lens 100% excess gain

IO-Link: Transfers diagnostic information on existing wiring allowing for predictive maintenance.



Ex. Dirty lens 40% excess gain

Pure digital signal: IO-Link transmits a pure digital signal value that is noise-immune and more reliable than conventional analog signals.

Remote parameterization: Access to all available parameters of the sensors can be reached through the plc without the need for external software and local sensor display.

PLUG and PLAY

Simple plug-and-play sensor replacement: IO-Link restores the sensor or actuator parameters automatically when replacing and servicing the sensors.

Recipe changes: Recipe changes can be made to multiple sensors from your controller. Downtime and production changeover is minimized.

Sensor health: On existing wiring, additional diagnostic information can be transferred for easier fault location and predictive indication.

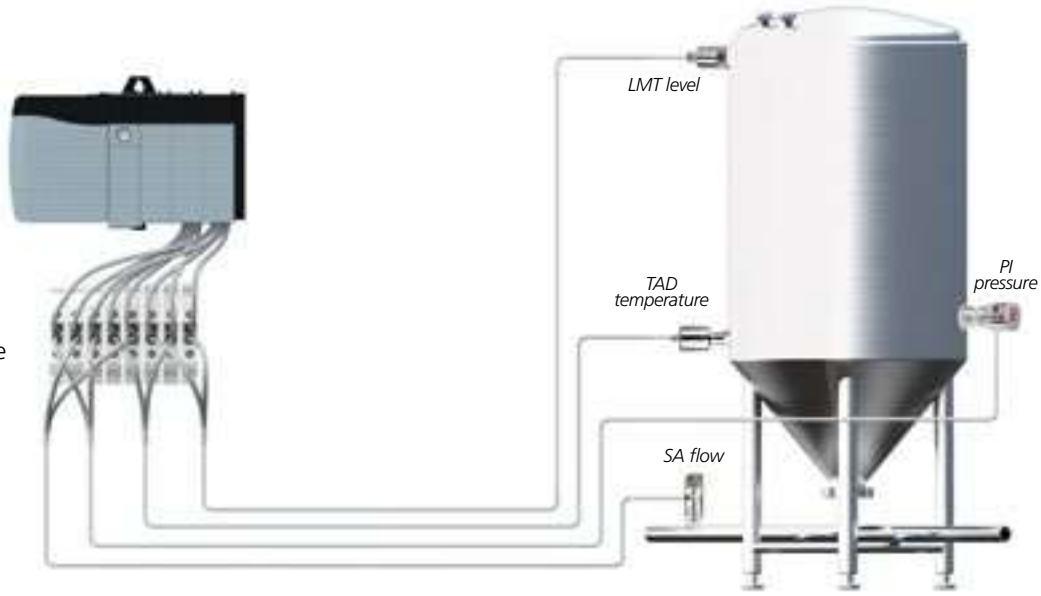
Not a fieldbus dependent system: IO-Link can be added to most existing control architectures with minimal cost.

Safety Technology	Process Sensors				Industrial Networks		ID Systems	Machine Condition	Power Supplies	Wiring Technology
Safety products	*Pressure*	*Flow*	*Level*	*Temperature*	*AS-i network*	*Safety systems*	*RF identification systems*	*Diagnostic systems*	*Power supplies*	*Cordset solutions*
144 - 155	*156 - 175*	*176 - 191*	*192 - 207*	*208 - 225*	*226 - 239*	*240 - 251*	*252 - 253*	*254 - 259*	*260 - 263*	*264 - 277*

Typical controls architecture

In a standard ethernet architecture, sensors can only transmit simple on / off or analog signals to the plc.

Process instruments use multiple analog cards which increase costs and limit the number of I/O.



IO-Link controls architecture

IO-Link is a communication interface that unlocks trapped data in sensors and transmits the data via a pure digital signal to the plc.

An IO-Link Master located in the field near the sensors, uses existing fieldbus protocol, such as Ethernet IP.

Existing standard cables are used with IO-Link.

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

IO-Link system overview for process

LR Device

LR Device configuration software is used to set parameters of the IO-Link masters and sensors.

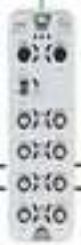
Controller

PLC receives the IO-Link process data for control of the machine.

PLC

Intelligent IO-Link masters

IO-Link masters provide quick and easy connection to IO-Link sensors.



Masters IP 69K

Intelligent IO-Link devices

IO-Link Process sensors: Temperature, Pressure, Flow, Level

Analog to IO-Link converters

Displays

Digital/analog signals

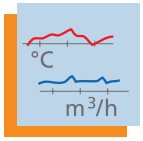
Integrate legacy analog signals onto IO-Link with simple converters

Analog 4-20 ma; 0-10 VDC

Safety Technology	Process Sensors				Industrial Networks		ID Systems	Machine Condition	Power Supplies	Wiring Technology
Safety products	Pressure	Flow	Level	Temperature	AS-i network	Safety systems	RF identification systems	Diagnostic systems	Power supplies	Cordset solutions
144 - 155	156 - 175	176 - 191	192 - 207	208 - 225	226 - 239	240 - 251	252 - 253	254 - 259	260 - 263	264 - 277

IO-Link – process industry applications

Cooling water monitoring in the foundry



The cooling system in a typical furnace is critical to its proper machine operation and to the process of producing quality parts. Accurate cooling of the elements improve the life cycle and safety of the machine. In order to do this, several flow parameters of the cooling water, such as temperature and flow need to be accurately monitored. This requires multiple sensors and installation points throughout the machine.

Additional functions with IO-Link data

ifm's SM magmeter flow sensor via IO-Link transmits flow rate, temperature and a totalizer value using a standard 3-wire cable.

IO-Link eliminates multiple costly analog cards, extra pipe fittings, numerous termination points and excessive stock inventory.

Media detection in process tanks

The ifm LMT level sensor is used as a switch to determine the low and high level or pump run dry condition in tank applications. Typically, the feedback will be "on" when the media is present and "off" when there is no media.

Additional functions with IO-Link data

With IO-Link, additional information is accessible from the LMT sensor. The real digital process value is available to determine the type of the media, such as water or milk, etc. The IO-Link value can be used to differentiate between medium and build-up on the sensing face.

Identification of the media is critical, especially in the washing process. Once the media is flushed out of the tank, the cleaning process can be started to maximize production time.

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

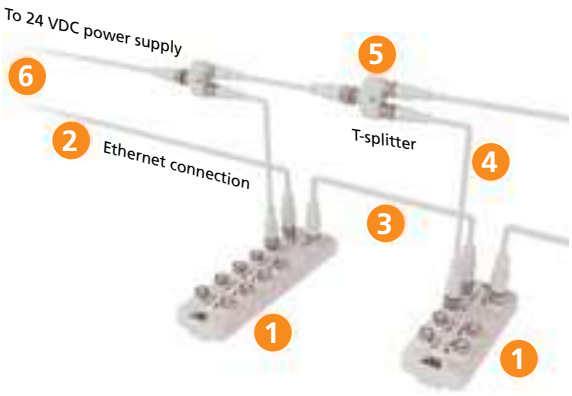
Continuous tank level measurement

The PI pressure sensor provides a 4…20 mA and switching output. Traditional analog signals can be prone to EMC disturbances and need to be scaled to show the real pressure of the system at the plc. High and low pressure spikes are stored in the sensor, which may be an indication of a challenge, but this information has no direct access to the control system.

Additional functions with IO-Link

With IO-Link, real pressure values can be accessed without the need to scale the signal. For example, a pressure sensor rated from 0 to 100 inH_2O, the same value range is accurately transmitted to the control system without the need for scaling.

By retrieving high and low pressure values from the sensor, any unexpected pressure spikes and dips can be monitored directly. This is important because it can lead to sensor failure or contaminated products.



Power supply distribution with T-splitters

- *Masters with 4 or 8 configurable ports, IO-Link, digital inputs or digital outputs (< 200mA)*
- *Standard M12 T-coded power cables reduces cost of power connection (up to 4A)*
- *IO-Link 1.1 compatible with COM1, COM2, COM3*
- *2 Ethernet ports 10/100 Base-TX with integrated switch*
- *IO-Link Masters and sensors are configurable via LR Device software*

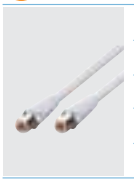
1 IO-Link Master block

Type	Description	Interface	Part No.	List Price (1-pc.)
	4-port IO-Link IP69K module	Profinet	**AL1101**	**$327.00**
	8-port IO-Link IP69K module	Profinet	**AL1103**	**$385.00**
	4-port IO-Link IP69K module	Ethernet/IP	**AL1121**	**$327.00**
	8-port IO-Link IP69K module	Ethernet/IP	**AL1123**	**$385.00**

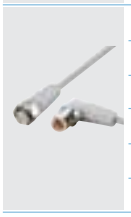
2 M12 male Ethernet cable, IP69K

Type	Description	Part No.	List Price (1-pc.)
	straight, 2 m MPPE	**EVF518**	**$22.00**
	straight, 5 m MPPE	**EVF519**	**$38.00**
	straight, 10 m MPPE	**EVF520**	**$64.00**
	straight, 20 m MPPE	**EVF521**	**$116.00**
	straight, 50 m MPPE	**EVF522**	**$272.00**

3 M12 to M12 Ethernet Patchcord, IP69K

	straight/straight, 0.25 m MPPE	**EVF528**	**$25.00**
	straight/straight, 0.5 m MPPE	**EVF529**	**$26.00**
	straight/straight, 1 m MPPE	**EVF530**	**$28.00**
	straight/straight, 2 m MPPE	**EVF531**	**$34.00**
	straight/straight, 5 m MPPE	**EVF532**	**$49.00**

4 M12 Power Patchcord (17 AWG), IP69K

Type	Description	Part No.	List Price (1-pc.)
	straight/straight, 0.5 m MPPE	**EVF491**	**$42.00**
	straight/straight, 1 m MPPE	**EVF492**	**$45.00**
	straight/straight, 2 m MPPE	**EVF493**	**$46.00**
	straight/straight, 5 m MPPE	**EVF494**	**$50.00**
	straight/straight, 10 m MPPE	**EVF495**	**$57.00**
	straight/straight, 20 m MPPE	**EVF496**	**$67.00**
	straight/right angle, 0.5 m MPPE	**EVF505**	**$42.00**
	straight/right angle, 1 m MPPE	**EVF506**	**$45.00**
	straight/right angle, 2 m MPPE	**EVF507**	**$46.00**
	straight/right angle, 5 m MPPE	**EVF508**	**$52.00**
	straight/right angle, 10 m MPPE	**EVF509**	**$57.00**
	straight/right angle, 20 m MPPE	**EVF510**	**$67.00**

6 M12 Power Cables

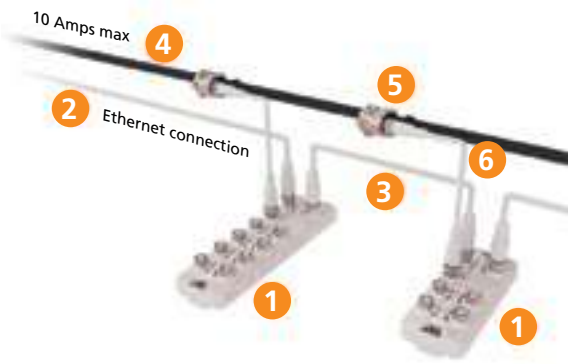
	Straight, 5 m PUR	**EVF483**	**$43.00**
	Straight, 10 m PUR	**EVF484**	**$88.00**
	Right angle, 2 m PUR	**EVF488**	**$43.00**
	Right angle, 5 m PUR	**EVF489**	**$88.00**

5 T-splitter

	T-splitter M12	**EBF009**	**$27.00**

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	



Power supply distribution using flat cables

- *Masters with 4 or 8 configurable ports, IO-Link, digital inputs or digital outputs (< 200mA)*
- *Standard M12 power connection reduces cost of power connection (up to 4A)*
- *IO-Link 1.1 compatible with COM1, COM2, COM3*
- *2 Ethernet ports 10/100 Base-TX with integrated switch*
- *IO-Link Masters and sensors are configurable via LR Device software*

Type	Description	Interface	Part No.	List Price (1-pc.)
1 IO-Link Master block				
	4-port IO-Link IP69K module	Profinet	**AL1101**	**$327.00**
	8-port IO-Link IP69K module	Profinet	**AL1103**	**$385.00**
	4-port IO-Link IP69K module	Ethernet/IP	**AL1121**	**$327.00**
	8-port IO-Link IP69K module	Ethernet/IP	**AL1123**	**$385.00**

2 M12 male Ethernet cable, IP69K

Type	Description	Part No.	List Price (1-pc.)
	straight, 2 m MPPE	**EVF518**	**$22.00**
	straight, 5 m MPPE	**EVF519**	**$38.00**
	straight, 10 m MPPE	**EVF520**	**$64.00**
	straight, 20 m MPPE	**EVF521**	**$116.00**
	straight, 50 m MPPE	**EVF522**	**$272.00**

3 M12 to M12 Ethernet Patchcord, IP69K

	straight/straight, 0.25 m MPPE	**EVF528**	**$25.00**
	straight/straight, 0.5 m MPPE	**EVF529**	**$26.00**
	straight/straight, 1 m MPPE	**EVF530**	**$28.00**
	straight/straight, 2 m MPPE	**EVF531**	**$34.00**
	straight/straight, 5 m MPPE	**EVF532**	**$49.00**

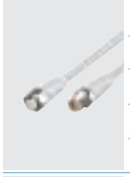
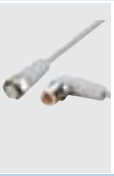
4 Flat cable

	AS-i flat cable, grey PVC, 100 m	**U71002**	**$373.00**
	AS-i flat cable, black TPE-PVC compound, 100 m	**E74310**	**$603.00**

5 Flat cable to M12 taps

Type	Description	Part No.	List Price (1-pc.)
	Flat cable splitter, IP69K, stainless steel	**E70354**	**$43.00**
	FC insulation displacement connector	**E70454**	**$31 .00**

6 M12 Power Patchcord (17 AWG), IP69K

Type	Description	Part No.	List Price (1-pc.)
	straight/straight, 1 m MPPE	**EVF492**	**$45.00**
	straight/straight, 2 m MPPE	**EVF493**	**$42.00**
	straight/straight, 5 m MPPE	**EVF494**	**$50.00**
	straight/straight, 10 m MPPE	**EVF495**	**$57.00**
	straight/straight, 20 m MPPE	**EVF496**	**$67.00**
	straight/right angle, 1 m MPPE	**EVF506**	**$45.00**
	straight/right angle, 2 m MPPE	**EVF507**	**$46.00**
	straight/right angle, 5 m MPPE	**EVF508**	**$52.00**
	straight/right angle, 10 m MPPE	**EVF509**	**$57.00**
	straight/right angle, 20 m MPPE	**EVF510**	**$67.00**

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Machine Condition
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Power supplies
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Wiring Technology
Cordset solutions
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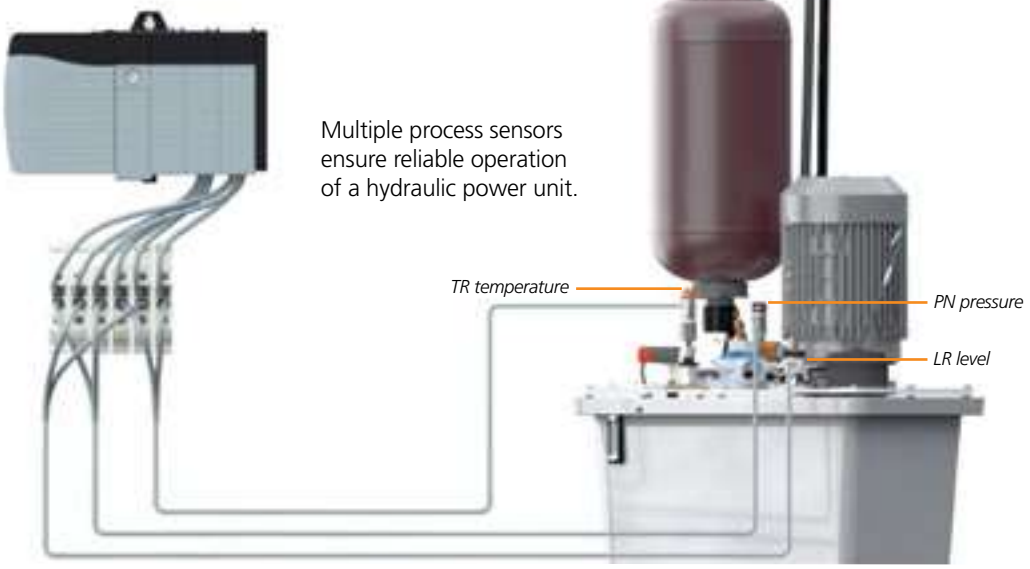
Typical controls architecture

In a standard ethernet architecture, sensors transmit simple on / off or analog signals to the plc.

- Multiple analog cards are required and can be expensive
- Result in complex wiring
- Number of I/O is limited due to PLC space limitation

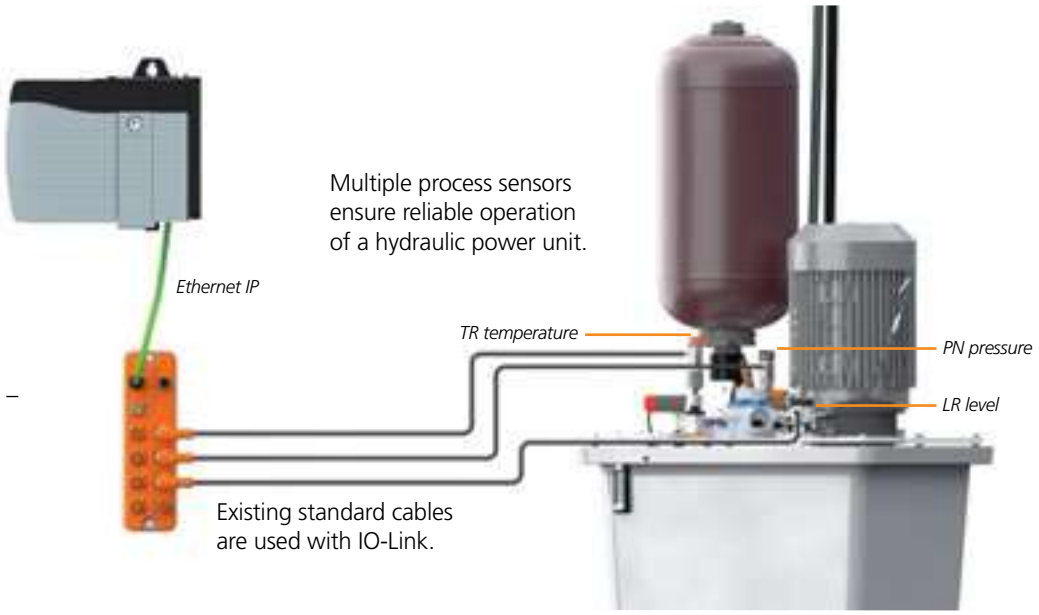


Multiple process sensors ensure reliable operation of a hydraulic power unit.

IO-Link controls architecture

IO-Link unlocks trapped data in sensors and transmits the data via a pure digital signal to the plc.

- No input cards
- No complex wiring
- Sensor values are actual – no scaling is necessary



Multiple process sensors ensure reliable operation of a hydraulic power unit.

Existing standard cables are used with IO-Link.

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

IO-Link system overview for industrial automation

LR device

LR Device configuration software is used to set parameters of the IO-Link masters and sensors.

Controller

PLC receives the IO-Link process data for control of the machine.

PLC

Intelligent IO-Link masters

IO-Link masters provide quick and easy connection to IO-Link sensors.

IO-Link Masters

Intelligent IO-Link devices

IO-Link sensors and devices are offered in this catalog.

IO-Link sensors

Digital input/ output hubs

Displays

Standard digital signals

Simple On/Off digital signals can be collected via the use of IO-Link hubs.

Digital

Digital

Digital LEDs

Safety Technology
Safety products
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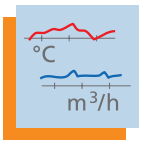
IO-Link – automation industry applications

Compressed gas meter for recording energy consumption



Leaks are a significant source of wasted energy in compressed air systems, can contribute to problems with system operations and cause system pressures to fluctuate. This, in turn, can lead the air-operated equipment to function less efficiently and possibly affect production. Unnecessary cycling may occur and increase the run time. Maintaining the equipment becomes more critical. ifm's SD air flow sensor allows for the detection and elimination of expensive line leakages.

Additional functions with IO-Link data

Implementing compressed air monitoring systems are typically cost prohibitive, but with IO-Link this doesn't have to be the situation.

Using the SD air flow sensor, IO-Link transmits multiple process values over a single cable, such as flow rate, temperature and totalizer values eliminating numerous and costly analog cards.

Since this one sensor can transmit multiple process signals, extra pipe fittings, sensors and wires are eliminated and ultimately streamlines inventory. The savings from detecting wasted energy and reduction in total installation costs allow for a quick return on investment.

Vacuum sensors monitor suction grippers

PLUG and PLAY

PN7 Series vacuum sensors detect the required vacuum for proper operation of suction grippers. If the minimum values are not reached, the suction gripper remains in its initial position so as to prevent damage to the workpieces and systems. The high-pressure compressed air network (175 psi) and the low-pressure compressed air network (87 psi) is monitored.

Additional functions with IO-Link data

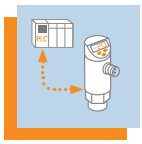
Sometimes a sensor must be replaced and then reconfigured. If the PN7 vacuum sensor needs to be replaced, IO-Link's automatic device replacement feature can copy the parameters to the new sensor. This saves time and prevents possible errors in setting the switch points.

The vacuum sensor can also be used as an on/off switch or analog functionality via IO-Link, allowing one sensor to handle both digital and analog applications. IO-Link reduces cost and inventory stocking requirements.

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

Collision check on the assembly platform

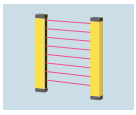


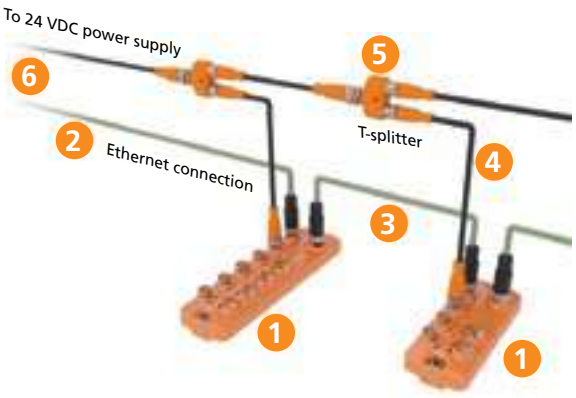
Optical distance sensor Series O1D detects if the assembly platform is free of the car body. Before the car body is conveyed within the area, the hanger will be lowered and only then will the car assembly be securely positioned. The mounting position of the O1D is critical and often cannot be parameterized without stopping the assembly line if the application must change.

Additional functions with IO-Link data

Remote parameterization is key in this application. ifm's O1D distance sensor is mounted in an inaccessible location and cannot be adjusted without stopping the production line.

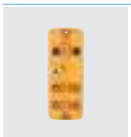
As different production models are changed within the application, IO-Link enables the sensor's parameters to be changed remotely via the controller. No need to stop the line!

Safety Technology	Process Sensors				Industrial Networks		ID Systems	Machine Condition	Power Supplies	Wiring Technology
Safety products	*Pressure*	*Flow*	*Level*	*Temperature*	*AS-i network*	*Safety systems*	*RF identification systems*	*Diagnostic systems*	*Power supplies*	*Cordset solutions*
										
144 - 155	*156 - 175*	*176 - 191*	*192 - 207*	*208 - 225*	*226 - 239*	*240 - 251*	*252 - 253*	*254 - 259*	*260 - 263*	*264 - 277*



Standard Line – power supply distribution with T-splitters

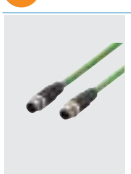
- *Standard Line masters with 4 or 8 configurable ports, IO-Link, digital inputs or digital outputs (< 200mA)*
- *Standard M12 T-coded power cables reduces cost of power connection (up to 4A)*
- *IO-Link 1.1 compatible with COM1, COM2, COM3*
- *2 Ethernet ports 10/100 Base-TX with integrated switch*
- *IO-Link Masters and sensors are configurable via LR Device software*

Type	Description	Interface	Part No.	List Price (1-pc.)
1 IO-Link Master block				
	4-port IO-Link master, IP67	Profinet	**AL1100**	**$249.00**
	8-port IO-Link master, IP67	Profinet	**AL1102**	**$334.00**
	4-port IO-Link master, IP67	Ethernet/IP	**AL1120**	**$286.00**
	8-port IO-Link master, IP67	Ethernet/IP	**AL1122**	**$334.00**

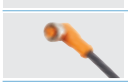
2 M12 to RJ45 Ethernet Patchcords

Type	Description	Part No.	List Price (1-pc.)
	Cross-over patchcord, 2 m PVC	**E11898**	**$45.00**
	Cross-over patchcord, 5 m PUR	**E18422**	**$54.00**
	Cross-over patchcord, 10 m PUR/PC	**E18423**	**$69.00**

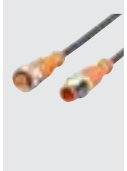
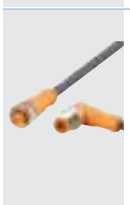
3 M12 to M12 Ethernet Patchcords

Type	Description	Part No.	List Price (1-pc.)
	Ethernet cable, 0.5 m PVC	**E12422**	**$57.00**
	Ethernet cable, 2 m PVC	**E21138**	**$88.00**
	Ethernet cable, 5 m PVC	**E21139**	**$95.00**
	Ethernet cable, 10 m PVC	**E21137**	**$117.00**
	Ethernet cable, 20 m PVC	**E12423**	**$137.00**

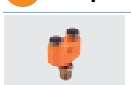
6 M12 Power Cables

Type	Description	Part No.	List Price (1-pc.)
	Straight, 5 m PUR	**EVC707**	**$22.00**
	Straight, 10 m PUR	**EVC708**	**$27.00**
	Right angle, 5 m PUR	**EVC712**	**$22.00**
	Right angle, 10 m PUR	**EVC713**	**$27.00**

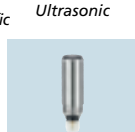
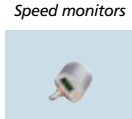
4 M12 Power Patch cables

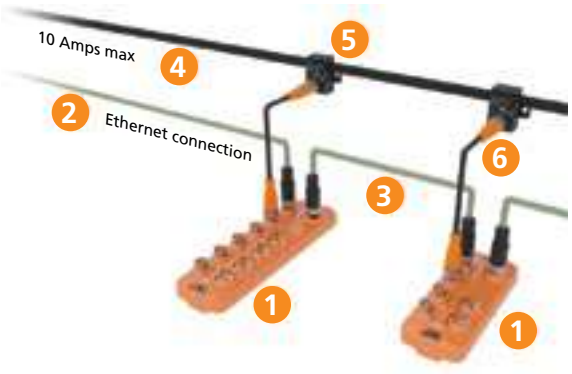
Type	Description	Part No.	List Price (1-pc.)
	straight/straight, 0.5 m PUR	**EVC717**	**$23.00**
	straight/straight, 1 m PUR	**EVC718**	**$24.00**
	straight/straight, 2 m PUR	**EVC719**	**$26.00**
	straight/straight, 5 m PUR	**EVC720**	**$32.00**
	straight/straight, 10 m PUR	**EVC721**	**$40.00**
	straight/straight, 20 m PUR	**EVC722**	**$51.00**
	straight/right angle, 0.5 m PUR	**EVC731**	**$23.00**
	straight/right angle, 1 m PUR	**EVC732**	**$24.00**
	straight/right angle, 2 m PUR	**EVC733**	**$26.00**
	straight/right angle, 5 m PUR	**EVC734**	**$32.00**
	straight/right angle, 10 m PUR	**EVC735**	**$40.00**
	straight/right angle, 20 m PUR	**EVC736**	**$51.00**

5 T-splitter

Type	Description	Part No.	List Price (1-pc.)
	T-splitter M12	**EBC116**	**$25.00**

Search Bar

Company	IO-Link	Position Sensors: Inductive	Position Sensors: Capacitive	Position Sensors: Cylinder/valve position	Position Sensors: Photoelectrics/lasers/fiber optics	Position Sensors: Distance/Application specific	Position Sensors: Ultrasonic	Motion Control: Encoders/Speed monitors	Vision Sensors: 2D/3D inspection
									
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143



Standard Line – power supply distribution with flat cables

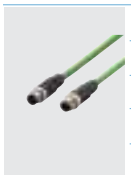
- *Standard Line masters with 4 or 8 configurable ports, IO-Link, digital inputs or digital outputs (< 200mA)*
- *Standard M12 power connection reduces cost of power connection (up to 4A)*
- *IO-Link 1.1 compatible with COM1, COM2, COM3*
- *2 Ethernet ports 10/100 Base-TX with integrated switch*
- *IO-Link Masters and sensors are configurable via LR Device software*

Type	Description	Interface	Part No.	List Price (1-pc.)
1 IO-Link Master block				
	4-port IO-Link master, IP67	Profinet	**AL1100**	**$249.00**
	8-port IO-Link master, IP67	Profinet	**AL1102**	**$334.00**
	4-port IO-Link master, IP67	Ethernet/IP	**AL1120**	**$286.00**
	8-port IO-Link master, IP67	Ethernet/IP	**AL1122**	**$334.00**

2 M12 to RJ45 Ethernet Patchcords

Type	Description	Part No.	List Price (1-pc.)
	Cross-over patchcord, 2 m PVC	**E11898**	**$45.00**
	Cross-over patchcord, 5 m PUR	**E18422**	**$54.00**
	Cross-over patchcord, 10 m PUR/PC	**E18423**	**$69.00**

3 M12 to M12 Ethernet Patchcords

Type	Description	Part No.	List Price (1-pc.)
	Ethernet cable, 0.5 m PVC	**E12422**	**$57.00**
	Ethernet cable, 2 m PVC	**E21138**	**$88.00**
	Ethernet cable, 5 m PVC	**E21139**	**$95.00**
	Ethernet cable, 10 m PVC	**E21137**	**$117.00**
	Ethernet cable, 20 m PVC	**E12423**	**$137.00**

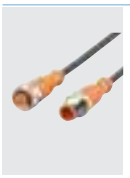
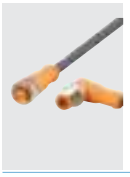
4 Flat cable

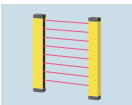
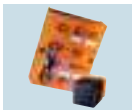
Type	Description	Part No.	List Price (1-pc.)
	Reverse polarity protected, black EPDM, 100 m	**E74015**	**$229.00**
	Reverse polarity protected, black TPE, 100 m	**E74215**	**$438.00**

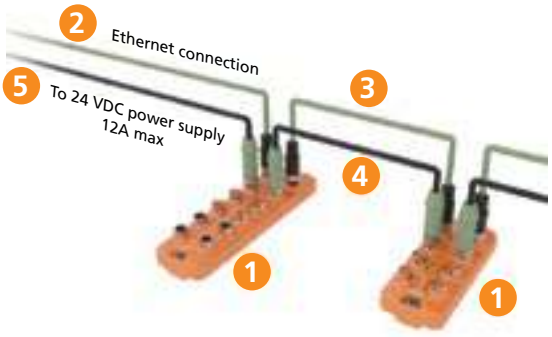
5 Flat cable to M12 taps

Type	Description	Part No.	List Price (1-pc.)
	FC insulation displacement connector	**E70483**	**$19.00**
	FC insulation displacement connector	**E70485**	**$12.00**

6 M12 Power Patch cables

Type	Description	Part No.	List Price (1-pc.)
	straight/straight, 1 m PUR	**EVC718**	**$24.00**
	straight/straight, 2 m PUR	**EVC719**	**$26.00**
	straight/straight, 5 m PUR	**EVC720**	**$32.00**
	straight/straight, 10 m PUR	**EVC721**	**$40.00**
	straight/straight, 20 m PUR	**EVC722**	**$51.00**
	straight/right angle, 1 m PUR	**EVC732**	**$24.00**
	straight/right angle, 2 m PUR	**EVC733**	**$26.00**
	straight/right angle, 5 m PUR	**EVC734**	**$32.00**
	straight/right angle, 10 m PUR	**EVC735**	**$40.00**
	straight/right angle, 20 m PUR	**EVC736**	**$51.00**

Safety Technology	Process Sensors				Industrial Networks		ID Systems	Machine Condition	Power Supplies	Wiring Technology
Safety products	*Pressure*	*Flow*	*Level*	*Temperature*	*AS-i network*	*Safety systems*	*RF identification systems*	*Diagnostic systems*	*Power supplies*	*Cordset solutions*
										
144 - 155	*156 - 175*	*176 - 191*	*192 - 207*	*208 - 225*	*226 - 239*	*240 - 251*	*252 - 253*	*254 - 259*	*260 - 263*	*264 - 277*



Power Line – Power supply distribution with daisy-chain power supply

- *Power Line masters with 4 or 8 configurable ports, IO-Link, digital inputs or digital outputs (< 200mA)*
- *Integrated fieldbus switch for daisy chaining modules*
- *Innovative M12 T-coded cables can be daisy-chained between modules; rated up to 12A.*
- *IO-Link 1.1 compatible with COM1, COM2, COM3*
- *2 Ethernet ports 10/100 Base-TX with integrated switch*
- *IO-Link Master and sensors are configurable via LR Device software*

1 IO-Link Master block

Type	Description	Interface	Part No.	List Price (1-pc.)
	4-port IO-Link master	Profinet	**AL1200**	**$321.00**
	8-port IO-Link master	Profinet	**AL1202**	**$375.00**
	4-port IO-Link master	Ethernet/IP	**AL1220**	**$321.00**
	8-port IO-Link master	Ethernet/IP	**AL1222**	**$375.00**

2 M12 to RJ45 Ethernet Patchcords

Type	Description	Part No.	List Price (1-pc.)
	Cross-over patchcord, 2 m PVC	**E11898**	**$45.00**
	Cross-over patchcord, 5 m PUR	**E18422**	**$54.00**
	Cross-over patchcord, 10 m PUR/PC	**E18423**	**$69.00**

3 M12 to M12 Ethernet Patchcords

Type	Description	Part No.	List Price (1-pc.)
	Ethernet cable, 0.5 m PVC	**E12422**	**$57.00**
	Ethernet cable, 2 m PVC	**E21138**	**$88.00**
	Ethernet cable, 5 m PVC	**E21139**	**$95.00**
	Ethernet cable, 10 m PVC	**E21137**	**$117.00**
	Ethernet cable, 20 m PVC	**E12423**	**$137.00**

4 M12 T-Coded Power Patchcords

Type	Description	Part No.	List Price (1-pc.)
	60 V AC, PUR, 0.5 m	**E12425**	**$58.00**
	60 V AC, PUR, 2 m	**E12426**	**$67.00**
	60 V AC, PUR, 5 m	**E12427**	**$85.00**
	60 V AC, PUR, 10 m	**E12428**	**$115.00**
	60 V AC, PUR, 20 m	**E12429**	**$174.00**

5 M12 T-Coded Power Cables

Type	Description	Part No.	List Price (1-pc.)
	TPU, 2 m	**E12430**	**$39.00**
	TPU, 5 m	**E18519**	**$55.00**

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IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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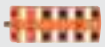
Accessories

- *Expand the functionality of IO-Link masters with IO-Link hubs, displays and converters*
- *LineRecorder Device software for easy parameter configuration of IO-Link sensors and masters*

Type	Description	Part No.	List Price (1-pc.)
IO-Link Hubs			
	Input hub – 4-ports; capable of 8 inputs, IP67	**AL2400**	**$116.00**
	Input hub – 8-ports; capable of 16 inputs, IP67	**AL2401**	**$141.00**
	Output hub – 6-ports; capable of 12 outputs, IP67	**AL2330**	**$180.00**
	Output hub – 6-ports; capable of 12 outputs, IP69K	**AL2230**	**$208.00**
Configuration Software			
	LineRecorder Device, software for remote parameter setting and monitoring of all connected sensors. Automatically identifies all IO-Link masters and IO-Link sensors within the ethernet network. Decreases commissioning time; Optimizes the device replacement process; Easy graphical visuals.	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**
IO-Link Display			
	Module displays process values of ifm IO-Link sensors – includes full graphic TFT display – mounts in-line	**E30430**	**$140.00**
IO-Link Converter			
	Compact device converts 4...20 mA analog signal to IO-Link communication, M12 connection	**DP2200**	**$118.00**

Who developed IO-Link?

IO-Link is a consortium of sensors and plc manufacturers dedicated to unlocking the trapped data in sensors. The main goal of the consortium is to enable users to extract sensor intelligence without adding cost.

Top product features!

- Inductive sensors with the longest sensing ranges in the market
- Sensing technology provides same sensing range for all target materials
- Industry standard M12, M18 and M30 diameter housings fit a variety of industrial automation applications
- Wide temperature range for application flexibility
- Robust metal housings are tested to withstand harsh environments and are rated IP 68/69K

Sensors with extended sensing ranges detect all metals – set new price/performance benchmark

NEW! ifm's new line of inductive proximity sensors offers an ideal combination of features, performance and value. The IFS, IGS and IIS Series new technology sensors have extended sensing ranges that enable the sensor to be mounted farther away from a target. This prevents mechanical damage to the sensor from physical impact. The IIS Series has up to 30 mm range, the longest sensing range on the market today.

K factor 1 sensing technology

Standard proximity sensors have correction factors for sensing ranges depending on the target material. For example, the range for an aluminum target compared to a mild steel target is reduced by 60%. The K=1 technology sensors have a correction factor of one for all metals. The ifm "S" Series inductive sensors provide an equal range for aluminum and mild steel targets.

Designed for reliable sensing

These sensors resist shock, vibration and electrical noise. They are rated IP68/IP69K against water ingress and resist oils and coolants used in harsh applications.

They feature a high switching frequency and reliably sense metal targets in high speed applications. Moreover, they incorporate a technology that allows them to ignore magnetic fields that can cause false triggers. With a wide temperature range of -40 to 185 °F, the Series "S" inductive sensors can be applied in many applications.

High performance and a low price point, ifm's IFS, IGS and IIS Series inductive sensors can be used as a plant standard—not just a solution for harsh applications.

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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Product + accessory selector

Type	Dimensions (mm)	Sensing Range	No. of Wires	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Electrical Connection	Part No.	List Price (1-pc.)
	M8 / L = 40	3 mm flush	3	PNP, N.O.	10…30	2000	100	M8 Pico DC	**IES200**	**$51.00**
	M8 / L = 40	6 mm nonflush	3	PNP, N.O.	10…30	2000	100	M8 Pico DC	**IES201**	**$51.00**
	M12 / L = 45	4 mm flush	3	PNP, N.O.	10…30	2000	100	M12 Micro DC	**IFS297**	**$48.00**
	M12 / L = 45	8 mm nonflush	3	PNP, N.O.	10…30	2000	100	M12 Micro DC	**IFS298**	**$48.00**
	M12 / L = 45	10 mm nonflush	3	PNP, N.O.	10…30	2000	100	M12 Micro DC	**IFS299**	**$48.00**
	M12 / L = 60	4 mm flush	3	PNP, N.O.	10…30	2000	100	M12 Micro DC	**IFS304**	**$48.00**
	M12 / L = 60	8 mm nonflush	3	PNP, N.O.	10…30	2000	100	M12 Micro DC	**IFS305**	**$48.00**
	M12 / L = 60	10 mm nonflush	3	PNP, N.O.	10…30	2000	100	M12 Micro DC	**IFS306**	**$48.00**
	M18 / L = 45	8 mm flush	3	PNP, N.O.	10…30	2000	100	M12 Micro DC	**IGS287**	**$48.00**
	M18 / L = 45	12 mm nonflush	3	PNP, N.O.	10…30	2000	100	M12 Micro DC	**IGS288**	**$48.00**
	M18 / L = 45	15 mm nonflush	3	PNP, N.O.	10…30	2000	100	M12 Micro DC	**IGS289**	**$48.00**
	M18 / L = 60	8 mm flush	3	PNP, N.O.	10…30	2000	100	M12 Micro DC	**IGS290**	**$48.00**
	M18 / L = 60	12 mm nonflush	3	PNP, N.O.	10…30	2000	100	M12 Micro DC	**IGS291**	**$48.00**
	M18 / L = 60	15 mm nonflush	3	PNP, N.O.	10…30	2000	100	M12 Micro DC	**IGS292**	**$48.00**
	M30 / L = 45	15 mm flush	3	PNP, N.O.	10…30	2000	100	M12 Micro DC	**IIS281**	**$60.00**
	M30 / L = 60	15 mm flush	3	PNP, N.O.	10…30	2000	100	M12 Micro DC	**IIS282**	**$60.00**
	M30 / L = 60	22 mm nonflush	3	PNP, N.O.	10…30	2000	100	M12 Micro DC	**IIS283**	**$60.00**
	M30 / L = 60	30 mm nonflush	3	PNP, N.O.	10…30	2000	100	M12 Micro DC	**IIS284**	**$60.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (3-pin) 2 m, PUR	**EVC141**	**$14.00**
	M8 Pico DC (3-pin) 5 m, PUR	**EVC142**	**$17.00**
	M8 Pico DC (3-pin) 2 m, PUR	**EVC144**	**$14.00**
	M8 Pico DC (3-pin) 5 m, PUR	**EVC145**	**$17.00**

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**

Technical Specs

Protection	IP 68, IP 69K
Operating temperature	-40…185 °F (-40…85 °C)
Leakage current	< 20 mA
Housing material	Housing: 316 stainless steel Active face: LCP

Top product features!

- *Stainless steel housing and sensor face withstand physical damage in industrial automation applications*
- *Sensor design dramatically extends life-in-application by a factor of 15 compared to plastic face sensors*
- *Extended sensing ranges increase distance between the sensor and target which increases uptime*
- *Permanent laser-etched part numbers will not wear off over time*
- *360° ring LED for status indication*

Metal face technology design dramatically improves life-in-application and increases production uptime

Metal face technology can dramatically extend life-in-application for the sensor.

In industrial automation applications, plastic sensors can fail from liquid ingress, damage from target impact, and overall wear from high shock and vibration.

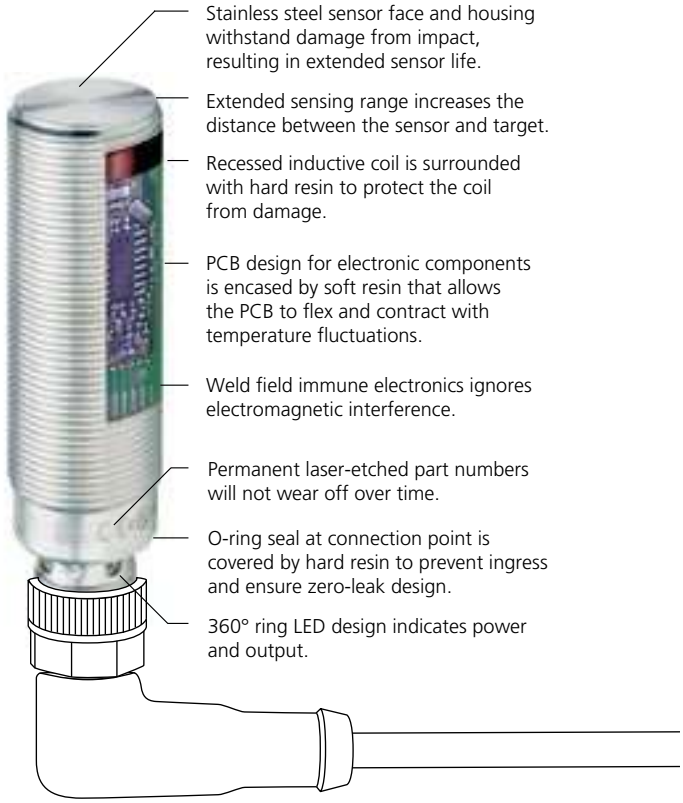
ifm's non-contact, zero-leak, all-metal sensors are so robust that they may outlast the life of your machines! Our highly durable, stainless steel sensors are completely sealed against ingress and carry protection ratings of IP67, IP68 and IP69K.

ifm metal face sensors offer reliable performance and durability in tough industrial applications. Stainless steel construction extends the sensor's life-in-application by a factor of 15 compared to teflon or plastic face sensors. ifm metal face sensors increase plant uptime, and its price point is the best value in the market.

The stainless steel sensors are subjected to a variety of tests that insure reliable performance in application.

- Stainless steel sensor face and housing withstand damage from machining process and moisture ingress.
- Sensor design extends life-in-application by a factor of 15.
- Extended sensing range increases the distance between the sensor and the target.

Can be used in oils and coolants



IO-Link | Position Sensors | Motion Control | Vision Sensors

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
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Product + accessory selector

Type	Dimensions Flush (mm)	Sensing Range	No. Wires	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Electrical Connection	Part No.	List Price (1-pc.)
	M8 / L = 50	2 mm flush	3	PNP, N.O.	10…36	100	100	M8 Pico DC	**IEC201**	**$66.00**
	M8 / L = 50	2 mm flush	3	PNP, N.O.	10…36	100	100	M8 Pico DC	**IEC202**	**$66.00**
	M8 / L = 60	2 mm flush	3	PNP, N.O.	10…36	100	100	M8 Pico DC	**IEC200**	**$66.00**
	M12 / L = 45	4 mm flush	3	PNP, N.O.	10…30	100	100	M12 Micro DC	**IFC275**	**$64.00**
	M12 / L = 60	3 mm flush	3	PNP, N.O.	10…36	100	100	M12 Micro DC	**IFC258**	**$64.00**
	M12 / L = 60	3 mm flush	3	NPN, N.O.	10…36	100	100	M12 Micro DC	**IFC266**	**$64.00**
	M12 / L = 70	6 mm nonflush	3	PNP, N.O.	10…36	500	100	M12 Micro DC	**IFT245**	**$71.00**
	M12 / L = 70	6 mm nonflush	3	NPN, N.O.	10…36	500	100	M12 Micro DC	**IFT246**	**$71.00**
	M18 / L = 45	8 mm flush	3	PNP, N.O.	10…30	100	100	M12 Micro DC	**IGC258**	**$66.00**
	M18 / L = 70	5 mm flush	3	PNP, N.O.	10…36	100	100	M12 Micro DC	**IGC248**	**$66.00**
	M18 / L = 70	5 mm flush	3	NPN, N.O.	10…36	100	100	M12 Micro DC	**IGC252**	**$66.00**
	M18 / L = 70	12 mm nonflush	3	PNP, N.O.	10…36	500	100	M12 Micro DC	**IGT249**	**$73.00**
	M18 / L = 70	12 mm nonflush	3	NPN, N.O.	10…36	500	100	M12 Micro DC	**IGT250**	**$73.00**
	M30 / L = 50	15 mm flush	3	PNP, N.O.	10…30	50	100	M12 Micro DC	**IIC233**	**$71.00**
	M30 / L = 70	10 mm flush	3	PNP, N.O.	10…36	50	100	M12 Micro DC	**IIC224**	**$71.00**
	M30 / L = 70	10 mm flush	3	NPN, N.O.	10…36	50	100	M12 Micro DC	**IIC226**	**$71.00**
	M30 / L = 70	25 mm nonflush	3	PNP, N.O.	10…36	250	100	M12 Micro DC	**IIT231**	**$77.00**
	M30 / L = 70	25 mm nonflush	3	NPN, N.O.	10…36	250	100	M12 Micro DC	**IIT232**	**$77.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (3-pin) 2 m, PUR	**EVC141**	**$14.00**
	M8 Pico DC (3-pin) 5 m, PUR	**EVC142**	**$17.00**
	M8 Pico DC (3-pin) 2 m, PUR	**EVC144**	**$14.00**
	M8 Pico DC (3-pin) 5 m, PUR	**EVC145**	**$17.00**

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**

Accessories see page 27

Technical Specs

Protection: Part Nos. IEC200, IEC201, IEC202, IFC258, ifC266, IGC248, IGC252, IIC224, IIC226: IP67 / IP68
Part Nos. IFC275, IFT245, IFT246, IGC258, IGT249, IGT250, IIT231, IIT232: IP68 / IP69K

Operating temp: Part Nos. IEC200, IEC201, IEC202, IFC258, IFC266, IGC248: -13…158 °F (-25…70 °C)
Part Nos. IFT245, IFT246, IGT249, IGT250, IIT231, IIT232: 32... 212 °F (0... 100 °C)
Part Nos. IFC275, IGC258, IIC233: -40…185 °F (-40…85 °C)

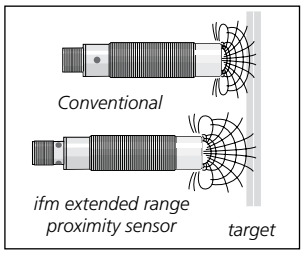
Leakage current: Negligible

Housing material: Housing: high-grade stainless steel;
Active face: high-grade stainless steel;
Lock nuts: high-grade stainless steel;
Connector housing: TPU
Connector coupling nut: nickel plated brass

Top product features!

- *Extended sensing ranges reduce failure from mechanical damage and increase uptime*
- *Available in both short and long body lengths*
- *Wider temperature range of -40...185 °F for greater application flexibility*
- *Robust industry standard housings are rated IP68 / IP69K and reliably perform in environments with oils and coolants*
- *Four bright LEDs provide 360-degree visibility for status indication and make troubleshooting in applications easy*

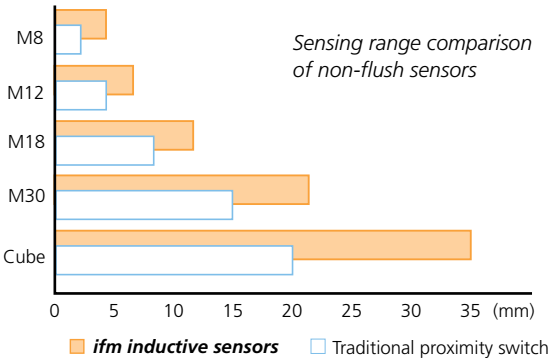
Sensor with extended range reduces failures from mechanical damage



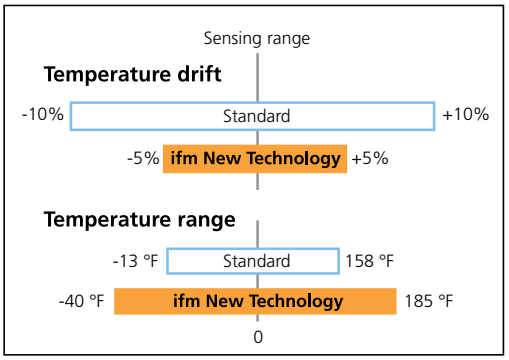
NEW! ifm's new line of inductive sensors offers an ideal combination of features, performance and value. A newly patented design provides less temperature drift over a wider temperature range. This improves sensing range tolerance to ± 5%.

The sensors resist shock, vibration and electrical noise. They are rated IP68/IP69K against water ingress and resist oils and coolants used in harsh applications.

ifm's new technology sensors incorporate extended sensing ranges that enable the sensor to be mounted farther away from a target. This prevents mechanical damage to the sensor from physical impact.



Sensing range comparison of non-flush sensors



Many variables affect sensing range such as temperature. ifm's newly patented design provides a sensor with less temperature drift over a wider temperature range. This improves sensing range tolerance to ± 5% and enables more reliable detection of metal targets.

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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Product + accessory selector

Dimensions Short body (mm)	Dimensions Long body (mm)	Sensing Range	No. of Wires	Output Function	Switching Frequency (Hz)	Part No. Short body	Part No. Long body	List Price (1-pc.)
-	M8 / L = 62	2 mm, flush	3	DC PNP, N.O.	1000	–	**IE5312**	**$49.00**
-	M8 / L = 62	4 mm, nonflush	3	DC PNP, N.O.	300	–	**IE5288**	**$45.00**
M12 / L = 45	M12 / L = 60	4 mm, flush	3	DC PNP, N.O.	700	**IFS244**	**IFS240**	**$46.00**
M12 / L = 45	M12 / L = 60	7 mm, nonflush	3	DC PNP, N.O.	700	**IFS245**	**IFS241**	**$46.00**
M12 / L = 45	M12 / L = 60	4 mm, flush	3	DC NPN, N.O.	700	**IFS246**	**IFS242**	**$46.00**
M12 / L = 45	M12 / L = 60	7 mm, nonflush	3	DC NPN, N.O.	700	**IFS247**	**IFS243**	**$46.00**
M18 / L = 45	M18 / L = 60	8 mm, flush	3	DC PNP, N.O.	400	**IGS236**	**IGS232**	**$48.00**
M18 / L = 45	M18 / L = 60	12 mm, nonflush	3	DC PNP, N.O.	300	**IGS237**	**IGS233**	**$48.00**
M18 / L = 45	M18 / L = 60	8 mm, flush	3	DC NPN, N.O.	400	**IGS238**	**IGS234**	**$48.00**
M18 / L = 45	M18 / L = 60	12 mm, nonflush	3	DC NPN, N.O.	300	**IGS239**	**IGS235**	**$48.00**
M30 / L = 50	M30 / L = 60	15 mm, flush	3	DC PNP, N.O.	100	**IIS230**	**IIS226**	**$58.00**
M30 / L = 50	M30 / L = 60	22 mm, nonflush	3	DC PNP, N.O.	100	**IIS231**	**IIS227**	**$58.00**
M30 / L = 50	M30 / L = 60	15 mm, flush	3	DC NPN, N.O.	100	**IIS232**	**IIS228**	**$58.00**
M30 / L = 50	M30 / L = 60	22 mm, nonflush	3	DC NPN, N.O.	100	**IIS233**	**IIS229**	**$58.00**

Note: PNP N.C. and NPN N.C. versions also available, call 800-441-8246.

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Snap clamp for 8 mm sensor	**E11521**	**$8.00**
	Snap clamp for 12 mm sensor	**E11047**	**$8.00**
	Snap clamp for 18 mm sensor	**E11048**	**$8.00**
	Snap clamp for 30 mm sensor	**E11049**	**$8.00**
	L-bracket for 8 mm sensor	**U20304**	**$6.00**
	L-bracket for 12 mm sensor	**U20301**	**$6.00**
	L-bracket for 18 mm sensor	**U20302**	**$6.00**
	L-bracket for 30 mm sensor	**U20303**	**$6.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

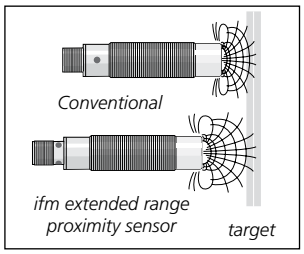
Technical Specs

Operating voltage:	10... 30 VDC; except Part Nos. IE5288 and IE5312: 10...36 VDC
Protection:	IP65, IP67, IP68, IP69K; except Part Nos. IE 5288 and IE5312: IP67
Temperature:	-40…185 °F (-40…85 °C); except Part Nos. IE5288 and IE5312: -13...158 °F (-25...70 °C)
Leakage current:	Negligible
Housing materials:	Brass plated with white bronze, PBT, PEI; except Part No. IE5288 brass plated with white bronze, CO-PC, Part No. IE5312 brass plated with white bronze, LCP
Electrical connection:	M12; except Part No. IE5288 200 mA and IE5312 250 mA
Maximum load current:	100mA

Top product features!

- *Extended sensing ranges reduce failure from mechanical damage and increase uptime*
- *Available in both short and long housing lengths*
- *Wider temperature range of -40...185 °F for greater application flexibility*
- *Robust industry standard housings are rated IP68 / IP69K and reliably perform in environments with oils and coolants*
- *Bright LED provides 360-degree visibility for status indication and make troubleshooting in applications easy*

Prewired sensors with extended range reduce failures from mechanical damage

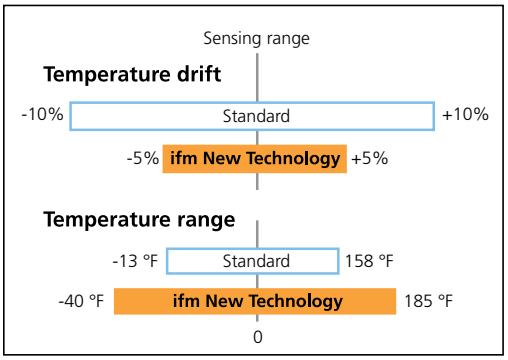


NEW! ifm's new line of prewired inductive sensors offers an ideal combination of features, performance and value. A newly patented design provides less temperature drift over a wider temperature range. This improves sensing range tolerance to ± 5%.

The sensors resist shock, vibration and electrical noise. They are rated IP68/IP69K against water ingress and resist oils and coolants used in harsh applications.

ifm's new technology sensors incorporate extended sensing ranges that enable the sensor to be mounted farther away from a target. This prevents mechanical damage to the sensor from physical impact.

New bright LED offers excellent visibility of the LED from all directions.



Many variables affect sensing range such as temperature. ifm's newly patented design provides a sensor with less temperature drift over a wider temperature range. This improves sensing range tolerance to ± 5% and enables more reliable detection of metal targets.

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Product + accessory selector

Dimensions Short body (mm)	Dimensions Long body (mm)	Sensing Range	No. of Wires	Output Function	Switching Frequency (Hz)	Part No. Short body	Part No. Long body	List Price (1-pc.)
M12 / L = 40	M12 / L = 60	4 mm, flush	3	DC PNP, N.O.	700	**IFS256**	**IFS252**	**$48.00**
M12 / L = 40	M12 / L = 60	7 mm, nonflush	3	DC PNP, N.O.	700	**IFS257**	**IFS253**	**$48.00**
M12 / L = 40	M12 / L = 60	4 mm, flush	3	DC NPN, N.O.	700	**IFS258**	**IFS254**	**$48.00**
M12 / L = 40	M12 / L = 60	7 mm, nonflush	3	DC NPN, N.O.	700	**IFS259**	**IFS255**	**$48.00**
M18 / L = 40	M18 / L = 60	8 mm, flush	3	DC PNP, N.O.	400	**IGS248**	**IGS244**	**$50.00**
M18 / L = 40	M18 / L = 60	12 mm, nonflush	3	DC PNP, N.O.	300	**IGS249**	**IGS245**	**$50.00**
M18 / L = 40	M18 / L = 60	8 mm, flush	3	DC NPN, N.O.	400	**IGS250**	**IGS246**	**$50.00**
M18 / L = 40	M18 / L = 60	12 mm, nonflush	3	DC NPN, N.O.	300	**IGS251**	**IGS247**	**$50.00**
M30 / L = 45	M30 / L = 60	15 mm, flush	3	DC PNP, N.O.	100	**IIS242**	**IIS238**	**$60.00**
M30 / L = 45	M30 / L = 60	22 mm, nonflush	3	DC PNP, N.O.	100	**IIS243**	**IIS239**	**$60.00**
M30 / L = 45	M30 / L = 60	15 mm, flush	3	DC NPN, N.O.	100	**IIS244**	**IIS240**	**$60.00**
M30 / L = 45	M30 / L = 60	22 mm, nonflush	3	DC NPN, N.O.	100	**IIS245**	**IIS241**	**$60.00**

Note: PNP N.C. and NPN N.C. versions also available, call 800-441-8246

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Snap clamp for 12 mm sensor	**E11047**	**$8.00**
	Snap clamp for 18 mm sensor	**E11048**	**$8.00**
	Snap clamp for 30 mm sensor	**E11049**	**$8.00**
	L-bracket for 12 mm sensor	**U20301**	**$6.00**
	L-bracket for 18 mm sensor	**U20302**	**$6.00**
	L-bracket for 30 mm sensor	**U20303**	**$6.00**

Technical Specs

Operating voltage:	10... 30 VDC
Protection:	IP65, IP67, IP68, IP69K
Temperature:	-40…185 °F (-40…85 °C)
Leakage current:	Negligible
Housing materials:	Brass plated with white bronze, PBT, PEI
Electrical connection:	2 meter cable, PUR
Maximum load current:	100 mA

Simple and comprehensive website

Data sheets, application examples, software downloads, virtual product demos… just one click away.

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800-441-8246

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Metal forming applications

Top product features!

- *Stainless steel sensor face and housing withstand damage from physical impact in the part loading process in manufacturing cells*
- *High temperature, weld slag resistant coating prevents weld slag from adhering to sensor*
- *Sensor design dramatically extends life-in-application by a factor of 15 compared to Teflon™ and plastic face sensors*
- *Permanent laser-etched part numbers will not wear off over time*

High performance at a good value

ifm's metal face sensors are designed and tested to provide reliable position detection in the toughest welding and metal stamping applications. The stainless steel sensor face and housing withstand damage from physical impact in the part loading process in manufacturing cells. A high temperature weld slag resistant coating prevents weld slag from adhering to the sensor, eliminating abrasive cleaning techniques.

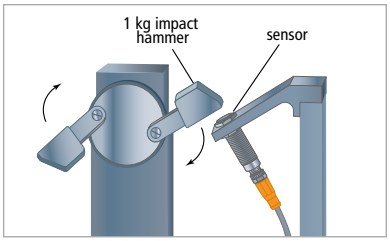
The right combination of price and performance

Priced lower than competing metal-faced sensors, ifm's sensors are an exceptional benchmark for value. High performance, longer life-in-application and a low price point. The ifm metal face sensors can now be used as a plant standard – not just a solution for harsh applications.

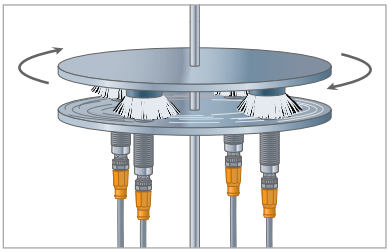
Challenge
Plastic and teflon sensors life expectancies are reduced from weld-slag build-up and physical impact from the part-loading process in manufacturing cells.

Solution
The ifm metal forming sensor's stainless steel construction and high temperature weld-slag resistant coating withstands damage from impact and weld slag build-up.

Designed and tested to increase life-in-application



ifm Impact Test
Sensors are hit twice every second by a 1 kg hammer. This represents the force of a large part being loaded in a cell. ifm's sensors can withstand 500,000 impacts compared to plastic face sensors that failed after 32,000 impacts.



ifm Abrasion Test
Sensors are scoured with wire wheel brushes for 1 million passes to simulate abrasive cleaning processes.

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Product + accessory selector

Dimensions (mm)	Sensing Range	No. of Wires	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Sensor Termination	Part No.	List Price (1-pc.)
M8 / L = 60	2 mm flush	3	PNP, N.O.	10…36	100	100	M12 Micro DC	**IER200**	**$69.00**
M8 / L = 60	2 mm flush	3	NPN, N.O.	10...36	100	100	M12 Micro DC	**IER201**	**$69.00**
M12 / L = 45	4 mm flush	3	PNP, N.O.	10...30	2	100	M12 Micro DC	**IFR207**	**$65.00**
M12 / L = 60	4 mm flush	3	NPN, N.O.	10...36	2	100	M12 Micro DC	**IFR202**	**$65.00**
M18 / L = 45	8 mm flush	3	PNP, N.O.	10…30	2	100	M12 Micro DC	**IGR207**	**$67.00**
M18 / L = 70	6 mm flush	3	NPN, N.O.	10...36	2	100	M12 Micro DC	**IGR202**	**$67.00**
M30 / L = 45	15 mm flush	3	PNP, N.O.	10...30	2	100	M12 Micro DC	**IIR207**	**$70.00**
M30 / L = 70	12 mm flush	3	NPN, N.O.	10...36	2	100	M12 Micro DC	**IIR202**	**$72.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	L-bracket for 8 mm sensor	**U20304**	**$6.00**
	L-bracket for 12 mm sensor	**U20301**	**$6.00**
	L-bracket for 18 mm sensor	**U20302**	**$6.00**
	L-bracket for 30 mm sensor	**U20303**	**$6.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVW001**	**$17.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVW002**	**$22.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVW003**	**$27.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVW004**	**$17.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVW005**	**$22.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVW006**	**$27.00**

ifm cordsets are designed and tested for metal forming applications. Cable material is rated for high temperatures and coupling nuts feature a weld-slag resistant coating.

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Protection: IP67; except IFR207, IGR207, IIR207: IP68 / IP69K
Operating temperature: 32...185 °F (0...85 °C); except IFR207, IGR207, IIR207: -40...185 °F (-40... 85 °C)
Leakage current: Negligible
Housing material: Housing: high-grade stainless steel, weld-slag resistant coating
Active face: high-grade stainless steel, weld-slag resistant coating
Connector: PA
Lock nuts: high-grade stainless steel, weld-slag resistant coating

Metal forming applications

Top product features!

- Stainless steel sensor face and housing withstand damage from physical impact in the part loading process in manufacturing cells
- High temperature, weld slag resistant coating prevents weld slag from adhering to sensor
- 2-wire DC sensor with PNP or NPN programmable output
- Flexible wiring options directly replace 3-wire PNP and 3-wire NPN sensors

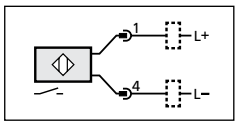
Withstands damage from physical impact in manufacturing cells

ifm's metal face sensors are designed and tested to provide reliable position detection in the toughest welding and metal stamping applications. The stainless steel sensor face and housing withstand damage from physical impact in the part loading process in manufacturing cells. A high temperature weld slag resistant coating prevents weld slag from adhering to the sensor, eliminating abrasive cleaning techniques.

Directly replaces 3-wire sensors

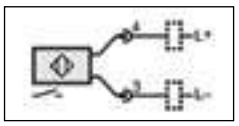
ifm has designed sensors to provide flexible wiring solutions for our customers. These 2-wire sensors can directly replace 3-wire sensors

A



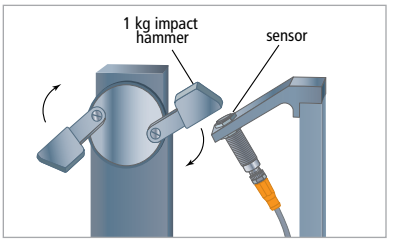
2-wire to directly replace 3-wire PNP

B

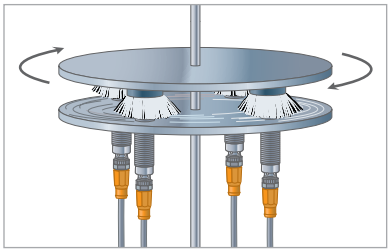


2-wire to directly replace 3-wire NPN

Designed and tested to increase life-in-application



ifm Impact Test
Sensors are hit twice every second by a 1 kg hammer. This represents the force of a large part being loaded in a cell. ifm's sensors can withstand 500,000 impacts compared to plastic face sensors that failed after 32,000 impacts.



ifm Abrasion Test
Sensors are scoured with wire wheel brushes for 1 million passes to simulate abrasive cleaning processes.

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Product + accessory selector

Dimensions (mm)	Sensing Range	No. of Wires	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Electrical Connection	Part No.	List Price (1-pc.)
(A) Uses Pins 1 and 4 • Can directly replace 3-wire PNP sensors									
M8 / L = 45	2 mm flush	2	PNP/NPN, N.O.	10…36	150	100	M12 0.3 m pigtail	**IER203**	**$66.00**
M12 / L = 40	4 mm flush	2	PNP/NPN, N.O.	10…36	75	100	M12 0.3 m pigtail	**IFR203**	**$66.00**
M18 / L = 40	6 mm flush	2	PNP/NPN, N.O.	10…36	50	100	M12 0.3 m pigtail	**IGR203**	**$71.00**
M30 / L = 40	12 mm flush	2	PNP/NPN, N.O.	10…36	25	100	M12 0.3 m pigtail	**IIR203**	**$82.00**
(B) Uses Pins 3 and 4 • Can directly replace 3-wire NPN sensors									
M8 / L = 45	2 mm flush	2	PNP/NPN, N.O.	10…36	150	100	M12 0.3 m pigtail	**IER206**	**$66.00**
M12 / L = 40	4 mm flush	2	PNP/NPN, N.O.	10…36	75	100	M12 0.3 m pigtail	**IFR206**	**$66.00**
M18 / L = 40	6 mm flush	2	PNP/NPN, N.O.	10…36	50	100	M12 0.3 m pigtail	**IGR206**	**$71.00**
M30 / L = 40	12 mm flush	2	PNP/NPN, N.O.	10…36	25	100	M12 0.3 m pigtail	**IIR206**	**$82.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	L-bracket for 8 mm sensor	**U20304**	**$6.00**
	L-bracket for 12 mm sensor	**U20301**	**$6.00**
	L-bracket for 18 mm sensor	**U20302**	**$6.00**
	L-bracket for 30 mm sensor	**U20303**	**$6.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVW001**	**$17.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVW002**	**$22.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVW003**	**$27.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVW004**	**$17.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVW005**	**$22.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVW006**	**$27.00**

ifm cordsets are designed and tested for metal forming applications. Cable material is rated for high temperatures and coupling nuts feature a weld-slag resistant coating.

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Protection: IP67
Operating temperature: 32...185 °F (0...85 °C)
Leakage current: < 0.75 mA: Part Nos. IER203, IER206
< 0.6 mA: Part Nos. IFR203, IFR206, IGR203, IGR206, IIR203, IIR206
Housing material: Housing: high-grade stainless steel, weld-slag resistant coating
Active face: high-grade stainless steel, weld-slag resistant coating
Connector: PA
Lock nuts: high-grade stainless steel, weld-slag resistant coating

R&D that delivers solutions

ifm R&D engineers design products that reduce machine downtime, increase productivity and simplify installation.

Place orders, tech support
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Visit our product catalog
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Shop for products online
Easy ordering via eShop

Top product features!

- Inductive sensor with IO-Link precisely monitors target position with high linearity and repeatability
- Digital transmission of target distance eliminates analog signal drift and noise
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Output function and polarity selectable via IO-Link
- Wider temperature range of -40…185 °F for greater application flexibility
- Rated IP 68 / IP 69K and reliably perform in oils and coolants environments

Precise position sensing on machines

NEW! ifm's new inductive sensors with IO-Link incorporate several functions in one unit. They can be utilized as switching sensors with an adjustable switch point or target window.

The output signal can be set to normally open or normally closed and PNP or NPN switching. IO-Link also allows output on-delays and off-delays to be programmed. Additionally, these inductive sensors can be applied as a measuring system with the target distance value transmitted digitally via IO-Link.

Highest precision

ifm's IO-Link inductive sensors can precisely detect minute changes in target position. Even spindle runout or the tension of circular or band saw blades is reliably detected.

An alarm can be set if the target leaves the target window or comes too close to the sensing face. All data acquired can be transmitted via IO-Link and recorded.

IO-Link provides the foundation for Industry 4.0 and allows the precise detection of the target with greater accuracy and maximizes overall equipment effectiveness.

Robust industry standard housings, ifm's new inductive sensors detect runout in rotating mechanical systems leading to improved tool life and higher quality manufactured parts.

Search Bar

Company	IO-Link	Position Sensors: Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Motion Control: Encoders / Speed monitors	Vision Sensors: 2D / 3D inspection
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Product + accessory selector

Dimensions (mm)	Sensing Range (mm)	No. of Wires	Output Function Can be set via IO-Link	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Electrical Connection	Part No.	List Price (1-pc.)
M12 / L = 60	.375…3.75 flush	3	PNP/NPN, N.O. / N.C.	10…30	600	100	M12 DC	**IF6123**	**$48.00**
M12 / L = 60	0.7…7 nonflush	3	PNP/NPN, N.O. / N.C.	10…30	600	100	M12 DC	**IF6124**	**$48.00**
M18 / L = 60	0.75...7.5 flush	3	PNP/NPN, N.O. / N.C.	10…30	300	100	M12 DC	**IG6615**	**$48.00**
M18 / L = 60	1.3...13 nonflush	3	PNP/NPN, N.O. / N.C.	10…30	300	100	M12 DC	**IG6616**	**$48.00**
M30 / L = 65	1.3...13 flush	3	PNP/NPN, N.O. / N.C.	10…30	100	100	M12 DC	**II5973**	**$60.00**
M30 / L = 65	2.3...23 nonflush	3	PNP/NPN, N.O. / N.C.	10…30	100	100	M12 DC	**II5974**	**$60.00**
Rectangular 40 x 40 mm	2.1...21 flush	3	PNP/NPN, N.O. / N.C.	10…30	100	100	M12 DC	**IM5172**	**$65.00**
	2.6...26 nonflush	3	PNP/NPN, N.O. / N.C.	10…30	100	100	M12 DC	**IM5173**	**$65.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	L-bracket for 12 mm sensor	**E10735**	**$8.00**
	L-bracket for 18 mm sensor	**E10736**	**$9.00**
	L-bracket for 30 mm sensor	**E10737**	**$9.00**
	Snap clamp for 12 mm sensor	**E11047**	**$8.00**
	Snap clamp for 18 mm sensor	**E11048**	**$8.00**
	Snap clamp for 30 mm sensor	**E11049**	**$8.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Protection: IP 65, IP 66, IP 67, IP 68, IP 69K
Part Nos. IM5172 and IM5173: IP 67

Operating temperature: -40...185 °F (-40...85 °C)
Part Nos. IM5172 and IM5173: -13…176 ° F (-25…80 °C)

Leakage current: 10 mA

Housing material: Coated brass
Part Nos. IM5172 and IM5173: PA

Simple and comprehensive website

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Oils and coolants applications

Top product features!

- *Extended sensing ranges increase distance between the sensor and target which increases uptime*
- *Models with robust 316 stainless steel housings withstand aggressive oils and coolants*
- *Models with chip-resistant ceramic sensing faces*
- *K=1 sensing technology provides same sensing range for all target materials*
- *Industry standard M12 Micro DC connectors*

Robust sensors for oils and coolants

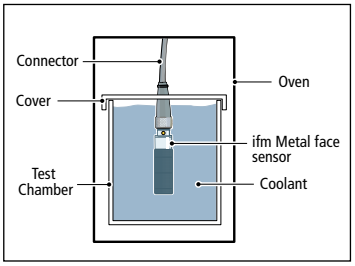
The oils and coolants used in metalworking applications can penetrate into the housing of a sensor resulting in component failure and sensing range fluctuations. Through research and experience, a number of oils and coolants were identified that were used by industry leaders.

ifm's sensors were completely submerged in these oils and coolants at a temperature of 176 °F. The sensor's zero-leak design was verified by measuring the sensing range after prolonged exposure in the chamber. The sensors passed this test with no change in sensing range characteristics.

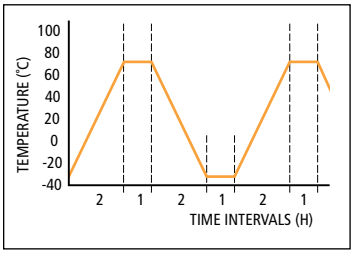
K factor 1 sensing technology

Standard technology proximity sensors have correction factors for sensing ranges depending on the target material. For example, the range for an aluminum target compared to a mild steel target is reduced by 60%. The K=1 technology sensors have a correction factor of one for all metals. Therefore, these sensors have an equal range for aluminum and steel targets.

Tested for oils and coolants



High temperature IP68 coolant test
Sensors are submerged in industrial oils and coolants at 176 °F. The sensors successfully pass the test and maintain sensing characteristics.



1000-hour cycle test
Sensors are cycled between -30 °C and 70°C to apply stress on the electronic and mechanical components and to check overall design integrity.

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Product + accessory selector

Dimensions (mm)	Sensing Range	No. of Wires	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Electrical Connection	Part No.	List Price (1-pc.)
Plastic face									
M12 / L = 45	4 mm flush	3	PNP, N.O.	10…36	700	100	M12 Micro DC	**IFC204**	**$95.00**
M12 / L = 60	4 mm flush	3	PNP, N.O.	10…36	700	200	M12 Micro DC	**IF5775**	**$95.00**
M12 / L = 50	7 mm nonflush	3	PNP, N.O.	10…36	700	100	M12 Micro DC	**IFC205**	**$95.00**
M12 / L = 60	7 mm nonflush	3	PNP, N.O.	10…36	700	200	M12 Micro DC	**IF5811**	**$95.00**
M18 / L = 46	8 mm flush	3	PNP, N.O.	10…36	400	100	M12 Micro DC	**IGC204**	**$96.00**
M18 / L = 72	8 mm flush	3	PNP, N.O.	10…36	500	250	M12 Micro DC	**IG5788**	**$96.00**
M18 / L = 51	12 mm nonflush	3	PNP, N.O.	10…36	300	100	M12 Micro DC	**IGC205**	**$96.00**
M18 / L = 70	12 mm nonflush	2/3	PNP/NPN, N.O.	10…36	300	100	M12 Micro DC	**IGC213**	**$96.00**
M18 / L = 72	12 mm nonflush	3	PNP, N.O.	10…36	300	250	M12 Micro DC	**IG5841**	**$96.00**
M30 / L = 50	15 mm flush	3	PNP, N.O.	10…36	100	100	M12 Micro DC	**IIC200**	**$99.00**
M30 / L = 50	22 mm nonflush	3	PNP, N.O.	10…36	100	100	M12 Micro DC	**IIC201**	**$99.00**
Ceramic face									
M12 / L = 45	4 mm flush	3	PNP, N.O.	10…36	700	100	M12 Micro DC	**IFC206**	**$99.00**
M12 / L = 70	4 mm flush	2/3	PNP/NPN, N.O.	10…36	500	100	M12 Micro DC	**IFC210**	**$105.00**
M18 / L = 46	8 mm flush	3	PNP, N.O.	10…36	400	100	M12 Micro DC	**IGC206**	**$102.00**
M18 / L = 70	8 mm flush	2/3	PNP/NPN, N.O.	10…36	400	100	M12 Micro DC	**IGC210**	**$107.00**
Ferrous only sensors									
M12 / L = 60	2.5 mm flush	3	PNP, N.O.	10…36	100	100	M12 Micro DC	**IFC263**	**$69.00**
M12 / L = 60	2.5 mm flush	3	PNP, N.C.	10…36	100	100	M12 Micro DC	**IFC264**	**$69.00**
M18 / L = 70	4.5 mm flush	3	PNP, N.O.	10…36	100	100	M12 Micro DC	**IGC249**	**$71.00**
M18 / L = 70	4.5 mm flush	3	PNP, N.C.	10…36	100	100	M12 Micro DC	**IGC250**	**$71.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Snap clamp for 12 mm sensor	**E11047**	**$8.00**
	Snap clamp for 18 mm sensor	**E11048**	**$8.00**
	Snap clamp for 30 mm sensor	**E11049**	**$8.00**
	Quick-mount sleeve for 12 mm sensor	**E11114**	**$13.00**
	Quick-mount sleeve for 18 mm sensor	**E11115**	**$14.00**
	Quick-mount sleeve for 30 mm sensor	**E10808**	**$17.00**
	L-bracket for 12 mm sensor	**U20301**	**$6.00**
	L-bracket for 18 mm sensor	**U20302**	**$6.00**
	L-bracket for 30 mm sensor	**U20303**	**$6.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

Technical Specs

Protection:	IP68
Operating temperature:	-13…158 °F (-25…70 °C); -40…185 °F (-40…85 °C): IFS304, IFS306,IGS290,IGS292,IIS282,IIS284
Housing material:	Special coated brass; 316 stainless steel: Part Nos. IGC232, IGC233, IIC218, IIC219; brass: Part No. IFC259 Active face; LCP: PBT: Part No. IIC219; ceramic: Part Nos. IFC206, IFC210, IGC206, IGC210
Leakage current:	< 0.5 mA: Part Nos. IFC210, IGC210; < 0.9 mA: Part No. IGC213 when used in 2-wire operation

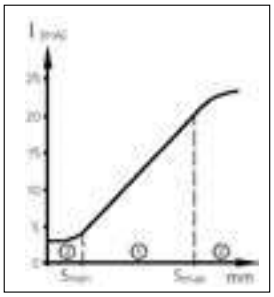
Top product features!

