ifm efector – *close to you!*

Sensors and Controls Catalog – 2013 / 2014

Position sensors

Motion control

Vision sensors

Safety technology

Process sensors

Industrial networks

Machine condition

Wiring technology

ifm's Sensors and Controls Catalog is a bridge to our website that offers more than 8,000 products

Product line menu – an easy way to find the ifm product for your application

Search by part number or by text

e-Shop login for the fastest way to buy sensors and controls

Subscribe to newsletters

Career opportunities

Rotating display of the latest ifm news

New product press releases

Product selector offers a quick way to find products by specifications

www.ifm.com/us

About ifm…

ifm is one of the world's largest manufacturers of industrial sensors and controls products, producing over 9 million sensors annually.

More than 4,800 ifm employees serve over 110,000 purchasing customers worldwide.

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

Annual global sales exceed $820 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 20,000 customers in North America.

ifm products. For over 40 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 40 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 4,800 dedicated ifm employees in over 70 countries, you can count on local support all over the world.

ifm efector – *close to you!*

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

ifm North American Operation

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.

Rich History… Promising Future

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

For over 40 years, ifm has manufactured and marketed electronic sensors and controls for industrial automation applications.

ifm employs over 4,800 dedicated individuals who provide outstanding product support and technical service.

More than 110,000 customers purchase ifm products worldwide.

Reliable Products… Innovative Design

ifm is currently one of the world's largest manufacturers of industrial sensors and controls, producing over 9 million sensors 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.

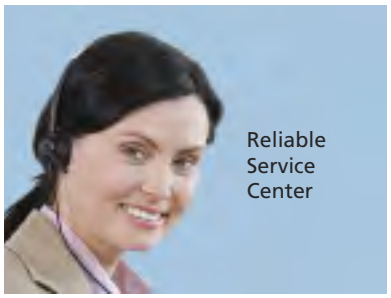
ifm makes large investments in R&D and employs over 600 development engineers. Our R&D team has more than 600 registered ifm patents worldwide.

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.

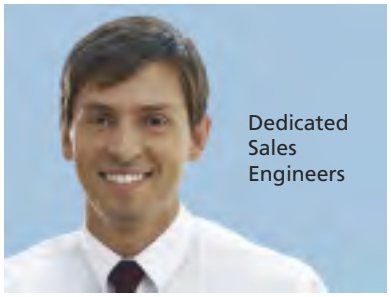
Reliable service from a dedicated team



Service Center

You can count on our Service Center team to be a reliable partner. That means easy order placement and knowledgeable technical support.

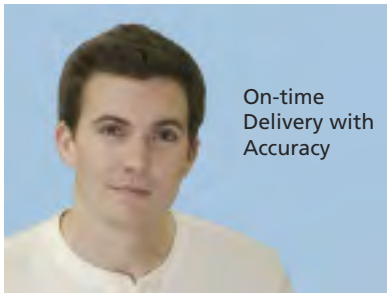
Our Service Center team includes application engineers who can assist with technical questions and application solutions. ifm customer service representatives can assist with order placement, product quotes, and delivery information. Staffed from 7:30 am to 6:30 pm EST to ensure time-zone coverage.



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 North America.

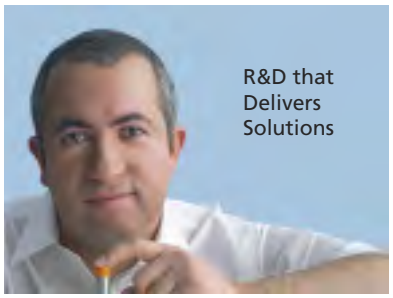
Our sales engineers work with corporations to coordinate global projects and to develop sensor standards that result in reducing inventory costs and simplifying maintenance.



Logistics

On time delivery and accuracy of your order is our goal in the ifm Distribution Center. There can be no compromises when it comes to uptime in your facility.

The ifm Distribution Center is located in Downingtown, PA, just outside Philadelphia. More than 15,000 orders are shipped per month with an accuracy rate of 99%.



Research and Development

The ifm product 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.

Our team designs products that reduce machine downtime, increase productivity and simplify installation.

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

ifm efector – *close to you!*

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

Position sensors

Inductive sensors
Pages: 10 - 43

Non-contact inductive sensors detect metallic targets.

Capacitive sensors
Pages: 44 - 47

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

Cylinder sensors
Pages: 48 - 53

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

Photoelectrics and lasers
Pages: 54 - 83

Visible red and laser provide long-range detection.

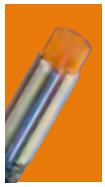
Distance, color and contrast
Pages: 84 - 89

Photoelectric solutions for long ranges, color and contrast applications

Fiber optics
Pages: 90 - 95

Fiber optic sensors, controllers and amplifiers for areas with limited space.

Motion control



Speed monitors
Pages: 96 - 99

Self-contained speed monitors detect rotational speed conditions.

Vision sensors

efector dualis Contour sensors
Pages: 106 - 107

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

efector dualis Pixel Counter
Pages: 108 - 109

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

Multi-Code readers
Pages: 110 - 111

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

3D Image Sensor
Pages: 112 - 113

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

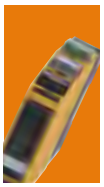
Safety products

Inductive safety sensors
Pages: 116 - 117

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

Light curtains
Pages: 118 - 125

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



Safety relays
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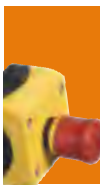
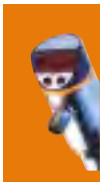
Multi-function safety relays connect safety devices.



Safety networking
Pages: 128 - 131

Safety at Work connects safety components directly to the AS-i network.

Process sensors



Pressure sensors
Pages: 134 - 149

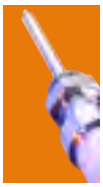
Sensors and transmitters monitor system pressure in hydraulic and pneumatics.

Flow sensors
Pages: 150 - 159

Flow sensors, magmeters, and ultrasonic flow meters detect the flow rate of liquids and gases.

Level sensors
Pages: 160 - 173

Point and continuous level sensors detect level of liquids, powders, granular solids and plastics.



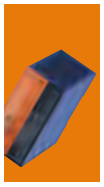
Temperature sensors
Pages: 174 - 189

Modular temperature monitoring products provide feedback in temperature control applications.

Industrial networks

AS-i networking
Pages: 192 - 201

Networks sensors and actuators with plug-and-play functionality.



Power supplies
Pages: 202 - 203

Power supplies provide the voltage for sensors, actuators, and other electronic loads.

Machine condition

Vibration sensors
Pages: 206 - 207

Continuously monitor machine's vibration level to prevent equipment failure.

efector Metris
Pages: 208 - 209

In-line flow meter monitors compressed air systems and specialty gases.

Wiring technology

M8 Pico cordsets
Pages: 212 - 213

Quick disconnect M8 Pico cordsets and field wirable connectors for electrical wiring.

M8 Pico wiring block systems
Pages: 214 - 217

Quick disconnect wiring blocks offer plug-and-play functionality.

M12 Micro cordsets
Pages: 218 - 219

4-pin Micro DC cordsets and field wirable connectors.

M12 Micro wiring block systems
Pages: 220 - 221

4-port and 8-port M12 Micro DC wiring blocks and patchcords.

1/2" Micro AC cordsets
Pages: 222 - 223

3-pin Micro AC cordsets and field wirable connectors.

For our complete list of over 8,000 sensors and controls products, visit our website

www.ifm.com/us

ifm's website – www.ifm.com/us – Represents our entire line of 8,000 products

Browse and select your product

ifm.com/us – the easy way to find ifm products

Our newly redesigned website allows you to compare products to find the best solution to your application.

- *ifm.com/us offers thousands of sensors and controls products.*
- *Click on a product category in the Product Lines menu.*
- *Once you've found your product category, click on "Browse products."*

Browse product line

Browse a complete product line on one page. Each product offers the following information:

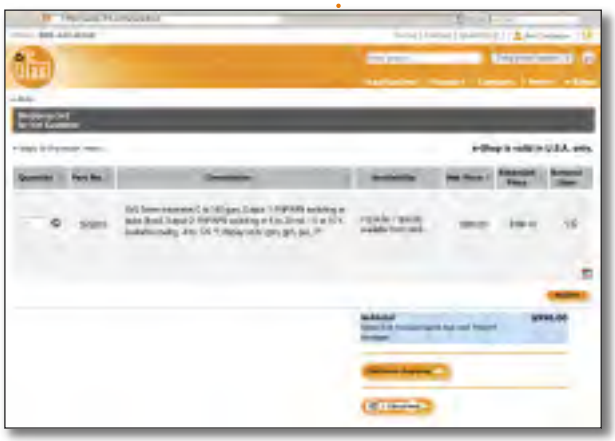
1. *Key features – includes outputs, mounting options and other unique features.*
2. *Learn more – One-minute videos, brochures, useful charts and applications.*
3. *Applications – full-color drawing examples showing sensor in application and its benefits.*
4. *Select product – locate the best fit for your application and the site will take you to its product page.*

Choose your type…

Product page

- *Easy one-stop shopping*
- *Full-color photo with dimensions*
- *Product selection*
- *Technical specifications*
- *Recommended accessories and cordsets*
- *Includes list price information*

Add to your cart



e-Shop – available 24 hours a day

Purchase sensors and controls through e-Shop – ifm's on-line store. Not only does e-Shop offer a fast and easy way to buy products, e-Shop can also help to organize products for future purchases.

- *Quick Order feature allows multiple products to be ordered at once.*
- *The Favorites option is a great resource to build a personalized ifm product catalog and to quickly find the product that's continually ordered.*
- *The History feature offers the ability to copy / paste a previous order. It's the fastest way for you to place a re-order.*
- *The History feature enables you to track the status of an order and to get order details.*

It's easy to find a product on www.ifm.com/us

Technical documentation

ifm's comprehensive data sheets offer all the specifications needed to make a decision on the right sensor for your application.

Data sheet

- *Technical specs*
- *Electrical data and connection*
- *Product characteristics*
- *Dimension drawing*
- *Wiring diagrams*
- *Approvals*
- *Purchasing information including stock availability and US list prices*

Accessories

- *Cordsets and cable assemblies*
- *Mounting brackets and systems*
- *Power supplies*

Operating instructions

- *Installation instructions*
- *Software manuals*

CAD

- *2D and 3D CAD drawings in standard formats*

More information

- *Certificates of approval*
- *Software downloads*
- *Summary specifications for project and estimate bids*

Have a technical question…
require customer assistance?

Email a technical question to our engineers or send a message to our customer service reps at info.us@ifm.com

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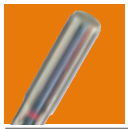

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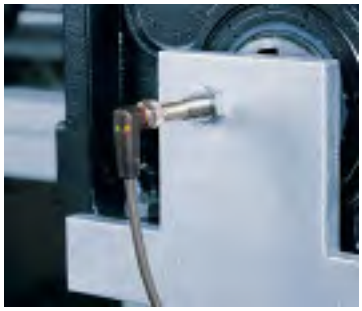
Top five product features!

- *Small housing, long range! Compact design is ideal for applications with limited mounting space*
- *Extended sensing ranges reduce failure from mechanical damage and increase uptime*
- *Four LEDs provides 360-degree visibility for status indication*
- *Innovative mounting solutions reduce installation and replacement time*
- *Available in quick disconnect and prewired options – visit www.ifm.com/us for more sensor options*

Longer sensing ranges in compact rugged housings



Today's industrial automation machines are extremely compact and highly automated. The smaller footprint allows for reduced space on the plant floor, but also minimizes the mounting space for sensors used for position control.

ifm's solution for position control is a line of miniature sensors with long sensing ranges. The versatile housings fit a variety of applications that have space limitations.

Features include:
- Up to 2.5 times longer sensing ranges than most conventional switches of the same size.
- Housing lengths start at 30 mm.
- Integrated 360° visible LED for visual indication of operating status.
- A variety of mounting accessories are available to suit most applications.

IT5044 Actual size
Ø6.5 mm x 50 mm

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
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Product + accessory selector

	Dimensions (mm)	Sensing Range	Output Function	Supply Voltage V	Switching Frequency (Hz) DC	Max Load Current (mA) DC	Sensor Termination	Part No.	List Price (1-pc.)
A	Ø4 / L = 45	0.8 mm flush	PNP, N.O.	10...36	2000	100	M8 Pico	**IZ5035**	**$102.00**
↓	Ø4 / L = 45	1.5 mm nonflush	PNP, N.O.	10...30	1800	100	M8 Pico	**IZ5046**	**$102.00**
B	Ø4 / L = 30	0.8 mm flush	PNP, N.O.	10...36	2000	100	Prewired	**IZ5026**	**$104.00**
↓	Ø4 / L = 27	1.5 mm nonflush	PNP, N.O.	10...36	2000	100	Prewired	**IZ5047**	**$104.00**
C	Ø6.5 / L = 30	2 mm flush	PNP, N.O.	10...30	1500	100	M8 Pico	**IT5040**	**$92.00**
D	Ø6.5 / L = 50	4 mm nonflush	PNP, N.O.	10...30	300	100	M8 Pico	**IT5044**	**$92.00**
E	M5 / L = 45	0.8 mm flush	PNP, N.O.	10...36	2000	100	M8 Pico	**IY5036**	**$104.00**
↓	M5 / L = 41	1.5 mm nonflush	PNP, N.O.	10...30	1800	100	M8 Pico	**IY5048**	**$104.00**
F	M5 / L = 30	0.8 mm flush	PNP, N.O.	10...36	2000	100	Prewired	**IY5029**	**$100.00**
↓	M5 / L = 27	1.5 mm nonflush	PNP, N.O.	10...36	2000	100	Prewired	**IY5049**	**$100.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting clamp for 4 mm sensor	**E10204**	**$6.00**
	Mounting clamp for 6.5 mm sensor	**E10014**	**$6.00**

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**	**$23.00**
	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**	**$23.00**

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. IY5029, IY5036, IZ5026, IZ5035, IZ5047
IP67: Part Nos. IT5040, IT5044, IY5048, IY5049, IZ5046

Operating Temperature: -13...158 °F (-25...70 °C): Part No. IY5029, IY5036, IY5048, IY5049, IZ5026, IZ5035
-13...176 °F (-25...80 °C): Part No. IZ5046, IZ5047
32...140 °F (0...60 °C): Part No. IT5044
-4...158 °F (-20...70 °C): Part No. IT5040

Leakage Current: Negligible

Housing materials: Stainless steel; active face; POM: Part Nos. IY5029, IY5036, IY5048, IY5049, IZ5026, IZ5035, IZ5046, IZ5047
LCP: Part Nos. IT5040, IT5044

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 five product features!

- *Metal face flush mountable, 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.

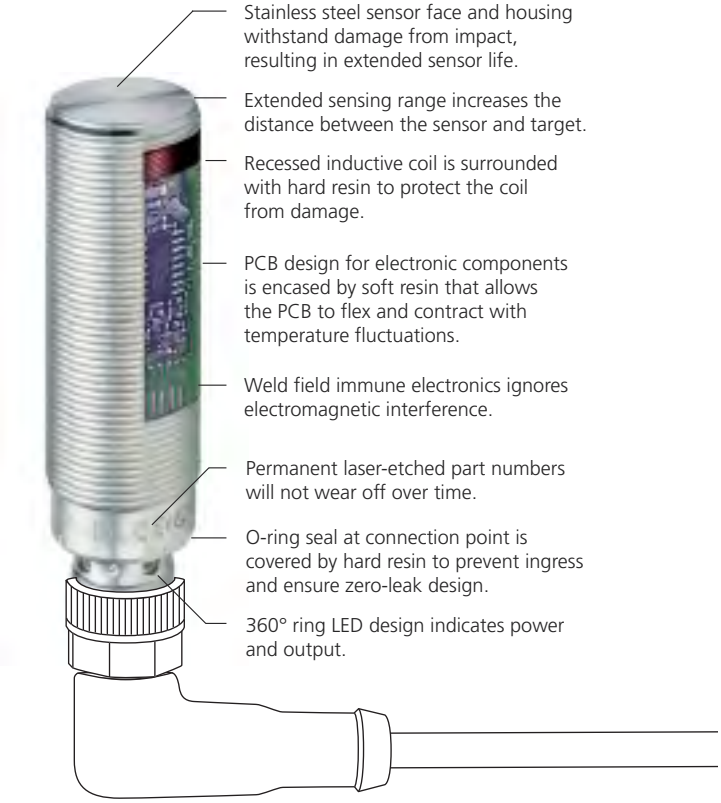
In industrial automation applications, plastic sensors can fail from liquid ingress, damage from target impact, and overall wear from high shock and vibration.

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.



Position Sensors | Motion Control | Vision Sensors

Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Search Bar

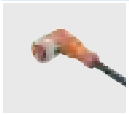
Product + accessory selector

Dimensions (mm)	Sensing Range	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Part No.	List Price (1-pc.)
M12 Micro DC quick disconnect							
M8 / L = 60	2 mm flush	PNP, N.O.	10…36	100	100	**IEC200**	**$65.00**
M12 / L = 60	3 mm flush	PNP, N.O.	10…36	100	100	**IFC258**	**$63.00**
M18 / L = 70	5 mm flush	PNP, N.O.	10…36	100	100	**IGC248**	**$65.00**
M30 / L = 70	10 mm flush	PNP, N.O.	10…36	50	100	**IIC224**	**$70.00**
M8 / L = 60	2 mm flush	NPN, N.O.	10…36	100	100	**IEC203**	**$65.00**
M12 / L = 60	3 mm flush	NPN, N.O.	10…36	100	100	**IFC266**	**$63.00**
M18 / L = 70	5 mm flush	NPN, N.O.	10…36	100	100	**IGC252**	**$65.00**
M30 / L = 70	10 mm flush	NPN, N.O.	10…36	50	100	**IIC226**	**$70.00**
M8 Pico DC quick disconnect							
M8 / L = 50	2 mm flush	PNP, N.O.	10…36	100	100	**IEC201**	**$65.00**
M8 / L = 50	2 mm flush	NPN, N.O.	10…36	100	100	**IEC202**	**$65.00**

Optional Accessories

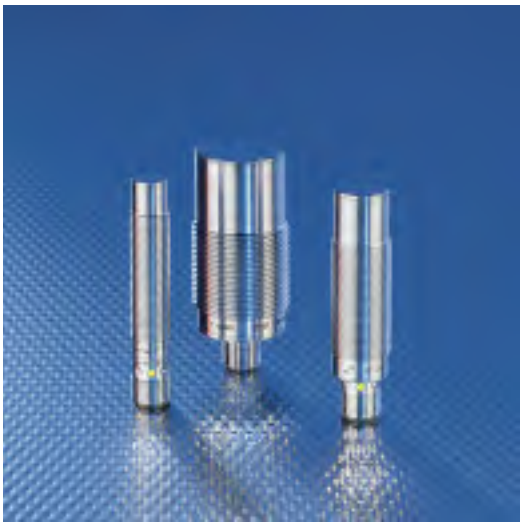
Type	Description	Part No.	List Price (1-pc.)
	Snap clamp for 8 mm sensor	**E11521**	**$8.00**
	Snap clamp for 12 mm sensor	**E11047**	**$8.00**
	Snap clamp for 18 mm sensor	**E11048**	**$8.00**
	Snap clamp for 30 mm sensor	**E11049**	**$8.00**
	L-bracket for 8 mm sensor	**U20304**	**$6.00**
	L-bracket 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.)
	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**	**$23.00**
	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**	**$23.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

Technical Specs

Protection:	IP67 / IP68
Operating temperature:	-13…158 °F (-25…70 °C)
Leakage current:	<0.1 mA
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 five product features!

- *Metal face non-flush mountable, 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.

Challenges with side sensing
Side sensing challenges can cause traditional sensors to indicate false outputs by detecting metal near the sensor face. ifm's metal face sensors are not affected by materials surrounding the sensor and offer consistent, reliable detection.

Position Sensors | Motion Control | Vision Sensors

Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Search Bar

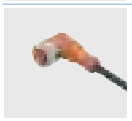
Product + accessory selector

Dimensions (mm)	Sensing Range	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Part No.	List Price (1-pc.)
M12 Micro DC quick disconnect							
M12 / L = 70	6 mm nonflush	PNP, N.O.	10…36	500	100	**IFT245**	**$70.00**
M12 / L = 70	6 mm nonflush	NPN, N.O.	10…36	500	100	**IFT246**	**$70.00**
M18 / L = 70	12 mm nonflush	PNP, N.O.	10…36	500	100	**IGT249**	**$72.00**
M18 / L = 70	12 mm nonflush	NPN, N.O.	10…36	500	100	**IGT250**	**$72.00**
M30 / L = 70	25 mm nonflush	PNP, N.O.	10…36	500	100	**IIT231**	**$76.00**
M30 / L = 70	25 mm nonflush	NPN, N.O.	10…36	500	100	**IIT232**	**$76.00**

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**
	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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

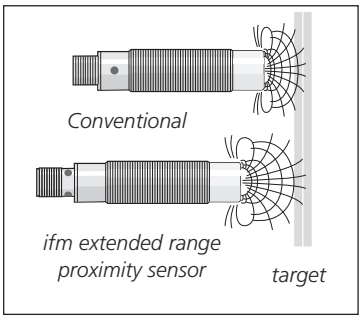
Technical Specs

Protection:	IP67 / IP68 / IP69K
Operating temperature:	32…212 °F (0…100 °C)
Leakage current:	< 0.1 mA
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 five product features!

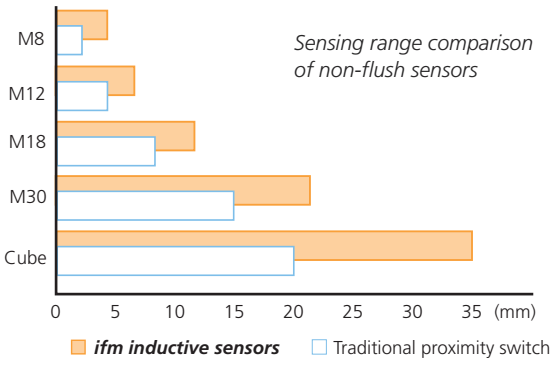
- *Extended sensing ranges reduce failure from mechanical damage and increase uptime*
- *Ideal for non-contact detection of metal targets in position sensing applications*
- *Four bright LEDs provide 360-degree visibility for status indication and make troubleshooting in applications easy*
- *Robust industry standard housings designed and tested to withstand industrial automation environments*
- *Sensors feature standard M12 industrial connection for quick installation*

"Short body" sensor with extended range technology reduces failures from mechanical damage



ifm inductive sensors incorporate extended sensing ranges that enable the sensor to be mounted farther away from a target increasing the distance between the target and the sensor. This prevents mechanical damage from physical impact.

ifm sensors are designed to reliably perform in industrial control applications. They are tested to resist shock, vibration and electrical noise.



Sensing range comparison of non-flush sensors

Quality through automation and a great value

ifm inductive sensors are manufactured with a high level of automation. An automated test cell performs a complete function test on every sensor prior to shipping. These sensors incorporate performance features for today's industrial automation requirements, uncompromising quality that increases production uptime, and a price point that sets a new benchmark for value.

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Product + accessory selector

Dimensions (mm)	Sensing Range	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Electrical Connection	Part No.	List Price (1-pc.)
M8 / L = 62	2 mm flush	PNP, N.O.	10...36	1000	250	M12 Micro	**IE5312**	**$45.00**
M8 / L = 62	4 mm nonflush	PNP, N.O.	10...36	300	200	M12 Micro	**IE5288**	**$45.00**
M12 / L = 45	4 mm flush	PNP, N.O.	10...36	700	100	M12 Micro	**IFS204**	**$43.00**
M12 / L = 50	7 mm nonflush	PNP, N.O.	10...36	700	100	M12 Micro	**IFS205**	**$43.00**
M18 / L = 46	8 mm flush	PNP, N.O.	10...36	400	100	M12 Micro	**IGS204**	**$45.00**
M18 / L = 51	12 mm nonflush	PNP, N.O.	10...36	300	100	M12 Micro	**IGS205**	**$45.00**
M30 / L = 50	15 mm flush	PNP, N.O.	10...36	100	100	M12 Micro	**IIS204**	**$48.00**
M30 / L = 50	22 mm nonflush	PNP, N.O.	10...36	100	100	M12 Micro	**IIS205**	**$48.00**

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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

PNP to NPN converter cordset

This cordset converts PNP outputs to NPN outputs.

Part no.: EVC01E (5 meters)
List price (1-pc): $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: negligible
Housing materials: Special coated brass; active face; LCP: Part No. IE5312
Special coated brass; active face; CO-PC: Part No. IE5288
Special coated brass; active face; PBT: Part Nos. IFS204, IFS205, IGS204, IGS205, IIS204, IIS205

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

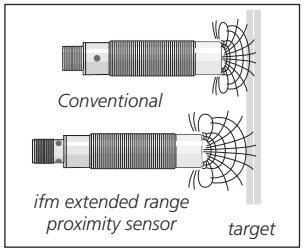
Visit our product catalog
www.ifm.com/us

Shop for products online
Easy ordering via eShop

Top five product features!

- *Extended sensing ranges reduce failure from mechanical damage and increase uptime*
- *Ideal for non-contact detection of metal targets in position sensing applications*
- *-40...185 °F wide temperature range offers 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*

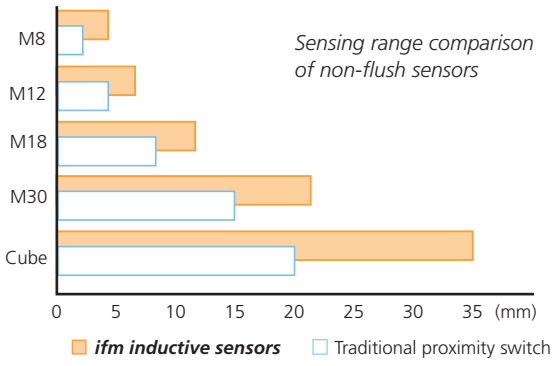
"Long body" sensor with extended range reduces failures from mechanical damage



NEW! ifm's "long body" inductive sensors incorporate extended sensing ranges that enable the sensor to be mounted farther away from a target increasing the distance between the target and the sensor. This prevents mechanical damage from physical impact.

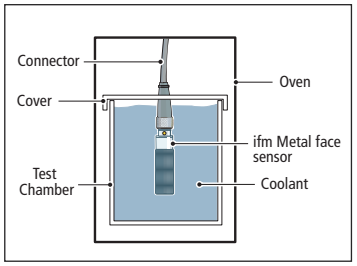
These new generation sensors are designed and tested to provide reliable position detection in industrial automation. They are tested to resist shock, vibration and electrical noise. The zero-leak sensors are rated IP68 / IP69K against liquid ingress and can resist the synthetic oils and coolants used in harsh applications.

ifm proximity sensors increase plant uptime, and its price point is the best value in the market.



Sensing range comparison of non-flush sensors

Tested for oils and coolants



High temperature IP68 coolant test
Sensors are submerged in industrial oils and coolants at 185 °F. The sensors successfully pass the test and maintain sensing characteristics.

Position Sensors | Motion Control | Vision Sensors

Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

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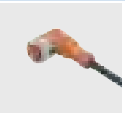
Product + accessory selector

Dimensions (mm)	Sensing Range	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	DC PNP, N.O.	10…30	700	100	M12 Micro	**IFS240**	**$46.00**
M12 / L = 60	7 mm, nonflush	DC PNP, N.O.	10…30	700	100	M12 Micro	**IFS241**	**$46.00**
M12 / L = 60	4 mm, flush	DC NPN, N.O.	10…30	700	100	M12 Micro	**IFS242**	**$46.00**
M12 / L = 60	7 mm, nonflush	DC NPN, N.O.	10…30	700	100	M12 Micro	**IFS243**	**$46.00**
M18 / L = 60	8 mm, flush	DC PNP, N.O.	10…30	400	100	M12 Micro	**IGS232**	**$48.00**
M18 / L = 60	12 mm, nonflush	DC PNP, N.O.	10…30	300	100	M12 Micro	**IGS233**	**$48.00**
M18 / L = 60	8 mm, flush	DC NPN, N.O.	10…30	400	100	M12 Micro	**IGS234**	**$48.00**
M18 / L = 60	12 mm, nonflush	DC NPN, N.O.	10…30	300	100	M12 Micro	**IGS235**	**$48.00**
M30 / L = 60	15 mm, flush	DC PNP, N.O.	10…30	100	100	M12 Micro	**IIS226**	**$58.00**
M30 / L = 60	22 mm, nonflush	DC PNP, N.O.	10…30	100	100	M12 Micro	**IIS227**	**$58.00**
M30 / L = 60	15 mm, flush	DC NPN, N.O.	10…30	100	100	M12 Micro	**IIS228**	**$58.00**
M30 / L = 60	22 mm, nonflush	DC NPN, N.O.	10…30	100	100	M12 Micro	**IIS229**	**$58.00**

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**
	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**

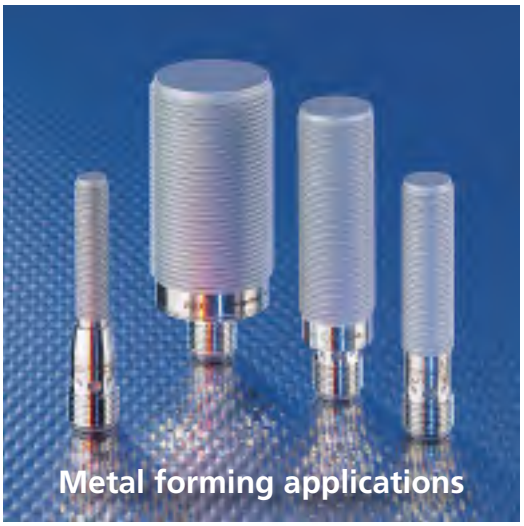
Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

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

Technical Specs

Protection:	IP65, IP67, IP68, IP69K
Temperature:	-40…185 °F (-40…85 °C)
Leakage current:	< 0.5 mA
Housing materials:	Brass plated with white bronze, PBT, PEI



Top five 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*
- *Extended sensing ranges increase distance between the sensor and target which increases uptime*
- *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.

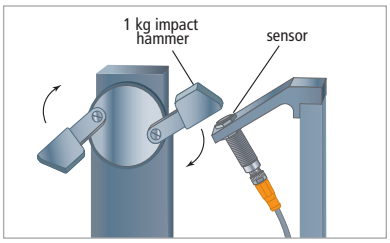
The right combination of price and performance

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.

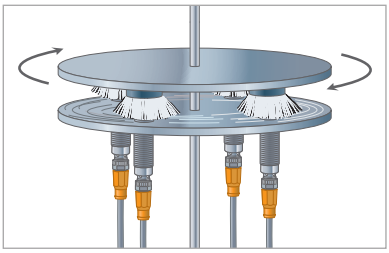
Challenge
Plastic and teflon sensors life expectancies are reduced from weld-slag build-up and physical impact from the part-loading process in manufacturing cells.

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

Position Sensors | Motion Control | Vision Sensors
Company | Inductive | Capacitive | Cylinder position | Photoelectrics and lasers | Distance, color and contrast | Fiber optics | Speed monitors | 2D / 3D inspection
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Product + accessory selector

Dimensions (mm)	Sensing Range	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	PNP, N.O.	10…36	100	100	M12 Micro DC	**IER200**	**$68.00**
M8 / L = 60	2 mm flush	NPN, N.O.	10...36	100	100	M12 Micro DC	**IER201**	**$68.00**
M12 / L = 60	4 mm flush	PNP, N.O.	10...36	2	100	M12 Micro DC	**IFR200**	**$64.00**
M12 / L = 60	4 mm flush	NPN, N.O.	10...36	2	100	M12 Micro DC	**IFR202**	**$64.00**
M18 / L = 70	6 mm flush	PNP, N.O.	10…36	2	100	M12 Micro DC	**IGR200**	**$66.00**
M18 / L = 70	6 mm flush	NPN, N.O.	10...36	2	100	M12 Micro DC	**IGR202**	**$66.00**
M30 / L = 70	12 mm flush	PNP, N.O.	10...36	2	100	M12 Micro DC	**IIR200**	**$69.00**
M30 / L = 70	12 mm flush	NPN, N.O.	10...36	2	100	M12 Micro DC	**IIR202**	**$69.00**

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

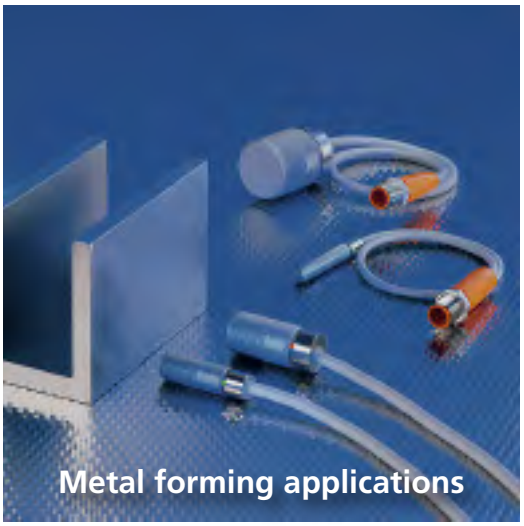
Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVW001**	**$17.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVW002**	**$21.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVW003**	**$26.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVW004**	**$17.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVW005**	**$21.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVW006**	**$26.00**

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: < 0.1 mA
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



Top five 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*

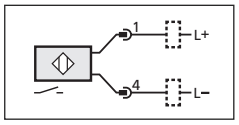
Withstands damage from physical impact in manufacturing cells

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

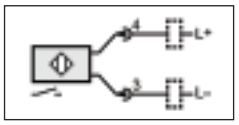
ifm has designed sensors to provide flexible wiring solutions for our customers. These 2-wire sensors can directly replace 3-wire sensors

A



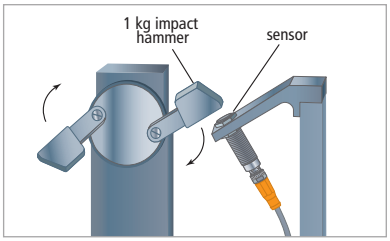
2-wire to directly replace 3-wire PNP

B

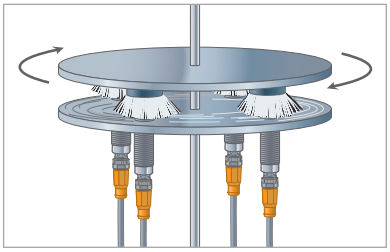


2-wire to directly replace 3-wire NPN

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

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Company | Inductive | Capacitive | Cylinder position | Photoelectrics and lasers | Distance, color and contrast | Fiber optics | Speed monitors | 2D / 3D inspection
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Product + accessory selector

Dimensions (mm)	Sensing Range	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	PNP/NPN, N.O.	10…36	150	100	M12 0.3 m pigtail	**IER203**	**$65.00**
M12 / L = 40	4 mm flush	PNP/NPN, N.O.	10…36	75	100	M12 0.3 m pigtail	**IFR203**	**$65.00**
M18 / L = 40	6 mm flush	PNP/NPN, N.O.	10…36	50	100	M12 0.3 m pigtail	**IGR203**	**$70.00**
M30 / L = 40	12 mm flush	PNP/NPN, N.O.	10…36	25	100	M12 0.3 m pigtail	**IIR203**	**$81.00**
(B) Uses Pins 3 and 4 • Can directly replace 3-wire NPN sensors								
M8 / L = 45	2 mm flush	PNP/NPN, N.O.	10…36	150	100	M12 0.3 m pigtail	**IER206**	**$65.00**
M12 / L = 40	4 mm flush	PNP/NPN, N.O.	10…36	75	100	M12 0.3 m pigtail	**IFR206**	**$65.00**
M18 / L = 40	6 mm flush	PNP/NPN, N.O.	10…36	50	100	M12 0.3 m pigtail	**IGR206**	**$70.00**
M30 / L = 40	12 mm flush	PNP/NPN, N.O.	10…36	25	100	M12 0.3 m pigtail	**IIR206**	**$81.00**

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

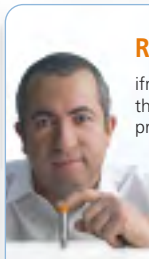
Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVW001**	**$17.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVW002**	**$21.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVW003**	**$26.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVW004**	**$17.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVW005**	**$21.00**
	M12 Micro DC (4-pin) 10 m, PUR	**EVW006**	**$26.00**

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: < 0.1 mA
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
800-441-8246

Visit our product catalog
www.ifm.com/us

Shop for products online
Easy ordering via eShop

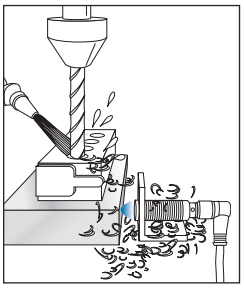
Top five product features!

- *Stainless steel housing and sensor face withstand physical damage from machining process and moisture ingress*
- *Permanent laser-etched part numbers will not wear off over time*
- *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*
- *Models available with ferrous-only sensing technology which ignores aluminum chips that can cause false triggers*

Stainless steel sensors for oils and coolants

ifm's metal face sensors are designed and tested to provide reliable position detection in the extreme conditions found in oils and coolants applications. The stainless steel sensors are subjected to a variety of tests that insure reliable performance in application, including high performance IP68 coolant test.

- 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.



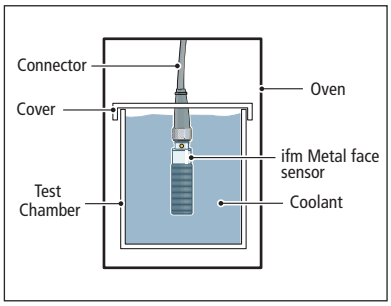
Ferrous-only technology ignores aluminum chips and eliminates false signals.

Sensors with ferrous-only sensing technology

ifm's ferrous-only technology can be used inside machining centers where there is a high density of aluminum chips. The ferrous-only sensor will detect the steel target on fixtures and clamps used to position the product. During the machining operation, the sensor will ignore the aluminum chips that can cause false triggers.

The sensor's multi-coil design provides greater stability and the longest sensing ranges in the market today. The one-piece housing features a durable, stainless steel sensing face that prevents aluminum chips from adhering to and embedding in the face of the sensor.

Testing that insures reliable performance



High performance IP68 coolant test
Sensors are completely submerged in industrial oils and coolants at a temperature of 176° F. The sensor successfully passes the test and maintains its sensing characteristics.

PNP to NPN converter cordset
This cordset converts PNP outputs to NPN outputs.
Part no.: EVC01E (5 meters)
List price (1-pc): $19.00

Position Sensors
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Product + accessory selector

Dimensions (mm)	Sensing Range	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Part No.	List Price (1-pc.)
M12 Micro DC quick disconnect							
M8 / L = 60	2 mm flush	PNP, N.O.	10…36	100	100	**IEC200**	**$65.00**
M12 / L = 60	3 mm flush	PNP, N.O.	10…36	100	100	**IFC258**	**$63.00**
M18 / L = 70	5 mm flush	PNP, N.O.	10…36	100	100	**IGC248**	**$65.00**
M30 / L = 70	10 mm flush	PNP, N.O.	10…36	50	100	**IIC224**	**$70.00**
M8 / L = 60	2 mm flush	NPN, N.O.	10…36	100	100	**IEC203**	**$65.00**
M12 / L = 60	3 mm flush	NPN, N.O.	10…36	100	100	**IFC266**	**$63.00**
M18 / L = 70	5 mm flush	NPN, N.O.	10…36	100	100	**IGC252**	**$65.00**
M30 / L = 70	10 mm flush	NPN, N.O.	10…36	50	100	**IIC226**	**$70.00**
Ferrous only sensors • M12 Micro DC quick disconnect							
M12 / L = 60	2.5 mm flush	PNP, N.O.	10…36	100	100	**IFC263**	**$68.00**
M12 / L = 60	2.5 mm flush	PNP, N.C.	10…36	100	100	**IFC264**	**$68.00**
M18 / L = 70	4.5 mm flush	PNP, N.O.	10…36	100	100	**IGC249**	**$70.00**
M18 / L = 70	4.5 mm flush	PNP, N.C.	10…36	100	100	**IGC250**	**$70.00**
M8 Pico DC quick disconnect							
M8 / L = 50	2 mm flush	PNP, N.O.	10…36	100	100	**IEC201**	**$65.00**
M8 / L = 50	2 mm flush	NPN, N.O.	10…36	100	100	**IEC202**	**$65.00**

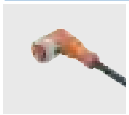
Optional Accessories

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**

Technical Specs

Protection:	IP67 / IP68
Operating temperature:	-13…158 °F (-25…70 °C)
Leakage current:	<0.1 mA
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

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**	**$23.00**
	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**	**$23.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

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Top five 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 models*
- *Industry standard M12 Micro DC connectors*

Robust sensors for oils and coolants

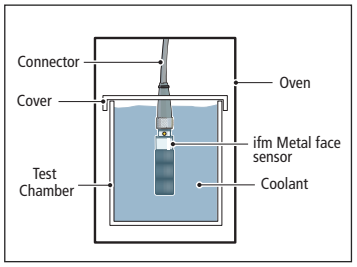
The oils and coolants used in metalworking applications can penetrate into the housing of a sensor resulting in component failure and sensing range fluctuations. Through research and experience, a number of oils and coolants were identified that were used by industry leaders.

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.

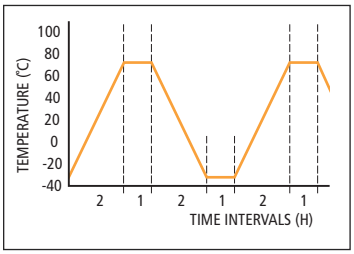
K factor 1 sensing technology

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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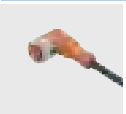
Product + accessory selector

Dimensions (mm)	Sensing Range	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	PNP, N.O.	10…36	700	100	M12 Micro DC	**IFC204**	**$94.00**
M12 / L = 60	4 mm flush	PNP, N.O.	10…36	700	200	M12 Micro DC	**IF5775**	**$94.00**
M12 / L = 50	7 mm nonflush	PNP, N.O.	10…36	700	100	M12 Micro DC	**IFC205**	**$94.00**
M12 / L = 60	7 mm nonflush	PNP, N.O.	10…36	700	200	M12 Micro DC	**IF5811**	**$94.00**
M18 / L = 46	8 mm flush	PNP, N.O.	10…36	400	100	M12 Micro DC	**IGC204**	**$95.00**
M18 / L = 72	8 mm flush	PNP, N.O.	10…36	500	250	M12 Micro DC	**IG5788**	**$95.00**
M18 / L = 51	12 mm nonflush	PNP, N.O.	10…36	300	100	M12 Micro DC	**IGC205**	**$95.00**
M18 / L = 70	12 mm nonflush	PNP/NPN, N.O.	10…36	300	100	M12 Micro DC	**IGC213**	**$95.00**
M18 / L = 72	12 mm nonflush	PNP, N.O.	10…36	300	250	M12 Micro DC	**IG5841**	**$95.00**
M30 / L = 50	15 mm flush	PNP, N.O.	10…36	100	100	M12 Micro DC	**IIC200**	**$98.00**
M30 / L = 50	22 mm nonflush	PNP, N.O.	10…36	100	100	M12 Micro DC	**IIC201**	**$98.00**
Ceramic face								
M12 / L = 45	4 mm flush	PNP, N.O.	10…36	700	100	M12 Micro DC	**IFC206**	**$98.00**
M12 / L = 70	4 mm flush	PNP/NPN, N.O.	10…36	500	100	M12 Micro DC	**IFC210**	**$103.00**
M18 / L = 46	8 mm flush	PNP, N.O.	10…36	400	100	M12 Micro DC	**IGC206**	**$100.00**
M18 / L = 70	8 mm flush	PNP/NPN, N.O.	10…36	400	100	M12 Micro DC	**IGC210**	**$105.00**
K factor 1 technology								
M12 / L = 65	3 mm flush	PNP, N.O.	10…36	> 2000	100	M12 Micro DC	**IFC259**	**$100.00**
M12 / L = 65	8 mm nonflush	PNP, N.O.	10…36	> 2000	100	M12 Micro DC	**IFC246**	**$100.00**
M18 / L = 65	5 mm flush	PNP, N.O.	10…36	> 2000	100	M12 Micro DC	**IGC232**	**$100.00**
M18 / L = 65	12 mm nonflush	PNP, N.O.	10…36	> 2000	100	M12 Micro DC	**IGC233**	**$100.00**
M30 / L = 65	10 mm flush	PNP, N.O.	10…36	1000	100	M12 Micro DC	**IIC218**	**$104.00**
M30 / L = 65	22 mm nonflush	PNP, N.O.	10…36	1000	100	M12 Micro DC	**IIC219**	**$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**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

Technical Specs

Protection:	IP68
Operating temperature:	-13…158 °F (-25…70 °C)
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:	< 0.2, < 0.5 mA: Part Nos. IFC210, IGC210; < 0.9 mA: Part No. IGC213

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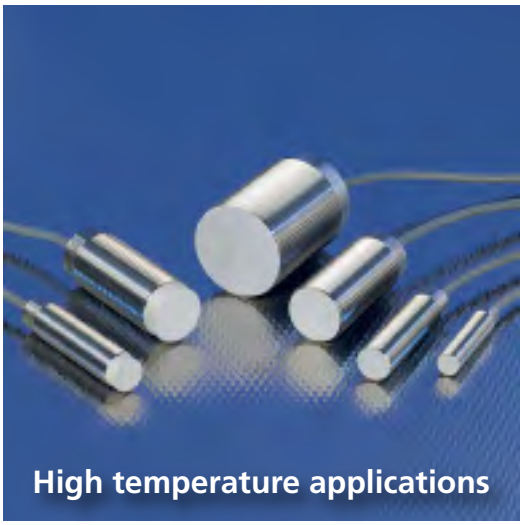

High temperature applications

Top five product features!

- *High temperature inductive sensors withstand extreme heat*
- *Designed and tested for high temperature applications typically found in the steel and glass industries*
- *For permanent operating temperatures up to 180°C (356°F)*
- *High grade stainless steel housing, Liquid Crystal Polymer (LCP) sensing face and silicone cable jacket*
- *No external amplifier needed*

High temperature inductive sensors can take the heat

High temperature inductive sensors can monitor the continuous casting line to the cooling bed in a steel forming application.

NEW! ifm has expanded its line of inductive sensors for high temperature applications. Now the product line includes 12 mm, 18 mm and additional 30 mm diameter housings to fit most high-temperature applications. The rugged, stainless steel housings can be mounted in permanent operating temperatures up to 180°C (356°F).

These sensors are especially suitable for applications in the steel, glass and furnace industries. The sensors' housings are manufactured with high grade stainless steel, a liquid crystal polymer (LCP) sensing face and a silicone cable jacket.

Application example: Industrial furnaces

The high temperature sensor can monitor the open / close position of furnace doors.

Ideal for high temperature applications

Steel mills
- Position monitoring on cooling beds
- Open/close monitoring of furnace doors
- Position monitoring on rolling mills

Glass manufacturers
- Open/close monitoring of furnace doors
- Position monitoring on glass conveyors

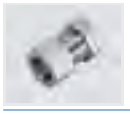
Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Product + accessory selector

Dimensions (mm)	Sensing Range	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Electrical Connection	Part No.	List Price (1-pc.)
M12 / L = 56	3 mm flush	PNP, N.O.	10…35	500	120	5 m silicone cable	**IF6074**	**$210.00**
M18 / L = 70	5 mm flush	PNP, N.O.	10…35	400	150	5 m silicone cable	**IG6614**	**$260.00**
M18 / L = 77	8 mm nonflush	PNP, N.O.	10…35	400	150	5 m silicone cable	**IG6119**	**$260.00**
M30 / L = 70	10 mm flush	PNP, N.O.	10…35	200	150	5 m silicone cable	**II5961**	**$305.00**
M30 / L = 79	15 mm nonflush	PNP, N.O.	10…35	200	150	5 m silicone cable	**II5930**	**$305.00**
M50 / L = 70	20 mm flush	PNP, N.O.	10…35	100	150	5 m silicone cable	**I95045**	**$360.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Quick-mount sleeve for 12 mm sensor	**E10806**	**$15.00**
	Quick-mount sleeve for 18 mm sensor	**E10807**	**$15.00**
	Quick-mount sleeve for 30 mm sensor	**E10808**	**$17.00**
	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**

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

Technical Specs

Protection: IP65
Housing material: Stainless steel; active face: LCP
Cable material: Silicone
Temperature: 32…356 °F (0…180 °C)
Leakage current: < 0.5 mA

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
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Easy ordering via eShop

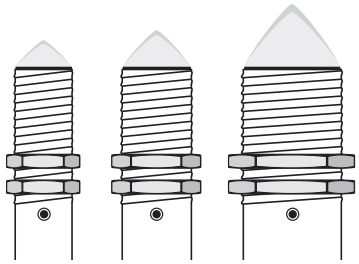
Top five product features!

- *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.

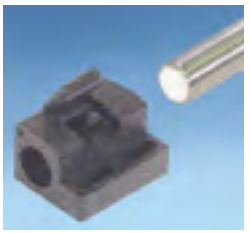


IF 12 mm Diameter | *IG 18 mm Diameter* | *II 30 mm Diameter*

Sensing range is determined by the physical size of the sensor

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

Select from 3 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.

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Product + accessory selector

Dimensions (mm)	Sensing Range	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	N.O.	20...140	25 / 200	200	1/2" Micro AC	**IF0311**	**$106.00**
M12 / L = 62	7 mm nonflush	N.O.	20...140	25 / 90	200	1/2" Micro AC	**IF0312**	**$106.00**
M18 / L = 72	8 mm flush	N.O.	20...250	25 / 60	250 / 100	1/2" Micro AC	**IG0344**	**$112.00**
M18 / L = 72	12 mm nonflush	N.O.	20...250	25 / 90	250 / 100	1/2" Micro AC	**IG0345**	**$112.00**
M30 / L = 72	15 mm flush	N.O.	20...250	25 / 40	350 / 100	1/2" Micro AC	**II0340**	**$117.00**
M30 / L = 72	22 mm nonflush	N.O.	20...250	25 / 70	350 / 100	1/2" Micro AC	**II0341**	**$117.00**

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**

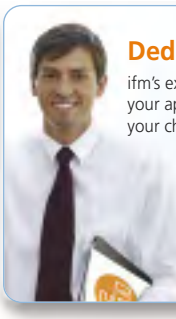
Cordsets

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



Dedicated sales engineers

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

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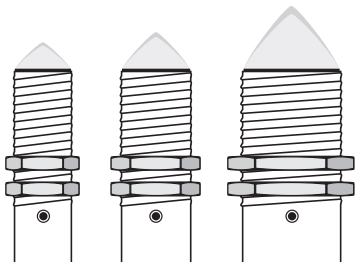
Top five product features!

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

Select from 3 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.

Position Sensors | Motion Control | Vision Sensors

Company | Inductive | Capacitive | Cylinder position | Photoelectrics and lasers | Distance, color and contrast | Fiber optics | Speed monitors | 2D / 3D inspection

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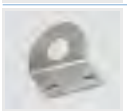
Product + accessory selector

Dimensions (mm)	Sensing Range	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	N.O.	20...250	25	250	Prewired 2 m cable	**IF0303**	**$98.00**
M12 / L = 71	4 mm nonflush	N.O.	20...250	25	250	Prewired 2 m cable	**IF0302**	**$98.00**
M18 / L = 80	5 mm flush	N.O.	20...250	25 / 50	350 / 100	Prewired 2 m cable	**IG0305**	**$99.00**
M18 / L = 80	8 mm nonflush	N.O.	20...250	25 / 50	350 / 100	Prewired 2 m cable	**IG0307**	**$99.00**
M30 / L = 81	10 mm flush	N.O.	20...250	25 / 50	350 / 100	Prewired 2 m cable	**II0272**	**$102.00**
M30 / L = 81	15 mm nonflush	N.O.	20...250	25 / 25	350 / 100	Prewired 2 m cable	**II0274**	**$102.00**

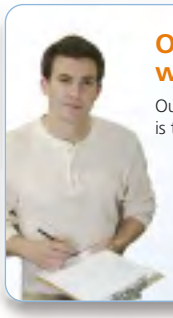
Optional Accessories

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



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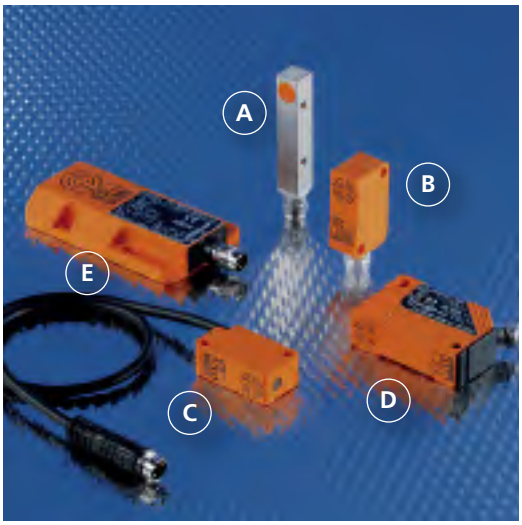


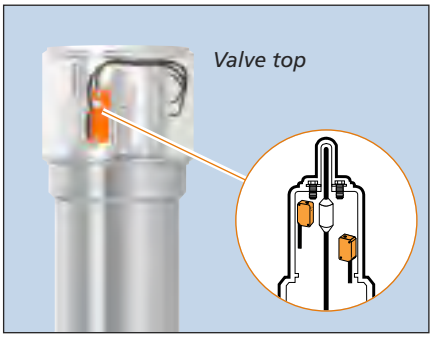
Top five product features!

- *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

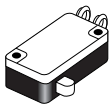
ifm efector's small rectangular proximity sensors are ideal for sensing the "open" and "closed" positions of a rising stem valve. The housing design of the IS Series family is a direct replacement for V3 style mechanical devices. The sensors are based on standard inductive technology and are mounted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

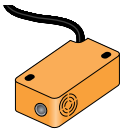


Compact rectangular sensors can be mounted in the valve top for non-contact sensing of the stem.

Retrofits V3 style mechanical switches



V3 style mechanical device



ifm Series IS non-contact sensor

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Product + accessory selector

	Dimensions (mm)	Sensing Range	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	PNP, N.O.	10...36	2000	250	M8 Pico	**IL5004**	**$92.00**
B	28 x 10 x 16	2 mm flush	PNP, N.O.	10...36	800	200	M8 Pico	**IS5035**	**$100.00**
C	28 x 10 x 16	2 mm flush	PNP, N.O.	10...36	800	200	Prewired 2 m cable	**IS5001**	**$80.00**
	28 x 10 x 16	2 mm flush	NPN, N.O.	10...36	800	200	Prewired 2 m cable	**IS5003**	**$80.00**
	28 x 10 x 16	2 mm flush	PNP/NPN, N.O. / N.C.	10...36	2000	200	Prewired 2 m cable	**IS5026**	**$83.00**
	28 x 10 x 16	2 mm flush	PNP, N.O.	10...36	800	200	Pigtail 0.3 m cable w/ M8 Pico	**IS5068**	**$103.00**
D	40 x 12 x 26	2 mm flush	PNP, N.O.	10...36	1400	250	M8 Pico	**IN5230**	**$106.00**
	40 x 12 x 26	4 mm nonflush	PNP, N.O.	10...36	1300	250	M8 Pico	**IN5212**	**$106.00**
	40 x 12 x 26	2 mm flush	PNP, N.O.	10...36	1400	250	Prewired 2 m cable	**IN5121**	**$87.00**
	40 x 12 x 26	2 mm flush	NPN, N.O.	10...36	1400	250	Prewired 2 m cable	**IN5125**	**$87.00**
	40 x 12 x 26	4 mm nonflush	PNP, N.O.	10...36	1300	250	Prewired 2 m cable	**IN5129**	**$87.00**
	40 x 12 x 26	4 mm nonflush	NPN, N.O.	10...36	1300	250	Prewired 2 m cable	**IN5133**	**$87.00**
E	60 x 36 x 10	8 mm nonflush	PNP, N.O.	10...36	300	250	M8 Pico	**IW5064**	**$101.00**
	60 x 36 x 10	8 mm nonflush	NPN, N.O.	10...36	120	250	Prewired 2 m cable	**IW5008**	**$91.00**

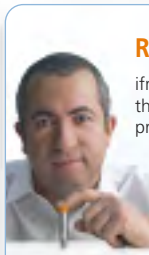
Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	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**	**$23.00**
	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**	**$23.00**

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 -4...176 °F (-20...80 °C): Part Nos. IN5230, IW5064
Leakage Current:	Negligible
Housing materials:	Special coated brass; active face; LCP: Part No. IL5004 PBT: Part Nos. IN5069, IN5121, IN5125, IN5129, IN5133, IN5212, IN5230, IS5001, IS5003, IS5035, IS5068, IW5008 and IW5064



R&D that delivers solutions

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

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Easy ordering via eShop

Top five product features!

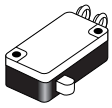
- *Robust industry standard miniature housing for applications with limited mounting space*
- *Sensors retrofit V3 mechanical switches which increases uptime and reduces installation time*
- *Corrosion resistant plastic housing designed and tested to withstand industrial automation environments*
- *Wide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

Compact sensors with powerful performance

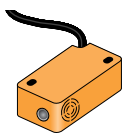
ifm efector's small rectangular proximity sensors are ideal for sensing the "open" and "closed" positions of a rising stem valve. The housing design of the Series IS family is a direct replacement for V3 style mechanical devices. The sensors are based on standard inductive technology and are mounted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

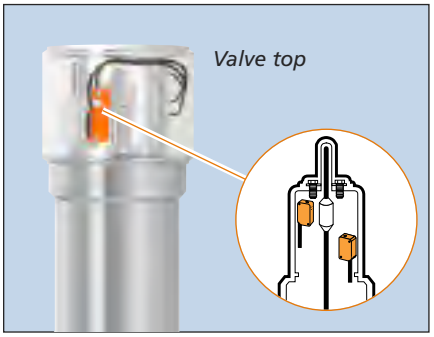
Retrofits V3 style mechanical switches



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.

	Position Sensors						Motion Control	Vision Sensors
Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Search Bar

Product + accessory selector

Dimensions (mm)	Sensing Range	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	N.O.	20...140 AC / 10...140 DC	25	200	Prewired 0.3 m cable	**IS3501**	**$88.00**
28 x 10 x 16	2 mm flush	N.C.	20...140 AC / 10...140 DC	25	200	Prewired 0.3 m cable	**IS0008**	**$88.00**
40 x 12 x 26	2 mm flush	N.O.	20...250	25 / 50	350 / 250	Prewired 2 m cable	**IN0097**	**$95.00**
40 x 12 x 26	4 mm nonflush	N.O.	20...250	25 / 50	350 / 250	Prewired 2 m cable	**IN0098**	**$95.00**

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

Simple and comprehensive website

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Top five product features!

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

Rugged housing for industrial applications

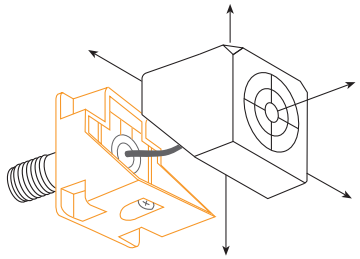
IMC rectangular inductive proximity sensors feature extended sensing ranges for rugged industrial automation applications. The sensor can be placed farther away from the target which provides protection against mechanical damage in applications such as conveying.

Ideal for packaging lines and conveying applications, the IMC "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 66mm and features a sensing face that rotates in one of five different directions. An integrated mounting bracket offers simple installation and the sensor's Micro DC connector rotates 270 degrees for optimal mounting versatility.

Flexible mounting options

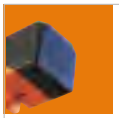


The IMC "Cube" sensor can rotate in one of five different directions for application versatility.

PNP to NPN converter cordset

This cordset converts PNP outputs to NPN outputs.

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

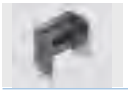


Product + accessory selector

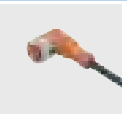
Dimensions (mm)	Sensing Range	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Sensor Termination	Part No.	List Price (1-pc.)
40 x 40 x 66	20 mm flush	PNP, N.O.	10...36	100	200	M12 Micro DC	**IM5115**	**$50.00**
40 x 40 x 66	35 mm nonflush	PNP, N.O.	10...36	80	200	M12 Micro DC	**IM5116**	**$50.00**
92 x 80 x 40	50 mm flush*	PNP, N.O.	10...36	70	250	M12 Micro DC	**ID5055**	**$170.00**
105 x 80 x 40	60 mm nonflush	PNP, N.O.	10...36	100	250	M12 Micro DC	**ID5046**	**$221.00**

*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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

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Technical Specs

Protection: IP67
Operating Temperature: -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 five product features!

- *IM Series "Cube" sensing face can rotate in one of five different directions for application versatility*
- *Two corner-mounted bright LEDs indicate power and switching status*
- *Easily retrofits limit switches using only half the space*
- *ID and IM Series feature extended sensing ranges reduce failure from mechanical damage and increase uptime*
- *Micro AC connector rotates 270 degrees for optimal mounting versatility*

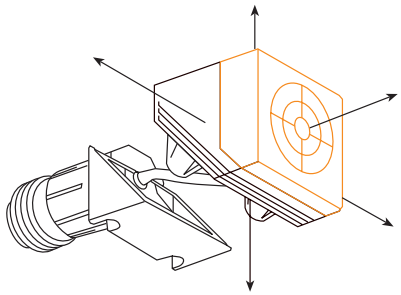
Robust rectangular sensors easily retrofit limit switches

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

IMC Cube is compact with no moving parts.

Application flexibility



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

Position Sensors | Motion Control | Vision Sensors
Company | Inductive | Capacitive | Cylinder position | Photoelectrics and lasers | Distance, color and contrast | Fiber optics | Speed monitors | 2D / 3D inspection
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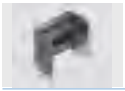
Product + accessory selector

Dimensions (mm)	Sensing Range	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	N.O.	20...140	25 / 100	450	1/2" Micro AC	**IM0055**	**$100.00**
40 x 40 x 66	35 mm nonflush	N.O.	20...140	25 / 100	350	1/2" Micro AC	**IM0041**	**$100.00**
40 x 40 x 120	15 mm flush	Programmable N.O. / N.C.	20...250	20 / 55	350 (…50°C), 250 (…80°C) / 100	1/2" NPT Terminal Chamber	**IM0020**	**$107.00**
40 x 40 x 120	20 mm nonflush	Programmable N.O. / N.C.	20...250	20 / 55	350 (…50°C), 250 (…80°C) / 100	1/2" NPT Terminal Chamber	**IM0013**	**$107.00**
40 x 80 x 112	50 mm flush*	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*	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	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**

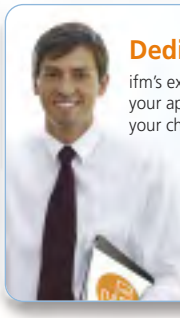
Cordsets

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**

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: < 1.7 mA
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 five 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

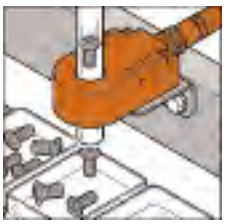
Static sensors operate like an inductive proximity sensor and generate an output signal when there is metal in the detection zone. These sensors can be used for a variety of feed applications that include detecting falling screws or monitoring for jams. Static-style sensors are also used in wire-brake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

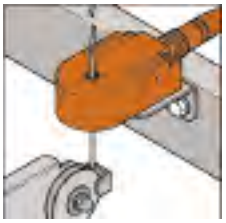
Ideal for assembly automation applications that include feeder processes and parts counting.