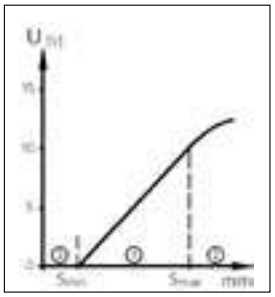
- *Analog sensors with precise linear output signals*
- *4...20 mA and 0...10 V analog output models in M12, M18 and M30 housings*
- *Four LEDs provide 360-degree visibility*
- *Wide temperature range enables sensors to withstand harsh conditions*
- *Use with ifm's ecolink M12 Micro DC cordsets*

Analog sensors

ifm efector's inductive proximity sensor family includes models with analog output. Both 4-20 mA and 0-10 V output versions are available in 12, 18 and 30 mm diameter body styles. The sensors feature a linearity error of ±1% or ±3% depending on the model.

Linearity describes how closely the actual analog output of the proximity sensor mirrors a straight line drawn from the start point of the operating range (s_{min}) to the end point of the operating range (s_{max}).





(1) *Operating range – LED on*
(2) *Warning range – LED flashes*

S_{min} = *start point of operating range*
S_{max} = *end point of operating range*

LED Indication

The analog proximity sensor contains a single yellow LED. The LED is "on" when a target is within the specified operating range and the LED flashes when a target is not present or out of range. For example, the 30mm sensor has an operating range of 1mm (s_{min}) to 15mm (s_{max}). If the sensor is <1mm or >15mm from the target, the LED will flash. The LED will be "on" if the target is within the operating range (1mm to 15mm). Note: this example assumes a mild target. Standard material and size/shape correction factors apply to this sensor.

Analog Sensors solve a variety of applications:

Converting linear motion into an analog signal: The distance between the sensor and target can be continuously monitored by an analog input card. Multiple switch points can be programmed if needed.

Sorting product by material: Targets with different material correction factors will have different curves when the output (current or voltage) is plotted versus the sensing distance. If the sensing distance is constant, targets constructed of dissimilar material will give different outputs and can be distinguished.

Sorting product by height: Targets constructed of the same material, but with different heights or thickness, can easily be sorted.

Concentricity monitoring: Analog proximity sensors can determine if rotating concentric targets go "out of round."

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

Search Bar

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Product + accessory selector

Dimensions (mm)	Sensing Range	No. of Wires	Response Time (ms)	Linearity (%)	Repeatability (%)	Part No.	List Price (1-pc.)
4...20 mA output							
M12 / L = 70	2 mm, flush	3	< 10	± 3	± 2	**IF6028**	**$167.00**
M12 / L = 70	4 mm, nonflush	3	< 10	± 3	± 2	**IF6030**	**$167.00**
M18 / L = 60	5 mm, flush	3	< 20	± 3	± 2	**IG6086**	**$172.00**
M18 / L = 60	8 mm, nonflush	3	< 10	± 1	± 1	**IG6083**	**$172.00**
M30 / L = 70	10 mm, flush	3	< 10	± 3	± 2	**II5916**	**$187.00**
M30 / L = 70	15 mm, nonflush	3	< 20	± 1	± 1	**II5913**	**$187.00**
0...10 V DC output							
M12 / L = 70	2 mm, flush	3	< 10	± 3	± 2	**IF6029**	**$167.00**
M12 / L = 70	4 mm, nonflush	3	< 10	± 3	± 2	**IF6031**	**$167.00**
M18 / L = 60	5 mm, flush	3	< 10	± 3	± 2	**IG6087**	**$172.00**
M18 / L = 60	8 mm, nonflush	3	< 10	± 1	± 1	**IG6084**	**$172.00**
M30 / L = 70	10 mm, flush	3	< 10	± 3	± 2	**II5917**	**$187.00**
M30 / L = 70	15 mm, nonflush	3	< 20	± 1	± 1	**II5914**	**$187.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Snap clamp for 12 mm sensor	**E11047**	**$8.00**
	Snap clamp for 18 mm sensor	**E11048**	**$8.00**
	Snap clamp for 30 mm sensor	**E11049**	**$8.00**
	Quick-mount sleeve for 12 mm sensor	**E11114**	**$13.00**
	Quick-mount sleeve for 18 mm sensor	**E11115**	**$14.00**
	Quick-mount sleeve for 30 mm sensor	**E10808**	**$17.00**
	L-bracket for 12 mm sensor	**U20301**	**$6.00**
	L-bracket for 18 mm sensor	**U20302**	**$6.00**
	L-bracket for 30 mm sensor	**U20303**	**$6.00**

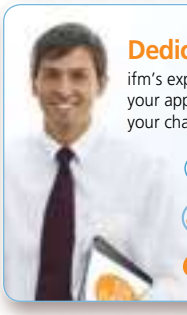
Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Supply Voltage:	15...30 V DC
Supply Current:	< 20 mA
Protection:	IP67
Operating Temperature:	-13...176 °F (-25...80 °C)
Max. Load Resistance:	Part Nos.: IF6028, IF6030, IG6083, IG6086, II5913 and II5916: 500 Ω
Min. Load Resistance:	Part Nos.: IF6029, IF6031, IG6084, IG6087, II5914 and II5917: 2000 Ω
Leakage Current:	Negligible



Dedicated sales engineers

ifm's experienced sales engineers understand your applications and provide solutions to your challenges.

Place orders, tech support
800-441-8246

Visit our product catalog
www.ifm.com/us

Shop for products online
Easy ordering via eShop

Top product features!

- *Extended sensing ranges reduce failure from mechanical damage and increase uptime*
- *Models available in universal voltage with a range of 20...250 V AC/DC*
- *Industry standard M12, M18 and M30 diameter housings to fit a variety of industrial automation applications*
- *Available in quick disconnect and prewired options – visit www.ifm.com/us for more sensor options*
- *Robust metal housings are designed and tested to withstand industrial automation applications*

Flexible mounting and quick installation

Sensor

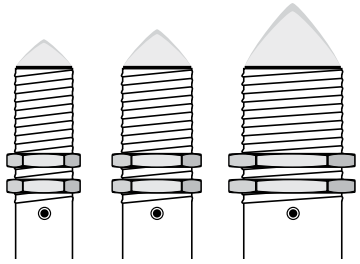
+

Cordset

+

Bracket

A three-piece solution provides flexible mounting and quick installation. ifm has developed accessories and connectors to simplify the installation process for inductive proximity sensors. The overall installation time of a proximity sensor can be further reduced by utilizing ifm efector's quick disconnect cordset for "plug and play" wiring.



IF 12 mm Diameter | *IG 18 mm Diameter* | *II 30 mm Diameter*

Sensing range is determined by the physical size of the sensor

The strength of the radiated sensing field is a function of the size of the core in the sensor. Larger sensors have larger cores, and therefore, longer sensing ranges.

Select from three brackets for installation flexibility

ifm's snap clamp allows quick replacement of a switch with no tools or mounting nuts. The clamp features a "positive stop" that provides exact placement every time.

Metal quick mount sleeve features a "positive stop" for accurate placement every time.

L-Bracket secures tubular sensors and mounts quickly.

		IO-Link	Position Sensors						Motion Control	Vision Sensors
	Company	IO-Link	Inductive	Capacitive	Cylinder/valve position	Photoelectrics/ lasers/fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D/3D inspection
Search Bar	1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

Dimensions (mm)	Sensing Range	No. of Wires	Output Function	Supply Voltage (V AC/DC)	Switching Frequency (Hz) AC/DC	Max Load Current (mA) AC/DC	Electrical Connection	Part No.	List Price (1-pc.)
M12 / L = 62	4 mm flush	2	N.O.	20...140	25 / 200	200	1/2" Micro AC	**IF0311**	**$108.00**
M12 / L = 62	7 mm nonflush	2	N.O.	20...140	25 / 90	200	1/2" Micro AC	**IF0312**	**$108.00**
M18 / L = 72	8 mm flush	2	N.O.	20...250	25 / 60	250 / 100	1/2" Micro AC	**IG0344**	**$114.00**
M18 / L = 72	12 mm nonflush	2	N.O.	20...250	25 / 90	250 / 100	1/2" Micro AC	**IG0345**	**$114.00**
M30 / L = 72	15 mm flush	2	N.O.	20...250	25 / 40	350 / 100	1/2" Micro AC	**II0340**	**$119.00**
M30 / L = 72	22 mm nonflush	2	N.O.	20...250	25 / 70	350 / 100	1/2" Micro AC	**II0341**	**$119.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Snap clamp for 12 mm sensor	**E11047**	**$8.00**
	Snap clamp for 18 mm sensor	**E11048**	**$8.00**
	Snap clamp for 30 mm sensor	**E11049**	**$8.00**
	Quick-mount sleeve for 12 mm sensor	**E11114**	**$13.00**
	Quick-mount sleeve for 18 mm sensor	**E11115**	**$14.00**
	Quick-mount sleeve for 30 mm sensor	**E10808**	**$17.00**
	L-bracket for 12 mm sensor	**U20301**	**$6.00**
	L-bracket for 18 mm sensor	**U20302**	**$6.00**
	L-bracket for 30 mm sensor	**U20303**	**$6.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	1/2" Micro AC (3-pin) 2 m, PVC	**E18212**	**$15.00**
	1/2" Micro AC (3-pin) 5 m, PVC	**E18213**	**$19.00**
	1/2" Micro AC (3-pin) 2 m, PVC	**E18214**	**$15.00**
	1/2" Micro AC (3-pin) 5 m, PVC	**E18215**	**$19.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Protection: IP67
Operating Temperature: -13...158 °F (-25...70 °C)
Leakage Current: < 0.8 mA: Part Nos. IF0311, IF0312
< 1 mA @ 250 VAC: Part Nos. IG0344, IG0345, II0340, II0341
Housing materials: Special coated brass; active face; PBT: Part Nos. IF0311, IF0312, II0340, II0341
Special coated brass; active face; PA, PBT: Part Nos. IG0344, IG0345

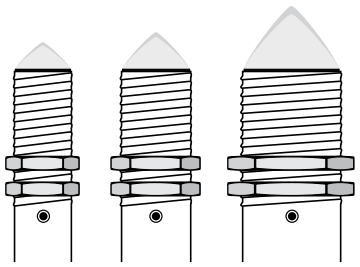
Top product features!

- *Extended sensing ranges reduce failure from mechanical damage and increase uptime*
- *Models available in universal voltage with a range of 20...250 V AC/DC*
- *Industry standard M12, M18 and M30 diameter housings to fit a variety of industrial automation applications*
- *2 meter high-flex PVC cable*
- *Available in quick disconnect and prewired options – visit www.ifm.com/us for more sensor options*

Robust housings designed and tested for industrial automation

ifm's prewired tubular sensors provide reliable position detection throughout the industrial automation process. The robust, metal housings are ideal for tough applications found in robotics, packaging, assembly automation and material handling.

Extended sensing ranges allow the sensors to be placed farther away from a target which reduces the chance of damage from physical impact. The sensor's high-flex PVC cable can withstand repetitive movement.



IF
12 mm
Diameter

IG
18 mm
Diameter

II
30 mm
Diameter

Sensing range is determined by the physical size of the sensor

The strength of the radiated sensing field is a function of the size of the core in the sensor. Larger sensors have larger cores, and therefore, longer sensing ranges.

Select from three brackets for installation flexibility

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Metal quick mount sleeve features a "positive stop" for accurate placement every time.

L-bracket secures tubular sensors and mounts quickly.

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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Product + accessory selector

Dimensions (mm)	Sensing Range	No. of Wires	Output Function	Supply Voltage (VAC / VDC)	Switching Frequency (Hz) AC/DC	Max Load Current (mA) AC/DC	Electrical Connection	Part No.	List Price (1-pc.)
M12 / L = 71	2 mm flush	2	N.O.	20...250	25	250	Prewired 2 m cable	**IF0303**	**$99.00**
M12 / L = 71	4 mm nonflush	2	N.O.	20...250	25	250	Prewired 2 m cable	**IF0302**	**$99.00**
M18 / L = 80	5 mm flush	2	N.O.	20...250	25 / 50	350 / 100	Prewired 2 m cable	**IG0305**	**$100.00**
M18 / L = 80	8 mm nonflush	2	N.O.	20...250	25 / 50	350 / 100	Prewired 2 m cable	**IG0307**	**$100.00**
M30 / L = 81	10 mm flush	2	N.O.	20...250	25 / 50	350 / 100	Prewired 2 m cable	**II0272**	**$104.00**
M30 / L = 81	15 mm nonflush	2	N.O.	20...250	25 / 50	350 / 100	Prewired 2 m cable	**II0274**	**$104.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Snap clamp for 12 mm sensor	**E11047**	**$8.00**
	Snap clamp for 18 mm sensor	**E11048**	**$8.00**
	Snap clamp for 30 mm sensor	**E11049**	**$8.00**
	Quick-mount sleeve for 12 mm sensor	**E11114**	**$13.00**
	Quick-mount sleeve for 18 mm sensor	**E11115**	**$14.00**
	Quick-mount sleeve for 30 mm sensor	**E10808**	**$17.00**
	L-bracket for 12 mm sensor	**U20301**	**$6.00**
	L-bracket for 18 mm sensor	**U20302**	**$6.00**
	L-bracket for 30 mm sensor	**U20303**	**$6.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Protection: IP67
Operating Temperature: -13...176 °F (-25...80 °C)
Leakage Current: < 2 mA: Part Nos. IF0302, IF0303
< 2.5 mA: Part Nos. IG0305, IG0307, II0272, II0274
Housing materials: Special coated brass; active face; PC: Part Nos. IF0302, IF0303, IG0305, IG0307
Special coated brass: Part Nos. II0272, II0274
Special coated brass; active face; PBT: Part Nos. II0272, II0274

Top product features!

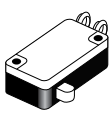
- *Small package, large sensing range! Compact design is ideal for applications with limited mounting space*
- *Sensors retrofit V3 mechanical switches which increases uptime and reduces installation time*
- *Wiring flexibility – sensors available with quick disconnect or prewired 300 mm cable with M8 Pico connector*
- *Robust industry standard housings designed and tested to withstand industrial automation environments*
- *Plastic and metal housings to suit application needs*

Compact sensors with powerful performance

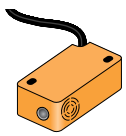
ifm efector's small rectangular proximity sensors are ideal for sensing the "open" and "closed" positions of a rising stem valve. The housing design of the IS Series family is a direct replacement for V3 style mechanical devices. The sensors are based on standard inductive technology and are mounted in the valve top for non-contact sensing of the stem.

ifm proximity sensors are designed as a sensor "system" with surface-mounted components on flexible polyamide film. All elements are carefully matched to expand and contract together, minimizing the effects of thermal shock. Sensors with an IP67 rating are constructed to withstand washdown conditions.

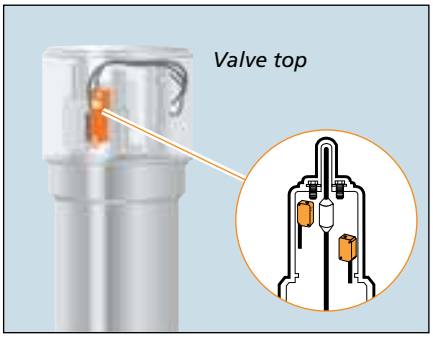
Retrofits V3 style mechanical switches



V3 style mechanical device



ifm Series IS non-contact sensor



Compact rectangular sensors can be mounted in the valve top for non-contact sensing of the stem.

		IO-Link	Position Sensors						Motion Control	Vision Sensors
	Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
Search Bar	1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

	Dimensions (mm)	Sensing Range	No. of Wires	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Electrical Connection	Part No.	List Price (1-pc.)
A	52 x 8 x 8	2 mm flush	3	PNP, N.O.	10...36	2000	250	M8 Pico	**IL5004**	**$93.00**
B	28 x 10 x 16	2 mm flush	3	PNP, N.O.	10...36	800	200	M8 Pico	**IS5035**	**$102.00**
C	28 x 10 x 16	2 mm flush	3	PNP, N.O.	10...36	800	200	Prewired 2 m cable	**IS5001**	**$81.00**
	28 x 10 x 16	2 mm flush	3	NPN, N.O.	10...36	800	200	Prewired 2 m cable	**IS5003**	**$81.00**
	28 x 10 x 16	2 mm flush	2	PNP/NPN, N.O. / N.C.	10...36	2000	200	Prewired 2 m cable	**IS5026**	**$84.00**
	28 x 10 x 16	2 mm flush	3	PNP, N.O.	10...36	800	200	Pigtail 0.3 m cable w/ M8 Pico	**IS5068**	**$105.00**
D	40 x 12 x 26	2 mm flush	3	PNP, N.O.	10...36	1400	250	M8 Pico	**IN5230**	**$108.00**
	40 x 12 x 26	4 mm nonflush	3	PNP, N.O.	10...36	1300	250	M8 Pico	**IN5212**	**$108.00**
	40 x 12 x 26	2 mm flush	3	PNP, N.O.	10...36	1400	250	Prewired 2 m cable	**IN5121**	**$88.00**
	40 x 12 x 26	2 mm flush	3	NPN, N.O.	10...36	1400	250	Prewired 2 m cable	**IN5125**	**$88.00**
	40 x 12 x 26	4 mm nonflush	3	PNP, N.O.	10...36	1300	250	Prewired 2 m cable	**IN5129**	**$88.00**
	40 x 12 x 26	4 mm nonflush	3	NPN, N.O.	10...36	1300	250	Prewired 2 m cable	**IN5133**	**$88.00**
E	60 x 36 x 10	8 mm nonflush	3	PNP, N.O.	10...36	300	250	M8 Pico	**IW5064**	**$103.00**
	60 x 36 x 10	8 mm nonflush	3	NPN, N.O.	10...36	120	250	Prewired 2 m cable	**IW5008**	**$92.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (3-pin) 2 m, PUR	**EVC141**	**$14.00**
	M8 Pico DC (3-pin) 5 m, PUR	**EVC142**	**$17.00**
	M8 Pico DC (3-pin) 10 m, PUR	**EVC143**	**$24.00**
	M8 Pico DC (3-pin) 2 m, PUR	**EVC144**	**$14.00**
	M8 Pico DC (3-pin) 5 m, PUR	**EVC145**	**$17.00**
	M8 Pico DC (3-pin) 10 m, PUR	**EVC146**	**$24.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Protection: IP65: Part Nos. IL5004, IN5212, IW5064
IP67: Part Nos. IN5121, IN5125, IN5129, IN5230, IN5133, IS5001, IS5003, IS5026, IS5035, IW5008

Operating Temperature: -13...158 °F (-25...70 °C): Part Nos. IL5004, IS5001
-13...176 °F (-25...80 °C): Part Nos. IN5121, IN5125, IN5129, IN5133, IN5212, IS5003, IS5026, IS5035, IW5008, IS5068
-4...176 °F (-20...80 °C): Part Nos. IN5230, IW5064

Leakage Current: Negligible; < 0.8 mA: Part No. IS5026

Housing materials: Special coated brass; active face; LCP: Part No. IL5004
PBT: Part Nos. IS5026, IN5121, IN5125, IN5129, IN5133, IN5212, IN5230, IS5001, IS5003, IS5035, IS5068, IW5008 and IW5064

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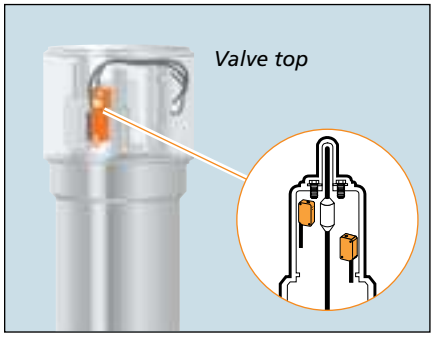
Top product features!

- Robust industry standard miniature housing for applications with limited mounting space
- Sensors retrofit V3 style mechanical switches which increases uptime and reduces installation time
- Corrosion resistant plastic housing designed and tested to withstand industrial automation environments
- Wide dual voltage range of 20...250 AC/DC
- 2 m cable with PVC jacket options

Compact sensors with powerful performance

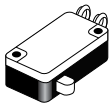
ifm efector's small rectangular proximity sensors are ideal for sensing the "open" and "closed" positions of a rising stem valve. The housing design of the Series IS family is a direct replacement for V3 style mechanical devices. The sensors are based on standard inductive technology and are mounted in the valve top for non-contact sensing of the stem.

ifm proximity sensors are designed as a sensor "system" with surface-mounted components on flexible polyamide film. All elements are carefully matched to expand and contract together, minimizing the effects of thermal shock. Sensors with an IP67 rating are constructed to withstand washdown conditions.

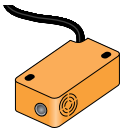


Compact rectangular sensors can be mounted in the valve top for non-contact sensing of the stem.

Retrofits V3 style mechanical switches



V3 style mechanical device



ifm Series IS non-contact sensor

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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Product + accessory selector

Dimensions (mm)	Sensing Range	No. of Wires	Output Function	Supply Voltage (V) AC/DC	Switching Frequency (Hz)	Max Load Current (mA)	Electrical Connection	Part No.	List Price (1-pc.)
28 x 10 x 16	2 mm flush	2	N.O.	20...140 AC / 10...140 DC	25	200	Prewired 0.3 m cable	**IS3501**	**$89.00**
28 x 10 x 16	2 mm flush	2	N.C.	20...140 AC / 10...140 DC	25	200	Prewired 0.3 m cable	**IS0008**	**$89.00**
40 x 12 x 26	2 mm flush	2	N.O.	20...250	25 / 50	350 / 250	Prewired 2 m cable	**IN0097**	**$96.00**
40 x 12 x 26	4 mm nonflush	2	N.O.	20...250	25 / 50	350 / 250	Prewired 2 m cable	**IN0098**	**$96.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Protection: IP67
Operating Temperature: -4...176 °F (-20...80 °C): Part Nos. IS3501, IS0008
-13...176 °F (-25...80 °C): Part Nos. IN0097, IN0098
Leakage Current [mA]: < 0.8: Part Nos. IS3501, IS0008
< 2.0 (AC 250 V) / < 1.3 (AC 110 V) / < 0.8 (DC 24 V): Part Nos. IN0097, IN0098
Housing material: PBT

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ID Systems: RF identification systems 252 - 253
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Wiring Technology: Cordset solutions 264 - 277

Top product features!

- *ID and IM Series feature extended sensing ranges that reduce failure from mechanical damage and increase uptime*
- *IM Series "cube" sensing face can rotate in one of five different directions for application versatility*
- *IM "cube" easily retrofits limit switches using only half the space*
- *K=1 sensing technology provides same sensing range for all target materials*
- *ID unit with terminal chamber offers convenient wiring of various lengths*

Rugged housing for industrial applications

IM rectangular inductive proximity sensors feature extended sensing ranges for rugged industrial automation applications. The sensor can be placed farther away from the target which provides protection against mechanical damage in applications such as conveying.

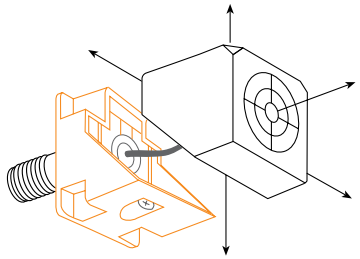
Ideal for packaging lines and conveying applications, the IM "Cube" sensor offers two corner-mounted LEDs to indicate power and output.

Compact size, long sensing range

The compact sensor "cube" measures 40 x 40 x 66 mm and features a sensing face that rotates in one of five different directions. An integrated mounting bracket offers simple installation and the sensor can be rotated in one of five directions for application versatility.

The ID unit is ideal for floor conveyor applications. The ID also has a "mechanical quick disconnect" feature; it snaps onto a mounting bracket, or DIN rail, so any damaged sensor can be replaced in seconds.

Flexible mounting options



The IMC "Cube" sensor can rotate in one of five different directions for application versatility.

PNP to NPN converter cordset

This cordset converts PNP outputs to NPN outputs.

Part no.: EVC01E (5 meters)

List price (1-pc): $19.00

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
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IO-Link | Position Sensors | Motion Control | Vision Sensors

Product + accessory selector

Dimensions (mm)	Sensing Range	No. of Wires	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Sensor Termination	Part No.	List Price (1-pc.)
40 x 40 x 66	20 mm flush	3	PNP, N.O.	10...36	100	200	M12 Micro DC	**IM5115**	**$51.00**
40 x 40 x 66	35 mm nonflush	3	PNP, N.O.	10...36	80	200	M12 Micro DC	**IM5116**	**$51.00**
40 x 40 x 66	40 mm nonflush	3	PNP, N.O.	10...36	80	200	M12 Micro DC	**IM5117**	**$92.00**
92 x 80 x 40	50 mm flush*	3	PNP, N.O.	10...36	70	250	M12 Micro DC	**ID5055**	**$170.00**
105 x 80 x 40	60 mm nonflush	3	PNP, N.O.	10...36	100	250	M12 Micro DC	**ID5046**	**$221.00**
K factor 1 technology									
40 x 40 x 66	20 mm flush	3	PNP, N.O.	10...36	200	200	M12 Micro DC	**IM5128**	**$102.00**
40 x 40 x 66	40 mm nonflush	3	PNP, N.O.	10...36	200	200	M12 Micro DC	**IM5131**	**$96.00**

*When mounted nonflush, operating distance of Part No. ID 5055 is 35 mm

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Limit switch adapter bracket	**U20200**	**$21.00**
	Protective Bracket for ID	**E10730**	**$12.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Protection: IP67
Operating Temp: -13...158 °F (-25...70 °C)
-13…176 °F (-25…80 °C): Part No. ID5046
Leakage Current: Negligible
Housing material: PA (polyamide)

Reliable service center
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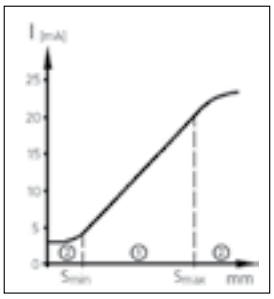
Top product features!

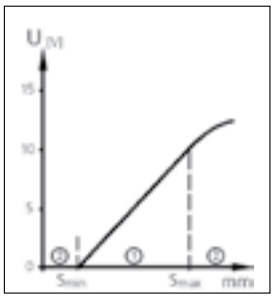
- *Analog sensors with precise linear output signals*
- *4...20 mA and 0...10 V analog output models*
- *Two corner-mounted LEDs indicate power and switching status*
- *"Cube" sensor features sensing face that rotates in one of five directions*
- *Use with ifm's ecolink M12 Micro DC cordsets*

Analog sensors

ifm efector's inductive proximity sensor family includes models with analog output. Both 4-20 mA and 0-10 V output versions are available in rectangular housings. The sensors feature a linearity error of ±1% or ±3% depending on the model.

Linearity describes how closely the actual analog output of the proximity sensor mirrors a straight line drawn from the start point of the operating range (s_{min}) to the end point of the operating range (s_{max}).





① *Operating range – LED on*
② *Warning range – LED flashes*

S_{min} = *start point of operating range*
S_{max} = *end point of operating range*

LED Indication

The analog proximity sensor contains a single yellow LED. The LED is "on" when a target is within the specified operating range and the LED flashes when a target is not present or out of range. For example, the 30mm sensor has an operating range of 1mm (s_{min}) to 15mm (s_{max}). If the sensor is <1mm or >15mm from the target, the LED will flash. The LED will be "on" if the target is within the operating range (1mm to 15mm). Note: this example assumes a mild target. Standard material and size/shape correction factors apply to this sensor.

Analog Sensors solve a variety of applications:

Converting linear motion into an analog signal: The distance between the sensor and target can be continuously monitored by an analog input card. Multiple switch points can be programmed if needed.

Sorting product by material: Targets with different material correction factors will have different curves when the output (current or voltage) is plotted versus the sensing distance. If the sensing distance is constant, targets constructed of dissimilar material will give different outputs and can be distinguished.

Sorting product by height: Targets constructed of the same material, but with different heights or thickness, can easily be sorted.

Concentricity monitoring: Analog proximity sensors can determine if rotating concentric targets go "out of round."

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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Product + accessory selector

Dimensions (mm)	Sensing Range	No. of Wires	Response Time (ms)	Linearity (%)	Repeatability (%)	Part No.	List Price (1-pc.)
4...20 mA output							
40 x 40 x 66	15 mm flush	3	< 20	± 3	± 2	**IM5139**	**$184.00**
40 x 40 x 66	26 mm nonflush	3	< 20	± 3	± 2	**IM5141**	**$184.00**
0...10 V DC output							
40 x 40 x 66	14 mm flush	3	< 20	± 3	± 2	**IM5140**	**$184.00**
40 x 40 x 66	26 mm nonflush	3	< 20	± 3	± 2	**IM5142**	**$184.00**

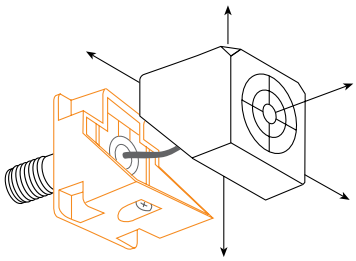
Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Limit switch adapter bracket	**U20200**	**$21.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**



Flexible mounting options

The IMC "Cube" sensor can rotate in one of five different directions for application versatility.

Technical Specs

Supply Voltage: 15...30 V DC
Supply Current: < 20
Protection: IP67
Operating Temperature: -13...176 °F (-25...80 °C)
Max. Load Resistance: Part Nos.: IM5139 and IM5141: 500 Ω
Min. Load Resistance: Part Nos.: IM5140 and IM5142: 2000 Ω
Leakage Current: Negligible

Reliable service center

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Top product features!

- *ID and IM Series feature extended sensing ranges that reduce failure from mechanical damage and increase uptime*
- *IM Series "cube" sensing face can rotate in one of five different directions for application versatility*
- *IM "cube" easily retrofits limit switches using only half the space*
- *IM "cube" with two corner-mounted bright LEDs indicate power and switching status*
- *ID unit with terminal chamber offers convenient wiring of various lengths*

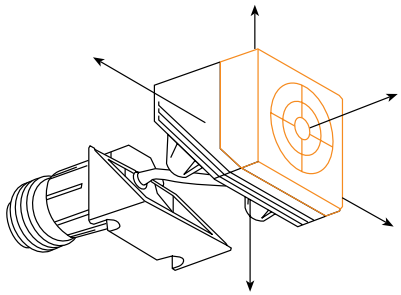
Robust rectangular sensors easily retrofit limit switches

Smaller and more robust that traditional limit switches, ifm's IM Series rectangular inductive proximity sensors feature extended sensing ranges for industrial automation applications. Both ID and IM Series sensors offer extended sensing ranges that allow them to be placed farther away from the target which provides protection against mechanical damage. Ideal for packaging lines and conveying applications, the sensors offer bright LEDs to indicate power and output.

Traditional limit switches are large with moving parts.

IM Cube is compact with no moving parts.

Application flexibility



The IM "Cube" sensor can rotate in one of five different directions for application versatility.

		IO-Link	Position Sensors						Motion Control	Vision Sensors
	Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
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Product + accessory selector

Dimensions (mm)	Sensing Range	No. of Wires	Output Function	Supply Voltage (V) AC/DC	Switching Frequency (Hz) AC/DC	Max Load Current (mA) AC/DC	Sensor Termination	Part No.	List Price (1-pc.)
40 x 40 x 66	20 mm flush	2	N.O.	20...140	25 / 100	450	1/2" Micro AC	**IM0055**	**$102.00**
40 x 40 x 66	35 mm nonflush	2	N.O.	20...140	25 / 100	350	1/2" Micro AC	**IM0041**	**$102.00**
40 x 40 x 120	15 mm flush	2	Programmable N.O. / N.C.	20...250	20 / 55	350 (…50°C), 250 (…80°C) / 100	1/2" NPT Terminal Chamber	**IM0020**	**$109.00**
40 x 40 x 120	20 mm nonflush	2	Programmable N.O. / N.C.	20...250	20 / 55	350 (…50°C), 250 (…80°C) / 100	1/2" NPT Terminal Chamber	**IM0013**	**$109.00**
40 x 80 x 112	50 mm flush*	2	N.O.	20...140 AC/ 10…140 DC	25	450	1/2" Micro AC	**ID0039**	**$176.00**
40 x 80 x 92	50 mm flush*	2	N.O.	20...140 AC/ 10…140 DC	25	450	7/8" Mini AC	**ID0038**	**$176.00**
40 x 80 x 105	60 mm nonflush	2	Programmable N.O. / N.C.	20...250	4	350 (…50°C), 250 (…80°C)/100	1/2" NPT Terminal Chamber	**ID0036**	**$203.00**

*When mounted nonflush, operating distance of Part Nos. ID 0039 and ID 0038 is 35 mm

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Limit switch adapter bracket	**U20200**	**$21.00**
	Protective Bracket for ID	**E10730**	**$12.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	1/2" Micro AC (3-pin) 2 m, PVC	**E18212**	**$15.00**
	1/2" Micro AC (3-pin) 5 m, PVC	**E18213**	**$19.00**
	1/2" Micro AC (3-pin) 2 m, PVC	**E18214**	**$15.00**
	1/2" Micro AC (3-pin) 5 m, PVC	**E18215**	**$19.00**
	7/8" Mini AC (3-pin) 4 m, PVC	**W80610**	**$25.00**
	7/8" Mini AC (3-pin) 4 m, PVC	**W80632**	**$25.00**

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Technical Specs

Protection: IP67
Operating Temp: -13...158 °F (-25...70 °C)
Leakage Current [mA]: < 1.7: Part Nos. IM0055, IM0041, ID0039, ID0038
< 2.5 (250 V AC) / < 1.3 (110 V AC) / < 0.8 (24 V DC): Part Nos. IM0020, IM0013
< 2.5 (250 V AC) / < 1.3 (110 V AC) / < 1 (24 V DC): Part No. ID0036
Housing material: PPE
Active face: PPE
End cap: diecast zinc
Connector housing: special coated brass
Bracket; diecast zinc; PPE: Part No. IM0055
Connector housing: brass
Bracket; diecast zinc: Part No. IM0041

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Top product features!

- Ring and tube inductive sensors detect metal objects inside tubing
- Static and dynamic versions with extremely quick response times
- High resolution – even steel balls with 0.6 mm diameters can be detected
- Pulse stretching and sensitivity adjustable via potentiometer
- Normally open and normally closed options available in varying diameters and connection options

ifm's ring and tube inductive sensors are ideal for feeder process applications

ifm's ring and tube inductive sensors detect small metal objects that pass through tubing. These sensors are ideal for assembly automation applications that include feeder processes and parts counting. Two output versions are available: static and dynamic.

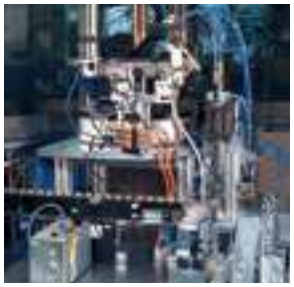
Static and dynamic operating principal

Static sensors operate like an inductive proximity sensor and generate an output signal when there is metal in the detection zone. These sensors can be used for a variety of feed applications that include detecting falling screws or monitoring for jams. Static-style sensors are also used in wire-brake detection applications.

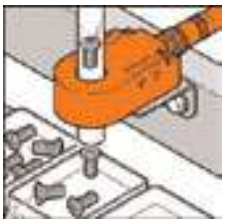
Dynamic sensors are used when very small parts with low mass or fast-moving parts need to be detected. When the sensor detects a part, it generates an output, which is adjustable from 0.1 to 150 ms. The resolution is also adjustable for the application needs and will remain stable, even in the case of metal contamination in the tube.

Ring and tube sensors with high resolution

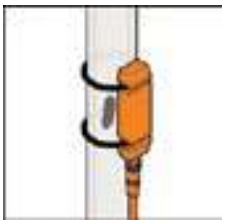
Ideal for assembly automation applications that include feeder processes and parts counting.



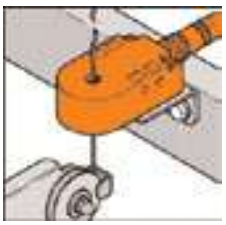
Application solutions



Ring sensor detects parts in hoses



Tube sensor detects parts in feed hose



Wire break detection

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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Product + accessory selector

Ring Diameter (mm)	Sensing Range (mm)	No. of Wires	Output Function	Operating Principle	Resolution Steel Ball (Ø mm)	Electrical Connection	Pulse Stretching (ms)	Response Time/ Fall Time (ms)	Part No.	List Price (1-pc.)
Ring sensors										
10.1	–	3	PNP, N.O. / N.C.	Static	1.5	M12 Micro	10…150	0.5 / 10	**I7R201**	**$188.00**
10.1	–	3	NPN, N.O. / N.C.	Static	1.5	M12 Micro	10…150	0.5 / 10	**I7R202**	**$188.00**
15.1	–	3	PNP, N.O. / N.C.	Static	2	M12 Micro	10…150	0.5 / 10	**I7R205**	**$188.00**
15.1	–	3	NPN, N.O. / N.C.	Static	2	M12 Micro	10…150	0.5 / 10	**I7R206**	**$188.00**
20.1	–	3	PNP, N.O. / N.C.	Static	2.5	M12 Micro	10…150	0.5 / 10	**I7R209**	**$188.00**
20.1	–	3	NPN, N.O. / N.C.	Static	2.5	M12 Micro	10…150	0.5 / 10	**I7R210**	**$188.00**
25.1	–	3	PNP, N.O. / N.C.	Static	3	M12 Micro	10…150	0.5 / 10	**I7R213**	**$188.00**
25.1	–	3	NPN, N.O. / N.C.	Static	3	M12 Micro	10…150	0.5 / 10	**I7R214**	**$188.00**
51	–	3	PNP, N.O. / N.C.	Static	6	M12 Micro	10…150	0.5 / 10	**I7R217**	**$262.00**
10.1	–	3	PNP, N.O. / N.C.	Dynamic	0.6	M12 Micro	0.1…150	0.2 / 0.2	**I7R203**	**$198.00**
10.1	–	3	NPN, N.O. / N.C.	Dynamic	0.6	M12 Micro	0.1…150	0.2 / 0.2	**I7R204**	**$198.00**
15.1	–	3	PNP, N.O. / N.C.	Dynamic	0.8	M12 Micro	0.1…150	0.2 / 0.2	**I7R207**	**$198.00**
15.1	–	3	NPN, N.O. / N.C.	Dynamic	0.8	M12 Micro	0.1…150	0.2 / 0.2	**I7R208**	**$198.00**
20.1	–	3	PNP, N.O. / N.C.	Dynamic	1	M12 Micro	0.1…150	0.2 / 0.2	**I7R211**	**$198`.00**
20.1	–	3	NPN, N.O. / N.C.	Dynamic	1	M12 Micro	0.1…150	0.2 / 0.2	**I7R212**	**$198.00**
25.1	–	3	PNP, N.O. / N.C.	Dynamic	1.2	M12 Micro	0.1…150	0.2 / 0.2	**I7R215**	**$188.00**
25.1	–	3	NPN, N.O. / N.C.	Dynamic	1.2	M12 Micro	0.1…150	0.2 / 0.2	**I7R216**	**$188.00**
Tube sensors										
–	14	3	PNP, N.O.	Static	3	M8 Pico	100	0.5 / 100	**I85000**	**$188.00**
–	14	3	NPN, N.O.	Static	3	M8 Pico	100	0.5 / 100	**I85001**	**$188.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (3-pin) 2 m, PUR	**EVC141**	**$14.00**
	M8 Pico DC (3-pin) 5 m, PUR	**EVC142**	**$17.00**
	M8 Pico DC (3-pin) 2 m, PUR	**EVC144**	**$14.00**
	M8 Pico DC (3-pin) 5 m, PUR	**EVC145**	**$17.00**

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**

Technical Specs

Operating voltage:	10…35 VDC
Current rating:	200 mA
Current consumption:	Ring sensors: static < 11 mA; dynamic: < 20 mA Tube sensors: static < 15 mA; dynamic: < 25 mA
Voltage drop:	< 2 V
Part speed:	< 35 ms
Housing material:	Ring sensors: PA (polyamide); ring: POM Tube sensors: polycarbonate
Ambient temperature:	-13…158 °F (-25…70 °C)
Protection:	IP67

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Top product features!

- Ideal for sensing non-metallic objects such as plastic, glass, wood and paper
- Robust stainless steel housing withstands harsh industrial environments
- Potentiometer enables easy sensitivity setting
- High performance PEEK sensing face
- 4-port LED for 360° visibility

Capacitive proximity sensors detect the position of non-metallic objects

Capacitive proximity sensors use non-contact sensing and solid state circuitry to ensure durability in the most aggressive environments.

In contrast to inductive sensors, which detect metallic objects, capacitive sensors can detect almost any material. They are used in the wood, paper, glass, plastic, food, and chemical industries.

Potentiometer adjustment

The sensors feature a potentiometer that adjusts the sensitivity of the sensor. This feature allows the sensor to be precisely tuned for a specific application.

Improved noise immunity

Switching power supplies, variable frequency motor drives, and high-powered communication devices are found in most industrial plants. These devices can generate high noise levels contributing to erratic sensor operation.

As a result, ifm's patented "charge balance" circuit design offers reliable noise immunity and enables ifm capacitive sensors to perform effectively in high noise level environments.

PNP to NPN converter cordset

This cordset converts PNP outputs to NPN outputs.

Part no.: EVC01E (5 meters)
List price (1-pc): $19.00

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Motion Control
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Product + accessory selector

Dimensions (mm)	Sensing Range	No. of Wires	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Electrical Connection	Part No.	List Price (1-pc.)
M12 / L = 60	4 mm flush	3	PNP, N.O.	10...36	50	100	M12 Micro	**KF5001**	**$138.00**
M12 / L = 61	8 mm nonflush	3	PNP, N.O.	10...36	50	100	M12 Micro	**KF5002**	**$138.00**

Optional Accessories

Type	Description	Part No.	Unit Price (1-pc.)
	Quick-mount sleeve for 12 mm sensor with hex nut (M16 x 1)	**E11114**	**$13.00**
	Snap clamp for 12 mm sensor	**E11047**	**$8.00**
	L-bracket for 12 mm sensor	**U20301**	**$6.00**

Cordsets

Type	Description	Part No.	Unit Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$13.00**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$16.00**
	M12 Micro DC (4-pin) 10 m, PUR, LED	**EVC009**	**$20.00**

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Technical Specs

Operating voltage:	10…36 VDC
Voltage drop:	2.5 V
Supply current:	< 12 mA
Operating temperature:	-13...158 °F (-25...70 °C)
Housing material:	stainless steel, PEEK
Protection:	IP65
Switchpoint drift of Sr:	± 20 %
Correction factors:	water 1, glass 0.6, ceramics 0.5, PVC 0.4

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Top product features!

- *A reliable alternative to mechanical and optical touch sensors using dynamic and static sensing principles*
- *Sensor is actuated with a light touch of a single finger*
- *Housing is resistant to impact and wear, rated IP69K for water ingress*
- *Dynamic sensing principle ignores build-up on sensing face*
- *M22 x 1.5 threads allows direct mounting in many areas*

Cylindrical capacitive touch sensitive sensors for machine start / stop with light finger touch

The KT Series capacitive touch sensors are used for starting and stopping machinery, assembly lines and processes. When compared to mechanical pushbuttons, the KT Series sensors offer many advantages. Utilizing the capacitive principle, the KT Series sensors are electronic sensors with no moving parts to wear out. The completely sealed device is rated IP69K, prevents oil ingress and ignores build-up on the sensing face. KT Series sensors use roughly half the space of mechanical pushbuttons freeing up valuable space behind panels.

Dynamic, static and latching sensing principles provide reliable operation

ifm offers three types of devices for start / stop control.

- KT sensors utilizing the dynamic principle give a 300 mS output signal when touched. This principle allows the sensor to ignore build up on the sensing face and suppress interference such as water, layers of ice, or particles that can stick to the sensor face. Even if the operator is wearing a glove, the sensor will trigger.
- The output for KT sensors using the static principle remain on for as long as the sensing face it touched.
- When touched, the output of KT latching sensors changes state and remains in that state until touched again.

Versatile and simple mounting

The KT Series capacitive touch sensors have a M22 thread along the entire length of the housing. Simply screw the sensor into a M22 tapped hole until it bottoms out. There is no need to worry about the alignment of the sensing face as the symbol disc is snapped in place after mounting. KT Series capacitive touch sensors may also be mounted in through holes 22.5 mm or larger by using the supplied lock nut.

Mechanical machine start/stop buttons are susceptible to wear and tear. ifm's cylindrical touch sensitive sensors operate without wear because they react to light contact for actuation and therefore provide a long life-in-application.

		IO-Link	Position Sensors						Motion Control	Vision Sensors
	Company	IO-Link	Inductive	Capacitive	Cylinder/valve position	Photoelectrics/ lasers/fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D/3D inspection
Search Bar	1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

	Operating Principle	Output Function	Connection	Part No.	List Price (1-pc.)
	Dynamic	PNP, N.O.	2 m PUR cable	**KT5111**	**$73.00**
	Dynamic	PNP, N.O.	0.3 m PUR with M12 pigtail	**KT5102**	**$73.00**
	Static	PNP, N.O.	2 m PUR cable	**KT5110**	**$73.00**
	Static	PNP, N.O.	0.3 m PUR with M12 pigtail	**KT5106**	**$73.00**
	Latching	PNP, N.O.	2 m PUR cable	**KT5150***	**$68.00**
	Latching	PNP, N.O.	0.3 m PUR with M12 pigtail	**KT5151***	**$68.00**

*With controllable red LED via pin 2.

Required accessories (sold as pairs)

Type	Description	Part No.	Unit Price (1-pc.)
	Cover disc lettering: START	**E12377**	**$8.00**
	Cover disc lettering: STOP	**E12378**	**$8.00**
	Cover disc symbol: on	**E12379**	**$8.00**
	Cover disc symbol: off	**E12380**	**$8.00**
	Cover disc transparent	**E12386**	**$7.00**

Cordsets

Type	Description	Part No.	Unit Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Operating voltage:	Part Nos.: KT5102 and KT 5106: 12…30 V DC Part Nos.: KT5110, KT5111, KT5150 and KT5151: 24 V DC ± 20%
Supply current:	30 mA
Current rating:	500 mA
Operating temperature:	-40...185 °F (-40...85 °C)
Housing material:	PA
Protection:	IP65, IP67, IP69K (on the front)

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Top product features!

- *A reliable alternative to mechanical and optical touch sensors using dynamic and static sensing principles*
- *Ergonomic design allows sensor to be actuated with a single finger or hand*
- *Robust polycarbonate housing is resistant to impact and wear, rated IP69K*
- *Dynamic sensing principle ignores build-up on sensing face*
- *Optical feedback provided by switching status LEDs*

Capacitive touch sensitive sensors for machine start / stop with light hand touch

Machine operators often require simple start / stop control of their plant machinery by simply pushing or pressing a large button. Traditional mechanical start / stop buttons are often used but these devices are susceptible to wear and tear. ifm now introduces the KT Series capacitive touch sensitive sensor that operates using non-contact sensing and solid state circuitry. With this design, the KT touch sensors will respond with simply a single finger or light touch of the hand, providing an ergonomic advantage.

Designed to provide long-life in application

The KT's robust housing is made of scratch-resistant polycarbonate. The completely sealed device is rated IP69K, prevents oil ingress, and ignores build-up on the sensing face.

Dynamic and static sensing principles for reliable operation

ifm offers two types of devices for start / stop control.

- KT sensors utilizing the dynamic principle give a 300 mS output signal when touched. This principle allows the sensor to ignore build up on the sensing face and suppress interference such as water, layers of ice, or particles that can stick to the sensor face. Even if the operator is wearing a glove, the sensor will trigger.
- The output for KT sensors using the static principle remains on for as long as the sensing face it touched.

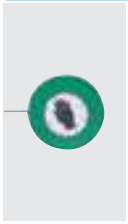
Easy mounting

KT sensors are easily mounted directly to a wall or in other areas with an L-bracket specifically designed to fit the KT. Cover rings in a variety of colors are also available for function association.

Mechanical machine start/stop buttons are susceptible to wear and tear. ifm's KT Series touch sensitive sensors operate without wear because they react to light contact for actuation and therefore provide a long life-in-application.

		IO-Link	Position Sensors						Motion Control	Vision Sensors
	Company	IO-Link	Inductive	Capacitive	Cylinder/valve position	Photoelectrics/ lasers/fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D/3D inspection
Search Bar	1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

	Operating Principle	Output Function	Connection	Part No.	List Price (1-pc.)
	Dynamic	PNP, N.O.	2 m PUR cable	**KT5001**	**$152.00**
	Dynamic	PNP, N.O.	2 m PUR cable, green LEDs controlled via pin 2	**KT5009**	**$152.00**
	Dynamic	PNP, N.O.	0.3 m PUR cable with M8 pigtail	**KT5002**	**$164.00**
	Dynamic	NPN, N.O.	0.3 m PUR cable with M8 pigtail	**KT5007**	**$168.00**
	Static	PNP, N.O.	2 m PUR cable	**KT5005**	**$166.00**
	Static	PNP, N.O.	0.3 m PUR cable with M8 pigtail	**KT5006**	**$175.00**

A green cover ring is included. Optional rings can be purchased.

Optional accessories (sold as pairs)

Type	Description	Part No.	Unit Price (1-pc.)
	Cover ring, yellow	**E80372**	**$8.00**
	Cover ring, green	**E80373**	**$8.00**
	Cover ring, red	**E80374**	**$8.00**
	Cover ring, blue	**E80375**	**$8.00**
	Cover ring, orange	**E80376**	**$8.00**
	L-bracket for KT with mounting screws	**UK0009**	**$26.00**

Cordsets

Type	Description	Part No.	Unit Price (1-pc.)
	M8 Pico DC (4-pin), 2 m, PUR	**EVC150**	**$15.00**
	M8 Pico DC (4-pin), 5 m, PUR	**EVC151**	**$18.00**
	M8 Pico DC (4-pin), 2 m, PUR	**EVC153**	**$15.00**
	M8 Pico DC (4-pin), 5 m, PUR	**EVC154**	**$18.00**

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Technical Specs

Operating voltage: 12…36 V DC
Supply current: 30 mA
Operating temperature: -40...185 °F (-40...85 °C)
Protection: IP67 / IP69K (on the front)

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Top product features!

- *Magnetic T-slot sensors offer significant advantages over Reed switch technology*
- *Mounts into any cylinder type – smooth, tie rod, dovetail and integrated profile – using ifm mounting accessories*
- *Quick installation! Sensors mount directly from the top of the cylinder – no need to remove end caps*
- *Excellent repeatability and fast response times enable increased uptime*
- *Unlimited number of switching cycles extends life-in-application*

Compact housing, simple mounting

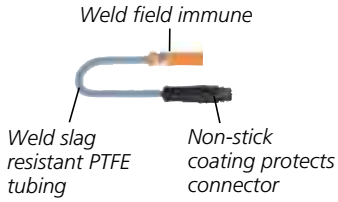
ifm offers miniature T-slot cylinder sensors that easily fit into slot-style cylinders to provide a low-profile mounting. The sensors sit flush against the cylinder slot which prevents physical damage in harsh industrial environments.

Technology comparison

	Reed	ifm Solid State	Solid State Advantages
Durability	Low (1-2 M cycles)	High (unlimited cycles)	ifm cylinder sensor has unlimited number of cycles. Typically, a reed switch is replaced many times during the life of a cylinder.
Repeatability	Low	High	Provides excellent repeatability. Mechanical wear in reed switches can cause the switch point to drift.
Response Time	Low	High	Fast response time. Reed switches with slower response times cannot maintain their accuracy in high speed applications.
Sensitivity	Low	High	Can operate reliably with weak magnetic fields. Reed switches require great magnetic strength for sensing.
Temperature Stability	High	High	Extremely stable operating characteristics over a wide temperature range.
Longevity	Low	High	Immunity from long-term effects of magnetic fields. Contacts on reed switches can become permanently magnetized over time.

MK sensor for welding

Weld field immune sensor's PTFE tubing protects cable damage due to weld slag.



MK dual sensors reduce wiring

Two cylinder sensors per port allows more points and less wiring.

Mounting comparison

Conventional sensors:
Cable and mounting screw are placed at opposite ends of the housing. If the cable is pulled, the sensor can be dislodged.

ifm top-loading sensors:
Cable and mounting screw are at the same end. If the cable is pulled, the sensor stays put.

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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Product + accessory selector

Type	No. of Wires	Output Function	Supply Voltage	Switching Frequency (Hz)	Max Load Current (mA)	Electrical Connection	Part No.	List Price (1-pc.)
	3	PNP, N.O.	10...30 VDC	6000	100	Prewired 2 m cable	**MK5140**	**$55.00**
	3	PNP, N.C.	10...30 VDC	6000	100	Prewired 2 m cable	**MK5156**	**$55.00**
	3	NPN, N.O.	10...30 VDC	10000	100	Prewired 2 m cable	**MK5114**	**$55.00**
	2	PNP/NPN, N.O.	10...30 VDC	4000	100	Prewired 2 m cable	**MK5103**	**$55.00**
	3	PNP, N.O.	10...30 VDC	6000	100	M8 Snap-fit 0.3 m pigtail	**MK5138**	**$55.00**
	3	PNP, N.C.	10...30 VDC	6000	100	M8 Snap-fit 0.3 m pigtail	**MK5155**	**$55.00**
	3	NPN, N.O.	10...30 VDC	6000	100	M8 Snap-fit 0.3 m pigtail	**MK5137**	**$55.00**
	2	PNP/NPN, N.O.	10...30 VDC	4000	100	M8 Snap-fit 0.3 m pigtail	**MK5104**	**$55.00**
	3	PNP, N.O.	10...30 VDC	6000	100	M8 Threaded 0.3 m pigtail	**MK5159**	**$55.00**
	3	NPN, N.O.	10...30 VDC	10000	100	M8 Threaded 0.3 m pigtail	**MK5152**	**$55.00**
	3	PNP, N.O.	10...30 VDC	6000	100	M12 Threaded 0.3 m pigtail	**MK5139**	**$55.00**
	3	NPN, N.O.	10...30 VDC	6000	100	M12 Threaded 0.3 m pigtail	**MK5186**	**$57.00**
Dual sensor	4	PNP, N.O.	10...30 VDC	6000	100	M8 Threaded 0.3 m pigtail	**MK5208**	**$106.00**
	4	PNP, N.O.	10...30 VDC	6000	100	M12 Threaded 0.3 m pigtail	**MK5209**	**$106.00**
WFI with protective tubing for welding	3	PNP, N.O.	10...30 VDC	10000	100	M8 Snap-fit 0.3 m pigtail	**MK5215**	**$65.00**
	3	PNP, N.O.	10...30 VDC	10000	100	M12 Threaded 0.3 m pigtail	**MK5214**	**$66.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (3-pin) 2 m, PUR	**EVC141**	**$14.00**
	M8 Pico DC (3-pin) 5 m, PUR	**EVC142**	**$17.00**
	M8 Pico DC (4-pin) 2 m, PUR	**EVC150**	**$15.00**
	M8 Pico DC (4-pin) 5 m, PUR	**EVC151**	**$18.00**

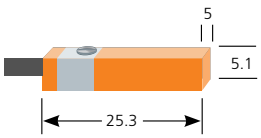
Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**

See page 56 and 57 for mounting accessories.

Technical Specs

Voltage drop:	2.5 V; except Part Nos. MK5103: 4.5 V; MK5104: 3.5 V
Min. load current:	N/A; except Part Nos. MK5103 and MK5104: 5 mA
Leakage current:	negligible; except Part Nos. MK5103, MK5104: < 0.8 mA
Operating temperature:	-13...185 °F (-25...85 °C)
Protection rating:	IP67
Cable jacket material:	PUR
Magnetic sensitivity:	2.0 mT; except Part Nos. MK5103, MK5104, MK5114, MK5152, MK5192, MK5196: 2.8 mT
Travel speed:	max > 10 m/s
Repeatability:	< 0.2 mm
Housing material:	PA (polyamide); stainless steel



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Cylinder Type	Accessory Type		Accessory Description	Part No.	List Price (1-pc.)
Smooth Cylinder	Protective Bracket		Outside Ø 11…19 mm Bore size 7/16 to 9/16" (10-16 mm)	E11975	$9.00
			Outside Ø 18…29 mm Bore size 7/8 to 1-1/16" (20-25 mm)	E11976	$9.00
			Outside Ø 28…39 mm Bore size 1-1/4" (32 mm)	E11977	$10.00
			Outside Ø 38…49 mm Bore size 1-1/2" (40 mm)	E11978	$10.00
			Outside Ø 48…59 mm Bore size 1-3/4" to 2" (50 mm)	E11979	$10.00
			Outside Ø 58…69 mm Bore size 2-1/2" (63 mm)	E11980	$10.00
			Outside Ø 78…89 mm Bore size 3" (80 mm)	E11981	$11.00
			Outside Ø 98…109 mm Bore size 4" (100 mm)	E11982	$11.00
	Mounting Adapter		Bore size 5/16 to 1/2" (8, 10, 12 mm)	E11816	$8.00
			Bore size 9/16 to 7/8" (16 & 20 mm)	E11817	$8.00
			Bore size 1-1/16 to 1-1/4" (25 & 32 mm)	E11818	$8.00
			Bore size 1-1/2" (40 mm)	E11819	$9.00
			Bore size 1-3/4 to 2" (50 mm)	E11820	$9.00
			Bore size 2-1/2" (63 mm)	E11821	$9.00
			Bore size 3" (80 mm)	E11822	$9.00
			Bore size 4" (100 mm)	E11823	$9.00
Tie-Rod Cylinder	Protective Bracket		Diameter tie-rod 3...7 mm	E11913	$10.00
			Diameter tie-rod 5...7 mm	E11912	$10.00
			Diameter tie-rod 5...11 mm	E11797	$9.00
			Diameter tie-rod 9...15 mm	E11799	$10.00
Dovetail Cylinder	Trapezoidal Slot		Trapezoidal slot for 12 mm and 1/2" slots	E11796	$9.00

Cylinder Type	Accessory Type		Accessory Description	Part No.	List Price (1-pc.)
Integrated Profile Cylinders	Integrated Profile Bracket		Integrated profile thickness diameter 9...15 mm	**E11799**	**$10.00**
			Integrated profile thickness diameter 14...20 mm	**E11801**	**$12.00**
			Protective adapter for T-slot cylinder sensors	**E12259**	**$8.00**
Standard Cylinders		Standard T-slot cylinders and C-slot cylinders typically do not require adapters.	If you have a nonstandard cylinder, please contact Technical Support. Call 800-441-8246.	–	–

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

How do I determine the right accessory for my cylinder type?

- For smooth body cylinders, measure the outside diameter of the cylinder with a micrometer. Select a fixing strap and adapter.
- For tie-rod and integrated profile cylinders, measure the rod on the cylinder. Select an adapter.

R&D that delivers solutions

ifm R&D engineers design products that reduce machine downtime, increase productivity and simplify installation.

Place orders, tech support
800-441-8246

Visit our product catalog
www.ifm.com/us

Shop for products online
Easy ordering via eShop

Top product features!

- Magnetic C-slot sensors offer reliable sensing with no moving parts
- Fits all standard cylinders with 4 mm diameter C-slots
- Quick installation! Sensors easily slide into the top of the cylinder – no need to remove end caps
- Excellent repeatability and fast response times enable increased uptime
- Unlimited number of switching cycles extends life-in-application
- Dual cylinder sensor versions simplify wiring – 2 sensor elements

Compact housing, simple mounting

ifm offers miniature C-slot cylinder sensors that are available in flush mount and non-flush mount models. Flush mount sensors are designed for standard C-slot cylinders. Non-flush mount sensors easily fit into small grippers and short stroke cylinders.

Technology comparison

	Reed	ifm Solid State	Solid State Advantages
Durability	Low (1-2 M cycles)	High (unlimited cycles)	ifm cylinder sensor has unlimited number of cycles. Typically, a reed switch is replaced many times during the life of a cylinder.
Repeatability	Low	High	Provides excellent repeatability. Mechanical wear in reed switches can cause the switch point to drift.
Response Time	Low	High	Fast response time. Reed switches with slower response times cannot maintain their accuracy in high speed applications.
Sensitivity	Low	High	Can operate reliably with weak magnetic fields. Reed switches require great magnetic strength for sensing.
Temperature Stability	High	High	Extremely stable operating characteristics over a wide temperature range.
Longevity	Low	High	Immunity from long-term effects of magnetic fields. Contacts on reed switches can become permanently magnetized over time.

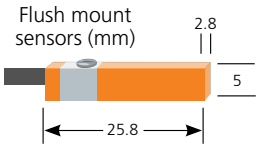
MK dual sensors reduce wiring

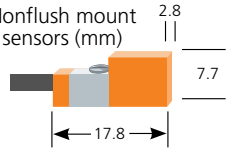
Two cylinder sensors per port allow more points and less wiring.

Mounting comparison

Conventional sensors:
Cable and mounting screw are placed at opposite ends of the housing. If the cable is pulled, the sensor can be dislodged.

ifm top-loading sensors:
Cable and mounting screw are at the same end. If the cable is pulled, the sensor stays put.





IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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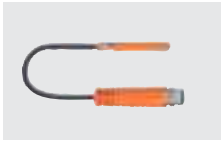
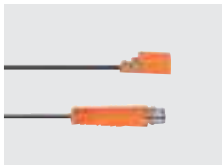
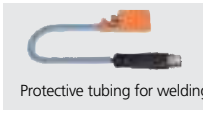
Product + accessory selector

	Type	No. of Wires	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Electrical Connection	Part No.	List Price (1-pc.)
Flush mount sensors for standard C-slot cylinders		3	PNP, N.O.	10…30	5000	100	M8 Snap fit 0.3 m pigtail	**MK5326**	**$58.00**
		3	NPN, N.O.	10…30	10,000	100	M8 Snap fit 0.3 m pigtail	**MK5308**	**$58.00**
		3	PNP, N.O.	10…30	5000	100	M8 Threaded 0.3 m pigtail	**MK5328**	**$58.00**
		3	PNP, N.O.	10…30	10,000	100	M12 Threaded 0.3 m pigtail	**MK5314**	**$58.00**
		3	PNP, N.O.	10…30	5000	100	Prewired 2 m cable	**MK5325**	**$58.00**
		3	NPN, N.O.	10…30	10,000	100	Prewired 2 m cable	**MK5309**	**$58.00**
	Dual sensor	3	PNP, N.O.	10…30	5000	100	M8 Threaded 0.3 m pigtail	**MK5350**	**$103.00**
		3	PNP, N.O.	10…30	5000	100	M12 Threaded 0.3 m pigtail	**MK5351**	**$103.00**
	Protective tubing for welding	3	PNP, N.O.	10…30	10,000	100	M8 Snap-fit 0.3 m pigtail	**MK5353**	**$62.00**
Nonflush mount sensors for small grippers and short stroke cylinders		3	PNP, N.O.	10...30	5000	100	M8 Snap fit 0.3 m pigtail	**MK5330**	**$58.00**
		3	NPN, N.O.	10...30	10,000	100	M8 Snap fit 0.3 m pigtail	**MK5307**	**$58.00**
		3	PNP, N.O.	10...30	5000	100	M8 Threaded 0.3 m pigtail	**MK5331**	**$58.00**
		3	PNP, N.O.	10...30	10,000	100	M12 Threaded 0.3 m pigtail	**MK5304**	**$58.00**
		3	PNP, N.O.	10...30	5000	100	Prewired 2 m cable	**MK5329**	**$58.00**
		3	NPN, N.O.	10...30	10,000	100	Prewired 2 m cable	**MK5306**	**$58.00**
	 Protective tubing for welding	3	PNP, N.O..	10…30	10,000	100	M8 Snap fit 0.3 m pigtail	**MK5352**	**$62.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (3-pin) 2 m, PUR	**EVC141**	**$14.00**
	M8 Pico DC (3-pin) 5 m, PUR	**EVC142**	**$17.00**
	M8 Pico DC (4-pin) 2 m, PUR	**EVC150**	**$15.00**
	M8 Pico DC (4-pin) 5 m, PUR	**EVC151**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**

Technical Specs

Voltage drop:	2.5 V
Min. load current:	N/A
Leakage current:	negligible
Operating temperature:	-13...185 °F (-25...85 °C)
Protection rating:	IP67
Cable jacket material:	PUR
Magnetic sensitivity:	2.0 mT; except Part Nos. MK5304, MK5306, MK5307, MK5308, MK5309, MK5314: 2.8 mT
Travel speed:	max > 10 m/s
Repeatability:	< 0.2 mm
Housing material:	PA (polyamide); stainless steel

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Top product features!

- *Inductive sensing technology provides non-contact detection of valve position*
- *One sensor provides two separate outputs indicating open / closed position*
- *Sensor and target puck feature low-profile design that's 1/4 the size of switchboxes*
- *Bright LEDs on sensor indicates open /closed valve position*
- *No open cavities, completely sealed against the effects of liquids*

Quarter-turn valve position sensors

Quarter-turn valves with pneumatic actuators are used for process control in industrial automation. Typical applications for these devices include tank farms, diverter valves, valve skids and valve banks.

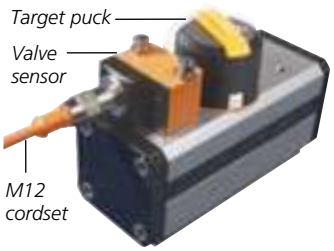
Traditional valve position feedback solutions can include large switchboxes. These high-maintenance packages are mounted on top of the actuator and use mechanical devices and cams to indicate valve position. Since the mechanical arm must make physical contact with the cam, it can stick, bounce, or actually break. If the switchbox fills with water, other problems can occur including corrosion, loss of signal, and short circuits.

ifm efector's IN Series proximity sensors work on a non-contact sensing principle, and because there are no moving parts, they are less likely to become misaligned, wear out, or break. The IN Series is also unaffected by water ingress because of its completely sealed construction.

Challenge: *Limit switches physically contact cams to indicate valve position. These mechanical switches can stick, break and wear.*

Solution: *ifm efector's inductive sensing technology provides non-contact sensing of valve position. With no physical contact, the sensor has a long life-in-application.*

An ifm valve position feedback solution includes a sensor, cable assembly and a rotating target puck.



Step 1 Select an ifm valve position sensor

Step 2 Select a target puck

Step 3 Select a cordset

How does it work?

A rotating puck, which is mounted on the actuator stem, contains two stainless steel targets positioned 90° apart on the puck at different heights.

As the valve opens and closes, the puck rotates, moving a target in front of the sensor providing valve position feedback.

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
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Product + accessory selector

1 Type	Dimensions	Output Function	Solenoid Control Output	Supply Voltage (V)	Switching Frequency (Hz)	Max. Load Current (mA)	Electrical Connection	Part No.	List Price (1-pc.)
	40 x 26 x 47	2 x PNP, N.O.	no	10…36	1300	250	1 x M12	**IN5327**	**$164.00**
NEW!	60 x 33 x 92	2 x PNP, N.O.	yes	10…30	500	100	2 x M12*	**IN5417**	**$213.00**
	40 x 26 x 92	2 x N.O.	no	20…140 AC / 10…140 DC	25	200	1 x 7/8"	**IN0117**	**$175.00**
	60 x 33 x 92	2 x PNP, N.O.	yes	10…30	500	100	2 x terminal chamber	**IN5409**	**$213.00**
NEW!	60 x 33 x 92	2 x N.O.	yes	20…250 AC / DC	25 AC / 50 DC	350 AC / 100 DC	2 x terminal chamber	**IN0131**	**$185.00**

* 1 male M12 connector and 1 female M12 connector.
Sensing range: 4 mm nonflush, Protection: IP67, Operating temp: -13…176 °F (-25…80 °C) except Part No. IN0131: -13…158 °F (-25…70 °C)

NEW! ifm's new target pucks for position feedback on quarter-turn actuators reduce installation complexity. The pucks are visible from a distance thanks to bright yellow position indicators.

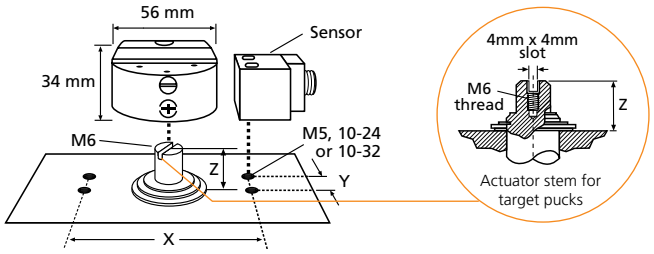
ifm offers:

Basic puck version for standard 90 degree applications

Adjustable puck for applications with different position of the target

2 Selecting a puck kit

Select a puck kit according to the dimensions of your ISO Namur actuator. The X and Y dimensions are the position of the actuator mounting holes. The Z dimension is the height of the actuator stem.



	Dimensions XxYxZ (mm)	Puck Style	Puck mounting screw thread	Sensor mounting screw thread	Part No.	List Price (1-pc.)
NEW!	80 x 30 x 20	basic	M6	10-24, 10-32, M5	**UV0019**	**$35.00**
NEW!	80 x 30 x 20	adjustable	M6	10-24, 10-32, M5	**UV0021**	**$45.00**
NEW!	80 x 30 x 30	basic	M6	10-24, 10-32, M5	**UV0020**	**$35.00**
NEW!	80 x 30 x 30	adjustable	M6	10-24, 10-32, M5	**UV0022**	**$45.00**
	130 x 30 x 30	basic	M6	10-24, M5	**U20114**	**$49.00**
	130 x 30 x 50	basic	M6	10-24, M5	**U20118**	**$60.00**

Cordsets

3 Type	Description	Part No.	List Price (1-pc.)
Female	M12 Micro DC (4-pin), 5 m, PVC	**EVT001**	**$20.00**
	M12 Micro DC (4-pin), 10 m, PVC	**EVT002**	**$24.00**
	M12 Micro DC (4-pin), 25 m, PVC	**EVT003**	**$37.00**
Female	7/8" Mini AC (5-pin) 2 m, PVC	**E18042**	**$37.00**
	7/8" Mini AC (5-pin) 4 m, PVC	**E18043**	**$50.00**
Male	M12 Micro DC (4-pin), 5 m, PVC	**EVT072**	**$22.00**
	M12 Micro DC (4-pin), 10 m, PVC	**EVT073**	**$23.00**

Accessories for IN5409 and IN0131

Type	Description	Part No.	List Price (1-pc.)
	Cable gland · M20 x 1.5 Housing materials: PA 6.6	**E12208**	**$4.00**
	Protective cap · M20 x 1.5 Housing materials: PA 6.6	**E12209**	**$4.00**
	Protective cover for screw slots (10 pack)	**E12212**	**$6.00**

Top product features!

- *Actuator Sensor-interface networks an entire system of valves*
- *Non-contact sensor detects open and closed position of quarter-turn valves*
- *AS-i networking connects up to 62 quarter-turn and 62 solenoid valves*
- *Connects to DeviceNet, Profibus, and Ethernet*
- *Parallel wiring is replaced by a 2-wire cable carrying both data and power*

Integrated AS-i networking connection for pneumatic valves

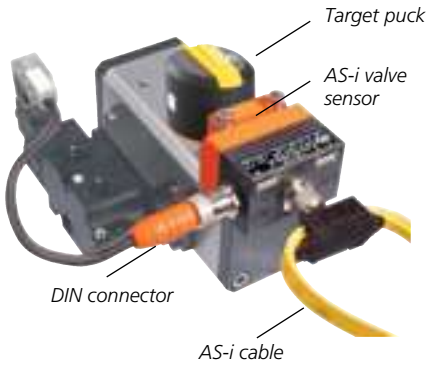
Valve applications such as tank farms and valve skids require a large number of feedback devices. These devices are connected back to a PLC which monitors valve position. With the growing number of valves being used and minimal plant floor space available, wiring has become time-consuming and difficult to troubleshoot. To reduce wiring, a simple solution is to apply the AS-i networking system.

AS-i networks an entire system of valves with only one 2-wire cable, completely eliminating wire bundles. Valve position sensors with AS-i connectivity provide an integrated connection for the solenoid valve. Connection to the control unit is made with a 2-wire AS-i cable.
This solution provides remote indication of valve status and can connect to higher level bus systems via DeviceNet, Profibus, and Ethernet. Up to 62 quarter-turn valve feedback devices and 62 solenoids can be connected to one AS-i master.

- Connects to higher-level bus systems
- Provides non-contact valve position
- Sensor and puck feature low-profile design that is one-quarter the size of a switchbox
- The valve sensor uses an integrated output for the solenoid valve.
- Mounts on all ISO standard type actuators.

Please refer to pages 202 - 217 for more details and products for AS-i networking.

An ifm AS-i valve feedback solution includes a sensor, cable assembly, rotating target puck and AS-i cable



Step 1 Select an ifm valve position sensor
Step 2 Select a target puck
Step 3 Select a DIN-style connector

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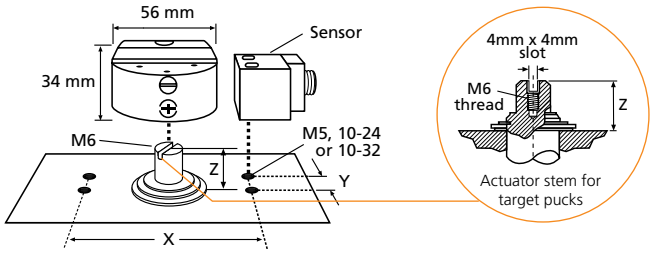
Product + accessory selector

1 Type	Dimensions	Sensing Range (mm)	Material	Supply Voltage (V DC)	Protection	Switching Frequency (Hz)	Max. Load Current (mA)	Part No.	List Price (1-pc.)
AS-i connection · M12 connector · 2 inputs									
	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP67	–	–	**AC2315**	**$235.00**
AS-i connection · M12 connector · 2 inputs / 1 output · Output function transistor PNP									
	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP67	–	100	**AC2316**	**$252.00**
AS-i connection · M12 connector · 2 inputs / 2 outputs · Output function transistor PNP									
	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP67	–	100	**AC2317**	**$277.00**

2 Selecting a puck kit

Select a puck kit according to the dimensions of your ISO Namur actuator. The X and Y dimensions are the position of the actuator mounting holes. The Z dimension is the height of the actuator stem.



	Dimensions XxYxZ (mm)	Puck Style	Puck mounting screw thread	Sensor mounting screw thread	Part No.	List Price (1-pc.)
	80 x 30 x 20	basic	M6	10-24, 10-32, M5	**UV0019**	**$35.00**
NEW!	80 x 30 x 20	adjustable	M6	10-24, 10-32, M5	**UV0021**	**$45.00**
	80 x 30 x 30	basic	M6	10-24, 10-32, M5	**UV0020**	**$35.00**
	80 x 30 x 30	adjustable	M6	10-24, 10-32, M5	**UV0022**	**$45.00**
	130 x 30 x 30	basic	M6	10-24, M5	**U20114**	**$49.00**
	130 x 30 x 50	basic	M6	10-24, M5	**U20118**	**$60.00**

NEW! ifm's new target pucks for position feedback on quarter-turn actuators reduce installation complexity. The pucks are visible from a distance thanks to bright yellow position indicators.

ifm offers:

Basic puck version for standard 90 degree applications

Adjustable puck for applications with different position of the target

3 DIN patchcords

Type	Description	Part No.	List Price (1-pc.)
	DIN A (18 mm) to M12 Micro DC patchcords, 0.3 m	**E11416**	**$29.00**
	DIN B (10 mm) to M12 Micro DC patchcords, 0.3 m	**E11421**	**$29.00**
	DIN C (8 mm) to M12 Micro DC patchcords, 0.3 m	**E11426**	**$31.00**

Top product features!