Application solutions



Ring sensor detects parts in hoses

Tube sensor detects parts in feed hose



Wire break detection

Position Sensors | Motion Control | Vision Sensors

Company | Inductive | Capacitive | Cylinder position | Photoelectrics and lasers | Distance, color and contrast | Fiber optics | Speed monitors | 2D / 3D inspection

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Product + accessory selector

Ring Diameter (mm)	Sensing Range (mm)	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	–	PNP, N.O. / N.C.	Static	1.5	M12 Micro	10…150	0.5 / 10	**I7R201**	**$188.00**
10.1	–	NPN, N.O. / N.C.	Static	1.5	M12 Micro	10…150	0.5 / 10	**I7R202**	**$188.00**
15.1	–	PNP, N.O. / N.C.	Static	2	M12 Micro	10…150	0.5 / 10	**I7R205**	**$188.00**
15.1	–	NPN, N.O. / N.C.	Static	2	M12 Micro	10…150	0.5 / 10	**I7R206**	**$188.00**
20.1	–	PNP, N.O. / N.C.	Static	2.5	M12 Micro	10…150	0.5 / 10	**I7R209**	**$188.00**
20.1	–	NPN, N.O. / N.C.	Static	2.5	M12 Micro	10…150	0.5 / 10	**I7R210**	**$188.00**
25.1	–	PNP, N.O. / N.C.	Static	3	M12 Micro	10…150	0.5 / 10	**I7R213**	**$188.00**
25.1	–	NPN, N.O. / N.C.	Static	3	M12 Micro	10…150	0.5 / 10	**I7R214**	**$188.00**
51	–	PNP, N.O. / N.C.	Static	6	M12 Micro	10…150	0.5 / 10	**I7R217**	**$262.00**
10.1	–	PNP, N.O. / N.C.	Dynamic	0.6	M12 Micro	0.1…150	0.2 / 0.2	**I7R203**	**$198.00**
10.1	–	NPN, N.O. / N.C.	Dynamic	0.6	M12 Micro	0.1…150	0.2 / 0.2	**I7R204**	**$198.00**
15.1	–	PNP, N.O. / N.C.	Dynamic	0.8	M12 Micro	0.1…150	0.2 / 0.2	**I7R207**	**$198.00**
15.1	–	NPN, N.O. / N.C.	Dynamic	0.8	M12 Micro	0.1…150	0.2 / 0.2	**I7R208**	**$198.00**
20.1	–	PNP, N.O. / N.C.	Dynamic	1	M12 Micro	0.1…150	0.2 / 0.2	**I7R211**	**$198.00**
20.1	–	NPN, N.O. / N.C.	Dynamic	1	M12 Micro	0.1…150	0.2 / 0.2	**I7R212**	**$198.00**
25.1	–	PNP, N.O. / N.C.	Dynamic	1.2	M12 Micro	0.1…150	0.2 / 0.2	**I7R215**	**$188.00**
25.1	–	NPN, N.O. / N.C.	Dynamic	1.2	M12 Micro	0.1…150	0.2 / 0.2	**I7R216**	**$188.00**
Tube sensors									
–	14	PNP, N.O.	Static	3	M8 Pico	100	0.5 / 100	**I85000**	**$188.00**
–	14	NPN, N.O.	Static	3	M8 Pico	100	0.5 / 100	**I85001**	**$188.00**
–	20	PNP, N.O.	Dynamic	1	M8 Pico	100	0.2 / 100	**I85004**	**$188.00**
–	20	NPN, N.O.	Dynamic	1	M8 Pico	100	0.2 / 100	**I85005**	**$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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**

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

Top five 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

Position Sensors | Motion Control | Vision Sensors

Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
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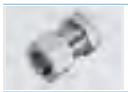
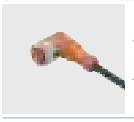
Product + accessory selector

Dimensions (mm)	Sensing Range	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	PNP, N.O.	10...36	50	100	M12 Micro	**KF5001**	**$129.00**
M12 / L = 61	8 mm nonflush	PNP, N.O.	10...36	50	100	M12 Micro	**KF5002**	**$129.00**

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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$12.75**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR, LED	**EVC009**	**$19.00**

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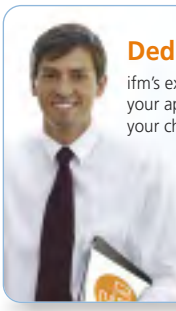
Technical Specs

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 five 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

NEW! 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 capacitive sensing principles for reliable operation

ifm offers two types of devices for start / stop control. KT touch sensors utilizing the dynamic capacitive principle detect a hand or finger for actuation. The output signal is actuated for 300 mS. 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.

Static touch sensors detect hands and objects for as long as the sensing face is damped. This is particularly useful in two-hand control or anti-tie-down applications. Static touch sensors also work through glass.

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.

Position Sensors | Motion Control | Vision Sensors
Company | Inductive | Capacitive | Cylinder position | Photoelectrics and lasers | Distance, color and contrast | Fiber optics | Speed monitors | 2D / 3D inspection
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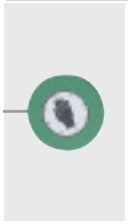
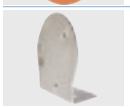
1 - 7 | 8 - 43 | 44 - 47 | 48 - 53 | 54 - 83 | 84 - 89 | 90 - 95 | 96 - 99 | 100 - 113

Product + accessory selector

	Operating Principle	Output Function	Connection	Part No.	List Price (1-pc.)
	Dynamic	PNP, N.O.	2 m PUR cable	**KT5001**	**$140.00**
	Dynamic	PNP, N.O.	2 m PUR cable, green LEDs controlled via pin 2	**KT5009**	**$140.00**
	Dynamic	PNP, N.O.	0.3 m PUR cable with M8 pigtail	**KT5002**	**$150.00**
	Dynamic	NPN, N.O.	0.3 m PUR cable with M8 pigtail	**KT5007**	**$150.00**
	Static	PNP, N.O.	2 m PUR cable	**KT5005**	**$152.00**
	Static	PNP, N.O.	0.3 m PUR cable with M8 pigtail	**KT5006**	**$160.00**

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

Optional accessories

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 Micro DC (4-pin), 2 m, PUR	**EVC150**	**$14.00**
	M8 Micro DC (4-pin), 5 m, PUR	**EVC151**	**$17.00**
	M8 Micro DC (4-pin), 2 m, PUR	**EVC153**	**$14.00**
	M8 Micro DC (4-pin), 5 m, PUR	**EVC154**	**$17.00**

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

Technical Specs

Operating voltage: 24 (12…36) VDC
Supply current: 30 mA
Operating temperature: -104...185 °F (-40...85 °C)
Protection: IP69K

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
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Shop for products online
Easy ordering via eShop

Top five 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
- Dual cylinder sensor versions simplify wiring – 2 sensor elements

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.

NEW! MK dual sensors reduce wiring

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

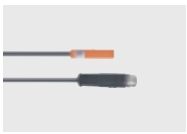
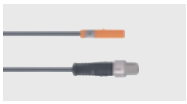
Mounting comparison

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.

See page 50 and 51 for mounting accessories.

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**	**$51.00**
	3	PNP, N.C.	10...30 VDC	6000	100	Prewired 2 m cable	**MK5156**	**$51.00**
	3	NPN, N.O.	10...30 VDC	10000	100	Prewired 2 m cable	**MK5114**	**$51.00**
	2	PNP/NPN, N.O.	10...30 VDC	4000	100	Prewired 2 m cable	**MK5103**	**$51.00**
	3	PNP, N.O.	10...30 VDC	6000	100	M8 Snap-fit 0.3 m pigtail	**MK5138**	**$51.00**
	3	PNP, N.C.	10...30 VDC	6000	100	M8 Snap-fit 0.3 m pigtail	**MK5155**	**$51.00**
	3	NPN, N.O.	10...30 VDC	6000	100	M8 Snap-fit 0.3 m pigtail	**MK5137**	**$51.00**
	2	PNP/NPN, N.O.	10...30 VDC	4000	100	M8 Snap-fit 0.3 m pigtail	**MK5104**	**$51.00**
	3	PNP, N.O.	10...30 VDC	6000	100	M8 Threaded 0.3 m pigtail	**MK5159**	**$51.00**
	3	NPN, N.O.	10...30 VDC	10000	100	M8 Threaded 0.3 m pigtail	**MK5152**	**$51.00**
	3	PNP, N.O.	10...30 VDC	6000	100	M12 Threaded 0.3 m pigtail	**MK5139**	**$51.00**
	3	NPN, N.O.	10...30 VDC	6000	100	M12 Threaded 0.3 m pigtail	**MK5186**	**$53.00**
Dual sensor	4	PNP, N.O.	10...30 VDC	6000	100	M8 Threaded 0.3 m pigtail	**MK5208**	**$98.00**
	4	PNP, N.O.	10...30 VDC	6000	100	M12 Threaded 0.3 m pigtail	**MK5209**	**$98.00**

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

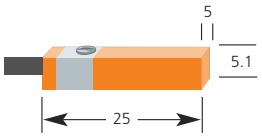
Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**

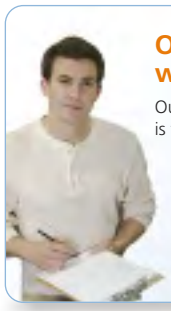
Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Voltage drop:	2.5 V; except Part Nos. MK5103, 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: 2.8 mT
Travel speed:	max > 10 m/s
Repeatability:	< 0.2 mm
Housing material:	PA (polyamide); stainless steel

Compact, flush sensor (mm)





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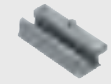
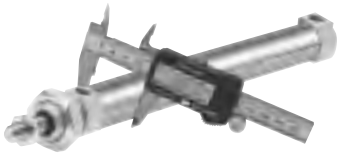
Cylinder Type	Accessory Type		Accessory Description	Part No.	List Price (1-pc.)
Smooth Cylinder	Protective Bracket		Outside Ø 11…19 mm Bore size 7/16 to 9/16" (10-16 mm)	**E11975**	**$9.00**
			Outside Ø 18…29 mm Bore size 7/8 to 1-1/16" (20-25 mm)	**E11976**	**$9.00**
			Outside Ø 28…39 mm Bore size 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...5 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**

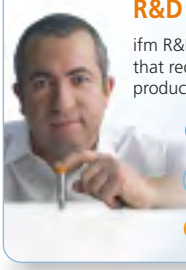
Cylinder Type	Accessory Type	Accessory Description	Part No.	List Price (1-pc.)
Integrated Profile Cylinders	Integrated Profile Bracket	Integrated profile thickness diameter 9...15 mm	**E11799**	**$10.00**
		Integrated profile thickness diameter 14...20 mm	**E11801**	**$12.00**
Standard Cylinders		Standard T-slot cylinders typically do not require adapters. If you have a nonstandard size T-slot cylinder, please contact Customer Service. 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.

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Top five 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 into small grippers and short stroke cylinders.

Technology comparison

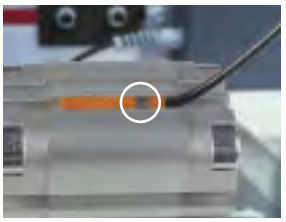
	Reed	ifm Solid State	Solid State Advantages
Durability	Low (1-2 M cycles)	High (unlimited cycles)	ifm cylinder sensor has unlimited number of cycles. Typically, a reed switch is replaced many times during the life of a cylinder.
Repeatability	Low	High	Provides excellent repeatability. Mechanical wear 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.

NEW! MK dual sensors reduce wiring

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

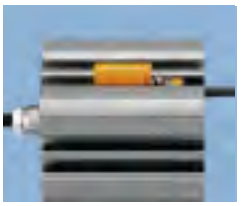
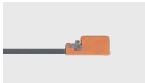
Mounting comparison

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.*

Product + accessory selector

	Type	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		PNP, N.O.	10...30	5000	100	M8 Snap-fit 0.3 m pigtail	**MK5326**	**$54.00**
		NPN, N.O.	10...30	10,000	100	M8 Snap Fit 0.3 m pigtail	**MK5308**	**$54.00**
		PNP, N.O.	10...30	5000	100	M8 Threaded 0.3 m pigtail	**MK5328**	**$54.00**
		PNP, N.O.	10...30	10,000	100	M12 Threaded 0.3 m pigtail	**MK5314**	**$54.00**
		PNP, N.O.	10...30	5000	100	Prewired 2 m cable	**MK5325**	**$54.00**
		NPN, N.O.	10...30	10,000	100	Prewired 2 m cable	**MK5309**	**$54.00**
	Dual sensor	PNP, N.O.	10...30	5000	100	M8 Threaded 0.3 m pigtail	**MK5350**	**$98.00**
		PNP, N.O.	10...30	5000	100	M12 Threaded 0.3 m pigtail	**MK5351**	**$98.00**
Nonflush mount sensors for small grippers and short stroke cylinders 		PNP, N.O.	10...30	5000	100	M8 Snap-fit 0.3 m pigtail	**MK5330**	**$54.00**
		NPN, N.O.	10...30	10,000	100	M8 Snap Fit 0.3 m pigtail	**MK5307**	**$54.00**
		PNP, N.O.	10...30	5000	100	M8 Threaded 0.3 m pigtail	**MK5331**	**$54.00**
		PNP, N.O.	10...30	10,000	100	M12 Threaded 0.3 m pigtail	**MK5304**	**$54.00**
		PNP, N.O.	10...30	5000	100	Prewired 2 m cable	**MK5329**	**$54.00**
		NPN, N.O.	10...30	10,000	100	Prewired 2 m cable	**MK5306**	**$54.00**

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

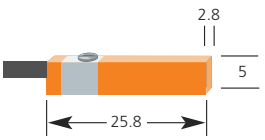
Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**

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

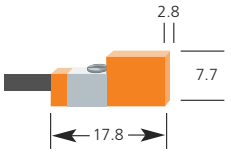
Technical Specs

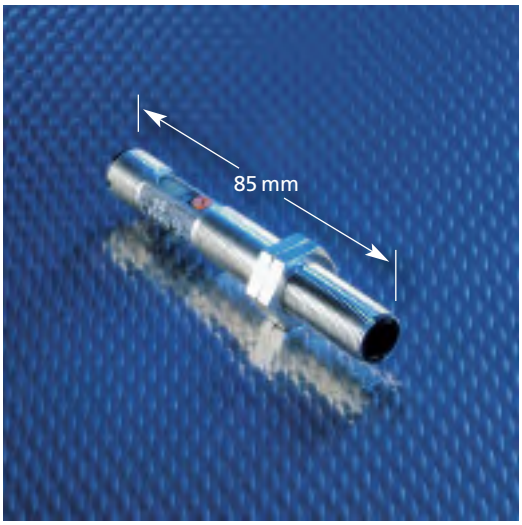
Number of wires:	3-wire
Voltage drop:	2.5V
Min. load current:	N/A
Leakage current:	negligible
Operating temperature:	-13...185 °F (-25...85 °C)
Protection rating:	IP67
Cable jacket material:	PUR
Magnetic sensitivity:	2.0 mT; except Part Nos. MK5304, MK5306, MK5307, MK5308, MK5309, MK5314: 2.8 mT
Travel speed:	max > 10 m/s
Repeatability:	< 0.2 mm
Housing material:	PA (polyamide); stainless steel

Flush mount sensors (mm)



Nonflush mount sensors (mm)



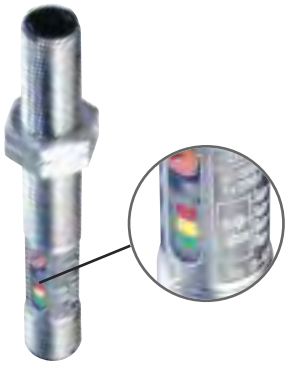


Top five product features!

- *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.

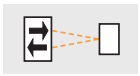
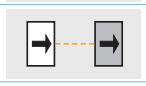
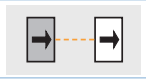
Compact and reliable

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

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

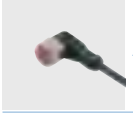
Product + accessory selector

Function		Range	Output	Spot Ø at max range	Supply Current	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**	**$112.00**
		1...400 mm	LO/DO NPN	185 mm	35 mA	400 Hz	Infrared 880 nm	**OF5060**	**$112.00**
Polarized retro-reflective		200...800 mm	LO/DO PNP	70 mm	35 mA	400 Hz	Red light 660 nm	**OF5025**	**$107.00**
		200...800 mm	LO/DO NPN	70 mm	35 mA	400 Hz	Red light 660 nm	**OF5062**	**$107.00**
Thru-beam receiver		0...4 m	LO/DO PNP	–	30 mA	400 Hz	–	**OF5022**	**$82.00**
Thru-beam transmitter		0...4 m	–	700 mm	25 mA	–	Infrared 880 nm	**OF5021**	**$71.00**

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**	**$23.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$12.75**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$15.00**

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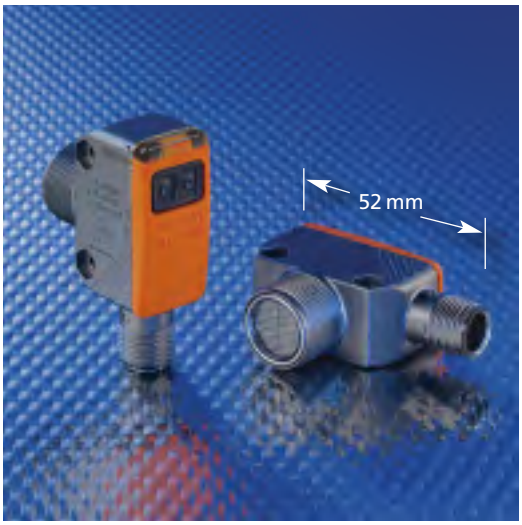
Technical Specs

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



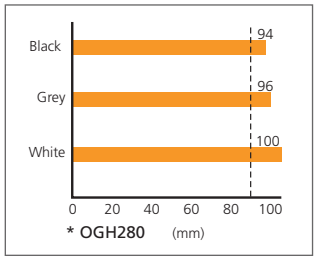
Top five product features!

- 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.

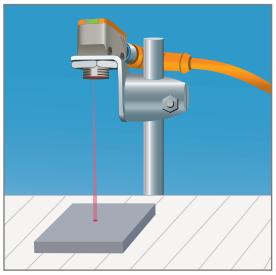


Reliable performance regardless of target color

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

High performance background suppression

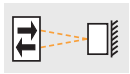
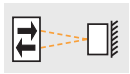
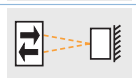
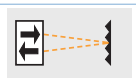
The OG background suppression sensor uses diode array technology that enables the sensor to differentiate between the target and the background regardless of background color.



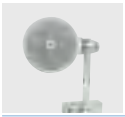
Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

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**	**$82.00**
		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**	**$82.00**
		200 mm	LO NPN	13 mm	25 mA	1000 Hz	Red light 624 nm	**OGH283**	**$82.00**
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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$12.75**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$15.00**

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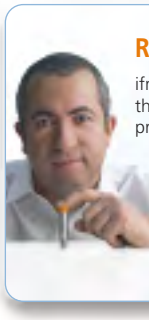
Technical Specs

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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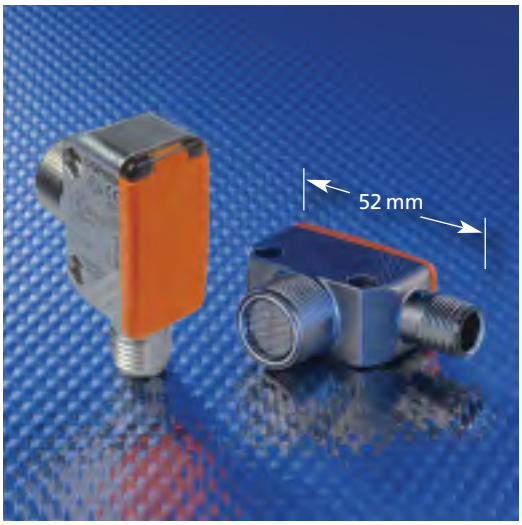


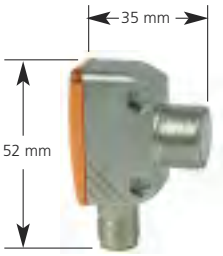
Top five product features!

- Robust M18 diameter photoelectric resists mechanical damage
- Simple two-wire 20 - 250 V AC design does not require grounding wire allowing quick installation
- 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

Robust solution for industrial environments

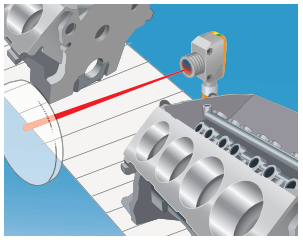
ifm's OG sensor is designed to provide reliable position detection in harsh industrial applications. The sensor's metal housing is more durable than traditional plastic housings that can wear or break over time.

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.



Smaller profile AC sensor

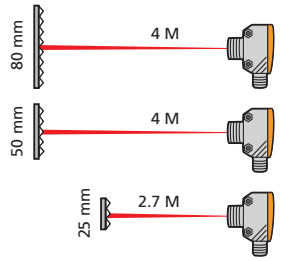
The OG sensor occupies less space than a traditional tubular sensor and is ideal for applications with limited mounting space.



OG retro-reflective models contain a polarizing filter that eliminates false triggers from shiny targets.

Long sensing range

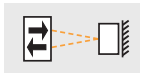
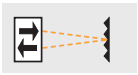
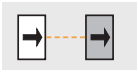
Polarization retro-reflective sensors offer outstanding performance with long sensing ranges. The OG sensor has a 4 meter range with a 50 mm reflector.



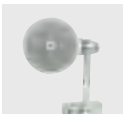
Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

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 background suppression		100 mm	LO	7 mm	5 mA	30 Hz	Red Light 633 nm	**OGH080**	**$93.00**
		100 mm	DO	7 mm	5 mA	30 Hz	Red Light 633 nm	**OGH081**	**$93.00**
Polarized retro-reflective		0.1...4 m	DO	160 mm	5 mA	30 Hz	Red Light 633 nm	**OGP080**	**$86.00**
		0.1...4 m	LO	160 mm	5 mA	30 Hz	Red Light 633 nm	**OGP081**	**$86.00**
Thru-beam receiver		0...20 m	DO	160 mm	5 mA	30 Hz	–	**OGE080**	**$83.00**
		0...20 m	LO	160 mm	5 mA	30 Hz	–	**OGE081**	**$83.00**
Thru-beam transmitter		0...20 m	–	800 mm	5 mA	–	Red Light 633 nm	**OGS080**	**$74.00**

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.)
	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:	200 mA (...40°C) / 150 mA (...60 °C)
Voltage drop:	< 8 V
Leakage current:	1.7 mA
Connector:	1/2"
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 five 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 a 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.

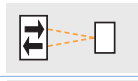
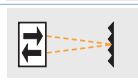
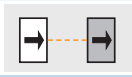
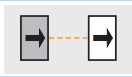
Bracket system offers accurate alignment

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

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

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**	**$108.00**
		15...300 mm	LO/DO NPN	25 mm	25 mA	1000 Hz	Red light 624 nm	**OGH502**	**$108.00**
Diffuse		2...800 mm	LO/DO PNP	66 mm	25 mA	2000 Hz	Red light 624 nm	**OGT500**	**$104.00**
Polarized retro-reflective		0.03...5 m	LO/DO PNP	200 mm	20 mA	2000 Hz	Red light 624 nm	**OGP500**	**$104.00**
		0.03...5 m	LO/DO NPN	200 mm	20 mA	2000 Hz	Red light 624 nm	**OGP503**	**$104.00**
Thru-beam receiver		0...25 m	LO/DO PNP	–	11 mA	1000 Hz	–	**OGE500**	**$92.00**
		0...25 m	LO/DO NPN	–	11 mA	1000 Hz	–	**OGE503**	**$92.00**
Thru-beam transmitter		0...25 m	–	1000 mm	20 mA	–	Red light 624 nm	**OGS500**	**$74.00**

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**	**$23.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$12.75**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$15.00**

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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

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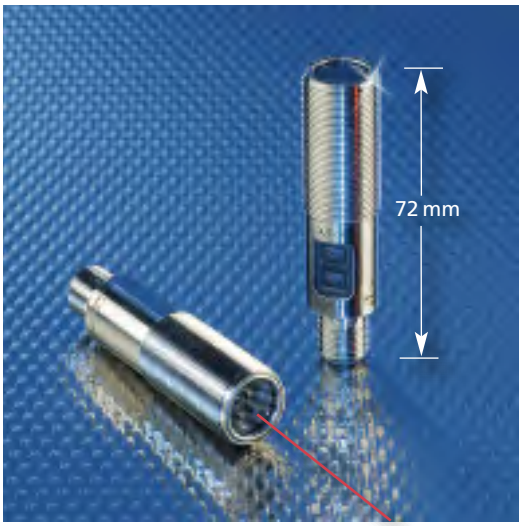


Top five product features!

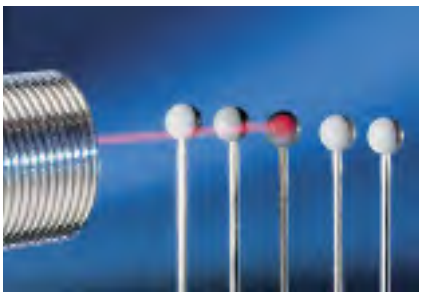
- *Class 1 laser light source detects small objects and provides visual indication of beam alignment*
- *316 stainless steel housing designed and tested to withstand industrial automation applications*
- *Extremely long sensing ranges for application flexibility*
- *Innovative two-pushbutton 'Teach Mode' 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.

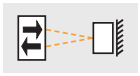
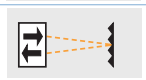
Part no.: EVC01E (5 meters)
List price (1-pc): $19.00

Position Sensors | Motion Control | Vision Sensors

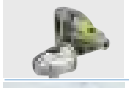
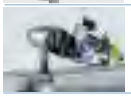
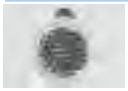
Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Search Bar

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**	**$244.00**
Polarized retro-reflective		0.2...15 m	LO/DO PNP	40 mm	15 mA	2000 Hz	Class 1 laser	**OGP700**	**$241.00**
		0.2...2 m	LO/DO PNP	5 mm	15 mA	2000 Hz	Class 1 laser	**OGP701**	**$241.00**
Thru-beam receiver		0...60 m	LO/DO PNP	–	11 mA	1000 Hz	Class 1 laser	**OGE700**	**$131.00**
		0...2 m	LO/DO PNP	–	11 mA	1000 Hz	Class 1 laser	**OGE701**	**$131.00**
Thru-beam transmitter		0...60 m	–	150 mm	13 mA	–	Class 1 laser	**OGS700**	**$189.00**
		0...2 m	–	5 mm	13 mA	–	Class 1 laser	**OGS701**	**$189.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Fine adjust swivel bracket for OG laser	**E20987**	**$45.00**
	Rail mount package, fine adjust swivel bracket for OG laser	**E20868**	**$54.00**
	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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$12.75**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$15.00**

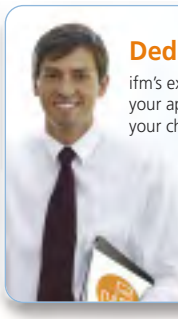
Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Supply voltage:	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
21CFR PART1040

Class 1 Laser



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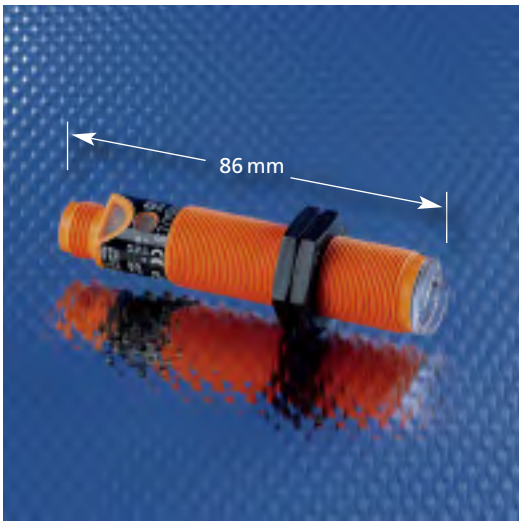

Top five product features!

- *Industry standard 18 mm diameter photoelectric suits a variety of applications*
- *Simple two-wire, AC design does not require grounding wire allowing quick installation*
- *Automatic pushbutton provides easy setup adjustment and simplifies installation*
- *Electronic lock prevents unauthorized adjustments*
- *One-piece molded housing is completely sealed against environment*

Robust construction and automatic setup

OG sensors incorporate microprocessor-based electronics in a compact housing that is completely sealed against harsh conditions. The body is molded as a single unit, including the windows for the LEDs and pushbutton. The lens is assembled in the ultrasonically-welded housing.

The microprocessor allows the OG to learn the characteristics of both the target and the background. The sensitivity is automatically calibrated to provide the maximum safety margin. The sensor will also detect marginal operating conditions and provide a warning via a red LED.

The pushbutton can be locked after calibration, reducing maintenance and service calls caused by tampering with the adjustment.

Mounting versatility

The sensor's 2-wire design simplifies wiring. The sensor's red beam alignment simplifies setup.

Position Sensors | Motion Control | Vision Sensors

Company | Inductive | Capacitive | Cylinder position | Photoelectrics and lasers | Distance, color and contrast | Fiber optics | Speed monitors | 2D / 3D inspection

Search Bar

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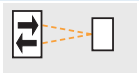
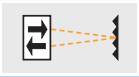
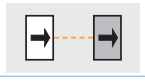
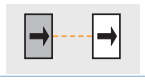
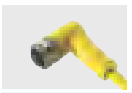
Product + accessory selector

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**	**$96.00**
		1...600 mm	DO	169 mm	5 mA	25 Hz	Infrared 880 nm	**OG0041**	**$96.00**
Polarized retro-reflective		0.1...3 m	LO	262 mm	5 mA	25 Hz	Red light 660 nm	**OG0044**	**$96.00**
		0.1...3 m	DO	262 mm	5 mA	25 Hz	Red light 660 nm	**OG0033**	**$96.00**
Thru-beam receiver		0...15 m	LO	–	5 mA	25 Hz	–	**OG0031**	**$83.00**
		0...15 m	DO	–	5 mA	25 Hz	–	**OG0039**	**$83.00**
Thru-beam transmitter		0...15 m	–	2000 mm	5 mA	–	Infrared 880 nm	**OG0030**	**$66.00**

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**	**$23.00**

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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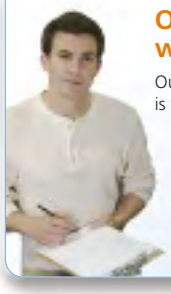
Technical Specs

Supply voltage:	20…250 V AC/DC
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"
Housing material:	PBT
Lens material:	PMMA
Operating temperature:	-13...176 °F (-25...80 °C)
Protection:	IP67



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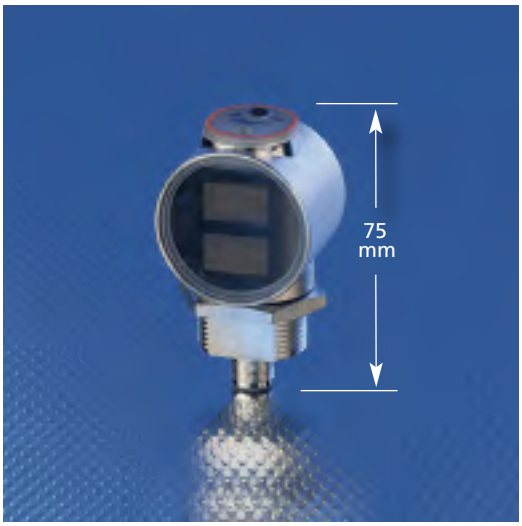


Top five product features!

- *The easiest photoelectric you'll every set*
- *Directly replaces standard 30 mm mount rectangular photoelectrics*
- *Mechanically robust, all-metal housing eliminates the need for protective bracket, reducing install cost*
- *High accuracy background suppression technology eliminates the need for adjustments as target colors change*
- *Simple bench setup – no power needed*

OI Series photoelectric sensors with M30 mounting and quick setup

NEW! ifm's OI photoelectric sensors offer a variety of sensing solutions for the conveying, material handling, packaging and automotive industries. Simple to setup and easy to install, the OI Series photoelectric sensors allow users to set a switchpoint quickly.

Switchpoint with distance for diffuse sensing

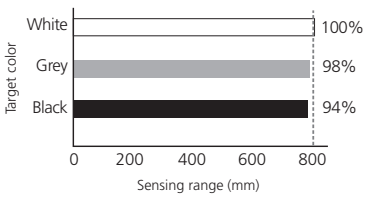
In just three easy steps, the ifm OI sensor is ready to go in your application. No complicated installation instructions to read. No power is required for simple bench setup. Simply measure the distance from the sensor to the target, adjust the multi-turn potentiometer to the required distance and connect power. It's that easy. The innovative potentiometer lets a user know exactly the switchpoint distance which correlates to the number on the display (#1 = 1 mm; #2 = 200 mm, etc…) The OI provides an accurate linear switchpoint setting that is proportional to the number of turns.