- *Industry standard 12 mm diameter housing provides simple mounting*
- *LEDs indicate power, output and marginal signal for easy installation and maintenance*
- *Durable metal housing resists mechanical damage*
- *Adjustable sensitivity enables greater accuracy for reliable target detection*
- *Alarm output alerts user when signal is marginal due to sensor misalignment or cleaning*

Simplified alignment and maintenance

OF photoelectric sensors include signal strength monitoring capabilities with LED indications that simplify installation, identify fault conditions, and provide output status. The sensor provides predictive maintenance to increase uptime throughout the production process. In applications where dust, dirt or moisture accumulates on the lenses, the OF sensor continuously monitors the strength of the received signal.

Ease of installation
For quick setup and alignment, the OF sensor will indicate a green LED when mounting is optimal and when power is on.

Ease of predictive maintenance
Quickly identify fault conditions that can cause downtime in your production process. The strength of the returned signal can be seriously degraded in applications where dust, dirt or moisture accumulates. Under marginal operating conditions, a red LED provides a visual warning.

Ease of setup
The OF photoelectric has a yellow LED that indicates the status of the sensor output. If an overload or short circuit fault occurs at the sensor output, the yellow LED will flash at a 3 Hz frequency.

Compact and reliable

Designed for industrial automation applications, the robust OF photoelectric sensor features a metal housing with bright LEDs for simple alignment and fault indication.

		IO-Link	Position Sensors						Motion Control	Vision Sensors
	Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
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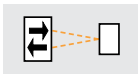
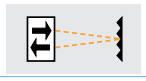
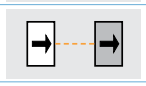
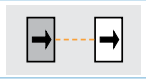
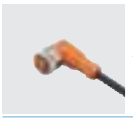
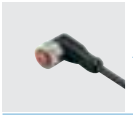
Product + accessory selector

Function		Range	Output	Spot Ø at max range	SupplyCurrent	Switching Frequency	Light Source	Part No.	List Price (1-pc.)
Diffuse		1...400 mm	LO/DO PNP	185 mm	35 mA	400 Hz	Infrared 880 nm	**OF5027**	**$122.00**
		1...400 mm	LO/DO NPN	185 mm	35 mA	400 Hz	Infrared 880 nm	**OF5060**	**$122.00**
Polarized retro-reflective		200...800 mm	LO/DO PNP	70 mm	35 mA	400 Hz	Red light 660 nm	**OF5025**	**$117.00**
		200...800 mm	LO/DO NPN	70 mm	35 mA	400 Hz	Red light 660 nm	**OF5062**	**$117.00**
Thru-beam receiver		0...4 m	LO/DO PNP	–	30 mA	400 Hz	–	**OF5022**	**$88.00**
Thru-beam transmitter		0...4 m	–	700 mm	25 mA	–	Infrared 880 nm	**OF5021**	**$77.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Short swivel bracket for OF	**E20860**	**$11.00**
	Tall swivel bracket for OF	**E20856**	**$12.00**
	50 mm reflector	**E20956**	**$9.00**
	80 mm reflector	**E20005**	**$8.00**
	Swivel bracket with 50 mm reflector	**E20997**	**$16.00**
	Swivel bracket with 80 mm reflector	**E20995**	**$24.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$13.00**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$16.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Supply voltage:	10...36 VDC
No. of wires:	3-wire; Part No. OF5021: 2-wire
Maximum load current:	200 mA
Voltage drop:	<2.5 V
Leakage current:	Negligible
Connector:	M12
Housing material:	Optalloy-plated brass
Lens material:	PMMA
Operating temperature:	-13...140 °F (-25...60 °C)
Protection:	IP65

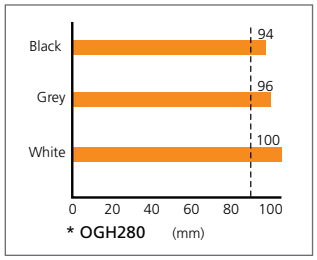
Top product features!

- Robust photoelectric resists mechanical damage
- Metal M18 mounting threads will not strip – eliminating a common problem with plastic threads
- Long sensing range in a small package offers more application flexibility
- Powerful visible red light source with large spot diameter enables easy alignment and quick setup
- Industry standard M12 connector withstands high torquing and provides easy maintenance

Durable metal housings with long sensing ranges

ifm's OG Series photoelectrics are stronger and more durable than traditional plastic housings. The sensor's durable metal M18 mounting threads will not strip – a common problem with plastic threads. Its standard M12 connector withstands high torquing and provides quick wiring.

OG sensors are more durable than plastic housings that can wear or break over time.

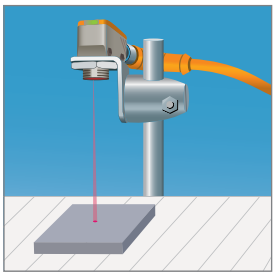


Reliable performance regardless of target color

** The 100 mm sensing range background suppression model is rated for ±10% of nominal sensing range for all target colors.*

High performance background suppression

The OG background suppression sensor uses diode array technology that enables the sensor to differentiate between the target and the background regardless of background color.



	IO-Link		Position Sensors						Motion Control	Vision Sensors
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
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Product + accessory selector

Function	Range	Output	Spot Ø at max range	Supply Current	Switching Frequency	Light Source	Part No.	List Price (1-pc.)
Diffuse background suppression	100 mm	LO PNP	7 mm	25 mA	1000 Hz	Red light 624 nm	**OGH280**	**$83.00**
	100 mm	LO NPN	7 mm	25 mA	1000 Hz	Red light 624 nm	**OGH282**	**$82.00**
Diffuse background suppression	200 mm	LO PNP	13 mm	25 mA	1000 Hz	Red light 624 nm	**OGH281**	**$83.00**
	200 mm	LO NPN	13 mm	25 mA	1000 Hz	Red light 624 nm	**OGH283**	**$84.00**
Diffuse background suppression with pushbutton adjustment	15...200 mm	LO/DO PNP	13 mm	25 mA	1000 Hz	Red light 624 nm	**OGH580**	**$86.00**
	15...200 mm	LO/DO NPN	13 mm	25 mA	1000 Hz	Red light 624 nm	**OGH581**	**$86.00**
Polarized retro-reflective	0.1...4 m	DO PNP	160 mm	20 mA	1000 Hz	Red light 624 nm	**OGP280**	**$75.00**
	0.1...4 m	DO NPN	160 mm	20 mA	1000 Hz	Red light 624 nm	**OGP282**	**$75.00**
Thru-beam receiver	0...20 m	DO PNP	–	20 mA	1000 Hz	–	**OGE280**	**$72.00**
	0...20 m	DO NPN	–	20 mA	1000 Hz	–	**OGE282**	**$72.00**
Thru-beam transmitter	0...20 m	–	800 mm	20 mA	–	Red light 624 nm	**OGS280**	**$64.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Extended rail bracket for OG sensor	**UE0002**	**$13.00**
	50 mm reflector	**E20956**	**$9.00**
	80 mm reflector	**E20005**	**$8.00**
	Extended rail bracket w/ 50 mm reflector	**UE0004**	**$23.00**
	Extended rail bracket w/ 80 mm reflector	**UE0005**	**$27.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$13.00**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$16.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Supply voltage:	10...30 VDC
No. of wires:	3-wire; Part No. OGS280: 2-wire
Maximum load current:	200 mA
Voltage drop:	<2.5 V
Leakage current:	Negligible
Connector:	M12
Housing material:	Metal alloy, PA, LCP, EPDM
Lens material:	PMMA
Operating temperature:	-13...140 °F (-25...60 °C)
Protection:	IP67

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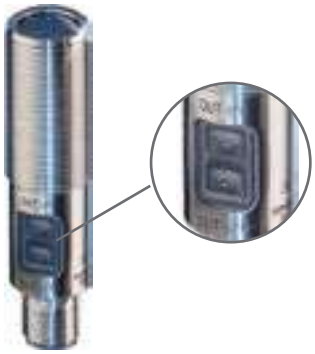
Top product features!

- *316 stainless steel housing designed and tested to withstand industrial automation applications*
- *Industry standard 18 mm diameter photoelectric suits a variety of applications*
- *Extremely long sensing ranges for application flexibility*
- *Innovative two-pushbutton 'Teach Mode' offers simple adjustment for quick setup*
- *Flexible mounting bracket system simplifies installation*

Innovative teach mode

ifm's OG M18 tubular sensors are designed to provide reliable position detection in factory automation applications. The sensor's innovative two-pushbutton 'Teach Mode' operation establishes light-on / dark-on programming with the press of a button. This functionality eliminates traditional teach programming that can be complicated and difficult to apply.



The innovative teach method eliminates complex programming. The sensor features one button each for teaching a precise on and off state for the sensor signal. For example:

OUT-off
Mount and align the sensor in the application.
The sensor's visible red light simplifies adjustment.
Press the OUT-off *(output off)* button for two seconds.

OUT-on
Position the object to be detected.
Press the OUT-on *(output on)* button.
The sensor is now ready for operation.

For precise sensing applications, the background suppression models provide high accuracy. The sensor's microprocessor provides automatic calibration and can differentiate between the target and the background which is ideal for conveying applications.

Bracket system offers accurate alignment

Innovative mounting brackets offer quick installation and setup. The bracket rotates 360° in each of two axes to achieve the most accurate alignment.

	IO-Link	Position Sensors						Motion Control	Vision Sensors
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
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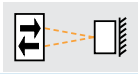
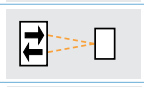
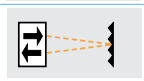
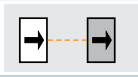
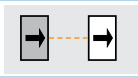
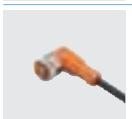
Product + accessory selector

Function		Range	Output	Spot Ø at max range	Supply Current	Switching Frequency	Light Source	Part No.	List Price (1-pc.)
Diffuse background suppression		15...300 mm	LO/DO PNP	25 mm	25 mA	1000 Hz	Red light 624 nm	**OGH500**	**$118.00**
		15...300 mm	LO/DO NPN	25 mm	25 mA	1000 Hz	Red light 624 nm	**OGH502**	**$118.00**
Diffuse		2...800 mm	LO/DO PNP	66 mm	25 mA	2000 Hz	Red light 624 nm	**OGT500**	**$114.00**
Polarized retro-reflective		0.03...5 m	LO/DO PNP	200 mm	20 mA	2000 Hz	Red light 624 nm	**OGP500**	**$114.00**
		0.03...5 m	LO/DO NPN	200 mm	20 mA	2000 Hz	Red light 624 nm	**OGP503**	**$114.00**
Thru-beam receiver		0...25 m	LO/DO PNP	–	11 mA	1000 Hz	–	**OGE500**	**$98.00**
		0...25 m	LO/DO NPN	–	11 mA	1000 Hz	–	**OGE503**	**$98.00**
Thru-beam transmitter		0...25 m	–	1000 mm	20 mA	–	Red light 624 nm	**OGS500**	**$80.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Short swivel bracket for OG, die cast zinc	**E20718**	**$12.00**
	Tall swivel bracket for OG, die cast zinc	**E20719**	**$11.00**
	50 mm reflector	**E20956**	**$9.00**
	80 mm reflector	**E20005**	**$8.00**
	Swivel bracket with 50 mm reflector	**E20997**	**$16.00**
	Swivel bracket with 80 mm reflector	**E20995**	**$24.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$13.00**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$16.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Supply voltage:	10...36 VDC
No. of wires:	3-wire; Part No. OGS500: 2-wire
Maximum load current:	200 mA (60°C) / 150 mA (80°C)
Voltage drop:	<2.5 V
Leakage current:	Negligible
Connector:	M12
Housing material:	316 stainless steel, PA, LCP, EPDM, TPU
Lens material:	PMMA
Operating temperature:	-13...176°F (-25...80°C)
Protection:	IP67

Reliable service center

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Top product features!

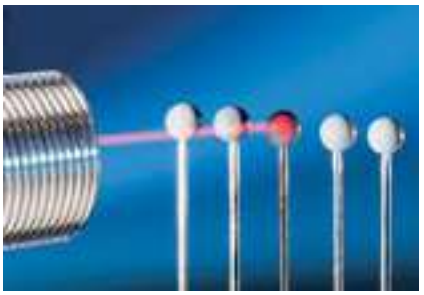
- Class 1 laser light source detects small objects and provides visual indication of beam alignment
- 316 stainless steel housing designed and tested to withstand industrial automation applications
- Extremely long sensing ranges for application flexibility
- Innovative two-pushbutton 'Teach Mode' offers simple adjustment for quick setup
- Flexible mounting bracket system simplifies installation

Class 1 laser sensors detect small parts at long distances

Laser sensors are used where detection of small objects or precise positioning is required. Laser light consists of light waves of a single wavelength, high in energy and power density because the waves are in phase with each other. This results in a tightly focused, almost parallel light beam that can detect very small objects at long ranges.

An important feature of the laser is that the light beam is visible, and during set-up of the sensor, the laser power is increased. This provides a bright light spot clearly visible even in the daylight which aids alignment. ifm efector also offers fine adjustment mounting brackets that allow the laser sensors to be precisely aligned for optimum performance.

The OG Series laser sensors are listed as FDA Class I Laser Products and comply with the international standard IEC60825 and European standard EN60825 which describe the operation of laser sensors.



Innovative teach mode

The innovative teach mode eliminates complex programming. The sensor features one button each for teaching a precise on and off state for the sensor signal.

PNP to NPN converter cordset

This cordset converts PNP outputs to NPN outputs.

Part no.: EVC01E (5 meters)
List price (1-pc): $19.00

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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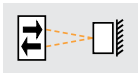
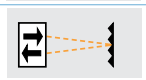
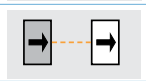
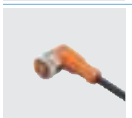
Product + accessory selector

Function		Range	Output	Spot Ø at max range	Supply Current	Switching Frequency	Light Source	Part No.	List Price (1-pc.)
Diffuse background suppression		20...200 mm	LO/DO PNP	1.2 mm	15 mA	1000 Hz	Class 1 laser	**OGH700**	**$266.00**
Polarized retro-reflective		0.2...15 m	LO/DO PNP	40 mm	15 mA	2000 Hz	Class 1 laser	**OGP700**	**$263.00**
		0.2...2 m	LO/DO PNP	5 mm	15 mA	2000 Hz	Class 1 laser	**OGP701**	**$263.00**
Thru-beam receiver		0...60 m	LO/DO PNP	–	11 mA	1000 Hz	Class 1 laser	**OGE700**	**$142.00**
		0...2 m	LO/DO PNP	–	11 mA	1000 Hz	Class 1 laser	**OGE701**	**$142.00**
Thru-beam transmitter		0...60 m	–	150 mm	13 mA	–	Class 1 laser	**OGS700**	**$206.00**
		0...2 m	–	5 mm	13 mA	–	Class 1 laser	**OGS701**	**$206.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Fine adjust swivel bracket for OG laser	**E20987**	**$47.00**
	Rail mount package, fine adjust swivel bracket for OG laser	**E20868**	**$58.00**
	10 x 50 mm reflector	**E20988**	**$16.00**
	50 x 50 mm reflector	**E20722**	**$15.00**
	10 mm reflector	**E20990**	**$12.00**
	19 mm reflector	**E20993**	**$12.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$13.00**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$16.00**

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Technical Specs

Supply voltage:	10...36 VDC
Light source:	Red light 655 nm
No. of wires:	3-wire
Maximum load current:	200 mA
Voltage drop:	<2.5 V
Leakage current:	Negligible
Connector:	M12
Housing material:	316 stainless steel
Lens material:	PMMA
Operating temperature:	14...140 °F (-10...60 °C)
Protection:	IP67

CLASS 1
LASER
PRODUCT
IEC60825-1:2007
IEC60825-1:2014
21CFR PART1040

Class 1
Laser

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Top product features!

- Compact M18 diameter photoelectrics withstand harsh environments
- Simple two-wire AC design does not require grounding wire allowing quick installation
- Tubular versions offer application flexibility
- Long sensing ranges reduce failure from mechanical damage and increase uptime
- Integrated microprocessor-based electronics offer high performance in the toughest applications

Compact solutions for industrial environments

ifm's M18 diameter sensors are designed to provide reliable position detection in harsh industrial applications.

The product family offers long sensing ranges that increase the distance between the sensor and the target, preventing failures from physical damage. Integrated microprocessor-based electronics offer high performance in the toughest applications.

- Industry standard 18 mm diameter tubular housing
- Automatic pushbutton provides easy setup adjustment and simplifies installation
- One-piece molded unit is completely sealed against environment
- Electronic lock prevents unauthorized adjustments

The OG tubular's 2-wire design simplifies wiring. No ground wire is required.

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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Product + accessory selector

Function		Range	Output	Spot Ø at max range	Min. Load Current	Switching Frequency	Light Source	Part No.	List Price (1-pc.)
Diffuse		1...600 mm	LO	169 mm	5 mA	25 Hz	Infrared 880 nm	**OG0035**	**$103.00**
		1...600 mm	DO	169 mm	5 mA	25 Hz	Infrared 880 nm	**OG0041**	**$103.00**
Polarized retro-reflective		0.1...3 m	LO	262 mm	5 mA	25 Hz	Red Light 660 nm	**OG0044**	**$103.00**
		0.1...3 m	DO	262 mm	5 mA	25 Hz	Red Light 660 nm	**OG0033**	**$103.00**
Thru-beam receiver		0...15 m	LO	–	5 mA	25 Hz	–	**OG0031**	**$89.00**
		0...15 m	DO	–	5 mA	25 Hz	–	**OG0039**	**$89.00**
Thru-beam transmitter		0...15 m	–	2000 mm	5 mA	–	Infrared 880 nm	**OG0030**	**$72.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Short swivel bracket for OG tubular, die cast zinc	**E20718**	**$12.00**
	Tall swivel bracket for OG tubular, die-cast zinc	**E20719**	**$11.00**
	50 mm reflector	**E20956**	**$9.00**
	80 mm reflector	**E20005**	**$8.00**
	Extended rail bracket w/ 50 mm reflector	**UE0004**	**$23.00**
	Extended rail bracket w/ 80 mm reflector	**UE0005**	**$27.00**
	Swivel bracket with 50 mm reflector	**E20997**	**$16.00**
	Swivel bracket with 80 mm reflector	**E20995**	**$24.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	1/2" Micro AC, (3-pin), 5 m, PVC	**E18212**	**$15.00**
	1/2" Micro AC, (3-pin), 10 m, PVC	**E18213**	**$19.00**
	1/2" Micro AC, (3-pin), 5 m, PVC	**E18214**	**$15.00**
	1/2" Micro AC, (3-pin), 10 m, PVC	**E18215**	**$19.00**

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Technical Specs

Supply voltage:	20...250 V AC (47... 63 Hz)
No. of wires:	2-wire
Maximum load current:	180 mA (40°C) / 90 mA (80 °C)
Voltage drop:	< 8 V
Leakage current:	1.7 mA
Connector:	1/2" Micro AC
Housing material:	PBT
Lens material:	PMMA
Operating temperature:	-13...176 °F (-25...80 °C)
Protection:	IP67

Top product features!

- *PMD "time-of-flight" technology enables long sensing ranges up to 2 meters (6.5 ft) and eliminates need for sensors with reflectors*
- *Superior optical performance independent of target color*
- *Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback*
- *Digital transmission of target distance*
- *Reliable background suppression with no false triggers from highly reflective objects such as stainless steel*
- *M30 diameter, Class 1 and Class 2 laser*

OID with easy-turn setup applies "Time-of-Flight" measurement via PMD Technology

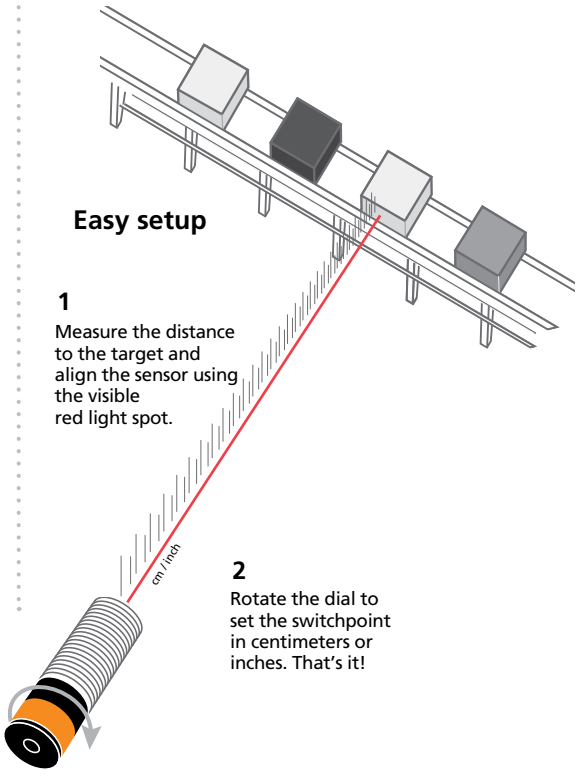
NEW! The OID Series photoelectric sensors integrate "Time of Flight" sensing principle with PMD technology to provide reliable sensing in industrial automation applications. The advantages of PMD technology include extremely long sensing ranges, reliable background suppression, visible red light spot for setup and high excess gain. The OID's sensing range can reach up to 2 meters.

The OID Series sensors offer reliable optical performance independent of target color. Whether shiny, matte, dark or light objects, the OID provides superior background suppression.

Models OID200, OID202 and OID250 feature a rotatable ring for quickly setting the switchpoint. Parameters may also be set via the IO-Link LineRecorder Device software. Models OID204 and 254 are designed with a one-piece, completely sealed stainless steel housing. These robust sensors are ideal for harsh environments. The parameters are set using IO-Link.

Time of flight principle
This principle measures a distance based on the time it takes light to travel to an object and back to the receiver.

The OID allows you to select the setpoint in inches and centimeters by turning the rotatable setting ring. A visible red light spot helps to align the sensor. No power is required for simple bench setup.



IO-Link
Position Sensors
Motion Control
Vision Sensors
Company
IO-Link
Inductive
Capacitive
Cylinder / valve position
Photoelectrics / lasers / fiber optics
Distance / Application specific
Ultrasonic
Encoders / Speed monitors
2D / 3D inspection
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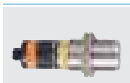
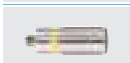
Product + accessory selector

Type	Range	Output	Spot Ø at Max. Range	Supply Current	Switching Frequency	Light Source	Unit of Measurement	Adjustment Method	Part No.	List Price (1-pc.)
	0.03…2 m	Complementary LO / DO, PNP	< 5 mm	< 75 mA	11 Hz	Class 2 laser Red light 650 nm	cm and inch	Setting ring	**OID200**	**$146.00**
	0.03…2 m	Complementary LO / DO, NPN	< 5 mm	< 75 mA	11 Hz	Class 2 laser Red light 650 nm	cm and inch	Setting ring	**OID202**	**$146.00**
	0.03…2 m	Complementary LO / DO, PNP	< 5 mm	< 75 mA	11 Hz	Class 1 laser Red light 650 nm	cm and inch	Setting ring	**OID250**	**$146.00**
	0.03…2 m	Complementary LO / DO, PNP	< 5 mm	< 75 mA	11 Hz	Class 2 laser Red light 650 nm	cm and inch	N/A	**OID204**	**$141.00**
	0.03…2 m	Complementary LO / DO, PNP	< 5 mm	< 75 mA	11 Hz	Class 1 laser Red light 650 nm	cm and inch	N/A	**OID254**	**$141.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Short swivel bracket, diecast zinc	**E20873**	**$13.00**
	Short swivel bracket, 316 SS	**E20874**	**$18.00**
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

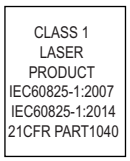
For more information on IO-Link, see pages 6 - 21.

Cordsets

Type	Description	Part No.	List Price (1-pc.)
For Part Nos. OID200, OID202, OID250, OID201, OID251			
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
For Part Nos. OID204, OID254			
	M12 Micro (5-pin) 2 m, PUR cable	**EVC073**	**$16.00**
	M12 Micro (5-pin) 5 m, PUR cable	**EVC074**	**$19.00**
	M12 Micro (5-pin) 5 m, PVC cable	**EVT013**	**$26.00**

Technical Specs

Dimensions:	M30 x 90 mm
Operating voltage:	10…30 VDC
Switching status indication:	yellow LED
Operation:	green LED
Switchpoint setting:	radial ring
Output function:	OUT1: LO OUT2: DO
Current rating:	2 x 100 mA
Protection:	IP65, IP67 Part Nos. OID204, OID254: IP69K
Operating temperature:	-13…140 °F (-25…60 °C)
Housing material:	stainless steel, PTB, PC, FPM Part Nos. OID204, OID254: stainless steel
Front panel material:	PMMA



Class 1 Laser

Class 2 Laser

Simple and comprehensive website

Data sheets, application examples, software downloads, virtual product demos… just one click away.

Place orders, tech support
800-441-8246

Visit our product catalog
www.ifm.com/us

Shop for products online
Easy ordering via eShop

Top product features!

- Miniature photoelectric with sensing range that can be set to the nearest millimeter for precise detection of small components
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Selectable light-on and dark-on mode
- Adjustable switch-on and switch-off delays
- Integrated metal frame with mounting thru-holes will not bend or break
- Compact design and 45° cable exit is ideal for applications with limited mounting space

Miniature photoelectric reliably detects small objects

NEW! The O8 Series of photoelectric sensor, while small in size, contains a powerful LED light source that allows it to detect targets up to 80 mm away regardless of their color or surface finish. Whether flat, shiny, matte, dark or light, the O8 offers reliable optical performance independent of target color. Designed with extremely reliable background suppression, it can precisely detect very small targets.

Setup is easy.

The sensor features a visible red light spot that helps to align it. The sensing distance is set to the nearest millimeter using IO-Link. Two highly visible LEDs indicate switching status and power.

The compact design is well suited for mounting in tight areas. The sensor's integrated robust metal frame with thru-holes will not bend or break during installation.

The O8's price/performance value makes it ideal for assembly automation, packaging, and robotic applications – or wherever very small sensors are required.

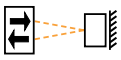
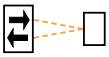
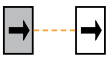
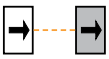
Miniature sensor mounts in tight areas

Whether flat, shiny, matte, dark or light, the O8 offers reliable optical performance independent of target color and is ideal for assembly automation and robotic applications.

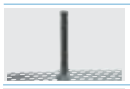
Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

DC	Type	Range [mm]	Light Spot Diameter [mm]	Output	Prewired 2 m cable Part No.	3-pin PICO connector Part No.	4-pin PICO connector IO-Link Part No.	List price (USD)
	Diffuse background suppression	30	4	3-wire DC PNP Light-on	**O8H206**	**O8H208**	**O8H210**	**$87.00**
		30	4	3-wire DC NPN Light-on	**O8H207**	**O8H209**	**O8H211**	**$87.00**
		80	4.5	3-wire DC PNP Light-on	**O8H218**	**O8H220**	**O8H222**	**$87.00**
		80	4.5	3-wire DC NPN Light-on	**O8H219**	**O8H221**	**O8H223**	**$87.00**
	Diffuse reflection	180	18	3-wire DC PNP Light-on	**O8T200**	**O8T202**	**O8T204**	**$73.00**
		180	18	3-wire DC NPN Light-on	**O8T201**	**O8T203**	**O8T205**	**$73.00**
	Retro-reflective	1800	120	3-wire DC PNP Dark-on	**O8P200**	**O8P202**	**O8P204**	**$75.00**
		1800	120	3-wire DC NPN Dark-on	**O8P201**	**O8P203**	**O8P205**	**$75.00**
	Through-beam transmitter	3000	200	2-wire DC	**O8S200**	**O8S201**	**O8S202**	**$53.00**
	Through-beam receiver	3000	–	3-wire DC PNP Dark-on	**O8E200**	**O8E202**	**O8E204**	**$61.00**
		3000	–	3-wire DC NPN Dark-on	**O8E201**	**O8E203**	**O8E205**	**$61.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting set for clamp mounting, stainless steel (requires mounting rod below)	**E21237**	**$21.00**
	Mounting rod, 120 mm M8 thread, Ø 10mm, stainless steel	**E21081**	**$13.00**
	Mounting set for free-standing mounting, stainless steel	**E21238**	**$24.00**
	Mounting set for free-standing mounting with fine adjustment, stainless steel	**E21239**	**$29.00**
	Mounting set with ball joint, galvanized, stainless steel	**E21240**	**$12.00**
	25 mm reflector	**E20953**	**$8.00**
	50 mm reflector	**E20956**	**$9.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico (3-pin) 2 m, PUR cable	**EVC141**	**$14.00**
	M8 Pico (3-pin) 5 m, PUR cable	**EVC142**	**$17.00**

Technical Specs

Operating voltage:	10...30 V DC
No. of wires:	3-wire (O7S200: 2-wire)
Maximum load current:	100 mA
Voltage drop:	< 2.5 V
Leakage current:	negligible
Connector:	0.2 m pigtail with M8 connector
Housing materials:	PA
Lens material:	PMMA
Operating temp:	-13…140 °F (-25...60 °C)
Protection:	IP65

Top product features!

- Miniature housing provides reliable part detection in tight spaces
- Diffuse background suppression model's precise light spot accurately senses small targets and are interference immune
- Visible red light for easy alignment and setup
- Thru-beam, retro-reflective and diffuse background suppression sensors with fixed sensing ranges for quick setup
- Ideal for position detection in part feeding and material handling applications

Powerful photoelectric in a miniature housing

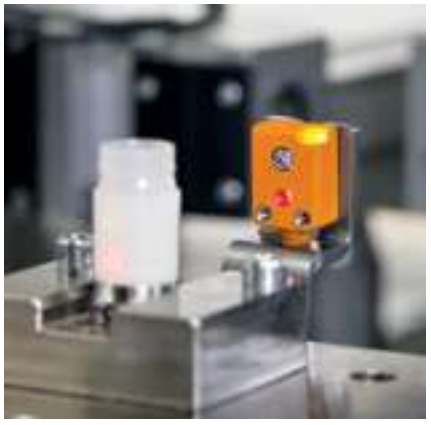
The O7 Series of photoelectric sensors are specifically designed for small part detection or when there is minimal mounting space for sensors. The sensor's well-defined light spot enables the precise detection of small objects over long distances. Typical applications are part feeding and material handling technologies.

Fixed sensing ranges enable quick setup

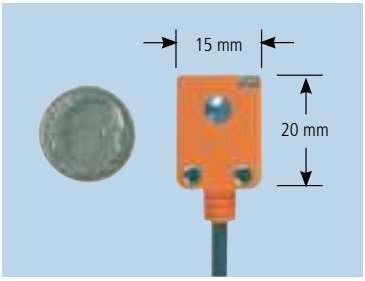
Fixed sensing ranges make the sensors plug-and-play and ready for operation immediately after installation. Visible red light allows fast and simple alignment.

Diffuse sensors with background suppression are available with 30, 50 or 100 mm ranges. Other models include polarized retro-reflective with 1 meter ranges and thru-beam pairs with 1.5 meter ranges.

The miniature O7 photoelectric sensor is ideal for position detection in part feeding and material handling applications.



Miniature sensor mounts in tight areas



IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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Product + accessory selector

Function	Range	Output	Spot Ø at max range	Supply Current	Switching Frequency	Light Source	Part No.	List Price (1-pc.)
Diffuse background suppression	1...30 mm	LO PNP	2.5 mm	20 mA	750 Hz	red light 633 nm	**O7H200**	**$111.00**
	1...30 mm	DO PNP	2.5 mm	20 mA	750 Hz	red light 633 nm	**O7H201**	**$111..00**
Diffuse background suppression	1...30 mm	LO NPN	2.5 mm	20 mA	750 Hz	red light 633 nm	**O7H206**	**$111..00**
	1...30 mm	DO NPN	2.5 mm	20 mA	750 Hz	red light 633 nm	**O7H207**	**$111..00**
Diffuse background suppression	0...50 mm	LO PNP	2.5 mm	20 mA	750 Hz	red light 633 nm	**O7H202**	**$111..00**
	0...50 mm	DO PNP	2.5 mm	20 mA	750 Hz	red light 633 nm	**O7H203**	**$111..00**
Diffuse background suppression	0...50 mm	LO NPN	2.5 mm	20 mA	750 Hz	red light 633 nm	**O7H208**	**$111..00**
	0...50 mm	DO NPN	2.5 mm	20 mA	750 Hz	red light 633 nm	**O7H209**	**$111..00**
Diffuse background suppression	0...100 mm	LO PNP	7 mm	20 mA	750 Hz	red light 633 nm	**O7H204**	**$111..00**
	0...100 mm	DO PNP	7 mm	20 mA	750 Hz	red light 633 nm	**O7H205**	**$111..00**
Diffuse background suppression	0...100 mm	LO NPN	7 mm	20 mA	750 Hz	red light 633 nm	**O7H210**	**$111..00**
	0...100 mm	DO NPN	7 mm	20 mA	750 Hz	red light 633 nm	**O7H211**	**$111..00**
Polarized retro-reflective	0.03...1 m	DO PNP	55 mm	20 mA	1000 Hz	red light 633 nm	**O7P200**	**$105.00**
	0.03...1 m	LO PNP	55 mm	20 mA	1000 Hz	red light 633 nm	**O7P201**	**$105.00**
Polarized retro-reflective	0.03...1 m	DO NPN	55 mm	20 mA	1000 Hz	red light 633 nm	**O7P202**	**$105.00**
	0.03...1 m	LO NPN	55 mm	20 mA	1000 Hz	red light 633 nm	**O7P203**	**$105.00**
Thru-beam receiver	0...1.5 m	DO PNP	–	10 mA	1000 Hz	red light 633 nm	**O7E200**	**$90.00**
	0...1.5 m	LO PNP	–	10 mA	1000 Hz	red light 633 nm	**O7E201**	**$90.00**
Thru-beam receiver	0...1.5 m	DO NPN	–	10 mA	1000 Hz	red light 633 nm	**O7E202**	**$90.00**
	0...1.5 m	LO NPN	–	10 mA	1000 Hz	red light 633 nm	**O7E203**	**$90.00**
Thru-beam transmitter	0...1.5 m	–	90 mm	20 mm	–	red light 633 nm	**O7S200**	**$73.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting set for clamp mounting, stainless steel (requires mounting rod below)	**E21237**	**$21.00**
	Mounting rod, 120 mm M8 thread, Ø 10mm, stainless steel	**E21081**	**$13.00**
	Mounting set for free-standing mounting, stainless steel	**E21238**	**$24.00**
	Mounting set for free-standing mounting with fine adjustment, stainless steel	**E21239**	**$29.00**
	Mounting set with ball joint, galvanized, stainless steel	**E21240**	**$12.00**
	25 mm reflector	**E20953**	**$8.00**
	50 mm reflector	**E20956**	**$9.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico (3-pin) 2 m, PUR cable	**EVC141**	**$14.00**
	M8 Pico (3-pin) 5 m, PUR cable	**EVC142**	**$17.00**

Technical Specs

Operating voltage:	10...30 V DC
No. of wires:	3-wire (O7S200: 2-wire)
Maximum load current:	100 mA
Voltage drop:	< 2.5 V
Leakage current:	negligible
Connector:	0.2 m pigtail with M8 connector
Housing materials:	PA
Lens material:	PMMA
Operating temp:	-13…140 °F (-25...60 °C)
Protection:	IP65

Top product features!

- *Suitable for use in factory automation applications*
- *Best-in-class optical features*
- *Precise background suppression sensing independent of target color*
- *Rectangular plastic housing is industry standard size*
- *Dual potentiometer design for adjustment and light-on / dark-on selection*

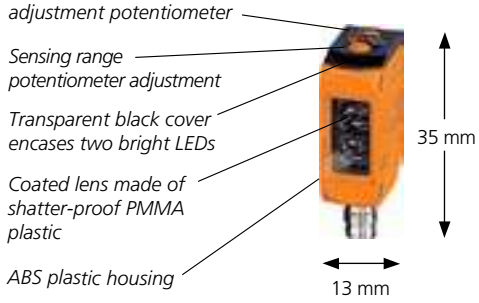
Miniature photoelectrics for industrial automation

ifm introduces a new line of miniature photoelectrics that are designed for a variety of applications in industrial automation.

The O6 Series Photoelectric Sensors feature a simple adjustment potentiometer and a visible red light source that allows the sensor to be set up in the application quickly and easily. The potentiometers are double-sealed and, like the lens, are embedded flush to allow for residue-free cleaning. The transparent black cover ensures that the sensor's two LEDs are highly visible even in bright lighting conditions. The coated lens is made of resistant, shatterproof PMMA plastic.

The O6 sensor line is available in diffuse, diffuse with background suppression, polarized retro-reflective and through-beam pairs.

Easy alignment – Powerful visible red light source with precise spot enables easy alignment and quick setup.

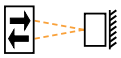
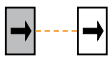
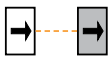


The "high performance" O6 Series photoelectric is designed and tested to withstand tough industrial automation applications.

Search Bar

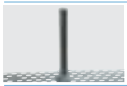
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

DC	Type	Range [mm]	Light Spot Diameter [mm]	Output	Prewired 2 m cable Red Light Part No.	0.3 m PVC cable M12 connector Red Light Part No.	3-pin M8 connector Red Light Part No.	4-pin M8 connector Red Light Part No.	4-pin M8 connector Infrared Part No.	List Price (1-pc.)
	Diffuse background suppression	2...200	8	3-wire DC PNP	**O6H200**	**O6H201**	**O6H202**	**O6H203**	–	**$84.00**
		2...200	8	3-wire DC NPN	**O6H204**	**O6H205**	**O6H206**	**O6H207**	–	**$84.00**
	Diffuse reflection	5...500	15	3-wire DC PNP	**O6T200**	**O6T201**	**O6T202**	**O6T203**	**O6T215**	**$77.00**
		5...500	15	3-wire DC NPN	**O6T204**	**O6T205**	**O6T206**	**O6T207**	**O6T216**	**$77.00**
	Polarized retro-reflective	50...5000*	150	3-wire DC PNP	**O6P200**	**O6P201**	**O6P202**	**O6P203**	–	**$77.00**
		50...5000*	150	3-wire DC NPN	**O6P204**	**O6P205**	**O6P206**	**O6P207**	–	**$77.00**
	Through-beam transmitter	0...10000	300	2-wire DC	**O6S200**	**O6S201**	**O6S202**	**O6S203**	**O6S215**	**$41.00**
	Through-beam receiver	0...10000	–	3-wire DC PNP	**O6E200**	**O6E201**	**O6E202**	**O6E203**	**O6E215**	**$49.00**
		0...10000	–	3-wire DC NPN	**O6E204**	**O6E205**	**O6E206**	**O6E207**	**O6E216**	**$49.00**

* referred to reflector Ø 80 mm

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting set for clamp mounting, stainless steel (requires mounting rod)	**E21272**	**$20.00**
	Swivel bracket mounting rod, stainless steel	**E21081**	**$13.00**
	Bracket for free-standing mounting, stainless steel	**E21271**	**$8.00**
	50 mm reflector	**E20956**	**$9.00**
	80 mm reflector	**E20005**	**$8.00**
	Swivel bracket with 50 mm reflector	**E20997**	**$16.00**
	Swivel bracket with 80 mm reflector	**E20995**	**$24.00**

Technical Specs

Type of light:	Red light 633 nm Infrared light 850 nm
Operating voltage:	10...30 VDC
Current consumption:	20 mA
Switching frequency:	1000 Hz
Switching status indication:	Yellow LED
Operation:	Green LED
Current rating:	100 mA
Voltage drop:	< 2.5 V
Protection rating:	IP65, IP67
Ambient temperature:	14…140 °F (-25…60 °C)
Housing material:	ABS
Lens material:	PMMA

For M8 and M12 Micro DC connectors, see pages 265, 271.

Top product features!

- Suitable for use in both factory automation and harsh applications
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Precise background suppression sensing independent of target color
- Robust 316 stainless steel rectangular housing is industry standard size
- Dual potentiometer design for adjustment and light-on / dark-on selection

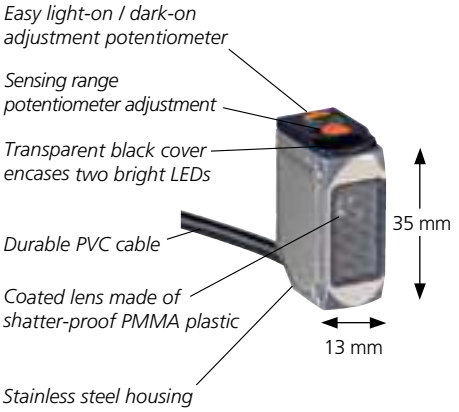
Robust photoelectrics for harsh environments

ifm introduces a new line of robust photoelectrics with stainless steel housings that are designed for a variety of industrial automation applications as well as sanitary environments. The O6 Series Photoelectric Sensors provide reliable position sensing in harsh environments.

The sensors feature a simple adjustment potentiometer and a visible red light source that sets up the sensor in an application quickly and easily. The potentiometers are double-sealed and, like the lens, are embedded flush to allow for residue-free cleaning. The transparent black cover ensures that the sensor's two LEDs are highly visible even in bright lighting conditions. The coated lens is made of resistant, shatterproof PMMA plastic.

The O6 sensor line is available in diffuse, diffuse with background suppression, polarized retro-reflective and through-beam pairs.

The sensor can automatically adapt to the changing environmental conditions in a plant such as water and steam.

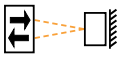
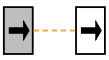
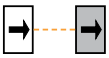


Small but mighty – The robust O6 photoelectric sensors are designed to perform in the harshest environments.

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

DC	Type	Range [mm]	Light Spot Diameter [mm]	Output	Prewired 2 m cable Part No.	0.3 m PVC cable M12 connector Part No.	3-pin M8 connector Part No.	4-pin M8 connector Part No.	4-pin M8 connector IO-Link Part No.	List price (USD)
	Diffuse background suppression	2...200	8	3-wire DC PNP	**O6H300**	**O6H301**	**O6H302**	**O6H303**	**O6H309**	**$115.00**
		2...200	8	3-wire DC NPN	**O6H304**	**O6H305**	**O6H306**	**O6H307**	–	**$115.00**
	Diffuse reflection	5...500	15	3-wire DC PNP	**O6T300**	**O6T301**	**O6T302**	**O6T303**	**O6T309**	**$98.00**
		5...500	15	3-wire DC NPN	**O6T304**	**O6T305**	**O6T306**	**O6T307**	–	**$98.00**
	Polarized retro-reflective	50...5000*	150	3-wire DC PNP	**O6P300**	**O6P301**	**O6P302**	**O6P303**	**O6P309**	**$103.00**
		50...5000*	150	3-wire DC NPN	**O6P304**	**O6P305**	**O6P306**	**O6P307**	–	**$103.00**
	Through-beam transmitter	0...10000	300	2-wire DC	**O6S300**	**O6S301**	**O6S302**	**O6S303**	**O6S305**	**$78.00**
	Through-beam receiver	0...10000	–	3-wire DC PNP	**O6E300**	**O6E301**	**O6E302**	**O6E303**	**O6E309**	**$83.00**
		0...10000	–	3-wire DC NPN	**O6E304**	**O6E305**	**O6E306**	**O6E307**	–	**$83.00**

* referred to reflector Ø 80 mm

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting set for clamp mounting, stainless steel (requires mounting rod)	**E21272**	**$20.00**
	Swivel bracket mounting rod, stainless steel	**E21081**	**$13.00**
	Bracket for free-standing mounting, stainless steel	**E21271**	**$8.00**
	50 mm reflector	**E20956**	**$9.00**
	80 mm reflector	**E20005**	**$8.00**
	Swivel bracket with 50 mm reflector	**E20997**	**$16.00**
	Swivel bracket with 80 mm reflector	**E20995**	**$24.00**
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

Technical Specs

Type of light:	Red light 633 nm
Operating voltage:	10...30 VDC
Current consumption:	20 mA
Switching frequency:	1000 Hz
Switching status indication:	Yellow LED
Operation:	Green LED
Current rating:	100 mA
Voltage drop:	< 2.5 V
Protection rating:	IP65, IP67, IP68, IP69K
Ambient temperature:	-13…176 °F (-25…80 °C)
Housing material:	High-grade stainless steel (1.4404 / 316L)
Lens material:	PMMA

For more information on IO-Link, see pages 6 - 21.

Top product features!

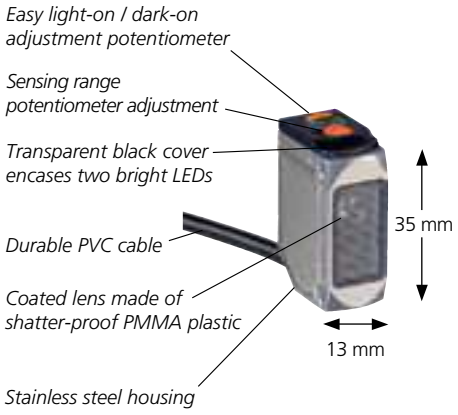
- Suitable for use in coolant applications
- Precise background suppression sensing independent of target color
- Robust 316 stainless steel rectangular housing is industry standard size
- Dual potentiometer design for adjustment and light-on / dark-on selection

Robust photoelectrics for coolant applications

ifm introduces a coolant line of robust photoelectrics with stainless steel housings. The O6 Series Photoelectric Sensors provide reliable position sensing in harsh environments. Thanks to a specific material used in the construction of the sensors, they are extremely durable in applications where coolants are used.

The sensors feature a simple adjustment potentiometer and a visible red light source that sets up the sensor in an application quickly and easily. The potentiometers are double-sealed and, like the lens, are embedded flush to allow for residue-free cleaning. The transparent black cover ensures that the sensor's two LEDs are highly visible even in bright lighting conditions. The coated lens is made of resistant, shatterproof PMMA plastic.

The O6 sensor line is available in diffuse, diffuse with background suppression, polarized retro-reflective and through-beam pairs.



Small but mighty – The robust O6 photoelectric sensors are designed to perform in coolant applications.

Application solutions

These products offer an ideal combination of features, performance and value for all industrial automation and metal-working applications!

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

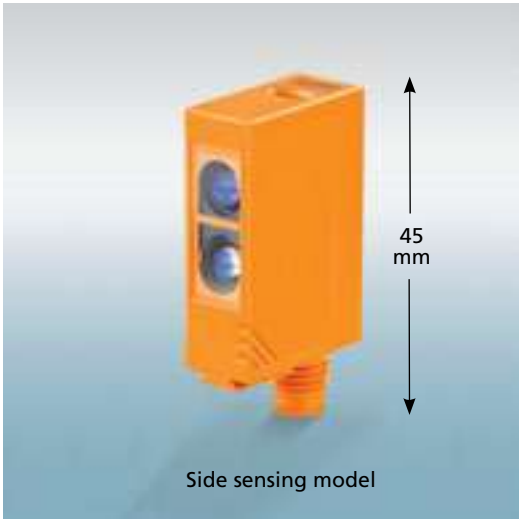
DC	Type	Range [mm]	Light Spot Diameter [mm]	Output	Prewired 5 m cable Part No.	0.3 m PUR cable M12 connector Part No.	4-pin M8 connector Part No.	List price (USD)
	Diffuse background suppression	2...200	8	3-wire DC PNP	**O6H402**	**O6H404**	**O6H400**	**$122.00**
		2...200	8	3-wire DC NPN	**O6H403**	**O6H405**	**O6H401**	**$122.00**
	Diffuse reflection	5...500	15	3-wire DC PNP	**O6T402**	**O6T404**	**O6T400**	**$111.00**
		5...500	15	3-wire DC NPN	**O6T403**	**O6T405**	**O6T401**	**$111.00**
	Polarized retro-reflective	50...5000*	150	3-wire DC PNP	**O6P402**	**O6P404**	**O6P400**	**$111.00**
		50...5000*	150	3-wire DC NPN	**O6P403**	**O6P405**	**O6P401**	**$111.00**
	Through-beam transmitter	0...10000	300	2-wire DC	**O6S401**	**O6S402**	**O6S400**	**$80.00**
	Through-beam receiver	0...10000	–	3-wire DC PNP	**O6E402**	**O6E404**	**O6E400**	**$90.00**
		0...10000	–	3-wire DC NPN	**O6E403**	**O6E405**	**O6E401**	**$90.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting set for clamp mounting, stainless steel (requires mounting rod)	**E21272**	**$20.00**
	Swivel bracket mounting rod, stainless steel	**E21081**	**$13.00**
	Protective bracket	**E20938**	**$11.00**
	80 mm reflector	**E20005**	**$8.00**
	Protective bracket	**E21273**	**$11.00**
	48 x 48 mm reflector	**E20744**	**$16.00**
	95 x 95 reflector	**E20454**	**$24.00**

Technical Specs

Type of light:	Red light 633 nm
Operating voltage:	10...30 VDC
Current consumption:	20 mA
Switching frequency:	1000 Hz
Switching status indication:	Yellow LED
Operation:	Green LED
Current rating:	100 mA
Voltage drop:	< 2.5 V
Protection rating:	IP65, IP67, IP68
Ambient temperature:	-13…140 °F (-25…60 °C)
Housing material:	High-grade stainless steel (1.4404 / 316L)
Lens material:	PMMA



Side sensing model

Top product features!

- *Small package, long range! Compact design is ideal for applications with limited mounting space*
- *Advanced microprocessor provides powerful signal processing and enables automatic adjustments to maximize safety margin*
- *Ideal for sensing small components and features 500 µs response time for high-speed applications*
- *Sensor continuously monitors the strength of received signals and provides a visual LED alert under marginal operating conditions*
- *Programmable light-on / dark-on for application flexibility*

Compact size and automatic setup

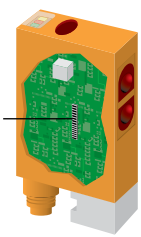
OJ photoelectric sensors use visible LEDs as the light source and measure only 24 x 45 x 11 mm. With switching speeds up to 2000 Hz, the sensors are fast enough to be used in most high-speed applications. A wide variety of mounting brackets allow the OJ to be adapted to most mounting configurations.

An advanced microprocessor provides powerful signal processing and analysis capabilities. This enables the OJ to learn the characteristics of both the target and the background in a specific application.

During initial installation, the automatic calibration will determine the light conditions of both the target-present and target-not-present conditions. The sensitivity of the OJ will then be automatically adjusted so there is a maximum safety margin under each condition.

Diode array sensing technology

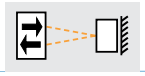
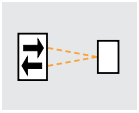
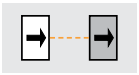
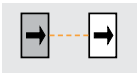
The OJ incorporates diode array technology that enables the sensor to differentiate between the target and the background.



The sensing element contains 63 diode receivers that are placed on an integrated circuit. The array is extremely small allowing it to fit inside the OJ's miniature housing.

		IO-Link	Position Sensors						Motion Control	Vision Sensors
	Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
Search Bar	1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

Function		Range	Output	Spot Ø at max range	SupplyCurrent	Switching Frequency	Light Source	Part No.	List Price (1-pc.)
Diffuse background suppression		15...400 mm	LO/DO PNP	48 mm	25 mA	1000 Hz	Red light 660 nm	**OJ5048**	**$97.00**
		15...400 mm	LO/DO NPN	48 mm	25 mA	1000 Hz	Red light 660 nm	**OJ5049**	**$97.00**
Diffuse		1...600 mm	LO/DO PNP	60 mm	22 mA	2000 Hz	Red light 660 nm	**OJ5022**	**$97.00**
		1...600 mm	LO/DO NPN	60 mm	22 mA	2000 Hz	Red light 660 nm	**OJ5023**	**$97.00**
		1...1000 mm	LO/DO PNP	150 mm	32 mA	2000 Hz	Infrared 880 nm	**OJ5071**	**$97.00**
Polarized retro-reflective		0...2 m	LO/DO PNP	64 mm	22 mA	2000 Hz	Red light 660 nm	**OJ5026**	**$97.00**
		0...2 m	LO/DO NPN	64 mm	22 mA	2000 Hz	Red light 660 nm	**OJ5027**	**$97.00**
Thru-beam receiver		0...10 m	LO/DO PNP	–	12 mA	1200 Hz	–	**OJ5031**	**$76.00**
		0...10 m	LO/DO NPN	–	12 mA	1200 Hz	–	**OJ5032**	**$76.00**
Thru-beam transmitter		0...10 m	–	1000 mm	19 mA	–	Red light 660 nm	**OJ5030**	**$57.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Ball and socket bracket	**E20974**	**$13.00**
	Swivel bracket for side sensing OJ	**E20968**	**$16.00**
	50 mm reflector	**E20956**	**$9.00**
	80 mm reflector	**E20005**	**$8.00**
	Swivel bracket with 50 mm reflector	**E20997**	**$16.00**
	Swivel bracket with 80 mm reflector	**E20995**	**$24.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (4-pin) 2 m, PUR	**EVC150**	**$15.00**
	M8 Pico DC (4-pin) 5 m, PUR	**EVC151**	**$18.00**
	M8 Pico DC (4-pin) 2 m, PUR	**EVC153**	**$15.00**
	M8 Pico DC (4-pin) 5 m, PUR	**EVC154**	**$18.00**

OJ sensors are available in two lens configurations, side sensing and front sensing. Visit www.ifm.com/us

Technical Specs

Supply voltage:	10...30 VDC
No. of wires:	3-wire; Part No. OJ5030: 2-wire
Maximum load current:	200 mA
Voltage drop:	<2.5 V
Leakage current:	Negligible
Connector:	M8
Housing material:	ABS, die-cast zinc, SEPS
Lens material:	Glass; Part Nos. OJ5048 and OJ5049: PMMA
Operating temperature:	-13…140 °F (-25…60 °C)
Protection:	IP67

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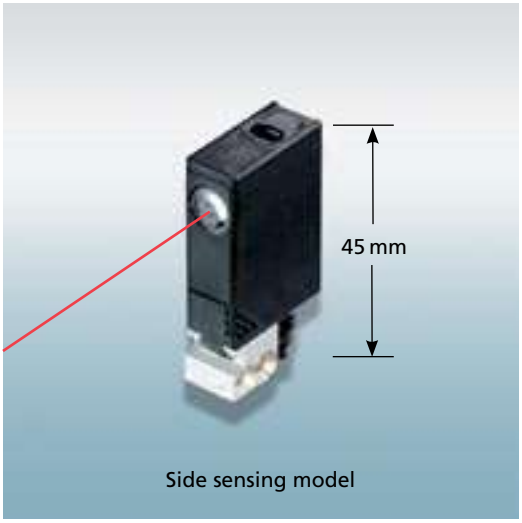


Side sensing model

Top product features!

- *Bright red Class 1 laser light source provides visual indication of beam alignment*
- *Small package, long range! Compact design is ideal for applications with limited mounting space*
- *Advanced microprocessor provides powerful signal processing and enables automatic adjustments to maximize safety margin in an application*
- *Sensor continuously monitors the strength of the received signal and provides a visual LED alert under marginal operating conditions*
- *Programmable light-on / dark-on for application flexibility*

Differentiates target from background at less than 0.5 mm

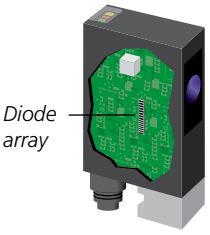
High resolution background suppression laser sensors are ideal for precise sensing applications. The sensor can differentiate between the target and the background at less than 0.5 mm. This type of accuracy is critical for assembly automation applications such as part present and inspection. The OJ's collimated laser beam provides the same beam width up to a distance of 200 mm.

An advanced microprocessor provides powerful signal processing and analysis capabilities. This enables the OJ to learn the characteristics of both the target and the background in a specific application.

During initial installation, the automatic calibration will determine the light conditions of both the target-present and target-not-present conditions. The sensitivity of the OJ will then be automatically adjusted so there is a maximum safety margin under each condition.

For application versatility, OJ sensors are available in two lens configurations, side sensing and front sensing.

Diode array sensing technology



The OJ incorporates diode array technology that enables the sensor to differentiate between the target and the background.

The sensing element contains 63 diode receivers that are placed on an integrated circuit. The array is extremely small allowing it to fit inside the OJ's miniature housing.

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

Function	Range	Output	Switching Frequency	Spot Ø at Max. Range	Supply Current	Light Source	Part No.	List Price (1-pc.)
Diffuse background suppression	7…150 mm	LO/DO, PNP	1000 Hz	0.8 mm	13 mA	Class 1 Laser	**OJ5058**	**$248.00**
Diffuse background suppression	15…200 mm	LO/DO, PNP	1000 Hz	1 x 2 mm	13 mA	Class 1 Laser	**OJ5054**	**$248..00**
	15…200 mm	LO/DO, NPN	1000 Hz	1 x 2 mm	13 mA	Class 1 Laser	**OJ5055**	**$248..00**
Polarized retro-reflective	0…8 m	LO/DO, PNP	2000 Hz	12 mm	15 mA	Class 1 Laser	**OJ5036**	**$221.00**
Thru-beam receiver	0…1 m	LO/DO, PNP	1200 Hz	–	12 mA	Class 1 Laser	**OJ5042**	**$102.00**
Thru-beam transmitter	0…1 m	–	–	4 mm	12 mA	Class 1 Laser	**OJ5041**	**$166.00**
Thru-beam receiver	0…15 m	LO/DO, PNP	1200 Hz	–	12 mA	Class 1 Laser	**OJ5039**	**$102.00**
Thru-beam transmitter	0…15 m	–	–	24 mm	12 mA	Class 1 Laser	**OJ5038**	**$166.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Fine adjust bracket for OJ sensor	**E20976**	**$27.00**
	Ball and socket bracket for OJ	**E20974**	**$13.00**
	10 x 50 mm reflector	**E20988**	**$16.00**
	50 x 50 mm reflector	**E20722**	**$15.00**
	10 mm reflector	**E20990**	**$12.00**
	19 mm reflector	**E20993**	**$12.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (4-pin) 2 m, PUR	**EVC150**	**$15.00**
	M8 Pico DC (4-pin) 5 m, PUR	**EVC151**	**$18.00**
	M8 Pico DC (4-pin) 2 m, PUR	**EVC153**	**$15.00**
	M8 Pico DC (4-pin) 5 m, PUR	**EVC154**	**$18.00**

OJ sensors are available in two lens configurations, side sensing and front sensing. Visit www.ifm.com/us

Technical Specs

Lens material:	Glass; except Part Nos. OJ5054, OJ5055, OJ5058: PMMA
Light source:	Red light, 650 nm
Housing material:	ABS, Fixture: die cast zinc LED window: SEPS Push button: SEPS
Supply voltage:	10...30 VDC
Max Load current:	200 mA
Voltage drop:	<2.5 V
Leakage current:	negligible
Operating temperature:	14...140 °F (-10...60 °C)
Protection:	IP67

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Top product features!

- *Visible red light technology provides precise alignment and simplifies adjustment*
- *Extremely long sensing ranges – up to 1.8 meters for background suppression models; 10 meters for polarized models*
- *Innovative two-pushbutton 'Teach mode' simplifies setup*
- *Protective metal frame withstands mechanical damage in industrial automation applications*
- *Durable rotating connector rotates 270° and easy-to-use bracket system reduces inventory for cordsets*

Rugged design and versatile mounting

ifm's O5 photoelectric sensors offer extremely long sensing ranges in a small housing. The sensors offer a simple two pushbutton 'Teach Mode' that provides high accuracy and extreme resolution for precise applications.

Installation is easy. The sensor's connector rotates 270° for alignment in multiple directions. A variety of brackets are available for versatile mounting.

The O5 sensor can be mounted above its target – up to 1.8 meters for background suppression models.

With its combination of sensing range, compact housing and simple setup, the O5 sensor family is a price / performance benchmark.

Actual size

Innovative 'Teach Mode' operation

Step 1: OUT-off

Mount and align the sensor in the application. The sensor's visible red light simplifies adjustment. Press the OUT-off (output off) button for two seconds.

Step 2: OUT-on

Position the object to be detected. Press the OUT-on (output on) button. The sensor is now ready for operation.

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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Product + accessory selector

Function	Range	Output	Spot Ø at max range	Supply Current	Switching Frequency	Light Source	Part No.	List Price (1-pc.)
Diffuse background suppression	50...1800 mm	LO/DO PNP	90 mm	25 mA	1000 Hz	Red light 624 nm	**O5H500**	**$119.00**
	50...1800 mm	LO/DO NPN	90 mm	25 mA	1000 Hz	Red light 624 nm	**O5H504**	**$119.00**
Polarized retro-reflective	0.075...10 m	LO/DO PNP	250 mm	20 mA	2000 Hz	Red light 624 nm	**O5P500**	**$108.00**
	0.075...10 m	LO/DO NPN	250 mm	20 mA	2000 Hz	Red light 624 nm	**O5P502**	**$108.00**
Thru-beam receiver	0...25 m	LO/DO PNP	–	11 mA	1000 Hz	–	**O5E500**	**$99.00**
	0...25 m	LO/DO NPN	–	11 mA	1000 Hz	–	**O5E502**	**$99.00**
Thru-beam transmitter	0...25 m	–	625 mm	20 mA	–	Red light 624 nm	**O5S500**	**$92.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Short swivel bracket for rod with clamp	**E21083**	**$11.00**
	Freestanding mounting bracket	**E21087**	**$14.00**
	50 mm reflector	**E20956**	**$9.00**
	80 mm reflector	**E20005**	**$8.00**
	Swivel bracket with 50 mm reflector	**E20997**	**$16.00**
	Swivel bracket with 80 mm reflector	**E20995**	**$24.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$13.00**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$16.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Supply voltage:	10...36 VDC
No. of wires:	3-wire; Part No. O5S500: 2-wire
Maximum load current:	200 mA
Voltage drop:	<2.5 V
Leakage current:	Negligible
Connector:	M12
Housing material:	PA, stainless steel, TPU
Lens material:	PMMA
Operating temperature:	-13…140 °F (-25…60 °C)
Protection:	IP67

Reliable service center

The ifm service center team provides tech support, product quotes, delivery information and order placement.

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Top product features!

- PMD "time-of-flight" technology enables long sensing ranges up to 2 meters (6.5 ft) and eliminates need for sensors with reflectors
- Superior optical performance independent of target color
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Digital transmission of target distance
- Reliable background suppression with no false triggers from highly reflective objects such as stainless steel
- Class 1 and Class 2 laser can be mounted to any surface and rotated in any position for application versatility

O5D with simple setup applies "Time-of-Flight" measurement via PMD Technology

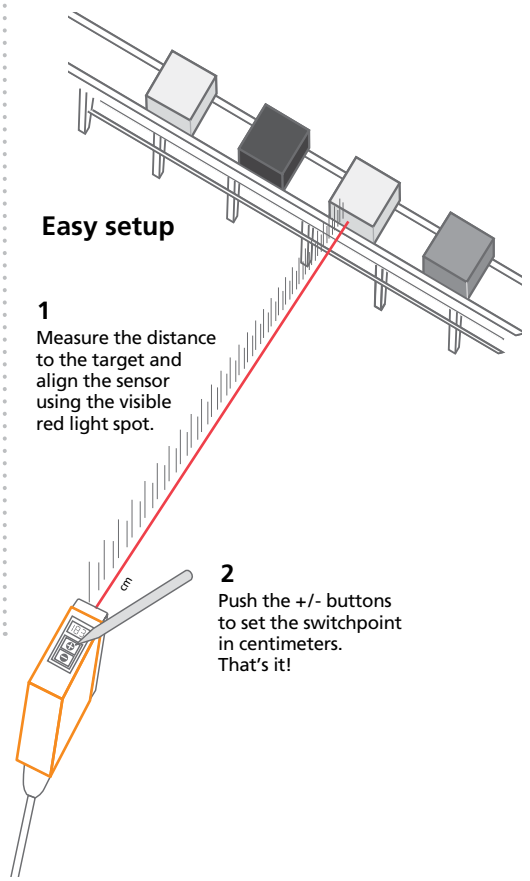
NEW! The O5D Series photoelectric sensors integrate "Time of Flight" sensing principle with PMD technology to provide reliable sensing in industrial automation applications. The advantages of PMD technology include extremely long sensing ranges, reliable background suppression, visible red light spot for setup and high excess gain. The O5D's sensing range can reach up to 2 meters.

The switchpoint can be set easily by using the sensor's display with plus / minus (+/-) buttons that set the switchpoint. A visible red light spot helps to align the sensor and a numeric display shows the distance set. A model is available to display in inches. The switchpoint on the O5D may also be set via IO-Link.

The O5D Series sensors offer reliable optical performance independent of target color. Whether shiny, matte, dark or light objects, the O5D provides superior background suppression.

Time of flight principle
This principle measures a distance based on the time it takes light to travel to an object and back to the receiver.

Typical photoelectric sensors have challenges with false reflections from shiny targets such as stretch wrap on a pallet. The PMD "time-of-flight" technology from ifm performs reliably in these applications.



IO-Link
Position Sensors
Motion Control
Vision Sensors
Company
IO-Link
Inductive
Capacitive
Cylinder / valve position
Photoelectrics / lasers / fiber optics
Distance / Application specific
Ultrasonic
Encoders / Speed monitors
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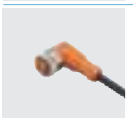
Product + accessory selector

Type	Range	Output	Spot Ø at Max. Range	Supply Current	Switching Frequency	Light Source	Unit of Measurement	Part No.	List Price (1-pc.)
	.03…2 m	Complementary LO / DO, PNP	< 5 mm	< 75 mA	11 Hz	Class 2 laser Red light 650 nm	cm	**O5D100**	**$147.00**
	.03…2 m	Complementary LO / DO, NPN	< 5 mm	< 75 mA	11 Hz	Class 2 laser Red light 650 nm	cm	**O5D102**	**$149.00**
	.03…2 m	Complementary LO / DO, PNP	< 5 mm	< 75 mA	11 Hz	Class 1 laser Red light 650 nm	cm	**O5D150**	**$149.00**
	.03…2 m	Complementary LO / DO, NPN	< 5 mm	< 75 mA	11 Hz	Class 1 laser Red light 650 nm	cm	**O5D152**	**$149.00**
	.03…2 m	Complementary LO / DO, PNP	< 5 mm	< 75 mA	11 Hz	Class 2 laser Red light 650 nm	inch	**O5D101**	**$147.00**
	.03…2 m	Complementary LO / DO, PNP	< 5 mm	< 75 mA	11 Hz	Class 1 laser Red light 650 nm	inch	**O5D151**	**$149.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Short swivel bracket for rod with clamp	**E21083**	**$11.00**
	Freestanding mounting bracket	**E21087**	**$14.00**
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

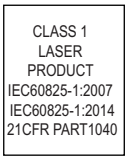
Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**

For more information on IO-Link, see pages 6 - 21.

Technical Specs

Dimensions:	47 x 56 x 18 mm
Operating voltage:	10…30 VDC
Switching status indication:	yellow LED
Operation:	green LED
Switchpoint setting:	pushbutton
Output function:	OUT1: LO OUT2: DO
Current rating:	2 x 100 mA
Protection:	IP65, IP67
Operating temperature:	-13…140 °F (-25…60 °C)
Housing material:	stainless steel, PA, TPU
Font panel material:	PMMA



Class 1 Laser

Class 2 Laser

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Top product features!

- *Photoelectric with long sensing ranges that reach up to 80 meters*
- *Visible red light technology provides precise alignment and simplifies adjustment*
- *Innovative two-pushbutton 'teach mode' simplifies setup procedure*
- *Built-in stainless steel frame protects housing in harsh environments*
- *Durable rotating connector rotates 270° and easy-to-use bracket system reduces inventory for mounting accessories*

O4 Photoelectrics with 80 meter sensing ranges

Compact O4 Series photoelectric sensors offer extremely long sensing ranges that are ideal for applications including transporting, conveying, inspection and error-proofing. The sensor's extended sensing range enables the sensor to be placed farther away from an application reducing its chance of physical damage. A built-in, stainless steel frame provides additional protection for the sensor.

Flexible mounting with visible red light for alignment

- Visible red light technology simplifies set-up and provides quick mounting.
- The durable connector rotates 270° for alignment in multiple directions. A variety of easy-to-use brackets are available for versatile mounting options.

Innovative 'Teach Mode' operation

Step 1: OUT-off

Mount and align the sensor in the application. The sensor's visible red light simplifies adjustment. Press the OUT-off (output off) button for two seconds.

Step 2: OUT-on

Position the object to be detected. Press the OUT-on (output on) button. The sensor is now ready for operation.

PNP to NPN converter cordset

This cordset converts PNP outputs to NPN outputs.

Part no.: EVC01E (5 meters)
List price (1-pc): $19.00

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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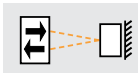
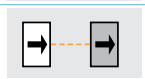
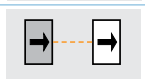
Product + accessory selector

Function		Range	Output	Spot Ø at max. range	Supply Current	Switching Frequency	Light Source	Part No.	List Price (1-pc.)
Diffuse background suppression		100…2600 mm	LO/DO PNP	135 mm	25 mA	1000 Hz	Red light 624 nm	**O4H500**	**$124.00**
Polarized retro-reflective		0.3…22 m	LO/DO PNP	660 mm	20 mA	2000 Hz	Red light 624 nm	**O4P500**	**$114.00**
Thru-beam receiver		0…80 m	LO/DO PNP	–	12 mA	1000 Hz	–	**O4E500**	**$97.00**
Thru-beam transmitter		0…80 m	–	2400 mm	20 mA	–	Red light 624 nm	**O4S500**	**$88.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Swivel bracket	**E21118**	**$22.00**
	Protective bracket	**E21119**	**$38.00**
	50 mm reflector	**E20956**	**$9.00**
	80 mm reflector	**E20005**	**$8.00**
	Swivel bracket with 50 mm reflector	**E20997**	**$16.00**
	Swivel bracket with 80 mm reflector	**E20995**	**$24.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$13.00**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$16.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Supply voltage	10…36 VDC
No. of wires	3-wire; Part No. O4S500: 2-wire
Maximum load current	200 mA
Voltage drop	<2.5 V
Leakage current	Negligible
Connector	M12
Housing material	PA, stainless steel, TPE
Lens material	PMMA
Operating temperature	-13…140 °F (-25…60 °C)
Protection	IP67

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ifm R&D engineers design products that reduce machine downtime, increase productivity and simplify installation.

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Top product features!

- Fork and angle sensors with one-piece housing design saves set-up time
- Accurate alignment – no need to align transmitter and receiver
- Robust, metal housing with thru-holes for easy mounting without brackets
- Laser sensors are ideal for detecting very small parts
- Light-on / dark-on mode selectable via rotary switch for application flexibility

Optical fork and angle sensors offer easy setup and accurate alignment in robust metal housing

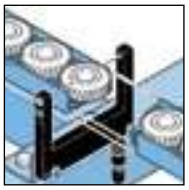
ifm's optical fork and angle sensors offer a flexible solution for a broad range of packaging and material handling applications. Unlike traditional thru-beam photoelectric sensor pairs, ifm's fork and angle sensors offer a one-piece, fixed-distance transmitter and receiver design. This design eliminates the time consuming alignment of a transmitter and a receiver.

The sensor's robust metal housing resists distortion that typically occurs with conventional plastic fork sensors. A visible red light beam across the whole width assists in setup. Easy adjustable sensitivity setting is established via a potentiometer. Integrated thru-holes provide simple mounting without brackets.

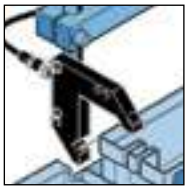
Fork housings are available with slot widths ranging from 10 mm up to 120 mm. Angle sensors are available in 60 mm and 100 mm widths.

Application solutions

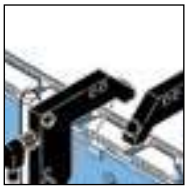
Gear tooth detection



Part detection on tracks



Part detection on conveyors



Detection of legs on integrated circuits

Transparent film and web edge control

Monitoring of batch height

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Company	IO-Link: IO-Link	Position Sensors: Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Motion Control: Encoders / Speed monitors	Vision Sensors: 2D / 3D inspection
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Product + accessory selector

ForkSensors	Fork Width (w)	Fork Depth (d)	Output	Smallest Detectable Object Ø	Light Source	Switching Frequency	Part No.	List Price (1-pc.)
Visible red and infrared								
	10 mm	17 mm	LO / DO, PNP / NPN	0.3 mm	Infrared light 880 nm	10000 Hz	**OPU200**	**$153.00**
	20 mm	25 mm	LO / DO, PNP	0.4 mm	Red light 660 nm	4000 Hz	**OPU201**	**$166.00**
	30 mm	35 mm	LO / DO, PNP	0.5 mm	Red light 660 nm	4000 Hz	**OPU202**	**$189.00**
	50 mm	55 mm	LO / DO, PNP	0.5 mm	Red light 660 nm	4000 Hz	**OPU203**	**$201.00**
	80 mm	55 mm	LO / DO, PNP	0.5 mm	Red light 660 nm	4000 Hz	**OPU204**	**$222.00**
	120 mm	60 mm	LO / DO, PNP	0.8 mm	Red light 660 nm	2000 Hz	**OPU205**	**$227.00**
Class 1 Laser								
	30 mm	30 mm	LO / DO, PNP	0.05 mm	Class 1 laser, Red light 670 nm	3000 Hz	**OPU700**	**$294.00**
	50 mm	50 mm	LO / DO, PNP	0.05 mm	Class 1 laser, Red light 670 nm	3000 Hz	**OPU701**	**$305.00**
	80 mm	50 mm	LO / DO, PNP	0.05 mm	Class 1 laser, Red light 670 nm	3000 Hz	**OPU702**	**$331.00**

Angle Sensors	Side Length (x, y)	Sensor Width (z)	Output	Smallest Detectable Object Ø	Light Source	Switching Frequency	Part No.	List Price (1-pc.)
Visible red								
	50 mm	60 mm	LO / DO, PNP	0.5 mm	Red light	4000 Hz	**OPL200**	**$215.00**
	80 mm	100 mm	LO / DO, PNP	0.7 mm	Red light	4000 Hz	**OPL201**	**$228.00**

NPN versions of fork and angle sensors available, call 800-441-8246 or visit www.ifm.com/us

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico (3-pin) 2 m, PUR cable	**EVC141**	**$14.00**
	M8 Pico (3-pin) 5 m, PUR cable	**EVC142**	**$17.00**
	M8 Pico (3-pin) 2 m, PUR cable	**EVC144**	**$14.00**
	M8 Pico (3-pin) 5 m, PUR cable	**EVC145**	**$17.00**

Technical Specs

Operating voltage:	10...35 VDC Laser: 10…30 VDC
Short-circuit protection, pulsed:	yes
Reverse polarity / overload protection:	yes / yes
Operating temperature:	-13…140 °F (-25…60 °C) Laser: 41…113 °F (5…45 °C)
Current rating:	200 mA
Protection:	IP67
Housing material:	Diecast zinc

CLASS 1
LASER
PRODUCT
IEC60825-1:2007
IEC60825-1:2014
21CFR PART1040

Class 1
Laser

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Top product features!

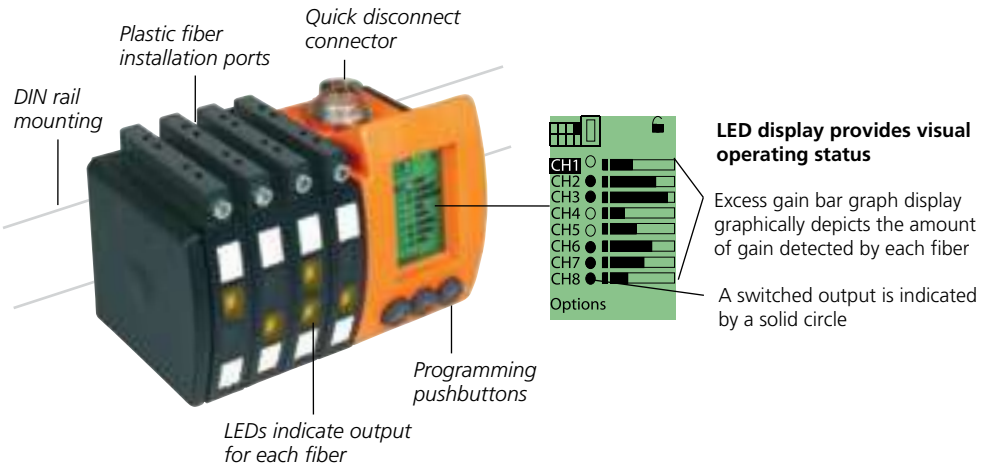
- Multi-channel fiber optic controller with central operating display is designed for applications with multiple sensing points
- Features LCD operator interface that can be used to program multiple fibers and perform AND / OR logic functions
- Available in 2-fiber, 4-fiber, 6-fiber and 8-fiber models
- Individual fibers can be programmed for up to two switchpoints each
- Controller eliminates excessive wiring by using a single cable that replaces individual wiring for each amplifier

Fiber optic controllers and amplifiers

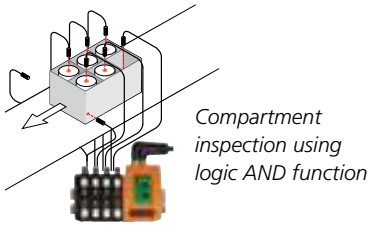
Fiber optics can be used in applications with limited mounting space or as an alternative to a standard photoelectric sensor. Because the electronics are contained in a separate housing that can be remotely located, only the miniature fiber must be mounted near the target.

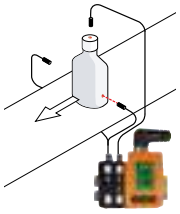
Multi-Channel Fiber Optic Controller reduces wiring

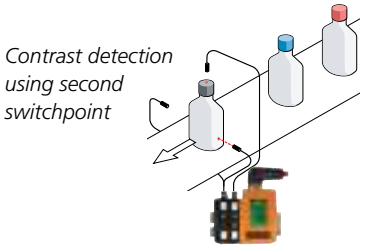
ifm's multi-channel fiber optic controller is designed for applications that require multiple fiber-optic sensing points. The controller eliminates excessive wiring by using a single cable that replaces individual wiring for each amplifier. Depending on the model, up to eight fibers can be connected to one fiber optic controller.



Controller multi-point application solutions







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Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
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Product + accessory selector

Function	Connector	Number of Channels	Output	Supply Current	Switching Frequency	Part No.	List Price (1-pc.)
Amplifier for plastic fibers – See page 102 for fibers							
	M12	2	LO/DO PNP	50 mA	2700 Hz	**OO5000**	**$337.00**
	M12	2	LO/DO NPN	50 mA	2700 Hz	**OO5008**	**$337.00**
	M12	4	LO/DO PNP	50 mA	1500 Hz	**OO5001**	**$495.00**
	M16	6	LO/DO PNP	50 mA	1000 Hz	**OO5002**	**$651.00**
	M16	8	LO/DO PNP	50 mA	800 Hz	**OO5003**	**$804.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (8-pin) 2 m black, right angle	**E11231**	**$29.00**
	M12 Micro DC (8-pin) 5 m black, right angle	**E11232**	**$36.00**
	M16 Micro DC (14-pin) 2 m black, right angle	**E11645**	**$60.00**
	M16 Micro DC (14-pin) 5 m black, right angle	**E11697**	**$82.00**

For additional controllers and fiber optics, visit www.ifm.com/us

Technical Specs

Housing Material:	ABS
Light source:	Red light 630 nm
Supply Voltage:	12...36 VDC
Maximum Load Current:	200 mA
Voltage Drop:	<2 V
Leakage Current:	negligible
Operating Temp:	-4...140 °F (-20...60 °C)
Protection:	IP65

Top product features!

- Fiber optic amplifiers for plastic or glass fibers
- Single-fiber amplifiers incorporate transmitter and receiver in one housing
- Automatic pushbutton setup adjustment for quick application setup
- Auto detect circuit for PNP or NPN output
- Provides multiple bright LEDs for signal strength indication

Fiber optic amplifiers

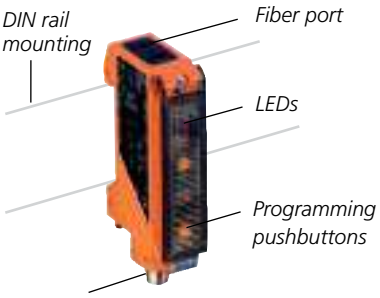
OBF amplifiers can be mounted in areas with limited mounting space

Fiber optics can be used in applications with limited mounting space or as an alternative to standard photo-electric sensors. Because the electronics are contained in a separate housing that can be remotely located, only the miniature fiber must be mounted near the target.

OBF amplifiers

The OBF amplifiers incorporate a transmitter and receiver in one housing. A single fiber optic cable is connected to the amplifier and directs light to and from the transmitter and receiver. Fiber optic cables are available in two versions: thru-beam and diffuse reflection.

Powerful amplifier in a compact housing



Typical applications:

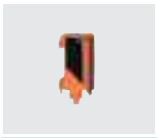
Confined spaces: The fiber optic head can be positioned at the sensing location, while the amplifier can be mounted remotely where sufficient space is available. Fiber cables are typically 2-6 feet long to accommodate the distance.

Detection of minute objects: Depending on the sensing head and range, objects as small as 0.5mm can be detected. When the placement of the target is precise, it is possible to detect fine structures such as thread pitches.

High temperatures: Stainless steel glass fiber optic cables can withstand temperatures up to 600°F

		IO-Link	Position Sensors						Motion Control	Vision Sensors	
Search Bar	Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
	1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

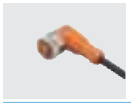
Product + accessory selector

Function	Connector	Number of Fibers	Output	Supply Current	Switching Frequency	Part No.	List Price (1-pc.)
Amplifier for plastic fibers – See page 106 for fibers							
	M12	1	PNP/NPN, LO/DO	< 50 mA	3000 Hz	**OBF500**	**$155.00**
	M8 3-pin*	1	PNP/NPN, LO/DO	< 50 mA	3000 Hz	**OBF503**	**$155.00**
	M8 4-pin	1	PNP/NPN, LO/DO	< 50 mA	3000 Hz	**OBF501**	**$155.00**
	Prewired	1	PNP/NPN, LO/DO	< 50 mA	3000 Hz	**OBF502**	**$155.00**
Amplifier for glass fibers – See page 107 for fibers							
	M12	1	PNP/NPN, LO/DO	< 50 mA	1000 Hz	**OBF504**	**$155.00**
	M8 3-pin*	1	PNP/NPN, LO/DO	< 50 mA	1000 Hz	**OBF507**	**$155.00**
	M8 4-pin	1	PNP/NPN, LO/DO	< 50 mA	1000 Hz	**OBF505**	**$155.00**

* Does not have marginal signal output

* Does not have marginal signal output

Cordsets (4-pin) and Accessories

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	Fiber optic cutter for plastic fibers	**E20600**	**$11.00**

For additional amplifiers and fiber optics, visit www.ifm.com/us

Cordsets (3-pin and 4-pin)

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (3-pin) 2 m, PUR	**EVC141**	**$14.00**
	M8 Pico DC (3-pin) 5 m, PUR	**EVC142**	**$17.00**
	M8 Pico DC (3-pin) 2 m, PUR	**EVC144**	**$14.00**
	M8 Pico DC (3-pin) 5 m, PUR	**EVC145**	**$17.00**
	M8 Pico DC (4-pin) 2 m, PUR	**EVC150**	**$15.00**
	M8 Pico DC (4-pin) 5 m, PUR	**EVC151**	**$18.00**
	M8 Pico DC (4-pin) 2 m, PUR	**EVC153**	**$15.00**
	M8 Pico DC (4-pin) 5 m, PUR	**EVC154**	**$18.00**

Technical Specs

Housing Material:	PPE
Light source:	red light 630 nm
Supply Voltage:	10...30 VDC
Maximum Load Current:	100 mA
Voltage Drop:	<2.5 V
Leakage Current:	negligible
Operating Temp:	-13...140 °F (-25...60 °C)
Protection:	IP65

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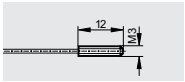
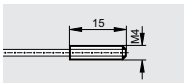
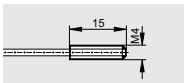
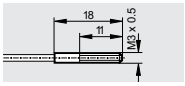
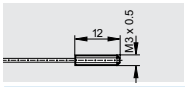
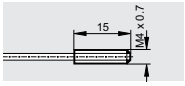
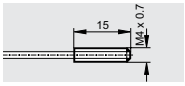
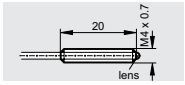
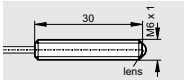
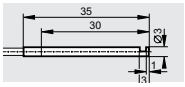
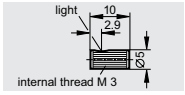
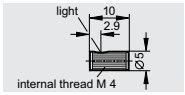
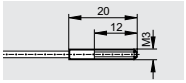
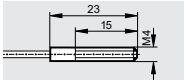
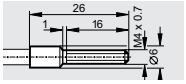
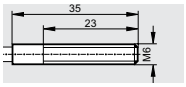
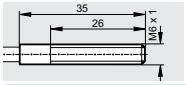
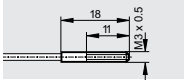
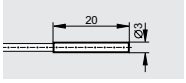
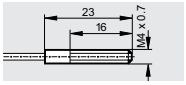
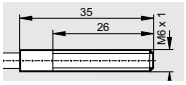
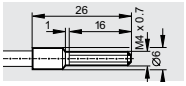
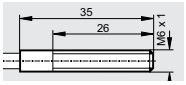
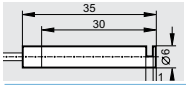
Thru-beam plastic fibers for OO and OBF amplifiers

Type	Range OO / OBF [mm]	Effective beam / Min bend radius	Part No.	List Price (1-pr.)
Thru-beam type · M3 sensing head · High flex				
	120 / 56	0.5 mm / 3 mm	**E21103**	**$76.00**
Thru-beam type · M4 sensing head · High flex				
	750 / 350	1 mm / 3 mm	**E21102**	**$94.00**
	120 / 56	0.5 mm / 3 mm	**E21104**	**$76.00**
Thru-beam type · M3 sensing head				
	800 / 350	1 mm / 30 mm	**E20603**	**$46.00**
	160 / 130	0.5 mm / 10 mm	**E20609**	**$46.00**
Thru-beam type · M4 sensing head				
	800 / 210	1 mm / 9 mm	**E20615**	**$54.00**
	800 / 450	1 mm / 30 mm	**E20606**	**$54.00**
Thru-beam type · integrated lens				
	1600 / 900	2 mm / 30 mm	**E20753**	**$88.00**
	3800 / 2000	6 mm / 30 mm	**E20752**	**$88.00**
Thru-beam type · right angle lens				
	400 / 230	side-sensing / 25 mm	**E20714**	**$153.00**
Accessories · for thru-beam fibers only				
	Right angle lens adapter for M3 fibers, increases range by 15-20%		**E20754**	**$57.00**
	Right angle lens adapter for M4 fibers, increases range by 15-20%		**E20755**	**$47.00**

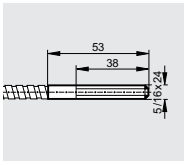
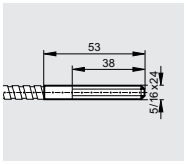
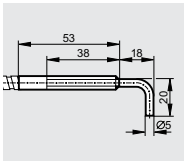
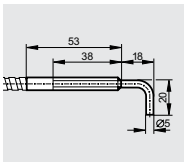
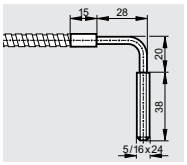
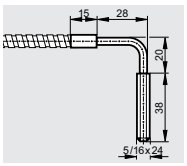
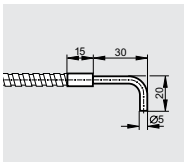
Diffuse plastic fibers for OO and OBF amplifiers

Type	Range OO / OBF [mm]	Min bend radius	Part No.	List Price (1-pc.)
Diffuse reflective type · high flex				
	30 / 10	3 mm	**E21107**	**$76.00**
	30 / 10	3 mm	**E21106**	**$82.00**
	300 / 70	9 mm	**E20645**	**$54.00**
	180 / 104	3 mm	**E21105**	**$94.00**
	300 / 70	9 mm	**E20648**	**$47.00**
Diffuse reflective type · standard fiber				
	60 / 25	10 mm	**E20712**	**$48.00**
	60 / 25	10 mm	**E20711**	**$55.00**
	60 / 25	10 mm	**E20639**	**$45.00**
	300 / 100	30 mm	**E20633**	**$54.00**
Diffuse reflective type · high accuracy fiber				
	300 / 90	30 mm	**E20651**	**$54.00**
	300 / 90	30 mm	**E20654**	**$47.00**
Diffuse reflective type · right angle lens				
	150 / 60	25 mm	**E20715**	**$148.00**

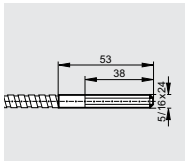
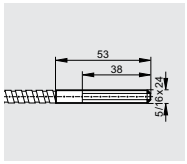
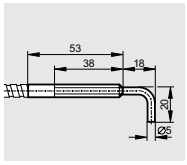
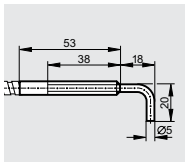
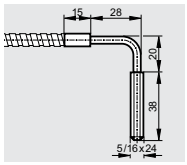
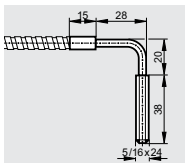
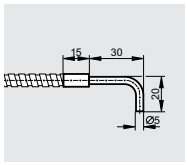
Technical Specs

Sensing head:	Aluminum; except Part Nos. E20711, E20714, E20715: stainless steel
Fiber sheathing:	Polyethylene
Fiber length:	2 meters

Thru-beam glass fibers for OBF amplifiers

Type	Range OBF [mm]	Length	Part No.	List Price (1-pc.)
Thru-beam type · sold individually, two required for an application				
	1000	3′	**E20823**	**$69.00**
	500	6′	**E21026**	**$111.00**
	1000	3′	**E20827**	**$111.00**
	500	6′	**E21027**	**$161.00**
	1000	3′	**E20825**	**$92.00**
	500	6′	**E21028**	**$140.00**
	1000	3′	**E20828**	**$80.00**

Diffuse glass fibers for OBF amplifiers

Type	Range OBF [mm]	Length	Part No.	List Price (1-pc.)
Diffuse reflective type				
	150	3′	**E20822**	**$89.00**
	75	6′	**E21031**	**$136.00**
	150	3′	**E20826**	**$139.00**
	75	6′	**E21032**	**$190.00**
	150	3′	**E20824**	**$114.00**
	75	6′	**E21033**	**$166.00**
	150	3′	**E20829**	**$104.00**

Technical Specs

Sensing head end sheathing:	Stainless steel
Fiber bundle diameter:	0.125″
Minimum bend radius:	19 mm
Temperature:	-71…599 °F (-58…315 °C)

Top product features!

- *Right balance of performance, size and price for distance measurement applications*
- *Photoelectric is ideal for long-range background suppression applications*
- *Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback*
- *Digital transmission of target distance and reflectivity*
- *Large 4-digit alphanumeric display indicates measured distance*
- *Ignores ambient light up to 100 klx*

Reliable solution for long-range object detection

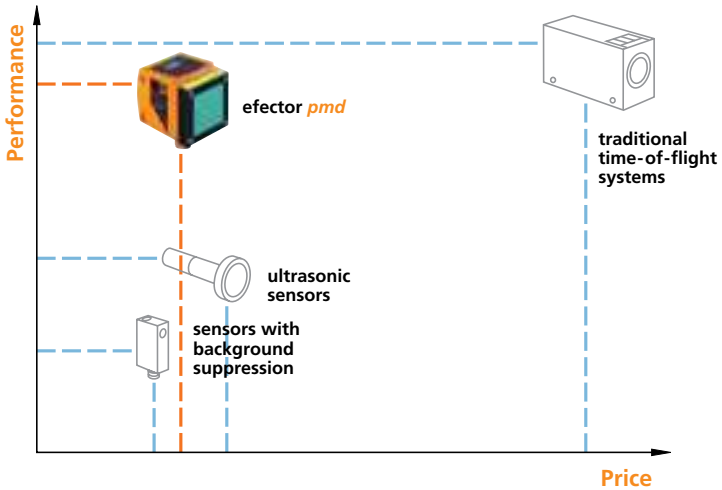
The harsh effects of manufacturing conditions such as weld slag and chemicals often prevent optical sensors from being used in error-proofing applications. The *efector pmd laser sensor* with background suppression can be placed farther away from the application – and the elements – to accurately locate a small part.

efector *pmd* advantage

Background suppression and ultrasonic sensors are lower-cost alternatives for distance measurement but have shorter ranges. Traditional time-of-flight systems offer an improved level of performance but are much higher in cost. ifm's *pmd* sensor combines the advantages of these systems: a 10 meter range at an affordable price.

New feature

The ifm *pmd* sensor can now ignore ambient light up to 100 klx. This makes it a perfect sensor for both indoor and outdoor applications.



4-digit numeric display

The sensor's 4-digit alphanumeric display precisely indicates the measured distance. Models available with simple teach function or parameter setup via pushbutton.

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

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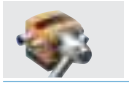
Product + accessory selector

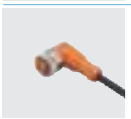
Function	Range	Output	Spot Ø at Max Range	Sampling Frequency	Light Source	Part No.	List Price (1-pc.)
NEW! Distance measurement sensor	0.2…10 m	4-20 mA / 0-10 VDC and PNP or dual PNP	15 x 15 mm	1…50 Hz	Class 2 laser Red light 650 nm	**O1D100**	**$419.00**
Distance measurement sensor	0.2…10 m	4-20 mA / 0-10 VDC and NPN or dual NPN	15 x 15 mm	1…50 Hz	Class 2 laser Red light 650 nm	**O1D103**	**$419.00**
Distance measurement sensor	0.3…6 m	4-20 mA / 0-10 VDC and PNP or dual PNP	8 x 8 mm	1…50 Hz	**Class 1 laser** Red light 650 nm	**O1D155**	**$419.00**
Distance measurement sensor	1…75 m (requires reflector)	4-20 mA / 0-10 VDC PNP	150 x 150 mm	1…33 Hz	Class 2 laser Red light 650 nm	**O1D106**	**$448.00**
Distance measurement sensor	0.2…10 m	LO/DO PNP	15 x 15 mm	5 Hz	Class 2 laser Red light 650 nm	**O1D101**	**$405.00**
Distance measurement sensor	0.2…10 m	LO/DO NPN	15 x 15 mm	5 Hz	Class 2 laser Red light 650 nm	**O1D104**	**$405.00**
Level measurement sensor	0.2…10 m	4-20 mA / 0-10 VDC PNP	15 x 15 mm	1…33 Hz	Class 2 laser Red light 650 nm	**O1D300**	**$431.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Rail mount swivel bracket for O1D	**E21079**	**$57.00**
	Plastic cover for O1D	**E21133**	**$30.00**
	95 x 95 mm reflector (for O1D106)	**E20454**	**$24.00**
	226 x 262 mm reflector (for O1D106)	**E21159**	**$212.00**

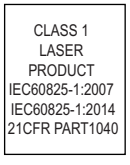
Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$13.00**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$16.00**

Technical Specs

Supply current:	150mA
Supply voltage:	O1D100, O1D103, O1D106, O1D155 and O1D300: 18...30 V DC; O1D101 and O1D104: 10…30 VDC
No. of wires:	4-wire: O1D100, O1D103, O1D106, O1D155 and O1D300 3-wire: O1D101, O1D104
Maximum load current:	O1D100, O1D103, O1D106, O1D155 and O1D300: 2 x 200 mA; O1D101 and O1D104: 1 x 200 mA
Connector:	M12
Housing material:	Die-cast zinc, PC
Lens material:	Glass
Operating temperature:	14…140 °F (-10…60 °C)
Protection:	IP67



Class 1 Laser

Class 2 Laser

Reliable service center
The ifm service center team provides tech support, product quotes, delivery information and order placement.

Place orders, tech support
800-441-8246
Visit our product catalog
www.ifm.com/us
Shop for products online
Easy ordering via eShop

Top product features!

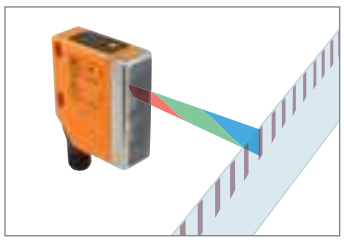
- Contrast and color sensors for error-proofing and object detection
- Sensor uses reliable RGB (red, green, blue) technology to determine ideal color to differentiate target background
- High color contrast sensitivity and resolution
- 18 to 22 mm sensing range for contrast, 15 to 18 mm for color
- Auto-detect for PNP/NPN configuration and "Teach Mode" setup to establish application parameters

O5 contrast and color photoelectric sensors

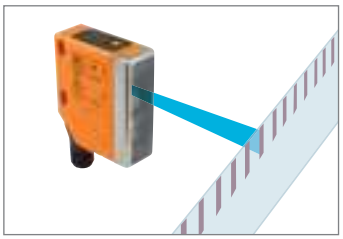
ifm's high performance O5 Series Contrast and Color sensors offer a variety of sensing solutions for the packaging, assembly, material handling and printing industries.

The O5 sensors feature a RGB visible light transmission LED that processes through red, green and blue to identify the best contrast color between the target and the background.

Contrast sensor application solutions



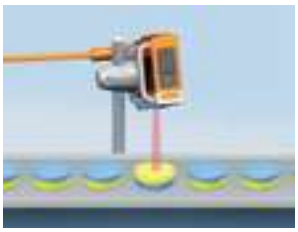
The Contrast Sensor's visible light processes through red, green and blue to identify the best color for contrast.



In this example, the sensor selects blue for the highest contrast color. The sensor's high switching frequency can handle the application's short mark-to-space ratio.

Color sensor application solutions

Color verification: *Using the O5's adjustable tolerance, the O5 can accept variations of the same color and reject different colors.*



Orientation: *The O5 detects proper orientation in fast-moving applications.*

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder/valve position	Photoelectrics/ lasers/fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D/3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

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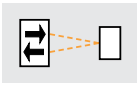
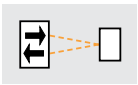
Product + accessory selector

Function		Range	Output	Spot Ø at max range	Supply Current	Switching Frequency	Light Source	Part No.	List Price (1-pc.)
Contrast sensor: diffuse		18...22 mm	LO/DO PNP/NPN	1.5 x 5 mm	< 50 mA	10000 Hz	RGB	**O5K500**	**$215.00**
Color sensor		15…19 mm	LO/DO PNP/NPN	2.5 x 6 mm	< 50 mA	2000 Hz	RGB	**O5C500**	**$398.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Short swivel bracket for rod with clamp	**E21083**	**$11.00**
	Freestanding mounting bracket	**E21087**	**$14.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$13.00**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$16.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Type of light:	Red light 625 nm Green light 525 nm Blue light 465 nm
Supply voltage:	10...36 V DC
No. of wires:	3-wire
Maximum load current:	200 mA
Voltage drop:	<2.5 V
Leakage current:	Negligible
Connector:	M12
Housing material:	PA, stainless steel, TPU/PC
Lens material:	PMMA
Operating temperature:	-13…140 °F (-25…60 °C)
Protection:	IP67

Dedicated sales engineers

ifm's experienced sales engineers understand your applications and provide solutions to your challenges.

Place orders, tech support
800-441-8246

Visit our product catalog
www.ifm.com/us

Shop for products online
Easy ordering via eShop

Top product features!

- *Detects glass, film, PET bottles and transparent objects*
- *Simple automatic sensitivity adjustment for reliable detection of clear objects*
- *Programmable LO / DO for application flexibility*
- *Thru-hole mounting for an easy, fixed mounting solution*
- *Multiple bracket options for mounting flexibility*

Reliable clear object detection

OJ sensor uses a reflector to detect plastic bottles on a conveyor.

One of the most difficult photoelectric applications is the detection of clear objects such as film, glass, or PET plastic bottles and transparent packaging. Standard sensors typically have too much excess gain and "burn" through the clear material. ifm efector offers two options for clear object detection applications: the OJ Series sensors and the O5 Series sensor.

OJ Series sensors – compact housings, long sensing ranges

ifm's OJ Series retroreflective sensor offers a low switching hysteresis specifically for the detection of transparent objects. The sensors incorporate an innovative technology that allows the sensitivity to be automatically set using an easy-to-use teach function. The teach function eliminates the need to have the product present during initial set up. The technology also reduces the effect of "dead spots" or areas on plastic bottles that cannot be detected when teaching the sensor to read a clear bottle as the target.

O5 Series sensors - sensing range up to 3 meters

ifm's compact O5 Series polarized retro-reflective sensor offers extremely long sensing ranges – up to 3 meters when used with ifm's prismatic square reflector (Part No. E20454). The high-precision sensor is designed for inspection and error-proofing applications and offers high switching frequency of 2000 Hz for fast moving processes. The unit features a two-pushbutton Teach operation that quickly establishes light-on/dark-on programming. The sensor's micro-processor provides automatic calibration, load detection (PNP or NPN), and switch point adjustment with soiling indication.

O5 Series sensing range reaches up to 3 meters using a prismatic reflector.

OJ sensors feature front sensing and side sensing models.

IO-Link | Position Sensors | Motion Control | Vision Sensors
Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection
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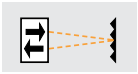
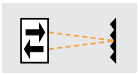
Product + accessory selector

Function	Connector	Output	Switching Frequency [Hz]	Supply Current [mA]	Spot Ø at max. range [mm]	Part No.	List Price (1-pc.)
O5 3-wire DC · Clear object detection · adjustable range...1.5 m* (with E20722 reflector) · red light 624 nm							
Polarized retro-reflective 	M12	LO/DO PNP/NPN	1500	<50	40 mm @ 1.5 m 80 mm @ 3 m	**O5G500**	**$150.00**

*Adjustable range 3 m with E20454 reflector.

Function	Connector	Output	Switching Frequency [Hz]	Supply Current [mA]	Lens position	Part No.	List Price (1-pc.)
OJ 4-wire DC · Clear object detection · range...1.5 m (with E20722 reflector) · red light 660 nm							
Polarized retro-reflective 	M8	LO/DO PNP	2000	< 22	front	**OJ5185**	**$141.00**
	M8	LO/DO PNP	2000	< 22	side	**OJ5186**	**$141.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	O5 Sensor swivel bracket for rod Complete set includes clamp	**E21083**	**$11.00**
	O5 Sensor protective bracket for rod Complete set includes clamp	**E21084**	**$16.00**
	O5 Sensor freestanding mounting bracket	**E21087**	**$14.00**
	OJ Sensor stainless steel clip	**E20965**	**$23.00**
	OJ sensor swivel bracket for front sensing OJ, die-cast zinc	**E20966**	**$15.00**
	OJ sensor swivel bracket for side sensing OJ, die-cast zinc	**E20968**	**$16.00**
	50 x 50 mm reflector	**E20722**	**$15.00**
	95 x 95 mm reflector	**E20454**	**$24.00**

Cordsets for O5 Sensors

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**

Cordsets for OJ Sensors

	M8 Pico DC (4-pin) 2 m, PUR	**EVC150**	**$15.00**
	M8 Pico DC (4-pin) 5 m, PUR	**EVC151**	**$18.00**
	M8 Pico DC (4-pin) 5 m, PUR	**EVC154**	**$18.00**
	M8 Pico DC (4-pin) 10 m, PUR	**EVC155**	**$25.00**

OJ sensors are available in two lens configurations, side sensing and front sensing. Visit www.ifm.com/us

Top product features!

- Ultrasonic sensors with robust high-grade stainless steel housing for demanding applications
- Sensing range up to 1.2 m in M18 cube design and 2.2 m in M18 tubular design
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Digital transmission of target distance and sensor health diagnostics
- Digital and analog outputs for object detection and level applications

Compact ultrasonic sensors with robust metal housings – Object detection for long ranges and challenging surfaces

NEW! Ultrasonic sensors emit short bursts of very high frequency sound waves. When the sound waves strike an object, an echo is reflected back to the ultrasonic sensor. The time it takes for the sound to travel to the object and back is measured and converted into a distance. This information may be used for both position and level sensing applications.

Ability to solve challenging applications

Ultrasonic sensors are similar to photoelectric sensors in their ability to detect targets at long ranges. Since they operate by sensing sound, ultrasonic sensors are not subject to interference from light sources such as UV or direct sunlight. Ultrasonic sensors are capable of sensing irregular-shaped targets including objects with holes. They are particularly well suited for sensing sound-reflecting targets regardless of their color, transparency or surface reflectivity.

The solution for a wide variety of position applications

- Ideal for sensing clear objects and diffuse sensing of targets at long ranges (up to 2.2 meters), such as automobile windshields.
- Detects full or empty positions in stack height control applications.
- Senses position of the material loop so the roller speed can be adjusted as required for non-contact web loop control.
- Detection of roll diameters to determine when the material will run out; or for stamping applications where shiny metal surfaces can be challenging to detect with photoelectric sensors.
- Well suited for level applications with liquids and materials with uneven surfaces such as granules and powders.
- Retro-reflective models detect objects regardless of orientation.
- Good solution for dusty environments because vibrating sound transducer reduces the accumulation of deposits.

Application solutions

ifm's ultrasonic sensors detect targets regardless of their color, transparency or surface reflectivity.

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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Product + accessory selector

Type		Housing Length/ Dimensions	Setting	Output	Part No.	Part No.	Part No.	Part No.	Part No.	List Price (1-pc.)
Diffuse-reflection sensor · 4-wire DC					**300 mm**	**800 mm**	**1200 mm**	**1600 mm**	**2200 mm**	
	M18 Cube	53 x 20 x 38 mm	Pushbutton	PNP + 4…20 mA	**UGT580**	**UGT582**	**UGT584**	–	–	**$164.00**
	M18 Cube	53 x 20 x 38 mm	Pushbutton	PNP + 0…10 V	**UGT581**	**UGT583**	**UGT585**	–	–	**$164.00**
	M18 Cube	53 x 20 x 38 mm	Pushbutton	NPN + 4…20 mA	**UGT586**	**UGT588**	**UGT590**	–	–	**$164.00**
	M18 Cube	53 x 20 x 38 mm	Pushbutton	NPN + 0…10 V	**UGT587**	**UGT589**	**UGT591**	–	–	**$164.00**
Diffuse-reflection sensor · 4-wire DC					**300 mm**	**800 mm**	**1200 mm**	**1600 mm**	**2200 mm**	
	M18	98 mm	Pushbutton	2 x PNP	–	–	–	**UGT509**	**UGT512**	**$198.00**
	M18	98 mm	Pushbutton	PNP + 4…20 mA	–	–	–	**UGT510**	**UGT513**	**$198.00**
	M18	98 mm	Pushbutton	PNP + 0…10 V	–	–	–	**UGT511**	**UGT514**	**$198.00**
	M18	98 mm	Pushbutton	2 x NPN	–	–	–	**UGT515**	**UGT518**	**$198.00**
	M18	98 mm	Pushbutton	NPN + 4…20 mA	–	–	–	**UGT516**	**UGT519**	**$198.00**
	M18	98 mm	Pushbutton	NPN + 0…10 V	–	–	–	**UGT517**	**UGT520**	**$198.00**
Retro-reflective sensor · 4-wire DC					**300 mm**	**800 mm**	**1200 mm**	**1600 mm**	**2200 mm**	
	M18	98 mm	Pushbutton	PNP	–	–	–	**UGR500**	**UGR501**	**$188.00**
	M18	98 mm	Pushbutton	NPN	–	–	–	**UGR502**	**UGR503**	**$188.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Short swivel bracket for UGT, 316 stainless steel bracket, Die cast zinc clamp	**E20718**	**$12.00**
	Tall swivel bracket for UGT, 316 stainless steel bracket, Die cast zinc clamp	**E20719**	**$11.00**
	Rail mount package, Short swivel bracket for UGT, 316 stainless steel bracket, Die cast zinc clamp and cube	**E20867**	**$18.00**
	Rail mount package, Tall swivel bracket for UGT, 316 stainless steel bracket, Die cast zinc clamp and cube	**E20866**	**$18.00**
	Sound beam focuser for types UG	**E23000**	**$30.00**

Visit www.ifm.com/us for additional accessories.

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC, (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC, (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC, (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC, (4-pin) 5 m, PUR	**EVC005**	**$15.00**

Technical Specs

Operating voltage	10…30 V DC
Current consumption	100 mA
Operating temperature	-4…158 °F (-20…70 °C)
Temperature compensation	yes
Protection	IP 67
Connection	M12 connector
Status indication	Yellow LED
Echo	Green LED

Top product features!

- Encoders with programmable resolution from 2 to 10,000 and selectable HTL / TTL output
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Functions as an encoder, counter or speed/direction monitor
- Dual color digital display for at-a-glance monitoring
- Solid or hollow shaft designs of varying diameters and flange options
- Industry standard M12 connectors

Intelligent incremental encoder with digital display and IO-Link

NEW! Incremental encoders provide accurate feedback of the position of rotating shafts on machinery. ifm now introduces a versatile line of intelligent encoders that can perform in three capacities: as an encoder, counter or speed / direction monitor. Evaluating pulses in the encoder reduces the burden on your controller. These encoders incorporate features that are ideal for applications found in the material handling, packaging, automotive, wood and print / paper industries.

Easy setup via pushbuttons or IO-Link

A simple pushbutton menu allows the encoder resolution to be programmed from 2 to 10,000 and the output is selectable for either HTL or TTL. Parameters may also be set via ifm's LineRecorder Device software or IO-Link. There's no need to stock multiple encoders!

Two color digital display for easy monitoring and troubleshooting

These intelligent encoders are designed with a two color (red / green) integrated digital display for indicating if process values are in an acceptable range or if limits have been exceeded. The display values can also be electronically rotated 180° increasing installation flexibility.

Reliable performance in various options

ifm's incremental encoders operate using magnetic technology and provide the accuracy of traditional optical encoders with the robustness of magnetic encoders. They withstand shock and vibration, offer high switching frequencies and are available with a 6 mm or 10 mm diameter solid shaft or 12 mm diameter hollow shaft. These encoders have a rotatable industry standard M12 connector that may be positioned radially or axially.

ifm's intelligent encoders feature a dual color (red / green) digital display for indicating if process values are in an acceptable range or if limits have been exceeded.

ifm's intelligent encoders include a 32-bit microprocessor. With a resolution of 16-bits, a precision < 0.1% (12 bits) can be reached. Signal transmission is fast!

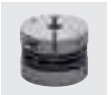
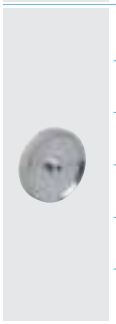
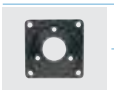
	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

Search Bar

Product + accessory selector

Housing Diameter (mm)	Shaft Diameter (mm)	Flange	Resolution (pulse / revolution)	Connection	No. of stators	Part No.	List Price (USD)
Hollow shaft with integrated stator coupling							
58	12	Direct	Max. 10,000 (adjustable)	M12 Micro DC	1	**ROP520**	**$250.00**
58	12	Direct	Max. 10,000 (adjustable)	M12 Micro DC	2	**ROP521**	**$260.00**
Solid shaft							
58	6	Servo	Max. 10,000 (adjustable)	M12 Micro DC	N/A	**RUP500**	**$238.00**
58	10	Clamp	Max. 10,000 (adjustable)	M12 Micro DC	N/A	**RVP510**	**$238.00**

Accessories

Type	Description	Part No.	List Price (USD)
	Spring disc coupling, Ø 6 mm / 10 mm, die-cast zinc; PA	**E60117**	**$51.00**
	Spring disc coupling, Ø 10 mm / 10 mm, die-cast zinc; PA	**E60118**	**$51.00**
	Fastening clamp for synchro flange, steel	**E60041**	**$2.00**
	Flexible coupling with clamp connection, Ø 6 mm / 10 mm, aluminum	**E60066**	**$48.00**
	Flexible coupling with clamp connection, Ø 10 mm / 10 mm, aluminum	**E60067**	**$48.00**
	Flexible coupling with adjusting screws, Ø 10 mm / 10 mm, aluminum	**E60022**	**$48.00**
	Flexible coupling with adjusting screws, Ø 6 mm / 10 mm, aluminum	**E60028**	**$48.00**
	Aluminum measuring wheel, 500 mm cir., 10 mm bore, smooth plastic tread	**E60110**	**$69.00**
	Aluminum measuring wheel, 500 mm cir., 10 mm bore, pimpled plastic tread	**E60076**	**$69.00**
	Aluminum measuring wheel, 200 mm cir., 10 mm bore, grooved plastic tread	**E60138**	**$57.00**
	Aluminum measuring wheel, 200 mm cir., 10 mm bore, knurled aluminum tread	**E60095**	**$57.00**
	Aluminum measuring wheel, 200 mm cir., 6 mm bore, grooved plastic tread	**E60137**	**$57.00**
	Aluminum measuring wheel, 200 mm cir., 6 mm bore, knurled aluminum tread	**E60006**	**$57.00**
	Angle bracket for RUP design, aluminum, black anodized	**E60033**	**$63.00**
	Angle bracket for RVP design, aluminum, black anodized	**E60035**	**$63.00**
	Square flange for RUP5xx encoders	**UD0004**	**$25.00**
	Square flange for RVP5xx encoders	**UD0005**	**$25.00**

Accessories

Type	Description	Part No.	List Price (USD)
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master for parameter setting and analysis of units	**E30390**	**$367.00**
	Adapter cable for the connection between USB IO-Link master E30390 and encoder	**E12432**	**$40.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

Cordsets, shielded

Type	Description	Part No.	List Price (USD)
	M12 Micro DC, 2 m, PUR cable	**E12402**	**$44.00**
	M12 Micro DC, 5 m, PUR cable	**E12403**	**$53.00**
	M12 Micro DC, 10 m, PUR cable	**E12404**	**$70.00**

Technical Specs

Operating voltage	4.75…30 V DC
Current consumption	< 350 mA
Switching frequency	1000 kHz
Reverse polarity protection	yes
Short circuit protection	yes
Protection	housing: IP 65, IP 67; shaft: IP 64
Connection	M12 connector, 8-pin (rotatable)

For more information on IO-Link, see pages 6 - 21.

Top product features!

- *Encoders with programmable resolution from 2 to 10,000 and selectable HTL / TTL output*
- *Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback*
- *Digital transmission of shaft position value (single turn)*
- *Robust magnetic sensing principle*
- *Solid or hollow shaft designs of varying diameters and flange options*
- *Industry standard M12 connectors or prewired 2 meter cable*

Programmable incremental encoder with IO-Link

Programmable encoders for industrial applications

Incremental encoders provide accurate feedback of the position of rotating shafts on machinery. ifm now introduces a versatile line of encoders. These encoders incorporate features that are ideal for applications found in the material handling, packaging, automotive, wood and print / paper industries.

Easy setup via IO-Link

Parameters may be set via ifm's LineRecorder Device software or IO-Link. The resolution can be programmed for 2 to 10,000 and the output is selectable for either HTL of TTL. There's no need to stock multiple encoders!

Reliable performance in various options

ifm's incremental encoders operate using magnetic technology and provide the accuracy of traditional optical encoders with the robustness of magnetic encoders. They withstand shock and vibration, offer high switching frequencies and are available with either a 6 or 10 mm diameter solid shaft or with a 6 or 12 mm diameter hollow shaft. These encoders are available with a rotatable industry standard M12 connector or 2 meter cable.

ifm's programmable encoders include a 32-bit microprocessor. With a resolution of 16-bits, a precision < 0.1% (12 bits) can be reached. Signal transmission is fast!

ifm's programmable incremental encoders allow you to select resolution and output type via IO-Link.

For more information on IO-Link, see pages 6 - 21.

Product + accessory selector

	Housing Diameter (mm)	Shaft Diameter (mm)	Flange	Resolution (pulse / revolution)	Connection	No. of Stators	Part No.	List Price (USD)
Hollow shaft with integrated stator coupling	36.5	6	direct	Max. 10,000 (adjustable)	M12 Micro DC	1	RA3100	$186.00
	36.5	6	direct	Max. 10,000 (adjustable)	M12 Micro DC	2	RA3101	$193.00
	36.5	6	direct	Max. 10,000 (adjustable)	2 m cable	1	RA3500	$186.00
	36.5	6	direct	Max. 10,000 (adjustable)	2 m cable	2	RA3501	$193.00
	58	12	direct	Max. 10,000 (adjustable)	M12 Micro DC	1	RO3100	$186.00
	58	12	direct	Max. 10,000 (adjustable)	M12 Micro DC	2	RO3101	$193.00
	58	12	direct	Max. 10,000 (adjustable)	2 m cable	1	RO3500	$186.00
	58	12	direct	Max. 10,000 (adjustable)	2 m cable	2	RO3501	$193.00
Solid shaft	36.5	6	universal	Max. 10,000 (adjustable)	M12 Micro DC	N/A	RB3100	$178.00
	36.5	6	universal	Max. 10,000 (adjustable)	2 m cable	N/A	RB3500	$178.00
	58	6	servo	Max. 10,000 (adjustable)	M12 Micro DC	N/A	RU3100	$178.00
	58	6	servo	Max. 10,000 (adjustable)	2 m cable	N/A	RU3500	$178.00
	58	10	clamp	Max. 10,000 (adjustable)	M12 Micro DC	N/A	RV3100	$178.00
	58	10	clamp	Max. 10,000 (adjustable)	2 m cable	N/A	RV3500	$178.00

Accessories	Description	Part No.	List Price (USD)
	Spring disc coupling, Ø 6 mm / 10 mm, die-cast zinc; PA	E60117	$51.00
	Spring disc coupling, Ø 10 mm / 10 mm, die-cast zinc; PA	E60118	$51.00
	Fastening clamp for synchro flange, steel	E60041	$2.00
	Flexible coupling with clamp connection, Ø 6 mm / 10 mm, aluminum	E60066	$48.00
	Flexible coupling with clamp connection, Ø 10 mm / 10 mm, aluminum	E60067	$48.00
	Flexible coupling with adjusting screws, Ø 10 mm / 10 mm, aluminum	E60022	$48.00
	Flexible coupling with adjusting screws, Ø 6 mm / 10 mm, aluminum	E60028	$48.00
	Aluminum measuring wheel, 500 mm cir., 10 mm bore, smooth plastic tread	E60110	$69.00
	Aluminum measuring wheel, 500 mm cir., 10 mm bore, pimpled plastic tread	E60076	$69.00
	Aluminum measuring wheel, 200 mm cir., 10 mm bore, grooved plastic tread	E60138	$57.00
	Aluminum measuring wheel, 200 mm cir., 10 mm bore, knurled aluminum tread	E60095	$57.00
	Aluminum measuring wheel, 200 mm cir., 6 mm bore, grooved plastic tread	E60137	$57.00
	Aluminum measuring wheel, 200 mm cir., 6 mm bore, knurled aluminum tread	E60006	$57.00
	Angle bracket for RUP design, aluminum, black anodized	E60033	$63.00
	Angle bracket for RVP design, aluminum, black anodized	E60035	$63.00

Accessories	Description	Part No.	List Price (USD)
	LineRecorder Device, software for parameter setting (requires E30390 cable)	QA0011	$110.00
	USB IO-Link master for parameter setting and analysis of units	E30390	$367.00
	Memory plug to store sensor's parameters for easy upload without a computer	E30398	$51.00
	Square flange for RB3xxx encoders	UD0003	$25.00
	Square flange for RU3xxx encoders	UD0004	$25.00
	Square flange for RV3xxx encoders	UD0005	$25.00

Cordsets, shielded

Type	Description	Part No.	List Price (USD)
	M12 Micro DC, 2 m, PUR cable	EVC544	$29.00
	M12 Micro DC, 5 m, PUR cable	EVC545	$36.00
	M12 Micro DC, 10 m, PUR cable	EVC546	$47.00

Technical Specs

Operating voltage	4.75…30 V DC
Current consumption	< 150 mA
Switching frequency	1000 kHz
Reverse polarity protection	yes
Short circuit protection	yes
Protection	housing: IP 65, IP 66, IP 67; shaft: IP 64
Connection	M12 connector, 5-pin (rotatable)

Safety Technology
Safety products
144 - 155
Process Sensors
Pressure
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Flow
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AS-i network
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RF identification systems
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Machine Condition
Diagnostic systems
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Power Supplies
Power supplies
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Wiring Technology
Cordset solutions
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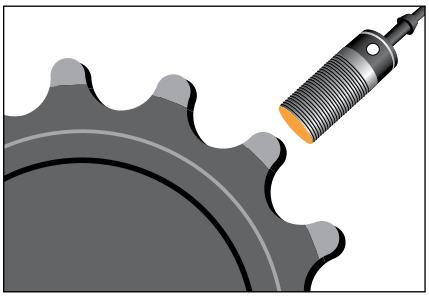
Top product features!

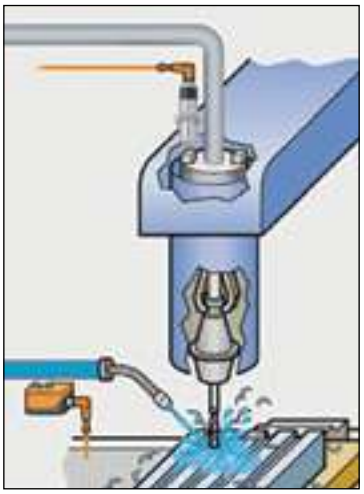
- 18 and 30 mm diameter speed monitors detect under-speed and over-speed conditions
- For rotational speed applications
- 18 mm quick disconnect offers 3-LED status display
- 30 mm units feature easy-to-adjust sensor setpoint
- Time delay eliminates nuisance trips

Evaluation system for self-contained speed applications

The compact speed monitor is an evaluation system for monitoring rotational speed, particularly over- or under-speed conditions. The sensor and evaluation electronics are integrated into a compact 18 and 30 mm diameter metal housing. The 3-wire version includes a "target-present" LED to simplify set up. The unit senses the speed of the rotating target and provides a digital output when the speed exceeds a customer-programmed set point.

Positioned to sense a bolt head, cam, or other target on a rotating shaft, the DI series speed monitor generates an internal pulse each time the target passes. Counting the pulse train determines if the shaft speed is above or below the set point.





Speed monitors can be used to detect under-speed conditions on spindle applications.

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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Product + accessory selector

Dimensions (mm)	Range (mm)	Mounting	Output	Setting Range (Imp/min)	Supply Voltage (V)	Sensor Termination	Part No.	List Price (1-pc.)
M18 / L = 68	12	Nonflush	PNP, N.O. / N.C.	3...6000	10...36 DC	M12 Micro DC	**DI6001**	**$162.00**
M30 / L = 82	10	Flush	PNP, N.O.	5...300	10...36 DC	M12 Micro DC	**DI5009**	**$196.00**
M30 / L = 80	10	Flush	N.O.	5...3600	20...250 AC/DC	2 m cable	**DI0101**	**$185.00**
M30 / L = 80	10	Flush	PNP, N.O.	5...3600	10...36 DC	2 m cable	**DI5020**	**$185.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Snap clamp for 18 mm sensor	**E11048**	**$8.00**
	Snap clamp for 30 mm sensor	**E11049**	**$8.00**
	Quick-mount sleeve for 18 mm sensor	**E11115**	**$14.00**
	Quick-mount for 30 mm sensor	**E10808**	**$17.00**
	L-bracket for 18 mm sensor	**U20302**	**$6.00**
	L-bracket for 30 mm sensor	**U20303**	**$6.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**

Can't find the right speed monitor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Leakage current: <1.5 mA (DI0101)
Housing material: Brass; PBT (Pocan); 316 stainless steel, PBT (DI6001)
Operating temperature: -13...176 °F (-25...80 °C)
Protection: IP67

Simple and comprehensive website

Data sheets, application examples, software downloads, virtual product demos... just one click away.

Place orders, tech support
800-441-8246

Visit our product catalog
www.ifm.com/us

Shop for products online
Easy ordering via eShop

Top product features!

- *Monitoring of two limit values with separate output relays*
- *High input frequency of up to 60,000 pulses / minute*
- *Configurable functions, speed-proportional analog output*
- *Clearly readable, luminous OLED display*
- *Extended operating temperature range down to -40 °F*

Versatile rotational speed monitoring and standstill detection

NEW! The speed monitors calculate the rotational speed by evaluating pulses. The transistor and relay outputs switch when adjustable limit values are exceeded or not reached. This allows, for example, reliable overspeed and standstill detection.

The DD2503 monitors the rotational speed of one channel with two separately adjustable limit values. A separate output is assigned to each limit value. The DD2505 monitors two separate input channels, each having one switchpoint.

Overspeed monitoring

Centrifuges, carousels or wind turbines are monitored for exceeded maximum rotational speed. The speed monitor gives a switch-off signal as soon as the speed is too high. This makes sure that the resulting centrifugal forces will not destroy the system.

Standstill monitoring

Standstill monitoring is used to detect torn conveyor belts, to monitor the V-belts of ventilators or to detect blocked screw conveyors. The speed monitor signals a dysfunction in case of unexpected standstills of the non-driven side of the machine.

Configurable output functions

The relay outputs are switched on or off in case the limit values are exceeded or not reached. They may also remain switched until they are manually reset. Optionally, the reset can take place automatically after an adjustable period of time.

The transistor outputs that can be used alternatively are switched to the relays simultaneously. These can, for example, be connected directly to a plc in order to transmit status messages.

Speed monitors switch when critical rotational speeds are exceeded or not reached.

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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Product + accessory selector

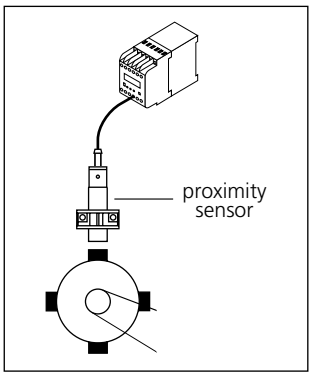
Operating Voltage (V)	Inputs	Input Function	Setting Range (pulse / min.)	Setting Range (Hz)	Analog Outputs	Relay Outputs	Transistor Outputs	Part No.	List Price (1-pc.)
110...240 AC/DC; 24 DC	1	PNP / NPN / NAMUR*	1...60,000	0.1...1,000	1	2	2	**DD2503**	**$365.00**
110...240 AC/DC; 24 DC	2	PNP / NPN / NAMUR*	1...60,000	0.1...1,000	–	2	2	**DD2505**	**$413.00**

*Note: NAMUR input is not intended for intrinsically safe applications in hazardous locations.

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Relay outputs:	2 changeover contacts 6 A (250 V AC)
Transistor outputs:	2 x PNP; externally supplied 24 V DC / max. 150 mA; short-circuit protection
Ambient temperature:	-40…140 °F (-40…60 °C)
Housing protection rating:	IP 50
Terminal protection rating:	IP 20
Function display:	OLED display; 128 x 64 pixels luminous
Input signal indication:	yellow LED
Switching status indication :	green LED



Inductive and capacitive proximity sensors or photoelectric sensors are ideal devices for an input signal to the speed evaluation system.

efector dualis Contour Sensor provides 100% inspection testing

ifm efector's inspection sensor, efector dualis, monitors a variety of error-proofing applications to provide 100% inspection testing throughout the assembly automation process.

Objects in fast-moving processes are reliably detected and evaluated – regardless of orientation – with the sensor's miniature CMOS-based image processor. High-performance software enables the sensor to find objects with extreme accuracy and speed. The sensor detects and compares defined shapes and provides up to five configurable outputs.

- 100% inspection testing throughout the assembly automation process
- All-in-one design includes an image sensor, evaluation electronics and integrated infrared LED lighting
- Powerful intelligence and 640 x 480 resolution are driven by a smart algorithm
- Compact, industrial-compatible housing measures only 42 x 80 x 53 mm
- An LED display indicates operating status
- Prices start under $1000.00

efector dualis Inspection Sensor application examples

Identify missing piece in O-ring assembly

Complete O-ring

Incomplete O-ring

Description: *In this application, identifying that a piece is missing in an O-ring is imperative. Contour Sensor is programmed to verify that the O-ring is complete and that no piece is missing regardless of the size and location of the missing piece.*

Industry: *Assembly automation*

The Contour Sensor is the appropriate choice for this application because the missing piece can vary in location and size.

Verify the correct position of a punch-out on a steel rod

Correct part

Incorrect part

Description: *Verifying the correct punch-out position is imperative to the process. If left undetected, an improper crimp or punch-out position on a steel rod would lead to scrap metal.*

Industry: *Stamping*

The Contour Sensor detects the outer edges of the rod and uses it as a reference point for the circular punch-out providing reliable results.

Application solutions:

Right part / wrong part
Correct orientation
Missing component
Object character verification
Counting
Sorting
Logic functions
Pass / fail

Search Bar

Company	IO-Link	Position Sensors						Motion Control	Vision Sensors	
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efector dualis Pixel Counter monitors error-proofing applications

ifm's O2V Series efector dualis Pixel Counter sensor solves a variety of inspection and error-proofing applications throughout the manufacturing process. The compact CMOS vision sensor provides reliable performance in production control.

The Pixel Counter analyzes the area of an object by counting the pixels and can identify objects that vary in shape, size or shade. ifm's Pixel Counter features a robust die cast metal housing that is able to withstand the abuse typically found in industrial environments.

- Integrated lighting, evaluation electronics, and image sensor
- On-board lighting element provides correct amount of image brightness
- Powerful algorithm and fast image capture
- Pushbutton setup and 4-digit numeric display
- Easily accessible focus tool quickly defines images
- Easy-to-follow Setup Wizard guides user for quick setup
- Supports Allen-Bradley's Ethernet IP and standard Ethernet TCP products

efector dualis Inspection Sensor application examples

Verify the presence of threads

Correct part

Incorrect part

Description: *Missing threads in metal parts can cause oil leaks and ultimately engine failure.*

Industry: *Metal casting*

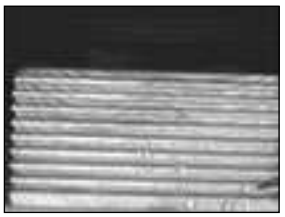
The Pixel Counter detects the inconsistencies on the threaded surface so that faulty parts can be eliminated prior to assembly.

Application solutions:

Part verification
Orientation
Sortation
Part / no part
Pattern matching
Shape detection
Object counting and contrast
Inner/outer radius
Measurement

Verify the correct amount of glue for bonding on a joint

Glue present



Glue missing

Description: *In wood assembly, the right amount of glue must be applied to a joint. Too much glue causes bleeding out of the joint and too little causes improper bonding.*

Industry: *Wood*

The Pixel Counter is able to count the amount of white pixels (produced by the glue) to determine the amount of glue on the joint.

Multi-Code Reader identifies data matrix and 1D codes

Data matrix codes are critical for tracking parts and insuring reliable quality in the manufacturing process. ifm has designed a high-performance, easy-to-use Multi-Code Reader in a compact metal housing for rugged industrial automation applications.

ifm's Multi-Code Reader is designed to read 2D data matrix codes and 1D bar codes in industrial automation applications. The versatile Multi-Code Reader can identify, verify and qualify most marking methods.

- Easy-to-use reader in a compact, metal housing
- Reads 2D Data Matrix Codes including ECC200, PDF-417 and QR
- Reads 26 different styles of printed 1D barcodes
- Fast code reading and data transfer
- Integrated lighting eliminates need for external lighting
- Identifies most marking methods including dot-peened, laser-etched and printed DMC codes and barcodes
- Priced 50% lower than current technologies

Multi-Code Reader application examples

Dot-peened codes on highly reflective metal parts

Challenge: *Dot-peened codes on highly reflective metal parts can be difficult to read due to reflections and code placement.*

Solution: *The camera's internal filters can adjust lighting to increase contrast, and its "Smart Algorithm" reads a code in any orientation at angles up to 45°.*

Application solutions:

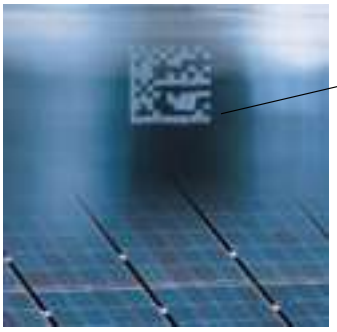
Laser etched code on glass

Printed code on plastic parts

Dot-peened code on metal parts

Laser etched code on solar panels

Laser-etched code on glass and solar panels



Challenge: *Laser-etched code on PVT panels and glass can be difficult to read due to low contrast.*

Solution: *ifm's Multi-Code Reader features integrated lighting, a CMOS image sensor and digital signal processor to identify and read low-contrast codes.*

		IO-Link	Position Sensors						Motion Control	Vision Sensors
	Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
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O3D Smart Sensor adds an extra dimension to machines

The O3D Smart Sensor is a unique industrial 3D imaging solution that enables automated machines to perceive their environment in 3D with human-like vision.

The O3D Smart Sensor utilizes PMD Time of Flight Imager to quickly and accurately measure the distance of 23,232 points within the field of view.

These points of data are then used to simplify complex applications such as case completeness and dimensioning.

- Includes four pre-built applications on board
- Outputs data to a plc via Ethernet or 24v signal
- Robust and reliable; unaffected by changes in lighting conditions in applications and is color independent
- Quick and easy setup with ifm's Vision Assistant software, available free of cost
- Sets a price/performance benchmark!

O3D sensor technology

Four infrared LEDs (850 nm) illuminate the entire Field of View over the 0.3 to 5 m range.

The objective lens defines the Field of View. 60° x 45° and 40° x 30° options are available.

The PMD (176 x 133 pixel) Time of Flight image sensor is responsible for the resolution and suppression of background illumination.

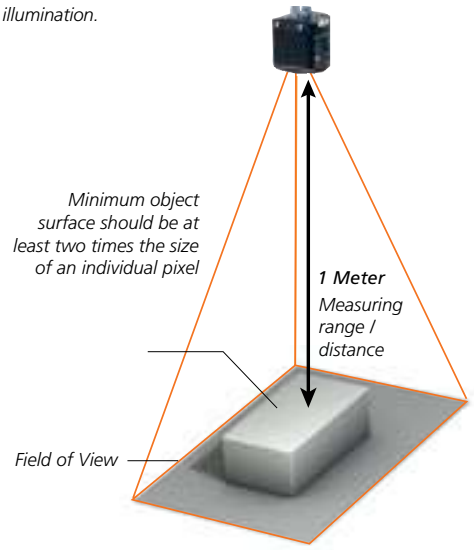
The field of view – determine the minimum object size

The distance to target determines both the field of view and the minimum target size. As the distance between the sensor and object increases so does the size of each pixel. The pixel size will determine the minimum size of the object that can be evaluated.

For best results, ifm recommends that the minimum object size is at least 2 x times the size of an individual pixel.

For example:

at 0.5 meter the pixel size is 2.4 x 2.4 mm
at 1 meter the pixel size is 5.6 x 5.6 mm
at 2 meters the pixel size is 11.3 x 11.3 mm
at 5 meters the pixel size is 28.3 x 28.3 mm



The O3D Smart Sensor is ideal for:

- Level Detection
- Case Completeness
- De-Palletizing
- Box Dimensioning

Learn more:
www.ifm.com/us/O3DSmartSensor

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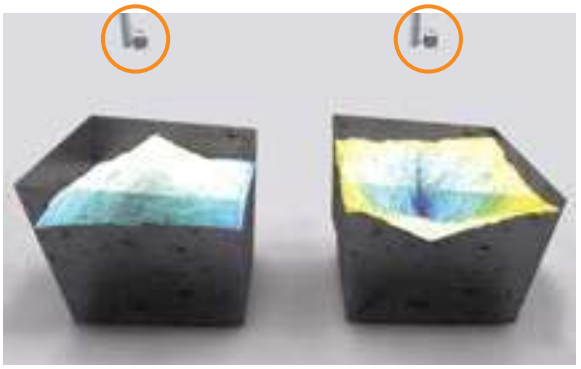
NEW! Level Detection - accurate, multi-point



The O3D's wide field-of-view and over 23,000 points of measurement provide accuracy over the entire area.

Challenge

Single point level measurement of bulk materials can be difficult due to the peaks and valleys associated with these materials.

Solution

The ifm O3D Smart Sensor utilizes 23,000 distance measurements in the Field of View to accurately determine the level of bulk material in hoppers and bins.

Features

- Analog, digital and Ethernet output available
- Easy setup (usually under 2 minutes)
- Color independent
- Lighting independent
- Stainless Steel housings available

Case Completeness – a sensor as flexible as your machine

Up to 32 different case sizes can be stored in the O3D. Because the sensor is not impacted by color and can digitally change between recipes, it is the perfect fit for today's flexible packaging lines.

Challenge

100% inspection for a correct "pack" is difficult. The machines are flexible enough to handle a variety of package sizes, quantities and colors but the sensing technology has not been… until now!

Solution

The O3D Smart Sensor ignores color and size, and is easily configured for different case sizes. The result is a flexible sensing solution for flexible machines.

Features

- Color independent
- Lighting independent
- Quick setup (usually under two minutes)
- Easily configured for multiple case sizes
- Digital switching between recipes
- Digital and Ethernet (EIP outputs available
- Up to 32 different case sizes can be stored on the sensor
- Stainless Steel housings available

IO-Link | Position Sensors | Motion Control | Vision Sensors

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
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NEW! De-Palletizing – increase throughput by decreasing cycle time

The next box is located during the previous cycle, to eliminate dwell time.

Challenge

Localizing individual boxes for robotic de-palletizing can be slow. Limiting overall throughput.

Solution

The O3D Smart Sensor determines the next box to pick while the robot is dropping the previous case, eliminating the need to stop before each pick.

Features

- Provides the center of mass coordinates to the robot
- Can be calibrated into the robot coordinate system
- Color independent
- Lighting independent
- Industrial Ethernet Output (EIP, ProfiNet and TCP/IP)
- Stainless Steel housings available

Box Dimensioning - a new price / performance benchmark

The box dimensioning application provides length, width, height, rotation and location data. A sortation application is also available.

Challenge

Dimensioning systems for cases / boxes make mixed case palatalizing more efficient and help distribution centers better utilize storage space. Price points, however, limit their usage.

Solution

The ifm O3D Smart Sensor is configured in less than 5 minutes, accurate to under 1/2" on all dimensions, applicable for all areas of the plant.

Features

- Provides length, width, height, rotation and location data
- Color independent
- Lighting independent
- Quick setup (usually under two minutes)
- Both dimensioning and sortation applications available
- Digital and Ethernet (EIP) outputs available

Top product features!

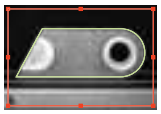
- Robust design and compact metal housings provide long life and reliability in industrial environments
- CMOS image sensor and Digital Signal Processor with no moving parts provide high performance and durability
- Easy-to-use Setup Wizard guides you step-by-step for simple installation
- Flexible connections with Ethernet interface
- Self-contained unit (internal lighting)

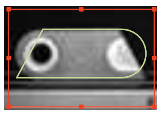
The inspection sensor for error-proofing applications

efector dualis provides reliable performance in production control. Fast processes or moving objects can be detected and precisely evaluated with the sensor's fast image capture and evaluation.

The sensor is an ideal solution for inspection and error-proofing applications such as right part / wrong part, correct orientation, missing component and object character verification.

Additional application examples

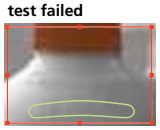




Feeding technology

Feeder bowls are commonly used to constantly supply an assembly line with small parts. These parts, however, must be in the proper orientation to allow correct assembly.

efector dualis can identify incorrect orientation of parts in a feeder bowl before they are applied.



Object character verification

Even the smallest error, such as a missing date on a milk bottle, can cause large problems in a production line. The efector dualis is ideal for object character verification in a moving production line.

In this example, efector dualis detects a series of preset characters that indicate expiration date. In the following picture, efector dualis detects the missing characters and sends an alarm.

Built-in intelligence

Independent evaluation: efector dualis includes an image sensor, evaluation electronics and lighting integrated in one robust, industrial compatible housing.

IO-Link
Position Sensors
Motion Control
Vision Sensors

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
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Search Bar

Product + accessory selector

Dimensions	Output	Lighting	Max. Field of View Size	Detection Rate	Max. Motion Speed	Operating Voltage	Supply Current	Part No.	List Price (1-pc.)
80 x 42 x 59	PNP	infrared 850 nm	400 x 300 mm	20 Hz	1 m/s	24 VDC ± 10 %	< 300 mA	**O2D224**	**$978.00**
80 x 42 x 53.5	PNP	infrared 850 nm	640 x 480 mm	20 Hz	1 m/s	24 VDC ± 10 %	< 300 mA	**O2D220**	**$978.00**
80 x 42 x 53.5	PNP	infrared 850 nm	1320 x 945 mm	20 Hz	1 m/s	24 VDC ± 10 %	< 300 mA	**O2D222**	**$978.00**
80 x 42 x 59	NPN	infrared 850 nm	400 x 300 mm	20 Hz	1 m/s	24 VDC ± 10 %	< 300 mA	**O2D225**	**$978.00**
80 x 42 x 53.5	NPN	infrared 850 nm	640 x 480 mm	20 Hz	1 m/s	24 VDC ± 10 %	< 300 mA	**O2D227**	**$978.00**
80 x 42 x 53.5	NPN	infrared 850 nm	1320 x 945 mm	20 Hz	1 m/s	24 VDC ± 10 %	< 300 mA	**O2D229**	**$978.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting Set, 100 mm rod	**U60042**	**$45.00**
	Mounting Set, 100 mm rod with rail mount cube	**U60043**	**$51.00**
	Protective plastic cover	**E21166**	**$102.00**
	Plastic lens for diffusing light	**E21165**	**$119.00**
	Protective glass cover	**E21168**	**$102.00**
	Ethernet cable, 2 m, M12 D-coded / RJ45, cross-link	**E11898**	**$45.00**
	Ethernet cable, 5 m, M12 D-coded / RJ45, cross-link	**E18422**	**$54.00**
	Ethernet cable, 10 m, M12 D-coded / RJ45, cross-link	**E18423**	**$69.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (8-pin) 2 m, PUR	**E11950**	**$29.00**
	M12 Micro DC (8-pin) 5 m, PUR	**E11807**	**$36.00**
	M12 Micro DC (8-pin) 10 m, PUR	**E11311**	**$66.00**
	M12 Micro DC (8-pin) 2 m, PUR	**E11231**	**$29.00**
	M12 Micro DC (8-pin) 5 m, PUR	**E11232**	**$36.00**
	M12 Micro DC (8-pin) 10 m, PUR	**E11806**	**$65.00**

See pages 140 - 141 for illumination.

Technical Specs

Maximum load current:	100 mA (per switching output)
Supply current:	< 300 mA
Detection rate:	20 Hz
Maximum motion speed:	1 m/s
Lighting:	infrared 850 nm
Operating voltage:	24 VDC ± 10 %
Operating temperature:	14…140 °F (-10…60 °C)
Protection rating:	IP67
Material:	Housing: die-cast zinc Front pane: glass LED window: polycarbonate
Trigger mode:	External 24 V, PNP, NPN, continuous, TCP/IP
Parameter setting / process interface:	Ethernet 10 Base-T, Ethernet TCP, Ethernet IP

Dedicated sales engineers

ifm's experienced sales engineers understand your applications and provide solutions to your challenges.

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www.ifm.com/us

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Easy ordering via eShop

Top product features!

- *Ideal for inspection and error-proofing applications with irregularly shaped objects*
- *Reliable inspection testing throughout the production process*
- *CMOS image element and powerful digital signal processor*
- *Robust housing for use in industrial environments*
- *Easy application Setup Wizard offers step-by-step instruction with advanced functionality*

efector dualis Pixel Counter

ifm's O2V Series efector dualis Pixel Counter sensor solves a variety of inspection and error-proofing applications throughout the manufacturing process. The compact CMOS vision sensor provides reliable performance in production control. The Pixel Counter analyzes the area of an object by counting the pixels and can identify objects that vary in shape, size or shade.

The O2V Series Pixel Counter includes an image sensor, evaluation electronics and integrated lighting in a die-cast metal housing that withstands harsh industrial environments. Objects are reliably detected and precisely evaluated with the sensor's fast image capture and powerful algorithms. The sensor's push-button setup and 4-digit numeric display indicates the sensor's output.

An on-board lighting element illuminates the object and provides the correct amount of image brightness at various ranges. An easily accessible focus tool quickly defines images. The sensor features an easy-to-follow Setup Wizard that guides the user for quick setup and supports Allen-Bradley's Ethernet IP and standard Ethernet TCP products.

Additional application examples

Black seat frame

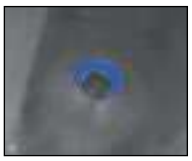
The goal is to separate a black seat frame from a silver seat frame. A standard contrast sensor would solve this application, but typically lacks the sensing range required to detect the seat frame.

Silver seat frame

The Pixel Counter can be used for simple contrast applications when extra distance is needed and can easily detect the silver seat frame in this application.

Correct molding

A piece of metal is inserted in a rubber mold, and it is imperative that the area is covered smoothly. In this case, while in the molding process, an inconsistent shape formed around the insert.



Incorrect molding

The molding process can leave an inconsistent shape around the insert. The Pixel Counter inspects for a low level of bright pixels, detecting an incorrect molding.

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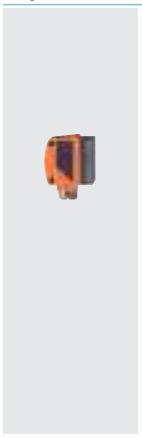
Product + accessory selector

DC • efector dualis Pixel Counter

Type	Maximum Field of View Size [mm]	Type of Light LED	Detection Rate [Hz]	Motion Speed (Maximum) [m/s]	Process Interface	Transistor Outputs (up to 5)	Part No.	List Price (1-pc.)
8-pin · M12 connector								
	400 x 300	White	20	1	Ethernet TCP / Ethernet IP	PNP	**O2V104**	**$978.00**
	400 x 300	White	20	1	Ethernet TCP / Ethernet IP	NPN	**O2V105**	**$978.00**
	400 x 300	Infrared	20	1	Ethernet TCP / Ethernet IP	PNP	**O2V124**	**$978.00**
	400 x 300	Infrared	20	1	Ethernet TCP / Ethernet IP	NPN	**O2V125**	**$978.00**
	640 x 480	White	20	1	Ethernet TCP / Ethernet IP	PNP	**O2V100**	**$978.00**
	640 x 480	White	20	1	Ethernet TCP / Ethernet IP	NPN	**O2V101**	**$978.00**
	640 x 480	Infrared	20	1	Ethernet TCP / Ethernet IP	PNP	**O2V120**	**$978.00**
	640 x 480	Infrared	20	1	Ethernet TCP / Ethernet IP	NPN	**O2V121**	**$978.00**
	1320 x 945	White	20	1	Ethernet TCP / Ethernet IP	PNP	**O2V102**	**$978.00**
	1320 x 945	White	20	1	Ethernet TCP / Ethernet IP	NPN	**O2V103**	**$978.00**
	1320 x 945	Infrared	20	1	Ethernet TCP / Ethernet IP	PNP	**O2V122**	**$978.00**
	1320 x 945	Infrared	20	1	Ethernet TCP / Ethernet IP	NPN	**O2V123**	**$978.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting Set, 100 mm rod	**U60042**	**$45.00**
	Mounting Set, 100 mm rod with rail mount cube	**U60043**	**$51.00**
	Protective plastic cover	**E21166**	**$102.00**
	Plastic lens for diffusing light	**E21165**	**$119.00**
	Protective glass cover	**E21168**	**$102.00**
	Ethernet cable, 2 m, M12 D-coded / RJ45, cross-link	**E11898**	**$45.00**
	Ethernet cable, 5 m, M12 D-coded / RJ45, cross-link	**E18422**	**$54.00**
	Ethernet cable, 10 m, M12 D-coded / RJ45, cross-link	**E18423**	**$69.00**

See pages 140 - 141 for illumination.

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (8-pin) 2 m, PUR	**E11950**	**$29.00**
	M12 Micro DC (8-pin) 5 m, PUR	**E11807**	**$36.00**
	M12 Micro DC (8-pin) 10 m, PUR	**E11311**	**$66.00**
	M12 Micro DC (8-pin) 2 m, PUR	**E11231**	**$29.00**
	M12 Micro DC (8-pin) 5 m, PUR	**E11232**	**$36.00**
	M12 Micro DC (8-pin) 10 m, PUR	**E11806**	**$65.00**

Technical Specs

Maximum load current:	100 mA (per switching output)
Supply current:	< 300 mA
Detection rate:	20 Hz
Maximum motion speed:	1 m/s
Lighting:	infrared 850 nm
Operating voltage:	24 VDC ± 10 %
Operating temperature:	14…140 °F (-10…60 °C)
Protection rating:	IP67
Material:	Housing: die-cast zinc Front pane: glass LED window: polycarbonate
Trigger mode:	External 24 V, PNP, NPN, continuous, TCP/IP
Parameter setting / process interface:	Ethernet 10 Base-T, Ethernet TCP, Ethernet IP

Top product features!

- *Robust design and compact metal housing provide long life and reliability in industrial environments*
- *CMOS image sensor and digital signal processor with no moving parts for durability*
- *Reliably reads dot-peened, laser-etched and printed data matrix codes as well as printed bar codes*
- *Configurable four-quadrant lighting improves readability, reduces glare and the need for external lighting*
- *Easy application Setup Wizard guides you step-by-step with advanced functionality for demanding applications*

Reliable identification of data matrix and 1D codes

The ifm Multi-Code Reader is designed to read 2D data matrix codes and 1D bar codes in high speed industrial automation applications.

The versatile Multi-Code Reader can identify, verify and qualify most marking methods including dot-peened, laser-etched and printed data matrix codes as well as printed barcodes.

The Multi-Code Reader features a maximum speed of 7 meters/second. The unit reads three types of 2D codes: ECC200, PDF-417 and QR as well as 26 styles of printed barcodes.

Challenge
(1D Barcode)

Traditional barcode readers can only read the 1D code in horizontal or vertical positions.

ifm Solution
(1D Barcode)

ifm's camera based Multicode Readers can read 1D barcodes in multiple orientations.

A better alternative from ifm

Features	ifm
Robust housing	✓
Reads both 2D and 1D codes	✓
CMOS image sensor	✓
Reads all marking methods	✓
Orientation independent	✓
Configurable quadrant lighting	✓
7 meters/second line speed	✓
Easy Setup Wizard	✓
Switching output for I/O	✓
Ethernet TCP/IP	✓
Price – 50% lower than current technologies	**$936**

Search Bar

		IO-Link	Position Sensors						Motion Control	Vision Sensors
Company		IO-Link	Inductive	Capacitive	Cylinder/valve position	Photoelectrics/ lasers/fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D/3D inspection
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Product + accessory selector

Dimensions (mm)	Lighting	Max. Field of View Size	Readings	Max. Motion Speed	Process Interface	Operating Voltage	Supply Current	Part No.	List Price (1-pc.)
CMOS image sensor, black and white, VGA resolution 640 x 480									
80 x 42 x 53.5	Visible red	68 x 48 mm	20 Hz	7 m/s	Ethernet TCP/IP, EtherNet/IP, RS-232	24 VDC ± 10 %	300 mA	**O2I300**	**$959.00**
80 x 42 x 53.5	Visible red	132 x 94 mm	20 Hz	7 m/s	Ethernet TCP/IP, EtherNet/IP, RS-232	24 VDC ± 10 %	300 mA	**O2I302**	**$959.00**
80 x 42 x 59	Visible red	400 x 300 mm	20 Hz	7 m/s	Ethernet TCP/IP, EtherNet/IP, RS-232	24 VDC ± 10 %	300 mA	**O2I304**	**$959.00**
80 x 42 x 53.5	Infrared	68 x 48 mm	20 Hz	7 m/s	Ethernet TCP/IP, EtherNet/IP, RS-232	24 VDC ± 10 %	300 mA	**O2I301**	**$959.00**
80 x 42 x 53.5	Infrared	132 x 94 mm	20 Hz	7 m/s	Ethernet TCP/IP, EtherNet/IP, RS-232	24 VDC ± 10 %	300 mA	**O2I303**	**$959.00**
80 x 42 x 59	Infrared	400 x 300 mm	20 Hz	7 m/s	Ethernet TCP/IP, EtherNet/IP, RS-232	24 VDC ± 10 %	300 mA	**O2I305**	**$959.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting Set, 100 mm rod	**U60042**	**$45.00**
	Mounting Set, 100 mm rod with rail mount cube	**U60043**	**$51.00**
	Plastic lens for diffusing light	**E21165**	**$119.00**
	Plastic protective lens for food and beverage applications	**E21166**	**$102.00**
	Glass protective lens	**E21168**	**$102.00**

See pages 140 - 141 for illumination.

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (8-pin) 2 m, PUR	**E11950**	**$29.00**
	M12 Micro DC (8-pin) 5 m, PUR	**E11807**	**$36.00**
	M12 Micro DC (8-pin) 10 m, PUR	**E11311**	**$66.00**
	M12 Micro DC (8-pin) 2 m, PUR	**E11231**	**$29.00**
	M12 Micro DC (8-pin) 5 m, PUR	**E11232**	**$36.00**
	M12 Micro DC (8-pin) 10 m, PUR	**E11806**	**$65.00**
	Ethernet cable, 2 m, M12 D-coded / RJ45, cross-link	**E11898**	**$45.00**
	Ethernet cable, 5 m, M12 D-coded / RJ45, cross-link	**E18422**	**$54.00**
	Ethernet cable, 10 m, M12 D-coded / RJ45, cross-link	**E18423**	**$69.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Maximum load current:	100 mA (per switching output)
Supply current:	< 300 mA
Detection rate:	≤ 20 Hz
Maximum motion speed:	≤ 7 m/s
Lighting:	infrared 850 nm; visible red 625 nm
Operating voltage:	24 VDC ± 10 %
Operating temperature:	14…122 °F (-10…50 °C)
Protection rating:	IP67
Material:	Housing: die-cast zinc Front pane: glass LED window: polycarbonate
Trigger mode:	External 24 V, PNP, continuous, TCP/IP, Ethernet/IP
Parameter setting / process interface:	Ethernet 10 Base-T, Ethernet TCP, Ethernet IP

Class 2 laser

Reliable service center

The ifm service center team provides tech support, product quotes, delivery information and order placement.

Place orders, tech support
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Visit our product catalog
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Easy ordering via eShop

Top product features!

- *Uniform and shadow-free illumination of the object*
- *Permanent or pulsed light operation with optional high intensity light*
- *White light, red light and infrared versions*
- *Compact design and robust housing*
- *Diffuser accessory available for "cloudy day" illumination to balance light source*

NEW! ifm's vision sensors include an on-board lighting element that illuminates the object and provides the correct amount of image brightness at various ranges.

Some applications, however, may require additional lighting. For example, detecting specific surface characteristics, such as a dot-peened code, scratches or nicks may require high intensity light. In contour sensing, sometimes there is not enough contrast between the object and the background. Additional backlighting may help emphasize the target against the background.

ifm's high-quality LED illumination units provide uniform lighting to solve a large variety of applications. Models are available with white, red and infrared light in spot light, back light, ring light, bar illumination and dark field illumination units.

An assortment of mounting kits are provided and make installation quick and easy.