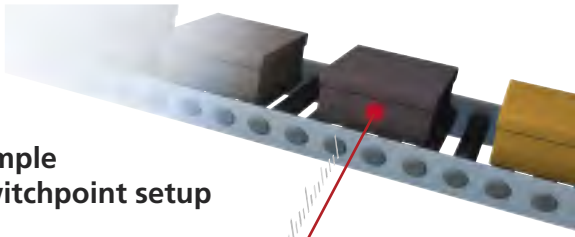
Direct replacement of 30mm mount rectangular photoelectrics

ifm's OI compact all-metal housing can easily replace standard 30 mm mount rectangular photoelectrics. The sensor's durable housing makes it ideal for harsh automation applications. The housing is so mechanically robust that a protective bracket is not necessary which reduces total install costs in both material and time.

Reliable performance regardless of target color

The OI background suppression model has a sensing range of up to 800 mm.





Simple switchpoint setup

1 Measure the distance and align the sensor

In just three easy steps the OI sensor is ready to go!

2 Adjust the multi-turn potentiometer to the required distance for the target

cm

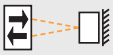
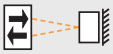
3 Plug in the power & GO!

Turn	Sensing range
1	100 mm
2	200 mm
3	300 mm
4	400 mm
5	500 mm
6	600 mm
7	700 mm
8	800 mm

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Product + accessory selector

	Function		Range	Output	Part No.	List Price (1-pc.)
	Diffuse background suppression with multi-turn potentiometer		50...800 mm	Light on, PNP	**OIH580**	**$96.00**
			50...800 mm	Light on, NPN	**OIH582**	**$96.00**
	Diffuse background suppression		600 mm	Light on, PNP	**OIH280**	**$92.00**
			600 mm	Light on, NPN	**OIH282**	**$92.00**
	Polarized retro-reflective		0.1…15 m*	Dark on, PNP	**OIP280**	**$86.00**
			0.1…15 m*	Light on, PNP	**OIP281**	**$86.00**
			0.1…15 m*	Dark on, NPN	**OIP282**	**$86.00**
			0.1…15 m*	Light on, NPN	**OIP283**	**$86.00**

* When used with 80 mm diameter reflector

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting bracket for 30 mm OI sensor	**UE0023**	**$5.00**
	Reflector – 50 mm diameter	**E20956**	**$9.00**
	Reflector – 80 mm diameter	**E20005**	**$8.00**

Application Markets

Material handling
Automotive body and assembly
Automotive powertrain
Packaging
Steel
Wood processing
Pulp and paper

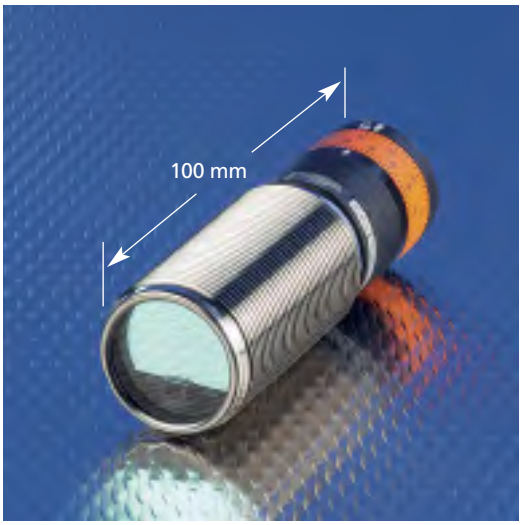
Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$12.75**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$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	10…30 VDC
Light source	Red light 655 nm
Max load current	200 mA
Voltage drop	<2.5 V
Switching frequency	OIH: 300 Hz; OIP: 1000 Hz
Protection rating	IP67
Operating temperature	-13…140 °F (-25…60 °C)
LEDs	Power: green; Output: yellow
Housing material	Zinc diecast, nickel-plated
Lens material	PMMA
Electrical connection	M12



Top five product features!

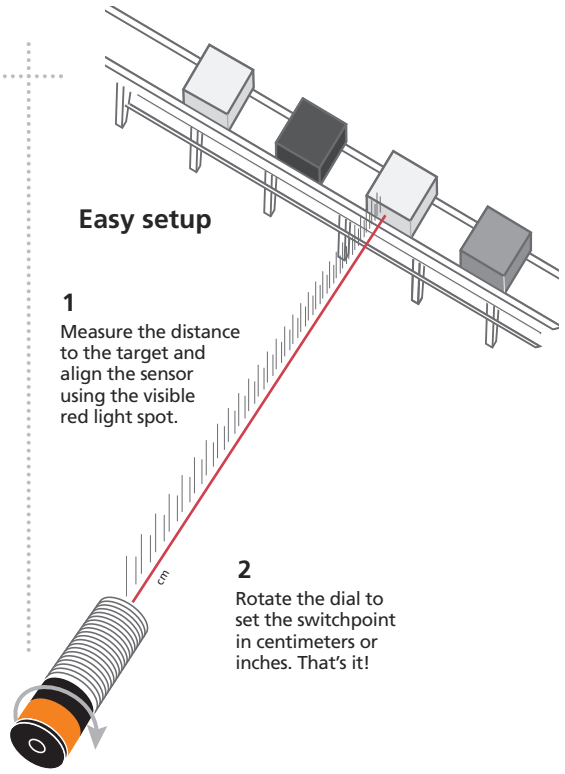
- *PMD "time-of-flight" technology enables long sensing ranges up to 2 meters (6.5 ft) and eliminates need for sensors with reflectors*
- *Simple switch point setting by rotatable setting ring that does not require power for setup*
- *Reliable background suppression with no false triggers from highly reflective objects such as stainless steel*
- *Superior optical performance independent of target color*
- *M30 diameter, 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 switch point can be set easily by turning the rotatable setting ring. A visible red light spot helps to align the sensor. The OID200 will display in inches or centimeters and the OID201 will display in centimeters. The switch point also can be set before installation without the need for power.

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.



Application markets
Conveying
Material handling
Steel
Paper
Automotive
Wood

The OID allows you to select the setpoint in centimeters or inches by turning the rotatable setting ring. No power is required for simple bench setup.

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.

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 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	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	**OID200**	**$140.00**
	0.03…2 m	Complementary LO / DO, PNP	< 5 mm	< 75 mA	11 Hz	Class 2 laser Red light 650 nm	cm	**OID201**	**$140.00**

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**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**

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

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
Operating temperature:	-13…140 °F (-25…60 °C)
Housing material:	stainless steel, PTB, PC, FPM
Font panel material:	PMMA

Class 2 Laser

Top five product features!

- *Robust stainless steel housing withstands target impact that can cause mechanical damage*
- *Polarized retro-reflective model offers long sensing range – up to 5 m (16 ft.)*
- *Adjustment potentiometer and visible red light source allow easy alignment and quick setup*
- *Sensors will not fail when exposed to caustic chemicals and cleaning agents*
- *Transparent black cover ensures that the sensor's two LEDs are highly visible*

Robust photoelectrics for harsh environments

NEW! ifm introduces a new line of robust photoelectrics with stainless steel housings that are designed for a variety of applications found in industrial automation industries. 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 PPSU 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.

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

Position Sensors | Motion Control | Vision Sensors

Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

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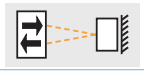
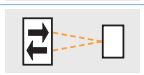
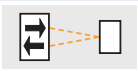
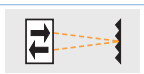
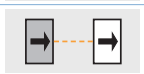
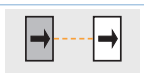
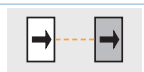
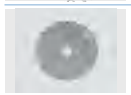
Product + accessory selector

Function		Range	Output	Spot Ø at max range	Cable length	Part No.	List Price (1-pc.)
Diffuse background suppression		2...200 mm	LO / DO PNP	8 mm	2 m	**O6H300**	**$110.00**
		2...200 mm	LO / DO NPN	8 mm	2 m	**O6H304**	**$110.00**
Diffuse background suppression		2...200 mm	LO / DO PNP	8 mm	0.3 m pigtail with M12 connection	**O6H301**	**$110.00**
		2...200 mm	LO / DO NPN	8 mm	0.3 m pigtail with M12 connection	**O6H305**	**$110.00**
Diffuse reflective		5...500 mm	LO / DO PNP	15 mm	2 m	**O6T300**	**$95.00**
		5...500 mm	LO / DO NPN	15 mm	2 m	**O6T304**	**$95.00**
Diffuse reflective		5...500 mm	LO / DO PNP	15 mm	0.3 m pigtail with M12 connection	**O6T301**	**$95.00**
		5...500 mm	LO / DO NPN	15 mm	0.3 m pigtail with M12 connection	**O6T305**	**$95.00**
Polarized retro-reflective		0.05...5 m	LO / DO PNP	150 mm	2 m	**O6P300**	**$99.00**
		0.05...5 m	LO / DO NPN	150 mm	2 m	**O6P304**	**$99.00**
Polarized retro-reflective		0.05...5 m	LO / DO PNP	150 mm	0.3 m pigtail with M12 connection	**O6P301**	**$99.00**
		0.05...5 m	LO / DO NPN	150 mm	0.3 m pigtail with M12 connection	**O6P305**	**$99.00**
Thru-beam transmitter		0...10 m	–	300 mm	2 m	**O6S300**	**$75.00**
Thru-beam transmitter		0...10 m	–	300 mm	0.3 m pigtail with M12 connection	**O6S301**	**$75.00**
Thru-beam receiver		0...10 m	LO / DO PNP	–	2 m	**O6E300**	**$80.00**
		0...10 m	LO / DO NPN	–	2 m	**O6E304**	**$80.00**
Thru-beam receiver		0...10 m	LO / DO PNP	–	0.3 m pigtail with M12 connection	**O6E301**	**$80.00**
		0...10 m	LO / DO NPN	–	0.3 m pigtail with M12 connection	**O6E305**	**$80.00**

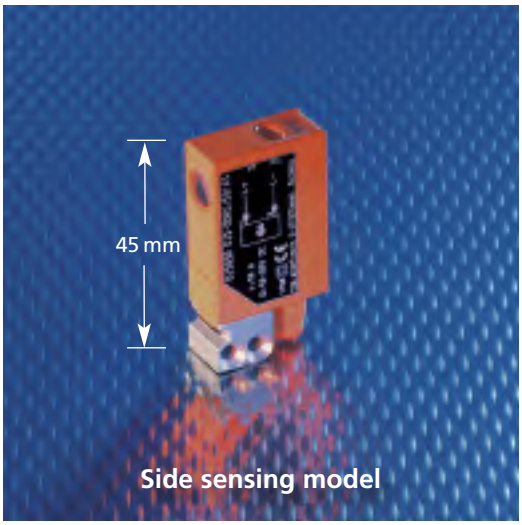
Optional Accessories

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**	**$23.00**

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 class III
Ambient temperature		-25…80 °C
Materials	housing:	high-grade stainless steel (1.4404 / 316L)
	lens:	PPSU PMMA

For M12 Micro DC connectors, see page 219.



Top five 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

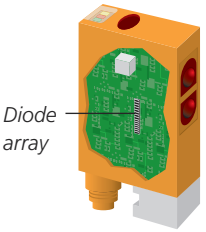
OJ photoelectric sensors use visible LEDs as the light source and measure only 24 x 45 x 11 mm. With switching speeds up to 2000 Hz, the sensors are fast enough to be used in most high-speed applications. A wide variety of mounting brackets allow the OJ to be adapted to most mounting configurations.

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.

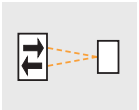
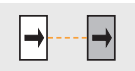
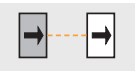


The sensing element contains 63 diode receivers that are placed on an integrated circuit. The array is extremely small allowing it to fit inside the OJ's miniature housing.

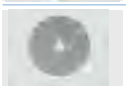
Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

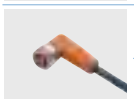
Product + accessory selector

Function		Range	Output	Spot Ø at max range	Supply Current	Switching Frequency	Light Source	Part No.	List Price (1-pc.)
Diffuse background suppression		15...400 mm	LO/DO PNP	48 mm	21 mA	1000 Hz	Red light 660 nm	**OJ5048**	**$91.00**
		15...400 mm	LO/DO NPN	48 mm	21 mA	1000 Hz	Red light 660 nm	**OJ5049**	**$91.00**
Diffuse		1...600 mm	LO/DO PNP	60 mm	22 mA	2000 Hz	Red light 660 nm	**OJ5022**	**$91.00**
		1...600 mm	LO/DO NPN	60 mm	22 mA	2000 Hz	Red light 660 nm	**OJ5023**	**$91.00**
		1...1000 mm	LO/DO PNP	150 mm	32 mA	2000 Hz	Infrared 880 nm	**OJ5071**	**$91.00**
Polarized retro-reflective		0...2 m	LO/DO PNP	64 mm	22 mA	2000 Hz	Red light 660 nm	**OJ5026**	**$91.00**
		0...2 m	LO/DO NPN	64 mm	22 mA	2000 Hz	Red light 660 nm	**OJ5027**	**$91.00**
Thru-beam receiver		0...10 m	LO/DO PNP	–	12 mA	1200 Hz	–	**OJ5031**	**$70.00**
		0...10 m	LO/DO NPN	–	12 mA	1200 Hz	–	**OJ5032**	**$70.00**
Thru-beam transmitter		0...10 m	–	1000 mm	19 mA	–	Red light 660 nm	**OJ5030**	**$53.00**

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**	**$23.00**

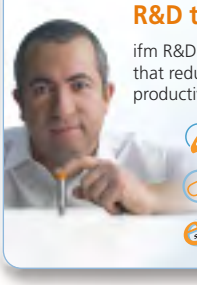
Cordsets

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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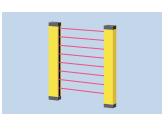
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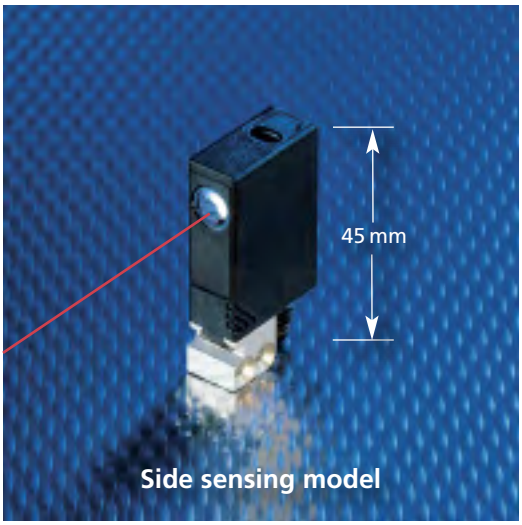


Top five product features!

- *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

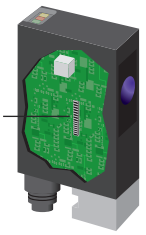
High resolution background suppression laser sensors are ideal for precise sensing applications. The sensor can differentiate between the target and the background at less than 0.5 mm. This type of accuracy is critical for assembly automation applications such as part present and inspection. The OJ's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



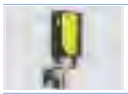
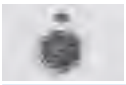
The OJ incorporates diode array technology that enables the sensor to differentiate between the target and the background.

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.

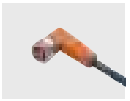
Product + accessory selector

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**	**$227.00**
Diffuse background suppression	15…200 mm	LO/DO, PNP	1000 Hz	1 x 2 mm	13 mA	Class 1 Laser	**OJ5054**	**$227.00**
	15…200 mm	LO/DO, NPN	1000 Hz	1 x 2 mm	13 mA	Class 1 Laser	**OJ5055**	**$227.00**
Polarized retro-reflective	0…8 m	LO/DO, PNP	2000 Hz	12 mm	15 mA	Class 1 Laser	**OJ5036**	**$202.00**
Thru-beam receiver	0…1 m	LO/DO, PNP	1200 Hz	–	12 mA	Class 1 Laser	**OJ5042**	**$96.00**
Thru-beam transmitter	0…1 m	–	–	4 mm	12 mA	Class 1 Laser	**OJ5041**	**$152.00**
Thru-beam receiver	0…15 m	LO/DO, PNP	1200 Hz	–	12 mA	Class 1 Laser	**OJ5039**	**$96.00**
Thru-beam transmitter	0…15 m	–	–	24 mm	12 mA	Class 1 Laser	**OJ5038**	**$152.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Fine adjust bracket for OJsensor	**E20976**	**$26.00**
	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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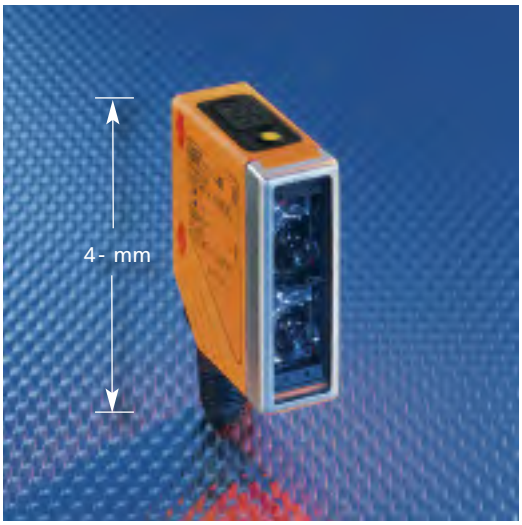


Top five product features!

- *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.

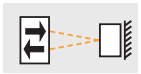
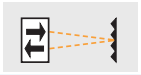
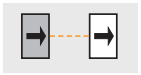
Step 2: OUT-on

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

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

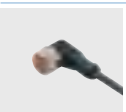
Product + accessory selector

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**	**$109.00**
		50...1800 mm	LO/DO NPN	90 mm	25 mA	1000 Hz	Red light 624 nm	**O5H504**	**$109.00**
Polarized retro-reflective		0.075...10 m	LO/DO PNP	250 mm	20 mA	2000 Hz	Red light 624 nm	**O5P500**	**$99.00**
		0.075...10 m	LO/DO NPN	250 mm	20 mA	2000 Hz	Red light 624 nm	**O5P502**	**$99.00**
Thru-beam receiver		0...25 m	LO/DO PNP	–	11 mA	1000 Hz	–	**O5E500**	**$93.00**
		0...25 m	LO/DO NPN	–	11 mA	1000 Hz	–	**O5E502**	**$93.00**
Thru-beam transmitter		0...25 m	–	625 mm	20 mA	–	Red light 624 nm	**O5S500**	**$86.00**

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**	**$23.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$12.75**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$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:	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

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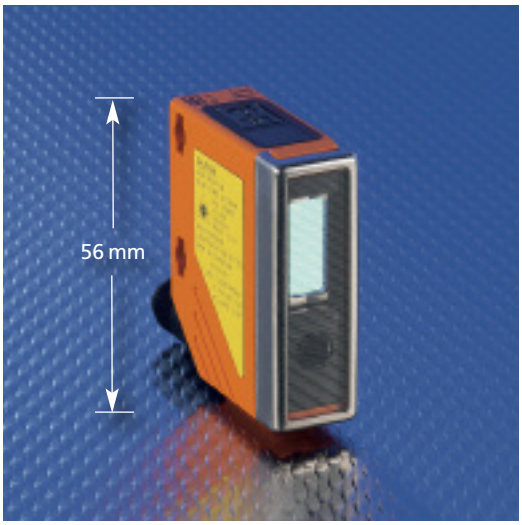


Top five product features!

- *PMD "time-of-flight" technology enables long sensing ranges up to 2 meters (6.5 ft) and eliminates need for sensors with reflectors*
- *Plus/minus (+/-) buttons can toggle to set the switchpoints*
- *Reliable background suppression with no false triggers from highly reflective objects such as stainless steel*
- *Superior optical performance independent of target color*
- *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.

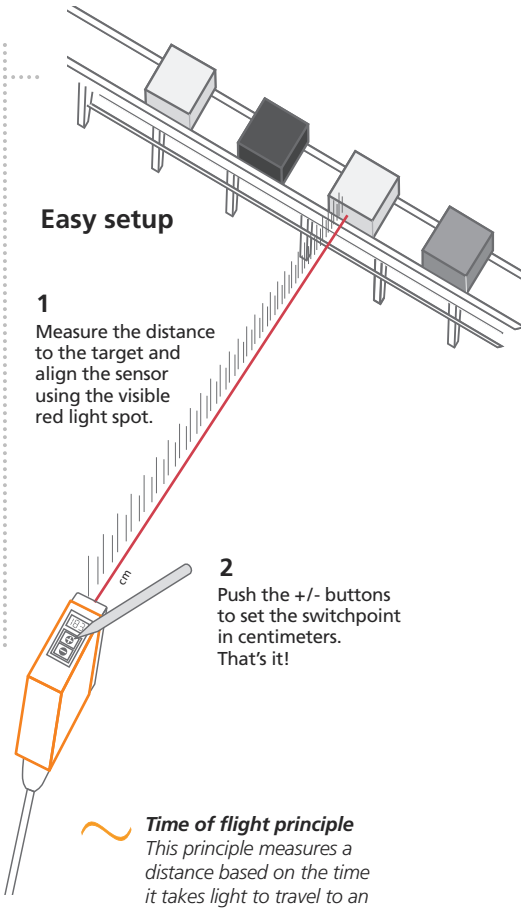
The switch point can be set easily by using the sensor's display with plus / minus (+/-) buttons that set the switchpoint. A visible red light spot helps to align the sensor and a numeric display shows the distance set. A model is available to display in inches.

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

Application markets

Conveying
Material handling
Steel
Paper
Automotive
Wood

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.

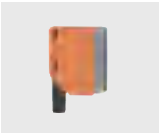


Time of flight principle
This principle measures a distance based on the time it takes light to travel to an object and back to the receiver.

	Position Sensors						Motion Control	Vision Sensors	
Company	*Inductive*	*Capacitive*	*Cylinder position*	*Photoelectrics and lasers*	*Distance, color and contrast*	*Fiber optics*	*Speed monitors*	*2D / 3D inspection*	
1 - 7	*8 - 43*	*44 - 47*	*48 - 53*	*54 - 83*	*84 - 89*	*90 - 95*	*96 - 99*	*100 - 113*	

Search Bar

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**	**$145.00**
	.03…2 m	Complementary LO / DO, PNP	< 5 mm	< 75 mA	11 Hz	Class 2 laser Red light 650 nm	inch	**O5D101**	**$145.00**

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

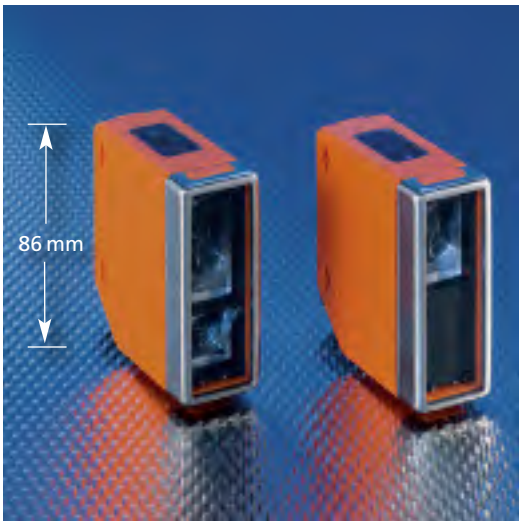
Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**

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

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 2 Laser



Top five 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

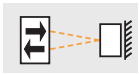
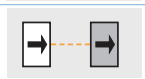
This cordset converts PNP outputs to NPN outputs.

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

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

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**	**$114.00**
Polarized retro-reflective		0.3…22 m	LO/DO PNP	660 mm	20 mA	2000 Hz	Red light 624 nm	**O4P500**	**$104.00**
Thru-beam receiver		0…80 m	LO/DO PNP	–	12 mA	1000 Hz	–	**O4E500**	**$91.00**
Thru-beam transmitter		0…80 m	–	2400 mm	20 mA	–	Red light 624 nm	**O4S500**	**$82.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Swivel bracket	**E21118**	**$21.00**
	Protective bracket	**E21119**	**$36.00**
	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**	**$23.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$12.75**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$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	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

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 five 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

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Product + accessory selector

Fork Sensors	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**	**$141.00**
	20 mm	25 mm	LO / DO, PNP	0.4 mm	Red light 660 nm	4000 Hz	**OPU201**	**$152.00**
	30 mm	35 mm	LO / DO, PNP	0.5 mm	Red light 660 nm	4000 Hz	**OPU202**	**$174.00**
	50 mm	55 mm	LO / DO, PNP	0.5 mm	Red light 660 nm	4000 Hz	**OPU203**	**$185.00**
	80 mm	55 mm	LO / DO, PNP	0.5 mm	Red light 660 nm	4000 Hz	**OPU204**	**$203.00**
	120 mm	60 mm	LO / DO, PNP	0.8 mm	Red light 660 nm	2000 Hz	**OPU205**	**$208.00**
Class 2 Laser								
	30 mm	30 mm	LO / DO, PNP	0.05 mm	Class 2 laser, Red light 670 nm	3000 Hz	**OPU700**	**$269.00**
	50 mm	50 mm	LO / DO, PNP	0.05 mm	Class 2 laser, Red light 670 nm	3000 Hz	**OPU701**	**$280.00**
	80 mm	50 mm	LO / DO, PNP	0.05 mm	Class 2 laser, Red light 670 nm	3000 Hz	**OPU702**	**$302.00**

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**	**$197.00**
	80 mm	100 mm	LO / DO, PNP	0.7 mm	Red light	4000 Hz	**OPL201**	**$209.00**

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

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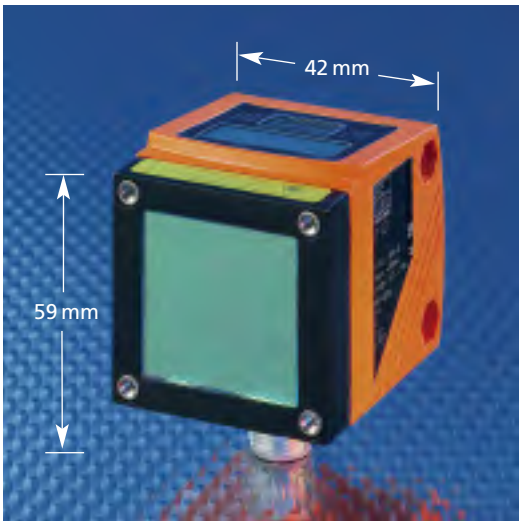


Top five product features!

- *Right balance of performance, size and price for distance measurement applications*
- *Photoelectric is ideal for long-range background suppression applications*
- *Large 4-digit alphanumeric display indicates measured distance*
- *Multiple setpoints: single switching, dual switching or switching and analog output*
- *Ignores ambient light up to 100 klx*

Reliable solution for long-range object detection

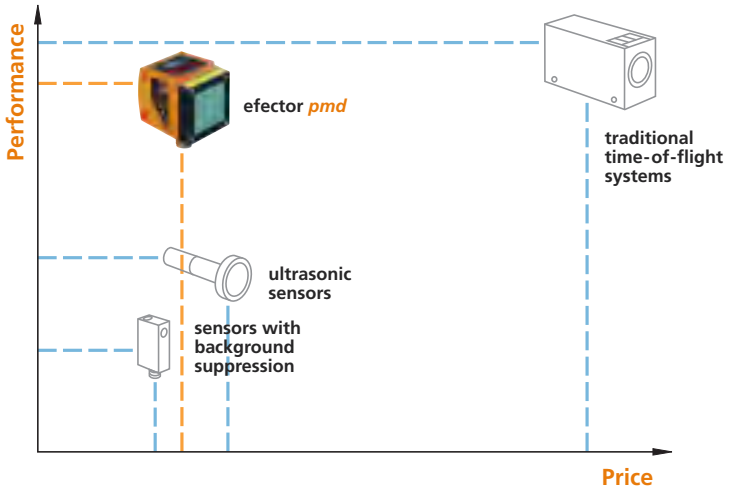
The harsh effects of manufacturing conditions such as weld slag and chemicals often prevents optical sensors from being used in error-proofing applications. The *efector pmd laser sensor* with background suppression can be placed farther away from the application – and the elements – to accurately locate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

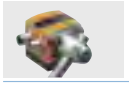
Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Product + accessory selector

Function	Range	Output	Spot Ø at Max Range	Supply Current	Sampling Frequency	Light Source	Part No.	List Price (1-pc.)
Distance measurement sensor	0.2…10 m	4-20 mA / 0-10 VDC and PNP or dual PNP	6 mm	150 mA	1…50 Hz	Class 2 laser Red light 650 nm	**O1D100**	**$394.00**
Distance measurement sensor	0.2…10 m	4-20 mA / 0-10 VDC and NPN or dual NPN	6 mm	150 mA	1…50 Hz	Class 2 laser Red light 650 nm	**O1D103**	**$394.00**
Distance measurement sensor	0.3…6 m	4-20 mA / 0-10 VDC and PNP or dual PNP	6 mm	150 mA	1…50 Hz	**Class 1 laser** Red light 650 nm	**O1D155**	**$394.00**
Distance measurement sensor	1…75 m (requires reflector)	4-20 mA / 0-10 VDC PNP	150 mm	2 x 150 mA	1…33 Hz	Class 2 laser Red light 650 nm	**O1D106**	**$421.00**
Distance measurement sensor	0.2…10 m	LO/DO PNP	6 mm	150 mA	5 Hz	Class 2 laser Red light 650 nm	**O1D101**	**$368.00**
Distance measurement sensor	0.2…10 m	LO/DO NPN	6 mm	150 mA	5 Hz	Class 2 laser Red light 650 nm	**O1D104**	**$368.00**
Level measurement sensor	0.2…10 m	4-20 mA / 0-10 VDC PNP	6 mm	2 x 150 mA	1…33 Hz	Class 2 laser Red light 650 nm	**O1D300**	**$394.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Rail mount swivel bracket for O1D	**E21079**	**$53.00**
	Plastic cover for O1D	**E21133**	**$29.00**
	95 x 95 mm reflector (for O1D106)	**E20454**	**$23.00**
	226 x 262 mm reflector (for O1D106)	**E21159**	**$194.00**

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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$12.75**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$15.00**

Technical Specs

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

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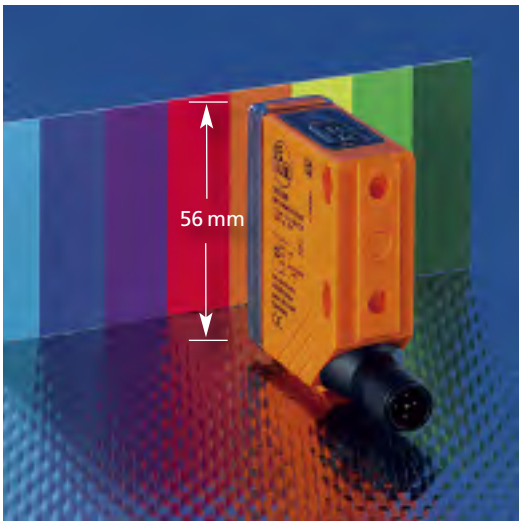


Top five product features!

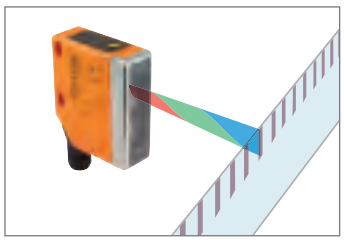
- Contrast and color sensors for error-proofing and object detection
- Sensor uses reliable RGB (red, green, blue) technology to determine ideal color to differentiate target background
- High color contrast sensitivity and resolution
- 18 to 22 mm sensing range for contrast, 15 to 18 mm for color
-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

O5 contrast and color photoelectric sensors

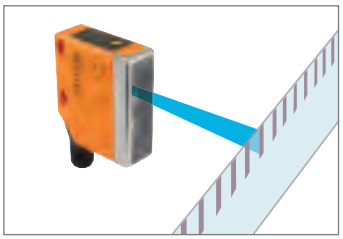
ifm's high performance O5 Series Contrast and Color sensors offer a variety of sensing solutions for the packaging, assembly, material handling and printing industries.

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



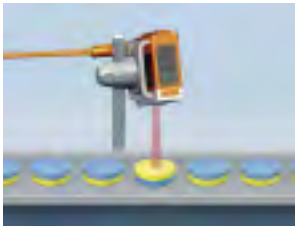
The Contrast Sensor's visible light processes through red, green and blue to identify the best color for contrast.