Technical Specs

Light source:	LED
Operating voltage:	24 V DC
Ambient temperature:	-10...55 °C
Housing material:	aluminum
Lens material:	glass
Trigger:	5...24 V, PNP
Protected against reverse polarity:	yes
Short-circuit proof:	yes
Mounting:	M4 screws
Eye safety:	IEC 62471

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
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Product + accessory selector

Type	Dimensions [mm]	Type of Light	Active lighting source size [Ø mm]	Current consumption [mA]	Angle of aperture	Protection	Connector	Part No.	List Price (1-pc.)
Spot light									
	31 x 42 x 54	red		180 / 90*		IP 65	M12	**O2D909**	**$358.00**
Back light									
	33.4 x 66.5 x 9.2	infrared		50 / 25*		IP 65	0.15 m Pigtail 4-pin M12	**O2D906**	**$348.00**
	81 x 103 x 9.8	infrared		200 / 100*		IP 65	0.15 m Pigtail 4-pin M12	**O2D907**	**$385.00**
	133 x 156 x 9.8	infrared		450 / 250*		IP 65	0.15 m Pigtail 4-pin M12	**O2D908**	**$426.00**
Ring light									
	Ø 122 × 20.5	red	Ø 106 / Ø 66	800 / 1300*	60°	IP 65	0.3 m Pigtail 4-pin M12	**O2D915**	**$779.00**
	Ø 122 × 20.5	infrared	Ø 106 / Ø 66	800 / 1400*	50°	IP 65	0.3 m Pigtail 4-pin M12	**O2D917**	**$779.00**
	Ø 122 × 20.5	white	Ø 106 / Ø 66	800 / 1200*	120°	IP 65	0.3 m Pigtail 4-pin M12	**O2D919**	**$779.00**
Bar illumination									
	116 x 18 x 13	red	10 x 75	225 / 375*	60°	IP 65	0.3 m Pigtail 4-pin M12	**O2D921**	**$430.00**
	200 x 18 x 13	red	10 x 150	460 / 700*	60°	IP 65	0.3 m Pigtail 4-pin M12	**O2D924**	**$538.00**
	116 x 18 x 13	infrared	10 x 75	185 / 325*	50°	IP 65	0.3 m Pigtail 4-pin M12	**O2D922**	**$430.00**
	200 x 18 x 13	infrared	10 x 150	415 / 640*	50°	IP 65	0.3 m Pigtail 4-pin M12	**O2D925**	**$538.00**
	116 x 18 x 13	white	10 x 75	165 / 275*	120°	IP 65	0.3 m Pigtail 4-pin M12	**O2D923**	**$430.00**
	200 x 18 x 13	white	10 x 150	265 / 475*	120°	IP 65	0.3 m Pigtail 4-pin M12	**O2D926**	**$538.00**
Dark field illumination									
	155 x 130 x 9.8	red	Ø 90	400	–	IP 54	0.3 m Pigtail 4-pin M12	**O2D920**	**$592.00**

* current consumption at high light intensity

Accessories

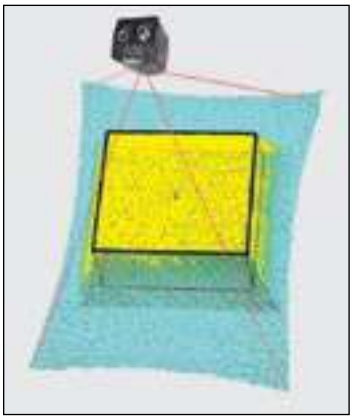
Type	Description	Part No.	List Price (1-pc.)
	Diffuser for ring light	**E2D202**	**$203.00**
	Mounting kit for ring light	**E2D201**	**$31.00**
	Mounting kit for bar illumination unit	**E2D114**	**$47.00**
	Mounting kit for dark field illumination	**E2D115**	**$37.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

Top product features!

- *Robust industrial O3D Smart Sensor – Application Assistant adds 3rd dimension to machines*
- *Includes two on-board applications: case completeness and box dimensioning*
- *Objective lens housing protected behind Corning Gorilla glass defines large field of view*
- *4 IR LEDs illuminate large field of view over the 0.3 to 5 meter range protected behind Corning Gorilla glass*
- *M12 Ethernet connection for parameterization and communication output data via industrial Ethernet networks (TCP/IP & ProfiNet)*



NEW! Today's manufacturing and logistics environments are becoming more and more automated to meet customer demand. The tools being used, whether it be robots or machines, have to become faster and more flexible to maintain throughput. This requires them to "see" more. 2D is not enough. They must be able to perceive their environment the same as we do… in 3D.

ifm's revolutionary O3D Smart Sensor for industrial automation enables automated machines to perceive their environment in 3D with human-like vision.

Innovative pmd imager

ifm's patented pmd time-of-flight imager provides 176 x 132 pixel array to quickly and accurately measure the distance of 23,232 points within its field of view. The distance to each pixel is calculated by comparing the phase shift of send and returned infrared light. Every measurement is collected simultaneously and made immediately available as a fully calibrated 3D point cloud, which can be sent to a PC or controller via Ethernet.

The technology also features a patented suppression of background illumination technology making it immune to changing lighting conditions in the application environment.

Application Assistant adds third dimension!

The O3D Smart Sensor - your Application Assistant - adds a third dimension of sight to packaging and material handling machines. The Smart Sensor has four pre-built applications on board: case completeness, box dimensioning, palletizing / de-palletizing and level. The opportunities are endless.

An outstanding price/performance value, ifm's O3D Sensor can be applied in most areas throughout the plant!

To learn more, visit:
www.ifm.com/us/O3DSmartSensor

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics/ lasers/fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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Product + accessory selector

Dimensions	Operating Distance (mm)	Angle of Aperture	Max. Field of View (mm)	Weight (kg)	Part No.	List Price (1-pc.)
137 x 75 x 95	300... 10,000	40° x 30°	2,610 x 3,470	0.745	**O3D300**	**$1,351.00**
	300... 8,000	60° x 45°	3,750 x 5,000	0.736	**O3D302**	**$1,351.00**
	300... 8,000	60° x 45°	3,750 x 5,000	1.146	**O3D312**	**$1,460.00**
	300... 10,000	40° x 30°	2,610 x 3,470	1.225	**O3D310**	**$1,460.00**

Accessories

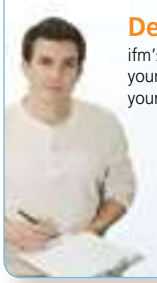
Type	Description	Part No.	List Price (1-pc.)
	Mounting set for rod mounting Ø 14 mm	**E3D301**	**$60.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (8-pin) 2 m, PUR	**E11231**	**$29.00**
	M12 Micro DC (8-pin) 5 m, PUR	**E11232**	**$36.00**
	M12 Micro DC (8-pin) 2 m, PUR	**E11950**	**$29.00**
	M12 Micro DC (8-pin) 5 m, PUR	**E11807**	**$36.00**
	Ethernet cable, 2 m, M12 D-coded / RJ45, cross-link	**E11898**	**$45.00**
	Ethernet cable, 5 m, M12 D-coded / RJ45, cross-link	**E18422**	**$54.00**
	Ethernet cable, 10 m, M12 D-coded / RJ45, cross-link	**E18423**	**$69.00**

Technical Specs

Maximum load current:	100 mA
Current consumption:	< 2400 peak current pulsed; typ. mean value 420; max. mean value 1600 mA
Image repetition rate:	≤ 25 Hz
Lighting:	infrared LED 850 nm; invisible radiation of light-emitting diodes
Operating voltage:	20.4... 28.8 DC; to EN 61131-2
Operating temperature:	14…122 °F (-10…50 °C)
Protection rating:	O3D300 and O3D302 IP65, IP67, O3D310 and O3D312 IP65, IP67 and IP69K
Material:	Lens window: corning gorilla glass Housing: O3D300 and O3D302 diecast aluminum O3D310 and O3D312 stainless steel
Parameter setting / process interface:	Ethernet TCP, Ethernet IP: 10BaseT / 100Base-TX



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Top product features!

- *Fail-safe inductive sensors do not require a special key or coded magnet for a target, reducing installation time and alignment issues*
- *High tolerance to misalignment and nuisance tripping*
- *Multi-function safety relay compatible with industry-standard safety devices*
- *Self-monitoring circuit verifies that the sensor is functioning correctly*
- *Rated up to SIL 2 or SIL 3 according to IEC 61508*

Non-contact, fail-safe inductive sensors for safety applications

ifm's non-contact fail-safe sensors incorporate inductive technology that detects standard metal target material such as stainless or mild steel. Coded magnets or mechanical keys are not required as targets, greatly reducing installation time and avoiding misalignment issues and nuisance tripping. The sensors continuously monitor the sensing window for target position and dwell time.

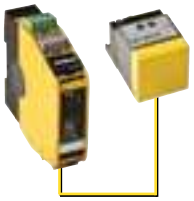
ifm's non-contact fail-safe sensors may be used with any standard safety relay, safety PLC and bus system.

Fail-Safe Sensors for Series Connection (Gx5 Series)

Up to 10 non-contact, fail-safe sensors can be connected in a series with the ifm clocked input versions. Ideal for monitoring multiple stations, such as robotics cells, the fail-safe sensors will provide an output if one point along the chain is stopped. Using ifm's quick disconnect T-piece connectors, wiring is greatly reduced and simplified.

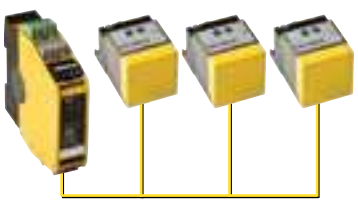
Single connection

Safety relay *Safety sensor*



Series connection (up to 10 sensors)

Safety relay *Safety sensors*



ifm's fail-safe sensors are a better alternative

Challenge: 2-piece interlocking mechanical switch is prone to misalignment and time-consuming setup.

ifm solution: Setup is fast. ifm inductive non-contact fail-safe sensors do not require coded magnets or keys.

ifm's safety relays are ideal for connecting electronic and mechanical fail-safe sensors / switches and for use as two-hand control.

		IO-Link	Position Sensors					Motion Control	Vision Sensors	
	Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
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Product + accessory selector

Housing	Dimensions [mm]	Enable Zone [mm]	Approval	Response Time on Removal	Response Time on Approach	Protection Rating	Housing Material	Part No.	List Price (1-pc.)
Non-contact, fail-safe inductive sensors for safety applications • 2 x PNP output (OSSD)									
	M12 x 70	0.5…4 nf	SIL 2, PL d	≤ 1 ms	≤ 1 ms	IP67	316 S.S., PBT	**GF711S**	**$176.00**
	M18 x 71	1…5 f	SIL 2, PL d	≤ 1 ms	≤ 1 ms	IP67	Plated brass, PBT	**GG712S**	**$181.00**
	M18 x 71	1…8 nf	SIL 2, PL d	≤ 1 ms	≤ 1 ms	IP67	316 S.S., PBT	**GG711S**	**$181.00**
	M30 x 70	1...10 f	SIL 2, PL d	≤ 10 ms	≤ 1 ms	IP67	Plated brass / PBT	**GI712S**	**$192.00**
	M30 x 70	1...15 nf	SIL 2, PL d	≤ 10 ms	≤ 1 ms	IP67	316 S.S., PBT	**GI711S**	**$188.00**
	M30 x 80	6…12 nf	SIL 3, PL e	< 50 ms	< 200 ms	IP69K	316 S.S., PBT	**GI701S**	**$188.00**
	40 x 40 x 66	10…15 nf	SIL 3, PL e	< 50 ms	< 200 ms	IP67	PPE, diecast zinc	**GM701S**	**$236.00**
	40 x 40 x 66	4…20 nf	SIL 3, PL e	< 50 ms	< 200 ms	IP67	PPE, diecast zinc	**GM705S**	**$236.00**
Fail-Safe sensors for series connection* – for connection to ifm safety relays or Safety at Work									
	M18 x 91	1…4 f	SIL 3, PL e	< 20 ms	< 200 ms	IP69K	Plated brass, PBT	**GG507S**	**$236.00**
	M18 x 91	3…6 nf	SIL 3, PL e	< 20 ms	< 200 ms	IP69K	316 S.S., PBT	**GG505S**	**$236.00**
	M30 x 80	6...12 nf	SIL 3, PL e	< 20 ms	< 200 ms	IP69K	316 S.S. / PEEK	**GI505S**	**$236.00**
	40 x 40 x 66	10…15 nf	SIL 3, PL e	< 20 ms	< 200 ms	IP67	PPE, diecast zinc	**GM504S**	**$229.00**
	40 x 40 x 66	10…20 nf	SIL 3, PL e	< 20 ms	< 200 ms	IP67	PPE, diecast zinc	**GM505S**	**$236.00**

* Requires safety splitter E11569 for series connection.

Accessories

Type	Safety Outputs	Non-safe Outputs	Part No.	List Price
	2 x relay (N.O.)	1 x PNP	**G1501S**	**$181.00**
	2 x PNP	1 x PNP	**G1503S**	**$165.00**
	3 x relay (N.O.) 2 x relay (N.O.) with time delay	1 x relay (N.O.) 1 x relay (N.C.) 1 x PNP with time delay	**G1502S**	**$292.00**
	AS-i ClassicLine module for Gx7 Series		**AC507S**	**$272 .00**
	Safety splitter (see cable section for M12 patchcords)		**E11569**	**$26.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**

Want to learn more about safety approvals, visit www.ifm.com/us

Technical Specs

Operating voltage: 19.2…30 VDC
Number of wires: 4-wire
Connector: M12
Operating temperature: -13…158 °F (-25…70 °C)

Top product features!

- *Light curtains designed for finger protection – 14 mm resolution*
- *Compact 28 x 30 mm housing profile for less intrusive mounting*
- *Up to 6 meter sensing range with no software required*
- *Light curtains offer protected heights of 160 mm to 1810 mm in intervals of 150 mm*
- ***You don't have to compromise the safety level of your machine because of cost...** competitive list prices set a new benchmark for value!*

Safety light curtains help to protect plant personnel

Type 4
SIL 3
PLe

ifm's Type 4 safety light curtains provide an optical solution for protecting plant personnel in unsafe work areas. ifm Type 4 light curtains provide continuous protection, tighter effective aperture range, redundant circuitry and the highest maximum achievable safety level requirements.

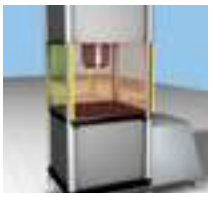
- Compact 28 x 30 mm housing profile
- Up to 12 meter sensing range
- Curtain heights from 160 to 1810 mm
- Integrated T-slot mounting, hardware included
- Light grids available in 2-, 3- and 4-beam versions
- Highly visible LEDs for setup and status indication
- Industry standard M12 connector

Why choose ifm for your safety products?

- ifm has taken the complexity out of selecting light curtains by offering only Type 4 light curtains.
- Not only does ifm provide the maximum achievable safety for a light curtain, ifm also offers the optimal resolution models for finger, hand and body protection applications.
- ifm's pricing enables Type 4 light curtains to be used in all applications.
- Fewer variations that cover a broad range of applications allows for standardizing on a smaller number of light curtain models.
- ifm has stock available for immediate delivery.

ifm safety light curtains provide a multiple beam array of infrared light in front of a hazardous area. If any of the beams are blocked by a **finger** in the sensing field, the light curtain sends a signal to the machine to place it in a safe state.

Woodworking Power Saws
Operators are denied access to power saws any time the saws are in motion. Finger protection safety light curtains allow operators to work in close proximity to power saws without risk of injury.



Machine tool Hydraulic presses
Presses require large amounts of force and pose a serious safety hazard. ifm safety light curtains will halt the press if an operator gets near the dangerous area.

Assembly automation SMT (Surface Mount Technology) machine
Light curtains help protect an operator from the hazards associated with material positioning such as mechanical power presses.

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
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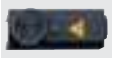
Product + accessory selector

Type 4 light curtains for finger protection

Type	Resolution (mm)	Protected Area Height (mm)	Protected Area Width (m)	Part No.	List Price
	14	160	6	**OY001S**	**$903.00**
	14	310	6	**OY002S**	**$1,128.00**
	14	460	6	**OY003S**	**$1,352.00**
	14	610	6	**OY004S**	**$1,579.00**
	14	760	6	**OY005S**	**$1,807.00**
	14	910	6	**OY006S**	**$2,034.00**
	14	1060	6	**OY007S**	**$2,265.00**
	14	1210	6	**OY008S**	**$2,499.00**
	14	1360	6	**OY009S**	**$2,723.00**
	14	1510	6	**OY010S**	**$3,118.00**
	14	1810	6	**OY011S**	**$3,738.00**

Optional Accessories

Type	Description	Part No.	List Price
	Rotatable brackets ± 7°, set of 4 (for light curtains ≤ 1060 mm)	**EY3004**	**$40.00**
	Rotatable brackets ± 7°, set of 6 (for light curtains ≥ 1210 mm)	**EY3005**	**$55.00**
	Clamping bracket ± 6°, set of 4	**EY3013**	**$45.00**
	Rotatable bracket ± 90°, set of 4	**EY3011**	**$83.00**
	Vibration damper for mounting, set of 4 pieces.	**EY3001**	**$41.00**
	Vibration damper for mounting, set of 6 pieces.	**EY3002**	**$64.00**
	Laser alignment tool	**EY3099**	**$261.00**

Additional accessories see page 151.

M12 Micro DC cordsets for transmitters

Type	Description	Part No.	List Price
	5 m, 5-pin, PUR	**EVC071**	**$19.00**
	10 m, 5-pin, PUR	**EVC072**	**$25.00**
	5 m, 5-pin, PUR	**EVC074**	**$19.00**
	10 m, 5-pin, PUR	**EVC075**	**$25.00**

M12 Micro DC cordsets for receivers

	5 m, 8-pin, PUR	**E12166**	**$54.00**
	10 m, 8-pin, PUR	**E12167**	**$69.00**
	5 m, 8-pin, PUR	**E12168**	**$54.00**
	10 m, 8-pin, PUR	**E12169**	**$69.00**

Safety relays

Type	Safety Outputs	Non-safe Outputs	Part No.	List Price
	2 x relay (N.O.)	1 x PNP	**G1501S**	**$181.00**
	2 x PNP	1 x PNP	**G1503S**	**$165.00**
	3 x relay (N.O.) 2 x relay (N.O.) with time delay	1 x relay (N.O.) 1 x relay (N.C.) 1 x PNP with time delay	**G1502S**	**$292.00**

The following pages include additional safety light curtain options.

Technical Specs

Operating voltage:	19.2…28.8 VDC
Current rating:	2 x 400 mA
Current consumption:	Transmitter 42 mA, Receiver 83 mA
Safety outputs (OSSDs):	2 x PNP
Operating temperature:	14…131 °F (-10…55 °C)
Protection:	IP67
Dimensions (W x D):	28 x 30 mm
Connection:	M12, Transmitter: 5-pin, Receiver: 8-pin
Max. cable length:	100 m
Safety category:	Type 4 (IEC 61496-1) SIL 3 (IEC 61508) SILcl 3 (IEC 62061) PL d / PL e (EN ISO 13849-1)

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Top product features!

- *Light curtains designed for hand protection – 30 mm resolution*
- *Highest level of safety protection without increasing cost – Type 4 curtains at a Type 2 price*
- *Up to 12 meter sensing range with no software required*
- *Light curtains offer protected heights of 160 mm to 1810 mm in intervals of 150 mm*
- ***You don't have to compromise the safety level of your machine because of cost…** competitive list prices set a new benchmark for value!*

Safety light curtains help to protect plant personnel

Type 4
SIL 3
PLe

ifm's Type 4 safety light curtains provide an optical solution for protecting plant personnel in unsafe work areas. ifm Type 4 light curtains provide continuous protection, tighter effective aperture range, redundant circuitry and the highest maximum achievable safety level requirements.

- Compact 28 x 30 mm housing profile
- Up to 12 meter sensing range
- Curtain heights from 160 to 1810 mm
- Integrated T-slot mounting, hardware included
- Light grids available in 2-, 3- and 4-beam versions
- Highly visible LEDs for setup and status indication
- Industry standard M12 connector

Why choose ifm for your safety products?

- ifm has taken the complexity out of selecting light curtains by offering only Type 4 light curtains.
- Not only does ifm provide the maximum achievable safety for a light curtain, ifm also offers the optimal resolution models for finger, hand and body protection applications.
- ifm's pricing enables Type 4 light curtains to be used in all applications.
- Fewer variations that cover a broad range of applications allows for standardizing on a smaller number of light curtain models.
- ifm has stock available for immediate delivery.

ifm safety light curtains provide a multiple beam array of infrared light in front of a hazardous area. If any of the beams are blocked by a **hand** in the sensing field, the light curtain sends a signal to the machine to place it in a safe state.

Vertical automated storage systems
If the operator reaches into the carousel prematurely or accidentally, ifm light curtains will stop the carousel from rotating to prevent injury.

Carton erecting
Carton machines can jam during the erecting process. Once the operator breaks the protective area of the safety light curtain, the machine stops to allow the operator to clear the jam.

Semi-automated assembly station
Line workers reach into a press to remove the assembly. The press is stopped when an operator reaches inside the machine and breaks the protective field of the light curtain. When the operator has removed the assembly, the machine cycle is automatically restarted, and the light curtains resume operation.

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

Type 4 light curtains for hand protection

Type	Resolution (mm)	Protected Area Height (mm)	Protected Area Width (m)	Part No.	List Price
	30	160	12	OY041S	$746.00
	30	310	12	OY042S	$898.00
	30	460	12	OY043S	$1,027.00
	30	610	12	OY044S	$1,176.00
	30	760	12	OY045S	$1,318.00
	30	910	12	OY046S	$1,460.00
	30	1060	12	OY047S	$1,607.00
	30	1210	12	OY048S	$1,783.00
	30	1360	12	OY049S	$1,888.00
	30	1510	12	OY050S	$2,155.00
	30	1810	12	OY454S	$2,500.00

Optional Accessories

Type	Description	Part No.	List Price
	Rotatable brackets ± 7°, set of 4 (for light curtains ≤ 1060 mm)	EY3004	$40.00
	Rotatable brackets ± 7°, set of 6 (for light curtains ≥ 1210 mm)	EY3005	$55.00
	Clamping bracket ± 6°, set of 4	EY3013	$45.00
	Rotatable bracket ± 90°, set of 4	EY3011	$83.00
	Vibration damper for mounting, set of 4 pieces.	EY3001	$41.00
	Vibration damper for mounting, set of 6 pieces.	EY3002	$64.00
	Laser alignment tool	EY3099	$261.00

Additional accessories see page 151.

Technical Specs

Operating voltage:	19.2…28.8 VDC
Current rating:	2 x 400 mA
Current consumption:	Transmitter 42 mA, Receiver 83 mA
Safety outputs (OSSDs):	2 x PNP
Operating temperature:	14…131 °F (-10…55 °C)
Protection:	IP67
Dimensions (W x D):	28 x 30 mm
Connection:	M12, Transmitter: 5-pin, Receiver: 8-pin
Max. cable length:	100 m
Safety category:	Type 4 (IEC 61496-1) SIL 3 (IEC 61508) SILcl 3 (IEC 62061) PL d / PL e (EN ISO 13849-1)

M12 Micro DC cordset for transmitter

Type	Description	Part No.	List Price
	5 m, 5-pin, PUR	EVC071	$19.00
	10 m, 5-pin, PUR	EVC072	$25.00
	5 m, 5-pin, PUR	EVC074	$19.00
	10 m, 5-pin, PUR	EVC075	$25.00

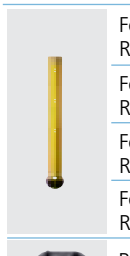
M12 Micro DC cordset for receiver

	5 m, 8-pin, PUR	E12166	$54.00
	10 m, 8-pin, PUR	E12167	$69.00
	5 m, 8-pin, PUR	E12168	$54.00
	10 m, 8-pin, PUR	E12169	$69.00

Safety relays

Type	Safety Outputs	Non-safe Outputs	Part No.	List Price
	2 x relay (N.O.)	1 x PNP	G1501S	$181.00
	2 x PNP	1 x PNP	G1503S	$165.00
	3 x relay (N.O.) 2 x relay (N.O.) with time delay	1 x relay (N.O.) 1 x relay (N.C.) 1 x PNP with time delay	G1502S	$292.00

Floor stands for light curtains

Type	Description	Part No.	List Price
	For safety light curtains ≤ 760 mm. Requires base unit EY2005.	EY2001	$299.00
	For safety light curtains ≤ 1060 mm. Requires base unit EY2005.	EY2002	$330.00
	For safety light curtains ≤ 1360 mm. Requires base unit EY2005.	EY2003	$394.00
	For safety light curtains ≤ 1510 mm. Requires base unit EY2005.	EY2004	$693.00
	Required spring base unit for floor mounting	EY2005	$204.00

The following pages include additional safety light curtain options.

Top product features!

- *Light curtains designed for body protection – 300, 400 and 500 mm resolution*
- *Highest level of safety protection without increasing cost – Type 4 curtains at a Type 2 price*
- *Up to 12 meter sensing range with no software required*
- *Light curtains for body protection offer protected heights of 500 mm to 900 mm in intervals of 150 mm*
- ***You don't have to compromise the safety level of your machine because of cost...** competitive list prices set a new benchmark for value!*

Safety light curtains help to protect plant personnel

Type 4
SIL 3
PLe

ifm's Type 4 safety light curtains provide an optical solution for protecting plant personnel in unsafe work areas. ifm Type 4 light curtains provide continuous protection, tighter effective aperture range, redundant circuitry and the highest maximum achievable safety level requirements.

- Compact 28 x 30 mm housing profile
- Up to 12 meter sensing range
- Curtain heights from 500 to 900 mm
- Integrated T-slot mounting, hardware included
- Light grids available in 2-, 3- and 4-beam versions
- Highly visible LEDs for setup and status indication
- Industry standard M12 connector

Why choose ifm for your safety products?

- ifm has taken the complexity out of selecting light curtains by offering only Type 4 light curtains.
- Not only does ifm provide the maximum achievable safety for a light curtain, ifm also offers the optimal resolution models for finger, hand and body protection applications.
- ifm's pricing enables Type 4 light curtains to be used in all applications.
- Fewer variations that cover a broad range of applications allows for standardizing on a smaller number of light curtain models.
- ifm has stock available for immediate delivery.

ifm safety light curtains for **body** protection prevent access to a machine by using light curtains and optional mirrors to define a hazardous area.

Palletizer
A palletizer erects a pallet of kegs and places it on a conveyor. Muting sensors are tripped and the pallet is allowed to bypass the light curtain and leave the area. If an operator attempts to enter the palletizing area from the opposite direction, the light curtain will detect his presence and cut power to the machine.

Perimeter guarding of palletizing area
Corner mirrors allow a single pair of safety light curtains to be used in perimeter guarding applications. Up to three corner mirrors may be used to "bend" the light into shapes that protect multiple sides of the dangerous area. ifm light curtains enable a safe and economical way to replace expensive hard guarding.

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

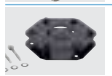
Product + accessory selector

Type 4 light curtains for body protection

Type	Resolution (mm)	No. of Beams	Protected Area Height (mm)	Protected Area Width (m)	Part No.	List Price
	500	2	500	12	**OY114S**	**$679.00**
	400	3	800	12	**OY115S**	**$786.00**
	300	4	900	12	**OY116S**	**$917.00**

Optional Accessories

Type	Description	Part No.	List Price
	Clamping bracket ± 6°, set of 4	**EY3013**	**$45.00**
	Rotatable bracket ± 90°, set of 4	**EY3011**	**$83.00**
	Vibration damper for mounting, set of 4 pieces.	**EY3001**	**$41.00**
	Vibration damper for mounting, set of 6 pieces.	**EY3002**	**$64.00**
	Laser alignment tool	**EY3099**	**$261.00**

Type	Length (mm)	Resolution (mm)	Beams	Part No.	List Price
Corner mirrors					
	715	610	2	**EY1004**	**$401.00**
	1060	910	3	**EY1006**	**$498.00**
	1230	1060	4	**EY1007**	**$549.00**
Floor stands with integrated corner mirrors					
	For light curtains with 2 beams Requires base unit EY2005.			**EY1011**	**$492.00**
	For safety light curtains with 3 and 4 beams Requires base unit EY2005.			**EY1013**	**$600.00**
Floor stands for light curtains					
	For safety light curtains ≤ 760 mm. Requires base unit EY2005.			**EY2001**	**$299.00**
	For safety light curtains ≤ 1060 mm. Requires base unit EY2005.			**EY2002**	**$330.00**
	Required spring base unit for floor mounting			**EY2005**	**$204.00**

M12 Micro DC cordset for transmitter

Type	Description	Part No.	List Price
	5 m, 5-pin, PUR	**EVC071**	**$19.00**
	10 m, 5-pin, PUR	**EVC072**	**$25.00**
	5 m, 5-pin, PUR	**EVC074**	**$19.00**
	10 m, 5-pin, PUR	**EVC075**	**$25.00**

M12 Micro DC cordset for receiver

	5 m, 8-pin, PUR	**E12166**	**$54.00**
	10 m, 8-pin, PUR	**E12167**	**$69.00**
	5 m, 8-pin, PUR	**E12168**	**$54.00**
	10 m, 8-pin, PUR	**E12169**	**$69.00**

Safety relays

Type	Safety Outputs	Non-safe Outputs	Part No.	List Price
	2 x relay (N.O.)	1 x PNP	**G1501S**	**$181.00**
	2 x PNP	1 x PNP	**G1503S**	**$165.00**
	3 x relay (N.O.) 2 x relay (N.O.) with time delay	1 x relay (N.O.) 1 x relay (N.C.) 1 x PNP with time delay	**G1502S**	**$292.00**
	For muting applications only 2 x relay (N.O.)	1 x PNP	**G2001S**	**$504.00**

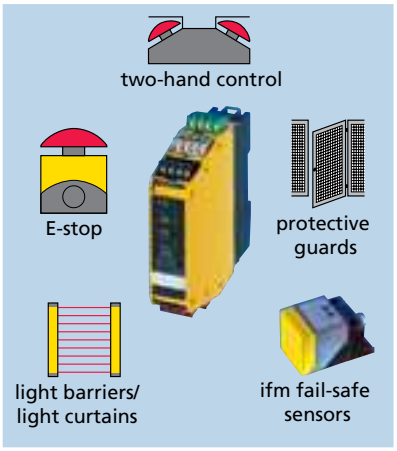
Technical Specs

Operating voltage:	19.2…28.8 VDC
Current rating:	2 x 400 mA
Current consumption:	Transmitter 42 mA, Receiver 83 mA
Safety outputs (OSSDs):	2 x PNP
Operating temperature:	14…131 °F (-10…55 °C)
Protection:	IP67
Dimensions (W x D):	28 x 30 mm
Connection:	M12, Transmitter: 5-pin, Receiver: 8-pin
Max. cable length:	100 m
Safety category:	Type 4 (IEC 61496-1) SIL 3 (IEC 61508) SILcl 3 (IEC 62061) PL d / PL e (EN ISO 13849-1)

Top product features!

- *Multi-function safety relays are compatible with a variety of devices including switches, light curtains, e-stops and two-hand controls*
- *Connects e-stop buttons with cross-fault and optional simultaneous monitoring*
- *Two safety output versions available: relay or solid-state*
- *Solid-state auxiliary non-safety output provides feedback to PLC*
- *Meets requirements of Category 4 PL e and SIL 3 (IEC 61508)*

Multi-function safety relays reduce stock levels



ifm's multi-functional safety relays are compatible with industry standard safety devices. The versatile safety relays connect single or dual channel emergency stops, mechanical safety switches, transistor-based safety devices, light curtains, two-hand controls and ifm's non-contact safety sensors. All of these devices can be monitored with one relay. The benefit is a large reduction in stock levels that eliminates the need for different types of safety relays for various applications. Dual channel safety devices can be configured to monitor simultaneous logic and cross fault detection across the inputs.

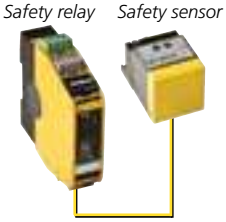
Safety Relays for Series Connection

Up to 10 non-contact, fail-safe sensors can be connected in a series with the ifm clocked input versions. Ideal for monitoring multiple stations, such as robotics cells, the fail-safe sensors will provide an output if the one point along chain is stopped. Using ifm's quick disconnect T-piece connectors, wiring is greatly reduced and simplified.

ifm's multi-functional safety relay is compatible with industry standard devices

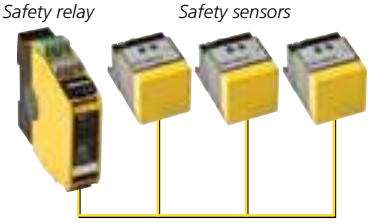
Single connection

Safety relay *Safety sensor*



Series connection (up to 10 sensors)

Safety relay *Safety sensors*



Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

Type	Dimensions	Supply Voltage	Safety Outputs	Non-Safe Outputs	Part No.	List Price (1-pc.)
Safety relays						
	100 x 25 x 105 mm	19.2…30 V DC	2 x N.O. contacts	1 N.O. transistor output (PNP)	**G1501S**	**$181.00**
	100 x 25 x 105 mm	19.2…30 V DC	2 x N.O. transistor outputs (PNP)	1 N.O. transistor output (PNP)	**G1503S**	**$165.00**
	114 x 25 x 105 mm	19.2…30 V DC	2 x N.O. contacts with delay 3 x N.O. contacts	1 N.O. contact 1 N.C. contact 1 N.O. transistor (PNP)	**G1502S**	**$292.00**
Safety relays for Muting Applications *						
	114 x 35 x 99 mm	19.2…28.8 V DC	2 x N.O. contacts	1 N.O. transistor (PNP)	**G2001S**	**$504.00**

* Can be used with all ifm safety light curtains.

Can't find the right product for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Protection rating:	IP20
Operating temperature:	-13…131 °F (-25…55 °C)
Housing material:	PA
Contact rating:	G1501S, G1502S: 6A, 250 V AC / 24 V DC
Maximum load current:	G1503S: 100 mA per safe output
Approvals:	2008 Category 4 PL e, SIL 3 (IEC 61508), Type IIIc (EN 574)

R&D that delivers solutions

ifm R&D engineers design products that reduce machine downtime, increase productivity and simplify installation.

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Top product features!

- *Safe standstill / underspeed and overspeed models are available*
- *Safe speed monitors use 2 standard sensors as pick-ups*
- *2 safety outputs (contacts)*
- *Meets requirements of Category 4 PL e and SIL 3*
- *Low profile safety speed monitors use minimal cabinet space*

Speed monitors for safety applications

NEW! ifm offers speed monitors developed for safety applications. Models are available for standstill and overspeed applications. Both styles of speed monitors are suitable for rotational or linear movement and evaluate pulses received from standard PNP sensors.

The DA101S speed monitor is ideal for both standstill and underspeed safety applications. A common application for this monitor is to ensure access doors stay locked until tooling has stopped moving. When the target speed is below the switchpoint, the two OSSD outputs will open.

The DD110S and DD111S speed monitors have been developed for safety-related overspeed monitoring as used in carousels and centrifuges. The DD111S is specifically designed for the low rotational speed of wind turbines. Both units are easily configured via rotary switches. When the switchpoint is exceeded, the 2 OSSD outputs will open.

Speed monitor switch when critical rotational speeds are exceeded or not reached.

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

Product + accessory selector

Type	Dimensions	Adjustable Frequency Range	Safety Outputs	Non-Safe Outputs	Part No.	List Price (1-pc.)
Safety speed monitor – standstill						
	105 x 25 x 100 mm	–	2 x N.O. contacts	1 fault output (PNP)	**DA102S**	**$393.00**
Safety speed monitor – underspeed						
	114.5 x 22.5 x 108 mm	0.5…990 Hz	2 x N.O. contacts	1 fault output (PNP) 1 diagnostic output (PNP)	**DU110S**	**$420.00**
Safety speed monitor – overspeed						
	114.5 x 22.5 x 108 mm	0.5…990 Hz	2 x N.O. contacts	1 fault output (PNP) 1 diagnostic output (PNP)	**DD110S**	**$452.00**
	114.5 x 22.5 x 108 mm	0.1…99.9 Hz	2 x N.O. contacts	1 fault output (PNP) 1 diagnostic output (PNP)	**DD111S**	**$443.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us/vision

Technical Specs

	DA102S	DD110S, DD111S and DU110S
Operating voltage:	19.2…30 V DC	19.2…28.2 V DC
Current consumption:	≤ 200 mA	≤ 125 mA
Input frequency:	≤ 3500 Hz	≤ 2000 Hz
Power-on delay time:	≤ 6 s	≤ 3 s
Contact rating:	6 A	6 A
Operating temp:	-13…131 °F (-25…55 °C)	-40…131 °F (-40…55 °C)
Protection:	IP20	IP20
Approvals:	EN ISO 13849-1: Category 4 PL e IEC 61508: SIL 3	EN ISO 13849-1: Category 4 PL e IEC 61508: SIL 3

Top product features!

- Pressure switch with fully welded stainless steel measuring cell and housing
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Two solutions: continuous transmission of process values via IO-Link and 2 switching outputs
- Compact design with 1/4" NPT connection
- High accuracy < ± 0.5% and repeatability < ± 0.05% of full range

PV digital pressure sensor - one sensor, two solutions

NEW! The new PV pressure sensor features a thin-film stainless steel measuring cell with integrated process connection. This allows for a fully welded construction, which eliminates elastomer seals. The design delivers a compact sensor with high accuracy , excellent vibration resistance and IP67 / IP69K environmental protection for harsh environments. The sensor also comes with a laser etched label preventing deterioration of sensor information.

For hydraulic and inert gas applications

The absence of an elastomer seal within the process connection makes the PV ideal for both hydraulic and inert gas applications without limitations. The all-stainless steel wetted parts eliminate chemical compatibility issues found in traditional elastomer seals and offers high over- and burst-pressure ratings.

The integrated IO-Link communication transmits the real process values (i.e. measurement in psi instead of mA) via a highly accurate digital signal. The pure digital communication eliminates analog to digital (A/D) conversion losses and external influences such as electronic noise. The IO-Link interface can also be used to configure sensor parameters, and transmit diagnostic information such as the pressure peak counter.

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

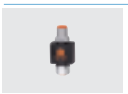
NEW

Product + accessory selector

Measuring Range* (psi)	Factory Default PNP • N.O. Setpoint 1 / 2 (psi)	Overload Pressure (psi)	Burst Pressure (psi)	Part Size	Part No.	List Price (1-pc.)
2 x PNP / NPN • N.O. / N.C.						
0…5,800	1450 / 4350	14,500	24,655	1/4" NPT male	**PV7600**	**$145.00**
0…3,625	906 / 2719	9,060	17,400	1/4" NPT male	**PV7601**	**$145.00**
0…1,450	363 / 1088	3,625	14,500	1/4" NPT male	**PV7602**	**$145.00**
0…870	218 / 653	2,175	13,050	1/4" NPT male	**PV7623**	**$145.00**
-14.5…363	91 / 272	940	8700	1/4" NPT male	**PV7603**	**$145.00**
-14.5…145	36.3 / 108.8	360	4,350	1/4" NPT male	**PV7604**	**$145.00**

* Measuring range is increased by 5% when using IO-Link. Refer to datasheet for details.

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Supply voltage:	18…30 V DC
Max. load:	100 mA
Medium temperature range:	-40…194 °F (-40…90 °C)
Accuracy:	< ± 0.5 % of full range
Repeatability:	< ± 0.05 % of full range
Wetted parts:	303 stainless steel, 630 stainless steel
Protection:	IP 67 / IP 69K

Dedicated sales engineers

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Top product features!

- Compact pressure switch for pneumatic applications
- 2-color, 4-digit alpha-numeric display for visual indication of operating status
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Easy installation using integrated mounting holes and accessories
- Flexible outputs available: dual PNP, dual NPN, analog / PNP

Compact pressure switch for applications in robotics and material handling

ifm's PQ Series pressure switches are designed for pneumatic applications in robotics and material handling. The switches precisely measure the full range of vacuum and pressure typical in these applications.

The PQ Series pressure switch family has been expanded to include versions with analog outputs that are also IO-Link enabled (i.e. part numbers PQ3809 and PQ3834).

The technology is based on a piezoresistive measuring element. The silicon measuring cell is unaffected by liquids (e.g. condensed water) and deposits that might occur in the system. The silicon measuring cell guarantees a high overload resistance as well as an accuracy of ± 0.5%.

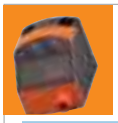
Application parameters are established using two pushbuttons. The two-color, four-digit display provides system pressure which can be seen from long distances.

Various mounting options

- Can be fixed to flat surfaces and profiles using the two M4 drill holes on the front.
- Can be fixed to a DIN rail using the robust DIN rail clip.
- Can be fixed to a pipe or air-duct plate.

Search Bar

Company	IO-Link	Position Sensors						Motion Control	Vision Sensors	
	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	



Product + accessory selector

Output	Measuring Range	Set Point Range	Reset Point Range	Fixed Analog Start Point	Fixed Analog End Point	Display Units Available	Port Size	Part No.	List Price (1-pc.)
2 x PNP, N.O./N.C.	-14.5…14.5 psi	-14.2...14.6 psi	-14.4...14.4 psi	–	–	bar, psi, kPa, inHg	G1/8 BSPP male	**PQ7809**	**$171.00**
2 x PNP, N.O./N.C.	-14.5…145 psi	-13...145 psi	-14...144 psi	–	–	bar, psi, kPa, inHg	G1/8 BSPP male	**PQ7834**	**$171.00**
2 x NPN, N.O./N.C.	-14.5…14.5 psi	-14.2...14.6 psi	-14.4...14.4 psi	–	–	bar, psi, kPa, inHg	G1/8 BSPP male	**PQ0809**	**$171.00**
2 x NPN, N.O./N.C.	-14.5…145 psi	-13...145 psi	-14...144 psi	–	–	bar, psi, kPa, inHg	G1/8 BSPP male	**PQ0834**	**$171.00**
4…20 mA and 1 x PNP, N.O./N.C.	-14.6…14.6 psi	-14.2...14.6 psi	-14.4...14.4 psi	-14.6 psi	14.6 psi	bar, psi, kPa, inHg	G1/8 BSPP male	**PQ3809**	**$184.00**
4…20 mA and 1 x PNP, N.O./N.C.	-15…145 psi	-13...145 psi	-14...144 psi	-15 psi	145 psi	bar, psi, kPa, inHg	G1/8 BSPP male	**PQ3834**	**$184.00**

Required Accessories

Type	Description	Part No.	List Price (1-pc.)
	1/8" NPT female adapter	**U60102**	**$9.00**
	6 mm Ø tube adapter	**E30076**	**$10.00**
	8 mm Ø tube adapter	**E30077**	**$10.00**
	DIN rail mounting bracket	**E37340**	**$9.00**

Optional Accessories for PQ3xxx

	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (4-pin) 2 m, PUR cable	**EVC150**	**$15.00**
	M8 Pico DC (4-pin) 5 m, PUR cable	**EVC151**	**$18.00**
	M8 Pico DC (4-pin) 2 m, PUR cable	**EVC153**	**$15.00**
	M8 Pico DC (4-pin) 5 m, PUR cable	**EVC154**	**$18.00**

For more information on IO-Link, see pages 6 - 21.

Technical Specs

Operating voltage:	18…32 VDC
Maximum load current:	100 mA
Current consumption;	<50 mA
Switch point accuracy:	< ± 0.5 % of full range
Repeatability:	< ± 0.1 % of full range
Medium temperature:	32…140 °F (0…60 °C)
Wetted parts:	Brass, FPM, silicon (coated), PBT
Protection rating:	IP65

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Top product features!

- *Simple setup with mechanical adjustment dials that rotate to quickly establish setpoint and resetpoint*
- *316 stainless steel process connection and strain gauge technology provide higher reliability than mechanical pressure switches*
- *Accuracy is consistent across the range reducing the number of ranges required*
- *The switch's high accuracy and long-term stability insure the setpoint does not drift*
- *LEDs provide switching status and power indication*

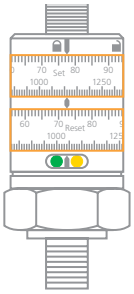
Mechanical adjustment dials provide simple setup

PK pressure switches feature mechanical adjustment dials that rotate to quickly establish the setpoint and resetpoint. The switch is adjustable without system pressure and supply voltage.

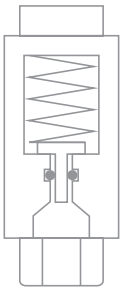
The PK pressure switch is an ideal alternative to mechanical piston pressure switches. The PK switch features a gas-tight measuring cell that reliably detects gas and liquid pressure. The switch withstands aggressive media and detects pressure ranges up to 5800 psi (400 bar).

The PK's compact design is ideal for space saving mounting. Quick electrical connection is made using an industry standard Micro DC connector.

Simple mounting is plug-and-play



Electronic PK pressure switch
No moving parts reduces wear and prevents leaks.



Mechanical piston pressure switch
Piston movement can wear the sealing ring resulting in pressure leaks.

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

Product + accessory selector

Output	Measuring Range [psi]	Setpoint Range [psi]	Resetpoint Range [psi]	Overload Pressure [psi]	Port Size	Part No.	List Price (1-pc.)
2 x PNP, N.O. and N.C.	0...145	7.5...145	5.0...142	362	1/4" NPT male	**PK6224**	**$165.00**
2 x PNP, N.O. and N.C.	0...1450	75...1450	50...1420	2900	1/4" NPT male	**PK6222**	**$165.00**
2 x PNP, N.O. and N.C.	0...5800	290...5800	175...5685	8700	1/4" NPT male	**PK6220**	**$165.00**
2 x PNP, N.O. and N.C.	0...145	7.5...145	5.0...142	362	G1/4 BSPP male	**PK6524**	**$165.00**
2 x PNP, N.O. and N.C.	0...363	18...363	11.0...355	870	G1/4 BSPP male	**PK6523**	**$165.00**
2 x PNP, N.O. and N.C.	0...1450	75...1450	50...1450	2900	G1/4 BSPP male	**PK6522**	**$165.00**
2 x PNP, N.O. and N.C.	0...3625	181...3625	109...3553	5800	G1/4 BSPP male	**PK6521**	**$165.00**
2 x PNP, N.O. and N.C.	0...5800	2900...5800	175...5685	8700	G1/4 BSPP male	**PK6520**	**$165.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Protective cover	**E30094**	**$9.00**
	G1/4 BSPP female to 1/4" NPT male, 316 stainless steel	**U25003**	**$20.00**
	G1/4 BSPP female to 7/16" SAE male, 316 stainless steel	**US0017**	**$37.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

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Technical Specs

Supply voltage:	9.6...32 VDC
Maximum load current:	2 x 250 mA
Current consumption:	<25 mA
Voltage drop:	<2 V
Medium temperature range:	-13...176 °F (-25...80 °C)
Accuracy of switch point:	< ± 2.5% of full range
Repeatability:	< ± 0.5% of full range
Wetted parts:	316 stainless steel
Protection rating:	IP67

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Top product features!

- Solid state pressure sensors are more reliable than mechanical switches
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Two solutions: continuous transmission of process values via IO-Link and 2 switching outputs
- Integrated built-in display eliminates the need for a reference gauge; values may be set in green or red providing at-a-glance status indication
- 2 large bright LEDs for output indication can be seen easily from all angles
- Stainless steel construction designed to last in harsh environments

New generation pressure switches

ifm has provided reliable pressure monitoring for pneumatic and hydraulic applications for more than 20 years.

ifm now introduces the next generation pressure sensor, the PN7 Series, with enhanced features that provide more flexibility in adapting the product to fit your pressure application.

ifm pressure switches are a solid state alternative to mechanical pressure switches. Because there are no moving parts to jam or break, ifm pressure switches eliminate the maintenance headaches of mechanical switches.

The PN7 family now incorporates the best combination of over pressure, burst pressure and long term stability for each measuring range. The technology allows for use in high pressure gas applications as well as liquid applications. Encased in a stainless steel housing, these switches can withstand extreme shock and vibration and provide high accuracy and reliability for most pressure applications.

Through innovative design technology and features that make the switch easy to implement, ifm once again, sets a new benchmark for price/performance with the PN7 family of pressure sensors.

Compact, reliable and easy to use!

2-color digital display is easier to see from a distance

Robust 316 stainless steel construction

Laser etched part numbers will not fade for future referencing

Sensor can be rotated 345° for optimum visibility after installation

Large bright LEDs can be seen from all angles indicate output status

Simple pushbutton setup allows the sensor to be parameterized in less than 5 minutes with new scroll and enter buttons

QR code for quick access to technical data and installation instructions

Atmospheric reference is achieved via the electrical connection for high IP67 rating

Available with five different process connections, including 1/4" NPT male and female for direct installation. No extra fittings are required.

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

Product + accessory selector

Measuring Range (psi)	Over Pressure / Burst Pressure (psi)	Part No. 1/4" NPT Female Port Size	Part No. 1/4" NPT Male Port Size	Part No. G1/4 BSPP Female Port Size	Part No. G1/4 BSPP Male Port Size	Part No. SAE 7/16-20 Female Port Size	List Price (1-pc.)
Vacuum switches · 2 x PNP / NPN · N.O. / N.C.							
-14.5…14.5	290 / 725	**PN7299**	**PN7699**	**PN7099**	**PN7599**	–	**$342.00**
-14.5…145	1087 / 2175	**PN7294**	**PN7694**	**PN7094**	**PN7594**	–	**$342.00**
Pressure switches · 2 x PNP / NPN · N.O. / N.C.							
0…14.5	145 / 450	**PN7297**	**PN7697**	**PN7097**	**PN7597**	–	**$342.00**
0…36.2	290 / 725	**PN7296**	**PN7696**	**PN7096**	**PN7596**	–	**$342.00**
-14.5…145	1087 / 2175	**PN7294**	**PN7694**	**PN7094**	**PN7594**	–	**$342.00**
0…362	2175 / 5075	**PN7293**	**PN7693**	**PN7093**	**PN7593**	–	**$342.00**
0…1450	4350 / 9400	**PN7292**	**PN7692**	**PN7092**	**PN7592**	**PN7392**	**$342.00**
0…3620	7250 / 15,950	**PN7271**	**PN7671**	**PN7071**	**PN7571**	–	**$342.00**
0…5800	11,580 / 24,650	**PN7270**	**PN7670**	**PN7070**	**PN7570**	**PN7370**	**$342.00**
0…8700	11,600 / 36,300	–	–	**PN7160**	**PN7560**	–	**$342.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	G 1/4 BSPP male to 1/4" NPT male adapter, 6000 psi pressure rating	**U20172**	**$18.00**
	G 1/4 BSPP male to 7/16" SAE male adapter, 6000 psi pressure rating	**U20171**	**$27.00**
	Universal angle bracket	**E30421**	**$7.00**
	Conduit adapter	**E30424**	**$84.00**
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

Technical Specs

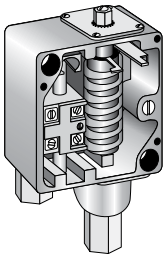
Supply voltage:	18...30 VDC
Maximum load current:	150 mA per output
Medium temperature range:	-13...176 °F (-25...80 °C)
Accuracy of switch point:	< ± 0.5% of full range
Wetted parts:	316 stainless steel, ceramic, FKM PN7x71, PN7x70, PN7160, PN7560: 630 stainless steel (1.4542)
Protection rating:	IP67

For more information on IO-Link, see pages 6 - 21.

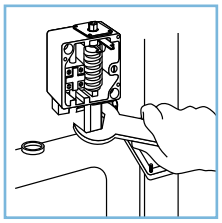
Top product features!

- Simple pushbutton setup allows the switch to be adjusted and mounted in less than 5 minutes
- Ceramic pressure sensor element is more reliable than mechanical switches
- Solid state relay output to switch loads up to 2.5 A
- Integrated built-in display eliminates the need for a reference gauge
- Stainless steel construction designed to last in harsh environments

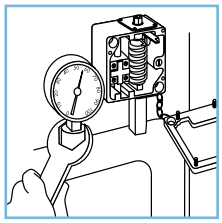
Customer benefits!



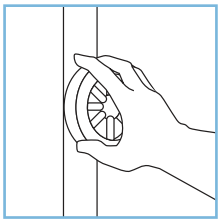
Mechanical pressure switches are not reliable and their installation is time-consuming



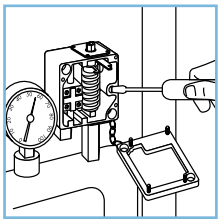
1. Mount the switch and connect conduit.



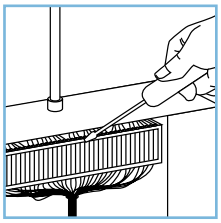
2. Install reference gauge.



3. Apply system pressure.

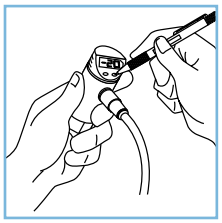


4. Adjust setpoint and differential.

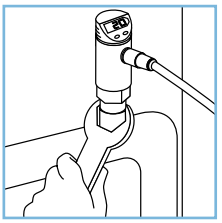


5. Make electrical connections.

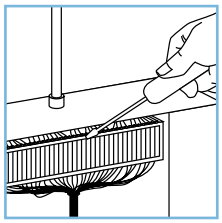
ifm pressure switches have no moving parts and can be installed in less than five minutes



1. Program the switch.



2. Install the switch.



3. Make electrical connections.

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

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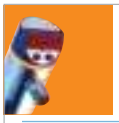

Product + accessory selector

Measuring Range	Display in Steps of	Overload Pressure	Display Units Available	Port Size	Part No.	List Price (1-pc.)
Vacuum switches · Solid state relay · N.O. / N.C.						
-30...30 inHg	1 inHg	290 psi	bar, inHg, kPA	1/4" NPT female	**PN4229**	**$411.00**
Pressure switches · Solid state relay · N.O. / N.C.						
0…14.5 psi	0.1 psi	150 psi	mbar, kPa, psi	1/4" NPT female	**PN4227**	**$411.00**
0…36.3 psi	0.1 psi	290 psi	bar, kPa, psi	1/4" NPT female	**PN4226**	**$411.00**
0…145 psi	1 psi	725 psi	bar, kPa, psi	1/4" NPT female	**PN4224**	**$411.00**
0…363 psi	1 psi	1450 psi	bar, MPa, psi	1/4" NPT female	**PN4223**	**$411.00**
0…1450 psi	10 psi	4350 psi	bar, MPa, psi	1/4" NPT female	**PN4222**	**$411.00**
0…3630 psi	10 psi	5800 psi	bar, MPa, psi	1/4" NPT female	**PN4221**	**$411.00**
0…5800 psi	10 psi	8700 psi	bar, MPa, psi	1/4" NPT female	**PN4220**	**$411.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Transparent protective cover	**E30006**	**$8.00**
	1/4" NPT male to 1/4" NPT male adapter	**U30039**	**$10.00**
	Mounting clamp	**E10077**	**$9.00**
	Conduit adapter	**E30062**	**$84.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	1/2" Micro AC (5-pin), 4 m, PUR	**E18026**	**$32.00**
	1/2" Micro AC (5-pin), 4 m, PUR	**E18027**	**$32.00**

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Technical Specs

Supply voltage:	90…250 VAC
Maximum load current:	2.5 A @ 68°F / 0.25 A @ 158 °F
Current consumption:	<10 mA
Voltage drop:	<2 V
Medium temperature range:	-13...176 °F (-25...80 °C)
Accuracy of switch point:	< ± 1% of full range
Repeatability:	< ± 0.1% of full range
Wetted parts:	303 stainless steel, ceramic, FPM
Protection rating:	IP67 (363 psi / 25 bar ranges and lower: IP65)

R&D that delivers solutions

ifm R&D engineers design products that reduce machine downtime, increase productivity and simplify installation.

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Top product features!

- 4…20 mA fixed range output – for plug and play operation
- IP69K miniature housing – ¾" diameter by 2 ½" tall for easy mounting in tight spaces
- Stainless steel measuring cell using thin film technology – for better chemical compatibility, use with high pressure gases, and better burst pressure rating over ceramic technology
- ¼" integrated process connection – for installation in common applications without additional fittings
- Laser etched label – remains readable even in the harshest environments

Compact one-piece design, fast response time

NEW! The new compact PT pressure transmitter is ideal for monitoring pressure in hydraulics and pneumatics applications as well as inert gases where mounting space is limited.

These pressure sensors feature a thin film measuring cell which is welded directly to the process connection. No separate seal is required. This innovative design technology guarantees high accuracy in a compact housing.

Constructed of stainless steel, the robust PT pressure sensors are designed to withstand extreme shock and vibration in harsh environments. The one-piece, completely welded housing eliminates moisture ingress and is rated IP 67 / IP 69K.

The transmitter provides an analog output at an exceptionally fast response time of 1 millisecond and reliable repeatability of < 0.05 %.

With its robust housing, fast response time and low cost, the PT Series transmitters are a great value!

With its fast response time of 1 millisecond, the miniature PT pressure transmitter accurately monitors pressure on a high-speed pump.

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
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Product + accessory selector

Fixed Analog Output	Measuring Range (psi)	Overload Pressure (psi)	Burst Pressure (psi)	Port Size	Part No.	List Price (1-pc.)
4…20 mA	0…100	250	2,900	1/4"NPT male	**PT2415**	**$133.00**
4…20 mA	0…200	580	6,525	1/4"NPT male	**PT2424**	**$133.00**
4…20 mA	0…300	940	8,700	1/4"NPT male	**PT2434**	**$133.00**
4…20 mA	0…500	1,450	11,600	1/4"NPT male	**PT2443**	**$133.00**
4…20 mA	0…1,000	2,500	13,050	1/4"NPT male	**PT2402**	**$133.00**
4…20 mA	0…3,000	7,250	14,500	1/4"NPT male	**PT2432**	**$133.00**
4…20 mA	0…5,000	14,500	24,650	1/4"NPT male	**PT2400**	**$133.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**

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Technical Specs

Supply voltage:	8.5…36 V DC
Max. load:	[(supply voltage -8.5) ÷ 21.5] Ω; 720 Ω at 24 V DC
Medium temperature range:	-40…194 °F (-40…90 °C)
Accuracy:	< ± 0.05 % of full range
Repeatability:	< ± 0.05 % of full range
Wetted parts:	630 stainless steel
Protection:	IP 67 / IP 69K

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Top product features!

- Ceramic sensing element provides high burst / over pressure protection and exceptional reliability
- Robust stainless steel housing
- Repeatability 0.15% of full range
- Ideally suited for hydraulic applications and applications subjected to pressure spikes
- No compromise in performance at a great price

Compact size fits easily in applications with limited mounting space

The compact PX pressure transmitter provides an analog output for reliable pressure indication. Pressure transmitter output options include 4...20 mA and 0...10 V.

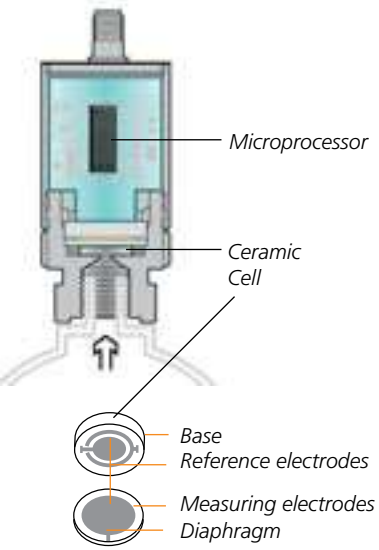
PX pressure transmitters are an ideal alternative to mechanical piston pressure transmitters. The transmitters feature a ceramic measuring cell that reliably detects line pressure and withstands aggressive media.

Capacitive sensing technology using ceramic measuring cells

The most important element of the capacitive sensing technology is the ceramic pressure measuring cell made of aluminum oxide (Al_2O_3).

After assembly, the ceramic cell element resembles a plate capacitor with a reference electrode and measuring electrode placed 10 µm apart. The capacitance is inversely proportional to the distance between the electrodes. If the distance changes by a small value because of an increase in pressure applied to the cell, the capacitance changes proportionately. This signal is then processed by a microprocessor.

Accurate and reliable



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Product + accessory selector

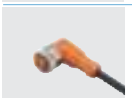
Output	Fixed Analog Range	Overpressure Limit	Port Size	Part No.	List Price (1-pc.)
4...20 mA	-14.5...0 psi	145 psi	1/4" NPT male	**PX3229**	**$205.00**
4...20 mA	0...100 inH_2O	4015 inH_2O	1/4" NPT male	**PX3228**	**$205.00**
4...20 mA	0...5 psi	145 psi	1/4" NPT male	**PX3238**	**$205.00**
4...20 mA	0...15 psi	145 psi	1/4" NPT male	**PX3227**	**$205.00**
4...20 mA	0...20 psi	145 psi	1/4" NPT male	**PX3237**	**$205.00**
4...20 mA	0...30 psi	290 psi	1/4" NPT male	**PX3226**	**$205.00**
4...20 mA	0...100 psi	1087 psi	1/4" NPT male	**PX3224**	**$205.00**
4...20 mA	0...150 psi	1087 psi	1/4" NPT male	**PX3244**	**$205.00**
4...20 mA	0...200 psi	1087 psi	1/4" NPT male	**PX3234**	**$205.00**
4...20 mA	0...250 psi	2175 psi	1/4" NPT male	**PX3233**	**$205.00**
4...20 mA	0...500 psi	2175 psi	1/4" NPT male	**PX3223**	**$205.00**
4...20 mA	0...1000 psi	4350 psi	1/4" NPT male	**PX3222**	**$205.00**
4...20 mA	0...3000 psi	5800 psi	1/4" NPT male	**PX3111**	**$205.00**
4...20 mA	0...5000 psi	11,600 psi	1/4" NPT male	**PX3220**	**$205.00**
0...10 V	-14.5...0 psi	145 psi	1/4" NPT male	**PX9119**	**$204.00**
0...10 V	0...100 inH_2O	4015 inH_2O	1/4" NPT male	**PX9118**	**$205.00**
0...10 V	0...15 psi	145 psi	1/4" NPT male	**PX9117**	**$204.00**
0...10 V	0...30 psi	290 psi	1/4" NPT male	**PX9116**	**$204.00**
0...10 V	0...100 psi	1087 psi	1/4" NPT male	**PX9114**	**$204.00**
0...10 V	0...200 psi	1087 psi	1/4" NPT male	**PX9134**	**$204.00**
0...10 V	0...1000 psi	4350 psi	1/4" NPT male	**PX9112**	**$204.00**
0...10 V	0...3000 psi	5800 psi	1/4" NPT male	**PX9111**	**$204.00**
0...10 V	0...5000 psi	11,600 psi	1/4" NPT male	**PX9110**	**$205.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting clamp	**E10077**	**$9.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

Technical Specs

Supply voltage:	PX3: 9.6...32 VDC; PX9: 16...32 VDC
Max. load for PX3:	[(supply voltage - 9.6) x 50] Ω; 720 Ω at 24 VDC
Min. load for PX9:	2000 Ω
Medium temperature range:	-13...194 °F (-25...90 °C)
Accuracy:	< ± 0.75% of full range
Repeatability:	< ± 0.15% of full range
Wetted parts:	303 stainless steel, ceramic, FPM
Protection rating:	IP68 / IP69K (363 psi / 25 bar ranges and lower: IP65)

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Top product features!

- Transmitter with multiple outputs including scaleable analog for flexibility
- Integrated built-in display eliminates the need for a reference gauge; values may be set in green or red providing at-a-glance status indication
- IO-Link Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- 2 large bright LEDs for output indication can be seen easily from all angles
- Stainless steel construction designed to last in harsh environments

New generation pressure transmitters

ifm has provided reliable pressure monitoring for pneumatic and hydraulic applications for more than 20 years.

ifm now introduces the next generation pressure transmitter, the PN2 Series, with enhanced features that provide more flexibility in adapting the product to fit your pressure application.

The PN2 family now incorporates the best combination of over pressure, burst pressure and long term stability for each measuring range. The technology allows for use in high pressure gas applications as well as liquid applications. Encased in a stainless steel housing, these transmitters can withstand extreme shock and vibration and provide high accuracy and reliability for most pressure applications.

Through innovative design technology and features that make the transmitter easy to implement, ifm once again, sets a new benchmark for price/performance with the PN2 family of products.

Compact, reliable and easy to use!

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

Search Bar

Product + accessory selector

Measuring Range (psi)	Over Pressure / Burst Pressure (psi)	Part No. 1/4" NPT Female Port Size	Part No. 1/4" NPT Male Port Size	Part No. G1/4 BSPP Female Port Size	Part No. G1/4 BSPP Male Port Size	List Price (1-pc.)
Vacuum transmitters · 4...20 mA / 0...10 V and PNP / NPN or 2 x PNP / NPN switching						
-14.5...14.5	290 / 725	**PN2299**	**PN2699**	**PN2099**	**PN2599**	**$399.00**
-14.5...145	1087 / 2175	**PN2294**	**PN2694**	**PN2094**	**PN2594**	**$399.00**
-14.5...362.5	2175 / 5075	**PN2293**	**PN2693**	**PN2093**	**PN2593**	**$399.00**
Pressure transmitters · 4...20 mA / 0...10 V and PNP / NPN or 2 x PNP / NPN switching						
-5...100.4 inH_2O	4000 / 12000 inH_2O	**PN2298**	**PN2698**	**PN2098**	**PN2598**	**$399.00**
0...14.5	145 / 450	**PN2297**	**PN2697**	**PN2097**	**PN2597**	**$399.00**
0...36.2	290 / 725	**PN2296**	**PN2696**	**PN2096**	**PN2596**	**$399.00**
-14.5...145	1087 / 2175	**PN2294**	**PN2694**	**PN2094**	**PN2594**	**$399.00**
-14.5...362.5	2175 / 5075	**PN2293**	**PN2693**	**PN2093**	**PN2593**	**$399.00**
0...1450	4350 / 9400	**PN2292**	**PN2692**	**PN2092**	**PN2592**	**$399.00**
0...3620	7250 / 15,950	**PN2271**	**PN2671**	**PN2071**	**PN2571**	**$399.00**
0...5800	11,580 / 24,650	**PN2270**	**PN2670**	**PN2070**	**PN2570**	**$399.00**
0...8700	11,600 / 36,300	–	–	**PN2160**	**PN2560**	**$399.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	G 1/4 BSPP male to 1/4" NPT male adapter 6000 psi pressure rating	**U20172**	**$18.00**
	G 1/4 BSPP male to 7/16" SAE male adapter 6000 psi pressure rating	**U20171**	**$27.00**
	Universal angle bracket	**E30421**	**$7.00**
	Conduit adapter	**E30424**	**$84.00**
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

Technical Specs

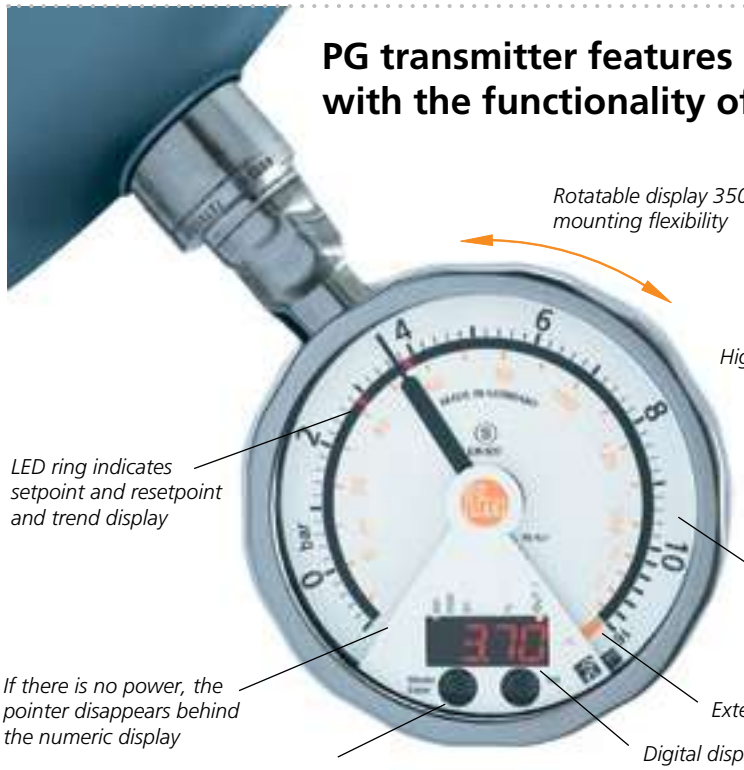
Supply voltage:	18...30 VDC
Maximum load current:	250 mA
Medium temp. range:	-13...176 °F (-25...80 °C)
Accuracy:	< ± 0.5% of full range
Wetted parts:	316 stainless steel, ceramic, FKM PN2x71, PN2x70, PN2160, PN2560: 630 stainless steel (1.4542)
Protection rating:	IP67

For more information on IO-Link, see pages 6 - 21.

Top product features!

- *3-in-1 unit: Transmitter and switch with the advantages of a gauge display*
- *Gauge display indicates the current operating pressure relative to the overall range*
- *Pointer does not require damping liquid and is driven by an integrated stepper motor*
- *Transmitter can be configured in less than 5 minutes using two optical pushbuttons*
- *Display can be rotated 350 degrees for optimal visibility*

PG transmitter features highly visible gauge with the functionality of a pressure sensor



High-precision measurement

ifm's PG Series pressure family offers a 3-in-1 solution for pressure applications. The PG is a transmitter, switch and gauge in a light-weight, stainless steel housing.

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

Search Bar

Product + accessory selector

Measuring Range	Extended Display Range	Overload Pressure	Scaleable Analog Start Point	Scaleable Analog End Point	Setpoint Range	Port Size	Part No.	List Price (1-pc.)
Vacuum transmitters · 4-20 mA and PNP / NPN · N.O. / N.C.								
-14.5…14.5 psi	23.2 psi	435 psi	-14.5...15.9 psi	-7.2...23.2 psi	-14.4…23.2 psi	G 1/2 BSPP male	**PG2409**	**$468.00**
-14.5…58 psi	93 psi	435 psi	-14.5...78.3 psi	0...92.8 psi	-14.2...92.5 psi	G 1/2 BSPP male	**PG2455**	**$468.00**
-14.4…145 psi	232 psi	725 psi	-14.4...196 psi	22...232 psi	-14...232 psi	G 1/2 BSPP male	**PG2454**	**$468.00**
-14.5…363 psi	580 psi	1450 psi	-14.5...490 psi	76...580 psi	-13...580 psi	G 1/2 BSPP male	**PG2453**	**$468.00**
Pressure transmitters · 4-20 mA and PNP / NPN · N.O. / N.C.								
-2…40 inH_2O	64 inH_2O	1606 inH_2O	-2...54 inH_2O	8...64 inH_2O	-1.8...64 inH_2O	G 1/2 BSPP male	**PG2489**	**$468.00**
-5…100 inH_2O	160 inH_2O	4015 inH_2O	-5...135 inH_2O	20...160 inH_2O	-4.6...160 inH_2O	G 1/2 BSPP male	**PG2458**	**$468.00**
-0.7…14.5 psi	23 psi	145 psi	-0.7...19.6 psi	2.9...23 psi	-0.66...23 psi	G 1/2 BSPP male	**PG2457**	**$468.00**
-1.8…36 psi	58 psi	290 psi	-1.8...48.6 psi	7.6...58 psi	-1.65...58 psi	G 1/2 BSPP male	**PG2456**	**$468.00**
-14.5…58 psi	93 psi	435 psi	-14.5...78.3 psi	0...92.8 psi	-14.2...92.5 psi	G 1/2 BSPP male	**PG2455**	**$468.00**
-14.4…145 psi	232 psi	725 psi	-14.4...196 psi	22...232 psi	-14...232 psi	G 1/2 BSPP male	**PG2454**	**$468.00**
-14.5…363 psi	580 psi	1450 psi	-14.5...490 psi	76...580 psi	-13...580 psi	G 1/2 BSPP male	**PG2453**	**$468.00**
0…1449 psi	2322 psi	4350 psi	0...1959 psi	363...2322 psi	6...2322 psi	G 1/2 BSPP male	**PG2452**	**$468.00**
0…3625 psi	5800 psi	8700 psi	0...5075 psi	725…5800 psi	15...5800 psi	G 1/2 BSPP male	**PG2451**	**$468.00**
0…5800 psi	8700 psi	11,600 psi	0…7250 psi	1450…8700 psi	30…8700 psi	G 1/2 BSPP male	**PG2450**	**$468.00**

Required Accessories

Type	Description	Part No.	List Price (1-pc.)
	G 1/2 BSPP female to 1/2" NPT male adapter	**UP0021**	**$38.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

Technical Specs

Operating voltage:	18...32 VDC
Maximum load current:	250 mA
Switchpoint accuracy:	<± 0.6%
Switchpoint accuracy in extended display range:	<± 1.5%
Repeatability:	<± 0.1%
Medium temperature:	-13…176 °F (-25...80 °C)
Wetted parts:	316L stainless steel, ceramic, FPM
Analog scaling turndown:	4:1
Protection Rating:	IP67 / IP69K

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Top product features!

- *Pressure compensation via internally vented cable*
- *2-wire connection technology with 4...20 mA analog output*
- *Stainless steel housing rated IP68 for durability and long-term immersion*
- *Models available with measuring ranges of 100, 240 and 400 inH_2O*
- *Good overall accuracy and long-term stability*

Submersible pressure transmitter for liquid level applications

ifm's PS3 Series submersible pressure transmitters indicate liquid level measurement in tanks, containers, sumps, wells and river water.

The two-wire, stainless steel transmitter is inserted directly into the medium and provides a 4…20 mA analog output signal. Its watertight, vented polyurethane cable withstands over 220 pounds of strain.

The transmitter measures liquid level through pressure sensing technology. The weight of the liquid creates pressure on the transmitter's measuring element. As the liquid level changes, the output changes. The transmitter's accuracy of 0.5% of full scale and repeatability of 0.1% contribute to the operational reliability of the transmitter.

Models are available with measuring ranges of 100 inH_2O, 240 inH_2O and 400 inH_2O with a variety of cable lengths.

The combination of analog output signal, two-wire technology and various mounting accessories allow easy integration into existing applications.

Level measurement in a water treatment plant

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

Fixed Output	Measuring Range	Overload Pressure	Connection	Operating Voltage	Part No.	List Price (1-pc.)
4...20 mA	0...100 inH₂O	803 inH₂O	PUR cable 5 m	10...30 VDC	**PS3208**	**$601.00**
4...20 mA	0...100 inH₂O	803 inH₂O	FEP cable 5 m	10...30 VDC	**PS4208**	**$709.00**
4...20 mA	0...100 inH₂O	803 inH₂O	FEP cable 10 m	10...30 VDC	**PS4408**	**$760.00**
4...20 mA	0...240 inH₂O	1204 inH₂O	FEP cable 5 m	10...30 VDC	**PS4407**	**$760.00**
4...20 mA	0...240 inH₂O	1606 inH₂O	PUR cable 10 m	10...30 VDC	**PS3407**	**$656.00**
4...20 mA	0...240 inH₂O	1606 inH₂O	PUR cable 15 m	10...30 VDC	**PS3427**	**$678.00**
4...20 mA	0...240 inH₂O	1205 inH₂O	FEP cable 20 m	10...30 VDC	**PS4506**	**$852.00**
4...20 mA	0...240 inH₂O	1606 inH₂O	PUR cable 30 m	10...30 VDC	**PS3607**	**$723.00**
4...20 mA	0...400 inH₂O	2007 inH₂O	FEP cable 15 m	10...30 VDC	**PS4417**	**$820.00**
4...20 mA	0...400 inH₂O	2007 inH₂O	PUR cable 15 m	10...30 VDC	**PS3417**	**$678.00**
4...20 mA	0...400 inH₂O	2007 inH₂O	PUR cable 30 m	10...30 VDC	**PS3617**	**$723.00**
4...20 mA	0...400 inH₂O	2009 inH₂O	FEP cable 30 m	10...30 VDC	**PS4607**	**$948.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Junction box with ventilation	**E30401**	**$108.00**
	Filter element to protect vent tube in cable	**E30400**	**$11.00**
	Cable clamp	**E30399**	**$30.00**
	Additional weight to stabilize transmitter	**E30402**	**$69.00**

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Technical Specs

Maximum load:	[(supply voltage - 10) x 50] Ω; 700 Ω at 24 VDC
Medium temperature range:	14...122 °F (-10...50 °C)
Accuracy:	<± 0.5% of full range
Repeatability:	<± 0.1% of full range
Wetted parts:	316 stainless steel
Protection rating:	IP68

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Top product features!

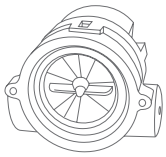
- *Thermal sensing principle with no moving parts is more reliable than mechanical switches*
- *Replaces mechanical switches for monitoring liquids and gases*
- *Wide measuring range to cover more applications*
- *LED bar graph display for flow and setpoint*
- *Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback*

ifm's flow switches are an ideal alternative to mechanical flow switches

The SI flow switch features microprocessor-based pushbutton programming and highly visible LED status of flow and output conditions. They are ideally suited to flow / no flow applications in most industries.

ifm efector flow switches offer a variety of process connections to fit most applications. This flexibility allows the switch to be easily installed in many different applications that have various mounting requirements.

ifm efector flow switches are solid state alternatives to mechanical flow switches for sensing the flow rate of liquids and gases. Because there are no moving parts to jam or break, ifm efector flow switches eliminate the maintenance headaches of mechanical flow switches.