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.*

Position Sensors | Motion Control | Vision Sensors

Company | Inductive | Capacitive | Cylinder position | Photoelectrics and lasers | Distance, color and contrast | Fiber optics | Speed monitors | 2D / 3D inspection

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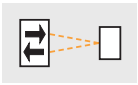
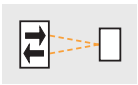
Product + accessory selector

Function		Range	Output	Spot Ø at max range	Supply Current	Switching Frequency	Light Source	Part No.	List Price (1-pc.)
Contrast sensor: diffuse		18...22 mm	LO/DO PNP/NPN	1.5 x 5 mm	< 50 mA	10000 Hz	RGB	**O5K500**	**$197.00**
Color sensor		15…19 mm	LO/DO PNP/NPN	2.5 x 6 mm	< 50 mA	2000 Hz	RGB	**O5C500**	**$364.00**

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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.00**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$12.75**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$15.00**

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

Top five 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.

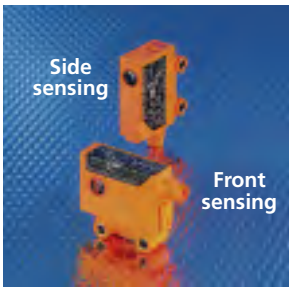
OJ Series sensors – compact housings, long sensing ranges

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.

Position Sensors | Motion Control | Vision Sensors
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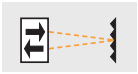
Product + accessory selector

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	2000	<50	40 mm	**O5G500**	**$138.00**

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**	**$130.00**
		M8	LO/DO PNP	2000	< 22	side	**OJ5186**	**$130.00**

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**	**$22.00**
	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**	**$23.00**

*3 m range with E20454 reflector

Cordsets for O5 Sensors

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**

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**	**$24.00**

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

Top five product features!

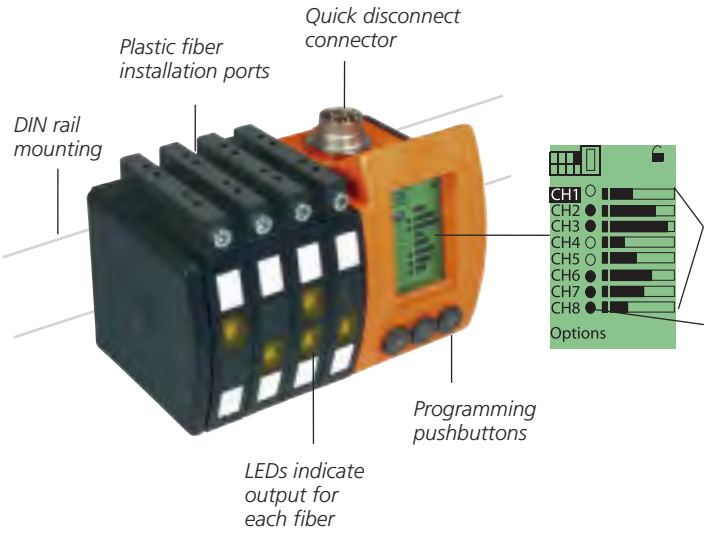
- Multi-channel fiber optic controller with central operating display is designed for applications with multiple sensing points
- Features LCD operator interface that can be used to program multiple fibers and perform AND / OR logic functions
- Available in 2-fiber, 4-fiber, 6-fiber and 8-fiber models
- 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

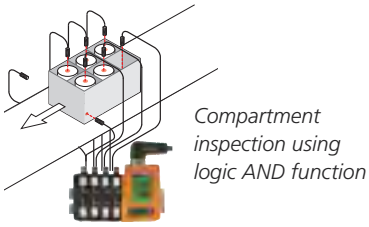
Fiber optics can be used in applications with limited mounting space or as an alternative to a standard photoelectric sensor. Because the electronics are contained in a separate housing that can be remotely located, only the miniature fiber must be mounted near the target.

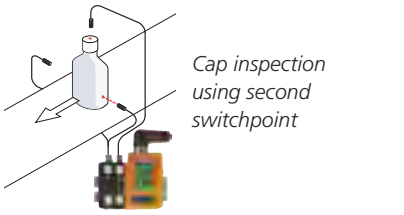
Multi-Channel Fiber Optic Controller reduces wiring

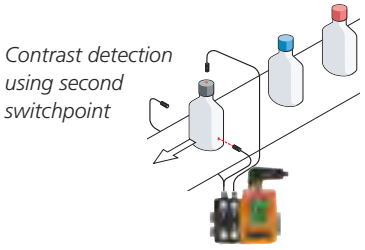
ifm's multi-channel fiber optic controller is designed for applications that require multiple fiber-optic sensing points. The controller eliminates excessive wiring by using a single cable that replaces individual wiring for each amplifier. Depending on the model, up to eight fibers can be connected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



Controller multi-point application solutions







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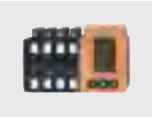
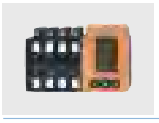
Product + accessory selector

Function	Connector	Number of Channels	Output	Supply Current	Switching Frequency	Part No.	List Price (1-pc.)
Amplifier for plastic fibers – See page 94 for fibers							
	M12	2	LO/DO PNP	50 mA	2700 Hz	**OO5000**	**$308.00**
	M12	2	LO/DO NPN	50 mA	2700 Hz	**OO5008**	**$308.00**
	M12	4	LO/DO PNP	50 mA	1500 Hz	**OO5001**	**$451.00**
	M16	6	LO/DO PNP	50 mA	1000 Hz	**OO5002**	**$595.00**
	M16	6	LO/DO NPN	50 mA	1000 Hz	**OO5010**	**$595.00**
	M16	8	LO/DO PNP	50 mA	800 Hz	**OO5003**	**$733.00**

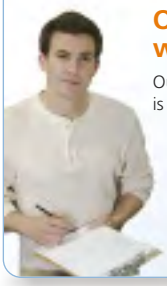
Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (8-pin) 2 m black, right angle	**E11231**	**$28.00**
	M12 Micro DC (8-pin) 5 m black, right angle	**E11232**	**$34.00**
	M16 Micro DC (14-pin) 2 m black, right angle	**E11645**	**$64.00**
	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



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Top five 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

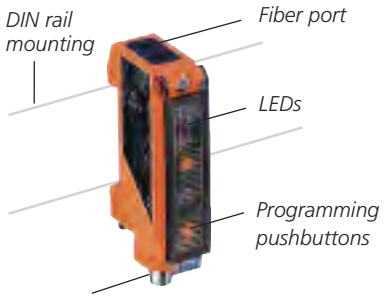
OBF amplifiers can be mounted in areas with limited mounting space

Fiber optics can be used in applications with limited mounting space or as an alternative to standard photoelectric 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

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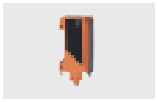
Product + accessory selector

Function	Connector	Number of Fibers	Output	Supply Current	Switching Frequency	Part No.	List Price (1-pc.)
Amplifier for plastic fibers – See page 94 for fibers							
	M12	1	PNP/NPN, LO/DO	< 50 mA	3000 Hz	**OBF500**	**$143.00**
	M8 3-pin*	1	PNP/NPN, LO/DO	< 50 mA	3000 Hz	**OBF503**	**$143.00**
	M8 4-pin	1	PNP/NPN, LO/DO	< 50 mA	3000 Hz	**OBF501**	**$143.00**
	Prewired	1	PNP/NPN, LO/DO	< 50 mA	3000 Hz	**OBF502**	**$143.00**
Amplifier for glass fibers – See page 95 for fibers							
	M12	1	PNP/NPN, LO/DO	< 50 mA	1000 Hz	**OBF504**	**$143.00**
	M8 3-pin*	1	PNP/NPN, LO/DO	< 50 mA	1000 Hz	**OBF507**	**$143.00**
	M8 4-pin	1	PNP/NPN, LO/DO	< 50 mA	1000 Hz	**OBF505**	**$143.00**

* 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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	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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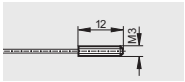
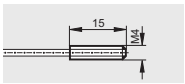
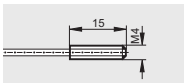
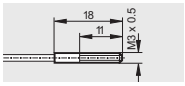
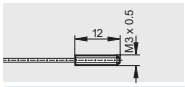
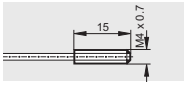
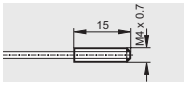
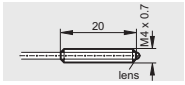
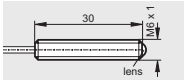
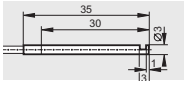
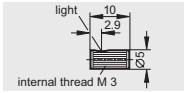
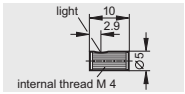
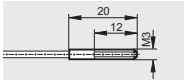
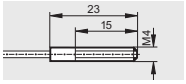
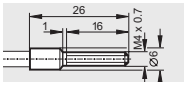
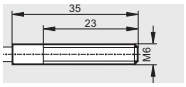
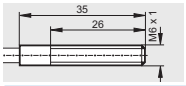
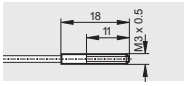
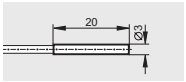
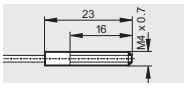
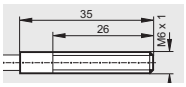
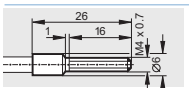
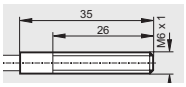
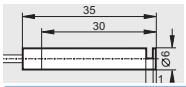
Thru-beam plastic fibers for OO and OBF amplifiers

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**	**$70.00**
Thru-beam type · M4 sensing head · High flex				
	750 / 350	1 mm / 3 mm	**E21102**	**$88.00**
	120 / 56	0.5 mm / 3 mm	**E21104**	**$70.00**
Thru-beam type · M3 sensing head				
	800 / 350	1 mm / 30 mm	**E20603**	**$44.00**
	160 / 130	0.5 mm / 10 mm	**E20609**	**$44.00**
Thru-beam type · M4 sensing head				
	800 / 210	1 mm / 9 mm	**E20615**	**$50.00**
	800 / 450	1 mm / 30 mm	**E20606**	**$50.00**
Thru-beam type · integrated lens				
	1600 / 900	2 mm / 30 mm	**E20753**	**$82.00**
	3800 / 2000	6 mm / 30 mm	**E20752**	**$82.00**
Thru-beam type · right angle lens				
	400 / 230	side-sensing / 25 mm	**E20714**	**$131.00**
Accessories · for thru-beam fibers only				
	Right angle lens adapter for M3 fibers, increases range by 15-20%		**E20754**	**$53.00**
	Right angle lens adapter for M4 fibers, increases range by 15-20%		**E20755**	**$45.00**

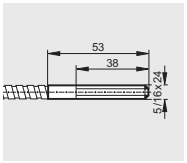
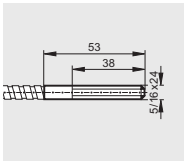
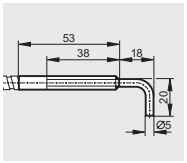
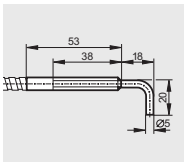
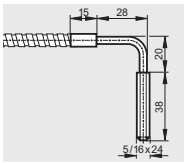
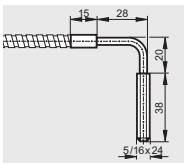
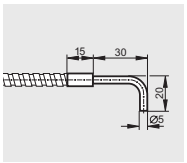
Diffuse plastic fibers for OO and OBF amplifiers

Type	Range OO / OBF [mm]	Min bend radius	Part No.	List Price (1-pc.)
Diffuse reflective type · high flex				
	30 / 10	3 mm	**E21107**	**$70.00**
	30 / 10	3 mm	**E21106**	**$76.00**
	300 / 70	9 mm	**E20645**	**$50.00**
	180 / 104	3 mm	**E21105**	**$88.00**
	300 / 70	9 mm	**E20648**	**$45.00**
Diffuse reflective type · standard fiber				
	60 / 25	10 mm	**E20712**	**$46.00**
	60 / 25	10 mm	**E20711**	**$51.00**
	60 / 25	10 mm	**E20639**	**$43.00**
	300 / 100	10 mm	**E20633**	**$50.00**
Diffuse reflective type · high accuracy fiber				
	300 / 90	30 mm	**E20651**	**$50.00**
	300 / 90	30 mm	**E20654**	**$45.00**
Diffuse reflective type · right angle lens				
	150 / 60	25 mm	**E20715**	**$138.00**

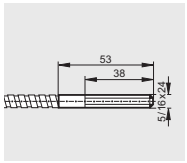
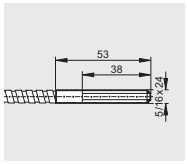
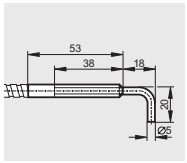
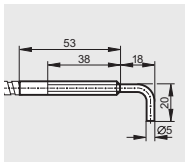
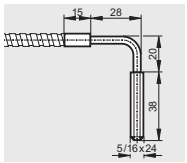
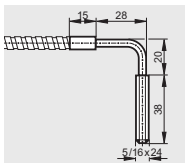
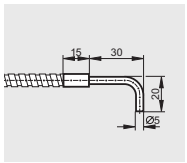
Technical Specs

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**	**$66.00**
	500	6′	**E21026**	**$110.00**
	1000	3′	**E20827**	**$110.00**
	500	6′	**E21027**	**$160.00**
	1000	3′	**E20825**	**$91.00**
	500	6′	**E21028**	**$139.00**
	1000	3′	**E20828**	**$79.00**

Diffuse glass fibers for OBF amplifiers

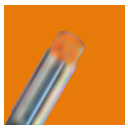
Type	Range OBF [mm]	Length	Part No.	List Price (1-pc.)
Diffuse reflective type				
	150	3′	**E20822**	**$88.00**
	75	6′	**E21031**	**$135.00**
	150	3′	**E20826**	**$138.00**
	75	6′	**E21032**	**$189.00**
	150	3′	**E20824**	**$113.00**
	75	6′	**E21033**	**$165.00**
	150	3′	**E20829**	**$103.00**

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)

Table of Contents – Motion Control

Speed monitors



Tubular M18 and M30; DC . . . . . *98 - 99*

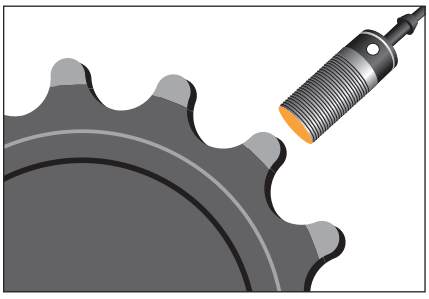
Top five product features!

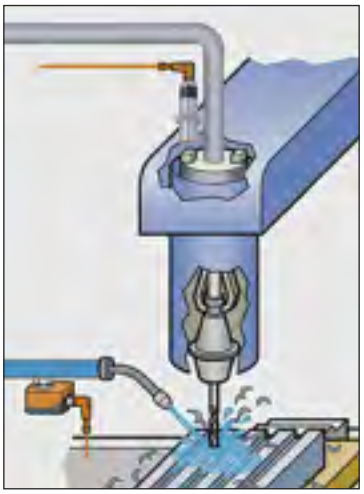
- 18 and 30 mm diameter speed monitors detect under-speed and over-speed conditions
- For rotational speed applications
- 18 mm quick disconnect offers 3-LED status display
- 30 mm units feature easy-to-adjust sensor setpoint
- Time delay eliminates nuisance trips

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.

Position Sensors | Motion Control | Vision Sensors
Company | Inductive | Capacitive | Cylinder position | Photoelectrics and lasers | Distance, color and contrast | Fiber optics | Speed monitors | 2D / 3D inspection
Search Bar
1 - 7 | 8 - 43 | 44 - 47 | 48 - 53 | 54 - 83 | 84 - 89 | 90 - 95 | 96 - 99 | 100 - 113

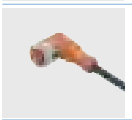
Product + accessory selector

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**	**$149.00**
M30 / L = 81	10	Flush	N.O.	5...300	20...250 AC/DC	Prewired 2 m cable	**DI0001**	**$177.00**
M30 / L = 81	10	Flush	N.O.	50...3000	20...250 AC/DC	Prewired 2 m cable	**DI0002**	**$177.00**
M30 / L = 81	10	Flush	PNP, N.O.	3...300	10...36 DC	Prewired 2 m cable	**DI5001**	**$177.00**
M30 / L = 81	10	Flush	PNP, N.O.	30...3000	10...36 DC	Prewired 2 m cable	**DI5003**	**$177.00**
M30 / L = 82	10	Flush	PNP, N.O.	3...300	10...36 DC	M12 Micro DC	**DI5009**	**$180.00**

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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**

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 (DI0001, DI0002)
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

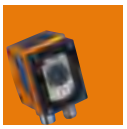
Visit our product catalog
www.ifm.com/us

Shop for products online
Easy ordering via eShop

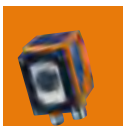
Table of Contents – Vision Sensors

Vision sensors

Vision sensors overview . . . . . 102 - 105



efector dualis Contour Sensor compares an object's contour for error-proofing applications . . . . . 106 - 107



efector dualis Pixel Counter analyzes an area of an object by counting pixels . . . . . 108 - 109

Multi-Code Reader identifies data matrix and 1D codes . . . . . 110 - 111

3D Image Sensor evaluates shape, size and volume . . . . . 112 - 113

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

Confirm bottle cap is sealed correctly

Correct placement

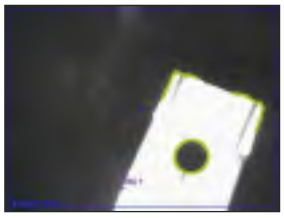
Incorrect placement

Description: *Using the contour of a bottle cap, the correct placement of a bottle cap is verified.*

Industry: *Food*

When the cap is incorrectly sealed, the contour of the cap changes which results in a failed inspection. The Contour Sensor reliably detects the change in the cap's contour.

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

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.

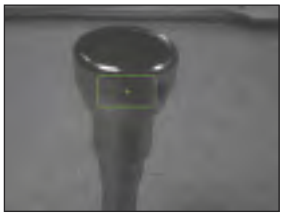
The Pixel Counter analyzes the area of an object by counting the pixels and can identify objects that vary in shape, size or shade. ifm's Pixel Counter features a robust die cast metal housing that is able to withstand the abuse typically found in industrial environments.

- 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

Detect registration marks used to identify parts

Mark present



Mark missing

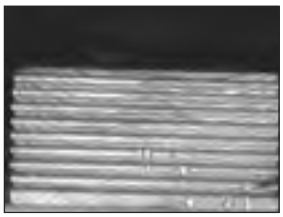
Description: *A registration mark is used to identify parts that have been through a completed process. Without the mark, the parts go into quarantine, where every unit must be manually sorted. ifm's Pixel Counter is able to identify that the mark is present regardless of the shape or size of the part, eliminating the quarantine process.*

Industry: *Assembly automation*

Regardless of shape or size, the Pixel Counter is able to identify that the mark is present.

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.

Application solutions:

Part verification
Orientation
Sortation
Part / no part
Pattern matching
Shape detection
Object counting and contrast
Inner/outer radius
Measurement

Multi-Code Reader identifies data matrix and 1D codes

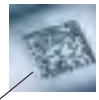
Data matrix codes are critical for tracking parts and insuring reliable quality in the manufacturing process. ifm has designed a high-performance, easy-to-use Multi-Code Reader in a compact metal housing for rugged industrial automation applications.

ifm's Multi-Code Reader is designed to read 2D data matrix codes and 1D bar codes in high-speed 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 example

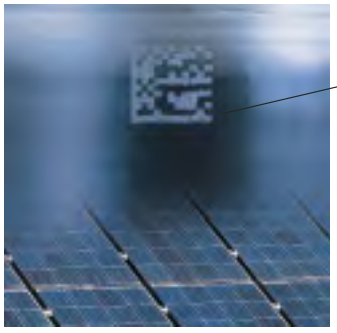
Dot-peened codes on highly reflective metal parts



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 code in any orientation at angles up to 45°.*

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.*

Application solutions:

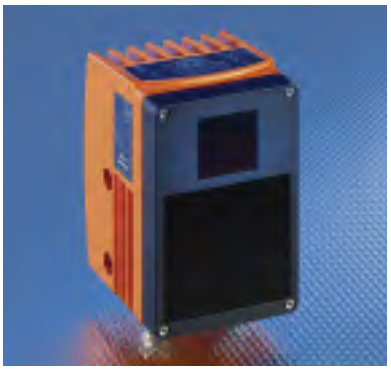
Laser etched code on glass
Printed code on plastic parts
Dot-peened code on metal parts
Laser etched code on solar panels

Position Sensors | Motion Control | Vision Sensors

Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Search Bar

3D Image Sensor evaluates shape, size and volume



ifm's 3D Image Sensor evaluates size, shape and volume in a variety of industrial automation applications. The compact sensor uses time-of-flight distance measurement and photonic mixer device technology to identify an object in the sensor's field of view. An integrated 64 x 48 pixel array – in which each pixel represents a time of flight measurement – defines the field of view for the sensor.

The 3D sensor technology provides critical information in applications such as palletizing and de-palletizing, material handling, bulk level of materials and intelligent routing/sorting.

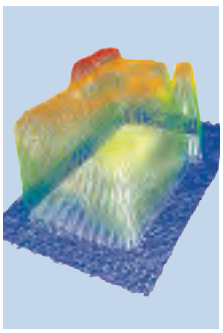
- The first industrial sensor that can evaluate shape, size and volume
- Uses time-of-flight distance measurement and photonic mixer device technology to identify objects in three dimensions
- Complete sensor element and electronics are built on a 0.25 mm square silicon chip that reduces the size of the sensor and its cost
- Immune to ambient lighting and can be mounted both indoors and outdoors
- Application parameters are quickly established with the sensor's pushbutton setup

3D Image Sensor application examples

Palletizing and de-palletizing

Challenge:
Incomplete layer

In palletizing and de-palletizing applications, a robotic arm removes bulk material from a conveyor and stacks the material on a pallet. If a stray box is left on a skid and is undetected, the robotic arm could crush the product.



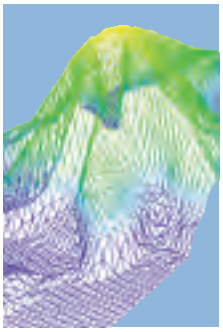
ifm Solution:
View layer in 3D

The 3D sensor is mounted to the top of the palletizer. The sensor evaluates the entire layer of a pallet and sends an alarm output based on loading errors. Using the 3D data, pallets can be removed without the risk of damage to other pallets.

Bulk material – level

Challenge:
Level detection to prevent run dry conditions

Currently, multiple sensors are mounted over a bin to detect the level of bulk material. Materials, such as grain or pellets, can shift within the bin creating hills and valleys, leading to incorrect level detection. An empty or "run dry" condition can cause machine downtime, place stress on equipment, and risk damage to components.



ifm Solution:
Level of materials in 3D

The efector PMD 3D sensor is mounted above a hopper or bin. The sensor's pixel array of 3072 data points spreads across the grain to detect the entire area. The high and low points are identified and can be used for direct output or averaged to provide a more accurate level of available space in the hopper.

Application solutions:

Palletizing and de-palletizing

Courier and parcel logistics

Automated storage retrieval systems

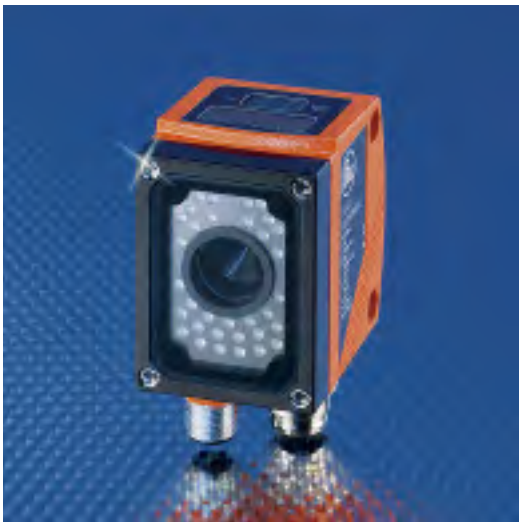
Warehousing and distribution

Automated guided vehicles

Bulk material level

Grains and raw materials in feeders

Food products on vibratory conveyors



Top five 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)*

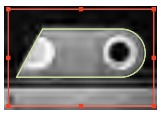
The inspection sensor for error-proofing applications

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.

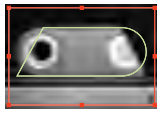
The sensor is an ideal solution for inspection and error-proofing applications such as right part / wrong part, correct orientation, missing component and object character verification.

Additional application examples

correct orientation



incorrect orientation

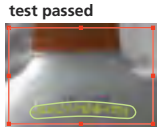


Feeding technology

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.

test passed



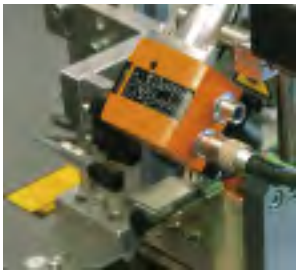
test failed

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.

Position Sensors | Motion Control | Vision Sensors
Company | Inductive | Capacitive | Cylinder position | Photoelectrics and lasers | Distance, color and contrast | Fiber optics | Speed monitors | 2D / 3D inspection
Search Bar
1 - 7 | 8 - 43 | 44 - 47 | 48 - 53 | 54 - 83 | 84 - 89 | 90 - 95 | 96 - 99 | 100 - 113

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**	**$918.00**
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**	**$918.00**
80 x 42 x 53.5	PNP	infrared 850 nm	1280 x 960 mm	20 Hz	1 m/s	24 VDC ± 10 %	< 300 mA	**O2D222**	**$918.00**
80 x 42 x 59	NPN	infrared 850 nm	400 x 300 mm	20 Hz	1 m/s	24 VDC ± 10 %	< 300 mA	**O2D225**	**$918.00**
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**	**$918.00**
80 x 42 x 53.5	NPN	infrared 850 nm	1280 x 960 mm	20 Hz	1 m/s	24 VDC ± 10 %	< 300 mA	**O2D229**	**$918.00**

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**
	Spot Light for optional lighting enhancement. M12 connector, transmitter red light 630 mm	**O2D909**	**$328.00**
	Protective plastic cover	**E21166**	**$96.00**
	Plastic lens for diffusing light	**E21165**	**$109.00**
	Protective glass cover	**E21168**	**$96.00**
	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**
	Illumination backlight; 33.4 x 66.5 x 9.2 mm; Illuminated area: 25 x 25 mm Type of light LED: Infrared PUR cable 0.15 m 4-pin M12 connector	**O2D906**	**$318.00**
	Illumination backlight; 81 x 103 x 9.8 mm Illuminated area: 50 x 50 mm Type of light LED: Infrared PUR cable 0.15 m 4-pin M12 connector	**O2D907**	**$351.00**
	Illumination backlight; 133 x 156 x 9.8 mm Illuminated area: 100 x 100 mm Type of light LED: Infrared PUR cable 0.15 m 4-pin M12 connector	**O2D908**	**$389.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (8-pin) 2 m, PUR	**E11231**	**$28.00**
	M12 Micro DC (8-pin) 5 m, PUR	**E11232**	**$34.00**
	M12 Micro DC (8-pin) 2 m, PUR	**E11950**	**$28.00**
	M12 Micro DC (8-pin) 5 m, PUR	**E11807**	**$34.00**
For backlight	M12 Micro DC (4-pin) 5 m, PVC	**EVT001**	**$19.00**
	M12 Micro DC (4-pin) 10 m, PVC	**EVT002**	**$22.00**

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 five 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 pushbutton 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.

NEW! ifm has expanded its family of Pixel Counters to include infrared versions.

Additional application examples

Mark present

Mark missing

A mark is used to identify parts that have been through the manufacturing process. Without the mark, the parts go into quarantine, where every unit must be manually sorted.

ifm's Pixel Counter is able to identify that the mark is present regardless of the shape or size of the part, eliminating the quarantine process.

Correct molding

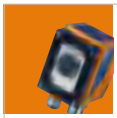
Incorrect molding

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.

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.

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113



Product + accessory selector

DC • efector dualis Pixel Counter

Type	Type of Light LED	Maximum Field of View Size [mm]	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								
	White	400 x 300	20	1	Ethernet TCP / Ethernet IP	PNP	**O2V104**	**$918.00**
	White	400 x 300	20	1	Ethernet TCP / Ethernet IP	NPN	**O2V105**	**$918.00**
	Infrared	400 x 300	20	1	Ethernet TCP / Ethernet IP	PNP	**O2V124**	**$918.00**
	Infrared	400 x 300	20	1	Ethernet TCP / Ethernet IP	NPN	**O2V125**	**$918.00**
	White	640 x 480	20	1	Ethernet TCP / Ethernet IP	PNP	**O2V100**	**$918.00**
	White	640 x 480	20	1	Ethernet TCP / Ethernet IP	NPN	**O2V101**	**$918.00**
	Infrared	640 x 480	20	1	Ethernet TCP / Ethernet IP	PNP	**O2V120**	**$918.00**
	Infrared	640 x 480	20	1	Ethernet TCP / Ethernet IP	NPN	**O2V121**	**$918.00**
	White	1320 x 945	20	1	Ethernet TCP / Ethernet IP	PNP	**O2V102**	**$918.00**
	White	1320 x 945	20	1	Ethernet TCP / Ethernet IP	NPN	**O2V103**	**$918.00**
	Infrared	1320 x 945	20	1	Ethernet TCP / Ethernet IP	PNP	**O2V122**	**$918.00**
	Infrared	1320 x 945	20	1	Ethernet TCP / Ethernet IP	NPN	**O2V123**	**$918.00**

Accessories

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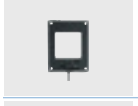
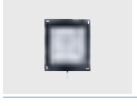
	Spot Light for optional lighting enhancement. M12 connector, transmitter red light 630 mm	**O2D909**	**$328.00**
	Protective plastic cover	**E21166**	**$96.00**
	Plastic lens for diffusing light	**E21165**	**$109.00**
	Protective glass cover	**E21168**	**$96.00**
	Ethernet cable, 2 m, M12 D-coded / RJ45, 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**
	Illumination backlight; 33.4 x 66.5 x 9.2 mm; Illuminated area: 25 x 25 mm Type of light LED: Infrared PUR cable 0.15 m 4-pin M12 connector	**O2D906**	**$318.00**
	Illumination backlight; 81 x 103 x 9.8 mm Illuminated area: 50 x 50 mm Type of light LED: Infrared PUR cable 0.15 m 4-pin M12 connector	**O2D907**	**$351.00**
	Illumination backlight; 133 x 156 x 9.8 mm Illuminated area: 100 x 100 mm Type of light LED: Infrared PUR cable 0.15 m 4-pin M12 connector	**O2D908**	**$389.00**

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	M12 Micro DC (8-pin) 5 m, PUR	**E11807**	**$34.00**
For backlight	M12 Micro DC (4-pin) 5 m, PVC	**EVT001**	**$19.00**
	M12 Micro DC (4-pin) 10 m, PVC	**EVT002**	**$22.00**

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 five 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.

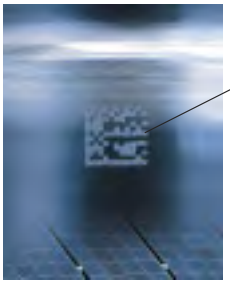
The versatile Multi-Code Reader can identify, verify and qualify most marking methods including dot-peened, laser-etched and printed data matrix codes as well as printed barcodes.

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.

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	**$918**

Additional application examples



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.*

Printed code on plastic parts

Challenge: *Printed code on plastic parts can wear or disintegrate over time.*

Solution: *The Multi-Code camera reliably detects printed codes that become damaged or soiled – even if up to 28% of the information is damaged.*

Position Sensors | Motion Control | Vision Sensors

Company | Inductive | Capacitive | Cylinder position | Photoelectrics and lasers | Distance, color and contrast | Fiber optics | Speed monitors | 2D / 3D inspection

Search Bar

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Product + accessory selector

Dimensions	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	**O2I100**	**$918.00**
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	**O2I102**	**$918.00**
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	**O2I104**	**$918.00**
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	**O2I101**	**$918.00**
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	**O2I103**	**$918.00**
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	**O2I105**	**$918.00**

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**
	Spot Light for optional lighting enhancement. M12 connector, transmitter red light 630 mm	**O2D909**	**$328.00**
	Plastic lens for diffusing light	**E21165**	**$109.00**
	Plastic protective lens for food and beverage applications	**E21166**	**$96.00**
	Glass protective lens	**E21168**	**$96.00**

Cordsets

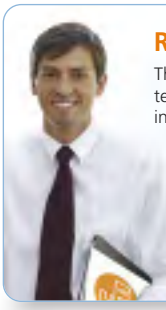
Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (8-pin) 2 m, PUR	**E11950**	**$28.00**
	M12 Micro DC (8-pin) 5 m, PUR	**E11807**	**$34.00**
	M12 Micro DC (8-pin) 2 m, PUR	**E11231**	**$28.00**
	M12 Micro DC (8-pin) 5 m, PUR	**E11232**	**$34.00**
	Ethernet cable, 2 m, M12 D-coded / RJ45, cross-link	**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:	1 m/s
Lighting:	infrared 850 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, NPN, continuous, TCP/IP
Parameter setting / process interface:	Ethernet 10 Base-T, Ethernet TCP, Ethernet IP

Class 2 laser



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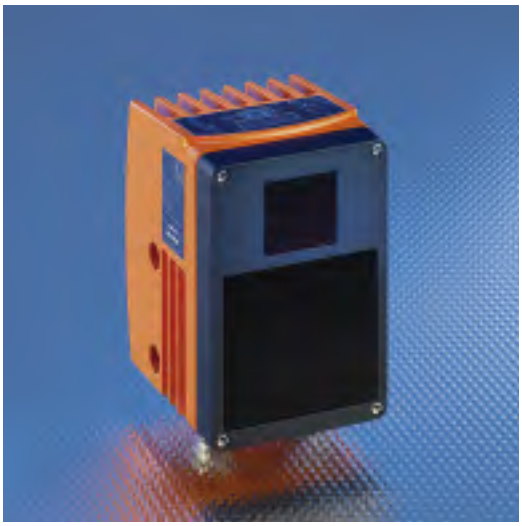


Top five product features!

- First industrial 3D sensor that evaluates an object's shape, size and volume
- Compact sensor uses reliable time-of-flight distance measurement
- Integrated 64 x 48 pixel array projects 3072 points of reference
- Sensor withstands harsh indoor and outdoor environments
- Provides switching and analog outputs for application versatility

Photonic Mixer Device (PMD) Technology

The 3D Image Sensor is designed to evaluate size, shape and volume in industrial automation applications.

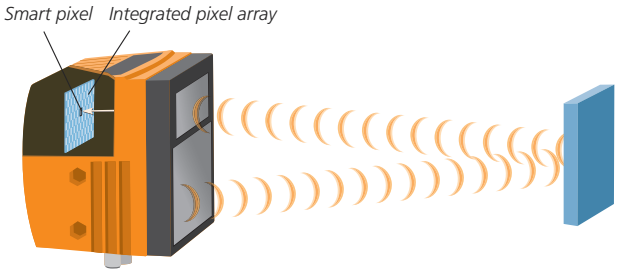
Time-of-flight principle

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

Smart pixel

Each pixel has two gates that are controlled by an oscillator. Here, the electrons are converted into photons. The light information is sent from the PMD chip as the representative distance for that pixel, carrying the desired 3D information.

The PMD pixel array



The integrated 64 x 48 smart pixel array projects 3072 points of reference onto an object, capturing the entire object in three dimensions.

Additional application examples

Challenge: Inaccurate bulk material level

In typical level applications, multiple sensors are mounted over a bin to detect the level of bulk material. Materials, such as grain or pellets, can shift within the bin creating hills and valleys, leading to incorrect level detection.

ifm Solution: View level in 3D

The 3D image sensor is mounted above a vessel. The sensor's pixel array spreads across the grain to detect the entire area. The high and low points are identified and can be used for direct output or averaged to provide a more accurate level of available space.

Challenge: Correct sizing of packages

Determining the gross dimension and volume of a package is crucial to proper traffic flow. Multiple 2D scanners are typically used to create a 3D image, which adds cost and complexity.

ifm Solution: View package in 3D

The 3D Image Sensor uses a standard algorithm to determine the gross volume of a package. The sensor's pixel array sends 3072 time-of-flight measurement points to detect the package size, shape and volume.

Product + accessory selector

Dimensions	Operating Voltage	Supply Current	Parameter Setting	Programming Interface	Part No.	List Price (1-pc.)
137 x 75 x 95	24 VDC ± 10 %	2500 mA	via 2 pushbuttons and 10-segment display or via PC / notebook with operating software	Ethernet; 10Base-T / 100Base-TX	**O3D200**	**$1,487.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting set for rod mounting Ø 14 mm	**E3D103**	**$32.00**
	Mounting rod, 100 mm, Ø 14 mm, M12 thread, stainless steel	**E20939**	**$10.00**
	Switched-mode power supply 24 V DC / 2.5 A	**DN4011**	**$150.00**
	Switched-mode power supply 24 V DC / 5 A	**DN4012**	**$199.00**

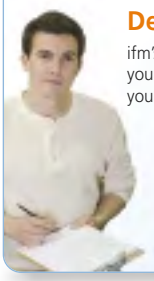
Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (8-pin) 2 m, PUR	**E11231**	**$28.00**
	M12 Micro DC (8-pin) 5 m, PUR	**E11232**	**$34.00**
	M12 Micro DC (8-pin) 2 m, PUR	**E11950**	**$28.00**
	M12 Micro DC (8-pin) 5 m, PUR	**E11807**	**$34.00**
	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

Sampling rate / sw. frequency:	Max. 20 Hz adjustable
Unambiguous ranges:	6.5 m (single frequency mode)
Current consumption:	Maximum 2500
Short-circuit protection, pulsed:	Yes
Overload protection:	Yes
Operating temperature:	14…122 °F (-10…50 °C)
Protection:	IP67, III
Materials:	Housing: aluminum; lens window: polycarbonate; LED window: PMMA
Connections:	External trigger; max. 2 switching inputs / outputs; analog output (configurable)
Parameter setting options:	Via PC / notebook or 10-segment display and two pushbuttons
Parameter setting interface:	Ethernet 10Base-T / 100Base-TX



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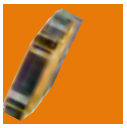
Safety relays



Multi-functional safety relays . . . . . 126 - 127

Safety at Work

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Top five product features!

- Fail-safe inductive sensor does 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.

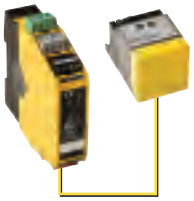
ifm's non-contact fail-safe sensors may be used with any standard safety relay, safety PLC and bus system.

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 the one point along chain is stopped. Using ifm's quick disconnect T-piece connectors, wiring is greatly reduced and simplified.

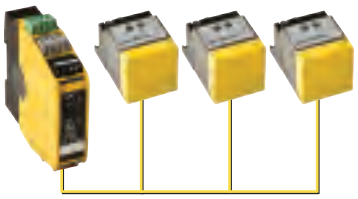
Single connection

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.

	Position Sensors						Motion Control	Vision Sensors	
Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection	
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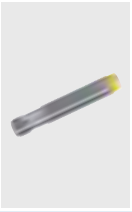
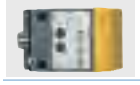
Product + accessory selector

Housing	Dimensions	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 mm	0.5…4 nf	SIL 2, PL d	≤ 1 ms	≤ 1 ms	IP67	316 S.S., PBT	**GF711S**	**$176.00**
	M18 x 71 mm	1…5 f	SIL 2, PL d	≤ 1 ms	≤ 1 ms	IP67	Plated brass, PBT	**GG712S**	**$181.00**
	M18 x 71 mm	1…8 nf	SIL 2, PL d	≤ 1 ms	≤ 1 ms	IP67	316 S.S., PBT	**GG711S**	**$181.00**
	M30 x 70 mm	1...10 f	SIL 2, PL d	≤ 10 ms	≤ 1 ms	IP67	Plated brass / PBT	**GI712S**	**$192.00**
	M30 x 70 mm	1...15 nf	SIL 2, PL d	≤ 10 ms	≤ 1 ms	IP67	316 S.S., PBT	**GI711S**	**$188.00**
	M30 x 80 mm	6…12 nf	SIL 3, PL e	< 50 ms	< 200 ms	IP69K	316 S.S., PBT	**GI701S**	**$188.00**
	40 x 40 x 66mm	10…15 nf	SIL 3, PL e	< 50 ms	< 200 ms	IP67	PPE, diecast zinc	**GM701S**	**$236.00**
	40 x 40 x 66mm	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 mm	1…4 f	SIL 3, PL e	< 20 ms	< 200 ms	IP69K	Plated brass, PBT	**GG507S**	**$236.00**
	M18 x 91 mm	3…6 nf	SIL 3, PL e	< 20 ms	< 200 ms	IP69K	316 S.S., PBT	**GG505S**	**$236.00**
	M30 x 80 mm	6...12 nf	SIL 3, PL e	< 20 ms	< 200 ms	IP69K	316 S.S. / PEEK	**GI505S**	**$236.00**
	40 x 40 x 66mm	10…15 nf	SIL 3, PL e	< 20 ms	< 200 ms	IP67	PPE, diecast zinc	**GM504S**	**$229.00**
	40 x 40 x 66mm	10…20 nf	SIL 3, PL e	< 20 ms	< 200 ms	IP67	PPE, diecast zinc	**GM505S**	**$236.00**

Accessories

Type	Safety Outputs	Non-safe Outputs	Part No.	List Price
	2 x relay (N.O.)	1 x PNP	**G1501S**	**$177.00**
	2 x PNP	1 x PNP	**G1503S**	**$161.00**
	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**	**$285.00**
	AS-i ClassicLine module for Gx5 Series		**AC016S**	**$382.00**
	AS-i ClassicLine module for Gx7 Series		**AC007S**	**$313.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**

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)

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Top five 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 1510 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.

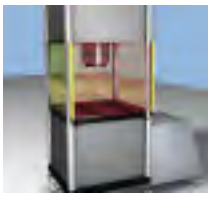
- Compact 28 x 30 mm housing profile
- Up to 12 meter sensing range
- Curtain heights from 160 to 1510 mm
- Integrated T-slot mounting, hardware included
- Light grids available in 2-, 3- and 4-beam versions
- Highly visible LEDs for setup and status indication
- Industry standard M12 connector

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

NEW! ifm safety light curtains provide a multi-beam barrier 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.

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
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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**

Accessories (optional)

Type	Description	Part No.	List Price
	Rotatable brackets ± 7°, set of 4 (for light curtains ≤ 1060 mm)	**EY3004**	**$39.00**
	Rotatable brackets ± 7°, set of 6 (for light curtains ≥ 1210 mm)	**EY3005**	**$53.00**
	Rotatable bracket ± 90°, set of 4	**EY3011**	**$80.00**
	Vibration damper for mounting, set of 4 pieces.	**EY3001**	**$40.00**
	Vibration damper for mounting, set of 6 pieces.	**EY3002**	**$61.00**
	Laser alignment tool	**EY3099**	**$250.00**

The following pages include additional safety light curtain options.

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**	**$24.00**
	5 m, 5-pin, PUR	**EVC074**	**$19.00**
	10 m, 5-pin, PUR	**EVC075**	**$24.00**

M12 Micro DC cordsets for receivers

	5 m, 8-pin, PUR	**E12166**	**$50.00**
	10 m, 8-pin, PUR	**E12167**	**$63.00**
	5 m, 8-pin, PUR	**E12168**	**$50.00**
	10 m, 8-pin, PUR	**E12169**	**$63.00**

Safety relays

Type	Safety Outputs	Non-safe Outputs	Part No.	List Price
	2 x relay (N.O.)	1 x PNP	**G1501S**	**$177.00**
	2 x PNP	1 x PNP	**G1503S**	**$161.00**
	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**	**$285.00**

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)

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Top five 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 1510 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

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SIL 3
PLe

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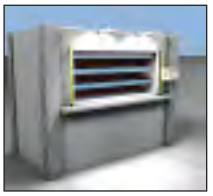
- Compact 28 x 30 mm housing profile
- Up to 12 meter sensing range
- Curtain heights from 160 to 1510 mm
- Integrated T-slot mounting, hardware included
- Light grids available in 2-, 3- and 4-beam versions
- Highly visible LEDs for setup and status indication
- Industry standard M12 connector

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

NEW! ifm safety light curtains provide a multi-beam barrier 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

	Position Sensors						Motion Control	Vision Sensors	
Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection	
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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	$1,749.00
	30	1360	12	OY049S	$1,888.00
	30	1510	12	OY050S	$2,155.00

Accessories (optional)

Type	Description	Part No.	List Price
	Rotatable brackets ± 7°, set of 4 (for light curtains ≤ 1060 mm)	EY3004	$39.00
	Rotatable brackets ± 7°, set of 6 (for light curtains ≥ 1210 mm)	EY3005	$53.00
	Rotatable bracket ± 90°, set of 4	EY3011	$80.00
	Vibration damper for mounting, set of 4 pieces.	EY3001	$40.00
	Vibration damper for mounting, set of 6 pieces.	EY3002	$61.00
	Laser alignment tool	EY3099	$250.00

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)

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	$24.00
	5 m, 5-pin, PUR	EVC074	$19.00
	10 m, 5-pin, PUR	EVC075	$24.00

M12 Micro DC cordset for receiver

	5 m, 8-pin, PUR	E12166	$50.00
	10 m, 8-pin, PUR	E12167	$63.00
	5 m, 8-pin, PUR	E12168	$50.00
	10 m, 8-pin, PUR	E12169	$63.00

Safety relays

Type	Safety Outputs	Non-safe Outputs	Part No.	List Price
	2 x relay (N.O.)	1 x PNP	G1501S	$177.00
	2 x PNP	1 x PNP	G1503S	$161.00
	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	$285.00

Floor stands for light curtains

Type	Description	Part No.	List Price
	For safety light curtains ≤ 760 mm. Requires base unit EY2005.	EY2001	$287.00
	For safety light curtains ≤ 1060 mm. Requires base unit EY2005.	EY2002	$316.00
	For safety light curtains ≤ 1360 mm. Requires base unit EY2005.	EY2003	$377.00
	For safety light curtains ≤ 1510 mm. Requires base unit EY2005.	EY2004	$663.00
	Required spring base unit for floor mounting	EY2005	$196.00

Top five 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 offer protected heights of 160 mm to 1510 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 1510 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

NEW! 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.

Position Sensors | Motion Control | Vision Sensors

Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
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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**

Accessories (optional)

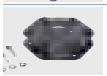
Type	Description	Part No.	List Price
	Rotatable brackets ± 7°, set of 4 (for light curtains ≤ 1060 mm)	**EY3004**	**$39.00**
	Rotatable brackets ± 7°, set of 6 (for light curtains ≥ 1210 mm)	**EY3005**	**$53.00**
	Rotatable bracket ± 90°, set of 4	**EY3011**	**$80.00**
	Vibration damper for mounting, set of 4 pieces.	**EY3001**	**$40.00**
	Vibration damper for mounting, set of 6 pieces.	**EY3002**	**$61.00**
	Laser alignment tool	**EY3099**	**$250.00**

Type	Length (mm)	Resolution (mm)	Beams	Part No.	List Price
Corner mirrors					
	715	610	2	**EY1004**	**$384.00**
	1060	910	3	**EY1006**	**$477.00**
	1230	1060	4	**EY1007**	**$526.00**

Floor stands with integrated corner mirrors

	For light curtains with 2 beams Requires base unit EY2005.	**EY1011**	**$471.00**
	For safety light curtains with 3 and 4 beams Requires base unit EY2005.	**EY1013**	**$574.00**

Floor stands for light curtains

	For safety light curtains ≤ 760 mm. Requires base unit EY2005.	**EY2001**	**$287.00**
	For safety light curtains ≤ 1060 mm. Requires base unit EY2005.	**EY2002**	**$316.00**
	Required spring base unit for floor mounting	**EY2005**	**$196.00**

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**	**$24.00**
	5 m, 5-pin, PUR	**EVC074**	**$19.00**
	10 m, 5-pin, PUR	**EVC075**	**$24.00**

M12 Micro DC cordset for receiver

	5 m, 8-pin, PUR	**E12166**	**$50.00**
	10 m, 8-pin, PUR	**E12167**	**$63.00**
	5 m, 8-pin, PUR	**E12168**	**$50.00**
	10 m, 8-pin, PUR	**E12169**	**$63.00**

Safety relays

Type	Safety Outputs	Non-safe Outputs	Part No.	List Price
	2 x relay (N.O.)	1 x PNP	**G1501S**	**$177.00**
	2 x PNP	1 x PNP	**G1503S**	**$161.00**
	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**	**$285.00**
	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 five product features!

- *Light curtains designed for blanking applications – 14 and 20 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 610 mm to 1210 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 1510 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.
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- 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

NEW! **Blanking** allows one, two or three consecutive beams to be broken without interrupting the safety circuit. These types of light curtains are generally used for material feed or exit applications.

Metal roll feed (floating blanking)

A metal sheet roll is fed into the cutting station. Because of the movement and various feed angles, the metal sheet can break different beams within the protected area of the light curtain. A floating blanking light curtain allows for one, two or three beams to be broken anywhere within the protected area of the light curtain.

Conveying transport (permanent blanking)

A light curtain is required for a conveyor section so that operators cannot access the top or bottom of the conveyor. In order to do this, the light curtain must allow the roller to reside within the protected area without interrupting the safety circuit. By applying the ifm permanent blanking feature, the light curtain can solve this application.

Position Sensors | Motion Control | Vision Sensors

Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
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Product + accessory selector

Type 4 light curtains for blanking

Type	Resolution (mm)	Protected Area Height (mm)	Protected Area Width (m)	Part No.	List Price
	14	610	5	**OY804S**	**$1,737.00**
	14	760	5	**OY805S**	**$1,987.00**
	14	910	5	**OY806S**	**$2,238.00**
	14	1060	5	**OY807S**	**$2,492.00**
	14	1210	5	**OY808S**	**$2,749.00**
	20	610	18	**OY815S**	**$1,573.00**
	20	760	18	**OY816S**	**$1,797.00**
	20	910	18	**OY817S**	**$2,021.00**
	20	1060	18	**OY818S**	**$2,249.00**
	20	1210	18	**OY819S**	**$2,477.00**

Safety relays

Type	Safety Outputs	Non-safe Outputs	Part No.	List Price
	2 x relay (N.O.)	1 x PNP	**G1501S**	**$177.00**
	2 x PNP	1 x PNP	**G1503S**	**$161.00**
	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**	**$285.00**

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

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**	**$24.00**
	5 m, 5-pin, PUR	**EVC074**	**$19.00**
	10 m, 5-pin, PUR	**EVC075**	**$24.00**

M12 Micro DC cordset for receiver

	5 m, 8-pin, PUR	**E12166**	**$50.00**
	10 m, 8-pin, PUR	**E12167**	**$63.00**
	5 m, 8-pin, PUR	**E12168**	**$50.00**
	10 m, 8-pin, PUR	**E12169**	**$63.00**

Accessories (optional)

Type	Description	Part No.	List Price
	Rotatable brackets ± 7°, set of 4	**EY3100**	**$55.00**

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)

Reduce your inventory and the complexity of selecting a light curtain

ifm's consolidated product offering can be applied in most applications.

ifm makes it easy to select a light curtain in three steps. Determine your application (e.g., finger, hand, body, or blanking), determine the protected area height and the protected area width. It's that simple!

Top five 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.

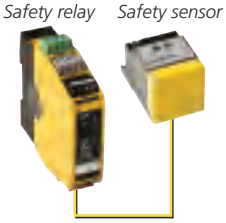
Safety Relays for Series Connection

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

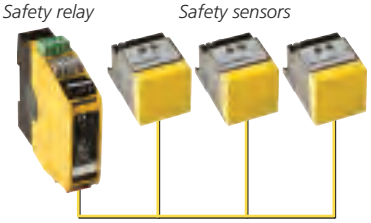
Single connection

Safety relay *Safety sensor*



Series connection (up to 10 sensors)

Safety relay *Safety sensors*



Position Sensors | Motion Control | Vision Sensors

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Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
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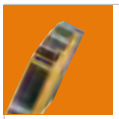


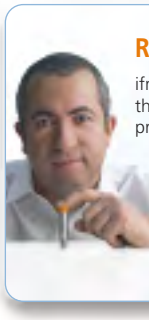
Product + accessory selector

Type	Dimensions	Supply Voltage	Safety Outputs	Non-Safe Outputs	Part No.	List Price (1-pc.)
	100 x 25 x 105 mm	19.2…30 V DC	2 x N.O. contacts	1 N.O. transistor output (PNP)	**G1501S**	**$177.00**
	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**	**$161.00**
	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**	**$285.00**

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.

Place orders, tech support
800-441-8246

Visit our product catalog
www.ifm.com/us

Shop for products online
Easy ordering via eShop

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.

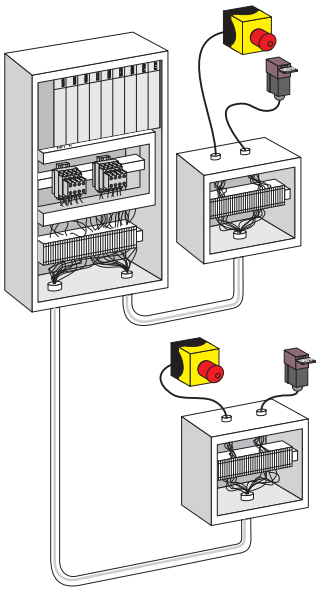
Plug-and-play wiring reduces installation time and eliminates junction boxes and additional input cards. The system provides fast and flexible expansion. Any modifications to the system, such as changing or adding e-stop buttons can be made quickly and easily. Safety zones can be configured and changed 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.

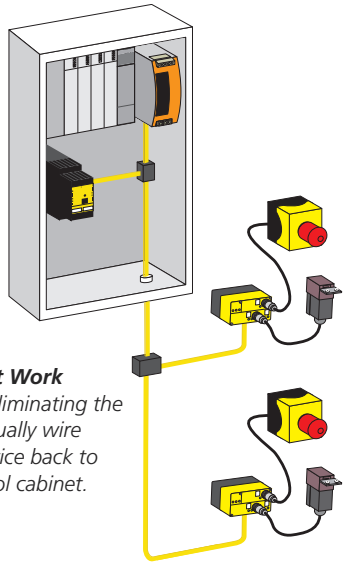
Simplify Your Safety Wiring

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.*

Visit www.ifm.com/us to view all Safety at Work networking products.

Search Bar

	Position Sensors						Motion Control	Vision Sensors	
Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection	
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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

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.

INSTALL – REBUILD

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.

STOP

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.

AS-i INTERFACE SAFETY AT WORK

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.

Schmersal Pilz Sick AB

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.

TÜV NORD

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.

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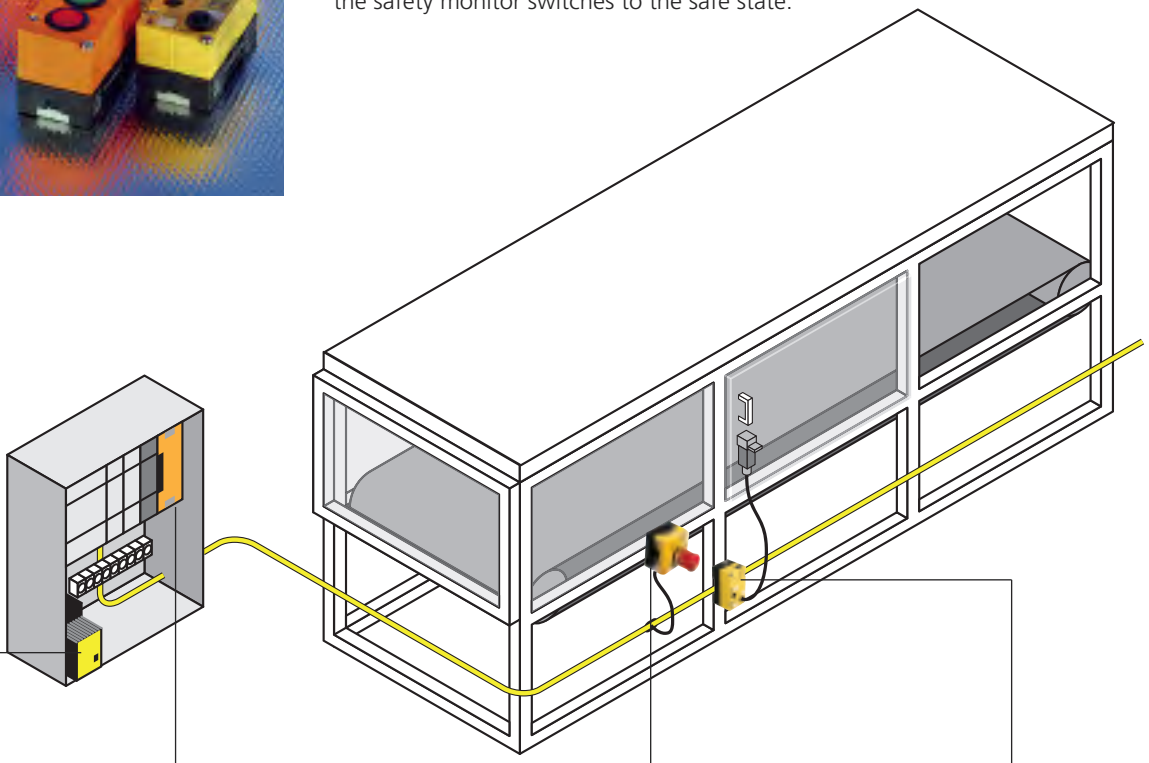
Safety at Work system overview

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.



Safety Monitor

The safety monitor evaluates the transmission of safety messages over the network and controls shutdown.

- *Connection for up to 31 safety modules / intelligent e-stops*
- *Up to 8 independent safety zones*

Connection to Control Platform and Network Power Supply

The master enables the connection of the Safety at Work system to multiple PLC platforms and industrial networks.

The system power supply couples power and signal over the two-wire cable.

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*
- *Rated by TUV for up to Category 4 according to EN954-1 and SIL 3 according to IEC 61508, IEC 62061, and PL e according to ISO 13849-1.*

Safety Input Module

The input module is designed to interface standard mechanical safety devices to the system.

- *Rated by TUV for up to Category 4 according to EN954-1 and SIL 3 according to IEC 61508, IEC 62061, and PL e according to ISO 13849-1.*

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	Position Sensors						Motion Control	Vision Sensors	
Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection	
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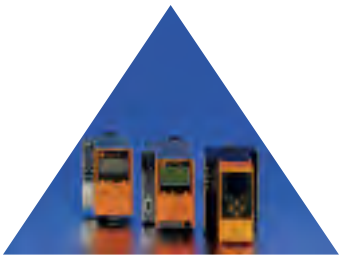


Controllers and Gateways

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.

Power Supplies

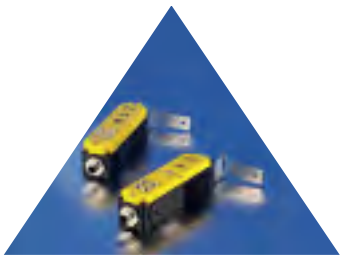
Safety-at-Work power supplies provide power for network modules and input devices. Also, 24 VDC power supplies are used to provide power to output devices over the Safety-at-Work network.

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.

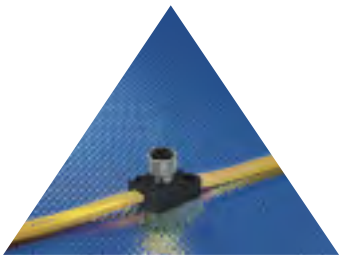
Input/output modules

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.



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.



Wiring Solutions

Various AS-i splitters and branching modules can be used to provide maximum flexibility when designing and commissioning a project.

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.

Simple and comprehensive website

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

Place orders, tech support
800-441-8246

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www.ifm.com/us

Shop for products online
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Visit www.ifm.com/us to view all Safety at Work networking products.

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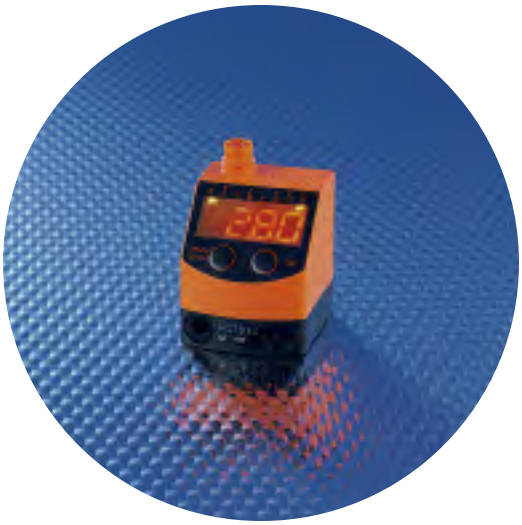

Top five product features!

- *Compact pressure switch for pneumatic applications*
- *2-color, 4-digit alpha-numeric display for visual indication of operating status*
- *Simple pushbutton setup*
- *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.

NEW! The PQ Series pressure switch family has been expanded to include versions with analog outputs, (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.*

	Position Sensors						Motion Control	Vision Sensors	
Company	*Inductive*	*Capacitive*	*Cylinder position*	*Photoelectrics and lasers*	*Distance, color and contrast*	*Fiber optics*	*Speed monitors*	*2D / 3D inspection*	
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Product + accessory selector

Output	Measuring Range	Set Point Range	Reset Point Range	Scaleable Analog Start Point	Scaleable Analog End Point	Display Units Available	Port Size	Part No.	List Price (1-pc.)
2x PNP	-14.5…14.5 psi	-14.2...14.6 psi	-14.4...14.4 psi	–	–	bar, psi, kPa, inHg	G1/8 BSPP male	**PQ7809**	**$156.00**
2x PNP	-14.5…145 psi	-13...145 psi	-14...144 psi	–	–	bar, psi, kPa, inHg	G1/8 BSPP male	**PQ7834**	**$156.00**
2x NPN	-14.5…14.5 psi	-14.2...14.6 psi	-14.4...14.4 psi	–	–	bar, psi, kPa, inHg	G1/8 BSPP male	**PQ0809**	**$156.00**
2x NPN	-14.5…145 psi	-13...145 psi	-14...144 psi	–	–	bar, psi, kPa, inHg	G1/8 BSPP male	**PQ0834**	**$156.00**
4…20 mA and 1x PNP	-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**	**$169.00**
4…20 mA and 1x PNP	-15…145 psi	-13...145 psi	-14...144 psi	-15 psi	145 psi	bar, psi, kPa, inHg	G1/8 BSPP male	**PQ3834**	**$169.00**

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**

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**

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

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 (Viton), silicon (coated), PBT (Pocan)
Protection rating:	IP65

Reliable service center

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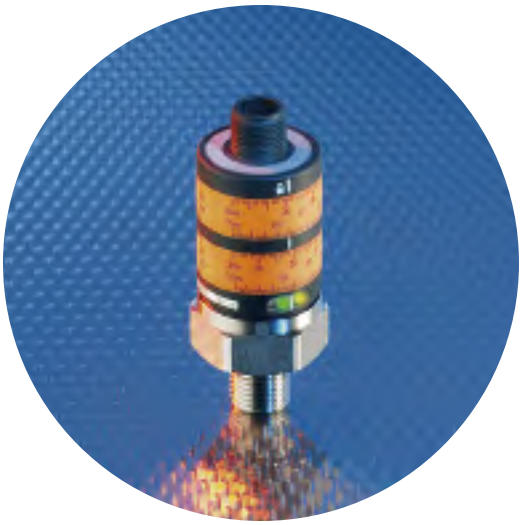


Top five product features!

- 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

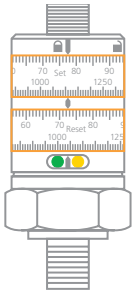
Mechanical adjustment dials provide simple setup

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.

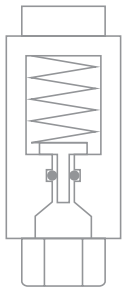
The PK pressure switch is an ideal alternative to mechanical piston pressure switches. The PK switch features a gas-tight measuring cell that reliably detects gas and liquid pressure. The switch withstands aggressive media and detects pressure ranges up to 5800 psi (400 bar).