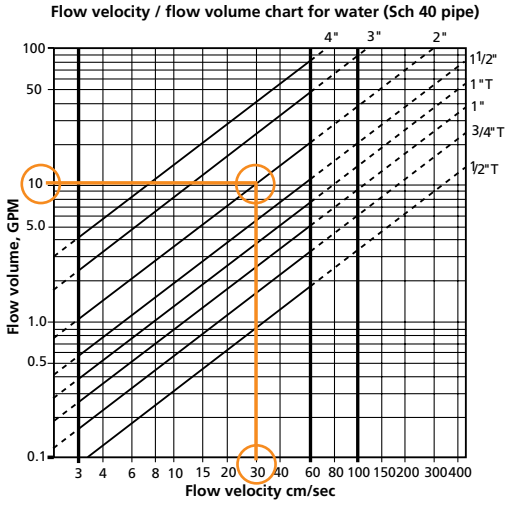


Challenge
Mechanical flow switches that stick.

Solution
ifm flow switches have no moving parts that can stick or break.

How to convert flow rate to flow velocity

1. *Find the volumetric flow rate for the switchpoint on the y-axis. (Example: 10).*
2. *Follow the line horizontally until it intersects the diagonal line for the pipe diameter. (Example: 2").*
3. *From that intersection point, drop straight down to read the velocity on the x-axis to find the flow velocity. (Example: 30).*



Ideal switchpoint setting ranges for the following flow models:
SI 5xxx *(see page 165): 3…100 cm/sec. for water*
SF xxxx *(see page 167): 3…60 cm/sec. for water*

If the velocity falls within the ideal switchpoint range (as indicated between the bold lines in the chart: 3...100 cm or 3...60 cm), the switch will be very repeatable. If it does not fall within that range, consider increasing the pipe size or reducing the switchpoint flow rate.

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

Output	Process Connection	Ideal Switchpoint Setting Range for Water*	Supply Voltage	Current/ Power Consumption	Load Current/ Contact Rating	Response Time	Pressure Rating	Part No.	List Price (1-pc.)
1 x PNP, N.O. / N.C.	See required accessories	3...100 cm/sec	19…36 VDC	< 60 mA	250 mA	1...10 sec	4350 psi (300 bar)	**SI5010**	**$321.00**
1 x NPN, N.O. / N.C.	See required accessories	3...100 cm/sec	19…36 VDC	< 60 mA	250 mA	1...10 sec	4350 psi (300 bar)	**SI5011**	**$321.00**
1 x AC relay, N.O./N.C.	See required accessories	3...100 cm/sec	90…240 VAC	< 3.5 VA	3A contact rating	1...10 sec	4350 psi (300 bar)	**SI5006**	**$399.00**

* Refer to technical specs for ideal switchpoint setting range for other media.

Required Accessories

Type	Description	Part No.	List Price (1-pc.)
	1/4" NPT adapter, 316 stainless steel	**E40106**	**$22.00**
	1/2" NPT adapter, 316 stainless steel	**E40107**	**$24.00**
	3/4" NPT adapter, 304 stainless steel	**U40085**	**$45.00**
	1" NPT adapter, 304 stainless steel and brass	**U40080**	**$72.00**
	G1/4 BSPP adapter, 316 stainless steel	**E40099**	**$22.00**
	G1/2 BSPP adapter, 316 stainless steel	**E40096**	**$27.00**
	Weldable adapter, carbon steel	**E40113**	**$19.00**
	Weldable adapter, 316 stainless steel	**E40124**	**$41.00**

For more information on IO-Link, see pages 6 - 21.

Optional Accessories and Cordsets

Type	Description	Part No.	List Price (1-pc.)
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**
	1/2" tee, brass	**U40029**	**$18.00**
	1/2" tee, stainless steel	**U40030**	**$66.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**
	1/2" Micro AC (5-pin) 4 m, PUR (for SI5006)	**E18026**	**$32.00**
	1/2" Micro AC (5-pin) 4 m, PUR (for SI5006)	**E18027**	**$32.00**

Technical Specs

Medium temperature range:	-13...176 °F (-25…80 °C)
Ideal switchpoint setting range for oils:	3…300 cm/sec
Ideal switchpoint setting range for gases:	200...800 cm/sec
Maximum temperature gradient of medium:	300 °C / min
Repeatability:	1…5 cm/sec (for water)
Hysteresis:	2…5 cm/sec (for water)
Wetted parts:	316 stainless steel, FKM
Protection rating:	IP67

Top product features!

- 2-piece monitoring system for remote flow indication
- Sensor connects to variety of control monitors
- Ideal for applications where mounting space is limited
- Reduced inventory via modular mounting adapter system
- High temperature model available

Direct or remote mount flow monitoring systems offer a modular solution for installation

Remote flow probe connects to a cabinet control monitor.

Field-mount monitors can be direct mounted or remote mounted.

ifm's flow monitoring system is a modular solution for direct or remote indication of fluids and gases. With no moving parts or paddles to stick or break, ifm's flow monitor provides reliable flow detection in a variety of equipment. This modular solution is ideal for environments with limited mounting space or locations that do not permit local installation of the control monitor.

Cabinet mount control monitor

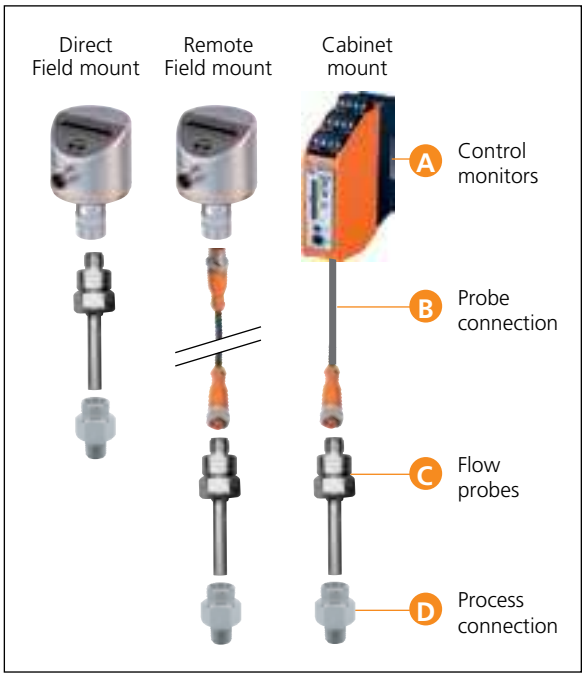
ifm's cabinet mount control monitor offers easy to access terminal connections and can be wired prior to installing inside the control cabinet. The connection to the flow probe is low voltage and does not require a conduit for protection. The control monitor's LED display provides a visual indication of flow and flow setpoint. Separate LEDs indicate temperature and wire break relay output.

Field mount control monitor

ifm's field mount control monitor connects to multiple probes and can be used directly at the application or remote mounted. The monitor features pushbutton programming and a bar graph LED display for visual operating status.

Component guide

Select a control monitor depending on your application. Next, determine an electrical connection, flow probe and process connection.



	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
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Search Bar

Product + accessory selector

A Control monitors

Type	Description	Output	Power Connection	Operating Voltage	Flow / Temperature / Wire Break Monitoring	Part No.	List Price (1-pc.)
	Field mount control monitor	PNP, N.O. / N.C.	M12 Micro DC	19...36 DC	yes / no / yes	**SR5900**	**$304.00**
	Field mount control monitor	AC, relay, N.O. / N.C.	1/2" Micro AC	90…240 AC	yes / no / yes	**SR5906**	**$345.00**
	Cabinet mount control monitor	3 x SPDT relay	Combicon	24 VDC	yes / yes / yes	**SR0150**	**$429.00**
	Cabinet mount control monitor	3 x SPDT relay	Combicon	90…240 AC	yes / yes / yes	**SN0150**	**$429.00**

C Flow probes

Type	Process Connection	Probe Connection to SR590x Field Mount	Probe Connection to Sx0150 Cabinet Mount	Part No.	List Price (1-pc.)
	Requires E40106, E40107, U40085, or U40080	Connect directly for field mount or use EVC059 patchcord for remote mount	Use EVC074 cordset for remote mount	**SF5200**	**$251.00**
	6" insertion depth, requires E40174	Connect directly for field mount or use EVC059 patchcord for remote mount	Use EVC074 cordset for remote mount	**SF6200**	**$290.00**
	4" insertion depth, requires E40174	Connect directly for field mount or use EVC059 patchcord for remote mount	Use EVC074 cordset for remote mount	**SF6201**	**$276.00**
	Requires E40106, E40107, U40085, or U40080	Use E11506 connector for remote mount	Wire directly to combicon cable connector	**SF5300**	**$359.00**

D Process connection

Type	Description	Part No.	List Price (1-pc.)
	1/2" NPT adapter (SF6200 or SF6201)	**E40174**	**$63.00**
	1/4" NPT adapter (SF5200 or SF5300)	**E40106**	**$22.00**
	1/2" NPT adapter (SF5200 or SF5300)	**E40107**	**$23.00**
	3/4" NPT adapter, 304 stainless steel	**U40085**	**$45.00**
	1" NPT adapter, 304 stainless steel and brass	**U40080**	**$72.00**

B Cordsets (for power / probe connections)

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC cordset (4-pin) 5 m, PUR (for SR5900)	**EVC004**	**$11.00**
	1/2" Micro AC cordset (5-pin), 4 m, PUR (for SR5906)	**E18027**	**$32.00**
	M12 Micro DC patchcord (5-pin), PUR (for SF 5200 or SF 6200)	**EVC059**	**$35.00**
	M12 Micro DC connector (5-pin), PA (for SF 5300)	**E11506**	**$17.00**
	M12 Micro DC cordset (5-pin) 5 m, PUR (for SF 5200 or SF 6200)	**EVC074**	**$19.00**

Technical Specs

Ideal switchpoint setting range for water:	3...60 cm/sec*
Ideal switchpoint setting range for oils:	9...180 cm/sec
Ideal switchpoint setting range for gases:	50...600 cm/sec
Medium temperature:	SF 5200 and SF 6200: -13...176 °F (-25…80 °C) SF 5300: 32...248 °F (0…120 °C)
Protection rating:	IP67 (SR0150, SN0150: IP20)

*** See flow velocity/flow volume chart for water (page 176)**

For additional cordsets, please call 800-441-8246 or visit www.ifm.com/us

Top product features!

- Flow meter optimized for water, oils, glycol and air
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Digital transmission of two process values: flow rate and temperature
- Fast response time and integrated temperature measurement
- Red / green numeric display for process values and at-a-glance status
- Internal pipe diameter selectable from 0.6" to 16" and selectable outputs for switching, frequency and analog

Thermal flow meter with digital display for liquids and gases

NEW! The new SA Series flow sensors are designed to detect and measure the flow and temperature of oil, water, glycol and air in large internal pipe diameters up to 16 inches.

These volumetric flow sensors operate using the calorimetric measuring principle. The sensor tip houses two RTD elements and a heat source. When power is applied, the tip of the sensor is heated. The flow rate is determined as these RTDs react to the physical effect of a flowing medium conducting heat energy away from the sensor tip. This temperature-based operating principle can reliably sense the flow of virtually any liquid or gas.

Quick setup

A simple pushbutton menu allows the sensor to be programmed to fit your application setpoints. Switching, frequency or analog outputs are also selectable. Designed with an integrated digital display, values may be set in green or red for indicating if process values are within range or if limits have been exceeded. Parameters may also be set via ifm's LineRecorder software or IO-Link.

Various mounting options

ifm's SA Series flow sensors are available in various probe lengths and process connections to fit most mounting requirements.

ifm flow sensors are solid state alternatives to mechanical flow switches. Because there are no moving parts to jam or break, ifm flow switches eliminate the maintenance of mechanical flow switches.

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
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NEW

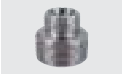
Product + accessory selector

Process Connection	RTD Length (mm)	Display Units	Measuring Range (Water)	Measuring Range (Air)	Outputs Switching / Frequency and 4…20 mA Analog Part No.	Outputs Dual 4…20 mA Analog Part No.	List Price (1-pc.)
1/2" NPT	27	%, fps, g/m, cfm, °F	0.15…9.8 ft/s	6.5…328 ft/s	**SA6010**	**SA6014**	**$330.00**
M18 x 1.5	45				**SA5010**	**SA5014**	**$330.00**
Compression fitting	100				**SA4110**	**SA4114**	**$345.00**
	200				**SA4310**	**SA4314**	**$355.00**
G 1/2 BSPP	19	%, m/s, l/min, m³/h, °C	0.04…3 m/s	2…10 m/s	**SA2000**	**SA2004**	**$330.00**
M18 x 1.5	45				**SA5000**	**SA5004**	**$330.00**
Compression fitting	100				**SA4100**	**SA4104**	**$345.00**
	200				**SA4300**	**SA4304**	**$355.00**

Required Accessories (for SA4xxx)

Type	Description	Part No.	List Price (1-pc.)
	Compression fitting 1/2" NPT	**E40261**	**$22.00**
	Compression fitting 1/4" NPT	**E40262**	**$22.00**

Required Accessories (for SA5xxx)

Type	Description	Part No.	List Price (USD)
	1/4" NPT adapter	**E40106**	**$22.00**
	1/2" NPT adapter	**E40107**	**$24.00**
	3/4" NPT adapter	**U40085**	**$45.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR cable	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR cable	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR cable	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR cable	**EVC005**	**$15.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	LineRecorder Device, software for parameter setting	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug, parameter memory for IO-Link sensors	**E30398**	**$51.00**

Technical Specs

Operating voltage:	18…30 VDC
Current consumption:	< 100 mA
Current rating:	250 mA
Accuracy flow measurement:	± (5 % of measured value + 2 % of full range) for water
Accuracy temp monitoring:	± 1.8 °F (1 °C)
Protection:	IP65 / IP67
Housing materials:	316L stainless, steel, PBT
Response time:	0.5 sec. (water)

Top product features!

- Flow meter monitors flow rate and temperature of water and oil-based media
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Digital transmission of two process values: flow rate and temperature
- Fast response time 10 ms: great for cycling applications
- Two-color digital display for at-a-glance status
- Ideal for applications with rapid temperature changes of media

ifm mechatronic flow meter

The ifm SBN Series mechatronic flow meter monitors water and oil-based media and provides reliable flow control for various flow applications.

The mechatronic flow meter sensing principle ensures extremely fast response time and can be easily set via pushbuttons or IO-Link.

The SBN mechatronic flow meter is ideal for applications with rapid temperature changes or where fast response time is required, such as:

- Spindle coolant flow monitoring for drilling
- Furnace cooling water flow detection
- Cycling coolant flow monitoring in machining applications

SBN Principle of operation
The flow sensor utilizes a spring-supported piston that is lifted by the flowing medium. The piston position is detected via a magnetic sensor and is output as a binary or analog signal. The spring resets the piston to its initial position with decreasing flow. This allows the sensor to be mounted in any position (horizontally or vertically) and function as a check valve.

The mechatronic sensor reliably monitors the flow of water in cooling loops of an induction furnace.

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
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Product + accessory selector

Measuring Range (Flow)	Measuring Range (Temperature)	Output 1	Output 2	Process Connection	Part No.	List Price (1-pc.)
0.1…4 gpm	14…212 °F	PNP/NPN switching or frequency (flow or temperature)	PNP/NPN switching or 4…20 mA analog (flow or temperature)	3/4" NPT female	**SBN232**	**$282.00**
0.1…6 gpm	14…212 °F			3/4" NPT female	**SBN233**	**$275.00**
0.2…10 gpm	14…212 °F			3/4" NPT female	**SBN234**	**$275.00**
0.5…27 gpm	14…212 °F			1" NPT female	**SBN246**	**$295.00**
0.3…15 lpm	-10…100 °C	PNP/NPN switching or frequency (flow or temperature)	PNP/NPN switching or 4…20 mA analog (flow or temperature)	G 1/2 BSPP	**SBG232**	**$275.00**
0.5…25 lpm	-10…100 °C			G 1/2 BSPP	**SBG233**	**$275.00**
1.0…50 lpm	-10…100 °C			G 1/2 BSPP	**SBG234**	**$275.00**
2.0…100 lpm	-10…100 °C			G 3/4 BSPP	**SBG246**	**$345.00**
4.0…200 lpm	-10…100 °C			G 1-1/4 BSPP	**SBG257**	**$420.00**
0.3…15 lpm	-10…100 °C	PNP/NPN switching or frequency (flow or temperature)	PNP/NPN switching or 4…20 mA analog (flow or temperature)	R 3/4 BSPT	**SBY232**	**$275.00**
0.5…25 lpm	-10…100 °C			R 3/4 BSPT	**SBY233**	**$275.00**
1.0…50 lpm	-10…100 °C			R 3/4 BSPT	**SBY234**	**$275.00**
2.0…100 lpm	-10…100 °C			R 1 BSPT	**SBY246**	**$295.00**
4.0…200 lpm	-10…100 °C			R 1-1/2 BSPT	**SBY257**	**$395.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR cable	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR cable	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR cable	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR cable	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR cable	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR cable	**EVC006**	**$19.00**

For more information on IO-Link, see pages 6 - 21.

Technical Specs

Operating voltage:	18…30 VDC
Current consumption:	< 50 mA
Accuracy flow measurement:	± (4 % measured value + 1 % full range)
Accuracy temp monitoring:	± 5.4 °F (3 °C)
Protection:	IP65 / IP67
Wetted parts:	316, 316L stainless steel, brass, nickel-plated brass, PPS, FKM

Reliable service center
The ifm service center team provides tech support, product quotes, delivery information and order placement.

Place orders, tech support
800-441-8246
Visit our product catalog
www.ifm.com/us
Shop for products online
Easy ordering via eShop

Top product features!

- Vortex flow meter simultaneously monitors flow rate up to 25 gpm and fluid temperature up to 194° F
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Digital transmission of two process values: flow rate and temperature
- Two-color TFT digital display rotates for at-a-glance status
- Mounts in-line with rotatable process connections for quick installation
- Selectable outputs for switching and frequency or dual analog

Reliable vortex flow meter for water-based applications

NEW! ifm's SV Series vortex flow meter is designed to simultaneously monitor flow rate and detect fluid temperature of circulating water in industrial applications.

Encased in a compact robust housing for harsh environments, the meter utilizes the vortex flow principle. Behind a blunt body (or shedder) integrated in a measuring pipe, the flowing medium generates swirling vortices depending on the velocity. A piezoceramic sensor detects these vortices. Since the cross-section of the pipe is known, the number of the vortices determines the flow rate, independent of the medium's pressure and temperature fluctuations. The vortex flow technology enables a simple sensor design that can be easily manufactured at a very low cost.

At-a-glance display and easy installation takes less than five minutes

The meter provides a high contrast TFT LCD digital display that can be customized to best suit the application. The setpoints are established through a simple pushbutton menu by using scroll and enter buttons. The meter can be programmed to provide switching output (flow rate and/or temperature), flow frequency, or analog output (flow rate or temperature).

The meter's NPT process connection is easy to mount in line and fits either ½ inch or ¾ inch piping.

With features that ensure reliability and convenience, ifm's compact SV Series Vortex flow meter offers an excellent price / performance value.

In welding applications, it is essential to control the flow rate and temperature of cooling water to prolong the life of the welding tip and to assure that the weld cools rapidly for optimum quality. The SV Vortex flow meter is an ideal solution.

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
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NEW

Product + accessory selector

Measuring Range (Flow)	Measuring Range (Temperature)	Output 1	Output 2	Process Connection	Part No.	List Price (USD)
0.3…5.3 gpm	14…194 °F	PNP/NPN switching or frequency (flow)	PNP/NPN switching or frequency (flow or temp)	1/2" NPT	**SV4610**	**$283.00**
0.6…10.5 gpm				1/2" NPT	**SV5610**	**$283.00**
1.3…26.3 gpm				3/4" NPT	**SV7610**	**$299.00**
0.3…5.3 gpm	14…194 °F	4…20 mA scalable analog (temp)	4…20 mA scalable analog (flow)	1/2" NPT	**SV4614**	**$283.00**
0.6…10.5 gpm				1/2" NPT	**SV5614**	**$283.00**
1.3…26.3 gpm				3/4" NPT	**SV7614**	**$299.00**
1…20 lpm	-10…90 °C	PNP/NPN switching or frequency (flow)	PNP/NPN switching or frequency (flow or temp)	G 1/2 BSPP	**SV4200**	**$283.00**
2…40 lpm				G 1/2 BSPP	**SV5200**	**$283.00**
5…100 lpm				G 3/4 BSPP	**SV7200**	**$299.00**
1…20 lpm	-10…90 °C	4…20 mA scalable analog (temp)	4…20 mA scalable analog (flow)	G 1/2 BSPP	**SV4204**	**$283.00**
2…40 lpm				G 1/2 BSPP	**SV5204**	**$283.00**
5…100 lpm				G 3/4 BSPP	**SV7204**	**$299.00**
1…20 lpm	-10…90 °C	PNP/NPN switching or frequency (flow)	PNP/NPN switching or frequency (flow or temp)	R 1/2 BSPT	**SV4500**	**$283.00**
2…40 lpm				R 1/2 BSPT	**SV5500**	**$283.00**
5…100 lpm				R 3/4 BSPT	**SV7500**	**$299.00**
1…20 lpm	-10…90 °C	4…20 mA scalable analog (temp)	4…20 mA scalable analog (flow)	R 1/2 BSPT	**SV4504**	**$283.00**
2…40 lpm				R 1/2 BSPT	**SV5504**	**$283.00**
5…100 lpm				R 3/4 BSPT	**SV7504**	**$299.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting plate	**E40249**	**$6.00**
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

For more information on IO-Link, see pages 6 - 21.

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC, 2 m, PUR cable	**EVC001**	**$11.00**
	M12 Micro DC, 5 m, PUR cable	**EVC002**	**$15.00**
	M12 Micro DC, 2 m, PUR cable	**EVC004**	**$11.00**
	M12 Micro DC, 5 m, PUR cable	**EVC005**	**$15.00**

Technical Specs

Operating voltage:	18…30 V DC
Current consumption	typ. 25 (at 24 V) mA
Accuracy flow measurement	2 % of full range
Accuracy temperature monitoring	± 1.8 °F (1 °C)
Medium temperature	14…194 °F (-10…90 °C)
Protection rating	IP 65 / IP 67
Max. pressure	175 psi
Wetted parts	316L stainless steel, PTFE, PA6T, PPS, FKM

Top product features!

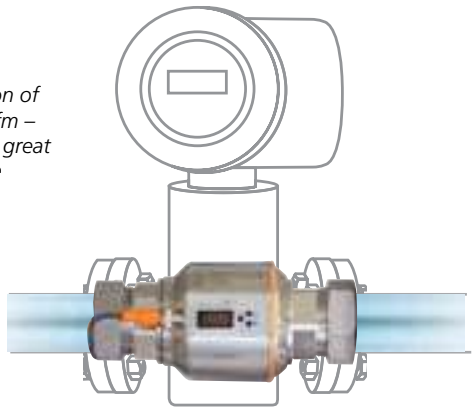
- *Magnetic inductive flow technology provides high-precision measurement of all conductive media up to 160 gpm*
- *Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback*
- *Digital transmission of three process values: flow rate, flow volume and temperature*
- *Compact, in-line stainless steel housing with NPT connection – fits up to 2" pipes*
- *4-digit numeric display indicates flow rate, total volume and temperature*
- *No compromise in quality – high performance at a great price*

The next generation of magmeters from ifm

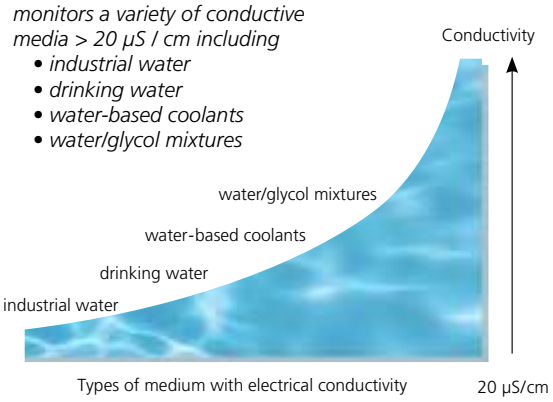
ifm's SM Series Magmeter is designed to reliably detect the flow rate of conductive media up to 160 gallons per minute. The stainless steel, mechanically-robust design mounts directly in-line providing a compact, low-profile installation for process control.

A 4-digit numeric display with pushbutton setup simultaneously indicates flow rate, fluid temperature and total volume. Simple to setup and easy to install, the SM is a reliable alternative to traditional flow meters and mechanical flow switches.

The next generation of magmeters from ifm – smaller in size at a great price/performance



The volumetric flow meter monitors a variety of conductive media > 20 µS / cm including
- *industrial water*
- *drinking water*
- *water-based coolants*
- *water/glycol mixtures*



Typical applications
- Flow and temperature monitoring through heat exchangers
- Guard welding equipment against loss of cooling water
- Batching applications
- Totalize flow of process water
- Pump run dry protection

		IO-Link	Position Sensors						Motion Control	Vision Sensors
	Company	IO-Link	Inductive	Capacitive	Cylinder/valve position	Photoelectrics/ lasers/fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D/3D inspection
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Product + accessory selector

Measuring Range (Flow)	Measuring Range (Temperature)	Output 1	Output 2	Display Units Available	Empty Pipe Detection	Process Connection	Part No.	List Price (1-pc.)
0…6.6 gpm	-4...176 °F	PNP / NPN Switching or pulse (flow)	PNP / NPN Switching or 4…20 mA / 0…10 V DC Scaleable analog (flow or temperature)	gpm, gph, gal, °F	No	1/2" NPTF	**SM6601**	**$513.00**
0…13.2 gpm						3/4" NPTF	**SM7601**	**$617.00**
0…26.4 gpm						1" NPTF	**SM8601**	**$719.00**
0…80 gpm	-4...176 °F	PNP / NPN Switching, pulse or frequency (flow)		gpm, gph, gal, °F	Yes	1-1/2" NPTF	**SM9601**	**$961.00**
0…160 gpm						2" NPTF	**SM2601**	**$999.00**
0…13.2 gpm	-4...176 °F	4…20 mA Scaleable analog (temperature)	4…20 mA Scaleable analog (flow)	gpm, gph, lpm, m³/h, °F, °C	No	3/4" NPTF	**SM7604**	**$617.00**
0…26.4 gpm						1" NPTF	**SM8604**	**$719.00**
0…80 gpm					Yes	1-1/2" NPTF	**SM9604**	**$961.00**
0…160 gpm						2" NPTF	**SM2604**	**$999.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**

For more information on IO-Link, see pages 6 - 21.

Technical Specs

Fluid conductivity	≥ 20 µS / cm
Fluid viscosity	≤ 70 cSt at 104 °F
Supply voltage	19…30 VDC (20…30 VDC SMxxx4)
Accuracy (flow)	< ± (0.8% measured value + 0.5% of full range)
Repeatability (flow)	± 0.2% of full range
Response time (flow)	< 150 msec
Accuracy (temperature)	± 4.5 °F (2.5 °C)
Response time (temperature)	T09 = 30 sec
Pressure rating	232 psi (16 bar)
Wetted parts	316L stainless steel, PEEK™, FKM
Protection rating	IP67

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Top product features!

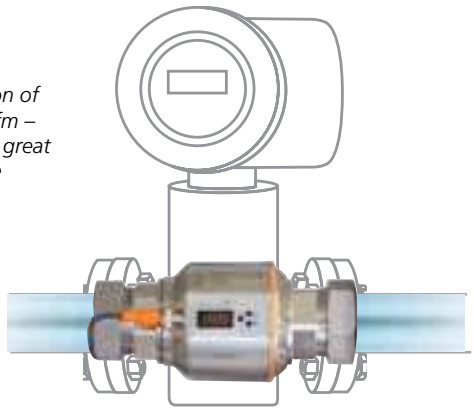
- Magnetic inductive flow technology provides high-precision measurement of all conductive media up to 160 gpm
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Digital transmission of three process values: flow rate, flow volume and temperature
- Compact, in-line stainless steel housing fits up to 2" pipes
- 4-digit numeric display indicates flow rate, total volume and temperature
- No compromise in quality – high performance at a great price

The next generation of magmeters from ifm

ifm's SM Series Magmeter is designed to reliably detect the flow rate of conductive media up to 160 gallons per minute. The stainless steel, mechanically-robust design mounts directly in-line providing a compact, low-profile installation for process control.

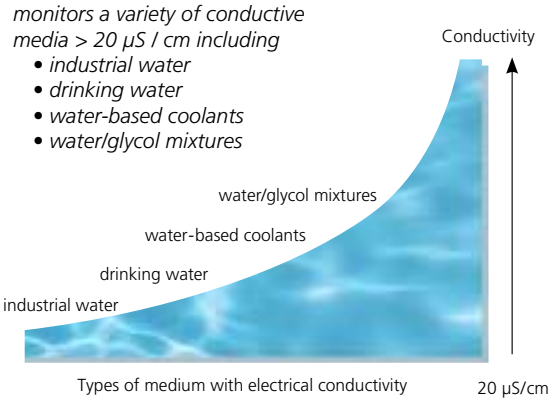
A 4-digit numeric display with pushbutton setup simultaneously indicates flow rate, fluid temperature and total volume. Simple to setup and easy to install, the SM is a reliable alternative to traditional flow meters and mechanical flow switches.

The next generation of magmeters from ifm – smaller in size at a great price/performance



The volumetric flow meter monitors a variety of conductive media > 20 µS / cm including

- *industrial water*
- *drinking water*
- *water-based coolants*
- *water/glycol mixtures*



Typical applications

- Flow and temperature monitoring through heat exchangers
- Guard welding equipment against loss of cooling water
- Batching applications
- Totalize flow of process water
- Pump run dry protection

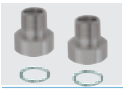
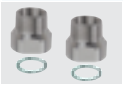
Search Bar

Company	IO-Link: IO-Link	Position Sensors: Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Motion Control: Encoders / Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

Measuring Range (Flow)	Measuring Range (Temperature)	Output 1	Output 2	Display Units Available	Empty Pipe Detection	Part No.	List Price (1-pc.)
5...3000 ml/min	-20…80 °C	PNP / NPN Switching or pulse (flow)	N.O. / N.C. programmable or analog 4…20 mA 0... 10 V scaleable	ml/min, l/h, l, m³, °C	No	SM4000	$530.00
5...3000 ml/min						SM4100	$530.00
0…6.6 gpm	-4...176 °F	PNP / NPN Switching or pulse (flow)	PNP / NPN Switching 4…20 mA / 0…10V Scaleable analog (flow or temperature	gpm, gph, gal, °F	No	SM6001	$536.00
0…13.2 gpm						SM7001	$644.00
0…26.4 gpm						SM8001	$751.00
0…25 l/min	-20…80 °C	PNP / NPN Switching or pulse (flow)	PNP / NPN Switching 4…20 mA / 0…10V Scaleable analog (flow or temperature	lpm, m³/h, L, °C	No	SM6000	$536.00
0…50 l/min						SM7000	$644.00
0…100 l/min						SM8000	$751.00
0…25 l/min	-20…80 °C	4…20 mA Scaleable analog (temperature)	4…20 mA Scaleable analog (flow)	lpm, m³/h, gpm, gph, °C, °F	No	SM6004	$536.00
0…50 l/min						SM7004	$644.00
0…100 l/min						SM8004	$751.00
0…80 gpm	-4...176 °F	PNP / NPN Switching / pulse / frequency (flow)	PNP / NPN Switching 4…20 mA / 0…10V Scaleable analog (flow or temperature)	gpm, gph, gal, °F	Yes	SM9001	$971.00
0…160 gpm						SM2001	$1059.00
0…300 l/min	-20…80 °C			lpm, m³/h, L, °C		SM9000	$971.00
0…600 l/min						SM2000	$1059.00
0...300 l/min	-4...176 °F	4…20 mA Scaleable analog (temperature)	4…20 mA Scaleable analog (flow)	lpm, m³/h, gpm, gph, °C, °F	Yes	SM9004	$971.00
0…600 l/min						SM2004	$1059.00

Required Accessories (2 adapters per package)

Type	Description	Use With	Part No.	List Price (1-pkg.)
	1/2" NPT adapter	SM6	E40200	$58.00
	1/2" NPT adapter	SM7	E40191	$58.00
	1/2" NPT adapter	SM8	E40192	$58.00
	3/4" NPT adapter	SM8	E40193	$58.00
	1-1/2" NPT adapter	SM2 and SM9	E40229	$122.00
	2" NPT adapter	SM2 and SM9	E40228	$122.00
	1/4" NPT adapter	SM4	US0059	$30.00

Optional Accessories and Cordsets

Type	Description	Part No.	List Price (1-pc.)
	LineRecorder Device, software for parameter setting (requires E30390 cable)	QA0011	$110.00
	USB IO-Link master cable for parameter setting	E30390	$367.00
	Memory plug to store sensor's parameters for easy upload without a computer	E30398	$51.00
	M12 Micro DC (4-pin) 2 m, PUR	EVC001	$11.00
	M12 Micro DC (4-pin) 5 m, PUR	EVC002	$15.00
	M12 Micro DC (4-pin) 2 m, PUR	EVC004	$11.00
	M12 Micro DC (4-pin) 5 m, PUR	EVC005	$15.00

Technical Specs

Fluid conductivity	≥ 20 µS / cm
Fluid viscosity	≤ 70 cSt at 104 °F
Supply voltage	19…30 VDC (20…30 VDC SMxxx4)
Accuracy (flow)	< ± (0.8% measured value + 0.5% of full range)
Repeatability (flow)	± 0.2% of full range
Response time (flow)	< 150 msec
Accuracy (temperature)	± 4.5 °F (2.5 °C)
Response time (temperature)	T09 = 30 sec
Pressure rating	232 psi (16 bar)
Wetted parts	316L stainless steel, PEEK™, FKM
Protection rating	IP67

Top product features!

- Simultaneously monitors flow rate, fluid temperature and totals liquid volume
- Monitors water, glycol and oil up to 53 gpm
- Integrated display with pushbutton setup
- Ultrasonic sensing principle uses no moving parts
- Selectable outputs for switching, totalizer and pulse

ifm's in-line flow meter provides accurate feedback for your critical flow applications

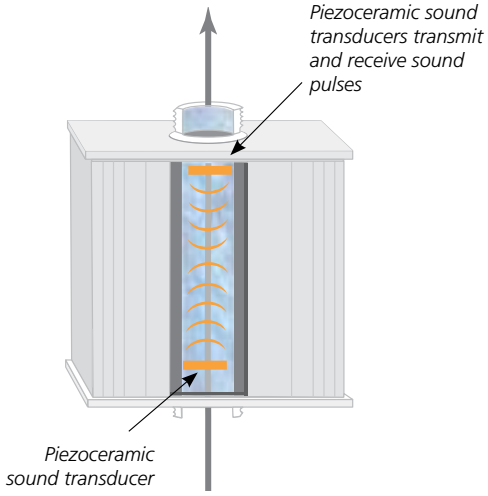
The SU Ultrasonic Flow meter is designed to simultaneously monitor flow rate, detect fluid temperature and provide a totalizer function for a variety of flow applications. With its compact design, the ultrasonic flow meter is intended for small diameter pipes – 1" or less.

The meter provides a four-digit numeric display of the liquid's flow rate (gal/min or l/min), total quantity accumulated (gallons or liters), and medium temperature (°F or °C). The setpoints are established through a simple pushbutton setup. The meter can be programmed to provide switching output (flow rate and/or temperature), pulse output (flow volume), or analog output (flow rate or temperature).

Batching applications

The ultrasonic flow meter has the capability to count the number of gallons of fluid. In addition to the totalizer display, the meter provides a pulse output for each gallon (or liter).

SU Ultrasonic Flow Meter – Principle of Operation



Ultrasonic technology is based on the differential transit time principle. Sound pulses are alternately emitted and detected with and against the direction of flow using piezoceramic sound transducers. The flow rate is calculated from the difference of the transit time.

Search Bar

Company	IO-Link	Position Sensors: Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Motion Control: Encoders / Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

Measuring Range (Flow)	Output 1	Output 2	Measuring Range (Temperature)	Display Units Available	Part No.	List Price (1-pc.)
0...13.2 gpm	PNP / NPN Switching or pulse (flow)	PNP / NPN Switching / 4…20 mA / 0…10V Scaleable analog (flow or temperature)	14...176 °F	gpm, gph, gal, °F	**SU7001**	**$739.00**
0...26.4 gpm					**SU8001**	**$763.00**
0...53 gpm					**SU9001**	**$1,320.00**
0...50 lpm	PNP / NPN Switching or pulse (flow)	PNP / NPN Switching / 4…20 mA / 0…10V Scaleable analog (flow or temperature)	-10…80 °C	lpm, m³/h, L, °C	**SU7000**	**$739.00**
0...100 lpm					**SU8000**	**$801.00**
0...200 lpm					**SU9000**	**$1,320.00**
0...200 lpm	4…20 mA Scaleable analog (temperature)	4…20 mA Scaleable analog (flow)	14...176 °F (-10…80 °C)	lpm, m³/h, gpm, gph, °C, °F	**SU9004**	**$1,320.00**

Required Accessories (2 adapters per package)

Type	Description	Use With	Part No.	List Price (1-pkg.)
	1/2" NPT adapter	SU7	**E40191**	**$58.00**
	1/2" NPT adapter	SU8	**E40192**	**$58.00**
	3/4" NPT adapter	SU8	**E40193**	**$58.00**
	1" NPT female adapter	SU8	**US0041**	**$54.00**
	1" NPT adapter	SU9	**E40206**	**$223.00**

Adapter material: 316 stainless steel

Optional Accessories and Cordsets

Type	Description	Part No.	List Price (1-pc.)
	SU mounting bracket	**E40166**	**$27.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

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Technical Specs

Supply voltage:	19...30 VDC
Maximum load current:	2 x 250 mA
Accuracy (flow):	SU7, SU8, SU9: ±3% of measured value + 0.2% of full range (water) SU7 and SU8: ±5% of measured value + 0.5% of full range (oil and glycol) SU9: ±8% of measured value + 0.5% of full range (oil and glycol)
Repeatability (flow):	SU7, SU8: 0.2% of full range SU9: 0.5% of full range
Response time (flow):	< 0.25 sec
Load resistance for analog output:	4…20 mA: max 500Ω / 0…10V: min. 2,000Ω
Pressure rating:	232 psi (16 bar)
Wetted parts:	Stainless steel (316L); FKM; PES (Ultrason 2010); Centellen 200
Protection rating:	IP67

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Top product features!

- *Accurate point-level indication of liquids and solids with low dielectric constant (e.g. oils, plastic pellets)*
- *Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback*
- *Continuous digital transmission of capacitance value with IO-Link*
- *Senses level through mounting well, sight glass, plastic tank or by direct contact with media*
- *Sensor offers superior immunity to electrical noise*
- *Broad range of mounting well accessories*

Reliable point-level detection with pushbutton teach function

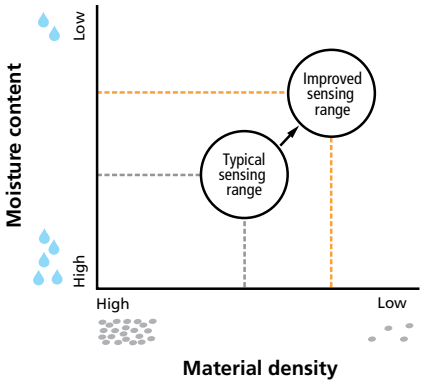
ifm point-level sensors provide accurate level detection of solid and liquid materials. A ring LED display provides output status indication that is visible from long distances.

Pushbutton teach function

The KI and KG Series point-level sensors feature a two pushbutton teach function that calibrates the proper setpoint value and simplifies the setup process. The sensor is quickly and easily adjusted for a specific application. The integrated microprocessor automatically balances the sensitivity to provide the safest operating condition.

Improved noise immunity

ifm's patented "charge balance" circuit design for level sensors offers reliable noise immunity and enables ifm level sensors to perform effectively in high noise level environments.



Plastic materials are now being dried at higher temperatures producing very low moisture content. The resulting materials can cause sensing problems for traditional capacitive level sensors.

ifm's capacitive level sensors incorporate sensing electrodes and patented circuitry to detect low-moisture, low-density materials. Combined, these innovations enable the sensors to perform in today's plastic processing applications.

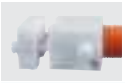
Search Bar

Company	IO-Link	Position Sensors: Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Motion Control: Encoders / Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

Output Function	Housing Diameter	Sensing Face Temperature	Sensor Connection	Part No.	List Price (1-pc.)
DC units DC					
PNP / NPN - N.O. / N.C.	30 mm	-13…230 °F (-25…110 °C)	M12 Micro DC	**KI5082**	**$133.00**
PNP - N.O. / N.C.	30 mm	-13…230 °F (-25…110 °C)	M12 Micro DC	**KI5083**	**$131.00**
PNP / NPN - N.O. / N.C.	18 mm	-13…230 °F (-25…110 °C)	M12 Micro DC	**KG5065**	**$169.00**
PNP - N.O. / N.C.	18 mm	-13…230 °F (-25…110 °C)	M12 Micro DC	**KG5066**	**$169.00**
AC units AC					
N.O. / N.C.	30 mm	-13…230 °F (-25…110 °C)	1/2" Micro AC	**KI0054**	**$166.00**
N.O. / N.C.	18 mm	-13…230 °F (-25…110 °C)	1/2" Micro AC	**KG0016**	**$166.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	3/4" NPT Mounting adapter, PTFE (KG series 18 mm housing)	**U10000**	**$46.00**
	1-1/4" NPT Mounting adapter, PTFE (KI series 30 mm housing)	**U10003**	**$48.00**
	1/2" OD… 3/4" OD Sight glass mounting set, Delrin (KI series 30 mm housing)	**U20213**	**$38.00**
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**
	1/2" Micro AC 2 m, PVC	**E18212**	**$15.00**
	1/2" Micro AC 5 m, PVC	**E18213**	**$19.00**
	1/2" Micro AC 2 m, PVC	**E18214**	**$15.00**
	1/2" Micro AC 5 m, PVC	**E18215**	**$19.00**

For more information on IO-Link, see pages 6 - 21.

Technical Specs

	DC DC units	AC AC/DC units
Supply voltage:	10…36 VDC	20…250 VDC / 30…250 VAC
Maximum load current:	200 mA	150 mA @ 40 °C
Voltage drop:	<2.5 V	< 10 V
Current consumption:	<20 mA	N.A.
Leakage current:	N.A.	1.7 mA @ 110 V AC
Housing material:	Plastic (PBT, PC and TPE)	Plastic (PBT, PC and TPE)
Protection rating:	IP65 / IP67	IP65 / IP67

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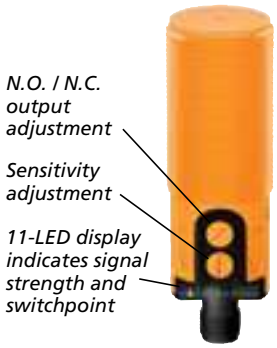
Top product features!

- *No moving parts for reliable point-level indication*
- *Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback*
- *Easy setpoint adjustment with multi-turn potentiometer*
- *Senses level through mounting well, sight glass, plastic tank or by direct contact with media*
- *Sensor offers superior immunity to electrical noise*

Point-level sensor with easy setpoint adjustment saves time!



NEW! ifm's KI6000 and KG6000 point-level sensors provide accurate level detection of solid and liquid materials. A unique 11-LED bar display indicates power and output and alerts the user if conditions have changed, build-up is occurring or if more material needs to be delivered.

The setup process is simplified by using a potentiometer to select a normally open or normally closed output and to adjust sensitivity for your application.

Reliable level detection

ifm offers a variety of point-level sensors to fit your application. Standard housings are available with AC or DC voltage and various connections. Using capacitive technology, they feature a potentiometer that adjusts the sensitivity of the sensors for a specific application. LEDs provide power and output indication. LEDs can alert if conditions have changed, buildup is occurring, or if more materials need to be delivered.

Improved noise immunity

ifm's patented "charge balance" circuit design for level sensors offers reliable noise immunity and enables ifm level sensors to perform effectively in high noise environments.

The KI and KG sensors detect granulars such as plastic regrind.

Using a mounting well, the sensor detects the level of liquid.

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

Search Bar

Product + accessory selector

	Output Function	Housing Diameter	Sensing Face Temperature	Electrical Connection	Supply Voltage	Part No.	List Price (1-pc.)
DC units DC							
NEW!	PNP, N.O. / N.C.	30 mm	-13...176 °F (-25…80 °C)	M12 connector	10…36 VDC	**KI6000** IO-Link	**$99.00**
	PNP, N.O. / N.C.	30 mm	-13...176 °F (-25…80 °C)	0.1 m pigtail with M12 micro DC	10…36 VDC	**KI5209**	**$132.00**
	NPN, N.O. / N.C.	30 mm	-13...176 °F (-25…80 °C)	0.1 m pigtail with M12 micro DC	10…36 VDC	**KI5210**	**$132.00**
	PNP, N.O.	18 mm	-13...176 °F (-25…80 °C)	Prewired, 2 m cable	10…36 VDC	**KG5043**	**$199.00**
	PNP, N.C.	18 mm	-13...176 °F (-25…80 °C)	Prewired, 2 m cable	10…36 VDC	**KG5044**	**$199.00**
NEW!	PNP, N.O.	18 mm	-13...176 °F (-25…80 °C)	M12 connector	10…36 VDC	**KG6000** IO-Link	**$99.00**
AC units AC							
	N.O.	30 mm	-13...158 °F (-25…70 °C)	Prewired, 2 m cable	20…250 VAC	**KI0202**	**$159.00**
	N.C.	30 mm	-13...158 °F (-25…70 °C)	Prewired, 2 m cable	20…250 VAC	**KI0203**	**$159.00**
	N.O. / N.C.	30 mm	-13...158 °F (-25…70 °C)	Terminal chamber	20…250 VAC	**KI0205**	**$171.00**
	N.O. / N.C.	30 mm	-13...158 °F (-25…70 °C)	0.1 m pigtail with 1/2" Micro AC	20…250 VAC	**KI0206**	**$159.00**
	N.O. / N.C.	30 mm	-13...158 °F (-25…70 °C)	0.1 m pigtail with 1/2" Micro AC	20…250 VAC	**KI0207**	**$159.00**
	N.O.	18 mm	-13...158 °F (-25…70 °C)	Prewired, 2 m cable	20…250 VAC	**KG0009**	**$178.00**
	N.C.	18 mm	-13...158 °F (-25…70 °C)	Prewired, 2 m cable	20…250 VAC	**KG0010**	**$178.00**
	N.O. / N.C.	18 mm	-13...158 °F (-25…70 °C)	Terminal chamber	20…250 VAC	**KG0008**	**$178.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	3/4" NPT Mounting adapter, PTFE (KG series 18 mm housing)	**U10000**	**$46.00**
	1-1/4" NPT Mounting adapter, PTFE (KI series 30 mm housing)	**U10003**	**$48.00**
	1/2" OD… 3/4" OD Sight glass mounting set, Delrin (KI series 30 mm housing)	**U20213**	**$38.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	1/2" Micro AC 2 m, PVC	**E18212**	**$15.00**
	1/2" Micro AC 5 m, PVC	**E18213**	**$19.00**
	1/2" Micro AC 2 m, PVC	**E18214**	**$15.00**
	1/2" Micro AC 5 m, PVC	**E18215**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**

Technical Specs

DC sensors DC

Maximum load current:	250 mA, 500 mA (KI6000, KG6000)
Voltage drop:	<2.5
Protection rating:	IP65 (KI020x, KI520x, KI6000, KG6000), IP67 (KI6000, KG00xx, KG504x, KG6000), IP69K (KI6000, KG6000)

AC sensors AC

Maximum load current:	250 mA @ 50 °C (KI020x), 350 mA @ 50°C (KG00xx)
Min. load current:	5 mA (KI020x), 4 mA (KG00xx)
Leakage current:	<2.5 mA @ 250 VAC), <1.7 mA @ 110 VAC)
Voltage drop:	<10 VAC (KI020x), <6 VDC (KG00xx)
Protection rating:	IP65

Top product features!

- Detects bulk materials or liquids through non-metallic materials such as plastic and glass
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Continuous digital transmission of capacitance value with IO-Link
- Sensor offers low-profile mounting – less than 15 mm high – provides same sensing range as traditional 30 mm tubular sensor
- Mounts on a flat surface, sight glass, plastic tube, or bypass pipe using brackets or cable ties
- Several models offer auto detection of PNP or NPN output loads

KQ Series point-level sensor with simple pushbutton setup

The KQ capacitive point-level sensor offers low-profile mounting for level sensing applications. The sensor detects bulk materials or liquids through non-metallic materials such as plastic and glass. The compact sensor is only 14 mm high and has the same sensing range as a traditional 30mm tubular sensor.

Application parameters are quickly set up with the sensor's pushbuttons. The sensor's teach function eliminates difficult sensitivity adjustments. Several models offer automatic detection of the PNP or NPN output loads. ifm's patented "charge balance" circuit design provides reliable noise immunity and enables the sensor to reliably perform in high noise level environments.

The sensor mounts on a flat surface, sight glass, plastic tube, or bypass pipe using brackets or cable ties. The 3-wire DC sensors are available in three models: 2m cabled, pigtail with M8 connector, and pigtail with M12 connector.

Detects bulk materials and liquids through non-metallic materials

Detection of liquids on a bypass tube.

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

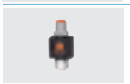
Product + accessory selector

Outputs	Operating Voltage	Max. Load Current	Supply Current	Voltage Drop	Sensor Connection	Part No.	List Price (1-pc.)
PNP / NPN, N.O. / N.C.	10...30 VDC	100 mA	17 mA	2.5 V	2m PVC cable	KQ6001	$100.00
PNP, N.O. / N.C.	10...30 VDC	100 mA	17 mA	2.5 V	2m PVC cable	KQ6002	$100.00
PNP / NPN, N.O. / N.C.	10...30 VDC	100 mA	17 mA	2.5 V	40 mm PVC pigtail with M8 Pico DC	KQ6003	$99.00
PNP, N.O. / N.C.	10...30 VDC	100 mA	17 mA	2.5 V	40 mm PVC pigtail with M8 Pico	KQ6004	$99.00
PNP, N.O. / N.C.	10...30 VDC	100 mA	17 mA	2.5 V	100 mm PVC pigtail with M12 Micro DC	KQ6005	$108.00

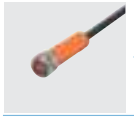
Mounting Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting straps (set of 5)	E10880	$7.00
	Mounting adapter for strap mounting	E12153	$7.00

Optional Accessories

	LineRecorder Device, software for parameter setting (requires E30390 cable)	QA0011	$110.00
	USB IO-Link master cable for parameter setting	E30390	$367.00
	Memory plug to store sensor's parameters for easy upload without a computer	E30398	$51.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC001	$11.00
	M12 Micro DC (4-pin) 5 m, PUR	EVC002	$15.00
	M12 Micro DC (4-pin) 10 m, PUR	EVC003	$19.00
	M8 Pico DC (4-pin) 2 m, PUR cable	EVC150	$15.00
	M8 Pico DC (4-pin) 5 m, PUR cable	EVC151	$18.00

For more information on IO-Link, see pages 6 - 21.

Technical Specs

Dimensions:	48 x 20 x 14 mm
Ambient temperature:	-13…176 °F (-25…80 °C)
Housing materials:	Plastic (PBT, TPE-U and PC)
Protection rating:	IP65 / IP67

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Top product features!

- Protects against overflow in fluid sensing applications
- Capacitive sensing principle with no moving parts
- Polypropylene housing resistant to most chemicals
- Top-down mounting and simple setup with two pushbuttons
- Available in four lengths with adjustable insertion depths

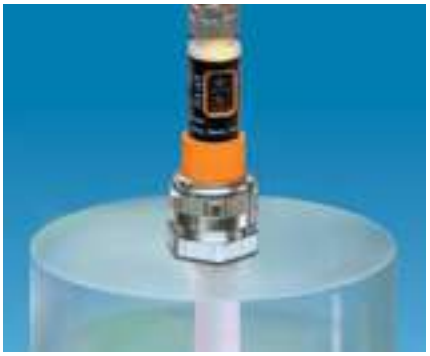
New generation of overflow level sensors

The LI Series level sensor offers reliable limit level detection in tanks, indicating high or low level of hydraulic oils and coolants. They may also be used to monitor the minimum level, leakage or overflow of tanks.

The sensor can be used as an independent overflow protection device or with other level sensors for added security against overflow.

The sensor's 16mm diameter probe is inserted directly into the fluid and is highly resistant to aggressive oils and lubricants. Setup and adjustment is easy using the sensor's "output on - output off" pushbutton teach function without removing the sensor from the process.

Pushbutton setup



The operating concept enables setting and adjustment of the output function via two pushbuttons. Deposits can be suppressed during operation without carrying out a new adjustment.

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

Output	Probe Length	Active Sensing Area (from bottom of probe)	Process Connection	Medium Temperature Range	Part No.	List Price (1-pc.)
PNP, N.O. / N.C.	132 mm	31 mm	See Required Accessories	32...149 °F (0…65 °C)	**LI5141**	**$173.00**
PNP, N.O. / N.C.	273 mm	31 mm	See Required Accessories	32...149 °F (0…65 °C)	**LI5142**	**$179.00**
PNP, N.O. / N.C.	481 mm	31 mm	See Required Accessories	32...149 °F (0…65 °C)	**LI5143**	**$184.00**
PNP, N.O. / N.C.	737 mm	31 mm	See Required Accessories	32...149 °F (0…65 °C)	**LI5144**	**$191.00**

Required Accessories (choose one)

Type	Description	Part No.	List Price (1-pc.)
	3/4" NPT adapter	**E43012**	**$41.00**
	1" NPT adapter	**E43013**	**$45.00**
	G3/4 BSPP adapter	**E43003**	**$41.00**
	G1 BSPP adapter	**E43004**	**$43.00**
	Flange adapter	**E43001**	**$39.00**
	Weldable adapter	**E43002**	**$41.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

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Technical Specs

Supply voltage:	10...36 VDC
Maximum load current:	200 mA
Pressure rating:	7 psi
Wetted parts:	Polypropylene (PP)
Recommended media:	Aqueous coolant, oil, water, water-based media
Operating temperature range:	-13…176 °F (-25…80 °C)
Protection rating:	IP67

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Top product features!

- Point level sensor with the most reliable deposit suppression on the market
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Media differentiation is possible via IO-Link
- Plug and play setup with factory media settings for water or oil
- Compact stainless steel housing with IP69K environmental protection
- Robust electronics with high shock and vibration resistance

Point level sensor reliably suppresses residues, splashes and foam

NEW! The LMC family reliably monitors level in a variety of industrial applications including machine tools, wastewater management, hydraulic systems, and pump run dry protection. Additionally, the back thread option provides a top-mount level solution for custom depths.

Versatile sensor for all media types

The LMC sensor can be set to detect almost any liquid or viscous media as well as bulk materials. Permanent media temperatures up to 212 °F (100 °C) or heavy adhesion are no problem for the LMC.

Identifying two different types of media is possible due to the two programmable switching outputs. Parameters can be set for each output independently with IO-Link LR device software and USB cable accessory.

The LMC sensor is ideal for pipe level applications and eliminates obstructions in the flow path that reduce throughput.

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

NEW

Product + accessory selector

Process Connection	Insertion Length (mm)	Factory Default Media Setting	Programmable	Medium Temp	Part No.	List Price (1-pc.)
M12 connector · N.O. / N.C. complementary						
1/2" NPT	34	Water-based	Yes	-13…212 °F	**LMC500**	**$145.00**
1/2" NPT	34	Oil-based	Yes	-13…212 °F	**LMC510**	**$145.00**
1/2" NPT	38	Water-based	Yes	-13…212 °F	**LMC502**	**$213.00**
G 1/2 BSPP	12	Water-based	Yes	-13...212 °F	**LMC100**	**$145.00**
G 1/2 BSPP	12	Oil-based	Yes	-13...212 °F	**LMC110**	**$145.00**
G 1/2 BSPP Thread at the back	21	Water-based	Yes	-13...212 °F	**LMC400**	**$145.00**
G 1/2 BSPP Thread at the back	21	Oil-based	Yes	-13…212 °F	**LMC410**	**$145.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Welding adapter for LMC4xx, G 1/2, 316 stainless steel	**E43375**	**$12.00**
	Flat seal for LMC1xx and LMC4xx, pack of 6	**E43376**	**$4.00**
	LR device (supplied on USB flash drive) Software for online and offline parameter setting	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**

For more information on IO-Link, see pages 6 - 21.

Technical Specs

Operating Voltage:	18...30 V DC
Current Rating:	100 mA
Housing materials:	316L stainless steel
Materials wetted parts:	PEEK, 316L stainless steel, FPM
Protection:	IP 68 / IP 69K
Ambient temp:	-13...185 °F
Medium temp:	-13... 212 °F

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Water-based media

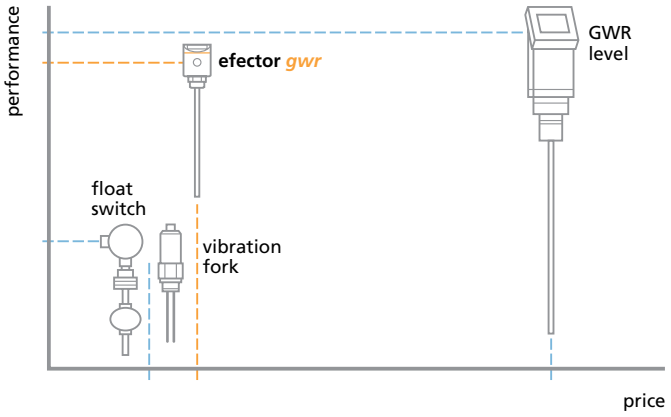
Top product features!

- *Ideal for level detection of water-based media in compact tanks*
- *Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback*
- *Easy setup and commissioning with IO-Link parameterization*
- *No moving parts – replaces float switches*
- *Built-in switching and analog output*
- *Simple mounting with cut-to-length measuring probe*

High performance at a great value

The ***efector gwr*** provides all of the advantages of reliable level detection using innovative guided wave radar technology at a very low price. Alternative level solutions may offer a lower price but may not perform in challenging applications.

Mechanical float switches can stick in an application due to deposits. Vibration forks offer slightly better performance, but multiple units are required to detect the level of the medium. Traditional GWR level sensors offer an improved performance, but at a very high price point.



Easy installation

*The **efector gwr** is directly mounted into the tank via a threaded process connection or metal bracket. Power and output are provided with an M12 connector. If needed, the probe can be cut to length by the user.*

Longer probe lengths

The LR Series offers long probe lengths for depths up to 63".

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

	Output	Process Connection	Probe Length	Media	Medium Temperature Range	Part No.	List Price (1-pc.)
With 4-digit LED Display							
NEW!	4…20 mA / 0…10 V and PNP, N.O. / N.C.	3/4" NPT	See required accessories	Water-based solutions	-4…212 °F (-20…100 °C)	**LR2350**	**$525.00**
	2 x PNP, N.O. / N.C.	3/4" NPT	See required accessories	Water-based solutions	32…176 °F (0…80 °C)	**LR7300**	**$441.00**
	4 x PNP, N.O. / N.C.	3/4" NPT	See required accessories	Water-based solutions	32…176 °F (0…80 °C)	**LR8300**	**$518.00**
	4…20 mA / 0…10 V and PNP, N.O. / N.C.	3/4" NPT	See required accessories	Water-based solutions	32…176 °F (0…80 °C)	**LR3300**	**$526.00**
NEW!	4…20 mA / 0…10 V and PNP, N.O. / N.C..	G3/4 BSPP	See required accessories	Water-based solutions	-4…212 °F (-20…100 °C)	**LR2050**	**$525.00**
	2 x PNP, N.O. / N.C.	G3/4 BSPP	See required accessories	Water-based solutions	32…176 °F (0…80 °C)	**LR7000**	**$441.00**
	4 x PNP, N.O. / N.C.	G3/4 BSPP	See required accessories	Water-based solutions	32…176 °F (0…80 °C)	**LR8000**	**$518.00**
	4…20 mA / 0…10 V and PNP, N.O. / N.C.	G3/4 BSPP	See required accessories	Water-based solutions	32…176 °F (0…80 °C)	**LR3000**	**$526.00**
Without Display							
	4…20 mA / 0…10 V DC	G3/4 BSPP	See required accessories	Water-based solutions	32…176 °F (0…80 °C)	**LR9020**	**$386.00**

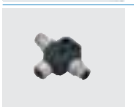
Required Accessories (choose one)

Type	Description	Part No.	List Price (1-pc.)
	240 mm Sensing probe, 316 SS	**E43203**	**$19.00**
	450 mm Sensing probe, 316 SS	**E43204**	**$31.00**
	700 mm Sensing probe, 316 SS	**E43205**	**$42.00**
	1000 mm Sensing probe, 316 SS	**E43207**	**$68.00**
	1200 mm Sensing probe, 316 SS	**E43208**	**$79.00**
	1400 mm Sensing probe, 316 SS	**E43209**	**$94.00**
	1600 mm Sensing probe, 316 SS	**E43210**	**$110.00**
	2000 mm Sensing probe, 316 SS for LR2xxx	**E43353**	**$105.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting flange, 3/4" NPT	**E43206**	**$48.00**
	Mounting flange, G3/4 BSPP	**E43201**	**$48.00**
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**
	M12 Micro DC (8-pin) 2 m, PUR (for LR8)	**E11231**	**$29.00**
	M12 Micro DC (8-pin) 5 m, PUR (for LR8)	**E11232**	**$36.00**
	T-splitter (8-pin female M12 to two 4-pin male M12)	**E11627**	**$55.00**

Technical Specs

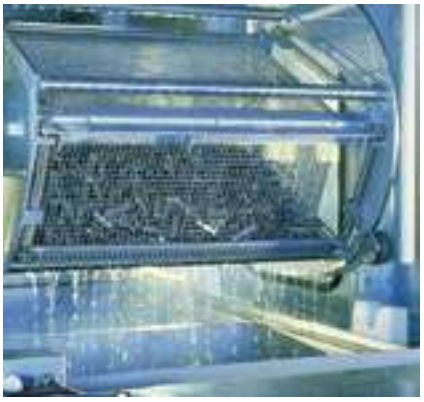
Supply voltage:	18...30 VDC
Maximum load current:	200 mA per output
Pressure rating:	-14.5…58 psi (-1…4 bar)
Accuracy:	±0.6" +0.5% of full range (±1.5 cm +0.5% of full range)
Repeatability:	±0.2" (±0.5 cm)
Wetted parts:	316 stainless steel, PTFE, NBR, FKM
Protection rating:	IP67, IP169K (LR2350, LR2050, LR9020)

For more information on IO-Link, see pages 6 - 21.

Oil and water-based media

Top product features!

- *Modular level sensor is ideal for level detection of oils or water-based media in compact tanks*
- *Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback*
- *Easy setup and commissioning with IO-Link parameterization*
- *Stainless steel housing with no moving parts that can stick is an ideal alternative to float switches*
- *Built-in switching and analog output*
- *Simple mounting with cut-to-length measuring probe*



Reliable level detection for oils or water-based media

Versatile level sensor for harsh applications

The LR Series level sensor's measuring principle uses guided wave radar technology to detect liquid level in applications such as parts cleaning, coolant monitoring, water treatment, hydraulic power units and hot glue in corrugated cardboard manufacturing. This technology enables a powerful signal and the ability to suppress foam and buildup that causes false triggers.

Quick and easy installation

The modular design consists of a compact, 316 stainless steel sensor housing with digital display, pushbutton setup and stainless steel measuring probe that easily attaches to the sensor housing. A wide variety of common adapters and probe lengths are available. Probes can be cut to fit any custom length.

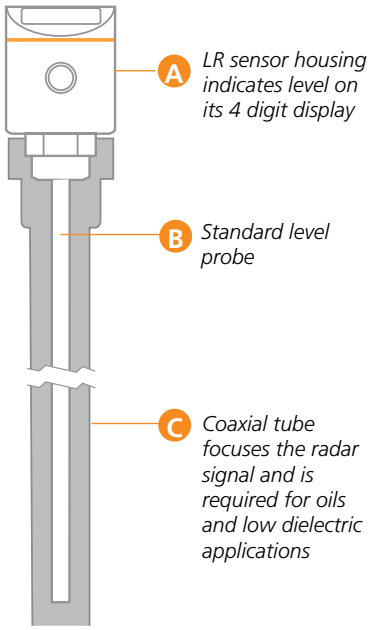
To monitor oil and low-dielectric fluids, a coaxial tube is required that slips over the probe and provides a direct 3/4" NPT (or G3/4 BSPP) process connection.

Resistant construction materials

The one-piece, completely welded LR2050 sensor eliminates moisture ingress and has a high protection rating of IP 69K. Parameters are easily set by using the sensor's pushbutton menu, ifm's LineRecorder software or IO-Link.

ifm's LR Series continuous level sensor has no moving parts to stick and break, withstands the harshest of environments and provides long life-in-application.

Modular level system is easy to install



Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
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Product + accessory selector

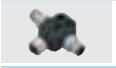
A LR Level Sensor

Output	Display	Media	Medium Temperature Range	Part No.	List Price (1-pc.)
4…20 mA and PNP / NPN switching	4 digit LED	Oil and water-based solutions	-4…212 °F (-20…100 °C)	**LR2050**	**$525.00**
2 x PNP, N.O. / N.C.	4 digit LED	Oil and water-based solutions	32…176 °F (0…80 °C)	**LR7000**	**$441.00**
4 x PNP, N.O. / N.C.	4 digit LED	Oil and water-based solutions	32…176 °F (0…80 °C)	**LR8000**	**$518.00**
4…20 mA / 0…10 V and PNP, N.O. / N.C.	4 digit LED	Oil and water-based solutions	32…176 °F (0…80 °C)	**LR3000**	**$526.00**
4…20 mA / 0…10 V DC	No display	Oil and water-based solutions	32…176 °F (0…80 °C)	**LR9020**	**$386.00**

B Required Accessory - Probe (choose one)

Type	Description	Part No.	List Price (1-pc.)
	240 mm Probe, 316 SS	**E43203**	**$19.00**
	450 mm Probe, 316 SS	**E43204**	**$31.00**
	700 mm Probe, 316 SS	**E43205**	**$42.00**
	1000 mm Probe, 316 SS	**E43207**	**$68.00**
	1200 mm Probe, 316 SS	**E43208**	**$79.00**
	1400 mm Probe, 316 SS	**E43209**	**$94.00**
	1600 mm Probe, 316 SS	**E43210**	**$110.00**
	2000 mm Probe, 316 SS for LR2xxx	**E43353**	**$105.00**

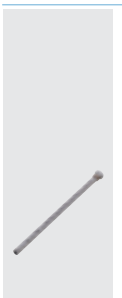
Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**
	M12 Micro DC (8-pin) 2 m, PUR for (LR8)	**E11231**	**$29.00**
	M12 Micro DC (8-pin) 5 m, PUR (for LR8)	**E11232**	**$36.00**
	T-splitter (8-pin female M12 to two 4-pin male M12)	**E11627**	**$55.00**

Technical Specs

Supply voltage:	18...30 VDC
Maximum load current:	200 mA per output
Pressure rating:	-14.5…58 psi (-1…4 bar)
Accuracy:	±0.6"+0.5% of full range; (±1.5 cm +0.5% of full range)
Repeatability:	±0.2" (±0.5 cm)
Wetted parts:	316 stainless steel, PTFE, NBR, FKM
Protection rating:	IP67; IP69K (LR2350, LR2050, LR9020)

C Required Accessory - Coaxial Tube (choose one)

Type	Description	Part No.	List Price (1-pc.)
	450 mm tube, 3/4" NPT, 304 SS	**E43218**	**$92.00**
	700 mm tube, 3/4" NPT, 304 SS	**E43219**	**$105.00**
	1000 mm tube, 3/4" NPT, 304 SS	**E43220**	**$120.00**
	1200 mm tube, 3/4" NPT, 304 SS	**E43223**	**$144.00**
	1400 mm tube, 3/4" NPT, 304 SS	**E43224**	**$170.00**
	1600 mm tube, 3/4" NPT, 304 SS	**E43221**	**$191.00**
	2000 mm tube, 3/4" NPT (for LR2xxx only)	**E43378**	**$218.00**
	240 mm tube, G3/4 BSPP, 304 SS	**E43211**	**$80.00**
	450 mm tube, G3/4 BSPP, 304 SS	**E43212**	**$92.00**
	700 mm tube, G3/4 BSPP, 304 SS	**E43213**	**$105.00**
	1000 mm tube, G3/4 BSPP, 304 SS	**E43214**	**$120.00**
	1200 mm tube, G3/4 BSPP, 304 SS	**E43215**	**$144.00**
	1400 mm tube, G3/4 BSPP, 304 SS	**E43216**	**$169.00**
	1600 mm tube, G3/4 BSPP, 304 SS	**E43217**	**$191.00**

Optional Accessories

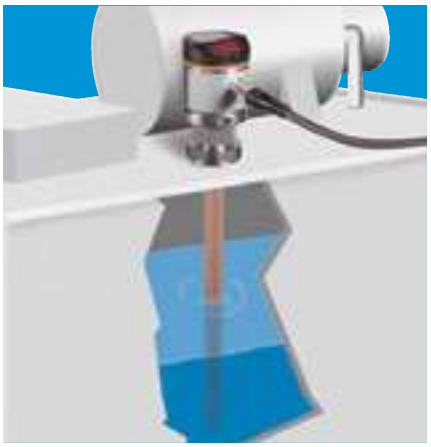
Type	Description	Part No.	List Price (1-pc.)
	Replacement centering piece with fixing bracket and o-ring for coaxial tubes	**E43222**	**$15.00**
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

Top product features!

- Electronic level sensor replaces mechanical float switches that can stick
- IO-Link Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Pushbutton setup allows the sensor's parameters to be easily adjusted without removing the sensor from the process
- Independent overflow protection
- Highly visible numeric display
- Models are available with integrated temperature monitoring

Replaces mechanical float switches

Fluids that contain particles such as metal chips can cause floats on traditional mechanical level switches to stick. ifm efector's LK level sensor is an electronic "floatless" sensor that accurately detects fluid level without any moving parts. Using ifm's patented capacitive sensing technology, the sensor determines level by measuring the point of dielectric contrast that occurs at the level height.



LK level sensors feature an enhanced software algorithm that scans 16 sensing fields along the length of a probe to determine the point at which the change in dielectric occurs. Upon startup, the sensing fields are evaluated every eight milliseconds to provide precise continuous level indication.

Replaces up to four binary switches

ifm's LK level sensors are available with 2 or 4 switching outputs, as well as an analog and switching output model. Thus, one level sensor can replace up to four binary switches, reducing wiring, material, and mounting costs. Versions are available with a single swtichpoint indicating an overflow alarm.

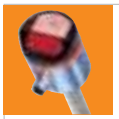
The LT Series level sensors are designed with a Pt element at the base of the probe and are capable of monitoring temperature as well as continuous level indication.

Easy mounting

ifm's electronic LK level sensors can be inserted into a tank opening as small as 20 mm in diameter.

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	



Product + accessory selector

Output	Probe Length	Active Measuring Zone	Required Accessories	Suitable Media	Part No.	List Price (1-pc.)
Continuous Level Monitoring						
2x PNP / NPN, N.O. / N.C.	264 mm	196 mm	See below	Water / Oil	**LK1022**	**$441.00**
2x PNP / NPN, N.O. / N.C.	472 mm	391 mm	See below	Water / Oil	**LK1023**	**$478.00**
2x PNP / NPN, N.O. / N.C.	729 mm	584 mm	See below	Water / Oil	**LK1024**	**$510.00**
3x PNP / NPN, N.O. / N.C. & OP*	264 mm	196 mm	See below	Water / Oil	**LK8122**	**$503.00**
3x PNP / NPN, N.O. / N.C. & OP*	472 mm	391 mm	See below	Water / Oil	**LK8123**	**$546.00**
3x PNP / NPN, N.O. / N.C. & OP*	729 mm	584 mm	See below	Water / Oil	**LK8124**	**$575.00**
4…20 mA / 0…10 V & OP*	264 mm	196 mm	See below	Water / Oil	**LK3122**	**$509.00**
4…20 mA / 0…10 V & OP*	472 mm	391 mm	See below	Water / Oil	**LK3123**	**$552.00**
4…20 mA / 0…10 V & OP*	729 mm	584 mm	See below	Water / Oil	**LK3124**	**$581.00**
**Dedicated overflow output protection*						
Continuous Level and Temperature Monitoring						
NEW! 4…20 mA / 0…10 V, PNP / NPN, N.O. / N.C.	264 mm	195 mm	See below	Water / Oil	**LT3022**	**$530.00**
NEW! 4…20 mA / 0…10 V, PNP / NPN, N.O. / N.C.	472 mm	391 mm	See below	Water / Oil	**LT3023**	**$565.00**
NEW! 4…20 mA / 0…10 V, PNP / NPN, N.O. / N.C.	728 mm	585 mm	See below	Water / Oil	**LT3024**	**$590.00**
2x PNP / NPN, N.O. / N.C. (level and temp)	264 mm	196 mm	See below	Water / Oil	**LT8022**	**$536.00**
2x PNP / NPN, N.O. / N.C. (level and temp)	472 mm	391 mm	See below	Water / Oil	**LT8023**	**$577.00**
2x PNP / NPN, N.O. / N.C. (level and temp)	729 mm	584 mm	See below	Water / Oil	**LT8024**	**$606.00**

Required Accessories

Type	Description	Part No.	List Price (1-pc.)
	3/4" NPT adapter	**E43012**	**$41.00**
	1" NPT adapter	**E43013**	**$45.00**
	G3/4 BSPP adapter	**E43003**	**$41.00**
	G1 BSPP adapter	**E43004**	**$41.00**
	Flange adapter	**E43001**	**$39.00**
	Weldable adapter	**E43002**	**$41.00**

Technical Specs

Supply voltage:	18…30 VDC
Maximum load current:	200 mA per channel
Pressure rating:	7 psi
Media temperature:	32…149 °F (0…65 °C)
Accuracy:	±5% of full range
Repeatability:	±2% of full range
Wetted parts:	PP
Protection rating:	IP67

Optional Accessory and Cordsets

Type	Description	Part No.	List Price (1-pc.)
	T-splitter (8-pin female M12 to two 4-pin male M12)	**E11627**	**$52.00**
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**
	M12 Micro DC (8-pin) 5 m, PUR (for LK8 and LT8)	**E11232**	**$36.00**

Top product features!

- One-piece temperature switch with high protection rating for harsh environments
- Measuring range -58...302 °F (-50...150 °C)
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Two solutions: continuous transmission of process value via IO-Link and 2 switching outputs
- Extremely high accuracy of ± 0.5 °F

Two temperature sensors in one

NEW! The TV temperature sensor provides long-term, highly accurate temperature monitoring of fluids in a variety of industrial applications. The one-piece housing, with integrated electronics, 6 mm diameter probe and threaded process connector, is made of durable 316 stainless steel and can withstand harsh environments. Its compact design is ideal for mounting the TV sensor in tight application spaces.

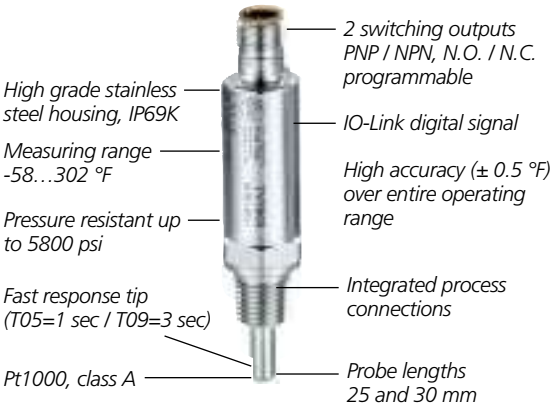
Fast and precise

ifm's TV temperature sensors use a high accuracy Pt1000 class A RTD with a low mass tip design for fast response.

The sensor has two switch points that can be easily set via the Line Recorder device software. The sensor can be integrated into any control system either by using the dual switching outputs or via an IO-Link master block connected to the plc.

Reliable digital transmission via IO-Link

IO-Link provides a pure digital transmission that is more accurate than analog signal transmission. Using IO-link, the TV temperature sensor reliably transmits minimum and maximum temperature values to the controller. By continually analyzing real-time process data, machines can be maintained with greater accuracy and operators can better maximize overall equipment effectiveness.



Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
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Product + accessory selector

RTD Length (mm)	Pressure Rating (psi)	Process Connection	Factory Default PNP N.O. Setpoint 1/2	Maximum Temperature Range	Part No.	List Price (1-pc.)
2 x PNP / NPN · NO / NC						
25	5800	1/4" NPT	140 °F / 248 °F	-58...302 °F (-50...150 °C)	**TV7603**	**$134.00**
30	4350	1/2" NPT	140 °F / 248 °F	-58...302 °F (-50...150 °C)	**TV7303**	**$139.00**
25	5800	G 1/4	60 °C / 120 °C	-58...302 °F (-50...150 °C)	**TV7105**	**$134.00**
30	4350	G 1/2	60 °C / 120 °C	-58...302 °F (-50...150 °C)	**TV7405**	**$139.00**

Accessories

	Description	Part No.	List Price (1-pc.)
	LineRecorder device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

Cordsets

	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Measuring element:	Pt1000, class A
Supply voltage:	18…32 VDC
Maximum load current:	< 100 mA
Accuracy of switch point:	± 0.54 °F (± 0.3 °C)
Response time T05 / T09:	1/3 sec
Ambient temperature:	-13…176 °F (-25…80 °C)
Wetted parts:	316L stainless steel
Protection rating:	IP69K

On-time delivery with accuracy

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Shop for products online
Easy ordering via eShop

Top product features!

- *Simple setup with rotating adjustment dials that quickly establish setpoint and resetpoint*
- *Space-saving design with no moving parts that can wear or break*
- *Bright LEDs indicate switching status and power*
- *Fast response times (less than 3 seconds)*
- *One TK switch replaces two mechanical switches*

Compact temperature sensor with 316 stainless steel probe

The compact TK Series temperature switch and its integrated 316 stainless steel RTD probe measure only 4" long and can be directly mounted into a pipe.

Two mechanical setup dials rotate to quickly establish the setpoint and resetpoint temperatures. The switch's high accuracy insures that the setpoint does not drift and calibration is not required. Two bright LEDs indicate switching and operating status.

With no moving parts to stick in the process or break, the ifm TK Series switch maintains high performance and long term stability. A locking device prevents unintentional setpoint changes.

ifm's TK temperature sensor is a new benchmark for price / performance value.

Quick setup! Rotating setup dials establish parameters

TK temperature switches feature mechanical adjustment dials that rotate to quickly establish the setpoint and resetpoint.

		IO-Link	Position Sensors						Motion Control	Vision Sensors	
	Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
Search Bar	1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

Product + accessory selector

Output	RTD Length	Setpoint Range	Resetpoint Range	Process Connection	Response Time	Part No.	List Price (1-pc.)
PNP, N.O. and N.C. adjustable hysteresis	50mm	3...284 °F (-16…140 °C)	-4...277 °F (-20...136 °C)	1/4" NPT	< 3 sec.	**TK6310**	**$140.00**
PNP, N.O. and N.C. adjustable hysteresis	50 mm	3...284 °F (-16…140 °C)	-4...277 °F (-20...136 °C)	G1/4 BSPP	< 3 sec.	**TK6110**	**$140.00**
PNP, 2X N.O. with fixed hysteresis (9 °F / 5 °C)	50 mm	-4...284 °F (-20...140 °C)	–	G1/4 BSPP	< 3 sec.	**TK7110**	**$140.00**
PNP, N.O. and N.C. with fixed hysteresis (9 °F / 5 °C)	250 mm	-4...284 °F (-20...140 °C)	–	G1/2 BSPP	< 3 sec.	**TK7460**	**$140.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Protective cover	**E30094**	**$9.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Measuring element:	Pt1000, class A
Supply voltage:	9.6…32 VDC
Maximum load current:	2x 500 mA
Accuracy of switch point:	± 5.4 °F (± 3 °C)
Pressure rating:	5800 psi (400 bar); TK7460 is 4350 psi (300 bar)
Ambient temperature:	-40... 176 °F (-40... 80 °C) at max 176 °F (80 °C); -40... 122 °F (-40... 50 °C) at max 293 °F (145 °C)
Wetted parts:	316L stainless steel
Protection rating:	IP67

Simple and comprehensive website

Data sheets, application examples, software downloads, virtual product demos… just one click away.

Place orders, tech support
800-441-8246

Visit our product catalog
www.ifm.com/us

Shop for products online
Easy ordering via eShop

Top product features!

- Integrated solution: RTD, display and switching/transmitter output
- Integrated process connections: 1/2" NPT, 1/4" NPT, G 1/2" and G 1/4"
- IO-Link Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- IO-Link Digital transmission of process value eliminates analog signal drift and noise
- Parameter setup in less than 5 minutes with 3-pushbutton menu
- Configurable for dual switching output (2 x PNP / NPN) or 1 switching and 1 analog output (4...20 mA / 0...10 V)

Enclosure free, local mounting

ifm's compact TN Series process temperature sensors provide highly accurate temperature indication of fluids. The sensors are self-contained units that feature an integrated control monitor and probe. The sensor's robust stainless steel probe is resistant to aggressive media, withstands shock and vibration and features a rotatable display for system temperature.

These models simplify installation in small pipes where local indication is needed. The monitor's integrated display allows a user to view temperature directly at the process. The robust, stainless steel housing withstands harsh conditions and is mounted without the need for an enclosure or control box. With its flexible design, the temperature monitoring system adapts to most applications.

Pushbutton programming

Using the monitor's microprocessor-based pushbutton setup, users can toggle through a variety of menu items. Two output options are available: models with scaleable analog and switching outputs, and models with dual PNP / NPN outputs. The switching output has an independent setpoint and reset-point that can be programmed as normally open or normally closed.

Versatile mounting

A rotatable display allows the process temperature to be viewed from any angle.

IO-Link | Position Sensors | Motion Control | Vision Sensors

Search Bar

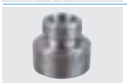
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

NEW

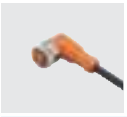
Product + accessory selector

Output	Probe Length (mm)	Switchpoint Setting Range	Scaleable Analog Start Point	Scaleable Analog End Point	Pressure Rating (psi)	Process Connection	Part No.	List Price (1-pc.)
4-20 mA / 0-10 V and PNP / NPN N.O. / N.C.	45	-58…302 °F (-50…150 °C)	-58…293 °F (-50…145 °C)	-49…302 °F (-45…150 °C)	4350	See required accessories	**TN2511**	**$299.00**
PNP / NPN N.O. / N.C.	45	-58…302 °F (-50…150 °C)	-	-	4350	See required accessories	**TN7511**	**$299.00**
4-20 mA / 0-10 V and PNP / NPN N.O. / N.C.	30	-58…302 °F (-50…150 °C)	--58…293 °F (-50…145 °C)	-49…302 °F (-45…150 °C)	4350	1/2″ NPT	**TN2303**	**$314.00**
4-20 mA / 0-10 V and PNP / NPN N.O. / N.C.	50	-58…302 °F (-50…150 °C)	-58…293 °F (-50…145 °C)	-49…302 °F (-45…150 °C)	4350	1/2″ NPT	**TN2313**	**$314.00**
4-20 mA / 0-10 V and PNP / NPN N.O. / N.C.	100	-58…302 °F (-50…150 °C)	-58…293 °F (-50…145 °C)	-49…302 °F (-45…150 °C)	3625	1/2″ NPT	**TN2333**	**$319.00**
4-20 mA / 0-10 V and PNP / NPN N.O. / N.C.	150	-58…302 °F (-50…150 °C)	-58…293 °F (-50…145 °C)	-49…302 °F (-45…150 °C)	3625	1/2″ NPT	**TN2343**	**$319.00**
4-20 mA / 0-10 V and PNP / NPN N.O. / N.C.	25	-58…302 °F (-50…150 °C)	-58…293 °F (-50…145 °C)	-49…302 °F (-45…150 °C)	5800	1/4″ NPT	**TN2603**	**$309.00**
4-20 mA / 0-10 V and PNP / NPN N.O. / N.C.	50	-58…302 °F (-50…150 °C)	-58…293 °F (-50…145 °C)	-49…302 °F (-45…150 °C)	5800	1/4″ NPT	**TN2613**	**$309.00**

Required Accessories (choose 1)

	Description	Part No.	List Price (1-pc.)
	1/4″ NPT adapter	**E40106**	**$22.00**
	1/2″ NPT adapter	**E40107**	**$24.00**
	3/4″ NPT adapter	**U40085**	**$45.00**
	1″ NPT adapter, 304 stainless steel and brass	**U40080**	**$72.00**
	G1/4 BSPP adapter	**E40099**	**$22.00**
	G1/2 BSPP adapter	**E40096**	**$27.00**
	Weldable adapter, carbon steel	**E40113**	**$19.00**
	Weldable adapter, 316 stainless steel	**E40124**	**$41.00**
	1/2″ NPT thermowell, 27 mm (no other adapters required)	**UT0028**	**$46.00**

Cordsets and Optional Accessories

	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**
	Transparent protective cover	**E30006**	**$8.00**
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

Technical Specs

Measuring element:	Pt1000, Class A	Accuracy of switch point:	± 0.54 °F (± 0.3 °C)
Response time T05/T09:	1/3 sec	Ambient temperature:	-13…176 °F (-25…80 °C)
Supply voltage:	18…32 VDC	Wetted parts:	316 stainless steel; FKM O-ring
Maximum load current:	250 mA	Protection rating:	IP67
Accuracy of analog signal:	± 0.54 °F (± 0.3 °C)		

Top product features!

- One-piece temperature transmitter with 2-wire loop power installation and maximum temperature up to 200 °C (392 °F)
- Fast response time: T05 / T09 = 1/3 sec
- LED indicates the operating status
- Installation lengths from 25...150 mm
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Digital transmission of process value eliminates analog signal drift and noise

Compact one-piece design, fast response temperature transmitters

ifm's new line of TA2 transmitters offer an ideal combination of features, performance and value. The TA2 is a compact transmitter with a 4...20 mA current output and pre-scaled to common measuring ranges. Scaling over the maximum measuring range is done simply via LineRecorder or IO-Link.

The bright LED indicator located in the M12 connector gives visible indication of operational status.

Ready to install

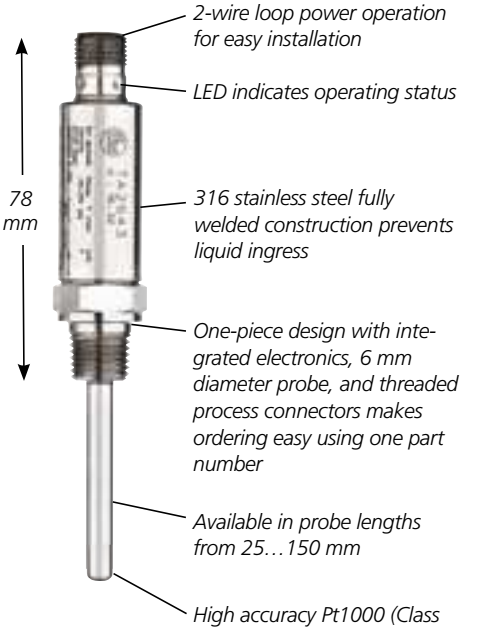
Pre-programmed and ready for use, the one-piece design with integrated electronics, 6 mm diameter probe and threaded process connectors makes ordering easy with a single part number.

Fast and precise

The TA2 transmitters use a high accuracy Pt1000 class A RTD with a low mass tip design for fast response.

Integrated electronics and factory calibration ensure a reliable ready-to-use transmitter for monitoring temperature in industrial automation applications.

Fluid temperatures are critical measurements in process applications. The TA2 transmitter is ideal for monitoring their process fluids.



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Product + accessory selector

RTD Length (mm)	Pressure Rating (psi)	Process Connection	Factory Default Temperature Range (scaled 4…20 mA)	Maximum Temperature Range	Part No.	List Price (1-pc.)
25	5800	1/4 NPT	0…300 °F	-58…302 °F	**TA2603**	**$174.00**
50	5800	1/4 NPT	0…300 °F	-58…302 °F	**TA2613**	**$174.00**
100	4350	1/4 NPT	0…300 °F	-58…302 °F	**TA2633**	**$179.00**
150	4350	1/4 NPT	0…300 °F	-58…302 °F	**TA2643**	**$179.00**
30	5800	1/2 NPT	0…300 °F	-58…302 °F	**TA2303**	**$184.00**
50	4350	1/2 NPT	0…300 °F	-58…302 °F	**TA2313**	**$184.00**
100	4350	1/2 NPT	0…300 °F	-58…302 °F	**TA2333**	**$190.00**
150	4350	1/2 NPT	0…300 °F	-58…302 °F	**TA2343**	**$190.00**
25	5800	G 1/4 BSPP	-50…150 °C	-50…150 °C	**TA2105**	**$174.00**
50	5800	G 1/4 BSPP	-50…150 °C	-50…150 °C	**TA2115**	**$174.00**
100	4350	G 1/4 BSPP	-50…150 °C	-50…150 °C	**TA2135**	**$179.00**
150	4350	G 1/4 BSPP	-50…150 °C	-50…150 °C	**TA2145**	**$179.00**
30	5800	G 1/2 BSPP	-50…150 °C	-50…150 °C	**TA2405**	**$184.00**
50	4350	G 1/2 BSPP	-50…150 °C	-50…150 °C	**TA2415**	**$184.00**
100	4350	G 1/2 BSPP	-50…150 °C	-50…150 °C	**TA2435**	**$190.00**
150	4350	G 1/2 BSPP	-50…150 °C	-50…150 °C	**TA2445**	**$190.00**
150	2320	1/2 NPT	-50…150 °C	-50…150 °C	**TA2345**	**$190.00**
50	4350	G 1/2 BSPP	0…100 °C	-50…150 °C	**TA2417**	**$184.00**
100	2320	G 1/2 BSPP	0…100 °C	-50…150 °C	**TA2437**	**$190.00**
150	4350	G 1/2 BSPP	-50…150 °C	-50…150 °C	**TA2445**	**$100.00**
150	2320	G 1/2 BSPP	0…100 °C	-50…150 °C	**TA2447**	**$185.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	1/2" NPT thermowell, 63.5 mm insertion length for TA2333, TA2435	**E37210**	**$23.00**
	1/2" NPT thermowell, 114 mm insertion length for TA2343, TA2445	**E37220**	**$35.00**
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

Technical Specs

Response time T05 / T09:	1/3 sec.
Supply voltage:	18...32 V DC
Maximum measuring range:	-58...302 °F (-50…150 °C)
Accuracy:	± 0.54 + (± 0.1 % scaled range) ± 0.3 + (± 0.1 % scaled range)
Ambient temperature:	13...176 °F (-25…80 °C)
Wetted parts:	316L stainless steel; FKM O-ring
Protection rating:	IP 67 / IP 68 / IP 69K

For more information on IO-Link, see pages 6 - 21.

Top product features!

- Transmitters provide highly accurate temperature indication
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Digital transmission of process value eliminates analog signal drift and noise
- One-piece 316 stainless steel housing features integrated electronics, process connector and Class "A" RTD probe that are laser-welded and factory calibrated
- LED indicates the operating status of the TA; the bright, 4-digit LED display of the TD indicates measured temperature directly at the instrument

Temperature transmitters are completely assembled, calibrated and ready to install

NEW! The TD and TA Series temperature transmitters monitor the temperature of liquids in industrial automation applications. The one-piece housing is made of durable 316 stainless steel to withstand tough environments. The 2-wire loop powered programmable transmitter is pre-scaled for the most common ranges. A bright, 4-digit LED display of the TD is protected with a high performance polymer display window that is resistant to chemicals and high temperatures.

Temperature measurement uses high accuracy Pt1000 class A RTDs (resistive thermal detector). Evaluation electronics are optimized for accuracy over the full working range and calibrated to within 0.5 °F.

The highly engineered tip design reduces thermal mass and precisely locates the RTD element with a constant position and force. The benefit of the tip design is very fast reaction speeds of 1 second to 50% and 3 seconds to 90% of the temperature change. There is no calibration or matching of the RTD with the transmitter module.

The TD and TA come fully assembled and factory calibrated for the highest degree of reliability. This saves both installation and commissioning time.

Challenge	Solution
Traditional sensors require costly calibration and matching of the transmitter with the RTD probe. The assemblies do not have displays for local indication. The connection head and well assemblies are prone to damage from moisture ingress.	*The Pt1000 sensor element, evaluation electronics and LED display are calibrated to operate as a system solution for your process monitoring.* *The one-piece device eliminates wiring issues and moisture ingress.*

One-piece solution mounts directly in process

The TD temperature transmitter reliably monitors the fluid temperature in many industrial applications.

Process and compression fittings attach to the RTD probe to provide a secure connection in the process.

Optional thermowell mounting allows the sensor to be removed without stopping process.

A compression fitting and nylon ferrule are required for thermowell mounting.

IO-Link | Position Sensors | Motion Control | Vision Sensors

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NEW

Product + accessory selector

Maximum Temperature Range	RTD Length [mm]	RTD Diameter [mm]	Optional Thermowell 1/2" NPT	Part No. Factory Default Temperature Range (scaled 4…20 mA) -10…150 °C	0…300 °F	0…100 °C	List Price (1-pc.)
TD with display							
-58…302 °F (-50…150 °C)	50	6	–	**TD2211**	**TD2213**	**TD2217**	**$235.00**
-58…302 °F (-50…150 °C)	100	6	–	**TD2231**	**TD2233**	**TD2237**	**$242.00**
-58…302 °F (-50…150 °C)	150	6	UT0050 / E37210	**TD2241**	**TD2243**	**TD2247**	**$247.00**
-58…302 °F (-50…150 °C)	200	6	UT0051 / E37220	**TD2251**	**TD2253**	**TD2257**	**$255.00**
-58…302 °F (-50…150 °C)	250	6	–	**TD2261**	**TD2263**	**TD2267**	**$260.00**
-58…302 °F (-50…150 °C)	300	6	E37230 / E37430	**TD2271**	**TD2273**	**TD2277**	**$266.00**
-58…302 °F (-50…150 °C)	350	6	E37250 / E37450	**TD2291**	**TD2293**	**TD2297**	**$272.00**
TA without display					**-10…150 °C**	**0…200 °C**	
-58…392 °F (-50…200 °C)	50	6	–	–	–	**TA2212**	**$185.00**
-58…392 °F (-50…200 °C)	100	6	–	–	–	**TA2232**	**$191.00**
-58…392 °F (-50…200 °C)	150	6	UT0050 / E37210	–	**TA2241**	**TA2242**	**$191.00**
-58…392 °F (-50…200 °C)	250	6	–	–	–	**TA2262**	**$197.00**
-58…392 °F (-50…200 °C)	350	6	E37250 / E37450	–	–	**TA2292**	**$202.00**

Thermowell Mounting (Requires UT0042 compression fitting)

Type	Description	Part No.	List Price (1-pc.)
	1/2" NPT compression fitting with nylon ferrules for removable installation in thermowell	**UT0042**	**$31.00**

Direct Mounting (Select one of the fittings below)

	1/4" NPT, 316 SS compression fitting	**E30049**	**$34.00**
	1/2" NPT, 316 SS compression fitting	**UT0038**	**$35.00**

Cordsets

	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

Optional Accessories

	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

Technical Specs

Measuring element	Pt 1000, Class A
Response time T05 / T09	1/3 sec.
Supply voltage	18…32 V DC
Accuracy of analog signal	± 0.54 + (0.1 % of measuring span) °F ± 0.3 + (0.19 % of measuring span) °C
Pressure rating	232 psi
Ambient temperature	-13…176 °F (-25…80 °C)
Wetted parts	316L stainless steel
Protection rating	IP67 / IP68 / IP69K

For more information on IO-Link, see pages 6 - 21.

Top product features!

- Compact transmitter with "Lock in Place" M12 connectors
- Plug-and-play connection eliminates wiring errors
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Digital transmission of process signal eliminates analog signal drift and noise
- Integrated LED confirms operating status
- Over-molding technology guarantees integrity in harsh environments

Turns any RTD into a programmable 4...20 mA temperature transmitter

The innovative TP transmitter module with "plug and play" M12 connectors solves the common installation and environmental problems associated with conventional terminal chamber-head transmitters.

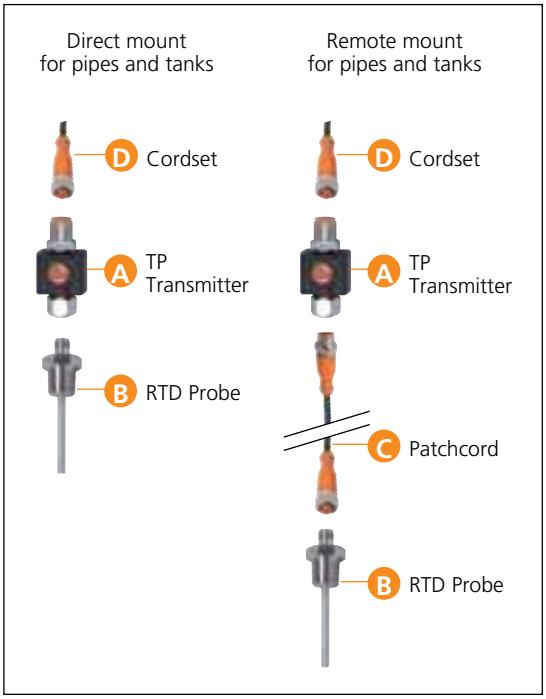
Error sources from screw terminals, wiring mistakes, and fluid ingress are eliminated. An integrated LED gives local indication that the transmitter is powered and transmitting.

Challenge	Solution
Bulky traditional head transmitters are costly and are subject to moisture ingress.	*ifm's compact TP transmitter is rated to withstand liquid ingress and provide reliable temperature indication*

Completely configurable

Compatible with any Pt100 or Pt1000 probe, the TP temperature module verifies the type of RTD and automatically makes the correct settings. Usable with 2, 3, or 4-wire RTDs, the TP can be scaled and offset using ifm's USB interface. With it's "overmolded" construction, the TP is suitable for harsh environments allowing for use in almost any application.

Component guide



Product + accessory selector

A Transmitter Module

Type	Output	Factory Default Range	Scaleable Analog Start Point	Scaleable Analog End Point	In steps of	Part No.	List Price (1-pc.)
	4…20 mA	-58…302 °F (-50…150 °C)	-58…563 °F (-50…295 °C)	-49…572 °F (-45…300 °C)	0.1 °F (0.1 °C)	TP3231	$95.00
		-58…572 °F (-50…300 °C)	-58…563 °F (-50…295 °C)	-49…572 °F (-45…300 °C)	0.1 °F (0.1 °C)	TP3232	$95.00
		0…300 °F (-18…149 °C)	-58…563 °F (-50…295 °C)	-49…572 °F (-45…300 °C)	0.1 °F (0.1 °C)	TP3233	$95.00
		32…212 °F (0…100 °C)	-58…563 °F (-50…295 °C)	-49…572 °F (-45…300 °C)	0.1 °F (0.1 °C)	TP3237	$95.00
	0…10 V	32…212 °F (0…100 °C)	-58…563 °F (-50…295 °C)	-49…572 °F (-45…300 °C)	0.1 °F (0.1 °C)	TP9237	$95.00

B Pt 100 RTD Probes, 316L Stainless Steel*

Process Connection	Insertion Depth	RTD Diameter	Temperature Range	Response Time	Part No.	List Price (1-pc.)
1/2" NPT	50 mm	6 mm	-40…302 °F (-40…150 °C)	1/3 sec.	TM4311	$100.00
1/2" NPT	100 mm	6 mm	-40…302 °F (-40…150 °C)	1/3 sec.	TM4331	$103.00
1/2" NPT	150 mm	6 mm	-40…302 °F (-40…150 °C)	1/3 sec.	TM4341	$105.00
1/2" NPT	250 mm	6 mm	-40…302 °F (-40…150 °C)	1/3 sec.	TM4361	$114.00

* For other RTD probes and accessories, please see pages 222 - 223.

Optional Accessories

	LineRecorder Device, software for parameter setting (requires E30390 cable)	QA0011	$110.00
	USB IO-Link master cable for parameter setting	E30390	$367.00
	Memory plug to store sensor's parameters for easy upload without a computer	E30398	$51.00

For more information on IO-Link, see pages 6 - 21.

Technical Specs

Supply voltage:	20…32 VDC
Ambient Temperature:	-13…158 °F (-25…70 °C)
Accuracy of analog output:	±0.54 °F + (± 0.1%) of the scaled span ±0.3 °C + (± 0.1%) of the scaled span
Housing material:	TPU with FKM seal
Material coupling nut:	316L stainless steel
Protection rating:	IP67

D Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC001	$11.00
	M12 Micro DC (4-pin) 5 m, PUR	EVC002	$15.00
	M12 Micro DC (4-pin) 10 m, PUR	EVC003	$19.00
	M12 Micro DC (4-pin) 2 m, PUR	EVC004	$11.00
	M12 Micro DC (4-pin) 5 m, PUR	EVC005	$15.00
	M12 Micro DC (4-pin) 10 m, PUR	EVC006	$19.00

C Patchcords for remote mount

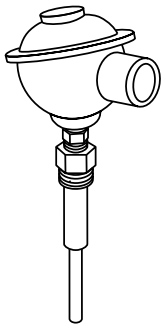
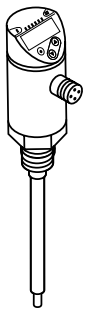
Type	Description	Part No.	List Price (1-pc.)
	M12, straight to straight, 2 m, PUR	EVC013	$20.00
	M12, straight to straight, 5 m, PUR	EVC014	$21.00
	M12, straight to straight, 10 m, PUR	EVC108	$26.00

Top product features!

- *Temperature monitor has integrated display with switching and transmitter outputs*
- *Dual color (red / green) display for at-a-glance indication; large bright LEDs can be seen from all angles and indicate output status*
- *Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback*
- *Digital transmission of process value eliminates analog signal drift and noise*
- *Directly interfaces with any 2, 3, and 4 wire RTDs*

More compact and easier to install than head-and-well assemblies

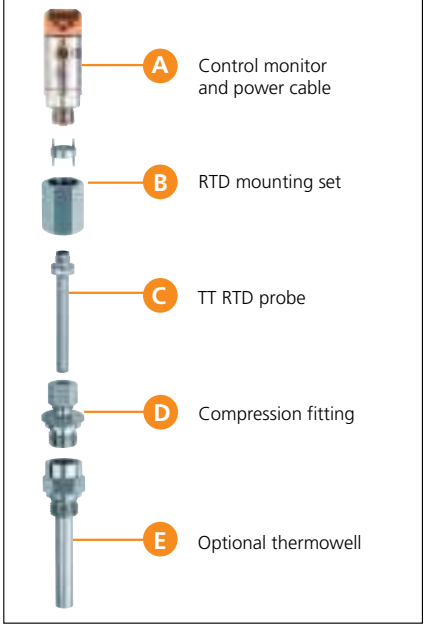
The TR Series process temperature monitors provide highly accurate temperature indication of fluids. The monitor's integrated display allows a user to view temperature directly at the process. The robust, stainless steel housing withstands harsh conditions. Programmable in either °F or °C, the highly-visible display can be viewed from a distance which is advantageous in low-lit areas.

Challenge	Solution
	
Bulky head-and-well assemblies with open cavities are subject to liquid ingress and do not have localized displays.	*ifm's zero-leak, compact temperature monitor connects to a variety of RTDs and features local numeric display.*

Two monitors available:

- Model TR2439 provides a scaleable analog and switching output.
- Model TR7439 features a dual switching output.
- Both monitors have a temperature range of -40 to 1112 °F and interface with 2-, 3- and 4-wire RTDs (Pt 100 or Pt 1000). The compact monitors feature a 4-digit numeric LED display that indicates temperature in 0.1 °F resolution.

Component Guide



Product + accessory selector

A Control Monitor

Output	Switchpoint Setting Range	In steps of	Scaleable Analog Start Point	Scaleable Analog End Point	Part No.	List Price (1-pc.)
4-20 mA / 0-10V and PNP / NPN N.O. / N.C.	-148…1112 °F (-100…600 °C)	0.1 °F (0.1 °C)	-148…1103 °F (-100…595 °C)	-139… 1112°F (-95…600.0 °C)	TR2439	$303.00
Dual PNP / NPN N.O. / N.C.	-148…1112 °F (-100…600 °C)	0.1 °F (0.1 °C)	–	–	TR7439	$244.00

C Pt 100 RTD Probes, 316L Stainless Steel*

Usable RTD Length	Total RTD Length	RTD Diameter	Temperature Range	Part No.	List Price (1-pc.)
100 mm	160 mm	10 mm	-40…302 °F (-40…150 °C)	TT1081	$82.00
200 mm	260 mm	10 mm	-40…302 °F (-40…150 °C)	TT2081	$90.00
300 mm	360 mm	10 mm	-40…302 °F (-40…150 °C)	TT3081	$96.00
500 mm	560 mm	10 mm	-40…302 °F (-40…150 °C)	TT5081	$105.00

* For other RTD probes and accessories, please see pages 222 - 223.

Accessories

Type	Description	Part No.	List Price (1-pc.)
B	RTD mounting set	E30017	$36.00
D	1/2" NPT Compression fitting, 316 stainless steel	E30024	$26.00
E	1/2" NPT Thermowell, 100 mm, 316 stainless steel	UT0009	$34.00
	1/2" NPT Thermowell, 200 mm, 316 stainless steel	UT0010	$40.00
	1/2" NPT Thermowell, 300 mm, 316 stainless steel	UT0011	$46.00
	1/2" NPT Thermowell, 500 mm, 316 stainless steel	UT0012	$55.00

For more information on IO-Link, see pages 6 - 21.

Optional Accessories and Cordsets

Type	Description	Part No.	List Price (1-pc.)
	LineRecorder Device, software for parameter setting (requires E30390 cable)	QA0011	$110.00
	USB IO-Link master cable for parameter setting	E30390	$367.00
	Memory plug to store sensor's parameters for easy upload without a computer	E30398	$51.00
	M12 Micro DC (4-pin) 2 m, PUR	EVC001	$11.00
	M12 Micro DC (4-pin) 5 m, PUR	EVC002	$15.00
	M12 Micro DC (4-pin) 10 m, PUR	EVC003	$19.00
	M12 Micro DC (4-pin) 2 m, PUR	EVC004	$11.00
	M12 Micro DC (4-pin) 5 m, PUR	EVC005	$13.50
	M12 Micro DC (4-pin) 10 m, PUR	EVC006	$18.00

Technical Specs

Supply voltage:	18...32 VDC
Maximum load current:	250 mA
Accuracy of switch point:	±0.54 °F (±0.3 °C)
Accuracy of analog signal:	± 0.54 °F (±0.3 °C)
Ambient temperature:	-13…176 °F (-25…80 °C)
Protection rating:	IP67

Top product features!

- A variety of RTD probe lengths offer a wide range of insertion depths
- Various thermowells are available that allow the probe to be removed without shutting down the process
- 316 stainless steel design detect rapid temperature changes and is compatible with a wide range of chemicals
- For a custom temperature monitoring system, RTDs can be used with or without ifm's TR control monitor or TP transmitter module
- Standard M12 connectors allow for a multitude of mounting options

ifm's modular temperature components allow flexibility in any application

Select an RTD probe and process fitting that will suit your application. Optional thermowells allow the RTD probe to be removed without stopping the process.

A Select an RTD probe

ifm stainless steel temperature probes are available in 6 mm, 8.2 mm and 10 mm diameters.

Probes are available in varying lengths to suit a wide range of installation depths.

B Select a process / compression fitting

Process and compression fittings attach to the probe to provide a secure connection in the process.

Models are available in 1/4", 1/2", 3/4" and 1" NPT, G 1/4 and G 1/2 BSPP and weldable adapters.

C If needed, select a thermowell

Optional thermowell mounting allows the RTD probe to be removed without stopping process.

Thermowells are available in various diameter options and lengths.

Selection Guide for RTD Probes, Fittings and Thermowells

A 6 mm diameter · Pt 100 · M12 connector Integrated 1/2" process connection

Type	Usable Length (after fitting)	Temperature Range	Part No.	List Price (1-pc.)
	50 mm	-40…302 °F (-40… 150 °C)	TM4311	$100.00
	100 mm	-40…302 °F (-40… 150 °C)	TM4331	$103.00
	150 mm	-40…302 °F (-40… 150 °C)	TM4341	$105.00
	250 mm	-40…302 °F (-40… 150 °C)	TM4361	$114.00

Selection Guide for RTD Probes, Fittings and Thermowells

A 8.2 mm diameter · Pt 100 · M12 quick disconnect for small pipes

Type	Usable Length (after fitting)	Temperature Range	Part No.	List Price (1-pc.)
	23 mm	-40…257 °F (-40… 125 °C)	TM9950	$119.00

B Process Fitting		Part No.	List Price (1-pc.)
	1/4" NPT adapter	E40106	$22.00
	1/2" NPT adapter	E40107	$24.00
	3/4" NPT adapter	U40085	$45.00
	1" NPT adapter, 304 stainless steel and brass	U40080	$72.00
	G1/4 BSPP adapter	E40099	$22.00
	G1/2 BSPP adapter	E40096	$27.00
	Weldable adapter, carbon steel	E40113	$19.00
	Weldable adapter, 316 ss	E40124	$41.00

C Optional Thermowell, 1/2" NPT		Part No.	List Price (1-pc.)
	1/2" NPT thermowell, 27 mm (no other adapters required)	UT0028	$46.00

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

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Selection Guide for RTD Probes, Fittings and Thermowells (continued)

A 6 mm diameter · Pt 100 · M12 quick disconnect

Usable Length (after fitting)	Temperature Range	Part No.	List Price (1-pc.)
12 mm	-40…302 °F (-40…150 °C)	**TT9291**	**$94.00**
62 mm	-40…302 °F (-40…150 °C)	**TT0291**	**$103.00**
100 mm	-40…302 °F (-40…150 °C)	**TT1291**	**$105.00**
200 mm	-40…302 °F (-40…150 °C)	**TT2291**	**$103.00**
300 mm	-40…302 °F (-40…150 °C)	**TT3291**	**$113.00**

B Compression Fitting

Part No.	List Price (1-pc.)
E30049 1/4″ NPT	**$34.00**

C Optional Thermowell, 1/2″ NPT (requires E30049)*

Length	Part No.	List Price (1-pc.)
–	–	–
–	–	–
100 mm	**UT0022**	**$35.00**
200 mm	**UT0023**	**$40.00**
300 mm	**UT0024**	**$46.00**

A 10 mm diameter · Pt 100 · M12 quick disconnect

Usable Length (after fitting)	Temperature Range	Part No.	List Price (1-pc.)
100 mm	-40…302 °F (-40…150 °C)	**TT1081**	**$82.00**
200 mm	-40…302 °F (-40…150 °C)	**TT2081**	**$90.00**
300 mm	-40…302 °F (-40…150 °C)	**TT3081**	**$96.00**
500 mm	-40…302 °F (-40…150 °C)	**TT5081**	**$105.00**

B Compression Fitting

Part No.	List Price (1-pc.)
E30024 1/2″ NPT	**$26.00**

C Optional Thermowell, 1/2″ NPT (requires E30024)*

Length	Part No.	List Price (1-pc.)
100 mm	**UT0009**	**$34.00**
200 mm	**UT0010**	**$40.00**
300 mm	**UT0011**	**$46.00**
500 mm	**UT0012**	**$55.00**

A 10 mm diameter Pt 100 · Prewired with M12 quick disconnect

Cable Length	Temperature Range	Part No.	List Price (1-pc.)
2 m, PUR	-40…194 °F (-40…90 °C)	**TS2089**	**$60.00**
5 m, PUR	-40…194 °F (-40…90 °C)	**TS5089**	**$66.00**
2 m, PTFE	-58…482 °F (-50…250 °C)	**TS2056**	**$117.00**

B Compression Fitting

Part No.	List Price (1-pc.)
E30025 1/2″ NPT	**$27.00**

C Optional Thermowell, 1/2″ NPT (requires E30025)*

Length	Part No.	List Price (1-pc.)
100 mm	**UT0009**	**$36.00**
200 mm	**UT0010**	**$40.00**
300 mm	**UT0011**	**$46.00**
500 mm	**UT0012**	**$55.00**

*Thermal grease for thermowells (order separately), Part No. 700692, List price: $2.50

A Bolt-on · Pt 100 · Prewired with M12 quick disconnect

Cable Length	RTD Element	Temperature Range	Part No.	List Price (1-pc.)
2 m	Pt 100	-13…194 °F (-25…90 °C)	**TS2229**	**$74.00**

Technical Specs

Wetted parts:	316 stainless steel
Response time T05/T09:	TTxxxx: 1/3 sec; TSx051: 6/25 sec; TS2056: 12/39 sec; TM9950: 1/3 sec
Ambient temperature:	-13…176 °F (-25…80 °C)
Protection rating:	TTxxxx: IP68 / IP69K; TSxxxx: IP67; TM9950: IP68 / IP69K

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

Top product features!

- Non-contact temperature sensor reliably detects hot objects up to 4500 °F (2500 °C) using long-distance sensing technology
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Digital transmission of process value eliminates analog signal drift and noise
- Integrated LED aiming pointer for alignment and control
- Integrated scratch-resistant precision quality lens for reliability in extremely harsh environments

Compact infrared temperature sensor for detecting objects with temperatures up to 4500 °F

Many industries involve detection of objects that are too hot for the use of standard position sensors, such as in the manufacturing of asphalt, steel, glass, or ceramic products. ifm's TW Series non-contact infrared temperature switch is designed to detect objects ranging in temperature from 32 to 4500 °F.

The TW sensor solves these applications by detecting the infrared radiation emitted by the object and converting it into an output signal. The TW2 sensor provides an accurate temperature measurement based on the target emissivity.

High precision in a robust housing

ifm's TW temperature series features a compact robust housing. The integrated scratch-resistant precision quartz lens with anti-reflective coating provides minimum sensitivity to scattered light for reliability in extremely harsh environments.

The TW is available with an M12 Micro quick disconnect connector. For mounting restrictions with limited space, fiber optic units are available. A special lens attachment is required in this case.

Easy setup

Outputs can easily be set using the pushbuttons and digital display of the sensor or via IO-Link.

The TW Series temperature sensor can be used to detect a hot steel slab by measuring the infrared radiation intensity emitted from the hot slab.

The TW2 transmitter displays actual temperature of the hot slab and provides a corresponding analog signal.

The TW7 switch displays a percentage of the infrared radiation intensity and provides a switchpoint set by the user.

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

	Type	Output	Temperature Range	Accuracy (E=1)	Wave Length	Laser Pointer	Part No.	List Price (1-pc.)
	Self-contained	Scaleable 4…20 mA and PNP N.O. / N.C.	32…1831 °F (0…995.5 °C)	< ±1% of measured value	8…14 µm	–	**TW2000**	**$1,142.00**
NEW!	Self-contained	Scaleable 4…20 mA and PNP N.O. / N.C.	32…1831 °F (0…995.5 °C)	< ±1% of measured value	8…14 µm	Yes	**TW2100**	**$1,535.00**
NEW!	Self-contained	Scaleable 4…20 mA and PNP N.O. / N.C.	482…2912 °F (250…1600 °C)	< ±0.5% of measured value	1.0…1.7 µm	–	**TW2001**	**$1,427.00**
NEW!	Self-contained	Scaleable 4…20 mA and PNP N.O. / N.C.	482…2912 °F (250…1600 °C)	< ±0.5% of measured value	1.0…1.7 µm	Yes	**TW2101**	**$1,726.00**
NEW!	Self-contained	Scaleable 4…20 mA and PNP N.O. / N.C.	932…4532 °F (500…2500°C)	< ±0.3% of measured value	0.78…106 µm	–	**TW2002**	**$1,443.00**
NEW!	Fiber Optic	Scaleable 4…20 mA and PNP N.O. / N.C.	572…2912 °F (300…1600 °C)	< ±0.5% of measured value	1.0…1.7 µm	–	**TW2011**	**$2,072.00**
	Self-contained	2 x PNP N.O. / N.C.	122…932 °F (50…500 °C)	< ±1% of measured value	8…14 µm	–	**TW7000**	**$854.00**
	Self-contained	2 x PNP N.O. / N.C.	482…2282 °F (250…1250 °C)	< ±1% of measured value	1.0…1.7 µm	–	**TW7001**	**$1,208.00**
	Fiber Optic	2 x PNP N.O. / N.C.	662…2462 °F (350…1350 °C)	< ±1% of measured value	1.0…1.7 µm	–	**TW7011**	**$1,154.00**

Required Accessories TW2011/TW7011

	Description	Part No.	List Price (1-pc.)
	Fiber optic cable, 2 m	**E35061**	**$290.00**
	Fiber optic cable, 5 m	**E35062**	**$350.00**
	Sensor head, lens attachment for IR temperature sensors	**E35060**	**$300.00**

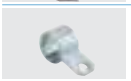
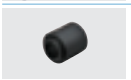
Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (5 pin) 10 m, PUR, shielded	**EVC546**	**$47.00**
	M12 Micro DC (5 pin) 10 m, PUR, shielded	**EVC549**	**$47.00**

Technical Specs

Supply voltage:	TW2: 18…32 V DC; TW7: 10…34 V DC
Current rating:	150 mA per switching output
Ambient temperature:	TW2: 32…149 °F (0…65 °C) TW7: 32…140 °F (0…60 °C) E35060: -4…480 °F (-20…250 °C)
Protection rating:	IP65

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Air purge	**E35063**	**$127.00**
	Cooling jacket	**E35068**	**$290.00**
	Mounting bracket	**E35065**	**$59.00**
	Protective tube	**E35066**	**$87.00**
	Heat isolator	**E35067**	**$47.00**
	LineRecorder Device, software for parameter setting (requires E30390 cable)	**QA0011**	**$110.00**
	USB IO-Link master cable for parameter setting	**E30390**	**$367.00**
	Memory plug to store sensor's parameters for easy upload without a computer	**E30398**	**$51.00**

The AS-i network connects hundreds of sensors on a single two-wire cable. AS-i I/O modules use quick plug-and-play functionality that simplifies installation.

AS-i is a simple solution for networking actuators and sensors

An AS-interface network offers a simple, cost-efficient alternative to conventional cabling at the lowest level of the automation. This network can operate directly in conjunction with an existing PLC or can be linked to a higher-level bus system for low-cost remote I/O. AS-interface is tailored to the needs of devices such as sensors and actuators where low connection cost per node is critical and simplicity is essential.

Global support for AS-interface

ifm efector engineers are trained on AS-interface and can help design and implement a network on industrial equipment. On-site technical support is available and application assistance is immediate by calling our technical support hotline: 800-441-8246.

Aggressive product development

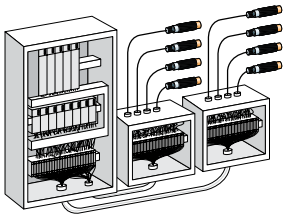
ifm is committed to investing in new product development for AS-interface. Our goal is to improve functionality, simplify installation and maintain competitive price points.

Point-to-point wiring vs. AS-i networking

Industrial automation systems require a large amount of control devices. The number of binary actuators and sensors placed on a typical system has grown over the years.

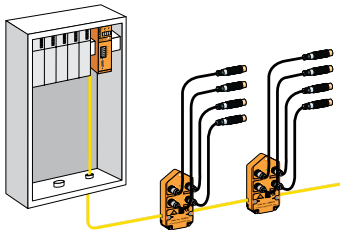
Current methods for wiring include point-to-point connection or bus systems. However, point-to-point wiring results in large wire bundles, and bus systems can be too complex for networking simple binary devices.

As a solution to these challenges, ifm offers the Actuator Sensor interface (AS-i), a simple network for actuators and sensors. AS-i is cost-effective, easy to install, and features modular components that offer design flexibility. AS-i is a complete networking solution for industrial control applications.



Before

Point-to-point wiring is still the most common wiring method found in industry. One cable from each device results in large wire bundles running through the system. Due to the sheer volume of wires, installation time is considerable and troubleshooting is complex.



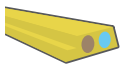
After

AS-i network connects multiple binary devices with only one 2-wire cable, completely eliminating wire bundles. Its simple, plug-and-play wiring supports all topologies and eliminates device profiles and expensive hardware.

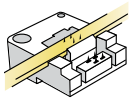
Visit www.ifm.com/us to view all AS-i networking products.

Search Bar

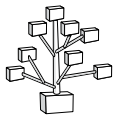
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143



A simple 2-wire flat cable
The normal collection of wire bundles are replaced by a single, two-wire flat cable that carries both data and power.



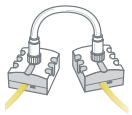
Insulation displacement
Insulation displacement technology enables fast connection to all devices. The cable is pierced to make the electric connection and features a mechanical profile to proper insure polarity.



Flexible topology
AS-i supports topologies including open tree, ring, star, and trunk and drop lines to allow maximum design freedom.

Extremely fast system
Data transfer is fast – less than 10 ms on a fully-loaded system of 248 inputs and 248 outputs.

Cost effective
Since actuators and sensors are among the least expensive devices on a network, their connecting hardware should be comparable in price. AS-i's price-per-point is one of the best in industry.



Modular system
AS-i's design flexibility makes it a true plug-and-play networking system. Modular machines can be easily connected with the aid of splitter modules to form a production line.

Best fit
Actuator and sensor manufacturers developed AS-i for the sole purpose of connecting actuators and sensors. Every component on the network is specially designed to fit these binary devices.

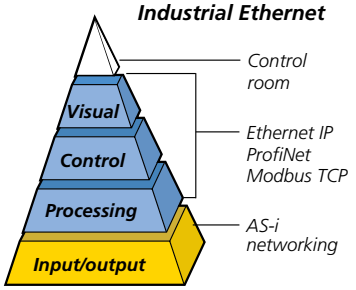
Industrial Ethernet and AS-i networking offer the best of both worlds

Industrial Ethernet (IE) is commonly applied as the networking protocol for automation and plant control. IE is well known in industry, can carry large packets of data, and is ideal for HMIs, PLCs, drives, and barcode scanners.

For bit-level data such as sensors and actuators – which account for 90% of devices in automation – a lower level I/O network, such as AS-i, is better suited for these devices.

AS-i offers a better alternative to wiring bit-level devices and is an ideal complement to Industrial Ethernet at the I/O level. A single Ethernet IP address can transmit up to 992 I/O points.
AS-i uses quick plug-and-play functionality that simplifies installation in the controls architecture.

Today's networks with Industrial Ethernet



ifm is an AS-interface founding member
ifm efector is one of 11 founding members of the AS-interface Association, established in 1990. AS-i is a non-profit independent organization that is currently supported by more than 100 vendors worldwide.

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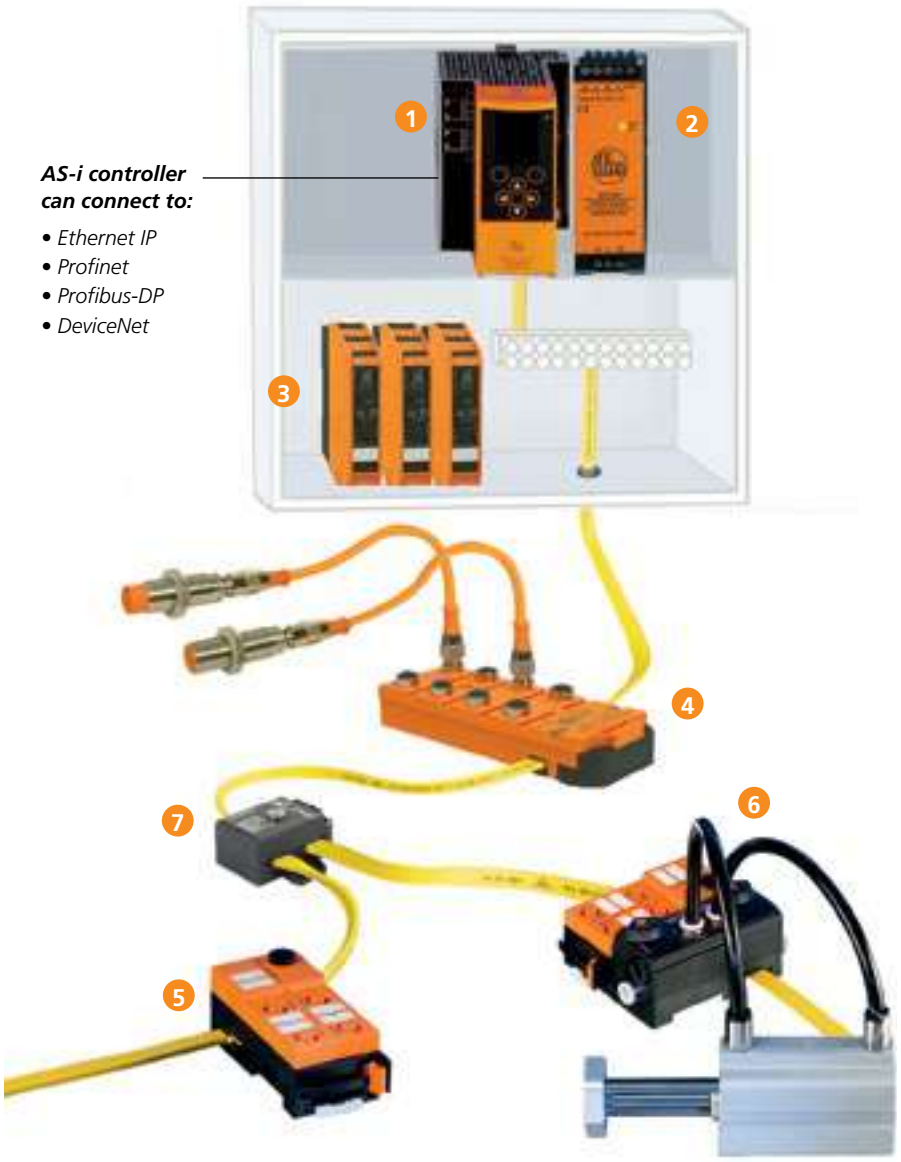
AS-i system overview

All of the components needed to create a complete AS-i system are illustrated in this overview. Because of its flexibility, an AS-i system has unlimited design capabilities. Choose from a variety of masters, I/O modules, power supplies and accessories depending on your current controls platform and application environment.

1. **AS-i Master / Gateway**
   Controls the data transfer for the AS-i network.
2. **AS-i Power Supply**
   Couples power and signal together for transmission over the 2-wire flat cable.
3. **Cabinet Module**
   Designed to be an inexpensive solution for connecting control cabinet I/O to the AS-i network.
4. **Compact Field Module**
   Designed specifically for harsh environments.
5. **Quick Slide Field Modules**
   IP67 module features a mounting technology that does not require tools for installation.
6. **Quick Slide Pneumatic Output Modules**
   4 inputs and 1 or 2 solenoid outputs integrated into one housing.
7. **Splitter Module**
   Allows for maximum flexibility in both the design and commissioning phases of a project.

AS-i controller can connect to:

- *Ethernet IP*
- *Profinet*
- *Profibus-DP*
- *DeviceNet*



Technical Specifications:

- *62 nodes per master*
- *4I/4O maximum per node (248 inputs/248 outputs per master)*
- *100 m network length (up to 300 m with repeaters)*
- *Less than 10 ms scan time on a fully loaded system (62 nodes)*

Controllers and gateways

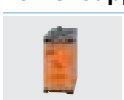
- *AS-i Controllers provide direct connection of AS-i to EtherNet/IP, Profibus and to DeviceNet*
- *AS-i Backplane Masters provide connection of AS-i to most PLCs*
- *Single or dual master options available for application versatility*
- *User friendly display for setup and diagnostics*

Type	Number of AS-i Masters	Programming Data Interface	Fieldbus Interface	AS-i Version	Current Consumption From 24 V DC (mA)	Current Consumption From AS-i (mA)	Part No.	List Price (1-pc.)
AS-i Ethernet / IP Controller-E • Full master functions • Color graphic display								
	1	Ethernet RJ 45	Ethernet IP	3.0	< 500	< 10	**AC1421**	**$1,193.00**
	2	Ethernet RJ 45	Ethernet IP	3.0	< 500	< 10	**AC1422**	**$1,434.00**
AS-i Profinet Gateway • Full master functions • Color graphic display								
	1	Ethernet RJ 45	Profinet	3.0	< 500	< 10	**AC1401**	**$1,193.00**
	2	Ethernet RJ 45	Profinet	3.0	< 500	< 10	**AC1402**	**$1,434.00**
AS-i Profibus Gateway • Full master functions • Color graphic display								
	1	Ethernet RJ 45	Profibus-DP	3.0	< 500	< 10	**AC1411**	**$1,069.00**
	2	Ethernet RJ 45	Profibus-DP	3.0	< 500	< 10	**AC1412**	**$1,238.00**
SmartLink DP • AS-i gateway / Profibus DP • Full master functions • Graphic display								
	1	–	Profibus-DP	3.0	–	< 200	**AC1375**	**$927.00**
	2	–	Profibus-DP	3.0	< 400	< 10	**AC1376**	**$1,153.00**
AS-i DeviceNet controller E • AS-i controller with DeviceNet interface • Full master functions • Graphic display								
	1	–	DeviceNet	3.0	< 500	< 10	**AC1318**	**$1,529.00**
	2	–	DeviceNet	3.0	< 500	< 10	**AC1324**	**$1,727.00**

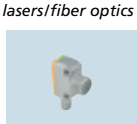
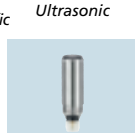
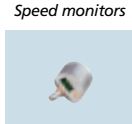
Type	Application	I/O and Configuration	Number of AS-i Masters	Part No.	List Price (1-pc.)
AS-i Backplane Masters					
	AS-i Master for SLC5 PLC Platform	248 inputs and 248 outputs. Configuration via Allen-Bradleys' RSLogix software package. AS-i version 3.0	2	**U71000**	**$1,530.00**
	AS-i master for Compactlogix and Micrologix 1500 PLC platforms	248 inputs and 248 outputs. Configuration via Allen-Bradleys' RSLogix software package. AS-i version 3.0	1	**U71003**	**$854.00**
	AS-i master for Controllogix PLC platforms	248 inputs and 248 outputs. Configuration via Allen-Bradleys' RSLogix software package. AS-i version 3.0	2	**U71005**	**$1,479.00**

AS-i power supplies

- *High efficiency design generates less heat and eliminates external cooling*
- *Couples and de-couples power and signal for transmission over the network*
- *Compact housing with DIN rail occupies minimal cabinet space*
- *Selectable 115 / 230 VAC input voltage with short circuit and overload protection*

Type	Dimensions (mm)	Output Current AS-i (A)	Output Voltage AS-i (V)	Nominal Voltage (V)	Efficiency (%)	Part No.	List Price (1-pc.)
Power supply							
	40 x 124 x 114.6	2.8	30.5 DC	115 / 230 AC	η = 86.9	**AC1256**	**$331.00**
	40 x 124 x 114.6	4	30.5 DC	115 / 230 AC	η = 88	**AC1254**	**$454.00**
	62 x 124 x 114.6	8	30.5 DC	115 / 230 AC	η = 89.4	**AC1258**	**$540.00**
	40 x 124 x 114.6	4	30.5 DC	24 DC	η = 90.5	**AC1257**	**$416.00**
Power supply • 3-phase							
	62 x 124 x 114.6	8	30.5 DC	3 x 400 AC	η = 92	**AC1253**	**$604.00**

Search Bar

		IO-Link	Position Sensors						Motion Control	Vision Sensors
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
									
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Cabinet modules

- *DIN rail mountable modules designed for cabinet or junction box applications*
- *Removable combicon connectors included for easy connection of periphery devices*
- *Low profile models available for small enclosures*
- *Integrated socket for easy addressing*

Type	Dimensions (mm)	No. of Inputs	No. / Type of Outputs	Max. Input Current per Module	Output Current per Channel / Total (A)	AS-i Profile	AS-i Version	Extended Addressing Mode	Part No.	List Price (1-pc.)
Mini modules for small cabinets										
	59 x 25 x 129	4	4 PNP	200	1 / 4	S-7.A.7	3.0	yes	**AC3200**	**$161.00**
	59 x 25 x 129	4	4 PNP	1000	1 / 4	S-7.A.7	3.0	yes	**AC3201**	**$161.00**
	108 x 25 x 123	4	4 relay	200	6 / 6	S-7.A.7	3.0	yes	**AC3220**	**$176.00**
	108 x 25 x 123	4	4 relay	1000	6 / 6	S-7.A.7	3.0	yes	**AC3221**	**$176.00**
Cabinet I/O modules for small cabinets										
	25 x 114 x 105	4	–	200	–	S-0.A.E	2.1	yes	**AC2250**	**$129.00**
	25 x 114 x 105	–	4 PNP	–	1 / 4	S-8.0.E	2.1	no	**AC2252**	**$152.00**
	25 x 114 x 105	4	4 PNP	200	1 / 4	S-7.0.E	2.1	no	**AC2251**	**$175.00**
	25 x 114 x 105	4	4 PNP	200	1 / 4	S-7.A.7	3.0	yes	**AC2261**	**$175.00**
	25 x 114 x 105	4	3 PNP	200	1 / 3	S-7.A.E	2.1	yes	**AC2264**	**$175.00**
	25 x 114 x 105	4	4 PNP	200	1 / 4	S-7.A.7	3.0	yes	**AC2267**	**$176.00**
	25 x 114 x 105	4	2 relay	200	6 / 6	S-7.A.E	2.1	yes	**AC2256**	**$181.00**
	50 x 114 x 105	4	4 relay	200	6 / 6	S-7.0.E	2.1	no	**AC2258**	**$224.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Addressing unit	**AC1154**	**$509.00**
	Cable for addressing unit	**E70213**	**$22.00**

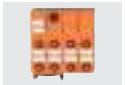
Technical Specs

Output voltage supply: AC2267, AC3201, AC3221:
24 VDC power supply for inputs and outputs

All other models: AS-i power supply for inputs only and 24 VDC power supply for outputs only

I/O field modules for industrial automation

- *Field modules feature digital inputs and/or digital outputs*
- *Modules offer three directions of rotation for AS-i cable that provide flexible installation*
- *Simple mounting, no tools required*

Type	Dimensions (mm)	No. of Inputs	No. / Type of Outputs	Max. Input Current per Module (mA)	Output Current per Channel / Total (A)	AS-i Profile	AS-i Version	Extended Addressing Mode	Part No.	List Price (1-pc.)
	45 x 103 x 45	4	–	200	–	S.0.A.E	2.1	yes	**AC5215**	**$167.00**
	45 x 103 x 45	4	–	1000	–	S.0.A.E	2.1	yes	**AC5290**	**$167.00**
	45 x 103 x 45	–	4 PNP	–	1 / 2	S.8.0.E	2.1	no	**AC5208**	**$186.00**
	45 x 103 x 45	2	2 PNP	100	1 / 2	S.B.A.E	2.1	yes	**AC5214**	**$181.00**
	45 x 103 x 45	2	2 PNP	200	0.2 / 0.2	S.B.A.E	2.1	yes	**AC5224**	**$181.00**
	90 x 103 x 45	4	4 PNP	200	1 / 2	S.7.A.7	3.0	yes	**AC5235**	**$262.00**
	90 x 103 x 45	4	4 PNP	1000	1 / 3	S.7.A.7	3.0	yes	**AC5293**	**$262.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Addressing unit	**AC1154**	**$509.00**
	Cable for addressing unit	**E70213**	**$22.00**
	Protective cap – 10 pack	**L35001**	**$8.00**

Patchcords

Type	Design			Cable Length	Part No.	List Price (1-pc.)
	Male	Female	M12 straight male to M12 straight female	1 M	**EVC042**	**$19.00**
				2 M	**EVC043**	**$21.00**
				5 M	**EVC044**	**$22.00**
	Male	Female	M12 straight male to M12 90° female	1 M	**EVC047**	**$19.00**
				2 M	**EVC048**	**$21.00**
				5 M	**EVC049**	**$22.00**

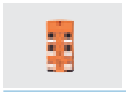
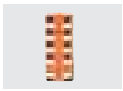
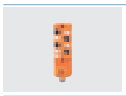
Technical Specs

Output voltage supply: AC5290, AC5293: 24 VDC power supply required for inputs and outputs
AC5224: AS-i power supply for inputs and outputs
All other models: AS-i power supply for inputs only and 24 VDC power supply for outputs only

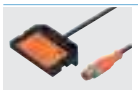
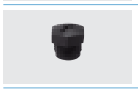
Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Fully potted I/O field modules for outdoor and high vibration areas

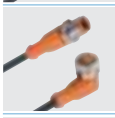
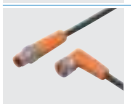
- *Low profile housing*
- *Fully potted for outdoor and high vibration environments (IP67 rating)*
- *Up to 4 amps available for output devices*
- *ifm ecolink technology in each port enables secure lock-in-place connection*
- *Flat cable base included*

Type	Dimensions (mm)	No. of Inputs	No. of Outputs	Max Input Current per Module (mA)	Output Current per Channel / Total (A)	AS-i Profile	AS-i Version	Extended Addressing Mode	Part No.	List Price (1-pc.)
M12 Micro DC Connectors										
	60 x 118 x 27	4	–	200	–	S-0.A.E	2.1	yes	**AC2457**	**$213.00**
	60 x 118 x 27	2	2 PNP	200	2 / 4	S-3.F.E	2.1	no	**AC2458**	**$254.00**
	60 x 152 x 27	4	4 PNP	200	2 / 4	S-7.F.E	2.1	no	**AC2459**	**$344.00**
M8 Pico DC Connectors										
	30 x 90.5 x 23.5	2	2 PNP	180	180 mA / 180 mA	S-B.A.E	2.1	yes	**AC2482**	**$155.00**
	30 x 90.5 x 23.5	4	–	180	–	S-0.A.E	2.1	yes	**AC2484**	**$146.00**
	30 x 134.5 x 23.5	8	–	180	–	S-7.A.A.	3.0	yes	**AC2488**	**$185.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Addressing unit	**AC1154**	**$509.00**
	Addressing cable	**E70423**	**$43.00**
	Protective cap – 10 pack	**L35001**	**$8.00**

Patchcords

Type	Design			Cable Length	Part No.	List Price (1-pc.)
	Male	Female	M12 straight male to M12 straight female	1 M	**EVC042**	**$19.00**
				2 M	**EVC043**	**$21.00**
				5 M	**EVC044**	**$22.00**
	Male	Female	M12 straight male to M12 90° female	1 M	**EVC047**	**$19.00**
				2 M	**EVC048**	**$21.00**
				5 M	**EVC049**	**$22.00**
	Male	Female	M8 straight male to M8 straight female	1 M	**EVC267**	**$23.00**
				2 M	**EVC268**	**$25.00**
				5 M	**EVC269**	**$28.00**
	Male	Female	M8 straight male to M8 90° female	1 M	**EVC277**	**$23.00**
				2 M	**EVC278**	**$25.00**
				5 M	**EVC279**	**$28.00**

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I/O modules for harsh environments

- *Stainless steel modules for use in harsh applications*
- *Resistant to standard cleaning agents (Ecolab tested)*
- *AS-i and 24 V supply via common M12 connector*
- *For direct use in wet areas (protection ratings IP 68 and IP 69 K)*
- *AS-i splitters – high-grade stainless steel flat cable insulation displacement connector suitable for field use*

Type	Dimensions (mm)	No. of Inputs	No. of Outputs	Max Input Current per Module (mA)	Output Current per Channel / Total (A)	AS-i Profile	AS-i Version	Extended Addressing Mode	Part No.	List Price (1-pc.)
I/O modules for harsh environments										
	Ø137.3 x 80	8 passive splitter	–	–	4 / 4	–	–	–	**AC2900**	**$212.00**
	Ø137.3 x 80	4	3 PNP	200	0.7 / 2.1	S-7.A.E.	2.1	yes	**AC2904**	**$402.00**
	Ø137.3 x 80	8	–	400	–	S-0.A.E.	2.1	yes	**AC2910**	**$374.00**

Micro DC patchcords 5-pin MPPE jacket

Type	Design			Cable Length	Part No.	List Price (1-pc.)
	Male	Female	M12 straight male to M12 straight female	0.3 M	**EVF058**	**$39.00**
				0.6 M	**EVF059**	**$40.00**
				1 M	**EVF060**	**$41.00**
				2 M	**EVF061**	**$43.00**
				5 M	**EVF062**	**$46.00**
				10 M	**EVF063**	**$53.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Flat cable, AS-i and auxiliary, to 4-pin female M12 Micro DC connector, 316 SS, EPDM O-ring	**E70354**	**$43.00**
	Flat cable to 4-pin female M12 Micro DC connector, 316 SS, EPDM O-ring	**E70454**	**$31.00**
	Flat cable splitter, two channel, AS-i or auxiliary, 8 A current rating, 316 SS, EPDM O-ring	**E70377**	**$41.00**

Analog I/O field modules

- *Modules available for various industrial environments*
- *High resolution and transfer rates*
- *Up to 4 inputs or 4 outputs of 4…20 mA or 0…10 V per module*

Type	Dimensions (mm)	No. of Inputs	No. of Outputs	Max Input Current per Module (mA)	AS-i Profile	AS-i Version	Extended Addressing Mode	Part No.	List Price (1-pc.)
Analog I/O modules for the cabinet									
	25 x 114 x 105	4 x 4…20 mA	–	100 (500)	S-7.3.E	2.1	no	**AC2216**	**$626.00**
	25 x 114 x 105	4 x 0…10 V	–	100 (500)	S-7.3.E	2.1	no	**AC2217**	**$626.00**
	25 x 114 x 105	–	4 x 0…20 mA	–	S-7.3.6	2.1	no	**AC2218**	**$626.00**
	25 x 114 x 105	–	4 x 0...10 V	–	S-7.3.6	2.1	no	**AC2219**	**$626.00**
	25 x 114 x 105	4 x Pt100	–	80 mA	S-7.3.E	2.1	no	**AC2220**	**$617.00**
Analog I/O modules with quick slide housing									
	45 x 103 x 45	4 x 4…20 mA	–	2000 mA	S-7.3.E	2.11 + 3.0	no	**AC5216**[1]	**$390.00**
	45 x 103 x 45	–	2 x 4…20 mA	50 mA	S-7.3.5	2.11 + 3.0	no	**AC5218**	**$195.00**
	45 x 103 x 45	2 x 4…20 mA	–	250 mA	S-7.3.D	2.11 + 3.0	no	**AC5222**[1]	**$318.00**
	45 x 103 x 45	2 x 4…20 mA	–	250 mA	S-7.3.D	2.11 + 3.0	no	**AC5223**[2]	**$318.00**
	45 x 103 x 45	2 x digital 1 x 4…20 mA	1 x 4…20 mA	200 mA	S-7.5.5	3.0	no	**AC5230**	**$353.00**
Analog I/O modules with compact housing									
	60 x 118 x 27	2 x 4…20 mA	–	200 mA	S-7.3.D	2.1	no	**AC2402**[1]	**$324.00**
	60 x 118 x 27	2 x 4…20 mA		200 mA	S-7.3.D	2.1	no	**AC2403**[2]	**$333.00**
Analog I/O modules with standard housings									
	83 x 90	4 x 4…20 mA	–	100 (500)	S-7.3.E	2.1	no	**AC2516**	**$641.00**
	83 x 90	4 x 0...10 V	–	100 (500)	S-7.3.E	2.1	no	**AC2517**	**$641.00**
	83 x 90	–	4 x 0…20 mA	–	S-7.3.6	2.1	no	**AC2518**	**$641.00**
	83 x 90	–	4 x 0...10 V	–	S-7.3.6	2.1	no	**AC2519**	**$641.00**
Analog I/O modules for harsh environments									
	Ø137.3 x 80	4 x 4…20 mA	–	380 mA	S-7.3.E.	2.1	no	**AC2916**[1]	**$667.00**
	Ø137.3 x 80	4 x 4…20 mA	–	380 mA	S-7.3.E.	2.1	no	**AC2923**[2]	**$667.00**

1) for 2 and 3-wire sensors 2) for 2 and 4-wire sensors

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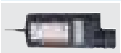
Pneumatic airboxes

- *Pneumatic airboxes feature digital inputs combined with pneumatic outputs*
- *Airboxes offer three directions of rotation for AS-i cable that provide flexible installation*
- *Simple mounting, no tools required*

Type	Dimensions (mm)	No. of Inputs	Output Supply Voltage	No. of Outputs	Max Input Current per Module (mA)	AS-i Profile	AS-i Version	Extended Addressing Mode	Part No.	List Price (1-pc.)
Digital inputs with two 3/2 way valves										
	85 x 108 x 50	4	24 VDC	2 single acting cylinders, monostable	200	S-7.A.E	2.1	yes	**AC5243**	**$343.00**
	85 x 108 x 50	4	AS-i	2 single acting cylinders, monostable	200	S-7.A.E	2.1	yes	**AC5228**	**$343.00**
Digital inputs with one 5/2 way valve										
	85 x 108 x 50	4	24 VDC	1 double acting cylinder, monostable	200	S-7.A.E	2.1	yes	**AC5249**	**$305.00**
	85 x 108 x 50	4	24 VDC	1 double acting cylinder, bistable	200	S-7.A.E	2.1	yes	**AC5253**	**$368.00**
	85 x 108 x 50	4	AS-i	1 double acting cylinder, monostable	200	S-7.A.E	2.1	yes	**AC5246**	**$305.00**
	85 x 108 x 50	4	AS-i	1 double acting cylinder, bistable	200	S-7.A.E	2.1	yes	**AC5251**	**$368.00**
Digital inputs with one 5/3 way valve										
	85 x 108 x 50	4	AS-i	1 double acting cylinder	200	S-7.A.E	2.1	yes	**AC5270**	**$390.00**
	85 x 108 x 50	4	24 VDC	1 double acting cylinder	200	S-7.A.E	2.1	yes	**AC5271**	**$390.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Addressing unit	**AC1154**	**$509.00**
	Cable for addressing unit	**E70213**	**$22.00**
	Protective cap – 10 pack	**L35001**	**$8.00**
	Silencer – 10 pack	**E75232**	**$55.00**
	Push-in T-fitting – 10 pack	**E75227**	**$60.00**
	Push-in L-fitting – 10 pack	**E75228**	**$53 .00**

Patchcords

Type	Design			Cable Length	Part No.	List Price (1-pc.)
	Male	Female	M12 straight male to M12 straight female	1 M	**EVC042**	**$19.00**
				2 M	**EVC043**	**$21.00**
				5 M	**EVC044**	**$22.00**
	Male	Female	M12 straight male to M12 90° female	1 M	**EVC047**	**$19.00**
				2 M	**EVC048**	**$21.00**
				5 M	**EVC049**	**$22.00**

PCB modules for pushbutton applications

- PCB module for control cabinets
- Easy connection with cables or screw terminals
- Up to 4 inputs and 4 outputs for pushbuttons and LEDs
- Short circuit and overload protected

Type	Dimensions (mm)	No. of Inputs	No. of Outputs	Connection	Supply Voltage (V DC)	Max Input Current per Module (mA)	AS-i Profile	AS-i Version	Extended Addressing Mode	Part No.	List Price (1-pc.)
	31 x 77 x 12	4	4	Wire	18…31.6	150	S-7.A.7	3.0	yes	**AC2750**	**$121.00**
	31 x 77 x 12	4	4	Screw terminals	18…31.6	150	S-7.A.7	3.0	yes	**AC2752**	**$121.00**
	105 x 45	4	3	Wire	26.5…31.6	120	S-7.A.E	3.0	yes	**AC2739**	**$179.00**
	32 x 44 x 9	2	1 LED	Cable	26.5…31.6	50	S-7.A.E	2.11	yes	**AC2729**	**$140.00**

Technical Specs

Output voltage (AS-i):	18…31.6 V DC
Current consumption:	< 180 mA
Current rating per module:	150 mA
Short circuit protection:	yes
Overload protection:	yes
Ambient temperature:	-25…55 °C
AS-i specification:	2.11 + 3.0
Extended addressing mode:	yes
Housing material:	potted PC

Cables

- *Flat cable provides 2-wire communication and power for AS-i network*
- *Flat cable easily connects I/O modules*

Type	Description	Environments	Part No.	List Price (1-pc.)
AS-i cable				
	AS-i flat cable, yellow, available in lengths of 100 m, EPDM	Industrial automation	**E74005**	**$229.00**
	AS-i flat cable, black available in lengths of 100 m, EPDM	Industrial automation	**E74015**	**$229.00**
	AS-i flat cable, yellow available in lengths of 100 m, TPE	Oils and coolants	**E74205**	**$438.00**
	AS-i flat cable, black available in lengths of 100 m, TPE	Oils and coolants	**E74215**	**$438.00**
	AS-i flat cable, grey available in lengths of 100 m, PVC	Wet and caustic	**U71002**	**$373.00**
	AS-i flat cable, black available in lengths of 100 m, TPE-PVC compound	Wet and caustic	**E74310**	**$603.00**
	AS-i flat cable, yellow available in lengths of 100 m, TPE-PVC compound	Wet and caustic	**E74300**	**$630.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Flat cable stripping tool	**E70062**	**$37.00**
	Cable clip for AS-i cable – 100 pack	**E70067**	**$95.00**
	Heat-shrink cap for sealing the flat cable ends – 10 pack	**E70113**	**$16.00**

Type	Description	Part No.	List Price (1-pc.)
	Flat cable seal – 10 pack	**E70413**	**$37.00**
	Cable gland 1/2" NPT	**E10101**	**$7.00**
	Cable grommet PG11 for AS-i flat cables – 10 pack	**AC3003**	**$21.00**

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

Adapters and accessories

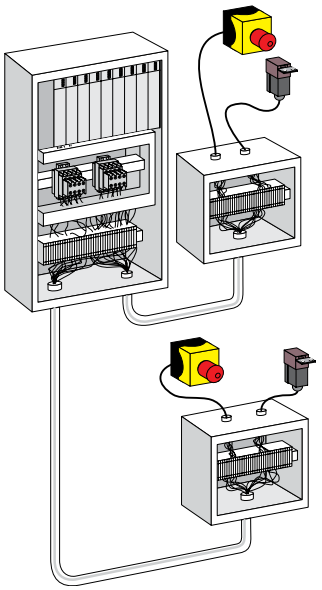
- *Splitter boxes split either AS-i or 24 VDC flat cable*
- *Insulation displacement connector distributes AS-i voltage and the external 24 V supply to an M12 socket*

	Type	Description	Part No.	List Price (1-pc.)
Flat cable splitters				
		Flat cable splitter, two channel, 8A current rating	**E70381**	**$23.00**
		Flat cable splitter, two channel, AS-i or auxiliary, 8 A current rating, 316 SS, EPDM O-ring	**E70377**	**$41.00**
		Flat cable splitter, four channels, AS-i or auxiliary, 8 A current rating	**E70600**	**$46.00**
Flat cable to M12 taps				
		Insulation displacement connector	**E70487**	**$29.00**
		Flat cable to 4-pin female M12 Micro DC connector, 1 m length	**E70481**	**$29.00**
		Flat cable to 4-pin female M12 Micro DC connector	**AC5005**	**$15.00**
		Flat cable, AS-i and auxiliary, to 4-pin female M12 Micro DC connector, 316 SS, EPDM O-ring	**E70354**	**$43.00**
		Flat cable to 4-pin female M12 Micro DC connector, 316 SS, EPDM O-ring	**E70454**	**$31.00**
		Distributes AS-i and external voltage via M12 connector	**E70588**	**$52.00**
		Flat cable to M12 connector, 303 SS	**E70271**	**$16.00**
		Transitions flat cable to round cable, 2 m length	**E70498**	**$18.00**

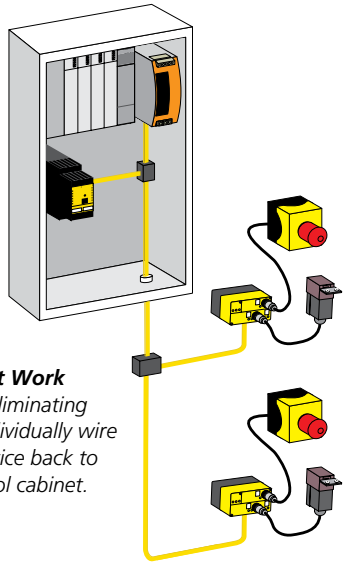
Simplify Your Safety Wiring

For networking safety components, point-to-point wiring is still the most common wiring method on industrial machines. This type of wiring results in large wire bundles running through the system. Due to the sheer volume of wires, installation time is considerable and troubleshooting is complex.

ifm's Safety at Work system is a simple solution for integrating all of your safety components with one two-wire cable. Its plug-and-play wiring supports all topologies and can be connected to most standard PLCs and higher level networks.



Conventional point-to-point wiring can be very time consuming and costly



ifm's Safety at Work *saves time by eliminating the need to individually wire each safety device back to the main control cabinet.*

Seamless Integration of Safety Components

ifm efector's Safety at Work system connects safety-related components directly to the AS-i network to provide seamless integration into standard PLCs and higher level industrial networks.

Mechanical safety components such as door switches, emergency stop buttons and safety input modules are connected with the AS-i two-wire cable that carries power and signal to each safety device. The system simplifies wiring by eliminating wire bundles that form when connecting numerous input/output devices.

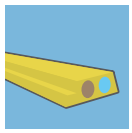
Plug-and-play wiring reduces installation time and eliminates junction boxes and additional input cards. The system provides fast and flexible expansion. Any modifications to the system, such as changing or adding e-stop buttons can be made quickly and easily. Safety zones can be configured and changed through a drag-and-drop configuration software.

The Safety at Work system provides status indication and diagnostic information for each safety device. The system offers increased diagnostic feedback for trouble-shooting and indicates where and when a fault occurs – without the need for additional wires for feedback.

Visit www.ifm.com/us to view all Safety at Work networking products.

	IO-Link	Position Sensors						Motion Control	Vision Sensors
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Search Bar



Saves wiring time
Safety at Work is plug-and-play. Connect an entire safety system with one cable that carries both data and power. This eliminates the need to individually wire each safety device back to the main control cabinet.

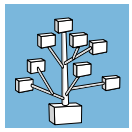
Simplifies design and build time
With less wires to handle, termination points are reduced. The system uses minimal cabinet space and machine drawings are less complex.

Saves time in disassembly and rebuild
Save installation and reduce rebuild-time by days. Equipment can be disassembled and rebuilt faster with Safety at Work's single-cable design.

Provides diagnostic feedback
The Safety at Work system provides increased diagnostic feedback for trouble-shooting. The system indicates where and when a fault occurs without any additional wiring.

Simple zone control
No more wiring changes! Safety zones can be configured easily and changed through a drag-and-drop configuration software.

Universal connectivity
The Safety at Work system can be used directly with most major PLCs including Allen Bradley and Siemens, as well as, DeviceNet, Profibus, and Ethernet bus systems. There are no requirements for special safety PLCs.



Flexible topology
The Safety at Work system can be configured in ring, star, and trunk and drop topologies. The system is also capable of handling multiple safety zones on one network.

Implements standard safety devices
The system is designed to use standard mechanical safety devices including door switches and e-stop buttons. There are no requirements to use system specific I/O devices.