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

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
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Product + accessory selector

Output	Measuring Range [psi]	Setpoint Range [psi]	Resetpoint Range [psi]	Overload Pressure [psi]	Port Size	Part No.	List Price (1-pc.)
2x PNP, Complementary	0...145	7.5...145	5.0...142	362	1/4" NPT male	**PK6224**	**$151.00**
2x PNP, Complementary	0...1450	75...1450	50...1420	2900	1/4" NPT male	**PK6222**	**$151.00**
2x PNP, Complementary	0...5800	290...5800	175...5685	8700	1/4" NPT male	**PK6220**	**$151.00**
2x PNP, Complementary	0...145	7.5...145	5.0...142	362	G1/4 BSPP male	**PK6524**	**$151.00**
2x PNP, Complementary	0...363	18...363	11.0...355	870	G1/4 BSPP male	**PK6523**	**$151.00**
2x PNP, Complementary	0...1450	75...1450	50...1450	2900	G1/4 BSPP male	**PK6522**	**$151.00**
2x PNP, Complementary	0...3625	181...3625	109...3553	5800	G1/4 BSPP male	**PK6521**	**$151.00**
2x PNP, Complementary	0...5800	2900...5800	175...5685	8700	G1/4 BSPP male	**PK6520**	**$151.00**

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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$12.75**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR, LED	**EVC009**	**$19.00**

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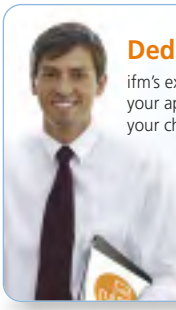
Technical Specs

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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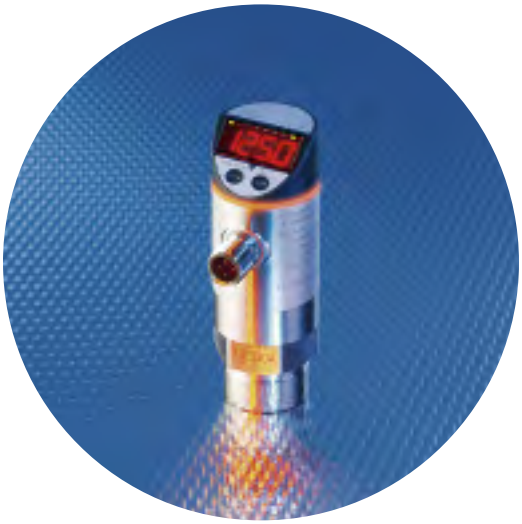
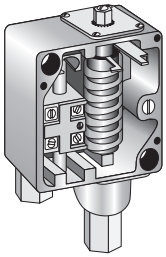


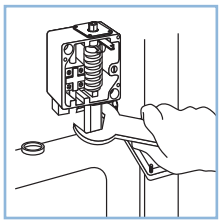
Top five product features!

- *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*
- *Each switch has multiple outputs for flexibility*
- *Integrated built-in display eliminates the need for a reference gauge*
- *Stainless steel construction designed to last in harsh environments*

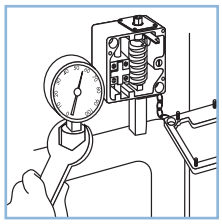
Customer benefits!

Mechanical pressure switches are not reliable and are time-consuming to install

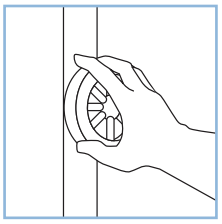




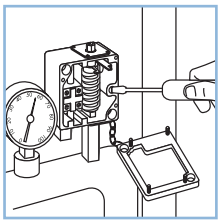
1. Mount the switch and connect conduit.



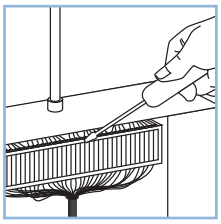
2. Install reference gauge.



3. Apply system pressure.

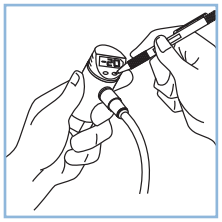


4. Adjust setpoint and differential.

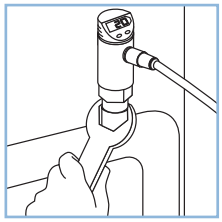


5. Make electrical connections.

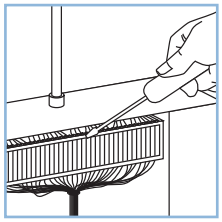
ifm pressure switches have no moving parts and can be installed in less than five minutes



1. Program the switch.



2. Install the switch.



3. Make electrical connections.

	Position Sensors						Motion Control	Vision Sensors	
Company	*Inductive*	*Capacitive*	*Cylinder position*	*Photoelectrics and lasers*	*Distance, color and contrast*	*Fiber optics*	*Speed monitors*	*2D / 3D inspection*	
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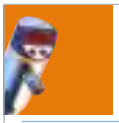


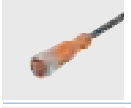
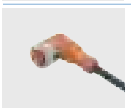
Product + accessory selector

Measuring Range	Display in Steps of	Overload Pressure	Display Units Available	Part No. 1/4" NPT Female Port Size	Part No. G1/4 BSPP Female Port Size	Part No. SAE 7/16-20 Female Port Size	List Price (1-pc.)
Vacuum switches · PNP / NPN · 2x Normally open or normally closed output							
-29.5...29.5 inHg	0.3 inHg	290 psi	mbar, kPa, psi, inHg	**PN7209**	**PN7009**	–	**$359.00**
Pressure switches · PNP / NPN · 2x Normally open or normally closed output							
0…14.5 psi	0.1 psi	145 psi	mbar, kPa, psi, inHg	**PN7207**	**PN7007**	–	**$359.00**
0…36.3 psi	0.2 psi	290 psi	bar, kPa, psi	**PN7206**	**PN7006**	–	**$359.00**
-14.5…145 psi	1 psi	1087 psi	bar, MPa, psi	**PN7204**	**PN7004**	**PN7304**	**$359.00**
0…363 psi	2 psi	2175 psi	bar, MPa, psi	**PN7203**	**PN7003**	**PN7303**	**$359.00**
0…1450 psi	10 psi	4350 psi	bar, MPa, psi	**PN7202**	**PN7002**	**PN7302**	**$359.00**
0…3625 psi	20 psi	5800 psi	bar, MPa, psi	**PN7201**	**PN7001**	–	**$359.00**
0…5800 psi	30 psi	8700 psi	bar, MPa, psi	**PN7200**	**PN7000**	**PN7300**	**$359.00**
0…8700 psi	50 psi	11,600 psi	bar, MPa, psi	–	**PN7060**	–	**$359.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Transparent protective cover	**E30006**	**$8.00**
	G 1/4 BSPP male to 1/4" NPT male adapter	**U20172**	**$18.00**
	G 1/4 BSPP male to 7/16" SAE male adapter	**U20171**	**$27.00**
	1/4" NPT male to 1/4" NPT male	**U30039**	**$10.00**
	Mounting clamp	**E10077**	**$9.00**
	Conduit adapter	**E30062**	**$78.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$12.75**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR, LED	**EVC009**	**$19.00**

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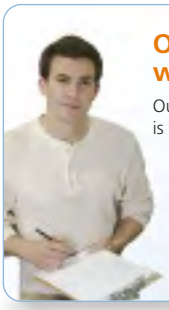
Technical Specs

Supply voltage:	18...36 VDC
Maximum load current:	2 x 250 mA
Current consumption:	<50 mA
Voltage drop:	<2 V
Medium temperature range:	-13...176 °F (-25...80 °C)
Accuracy of switch point:	< ± 0.5% of full range
Repeatability:	< ± 0.1% of full range
Wetted parts:	303 stainless steel, ceramic, Viton
Protection rating:	IP67 (363 psi / 25 bar ranges and lower: IP65)



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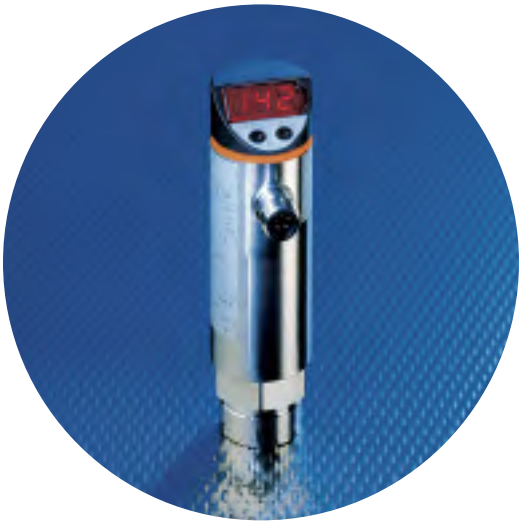
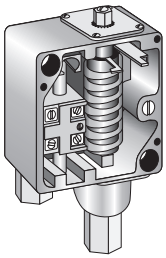


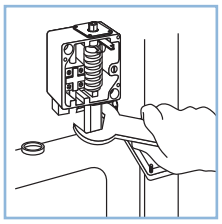
Top five product features!

- 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

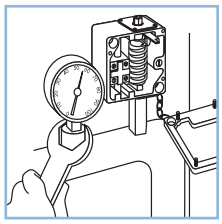
Customer benefits!

Mechanical pressure switches are not reliable and are time-consuming to install

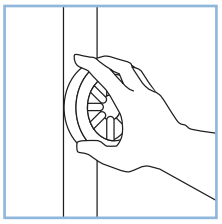




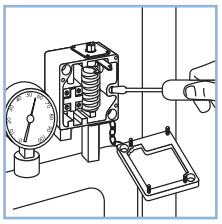
1. Mount the switch and connect conduit.



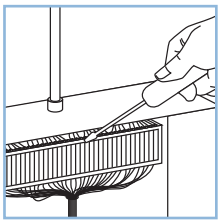
2. Install reference gauge.



3. Apply system pressure.

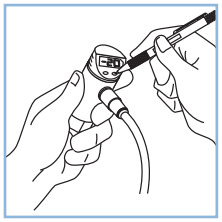


4. Adjust setpoint and differential.

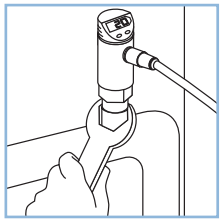


5. Make electrical connections.

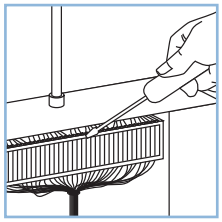
ifm pressure switches have no moving parts and can be installed in less than five minutes



1. Program the switch.



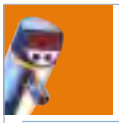
2. Install the switch.



3. Make electrical connections.

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113



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 · Normally open or normally closed output						
-30...30 inHg	1 inHg	290 psi	bar, inHg, kPA	1/4" NPT female	**PN4229**	**$375.00**
Pressure switches · Solid state relay · Normally open or normally closed output						
0…14.5 psi	0.1 psi	150 psi	mbar, kPa, psi	1/4" NPT female	**PN4227**	**$375.00**
0…36.3 psi	0.1 psi	290 psi	bar, kPa, psi	1/4" NPT female	**PN4226**	**$375.00**
0…145 psi	1 psi	725 psi	bar, kPa, psi	1/4" NPT female	**PN4224**	**$375.00**
0…363 psi	1 psi	1450 psi	bar, MPa, psi	1/4" NPT female	**PN4223**	**$375.00**
0…1450 psi	10 psi	4350 psi	bar, MPa, psi	1/4" NPT female	**PN4222**	**$375.00**
0…3630 psi	10 psi	5800 psi	bar, MPa, psi	1/4" NPT female	**PN4221**	**$375.00**
0…5800 psi	10 psi	8700 psi	bar, MPa, psi	1/4" NPT female	**PN4220**	**$375.00**

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	**U30039**	**$10.00**
	Mounting clamp	**E10077**	**$9.00**
	Conduit adapter	**E30062**	**$78.00**

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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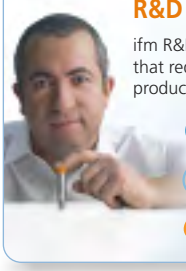
Technical Specs

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, Viton
Protection rating:	IP67 (363 psi / 25 bar ranges and lower: IP65)



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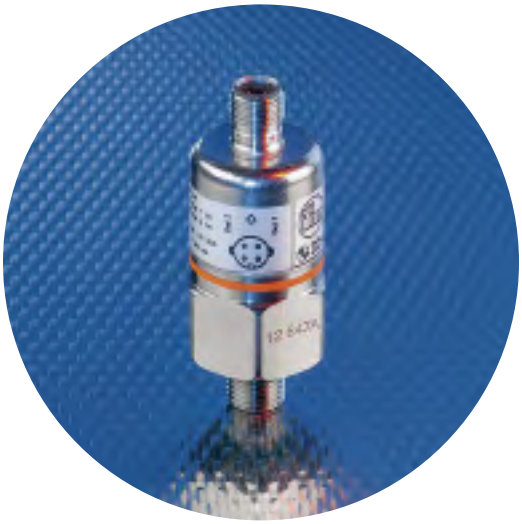


Top five product features!

- 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.

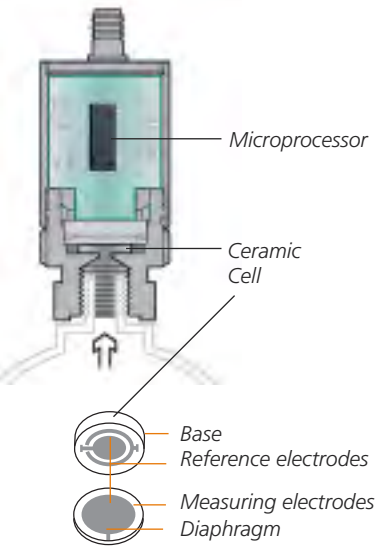
PX pressure transmitters are an ideal alternative to mechanical piston pressure transmitters. The transmitters feature a ceramic measuring cell that reliably detects line pressure and withstands aggressive media.

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



Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

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**	**$199.00**
4...20 mA	0...100 inH_2O	4015 inH_2O	1/4" NPT male	**PX3228**	**$199.00**
4...20 mA	0...5 psi	145 psi	1/4" NPT male	**PX3238**	**$199.00**
4...20 mA	0...15 psi	145 psi	1/4" NPT male	**PX3227**	**$199.00**
4...20 mA	0...20 psi	145 psi	1/4" NPT male	**PX3237**	**$199.00**
4...20 mA	0...30 psi	290 psi	1/4" NPT male	**PX3226**	**$199.00**
4...20 mA	0...100 psi	1087 psi	1/4" NPT male	**PX3224**	**$199.00**
4...20 mA	0...150 psi	1087 psi	1/4" NPT male	**PX3244**	**$199.00**
4...20 mA	0...200 psi	1087 psi	1/4" NPT male	**PX3234**	**$199.00**
4...20 mA	0...250 psi	2175 psi	1/4" NPT male	**PX3233**	**$199.00**
4...20 mA	0...500 psi	2175 psi	1/4" NPT male	**PX3223**	**$199.00**
4...20 mA	0...1000 psi	4350 psi	1/4" NPT male	**PX3222**	**$199.00**
4...20 mA	0...3000 psi	5800 psi	1/4" NPT male	**PX3111**	**$199.00**
4...20 mA	0...5000 psi	11,600 psi	1/4" NPT male	**PX3220**	**$199.00**
0...10 V	-14.5...0 psi	145 psi	1/4" NPT male	**PX9119**	**$199.00**
0...10 V	0...100 inH_2O	4015 inH_2O	1/4" NPT male	**PX9118**	**$199.00**
0...10 V	0...15 psi	145 psi	1/4" NPT male	**PX9117**	**$199.00**
0...10 V	0...30 psi	290 psi	1/4" NPT male	**PX9116**	**$199.00**
0...10 V	0...100 psi	1087 psi	1/4" NPT male	**PX9114**	**$199.00**
0...10 V	0...200 psi	1087 psi	1/4" NPT male	**PX9134**	**$199.00**
0...10 V	0...1000 psi	4350 psi	1/4" NPT male	**PX9112**	**$199.00**
0...10 V	0...3000 psi	5800 psi	1/4" NPT male	**PX9111**	**$199.00**
0...10 V	0...5000 psi	11,600 psi	1/4" NPT male	**PX9110**	**$199.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting clamp	**E10077**	**$9.00**

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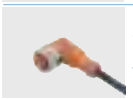
Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	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:	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, Viton
Protection rating:	IP68 / IP69K (363 psi / 25 bar ranges and lower: IP65)

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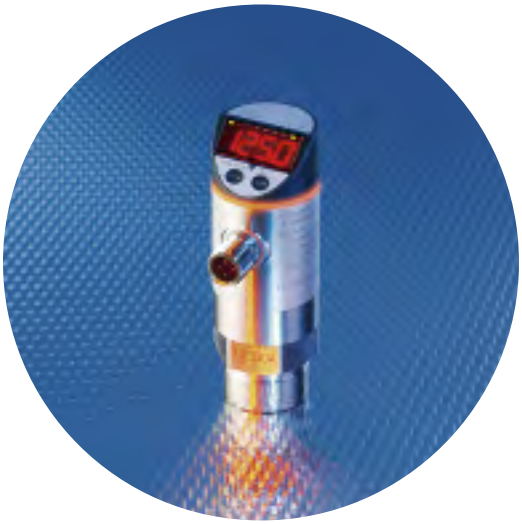


Top five product features!

- *Simple pushbutton setup allows the sensor to be configured in less than 5 minutes*
- *Ceramic pressure sensor element is more reliable than mechanical switches*
- *Each transmitter has multiple outputs including scaleable analog for flexibility*
- *Integrated 4-digit display eliminates the need for a reference gauge*
- *Stainless steel construction is designed to last in harsh environments*

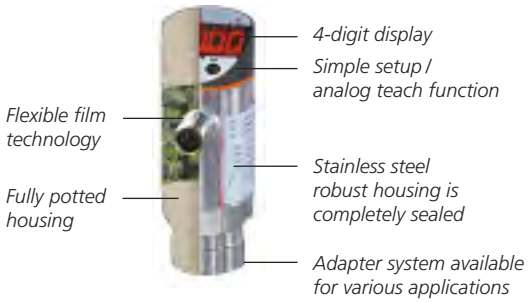
PN Series: A switch / transmitter with numeric display

ifm offers the PN Series of pressure and vacuum transmitters for hydraulic and pneumatic applications. Simple pushbutton setup allows the sensor to be parameterized and mounted in less than 5 minutes.

The transmitter's numeric display provides an accurate readout of system pressure and switch setpoints. Vacuum transmitters provide an accurate readout of increases and decreases in vacuum systems. Stainless steel construction enables the sensor to last in harsh environments.

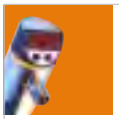
- Ceramic pressure sensor element is more reliable than mechanical switches.
- Integrated built-in display eliminates the need for a reference gauge.

The PN pressure sensor monitors line pressure in a pipe and provides 4-digit numeric indication.



Search Bar

Company	Position Sensors: Inductive	Position Sensors: Capacitive	Position Sensors: Cylinder position	Position Sensors: Photoelectrics and lasers	Position Sensors: Distance, color and contrast	Position Sensors: Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113



Product + accessory selector

Measuring Range	Display in steps of	Scaleable Analog Start Point	Scaleable Analog End Point	Overload Protection	Display Units Available	Part No. 1/4" NPT Female Port Size	Part No. G1/4 BSPP Female Port Size	List Price (1-pc.)
Vacuum transmitters · 4-20 mA / 0-10 V and PNP / NPN or dual PNP / NPN								
-29.4…29.5 inHg	0.1 inHg	-29.4…14.8 inHg	-14.6…29.5 inHg	290 psi	mbar, psi, kPa, inHg, inH_2O	**PN2209**	**PN2009**	**$465.00**
Pressure transmitters · 4-20 mA / 0-10 V and PNP / NPN or dual PNP / NPN								
-5…100.4 inH_2O	0.2 inH_2O	-5…40.2 inH_2O	20.2…100.4 inH_2O	4000 inH_2O	mbar, inH_2O, kPa, mmWS	**PN2228**	**PN2028**	**$465.00**
-0.74…14.50 psi	0.02 psi	-0.74…5.80 psi	3.64…14.50 psi	145 psi	mbar, psi, kPa, inH_2O	**PN2227**	**PN2027**	**$465.00**
-1.45…36.25 psi	0.05 psi	-1.80…14.50 psi	7.25…36.25 psi	290 psi	bar, psi, kPa	**PN2226**	**PN2026**	**$465.00**
-14.5…145.0 psi	0.2 psi	-14.6…49.4 psi	25.4…145.0 psi	1087 psi	bar, psi, kPa	**PN2224**	**PN2024**	**$465.00**
-14.5…362.5 psi	0.5 psi	-14.5…145.0 psi	76.0…362.5 psi	1450 psi	bar, psi, MPa	**PN2223**	**PN2023**	**$465.00**
0…1450 psi	2 psi	0…580 psi	364…1450 psi	4350 psi	bar, psi, MPa	**PN2222**	**PN2022**	**$465.00**
0…3625 psi	5 psi	0…1450 psi	905…3625 psi	5800 psi	bar, psi, MPa	**PN2221**	**PN2021**	**$465.00**
0…5800 psi	10 psi	0…2320 psi	1450…5800 psi	8700 psi	bar, psi, MPa	**PN2220**	**PN2020**	**$465.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Transparent protective cover	**E30006**	**$8.00**
	G 1/4 BSPP male to 1/4" NPT male adapter	**U20172**	**$18.00**
	G 1/4 BSPP male to 7/16" SAE male adapter	**U20171**	**$27.00**
	1/4" NPT male to 1/4" NPT male	**U30039**	**$10.00**
	Mounting clamp	**E10077**	**$9.00**
	Conduit adapter	**E30062**	**$78.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

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Technical Specs

Supply voltage:	20...30 VDC
Maximum load current:	2 x 250 mA
Current consumption:	<65 mA
Voltage drop:	<2 V
Medium temperature range:	-13...176 °F (-25...80 °C)
Accuracy of switch point:	< ± 0.5% of full range
Repeatability:	< ± 0.1% of full range
Wetted parts:	303 stainless steel, ceramic, Viton
Analog scaling turndown:	4:1
Protection rating:	IP67 (363 psi / 25 bar ranges and lower: IP65)

Reliable service center

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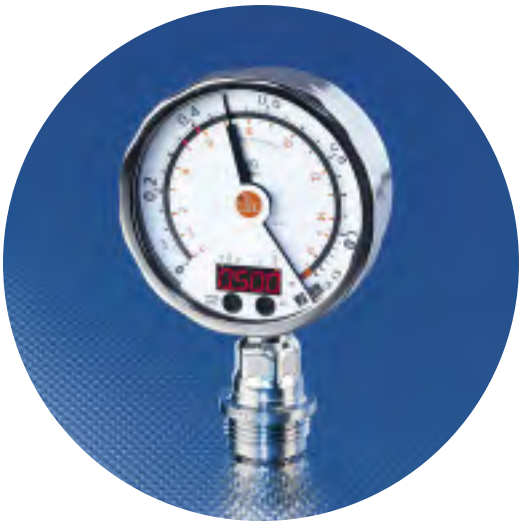
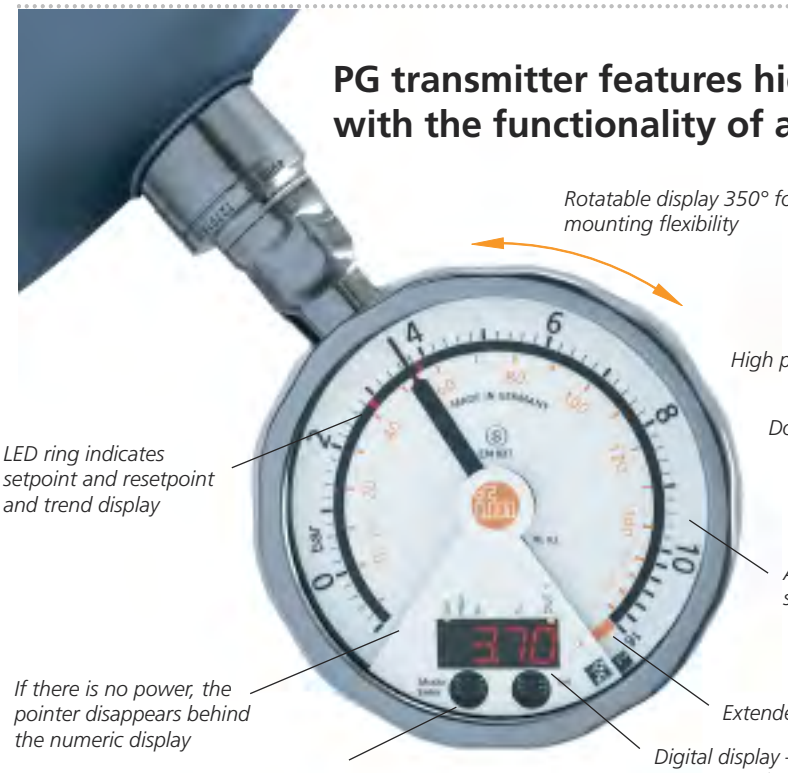


Top five product features!

- *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.

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

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.)
-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**	**$419.00**
-2…40 inH$_2$O	64 inH$_2$O	1606 inH$_2$O	-2...54 inH$_2$O	8...64 inH$_2$O	-1.8...64 inH$_2$O	G 1/2 BSPP male	**PG2489**	**$419.00**
-5…100 inH$_2$O	160 inH$_2$O	4015 inH$_2$O	-5...135 inH$_2$O	20...160 inH$_2$O	-4.6...160 inH$_2$O	G 1/2 BSPP male	**PG2458**	**$419.00**
-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**	**$419.00**
-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**	**$419.00**
-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**	**$419.00**
-14.4…145 psi	232 psi	725 psi	-14.4...196 psi	22...232 psi	-14...232 psi	G 1/2 BSPP male	**PG2454**	**$419.00**
-14.5…363 psi	580 psi	1450 psi	-14.5...490 psi	76...580 psi	-13...580 psi	G 1/2 BSPP male	**PG2453**	**$419.00**
0…1449 psi	2322 psi	4350 psi	0...1959 psi	363...2322 psi	6...2322 psi	G 1/2 BSPP male	**PG2452**	**$419.00**
0…3625 psi	5800 psi	8700 psi	0...5075 psi	725…5800 psi	15...5800 psi	G 1/2 BSPP male	**PG2451**	**$419.00**
0…5800 psi	8700 psi	11,600 psi	0…7250 psi	1450…8700 psi	30…8700 psi	G 1/2 BSPP male	**PG2450**	**$419.00**

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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

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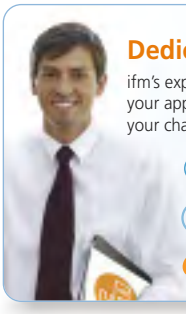
Technical Specs

Operating voltage:	18...32 VDC
Maximum load current:	250 mA
Current consumption:	< 70 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 (Viton)
Analog scaling turndown:	4:1
Protection Rating:	IP67 / IP69K



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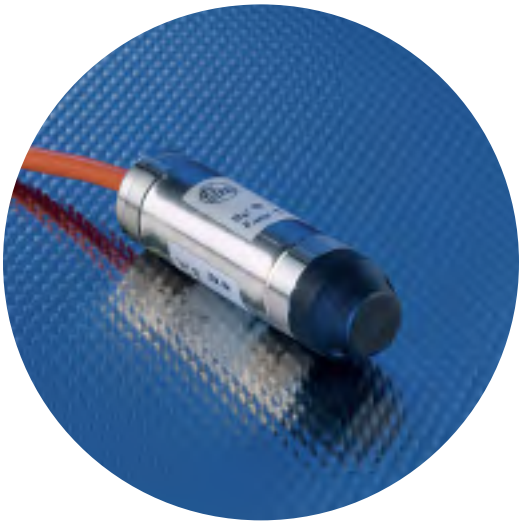


Top five product features!

- *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

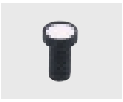
Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Product + accessory selector

Output	Measuring Range	Overload Pressure	Connection	Operating Voltage	Part No.	List Price (1-pc.)
4…20 mA	0…100 inH_2O	803 inH_2O	PUR cable 5 m	10…30 VDC	**PS3208**	**$549.00**
4…20 mA	0…240 inH_2O	1606 inH_2O	PUR cable 10 m	10…30 VDC	**PS3407**	**$599.00**
4…20 mA	0…240 inH_2O	1606 inH_2O	PUR cable 15 m	10…30 VDC	**PS3427**	**$619.00**
4…20 mA	0…240 inH_2O	1606 inH_2O	PUR cable 30 m	10…30 VDC	**PS3607**	**$659.00**
4…20 mA	0…400 inH_2O	2007 inH_2O	PUR cable 15 m	10…30 VDC	**PS3417**	**$619.00**
4…20 mA	0…400 inH_2O	2007 inH_2O	PUR cable 30 m	10…30 VDC	**PS3617**	**$659.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Junction box with ventilation	**E30401**	**$99.00**
	Filter element to protect vent tube in cable	**E30400**	**$11.00**
	Cable clamp	**E30399**	**$29.00**
	Additional weight to stabilize transmitter	**E30402**	**$63.00**

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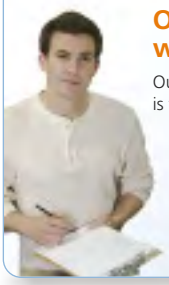
Technical Specs

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 five product features!

- Immune to rapid temperature changes of media
- Fast response time 10 ms: great for cycling applications; minimum 10 million switching cycles
- Easy to set: turn dial to desired switchpoint up to 26 gpm
- Can be bench set outside of the process
- DC PNP switching output with LED indication

ifm mechatronic flow switch

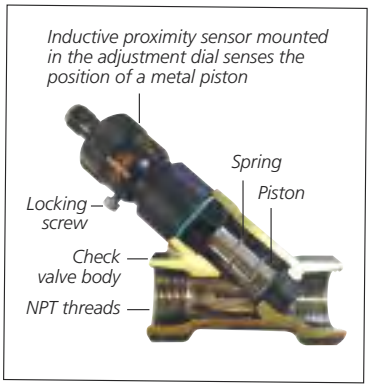
The ifm SBN Series mechatronic flow switch monitors liquid media and provides reliable flow control for various flow applications.

The mechatronic flow switch sensing principle ensures extremely fast response time and allows for a more precise switchpoint setting. The switchpoint can be easily set and locked with a setting screw.

The SBN mechatronic flow switch 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 an inductive sensor and is output as a binary 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

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Product + accessory selector

Setting Range [gpm]	Response Time [ms]	Accuracy [% of Full Range]	Process Connection	Part No.	List Price (1-pc.)
0.26…6.6	10	± 5	3/4" NPT female	**SBN333**	**$249.00**
1.32…26.4	10	± 5	1" NPT female	**SBN346**	**$264.00**

Cordsets

Type	Description	Part No.	List Price (USD)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$12.75**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$15.00**

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Technical Specs

Supply voltage:	24 VDC (-15 % / + 10 %)
Maximum load current:	100 mA
Current consumption:	< 15 mA
Pressure rating:	363 psi
Medium temperature:	32…185 °F / 0...85 °C
Wetted parts:	304 stainless steel, nickel-plated brass, Pocan; O-ring: Viton
Protection:	IP67
Switching cycles:	10 million / min.

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Top five product features!

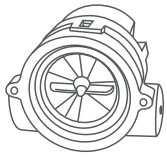
- *Thermal sensing principle with no moving parts is more reliable than mechanical switches*
- *Replaces mechanical switches for monitoring liquids and gases*
- *Wide measuring range to cover more applications*
- *LED bar graph display for flow and setpoint*
- *Easy pushbutton setup with flexible mounting*

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.

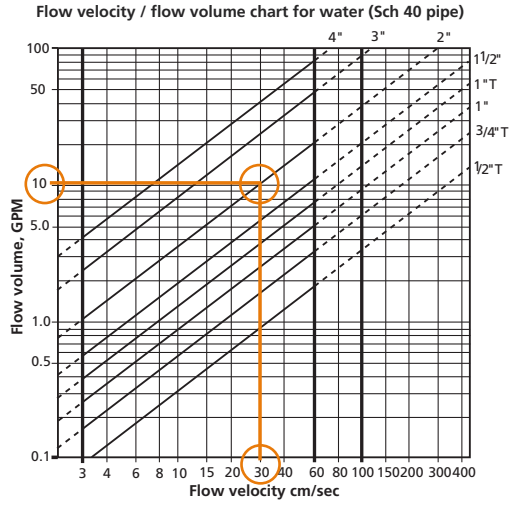


Challenge
Mechanical flow switches that stick.