Approved technology
Complies with the requirements:, Type 4 (IEC 61496-1), SIL 3 (IEC 61508), SILcl 3 (IEC 62061) and PL e (EN ISO 13849-1)

Internationally approved

An international consortium of automation suppliers designed Safety at Work to reduce the cost of connecting widely distributed safety I/O. The Safety at Work system is the first fully-approved industrial safety networking system. The system is rated by TUV for up to SIL 3 according to IEC 61508, IEC 62061, and PL e according to ISO 13849-1.

The Safety at Work system uses the internationally accepted AS-i protocol. With over 3 million nodes installed, AS-i has been a major success in automation since 1994.

Safety Technology | Process Sensors | Industrial Networks | ID Systems | Machine Condition | Power Supplies | Wiring Technology

Safety products | Pressure | Flow | Level | Temperature | AS-i network | Safety systems | RF identification systems | Diagnostic systems | Power supplies | Cordset solutions

144 - 155 | 156 - 175 | 176 - 191 | 192 - 207 | 208 - 225 | 226 - 239 | 240 - 251 | 252 - 253 | 254 - 259 | 260 - 263 | 264 - 277

Safety at Work system overview

Safety at Work utilizes the standard AS-i protocol. This provides the backbone for the system to transmit safety-related information. The basis is the transmission of dynamic code sequences (8x4-bit data sequence) which are stored in every safety module.

During installation and start-up, the safety monitor must learn these code sequences. While in operation the safety monitor constantly compares the target sequence with the current sequence of the
safety module. If the safety module provides a wrong code sequence (e.g. 4x0 bit), the safety monitor switches to the safe state.

- ✓ *Saves wiring time*
- ✓ *Simplifies design and build time*
- ✓ *Provides diagnostic feedback without additional wires*
- ✓ *Saves time in disassembly and rebuild*
- ✓ *Simple expandability*
- ✓ *Approved technology to IEC61508 and EN ISO13849*
- ✓ *Simple zone control up to 8 safety zones*

Controllers and Gateways

Various controller options are available to fit directly to a plc or connected to higher-level networks such as EtherNet IP, Profibus, etc. A stand-alone option is available that can act as a plc.

See page 229.

Power Supplies

Safety-at-Work power supplies provide power for network modules and input devices. Also, 24 VDC power supplies are used to provide power to output devices over the Safety-at-Work network.

See page 230.

Safety Relays

ifm safety relays, or monitors, evaluate the data exchange between the safety modules and the Safety-at-Work controls. If the data transmission is disrupted or a wire-break occurs, the safety relay will fail to safe.

See page 244.

		IO-Link	Position Sensors						Motion Control	Vision Sensors
	Company	*IO-Link*	*Inductive*	*Capacitive*	*Cylinder / valve position*	*Photoelectrics / lasers / fiber optics*	*Distance / Application specific*	*Ultrasonic*	*Encoders / Speed monitors*	*2D / 3D inspection*
Search Bar	*1 - 5*	*6 - 21*	*22 - 55*	*56 - 61*	*62 - 71*	*72 - 111*	*112 - 117*	*118 - 119*	*120 - 127*	*128 - 143*

All of the components needed to create a complete Safety at Work system are illustrated in this overview.

Because of its flexibility, a Safety at Work system has unlimited design capabilities.

Choose from a variety of controllers, I/O modules, power supplies and accessories depending on your current controls platform and application environment.

Safe input modules

I/O Modules are used to connect standard safety devices such as e-stops, door switches and light curtains to the Safety-at-Work System.

See page 246.

E-stop

Fully functional ifm e-stop buttons are designed to directly interface with the Safety at Work system.

Available with LED indication or key release.

See page 246.

Guard Locking Door Switches

AS-i door switches with guard locking have the function to keep moving-equipment safe as long as a dangerous state is present.

See page 248.

Wiring Solutions

Various AS-i splitters and branching modules can be used to provide maximum flexibility when designing and commissioning a project.

See page 238.

Accessories

A variety of accessories are available to help connect nodes and periphery devices to the Safety-at-Work system. In addition, products for extending the network, diagnosing faults and addressing modules are also available.

See page 239.

Top product features!

- 2 safe electronic outputs locally, 6 triggerable outputs in the field
- 4 safe inputs or 8 standard inputs/outputs locally
- Configurable with an easy to use drag-and-drop software
- Saving of data on chip card for an easy exchange of units
- Certification to EN 62061/ SIL3, IEC 61508 / SIL3 and EN ISO13849-1/PLe

Safety made simpler with ifm's basic safety monitor

ifm's safety relay (monitor) evaluates the data exchange between safety modules and the AS-i controls. If the data transmission is disrupted or a wire break occurs, the safety monitor will fail to safe.

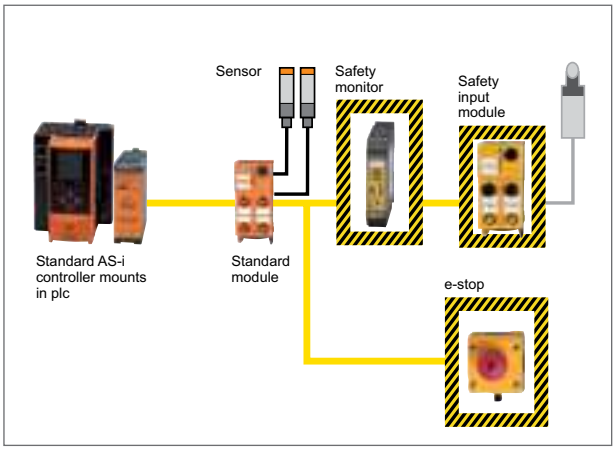
As a component of the AS-i Safety at Work system, the safety relay monitors the code sequences that are to be transmitted. In the case of message deviations or timeouts, the AS-i safety monitor ensures the safe state of the system. The new AS-i safety monitor processes up to four safe inputs or eight standard inputs / outputs locally and up to 31 safety modules / intelligent e-stops. One AS-i safety relay can replace many traditional safety relays.

The ASIMON configuration and diagnostic software provides clear and quick assignment of the safety-related components via a simple drag-and-drop interface.

Safety relay functions such as "e-stop", "stop categories 0 or 1", "two-hand operation", "enable switch" can be monitored via the software.

The safety monitor can be retrofitted on existing AS-i installations. Safe and non-safe I /O signals can be transmitted via the same system bus. All controllers, power supplies and bus components can still be used.

The Safety at Work system simplifies wiring by eliminating wire bundles that form when connecting numerous input / output devices. The system provides an ideal safety solution for industries such as conveying, special machines, material handling and the food industry.



System overview with safety-related components

IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

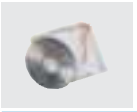
Search Bar

1 - 5 | 6 - 21 | 22 - 55 | 56 - 61 | 62 - 71 | 72 - 111 | 112 - 117 | 118 - 119 | 120 - 127 | 128 - 143

Product + accessory selector

Type	Dimensions	Description	Channels	Outputs	Part No.	List Price (1-pc.)
	99 x 22.5 x 114	AS-i safety monitor	2	semi-conductor	**AC041S**	**$844.00**

Accessories

Type	Description	Part No.	List Price
	Configuration software ASIMON V3 G2 for safety monitor	**E7050S**	**$177.00**
	USB interface cable for the connection of the safety monitor to PC	**E7051S**	**$45.00**
	Chip card to save the configuration data	**E7052S**	**$11.00**
	Safety relay expansion module, 2 independent channels, without delay, for AS-i safety monitor with semi-conductor outputs	**E7053S**	**$323.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Operating voltage:	24 V DC
AS-i interface:	1
Stop category to EN 60204-1:	0/1
Semi-conductor outputs:	2
Current rating per output:	0.7 A
Service button:	yes
AS-i profile:	S-7.5.5
Ambient temperature:	0…55 °C
Protection:	IP 20
Connection:	Combicon screw terminals

Simple and comprehensive website

Data sheets, application examples, software downloads, virtual product demos… just one click away.

Place orders, tech support
800-441-8246

Visit our product catalog
www.ifm.com/us

Shop for products online
Easy ordering via eShop

Top product features!

- *Easy connection of standard mechanical safety devices including door switches and E-stop buttons*
- *Non-safe relay outputs and LED output options available*
- *Rated up to category 4 according to EN954-1 and SiL 3 according to IEC61508*
- *2-wire flat cable carries power and signal to each safety device*
- *Up to 50% reduction of installation in the field*

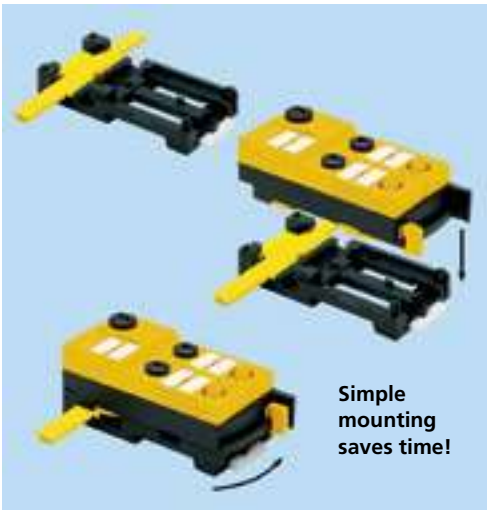
A variety of safety I/O modules to fit your fail-safe requirements

ifm offers a variety of input/output modules that receive safe and mechanical input signals. The AS-i safety controller communicates the input signals to intelligent safety devices, such as e-stops and door switches within the Safety at Work system.

Both field and cabinet modules are available. ifm safety field input modules do not require any tools. Connection is simple and is made via the AS-i system flat cable. Cabinet modules simply mount on din rail.

Safety pcb modules are available for pushbutton applications.

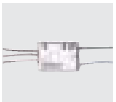
Modules are available with a standard output signal and can be used with your mechanical safety devices.



ifm's quick slide safety modules (Part No. AC505S) offer simple mounting. The module can accept the AS-i flat cable in three different directions to provide flexible cable routing.

		IO-Link	Position Sensors						Motion Control	Vision Sensors
	Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
Search Bar	1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

Type	Dimensions (mm)	Inputs	Non-Safe Outputs	Part No.	List Price (1-pc.)
Quick slide safety field input modules					
	103 x 45 x 45	2 safe mechanical inputs	–	**AC505S**	**$246.00**
	103 x 45 x 45	2 safe solid state inputs	2 non-safe outputs	**AC507S**	**$272.00**
	103 x 45 x 45	2 safe solid state inputs, aux	2 non-safe outputs	**AC508S**	**$272.00**
	103 x 45 x 45	2 x 2 safe solid state inputs	2 non-safe outputs	**AC509S**	**$265.00**
Cabinet mounted safety modules					
	108 x 25 x 105	2 safe mechanical inputs	2 non-safe relay outputs	**AC009S**	**$312.00**
Intelligent safety e-Stop modules					
	67 x 59 x 105	2 safe inputs	–	**AC010S**	**$348.00**
	67 x 59 x 105	2 safe inputs	–	**AC011S**	**$348.00**
Safety PCB modules					
	44 x 31 x 9	2 safe mechanical inputs	–	**E7015S**	**$175.00**
	44 x 32 x 21	2 safe mechanical inputs	–	**AC015S***	**$170.00**

*with contacter pins

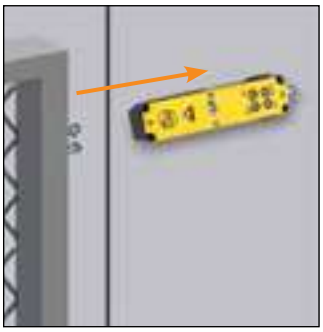
Top product features!

- *Up to 31 safety door switches can be connected per network*
- *Solenoid lock is rated for 2500 N force*
- *Large LEDs for easy status and fault indication*
- *Rotatable actuating head for different mounting positions*
- *Suited for applications up to PLd according to EN ISO 13849-1 standard*

Safety at Work intelligent door switches with guard locking

ifm's intelligent safety door switches are safety switches with an integrated solenoid lock which allow the user to implement interlocking devices according to EN 1088.

An integrated locking mechanism keeps protective doors securely locked while equipment is operating within an enclosed guarded area.



ifm safety door switches are typically mounted on the frame of the guard door. Generally the key is mounted on the moving door and the switch body is mounted to the framing so that when the door closes, the key is fully inserted into the switch.

The door switch is connected to an input module via the AS-i system cable. AS-i reduces wiring time and is the protocol for the Safety at Work system.

As AS-i safety input signals are received by the intelligent door switches, the solenoid monitoring contacts are detected. AS-i output signals trigger the guard locking solenoid and the green/red LEDs for feedback. Evaluation is made via an AS-i safety monitor.

	IO-Link	Position Sensors						Motion Control	Vision Sensors
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Search Bar

Product + accessory selector

Type	Description	Part No.	List Price (1-pc.)
	Power to unlock, solenoid supply ext. 24 V DC	**AC901S**	**$393.00**
	Power to lock, solenoid supply ext. 24 V DC	**AC902S**	**$393.00**
	Power to unlock, solenoid supply by AS-i	**AC903S**	**$393.00**
	Power to lock, solenoid supply by AS-i	**AC904S**	**$393.00**

Accessories

Type	Description	Part No.	List Price
	Safety slide bolt, metal	**E7901S**	**$247.00**
	Safety slide bolt, plastic	**E7902S**	**$157.00**
	Actuator, straight	**E7903S**	**$11.00**
	Actuator, angled	**E7904S**	**$11.00**

Type	Description	Part No.	List Price
	Hinged actuator, left/right	**E7905S**	**$13.00**
	Hinged actuator, top/bottom	**E7906S**	**$16.00**
	Distribution of the AS-i voltage / external 24V supply to M12 connector, 1M cable	**E70481**	**$29.00**
	Distribution of the AS-i voltage to M12 socket	**AC5005**	**$15.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs	AC901S / AC902S	AC903S / AC904S
Operating voltage:	22.5…31.6 V DC	22.5…31.6 V DC
Current consumption:	≤ 45	≤ 400
Auxiliary voltage guard locking solenoid:	24 V DC	AS-i
Locking force:	≤ 2500 N	
Life:	10^6 switching operations	
Safety related inputs:	2	
AS-i profile:	S-7.B.E.	
Ambient temperature:	-20…55 °C	
Protection:	IP 67	
Connection:	Via connector M12 x 1	

R&D that delivers solutions

ifm R&D engineers design products that reduce machine downtime, increase productivity and simplify installation.

Place orders, tech support
800-441-8246

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www.ifm.com/us

Shop for products online
Easy ordering via eShop

Top product features!

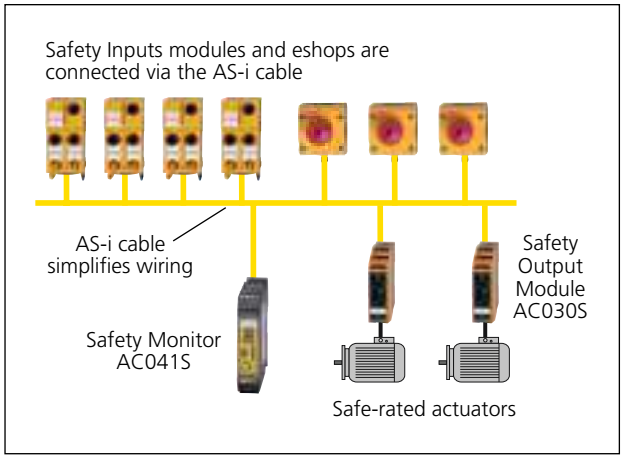
- *1 dependent safety relay output, double channel forced contacts*
- *4 standard inputs (e.g. for start, EDM, etc.)*
- *Control category 4 according to EN 954-1, IEC 61508 / SIL 3 and EN 13849 / PL e*
- *1 Local LED output (alarm) and 1 process output for optional start validation requests*
- *Create up to 6 independent safety zones*

ifm's safe output module for the control cabinet AC030S incorporates data technology that can provide a safe output signal to motor starters or valve assemblies.

The output module is controlled by safety relay monitor, AC041S, which can be configured by using its diagnostic software ASIMON V3.0.

In conjunction with safety relay monitor, AC041S, up to 6 additional independent safety zones can be established. Each safety output module AC030S provides a decentralized safety output in the field for control of the safe-rated actuators.

The Safety at Work system simplifies wiring by eliminating wire bundles that form when connecting numerous input / output devices. The system provides an ideal safety solution for industries such as automotive assembly, conveying, special machines, material handling and the food industry.



The new Safety at Work output module enables decentralized control of actuators. Each module is mounted in the control cabinet and is connected to an actuator via the AS-i cable. In the example above, the output module is controlled by the AC041S Safety Monitor, which can ensure a safe state of the actuators.

Search Bar

Company	IO-Link	Position Sensors						Motion Control	Vision Sensors	
	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

Product + accessory selector

Type	Dimensions	Description	Non-Safe Digital Inputs	Safety Outputs	Part No.	List Price (1-pc.)
Safety at Work output module						
	108 x 25 x 105 mm	Safe SmartLine output module	4	1 safety relay output	**AC030S**	**$558.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Operating voltage:	26.5…31.6 V DC
Total current consumption:	≤ 200 mA
Relay output positively driven:	1 pcs.
Max. current load of the output 2 safety-related NO contacts:	3 A
Non-safe inputs:	4
Slide switch R/P:	yes
AS-i profile:	S-7.A.E.
Operating temperature:	-25…55 °C
Protection:	IP 20
Connection via Combicon screw terminals:	yes

Reliable service center

The ifm service center team provides tech support, product quotes, delivery information and order placement.

Place orders, tech support
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Shop for products online
Easy ordering via eShop

Top product features!

- 4-port RFID controller configurable for read/write antennas or digital inputs and outputs
- Configuration through built in web page which includes read/write capability
- Standard non-shielded M12 cables between antenna and controller
- 13.56 MHz system uses standard ISO 15693 tags for global compatibility
- Integrated Ethernet switch can be used to daisy-chain devices

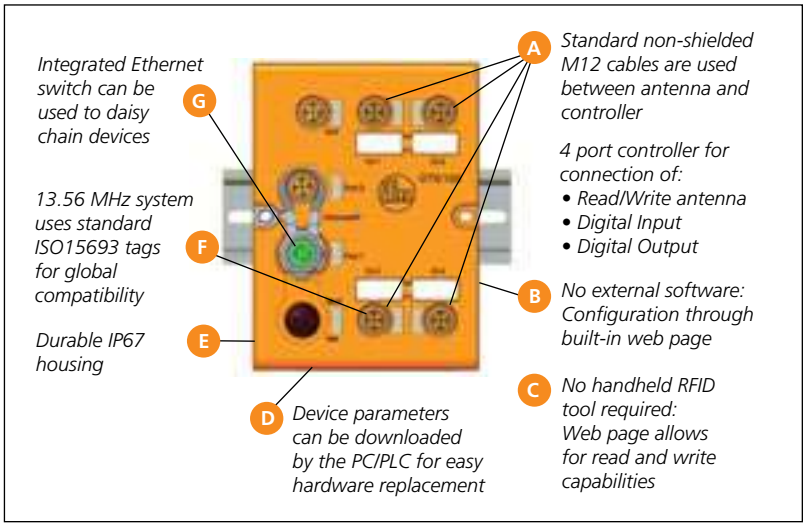
RFID high frequency system for tracking high speed processes

NEW! ifm's RFID DTE identification system is used to track, control and improve the quality of products throughout the automation process. ifm's DTE, RFID solution offers an easier and less expensive way to implement RFID. Widely used in conveying, mold / die management and pallet tracking, the DTE system is capable of reading and writing data at high speeds and can connect to all common plc's and industrial bus systems.

The robust DTE controller contains a built-in web-based tool for device setup, diagnosis and monitoring. Setting up the device can be done conveniently from the user's desk, without connection to a field bus system, for example, and thus allows the system to be tested prior to installation. No external software is necessary for configuring.

ifm's RFID antennas are tubular and rectangular shaped with M12 connection and can be used in applications where space is restricted. The read / write antennas are simply connected to the DTE controller with M12 patchcords. Because the devices use industry standard M12 connectors, no complicated wiring is necessary.

ID tags (transponders) are easy to mount to pallets or work-piece carriers. Information is quickly exchanged from the ID tag and the read / write antenna and transferred to the DTE controller providing an accurate real-time location, or any other parameters that have been set, of the pallet.



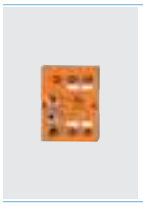
Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

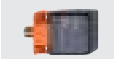
NEW

Product + accessory selector

1 Select controller

Type	Description	Interface	Design	Part No.	List Price (1-pc.)
	RFID controller	Profibus DP	for up to 4 read/write heads type ANT4xx / ANT5xx	**DTE100**	**$536.00**
	RFID controller	PROFINET	for up to 4 read/write heads type ANT4xx / ANT5xx	**DTE101**	**$591.00**
	RFID controller	EtherNet/IP	for up to 4 read/write heads type ANT4xx / ANT5xx	**DTE102**	**$591.00**
	RFID controller	Ethercat	for up to 4 read/write heads type ANT4xx / ANT5xx	**DTE103**	**$574.00**
	RFID controller	Ethernet TCP/IP	for up to 4 read/write heads type ANT4xx / ANT5xx	**DTE104**	**$588.00**

2 Select antenna(s)

Type	Sensing Range	Dimensions (mm)	Part No.	List Price (1-pc.)
	≤ 12 mm*	M12 / L = 70 flush mountable	**ANT410**	**$221.00**
	≤ 18 mm*	M12 / L = 70 nonflush mountable	**ANT411**	**$221.00**
	≤ 18 mm*	M12 / L = 70 nonflush mountable	**ANT420**	**$216.00**
	≤ 30 mm*	M30 / L = 50 flush mountable	**ANT421**	**$216.00**
	≤ 30 mm*	M30 / L = 50 flush mountable	**ANT430**	**$285.00**
	≤ 50 mm*	M30 / L = 50 nonflush mountable	**ANT431**	**$285.00**
	≤ 60 mm*	40 x 40 x 66 nonflush mountable	**ANT513**	**$229.00**
	≤ 50 mm*	M30 / L = 50 nonflush mountable	**ANT515**	**$210.00**
	≤ 60 mm*	40 x 40 x 66 nonflush mountable	**ANT516**	**$210.00**

**As tested with E80371*

3 Select patchcord for antenna connection

Type	Design	Cable Length	Part No.	List Price (1-pc.)
	M12 straight male to M12 straight female	2 M	**EVC013**	**$20.00**
		5 M	**EVC014**	**$21.00**

4 Select ID Tags

Type	Description	Temperature	Part No.	List Price
	896 bits, Ø 50 x 3 mm	-25…85 °C	**E80384**	**$12.00**
	16 Kbits, Ø 30 x 2.8 mm	-25…85 °C	**E80370**	**$22.00**
	896 bits, Ø 22 x 3 mm	-25…90 °C	**E80404**	**$54/10 pcs**
	16 Kbits, Ø 20 x 3 mm	-25…85 °C	**E80349**	**$70/5 pcs**
	1024 bits, Ø 9.5 x 1 mm	-25…85 °C	**UR0003**	**$11.00**

5 Select power cord

Type	Design	Cable Length	Part No.	List Price (1-pc.)
	M12 Micro DC male cordset	2 m	**EVC076**	**$17.00**
		5 m	**EVC077**	**$19.00**

6 Select communication cable

Type	Design	Cable Length	Part No.	List Price (1-pc.)
	M12 Ethernet cable D-coded / RJ45, cross-link	2 M	**E11898**	**$45.00**
	M12 Ethernet cable	2 M	**E21138**	**$88.00**
		5 M	**E21139**	**$95.00**
		10 M	**E21137**	**$117.00**
	RFID amplifier for ANT420 and ANT421		**E80390**	**$59.00**
	RFID amplifier for ANT515 and ANT516		**E80391**	**$59.00**

Top product features!

- *Easy-to-use sensors make vibration monitoring simple for prevention of machine downtime*
- *Monitoring in accordance with recognized industrial standard for machine protection (ISO 10816)*
- *VKV sensors combine both switching function and transmitter in one small package*
- *VTV transmitter is IP69K and made of 316L stainless steel for use in harsh environments*
- *VNB transmitters include display and provides trend history*

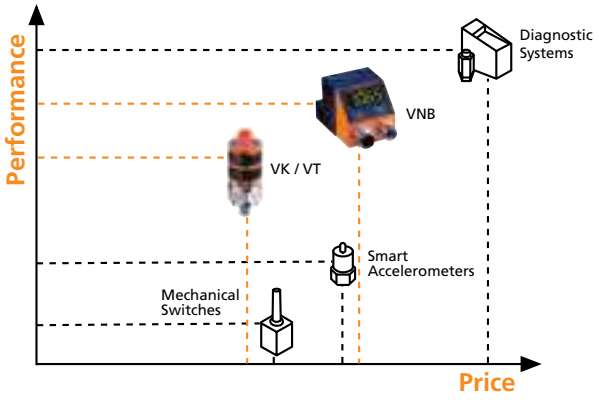
ifm's compact vibration sensors detect changing conditions of machinery for early warning of machine damage

In most industrial plants, every piece of equipment has its own vibration level that can change when it experiences unusual operating conditions. These changes can indicate potential machine damage or failure.

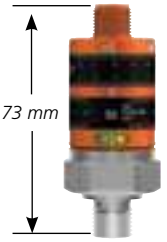
ifm's vibration sensors are designed to permanently mount on a machine to continuously monitor the machine's vibration level. By detecting vibration level changes when they first occur, these sensors can prevent equipment from catastrophically failing, reduce secondary damage and eliminate expensive downtime.

The VK, VT and VNB sensors monitor vibration levels on:

- Motors
- Pumps
- Compressors
- Fans
- Centrifuges
- Vibratory feeders



ifm's vibration sensors offer the advantages of high performance vibration monitoring devices for a fraction of the price.



VK vibration monitor

Transmitter with switching output

Setpoint via rotatable dials

Operating status LEDs

VT vibration monitor

Transmitter with time delay

Robust 316 stainless steel housing

Rated IP69K for harsh environments

NEW!

VNB vibration monitor with digital display

Display shows real-time vibration level and alarm status

Memory stores time-stamped trend history

Easy setup via two pushbuttons; free software available for VNB211

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
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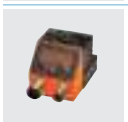
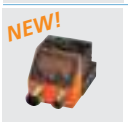
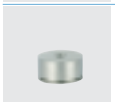
Product + accessory selector

	Output 1	Output 2	Input	Measuring Range	Frequency Range	Measuring Principle	Part No.	List Price (1-pc.)
	PNP, N.C.	4...20 mA fixed	–	0…25 mm/s	10…1000 Hz	Vibration velocity RMS	**VKV021**	**$252.00**
	PNP, N.C.	4...20 mA fixed	–	0…50 mm/s	10…1000 Hz	Vibration velocity RMS	**VKV022**	**$252.00**
	–	4...20 mA fixed	–	0…25 mm/s	10…1000 Hz	Vibration velocity RMS	**VTV122**	**$275.00**
	PNP, N.O. / N.C. or 4…20 mA scaleable	PNP, N.O. / N.C.	–	0…500 mm/s	2…1000 Hz	Vibration velocity peak or RMS (set via pushbuttons)	**VNB001**	**$497.00**
	PNP, N.O. / N.C. or 4…20 mA scaleable	PNP, N.O. / N.C.	0/4...20mA	0…25 g	2…6000 Hz	Vibration velocity / acceleration peak or RMS (set via pushbuttons or free software)	**VNB211**	**$536.00**

NEW!

Optional Accessories for VK and VT Sensors

Type	Description	Part No.	List Price (1-pc.)
	VK protective cover, transparent plastic	**E30094**	**$9.00**
	Magnetic mounting base for temporary mounting, flat surface	**UW0004**	**$58.00**
	Magnetic mounting base for temporary mounting, curved surface	**F90043**	**$112.00**
	Glue-on base for permanent mounting	**F90042**	**$20.00**
	Adhesive for F90042	**F90037**	**$45.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**
	USB/M8 cable and history software for VNB	**E30136**	**$42.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

	VKVxxx	VTV122	VNB001	VNB211
Mounting threads:	M8 x 1.25	M8 x 1.25 / UNF 1/4-28	M8 x 1	M5 / M8
Supply voltage:	18…32 VDC	9.6…32 VDC	9.6…30 VDC	9.6...30 VDC
Maximum load current:	500 mA	–	100 mA	100 mA
Current consumption:	<50 mA	–	< 200 mA	<70 mA
Ambient temperature:	-13…176 °F (-25...80 °C)	-22…221 °F (-30…105 °C)	-22…140 °F (-30…60 °C)	-22…140 °F (-30…60 °C)
Accuracy:	<± 3% of full range	± 3 % of full range	± 3% of measured value	± 3% of measured value
Shock resistance:	400 g	400 g	100 g	50 g
Housing material:	Pocan; Makrolon; Viton; 316L stainless steel	316L stainless steel	Die-cast zinc, nickel plated	Die-cast zinc, nickel plated
Protection rating:	IP67	IP69K	IP67	IP67

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Industrial Networks: AS-i network 226 - 239; Safety systems 240 - 251
ID Systems: RF identification systems 252 - 253
Machine Condition: Diagnostic systems 254 - 259
Power Supplies: Power supplies 260 - 263
Wiring Technology: Cordset solutions 264 - 277

Top product features!

- Cost-effective real-time vibration monitoring system
- Direct Ethernet connectivity for remote monitoring of machine condition
- Digital and analog alarm outputs
- Time stamped internal memory for trend history
- Easy to use configuration and analysis software

Real-time vibration monitoring

By continuously monitoring a machine's condition, unforeseen problems can be identified and addressed. Vibration analysis protects machine components, tools and workpieces during machining against costly consequential damage and avoids scrap.

ifm's multiplex vibration monitor provides specific vibration analysis on components inside a machine such as rolling element bearings, rotational unbalances, and gear drives.

The system consists of a cabinet-mount diagnostic module, model VSE, and multiple compact accelerometers that are mounted permanently on the equipment.

The condition of the equipment is continually monitored and evaluated for any changes in the operating parameters. Time and frequency domain data is locally processed for triggering of the integrated programmable analog and digital outputs, or for transmission to SCADA systems via the integrated Ethernet communication port.

Programming of the monitor is straightforward with the user-friendly configuration software.

Analysis tools included in the programming software give you the ability to remotely evaluate machine conditions. For example: the green / yellow / red damage level screen allows for a quick check on monitored components condition.

Pumps, blowers, ventilators, and cooling towers are monitored for unbalance, bearing damage, and general vibration levels using the VSE Multiplex system.

Accelerometers type VSA are connected to VSE units to monitor critical components of the process (pumps, motors, agitators).

	IO-Link	Position Sensors						Motion Control	Vision Sensors
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
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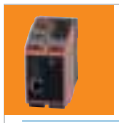


Product + accessory selector

efector Octavis Diagnostic Monitors

Type	Accelerometer Channels	Frequency Range [hz]	Spectral Resolution [hz]	Diagnostic Method	Comm. Port	Switching Inputs/Outputs	Part No.	List Price (1-pc.)
	4 channels configurable IEPE/MEMS	0…10,000 Hz	Variable	FFT, envelope curve FFT, trend analysis	Ethernet	2 inputs 2 outputs	**VSE002**	**$705.00**
	4 channels configurable IEPE/MEMS	0…10,000 Hz	Variable	FFT, envelope curve FFT, trend analysis	Ethernet	2 inputs 2 outputs 8 configurable I/O	**VSE100**	**$907.00**

Accelerometers

Type	Frequency Range [Hz]	Mounting Thread	Operating Temperature	Part No.	List Price (1-pc.)
	0…6,000	M8	-22…257 °F (-30…125 °C)	**VSA001**	**$161.00**
	0…10,000	M16	-22…185 °F (-30…85 °C)	**VSA002**	**$241.00**
	0…10,000	M5	-4…176 °F (-20…80 °C)	**VSA004**	**$241.00**
	0…10,000	M5	-4…176 °F (-20…80 °C)	**VSA005**	**$255.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Ethernet crossover cable for VSE / VSA	**EC2080**	**$19.00**
	Configuration analysis software	**VES004**	**Downloadable***
	efector octavis OPC server software for 25…1000 connections	**VOS001**	**$505.00**

* Visit www.ifm.com/us for downloadable software

Technical Specs Diagnostic Monitors

Supply voltage:	24 V DC
Ambient temperature:	32…158 °F (0…70 °C)
Data interface:	Ethernet TCP/IP, (10 / 100 MBits)
History function:	integrated
Counter function:	integrated
Protection rating:	IP20
Inputs:	4 vibration inputs IEPE or VSA type 2 analog inputs for speed
Outputs: analog	2x PNP switching for alarms or 1x PNP switching and scaleable
Additional I/O VSE100:	8 configurable digital I/O

Technical Specs Accelerometers

Housing material:	316L stainless steel
Measuring range:	±25 g
Resolution:	1.0 mg
Protection rating:	IP67
Protection rating:	IP67; VSA001: IP69K

Top product features!

- *In-line flow meter monitors compressed air systems and specialty gases (Ar, CO_2, N_2)*
- *Monitors air and gas consumption to identify leakage areas and improve energy efficiencies*
- *Optimizes air and gas usage and improves system performance*
- *Totalizer function monitors overall compressed air and gas usage in a plant*
- *Units mounted on integrated pipes ensure easy installation*

efector metris compressed air and specialty gas meter

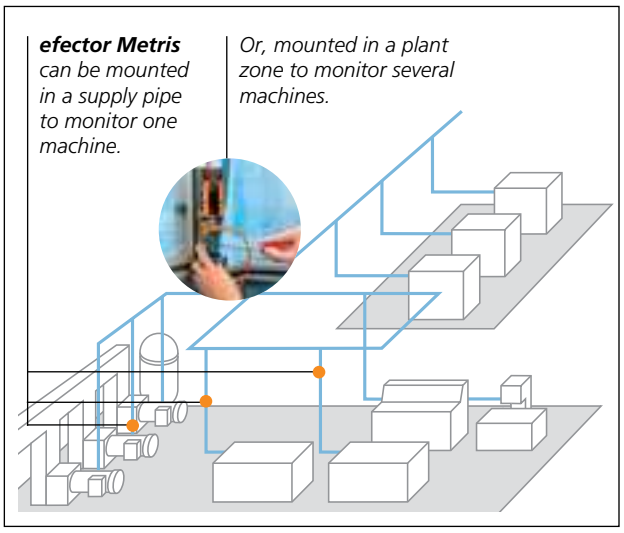
efector Metris monitors compressed air and specialty gases such as argon (Ar), carbon dioxide (CO_2), and nitrogen (N_2) to detect leakage areas and improve energy efficiencies. Compressed gases are considered one of the most expensive sources of energy consumption in a plant. By identifying leakage areas, efector Metris can optimize compressed gas usage, improve system performance, and reduce energy costs.

The compact sensor is fitted with an integrated pipe to ensure easy mounting and proper installation depth. The sensor's 4-digit numeric display provides air and gas consumption readings and features microprocessor-based pushbutton setup. Three display options are available: standard cubic feet per minute, standard cubic feet per hour, and total consumed standard cubic feet. The 24 VDC unit provides switching, analog and pulse output options.

Operating principle

efector Metris incorporates two ceramic sensing elements that each contain a thermistor.

As one sensor element is heated, the second element is used as a reference. Power is then altered to the heater to ensure a constant temperature difference (CTD) between the two elements.



With its integrated pipe length, efector Metris ensures easy installation and proper mounting configuration.

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
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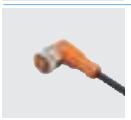
Product + accessory selector

Output	Accuracy	Process Connection	Operating Range [scfm]	Operating Range [scfh]	Volumetric Flow Quantity Monitoring [scf]	Part No.	List Price (1-pc.)
efector Metris for compressed air							
2 x PNP or PNP and 4-20mA or PNP and pulse output	± (3% measured value + 0.3% of full range)	1/2" NPT	0...44	0...2650	0.04…4,000,000	**SD6001**	**$788.00**
		1" NPT	0...132	0...7945	0.04…4,000,000	**SD8001**	**$822.00**
		2" NPT	0...412	0...24,720	0.04…4,000,000	**SD2001**	**$1,094.00**

Output	Accuracy	Process Connection	Operating Range [Ar]	Operating Range [CO_2]	Operating Range [N_2]	Display Units Available	Part No.	List Price (1-pc.)
efector Metris for specialty gases (Ar, CO_2, N_2)								
2 x PNP or PNP and 4-20mA or PNP and pulse output	± (6% measured value + 0.6% of full range)	1/2" NPT	0…69.5 scfm	0…42.2 scfm	0…43 scfm	scfm, scfh, scf	**SD6101**	**$860.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$19.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$11.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$19.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Supply voltage:	19...30 VDC
Maximum load current:	2 x 250 mA
Maximum relative air humidity:	90%
Pressure rating:	230 psi (16 bar)
Medium temperature range:	32…140 °F (0…60 °C)
Wetted parts:	304 stainless steel, ceramics, passivated glass, PEEK, polyester, Viton, anodized aluminum
Protection:	IP65

R&D that delivers solutions

ifm R&D engineers design products that reduce machine downtime, increase productivity and simplify installation.

Place orders, tech support
800-441-8246

Visit our product catalog
www.ifm.com/us

Shop for products online
Easy ordering via eShop

Top product features!

- Wide input range, single phase 100…240 V AC ±10 %
- Robust metal housing or compact plastic housings occupy minimal control cabinet space
- Extra power due to “power boost” design
- Energy-saving efficiencies up to 94% generate less heat and eliminate the need for external cooling
- Short-circuit and overload protection

Low power loss ensures uptime

NEW! ifm’s power supplies are designed to provide the voltage supply for sensors, actuators, controllers, and other electronic loads. These new power supplies are compact and lightweight, generating less heat and occupying minimal space in control cabinets. Models operate from a wide input voltage range with short circuit and overload protection, including “no-hiccup” short circuit operation.

ifm’s switched-mode power supplies have a typical regulated output voltage of 24 VDC. Between no-load and full-load, they ensure stable supply voltage and operational reliability in case of supply voltage fluctuations. Line voltage fluctuations up to +/- 15% as well as line interference can be compensated for and not passed on to the load. They have a high peak current capacity for inductive load switching and do not shut down or fold-back due to the high inrush currents required.

Each power supply undergoes a comprehensive test procedure including high frequency and high current load switching. To further insure reliability, all power supplies are fully burned in at elevated temperatures.

With its “power boost” design, ifm’s power supplies provide up to 50% extra power above the rated load for up to 5 seconds. This additional power allows for difficult loads to start, such as motors.

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
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Product + accessory selector

Dimensions (mm)	Current (A)	Output Voltage (V)	Input Voltage Range (V)	Efficiency (%)	Part No.	List Price (1-pc.)
Power supply • 1-phase (24 V DC)						
45 x 90 x 100	1.25	24...28 DC	100...240 AC	84.0	**DN1030**	**$141.00**
45 x 90 x 100	2.5	24...28 DC	100...240 AC	88.0	**DN1031**	**$152.00**
40 x 130 x 127	3.3	24…28 DC	100...240 AC	89.8	**DN4011**	**$157.00**
40 x 130 x 127	5.0	24…28 DC	100...240 AC	90.2	**DN4012**	**$208.00**
62 x 130 x 127	10.0	24...28 DC	100...240 AC	91.6	**DN4013**	**$271.00**
65 x 130 x 137	20.0	24...28 DC	100...240 AC	94	**DN4014**	**$315.00**
NEW! 125 x 130 x 133	40.0	24…28 DC	100…240 AC	93.6	**E84016**	**$568.00**
Power supply • 3-phase (24 V DC)						
62 x 130 x 127	10.0	24…28 DC	3 x 380…480 AC	92.8	**DN4033**	**$313.00**
65 x 130 x 137	20.0	24...28 DC	3 x 380…480 AC	94	**DN4034**	**$418.00**
NEW! 110 x 130 x 131	40.0	24...28 DC	3 x 380…480 AC	95.2	**E84036**	**$504.00**

Technology Comparison

Features	Low cost Brand A	Good performance Brand B	ifm's DN4012	Why is this important?
Power Supply Efficiency	86%	90%	90%	**Efficiency reduces cabinet space**: A more efficient power supply generates less heat in a cabinet. This allows a smaller enclosure to be designed, which reduces machine size and saves in build costs. ifm's new power supplies are designed to generate less heat and can be mounted in smaller cabinets.
Inrush Current	24 A	15 A	3 A	**Limiting inrush current reduces cost**: ifm's microprocessor-controlled inrush current limiter ensures minimum inrush current. This allows the option to use smaller circuit breakers and thinner gauge wires, which reduces the overall cost of the system.
Housing Size	63.5 x 142 x 116 mm	40 x 130 x 125 mm	40 x 124 x 127 mm	**Compact housing size reduces cabinet space**: Cabinet space is a valuable commodity. ifm's new slim-line power supplies occupy less space. Therefore, smaller enclosures may be designed resulting in considerable cost savings.
Mean Time Before Failure	450,000 hrs.	635,000 hrs.	869,000 hrs.	**High MTBF increases reliability**: Mean Time Between Failure (MTBF) values indicate the quality and reliability of the unit. ifm power supply's high quality components ensure long life in application.
AC Buffer Times	None	None	80 ms	**AC buffering increases reliability**: AC lines can be affected by EMC and other factors leading to an unstable AC input voltage and can cause a disruption on the 24 VDC side. Longer buffer times allow for brief disturbances on the AC input line without affecting the 24 VDC output power. ifm's power supplies are designed with AC buffering capability.
Power Reserve	None	20%	20%	**Additional power reserve increases reliability**: The ability to provide a continuous current beyond standard specifications allows difficult loads, such as motors, to start. ifm's power supplies provide 20% extra current to ensure uninterrupted operation.

Top product features!

- *Provides regulated 24 VDC power for 2 or 3-wire position sensors*
- *Suitable for PNP or NPN switching sensors*
- *Extra-slim housing with wide input operating voltage range*
- *Single and dual channel versions*
- *High sensor supply current: 24 VDC / 300 mA*

AC to DC Converters

Switching amplifiers are used for powering DC sensors in AC voltage environments and for switching higher current loads or AC voltage.

The new switching amplifiers by ifm have a compact housing and mount on standard 35 mm DIN rail. Both one and two-channel models are available. Their wide input voltage range allows them to be powered with both 120 V AC and 220 V AC power sources. Additional features include plug-in terminals for simple installation and selectable PNP or NPN sensor inputs.

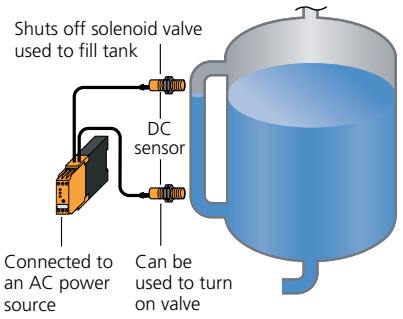
One-channel switching amplifiers are suitable for a sensor with one output, the dual channel types are suitable for a sensor with two outputs or two sensors with one output each. Current consumption must be taken into account.

Single channel - Part No. DN0210

Provides regulated 24 VDC power for 2- or 3-wire proximity sensors and converts the sensor signal to a relay output capable of switching up to 1250 VA. The unit can be used with either a positive-switching or negative-switching proximity switch and an LED indicates the status of the output relay.

Dual channel - Part No. DN0220

Two integrated 3A relays enable higher current loads such as solenoids to be switched by the sensors. This dual channel AC to DC converter provides regulated 24 VDC power to 2- or 3-wire position sensors. Suitable for PNP or NPN switching sensors, the DN0220 operates on a wide input voltage range and has a high sensor supply current. The compact, corrosion-resistant housing occupies minimal control cabinet space.



Dual channel converter can be used with two sensors with one output each.

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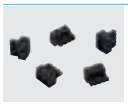
2D / 3D inspection 128 - 143

Product + accessory selector

Dimensions (mm)	Type	Output Voltage (V)	Nominal Input Voltage (V)	Frequency (Hz)	Part No.	List Price (1-pc.)
109 x 25 x 113	Single channel	24 DC / 300 mA	110...240 AC	50…60	**DN0210**	**$182.00**
109 x 25 x 113	Dual channel	24 DC / 2 x 150 mA	110...240 AC	50…60	**DN0220**	**$249.00**

Accessories

Type	Description	Part No.	Unit Price (1-pc.)
	Connector, 4 pins with screw terminals, pack of 5 (supplied)	**E40173**	**$23.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Contact rating;	4 A (240 V AC, 24 V DC); resistive load
Auxiliary energy for sensors:	24 DC SELV, ± 10 % 300 mA short circuit and overload protected
Protection housing / terminals:	IP20
Ambient temperature:	-4…140 °F (-20…60° C)
Display DN0210:	Power supply 1 x green LED Output 1 x yellow LED (lights if output relay is energized) Fault 1 x red LED
Display DN0220:	Power supply 1 x green LED Output 2 x yellow LED (lights if output relay is energized) Fault 1 x red LED
Potentiometer:	Selection PNP / NPN
Housing material:	Plastic PC GF20
Mounting:	Rail TH35 (according to EN 60715)
Connection:	Unit: 4-pin terminal blocks with 5.0 mm pitch Connector: 4-pin with screw connection

Simple and comprehensive website

Data sheets, application examples, software downloads, virtual product demos… just one click away.

Place orders, tech support
800-441-8246

Visit our product catalog
www.ifm.com/us

Shop for products online
Easy ordering via eShop

Top product features!

- *ifm's ecolink cordsets feature "Lock-in-Place" coupling nut that resists high levels of shock and vibration*
- *Cordsets offer high-flex PUR jacketed cable rated for over 5 million flex cycles*
- *A special insert design includes a mechanical end stop that prevents damage to viton o-ring from over tightening*
- *Right angle black housings feature highly-visible status indication LEDs that can be seen from farther distances*

ecolink M8 DC Pico cordsets

ifm's rugged ecolink cordsets are designed and tested to withstand the harsh conditions in industrial automation applications. The product line meets cULus approval, RoHS standards and is silicon and halogen free. The high-flex PUR jacketed cable is rated to over 5 million flex cycles. ecolink's connection technology meets the M8 standard EN 61076.

Problem
Traditional cordsets with transparent housings are hard to see.

Solution
ifm cordsets have high visibility LEDs with good contrast.

"Lock-in-Place" coupling nut secures the cordset to a quick disconnect sensor and resists high levels of shock and vibration.

316 stainless steel sleeve with sawtooth contour maintains optimum sealing and prevents the cordset from detaching.

High flex, halogen-free PUR-jacketed cable rated for over 5 million cycles.

Special insert design acts as a mechanical end stop preventing possible damage to Viton o-ring from over tightening.

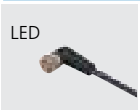
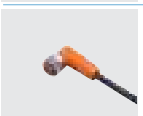
IO-Link | Position Sensors | Motion Control | Vision Sensors

Company | IO-Link | Inductive | Capacitive | Cylinder / valve position | Photoelectrics / lasers / fiber optics | Distance / Application specific | Ultrasonic | Encoders / Speed monitors | 2D / 3D inspection

Search Bar

1 - 5 | 6 - 21 | 22 - 55 | 56 - 61 | 62 - 71 | 72 - 111 | 112 - 117 | 118 - 119 | 120 - 127 | 128 - 143

Product + accessory selector

Type	Face View		Maximum Supply Voltage	Protection Rating / Temperature Rating Approval	Cable Length	Part No.	List price USD
Pico M8 DC cordsets • 3-pin • PUR jacket							
	Female	Pin 1 brown Pin 3 blue Pin 4 black	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25…90 °C	2 m	**EVC141**	**$14.00**
					5 m	**EVC142**	**$17.00**
					10 m	**EVC143**	**$24.00**
	Female	Pin 1 brown Pin 3 blue Pin 4 black	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25…90 °C	2 m	**EVC144**	**$12.00**
					5 m	**EVC145**	**$17.00**
					10 m	**EVC146**	**$24.00**
LED 	Female	Pin 1 brown Pin 3 blue Pin 4 black	10…36 VDC	IP67 / IP68 / IP69K -25…90 °C	2 m, 2 LED	**EVC147**	**$18.00**
					5 m, 2 LED	**EVC148**	**$22.00**
					10 m, 2 LED	**EVC149**	**$27.00**
Pico M8 DC cordsets • 4-pin • PUR jacket							
	Female	Pin 1 brown Pin 2 white Pin 3 blue Pin 4 black	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25…90 °C	2 m	**EVC150**	**$15.00**
					5 m	**EVC151**	**$18.00**
					10 m	**EVC152**	**$25.00**
	Female	Pin 1 brown Pin 2 white Pin 3 blue Pin 4 black	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25…90 °C	2 m	**EVC153**	**$15.00**
					5 m	**EVC154**	**$18.00**
					10 m	**EVC155**	**$25.00**
Field wirable connectors • 3-pin • IDC termination							
	Male		–	IP68 -25…90 °C	3.0…5.0 mm range	**E11550**	**$15.00**
	Female		–	IP68 -25…90 °C	3.0…5.0 mm range	**E11552**	**$15.00**
Field wirable connectors • 4-pin • IDC termination							
	Male		–	IP68 -25…90 °C	3.0…5.0 mm range	**E11551**	**$16.00**
	Female		–	IP68 -25…90 °C	3.0…5.0 mm range	**E11553**	**$16.00**

Technical Specs

Current rating:	3 A	Contacts:	Gold-plated
Tightening torque coupling nut:	0.3...0.5 Nm	Sealing ring:	Viton™
Cable characteristics:	5 million flex cycles	Cable:	PUR, halogen-free, 22 AWG
Housing / molded body:	TPU	Approvals	cULus
Coupling nut:	Nickel plated brass		

Top product features!

- Redesigned 3-pin wiring block can be used as input and / or output device
- Reduces installation time and simplifies wiring
- Power and signal LED displays for quick and accurate troubleshooting
- Additional O-ring seal between M12 connector and housing
- Smaller housing for applications with limited mounting space

M8 wiring block systems offer quick installation and eliminate junction boxes and terminal strips

NEW! Eliminate junction boxes and terminal strips and make your wiring plug-and-play. ifm's **ecolink** wiring block systems ensure quick connection in industrial automation applications. Available in 4-port and 8-port configurations.

ifm's newly redesigned wiring blocks offer a higher protection rating (IP68) due to an additional O-ring seal between the M12 connector and housing. The block is manufactured with a smaller, more robust housing for low-profile mounting in applications with tight mounting space. The blocks meet the requirements of Class II protection insulation.

ifm's wiring block systems are vibration and shock resistant. Status indication LEDs indicate power and output at each port location. Dust caps and labels are provided with each port.

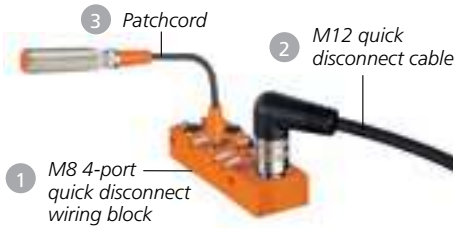
ecolink M8 patchcords ensure reliable connection

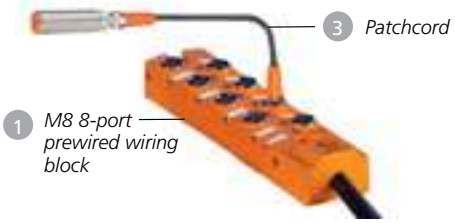
In addition to ecolink cordsets, ifm manufactures patchcords with the same reliable features such as "lock-in-place" coupling nuts, mechanical end stops that protect O-rings and stainless steel sleeves that maintain optimum sealing.

Cable lengths range from 0.3 meters to 5 meters. Patchcord options include:

- straight / straight design
- straight / right angle design
- straight / right angle with status LED

Wiring block systems:
- **4-port quick disconnect**
- **4-port prewired**
- **8-port prewired**





Technical Specs

Operating voltage:	10…30 VDC, PNP
Housing material:	PBT
Contacts:	Gold plated
Receptacle housing:	Nickel-plated brass
Temperature range:	-25…90 °C
LEDs:	Power, green; output, yellow
Cable:	PUR
Protection rating:	IP68

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
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Product + accessory selector

Type	Design	Contact Pins	Operating Temperature	Function Display Power / Switching Status	Cable Length	Part No.	List price USD
M8 Pico wiring block • PNP • Quick disconnect							
1	Female ports 4-port block for 3-wire sensors	3	-25…80 °C	green / 4 x yellow	–	**EBC050**	**$59.00**
2	Female M12 right angle connector	8	-25…80 °C	–	5 m	**E11232**	**$36.00**
					10 m	**E12260**	**$75.00**
M8 Pico wiring block • PNP • 3-Pin • prewired							
1	Female ports 8-port block for 3-wire sensors	3	-25…80 °C	green / 8 x yellow	5 m	**EBC054**	**$110.00**
					10 m	**EBC055**	**$120.00**
1	Female ports 4-port block for 3-wire sensors	3	-25…80 °C	green / 4 x yellow	5 m	**EBC048**	**$76.00**
					10 m	**EBC049**	**$91.00**
	M8 dust caps - pack of 10	–	–	–	–	**E73005**	**$8.00**

Contact ifm for NPN versions.

Type	Face View	Maximum Supply Voltage	Protection Rating / Temperature Rating Approval	Cable Length	Part No.	List price USD
3 **Pico patchcords • 3-pin • PUR jacket**						
	Male Female M8 straight male to M8 straight female	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25…90 °C	0.6 m	**EVC266**	**$22.00**
				1 m	**EVC267**	**$23.00**
				2 m	**EVC268**	**$25.00**
				5 m	**EVC269**	**$28.00**
	Male Female M8 straight male to M8 right angle female	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25…90 °C	0.6 m	**EVC276**	**$22.00**
				1 m	**EVC277**	**$23.00**
				2 m	**EVC278**	**$25.00**
				5 m	**EVC279**	**$28.00**
3 **Pico M8 / Micro M12 patchcords • 3-pin • PUR jacket**						
	Male Female M8 straight male to M12 straight female	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25…90 °C	0.6 m	**EVC256**	**$18.00**
				1 m	**EVC257**	**$19.00**
				2 m	**EVC258**	**$22.00**
				5 m	**EVC259**	**$26.00**
	Male Female M8 straight male to M12 right angle female	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25…90 °C	0.6 m	**EVC246**	**$19.00**
				1 m	**EVC247**	**$20.00**
				2 m	**EVC248**	**$22.00**
				5 m	**EVC249**	**$26.00**

Other patchcord variations are available, contact ifm 800-441-8246.

Top product features!

- *New 4-pin wiring block with improved design can be used as input and / or output device*
- *Quick installation and simplified wiring*
- *Power and output LED indication for fast troubleshooting*
- *Increased IP68 protection rating due to additional O-ring seal between M12 connector and housing*
- *Smaller, more robust housing offers low-profile mounting*

M8 wiring block systems offer quick installation and robust housings

NEW! Eliminate junction boxes and terminal strips and make your wiring plug-and-play. ifm's **ecolink** wiring block systems ensure quick connection in industrial automation applications. Available in 4-port and 8-port configurations.

ifm's newly redesigned wiring blocks offer a higher protection rating (IP68) due to an additional O-ring seal between the M12 connector and housing. The block is manufactured with a smaller, more robust housing for low-profile mounting in applications with tight mounting space. The blocks meet the requirements of Class II protection insulation.

ifm's wiring block systems are vibration and shock resistant. Status indication LEDs indicate power and output at each port location. Dust caps and labels are provided with each port.

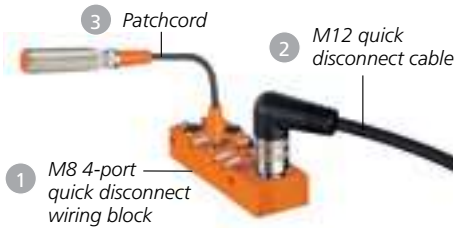
ecolink M8 patchcords ensure reliable connection

In addition to ecolink cordsets, ifm manufactures patchcords with the same reliable features such as "lock-in-place" coupling nuts, mechanical end stops that protect O-rings and stainless steel sleeves that maintain optimum sealing.

Cable lengths range from 0.3 meters to 5 meters. Patchcord options include:

- straight / straight design
- straight / right angle design
- straight / right angle with status LED

Wiring block systems:
- **4-port quick disconnect**
- **4-port prewired**
- **8-port prewired**



Technical Specs

Operating voltage:	10…30 VDC, PNP
Housing material:	PBT
Contacts:	Gold plated
Receptacle housing:	Nickel-plated brass
Temperature range:	-25…90 °C
LEDs:	Power, green; output, yellow
Cable:	PUR
Protection rating:	IP68

Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

Type	Design	Contact Pins	Operating Temperature	Function Display Power / Switching Status	Cable Length	Part No.	List price USD
M8 Pico wiring block • PNP • Quick disconnect							
1	Female ports 4-port block for 4-wire sensors	4	-25…80 °C	green / 4 x yellow	–	**EBC053**	**$96.00**
2	Female M16 right angle connector	14	-25…90 °C	–	5 m	**E11697**	**$82.00**
					10 m	**E11227**	**$126.00**
M8 Pico wiring block • PNP • 4-Pin • prewired							
1	Female ports 4-port block for 4-wire sensors	4	-25…80 °C	green / 4 x yellow	5 m	**EBC051**	**$86.00**
					10 m	**EBC052**	**$115.00**
1	Female ports 8-port block for 4-wire sensors	4	-25…80 °C	green / 8 x yellow	5 m	**EBC056**	**$141.00**
					10 m	**EBC057**	**$164.00**
	M8 dust caps - pack of 10	–	–	–	–	**E73005**	**$8.00**

Contact ifm for NPN versions.

Type	Face View	Maximum Supply Voltage	Protection Rating / Temperature Rating Approval	Cable Length	Part No.	List price USD
3 **Pico patchcords • 4-pin • PUR jacket**						
	Male Female M8 straight male to M8 straight female	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25…90 °C	0.6 m	**EVC311**	**$24.00**
				1 m	**EVC312**	**$25.00**
				2 m	**EVC313**	**$27.00**
				5 m	**EVC314**	**$30.00**
	Male Female M8 straight male to M8 right angle female	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25…90 °C	0.6 m	**EVC301**	**$24.00**
				1 m	**EVC302**	**$25.00**
				2 m	**EVC303**	**$27.00**
				5 m	**EVC304**	**$30.00**
	Male Female M8 straight male to M12 straight female	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25…90 °C	0.6 m	**EVC296**	**$18.00**
				1 m	**EVC297**	**$19.00**
				2 m	**EVC298**	**$22.00**
				5 m	**EVC299**	**$26.00**
	Male Female M8 straight male to M12 right angle female	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25…90 °C	0.6 m	**EVC286**	**$18.00**
				1 m	**EVC287**	**$19.00**
				2 m	**EVC288**	**$22.00**
				5 m	**EVC289**	**$26.00**

Top product features!

- *ecolink cordsets feature "Lock-in-Place" coupling nuts that resist high levels of shock and vibration*
- *Available with high-flex PUR cable rated for over 5 million flex cycles or weld slag resistant cable rated for over 2 million cycles*
- *Special insert design acts as a mechanical end stop preventing possible damage to Viton o-ring from over tightening*
- *Materials of construction tested to withstand harsh conditions and aggressive oils and coolants*
- *Cordsets feature a broad operating temperature of -25 to 90 °C with cULus approval*

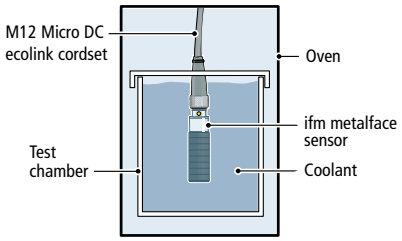
ecolink M12 Micro DC cordsets

ifm's ecolink M12 cordsets are designed and tested to resist harsh conditions in industrial automation and oils and coolants. The product line meets cULus approval, RoHS standards and is silicon and halogen free. The high-flex PUR jacketed cable is rated to over 5 million flex cycles. ecolink's connection technology meets the M12 standard EN 61076.

High temperature coolant test

Sensors and cordsets are completely submerged in industrial oils and coolants for a prolonged period at a temperature of 176° F.

Following the test, the product's characteristics and zero-leak design are verified for reliable operation.



A variety of rugged cordsets to fit most applications

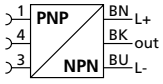
ifm ecolink cordsets are available in a variety of configurations and cable lengths for application versatility. The family includes right angle models with LEDs, standard straight cordsets, standard right angle cordsets and patchcords.

The 316 stainless steel sleeve with sawtooth contour maintains optimum sealing and prevents the cordset from detaching.

Search Bar

Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
	IO-Link	Position Sensors						Motion Control	Vision Sensors
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

Type	Face View		Maximum Supply Voltage	Protection Rating / Temperature Rating Approval	Cable Length	Part No.	List Price (1-pc.)
Micro DC cordsets • 4 pin • PUR jacket							
	Female	Pin 1 brown Pin 2 white Pin 3 blue Pin 4 black Pin 5 not used	250 VAC / 300 VDC	IP67 / IP68 / IP69K -25 °C…90 °C cULus	2 M	**EVC001**	**$11.00**
					5 M	**EVC002**	**$15.00**
					10 M	**EVC003**	**$19.00**
					2 M	**EVC004**	**$11.00**
					5 M	**EVC005**	**$15.00**
					10 M	**EVC006**	**$19.00**
LED	Female	Pin 1 brown Pin 2 white Pin 3 blue Pin 4 black Pin 5 not used	10…36 VDC	IP67 / IP68 / IP69K -25 °C…90 °C cULus	2 M	**EVC007**	**$13.00**
					5 M	**EVC008**	**$16.00**
					10 M	**EVC009**	**$20.00**
Micro DC cordsets • 4 pin • PUR jacket • weld slag resistant							
	Female	Pin 1 brown Pin 2 white Pin 3 blue Pin 4 black	250 VAC / 300 VDC	IP67 / IP68 / IP69K -25 °C…90 °C	2 M	**EVW001**	**$17.00**
					5 M	**EVW002**	**$22.00**
					2 M	**EVW004**	**$17.00**
					5 M	**EVW005**	**$22.00**
Converter cable PNP to NPN							
	Female	Pin 1: Brown Pin 3: Blue Pin 4: Black 	24 VDC ±10%	IP67 / IP68 / IP69K -25 °C…60 °C	5 M	**EVC01E**	**$19.00**
Field wirable connectors • 4 Pin • Screw terminals							
		Female M12 connector straight	250 AC / DC	IP68 -25…100 °C	4 - 6 mm cable OD	**E11508**	**$16.00**
		Male M12 connector straight	250 AC / DC	IP68 -25…100 °C	4 - 6 mm cable OD	**E11504**	**$16.00**
Field wirable connectors • 4 Pin • IDC termination							
		Female M12 connector straight	250 AC / DC	IP68 -25…85 °C	4 - 5 mm cable OD	**E18059**	**$17.00**
		Male M12 connector straight	250 AC / DC	IP68 -25…85 °C	4 - 5 mm cable OD	**E18058**	**$17.00**

Technical Specs

High flex PUR cable jacket:	Part Nos. EVC001 - EVC009 and EVC01E
Nickel plated brass coupling nut:	Part Nos. EVC001 - EVC009 and EVC01E
Weld slag resistant PUR jacket:	Part Nos. EVW001, EVW002, EVW004, EVW005
Epoxy coated zinc coupling nut:	Part Nos. EVW001, EVW002, EVW004, EVW005
Contacts:	Gold plated
Conductors:	22 AWG
PNP LED:	Part Nos. EVC007, EVC008, EVC009
O-ring material:	Viton™
Current rating:	4 A; 0.1 A: Part No. EVC01E
Tightening torque coupling nut:	0.6…1.5 Nm

Top product features!

- *Fully shielded cable and connector*
- *Available with metal braided shield connected or not connected to coupling nut*
- *"Lock-in-Place" coupling nut resists high levels of shock and vibration*
- *High-flex PUR-jacketed cable rated for over 2 million flex cycles*
- *Special insert design acts as a mechanical end-stop preventing possible damage to Viton O-ring from over-tightening*

ecolink M12 Micro DC cordsets for EMI environments

ifm's ecolink M12 shielded cordsets are designed to protect against EMI (Electromagnetic Interference), vibration and damage to the O-ring seal. The lock-in-place coupling nut design resists high levels of shock and vibration. An integrated end stop protects the O-ring from damage caused by over-tightening the coupling nut.

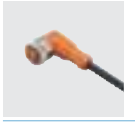
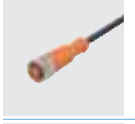
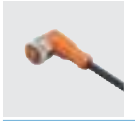
Industrial applications such as the plant floor are typically electrically noisy environments. The primary way to reduce EMI in cables is through the use of shielding. ifm's shielded cordsets are manufactured with a metal braided shield, high strength PUR jacket and a 2 million flex cycle rating.

The ecolink M12 product line meets cULus approval, RoHS standards and is silicon and halogen free. ecolink's connection technology meets the M12 standard EN 61076.

The 360° metal braided shield around conductors and connector provides maximum protection in environments affected by noise.

		IO-Link	Position Sensors						Motion Control	Vision Sensors
	Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection
Search Bar	1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143

Product + accessory selector

Type	Face View		Maximum Supply Voltage	Protection Rating / Temperature Rating Approval	Cable Length	Part No.	List Price (1-pc.)
ecolink M12 Micro DC cordsets • 4-pin • Shield not connected to coupling nut							
	Female	Pin 1 brown Pin 2 white Pin 3 blue Pin 4 black Pin 5 not used	50 V AC / 60 V DC	IP65 / IP67 / IP68 / IP69K	2 M	**EVC526**	**$19.00**
			50 V AC / 60 V DC	IP65 / IP67 / IP68 / IP69K	5 M	**EVC527**	**$24.00**
			50 V AC / 60 V DC	IP65 / IP67 / IP68 / IP69K	10 M	**EVC528**	**$31.00**
	Female	Pin 1 brown Pin 2 white Pin 3 blue Pin 4 black Pin 5 not used	50 V AC / 60 V DC	IP65 / IP67 / IP68 / IP69K	2 M	**EVC529**	**$19.00**
			50 V AC / 60 V DC	IP65 / IP67 / IP68 / IP69K	5 M	**EVC530**	**$24.00**
			50 V AC / 60 V DC	IP65 / IP67 / IP68 / IP69K	10 M	**EVC531**	**$31.00**
ecolink M12 Micro DC cordsets • 5-pin • Shield not connected to coupling nut							
	Female	Pin 1 brown Pin 2 white Pin 3 blue Pin 4 black Pin 5 gray	30 V AC / 36 V DC	IP65 / IP67 / IP68 / IP69K	2 M	**EVC532**	**$22.00**
			30 V AC / 36 V DC	IP65 / IP67 / IP68 / IP69K	5 M	**EVC533**	**$26.00**
			30 V AC / 36 V DC	IP65 / IP67 / IP68 / IP69K	10 M	**EVC534**	**$33.00**
	Female	Pin 1 brown Pin 2 white Pin 3 blue Pin 4 black Pin 5 gray	30 V AC / 36 V DC	IP65 / IP67 / IP68 / IP69K	2 M	**EVC535**	**$22.00**
			30 V AC / 36 V DC	IP65 / IP67 / IP68 / IP69K	5 M	**EVC536**	**$26.00**
			30 V AC / 36 V DC	IP65 / IP67 / IP68 / IP69K	10 M	**EVC537**	**$33.00**
ecolink M12 Micro DC cordsets • 4-pin • Shield connected to coupling nut							
	Female	Pin 1 brown Pin 2 white Pin 3 blue Pin 4 black Pin 5 not used	50 V AC / 60 V DC	IP65 / IP67	2 M	**EVC538**	**$27.00**
			50 V AC / 60 V DC	IP65 / IP67	5 M	**EVC539**	**$32.00**
			50 V AC / 60 V DC	IP65 / IP67	10 M	**EVC540**	**$41.00**
	Female	Pin 1 brown Pin 2 white Pin 3 blue Pin 4 black Pin 5 not used	50 V AC / 60 V DC	IP65 / IP67	2 M	**EVC541**	**$27.00**
			50 V AC / 60 V DC	IP65 / IP67	5 M	**EVC542**	**$32.00**
			50 V AC / 60 V DC	IP65 / IP67	10 M	**EVC543**	**$41.00**
ecolink M12 Micro DC cordsets • 5-pin • Shield connected to coupling nut							
	Female	Pin 1 brown Pin 2 white Pin 3 blue Pin 4 black Pin 5 gray	30 V AC / 36 V DC	IP65 / IP67	2 M	**EVC544**	**$29.00**
			30 V AC / 36 V DC	IP65 / IP67	5 M	**EVC545**	**$36.00**
			30 V AC / 36 V DC	IP65 / IP67	10 M	**EVC546**	**$47.00**
	Female	Pin 1 brown Pin 2 white Pin 3 blue Pin 4 black Pin 5 gray	30 V AC / 36 V DC	IP65 / IP67	2 M	**EVC547**	**$29.00**
			30 V AC / 36 V DC	IP65 / IP67	5 M	**EVC548**	**$36.00**
			30 V AC / 36 V DC	IP65 / IP67	10 M	**EVC549**	**$47.00**

Technical Specs

Current rating:	4 A
Tightening torque:	0.6...1.5 Nm
Ambient temperature:	-25...90 °C
Flex rating:	2 million cycles
Material body:	TPU housing, Viton O-ring
Material coupling nut:	Nickel-plated brass
Cable:	PUR, halogen-free, shielded, 4 x 22 AWG, Ø 4.9 mm 5 x 24 AWG, Ø 4.9 mm
Approvals	cULus

Top product features!

- Designed to reduce installation time and simplify wiring
- Can be used as an input and / or output device
- Power and signal LED displays for quick and accurate troubleshooting
- Available with single or dual LED outputs
- Dust caps and identification labels available

ecolink M12 wiring block systems with built-in LEDs for input and output devices

ifm's passive wiring block systems provide a rugged yet simple solution for wire consolidation in applications with a high-density of input or output connections. Wiring block systems can replace junction boxes, terminal strips and will help to prevent wiring mistakes.

When using wiring block systems, devices can be changed in seconds, greatly reducing maintenance costs.

ifm offers a wide selection of patchcords that connect to the wiring block systems.

Robust wiring blocks withstand harsh environments

For application versatility, wiring blocks are available in cabled models as well as quick disconnect models that require an M23 quick disconnect cable for electrical connection.

Quick connection with ecolink patchcords and blocks

Patchcords are available in cable lengths starting at 0.3 meters up to 5 meters.

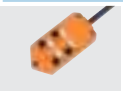
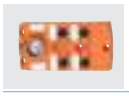
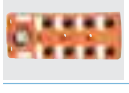
*4, 6 and 8 port systems in prewired or quick disconnect.**

* For 6-port and non-LED versions, visit www.ifm.com/us. Labels and dust caps are available.

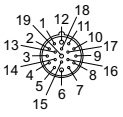
Search Bar

	IO-Link	Position Sensors						Motion Control	Vision Sensors	
Company	IO-Link	Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Encoders / Speed monitors	2D / 3D inspection	
1 - 5	6 - 21	22 - 55	56 - 61	62 - 71	72 - 111	112 - 117	118 - 119	120 - 127	128 - 143	

Product + accessory selector

Type	Design	Contact Pins	Operating Voltage	Function Display Power/Switching Status	Cable Length	Part No.	List Price (1-pc.)
1 M12 Micro DC wiring blocks • PNP • Single output LED • Prewired							
	4-port block with output on pin 4	5	10…30 VDC	green / 4 x yellow	5 M	**EBC015**	**$131.00**
	4-port block with output on pin 4	5	10…30 VDC	green / 4 x yellow	10 M	**EBC027**	**$162.00**
	8-port block with output on pin 4	5	10…30 VDC	green / 8 x yellow	5 M	**EBC023**	**$191.00**
	8-port block with output on pin 4	5	10…30 VDC	green / 8 x yellow	10 M	**EBC035**	**$228.00**
1 M12 Micro DC wiring blocks • PNP • Dual output LED • Prewired							
	4-port block with output on pin 2 and 4	5	10…30 VDC	green / 8 x yellow	5 M	**EBC016**	**$175.00**
	4-port block with output on pin 2 and 4	5	10…30 VDC	green / 8 x yellow	10 M	**EBC028**	**$197.00**
	8-port block with output on pin 2 and 4	5	10…30 VDC	green / 16 x yellow	5 M	**EBC024**	**$222.00**
	8-port block with output on pin 2 and 4	5	10…30 VDC	green / 16 x yellow	10 M	**EBC036**	**$270.00**
1 M12 Micro DC wiring blocks • PNP • Single output LED • M23 quick disconnect							
	4-port block with output on pin 4	5	10…30 VDC	green / 4 x yellow	–	**EBC002**	**$97.00**
	8-port block with output on pin 2 and 4	5	10…30 VDC	green / 8 x yellow	–	**EBC010**	**$155.00**
M12 Micro DC wiring blocks • PNP • Dual output LED • M23 quick disconnect							
	4-port block with output on pin 4	5	10…30 VDC	green / 8 x yellow	–	**EBC004**	**$144.00**
	8-port block with output on pin 2 and 4	5	10…30 VDC	green / 16 x yellow	–	**EBC012**	**$169.00**

2 M23 quick disconnect cable

Type	Face View	Cable Length	Part No.	List Price (1-pc.)
	Female	5 m	**E11736**	**$144.00**
		10 m	**E11737**	**$200.00**
		5 m	**E11739**	**$144.00**
		10 m	**E11740**	**$200.00**
	Female 	5 m	**E11742**	**$204.00**
		10 m	**E11743**	**$277.00**
		5 m	**E11745**	**$204.00**
		10 m	**E11746**	**$277.00**

3 Micro DC patchcords • 4 pin • PUR jacket

Type	Design			Cable Length	Part No.	List Price (1-pc.)
	Male	Female	M12 straight male to M12 straight female	0.6 M	**EVC011**	**$17.00**
				1 M	**EVC012**	**$18.00**
				2 M	**EVC013**	**$20.00**
				5 M	**EVC014**	**$21.00**
	Male	Female	M12 straight male to M12 90° female	0.6 M	**EVC016**	**$17.00**
				1 M	**EVC017**	**$18.00**
				2 M	**EVC018**	**$20.00**
				5 M	**EVC019**	**$21.00**

Technical Specs

Operating voltage:	250 AC / 300 DC: Part Nos. EVC011 - EVC019
Max. total current:	12 A
Max. load current per port:	4 A
Wiring blocks protection:	IP67 / IP68
Patchcords protection:	IP67 / IP68 / IP69K
Operating temperature:	-25…80 °C (wiring blocks); -25…90 °C (patchcords)

Top product features!

- Industry standard color coding
- Vibration resistant coupling nut
- Viton O-ring
- Low-resistance contact design with gold plated contacts
- Available with PVC or TPE cable

Rugged Micro AC cordsets are designed for industrial automation and metal forming applications

Why choose PVC or TPE cable material

PVC (polyvinylchloride) offers excellent performance in a wide range of temperatures. PVC cables resist flame, heat, moisture and abrasion. PVC is considered the most commonly used cable jacket material in industrial automation applications.

TPE (thermoplastic elastomer) resists a broad range of oils, chemicals, acids and solvents. TPE is a high flex material and is rated for over 5 million flex cycles. It can be used in continuous flex applications such as robotic arms and grippers.

Reliable performance

High flex TPE-jacketed cable rated for over 5 million flex cycles.

BROAD Operating Temperature

Broad operating temperature
PVC: -20 to 80 °C
TPE: -45 to 105 °C

IP68

Materials of construction tested to withstand harsh conditions and aggressive oils and coolants.

UL and CSA approved

Search Bar

Company	IO-Link: IO-Link	Position Sensors: Inductive	Capacitive	Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Motion Control: Encoders / Speed monitors	Vision Sensors: 2D / 3D inspection
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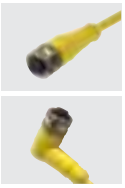
Product + accessory selector

Type	Face View	Cable Jacket Material	Maximum Supply Voltage	Protection Rating / Temperature Rating Approval	Cable Length	Part No.	List Price (1-pc.)
Micro AC cordsets • 3 Pin 1/2" – 20 UNF • PVC cable							
	Female 2 3 1 Pin 1 green Pin 2 red/black Pin 3 red/white	PVC	300 VAC / VDC	IP68 NEMA 6P -20 °C…80 °C UL / CSA	2 M	**E18212**	**$15.00**
					5 M	**E18213**	**$19.00**
					2 M	**E18214**	**$15.00**
					5 M	**E18215**	**$19.00**
Micro AC cordsets • 3 Pin 1/2" - 20 UNF • TPE cable							
	Female 2 3 1 Pin 1 green Pin 2 red/black Pin 3 red/white	TPE	300 VAC / VDC	IP68 NEMA 6P -45 °C…105 °C UL / CSA	2 M	**E18200**	**$22.00**
					5 M	**E18201**	**$25.00**
					10 M	**E18202**	**$38.00**
					2 M	**E18203**	**$22.00**
					5 M	**E18204**	**$25.00**
					10 M	**E18205**	**$38.00**
Micro AC wirable connectors, screw termination • 3-Pin 1/2" – 20 UNF							
	Female 2 3 1	–	250 VAC	IP67 NEMA 6P (in fully locked position) -25 °C…90 °C	4 - 6 mm	**L34103**	**$15.00**
					4 - 6 mm	**E10789**	**$15.00**
	Male 3 2 1	–	250 VAC	IP67 NEMA 6P (in fully locked position) -25 °C…90 °C	4 - 6 mm	**L34101**	**$15.00**
					4 - 6 mm	**E10788**	**$15.00**

Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Coupling nut:	Nickel plated brass
Housing:	Nylon: Part Nos. L34101, L34103, E10788, E10789
Contacts:	Gold plated
Conductors size:	22 AWG 18 AWG maximum: Part Nos. L34101, L34103, E10788 and E10789
O-ring material:	Viton™

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