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 *(pg 155): 3…100 cm/sec. for water*
SF xxxx *(pg 157): 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.

Position Sensors | Motion Control | Vision Sensors

Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Search Bar

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.)
PNP, N.O. / N.C. programmable	See required accessories	5...196 ft/min (3...100 cm/sec)	19…36 VDC	< 60 mA	250 mA	1...10 sec	4350 psi (300 bar)	**SI5010**	**$299.00**
NPN, N.O. / N.C. programmable	See required accessories	5...196 ft/min (3...100 cm/sec)	19…36 VDC	< 60 mA	250 mA	1...10 sec	4350 psi (300 bar)	**SI5011**	**$299.00**
AC relay, N.O. / N.C. programmable	See required accessories	5...196 ft/min (3...100 cm/sec)	90…240 VAC	< 3.5 V	3A contact rating	1...10 sec	4350 psi (300 bar)	**SI5006**	**$365.00**

* 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**	**$21.00**
	1/2" NPT adapter, 316 stainless steel	**E40107**	**$23.00**
	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**	**$21.00**
	G1/2 BSPP adapter, 316 stainless steel	**E40096**	**$26.00**
	Weldable adapter, carbon steel	**E40113**	**$19.00**
	Weldable adapter, 316 stainless steel	**E40124**	**$39.00**

Optional Accessories and Cordsets

Type	Description	Part No.	List Price (1-pc.)
	1/2" tee, brass	**U40029**	**$18.00**
	1/2" tee, stainless steel	**U40030**	**$66.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	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**

For additional cordsets, please call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Medium temperature range:	-13...176 °F (-25…80 °C)
Ideal switchpoint setting range for oils:	60…600 ft/min (9…300 cm/sec)
Ideal switchpoint setting range for gases:	393...1574 ft/min (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, Viton
Protection rating:	IP67

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Top five 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

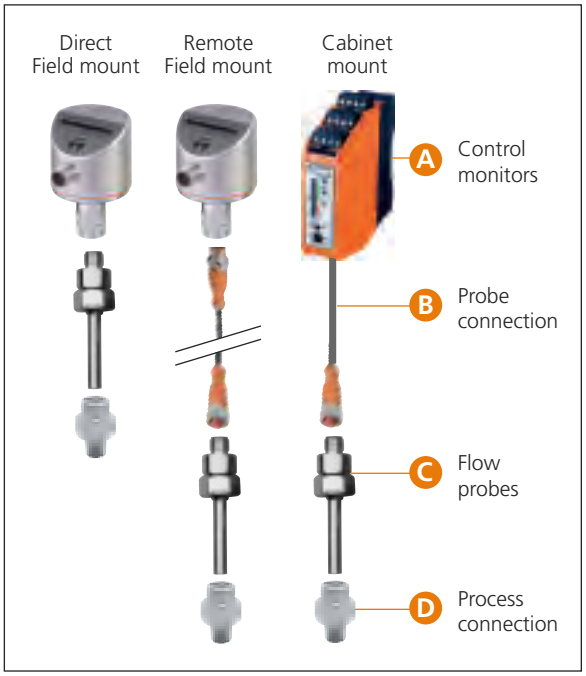
ifm's cabinet mount control monitor offers easy to access terminal connections and can be wired prior to installing inside the control cabinet. The connection to the flow probe is low voltage and does not require a conduit for protection. The control monitor's LED display provides a visual indication 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.



Position Sensors | Motion Control | Vision Sensors
Company | Inductive | Capacitive | Cylinder position | Photoelectrics and lasers | Distance, color and contrast | Fiber optics | Speed monitors | 2D / 3D inspection
Search Bar
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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**	**$279.00**
	Field mount control monitor	AC, relay	1/2" Micro AC	90…240 AC	yes / no / yes	**SR5906**	**$315.00**
	Cabinet mount control monitor	3 x SPDT relay	Combicon	24 VDC	yes / yes / yes	**SR0150**	**$395.00**
	Cabinet mount control monitor	3 x SPDT relay	Combicon	90…240 AC	yes / yes / yes	**SN0150**	**$395.00**

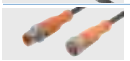
C Flow probes

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**	**$230.00**
	6" insertion depth, requires E40174	Connect directly for field mount or use EVC059 patchcord for remote mount	Use EVC074 cordset for remote mount	**SF6200**	**$265.00**
	4" insertion depth, requires E40174	Connect directly for field mount or use EVC059 patchcord for remote mount	Use EVC074 cordset for remote mount	**SF6201**	**$252.00**
	Requires E40106, E40107, U40085, or U40080	Use E11506 connector for remote mount	Wire directly to combicon cable connector	**SF5300**	**$329.00**

D Process connection

Type	Description	Part No.	List Price (1-pc.)
	1/2" NPT adapter (SF6200 or SF6201)	**E40174**	**$62.00**
	1/4" NPT adapter (SF5200 or SF5300)	**E40106**	**$21.00**
	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**	**$9.95**
	1/2" Micro AC (5-pin), 4 m, PUR (for SR5906)	**E18027**	**$32.00**
	M12 Micro DC patchcord (5-pin), PUR (for SF 5200 or SF 6200)	**EVC059**	**$33.00**
	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:	5...118 ft/min (3...60 cm/sec)*
Ideal switchpoint setting range for oils:	15...354 ft/min (9...180 cm/sec)
Ideal switchpoint setting range for gases:	50...1180 ft/min (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 (p. 152)

For additional cordsets, please call 800-441-8246 or visit www.ifm.com/us

Top five product features!

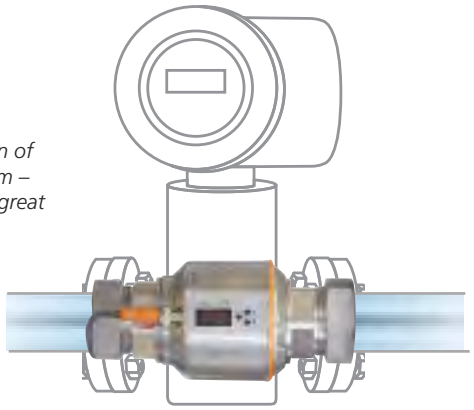
- *Magnetic inductive flow technology provides high-precision measurement of all conductive media up to 160 gpm*
- *Compact, in-line stainless steel housing fits up to 2" pipes*
- *4-digit numeric display indicates flow rate, total volume and temperature*
- *Configurable output: switching, pulse or analog (flow and temperature)*
- *No compromise in quality – high performance at a great price*

The next generation of magmeters from ifm

NEW! 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.

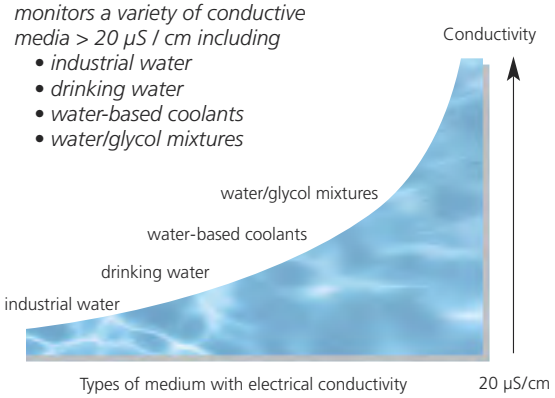
A 4-digit numeric display with pushbutton setup simultaneously indicates flow rate, fluid temperature and total volume. Simple to setup and easy to install, the SM is a reliable alternative to traditional flow meters and mechanical flow switches.

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*



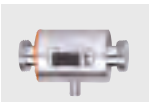
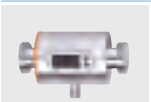
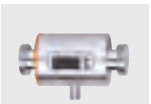
Typical applications

- 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

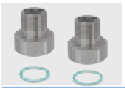
Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Product + accessory selector

	Measuring Range (Flow)	Output 1	Output 2	Measuring Range (Temperature)	Display Units Available	Empty Pipe Detection	Part No.	List Price (1-pc.)
	0…6.6 gpm	Switching pulse (flow)	Switching / scaleable analog (flow or temperature)	-4...176 °F	gpm, gph, gal, °F	No	**SM6001**	**$498.00**
	0…13.2 gpm						**SM7001**	**$591.00**
	0…26.4 gpm						**SM8001**	**$699.00**
	0…25 l/min	Switching pulse (flow)	Switching / scaleable analog (flow or temperature)	-20…80 °C	lpm, m³/h, L, °C	No	**SM6000**	**$498.00**
	0…50 l/min						**SM7000**	**$591.00**
	0…100 l/min						**SM8000**	**$699.00**
	0…25 l/min	Scaleable analog (temperature)	Scaleable analog (flow)	-20…80 °C	lpm, m³/h, gpm, gph, °C, °F	No	**SM6004**	**$498.00**
	0…50 l/min						**SM7004**	**$591.00**
	0…100 l/min						**SM8004**	**$699.00**
	0…80 gpm	Switching / pulse / frequency (flow)	Switching / scaleable analog (flow or temperature)	-4...176 °F	gpm, gph, gal, °F	Yes	**SM9001**	**$925.00**
	0…160 gpm						**SM2001**	**$990.00**
	0…300 l/min			-20…80 °C	lpm, m³/h, L, °C		**SM9000**	**$925.00**
	0…600 l/min						**SM2000**	**$990.00**
	0...300 l/min	4…20 mA analog (temperature)	4…20 mA analog (flow)	-4...176 °F	lpm, m³/h, gpm, gph, °C, °F	Yes	**SM9004**	**$925.00**
	0…600 l/min						**SM2004**	**$990.00**

Required Accessories (2 adapters per package)

Type	Description	Use With	Part No.	List Price (1-pkg.)
	1/2" NPT adapter	SM6	**E40200**	**$54.00**
	1/2" NPT adapter	SM7	**E40191**	**$54.00**
	1/2" NPT adapter	SM8	**E40192**	**$54.00**
	3/4" NPT adapter	SM8	**E40193**	**$54.00**
	1" NPT female adapter	SM8	**US0041**	**$54.00**
	1-1/2" NPT adapter	SM2 and SM9	**E40229**	**$120.00**
	2" NPT adapter	SM2 and SM9	**E40228**	**$120.00**
	2" flanges	SM2 and SM9	**US0045**	**$225.00**

Adapter material: 316 stainless steel

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**

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)	± (2% 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™, Viton™
Current consumption	120 mA (150 mA SM2 and SM9)
Protection rating	IP67

Top five product features!

- Simultaneously monitors flow rate, fluid temperature and totals liquid volume
- Monitors water, glycol and oil up to 50 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

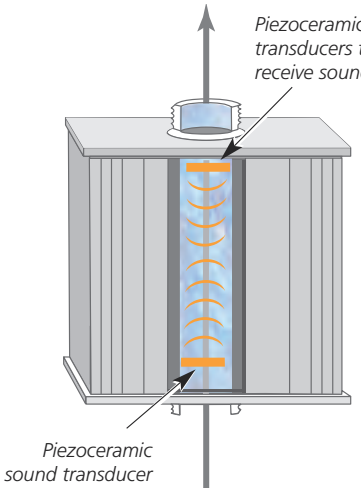
The SU Ultrasonic Flow meter is designed to simultaneously monitor flow rate, detect fluid temperature and provide a totalizer function for a variety of flow applications. With its compact design, the ultrasonic flow meter is intended for small diameter pipes – 1" or less.

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	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Product + accessory selector

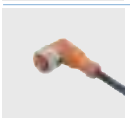
	Measuring Range (Flow)	Output 1	Output 2	Measuring Range (Temperature)	Display Units Available	Part No.	List Price (1-pc.)
	0...13.2 gpm	PNP / NPN or pulse	PNP / NPN or 4…20 mA / 0…10V analog	14...176 °F (-10…80 °C)	gpm, gph, gal, °F	**SU7001**	**$725.00**
	0...26.4 gpm					**SU8001**	**$749.00**
	0...53 gpm					**SU9001**	**$1,320.00**
	0...50 lpm	PNP / NPN or pulse	PNP / NPN or 4…20 mA / 0…10V analog	14...176 °F (-10…80 °C)	lpm, m³/h, L, °C	**SU7000**	**$725.00**
	0...100 lpm					**SU8000**	**$749.00**
	0...200 lpm					**SU9000**	**$1,320.00**
	0...200 lpm	4…20 mA analog temperature	4…20 mA 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**	**$54.00**
	1/2" NPT adapter	SU8	**E40192**	**$54.00**
	3/4" NPT adapter	SU8	**E40193**	**$54.00**
	1" NPT female adapter	SU8	**US0041**	**$54.00**
	1" NPT adapter	SU9	**E40206**	**$204.00**

Adapter material: 316 stainless steel

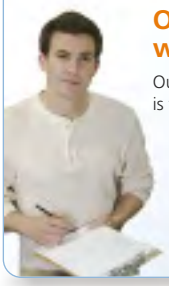
Optional Accessories and Cordsets

Type	Description	Part No.	List Price (1-pc.)
	SU mounting bracket	**E40166**	**$26.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

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
Voltage drop:	<2 VDC
Current consumption:	100 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); Viton; PES (Ultrason 2010); Centellen 200
Protection rating:	IP67



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Top five product features!

- *Accurate point-level indication of liquids and solids with low dielectric constant (e.g. oils, plastic pellets)*
- *Two pushbutton teach allows for easy setup and eliminates difficult sensitivity adjustment*
- *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

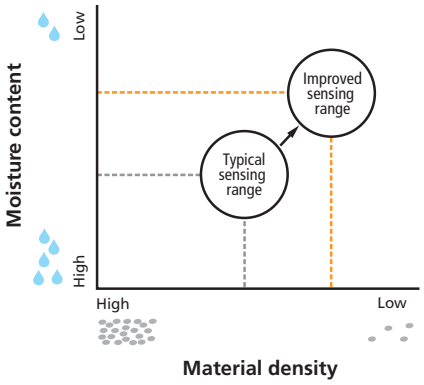
ifm point-level sensors provide accurate level detection of solid and liquid materials. A ring LED display provides output status indication that is visible from long distances.

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	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

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. or N.C.	30 mm	-13…230 °F (-25…110 °C)	M12 Micro DC	**KI5082**	**$126.00**
PNP - N.O. or N.C.	30 mm	-13…230 °F (-25…110 °C)	M12 Micro DC	**KI5083**	**$126.00**
PNP / NPN - N.O. or N.C.	18 mm	-13…230 °F (-25…110 °C)	M12 Micro DC	**KG5065**	**$159.00**
PNP - N.O. or N.C.	18 mm	-13…230 °F (-25…110 °C)	M12 Micro DC	**KG5066**	**$159.00**
AC units AC					
N.O. or N.C.	30 mm	-13…230 °F (-25…110 °C)	1/2" Micro AC	**KI0054**	**$152.00**
N.O. or N.C.	18 mm	-13…230 °F (-25…110 °C)	1/2" Micro AC	**KG0016**	**$152.00**

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**

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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$12.75**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR, LED	**EVC009**	**$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**

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.
Housing material:	Plastic (PBT, PC and TPE)	Plastic (PBT, PC and TPE)
Protection rating:	IP65 / IP67	IP65 / IP67

Simple and comprehensive website

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Shop for products online
Easy ordering via eShop

Top five product features!

- *No moving parts for reliable point-level indication*
- *Easy setpoint adjustment with multi-turn potentiometer*
- *Senses level through mounting well, sight glass, plastic tank or by direct contact with media*
- *Bright LEDs for visual indication of output status*
- *Broad range of mounting well accessories*

Reliable point-level detection

ifm point-level sensors provide accurate level detection of solid and liquid materials. An LED display provides power, output and marginal signal status indication. LEDs can alert a user if conditions have changed, buildup is occurring, or if more material needs to be delivered.

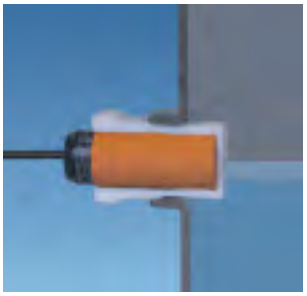
Potentiometer adjustment

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. These sensors are available in prewired, quick disconnect, and terminal chamber models.

Improved noise immunity

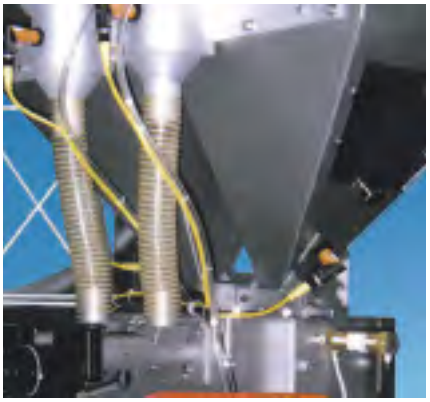
Switching power supplies, variable frequency motor drives, and high-powered communication devices are found in most industrial plants. These devices can generate high noise levels contributing to erratic sensor operation. As a result, ifm's patented "charge balance" circuit design for level sensors offers reliable noise immunity and enables ifm level sensors to perform effectively in high noise level environments.

The KI and KG sensors detect granulars such as plastic regrind.



Using a mounting well, the sensor detects the level of liquid.

Simple setup



Point level sensors can be mounted directly to the wall of a tank or with a mounting well.

Search Bar

Company	Position Sensors: Inductive	Position Sensors: Capacitive	Position Sensors: Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Product + accessory selector

Output Function	Housing Diameter	Sensing Face Temperature	Electrical Connection	Supply Voltage	Part No.	List Price (1-pc.)
DC units DC						
PNP, N.O. / N.C.	30 mm	-13...158 °F (-25…70 °C)	Prewired, 2 m cable	10…36 VDC	**KI5207**	**$122.00**
NPN, N.O. / N.C.	30 mm	-13...158 °F (-25…70 °C)	Prewired, 2 m cable	10…36 VDC	**KI5208**	**$122.00**
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**	**$122.00**
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**	**$122.00**
PNP, N.O.	18 mm	-13...176 °F (-25…80 °C)	Prewired, 2 m cable	10…36 VDC	**KG5043**	**$183.00**
PNP, N.C.	18 mm	-13...176 °F (-25…80 °C)	Prewired, 2 m cable	10…36 VDC	**KG5044**	**$183.00**
NPN, N.O.	18 mm	-13...176 °F (-25…80 °C)	Prewired, 2 m cable	10…36 VDC	**KG5045**	**$183.00**
NPN, N.C.	18 mm	-13...176 °F (-25…80 °C)	Prewired, 2 m cable	10…36 VDC	**KG5046**	**$183.00**
AC units AC						
N.O.	30 mm	-13...158 °F (-25…70 °C)	Prewired, 2 m cable	20…250 VAC	**KI0202**	**$146.00**
N.C.	30 mm	-13...158 °F (-25…70 °C)	Prewired, 2 m cable	20…250 VAC	**KI0203**	**$146.00**
N.O. / N.C.	30 mm	-13...158 °F (-25…70 °C)	Terminal chamber	20…250 VAC	**KI0205**	**$157.00**
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**	**$146.00**
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**	**$146.00**
N.O. / N.C.	30 mm	-13...158 °F (-25…70 °C)	1/2" Micro AC	20…250 VAC	**KI3513**	**$172.00**
N.O.	18 mm	-13...158 °F (-25…70 °C)	Prewired, 2 m cable	20…250 VAC	**KG0009**	**$163.00**
N.C.	18 mm	-13...158 °F (-25…70 °C)	Prewired, 2 m cable	20…250 VAC	**KG0010**	**$163.00**
N.O. / N.C.	18 mm	-13...158 °F (-25…70 °C)	Terminal chamber	20…250 VAC	**KG0008**	**$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**

Technical Specs

DC sensors DC
Maximum load current: 250 mA
Voltage drop: <2.5
Protection rating: IP65 (KI020x, KI520x), IP67 (KG00xx, KG504x)

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

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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$12.75**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR, LED	**EVC009**	**$19.00**

Top five product features!

- *Detects bulk materials or liquids through non-metallic materials such as plastic and glass*
- *Sensor offers low-profile mounting – less than 15 mm high – provides same sensing range as traditional 30 mm tubular sensor*
- *Application parameters are quickly set up with the sensor's pushbuttons, eliminating difficult sensitivity adjustments*
- *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 10 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

Company	Position Sensors: Inductive	Position Sensors: Capacitive	Position Sensors: Cylinder position	Position Sensors: Photoelectrics and lasers	Position Sensors: Distance, color and contrast	Position Sensors: Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

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. or N.C.	10...36 VDC	100 mA	17 mA	2.5 V	2m PVC cable	**KQ6001**	**$96.00**
PNP, N.O. or N.C.	10...36 VDC	100 mA	17 mA	2.5 V	2m PVC cable	**KQ6002**	**$96.00**
PNP / NPN, N.O. or N.C.	10...36 VDC	100 mA	17 mA	2.5 V	1.5" PVC pigtail with M8 Pico DC	**KQ6003**	**$95.00**
PNP, N.O. or N.C.	10...36 VDC	100 mA	17 mA	2.5 V	1.5" PVC pigtail with M8 Pico	**KQ6004**	**$95.00**
PNP, N.O. or N.C.	10...36 VDC	100 mA	17 mA	2.5 V	4" PVC pigtail with M12 Micro DC	**KQ6005**	**$99.00**

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**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M8 Pico DC (4-pin) 2 m, PUR cable	**EVC150**	**$15.00**
	M8 Pico DC (4-pin) 5 m, PUR cable	**EVC151**	**$18.00**

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

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

Reliable service center

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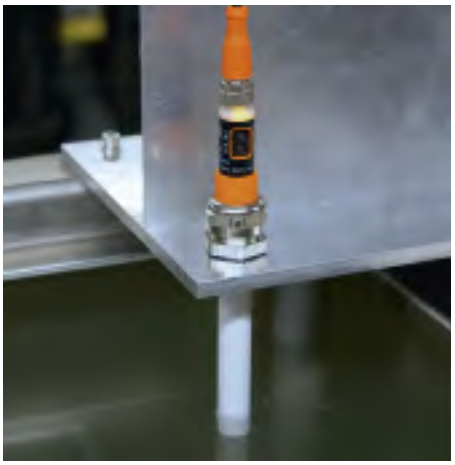
Top five product features!

- *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

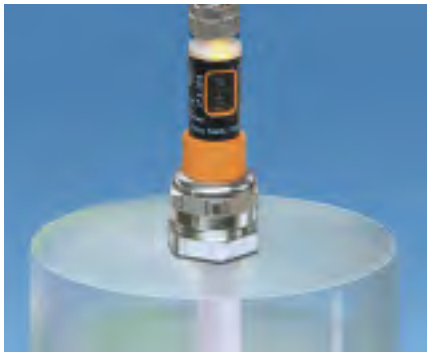


The LI Series level sensor offers reliable limit level detection in tanks, indicating high or low level of hydraulic oils and coolants. They may also be used to monitor the minimum level, leakage or overflow of tanks.

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	Position Sensors: Inductive	Position Sensors: Capacitive	Position Sensors: Cylinder position	Position Sensors: Photoelectrics and lasers	Position Sensors: Distance, color and contrast	Position Sensors: Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

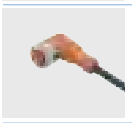
Product + accessory selector

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.	5.2 in (132 mm)	1.2 inch (31 mm)	See Required Accessories	32...149 °F (0…65 °C)	**LI5141**	**$158.00**
PNP, N.O. / N.C.	10.7 in (273 mm)	1.2 inch (31 mm)	See Required Accessories	32...149 °F (0…65 °C)	**LI5142**	**$164.00**
PNP, N.O. / N.C.	18.9 in (481 mm)	1.2 inch (31 mm)	See Required Accessories	32...149 °F (0…65 °C)	**LI5143**	**$169.00**
PNP, N.O. / N.C.	29.0 in (737 mm)	1.2 inch (31 mm)	See Required Accessories	32...149 °F (0…65 °C)	**LI5144**	**$176.00**

Required Accessories (choose one)

Type	Description	Part No.	List Price (1-pc.)
	3/4" NPT adapter	**E43012**	**$39.00**
	1" NPT adapter	**E43013**	**$43.00**
	G3/4 BSPP adapter	**E43003**	**$39.00**
	G1 BSPP adapter	**E43004**	**$41.00**
	Flange adapter	**E43001**	**$37.00**
	Weldable adapter	**E43002**	**$39.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

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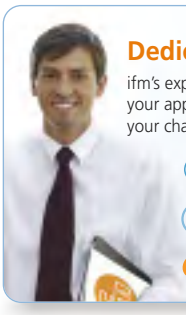
Technical Specs

Supply voltage:	10...36 VDC
Current consumption:	<22mA
Maximum load current:	200 mA
Pressure rating:	7 psi
Voltage drop:	< 2.5 V
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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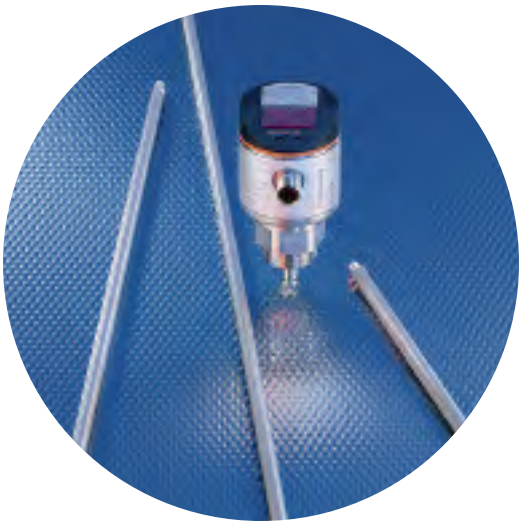


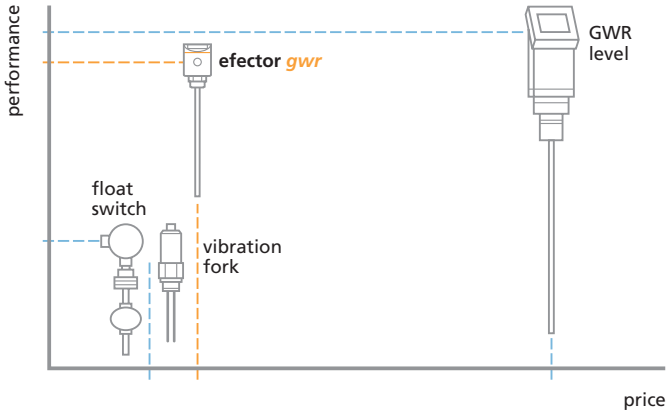
Top five product features!

- *Ideal for level detection of water-based media in compact tanks*
- *No moving parts – replaces float switches*
- *Integrated display with pushbutton setup*
- *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".

Position Sensors | Motion Control | Vision Sensors

Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Search Bar

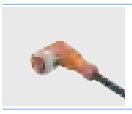
Product + accessory selector

Output	Process Connection	Probe Length	Media	Medium Temperature Range	Part No.	List Price (1-pc.)
PNP, 2x N.O. / N.C.	3/4" NPT	See required accessories	Water-based solutions	32…176 °F (0…80 °C)	**LR7300**	**$413.00**
PNP, 4x N.O. / N.C.	3/4" NPT	See required accessories	Water-based solutions	32…176 °F (0…80 °C)	**LR8300**	**$485.00**
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**	**$492.00**
PNP, 2x N.O. / N.C.	G3/4 BSPP	See required accessories	Water-based solutions	32…176 °F (0…80 °C)	**LR7000**	**$413.00**
PNP, 4x N.O. / N.C.	G3/4 BSPP	See required accessories	Water-based solutions	32…176 °F (0…80 °C)	**LR8000**	**$485.00**
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**	**$492.00**

Required Accessories (choose one)

Type	Description	Part No.	List Price (1-pc.)
	10" Sensing probe, 303 stainless steel	**E43203**	**$19.00**
	18" Sensing probe, 303 stainless steel	**E43204**	**$29.00**
	27" Sensing probe, 303 stainless steel	**E43205**	**$40.00**
	39" Sensing probe, 303 stainless steel	**E43207**	**$63.00**
	47" Sensing probe, 303 stainless steel	**E43208**	**$73.00**
	55" Sensing probe, 303 stainless steel	**E43209**	**$88.00**
	63" Sensing probe, 303 stainless steel	**E43210**	**$100.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**
	M12 Micro DC (8-pin) 2 m, PUR (for LR8)	**E11231**	**$28.00**
	M12 Micro DC (8-pin) 5 m, PUR (for LR8)	**E11232**	**$34.00**

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting flange, 3/4" NPT	**E43206**	**$46.00**
	Mounting flange, G3/4 BSPP	**E43201**	**$46.00**

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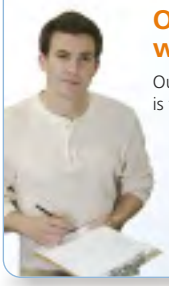
Technical Specs

Supply voltage:	18...30 VDC
Current consumption:	< 80 mA
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:	303 stainless steel, PTFE, NBR
Protection rating:	IP67



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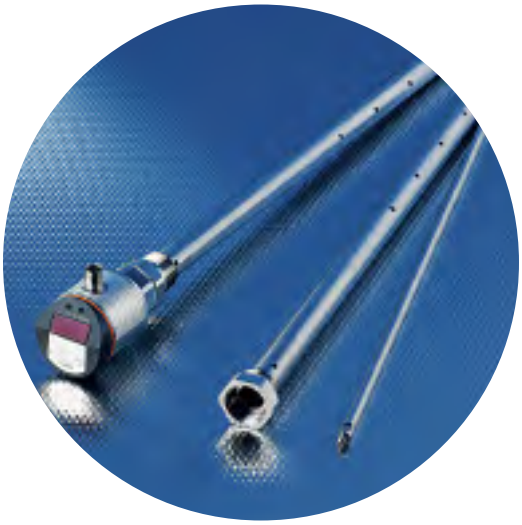


Top five product features!

- *Modular level sensor is ideal for level detection of oils or water-based media in compact tanks*
- *Stainless steel housing with no moving parts that can stick is an ideal alternative to float switches*
- *Integrated display with pushbutton setup*
- *Built-in switching and analog output*
- *Simple mounting with cut-to-length measuring probe*

The LR Series level sensor reliably monitors oil-based media

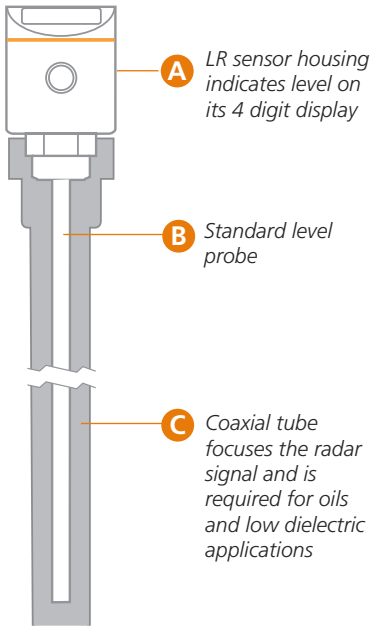
The efector gwr sensor's measuring principle is echo time of flight using guided wave radar technology to detect liquid level in applications such as parts cleaning, coolant monitoring, water treatment and hydraulic power units. This technology enables a strong signal strength and the ability to ignore build up.

The modular system consists of a compact, stainless steel sensor housing with numeric display and pushbutton setup and a cut-to-length stainless steel measuring probe that easily attaches to the sensor housing.

To monitor oil and low-dielectric fluids, a coaxial tube is required for this application. The coaxial tube is an open-ended stainless steel cover that slips over the probe and provides a direct 3/4" NPT (or G3/4 BSPP) process connection. The tube can be cut-to-length and should be the same length as the probe. During operation, the guided wave radar pulse travels down the probe and is contained within the coaxial tube. The tube forces the radar signal back to the sensor head indicating reliable level detection.

With no moving parts, the maintenance-free level sensor does not need routine cleanings and offers a long life-in-application. The units are Micro DC and versions are available with 2 or 4 switch points and a scaleable analog output with a single switchpoint for alarm level detection.

Modular level system is easy to install



Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Product + accessory selector

A LR Level Sensor

Output	Probe Length	Media	Medium Temperature Range	Part No.	List Price (1-pc.)
PNP, 2x N.O. / N.C.	See required accessories	Oil and water-based solutions	32…176 °F (0…80 °C)	**LR7000**	**$413.00**
PNP, 4x N.O. / N.C.	See required accessories	Oil and water-based solutions	32…176 °F (0…80 °C)	**LR8000**	**$485.00**
4…20 mA / 0…10 V and PNP, N.O. / N.C.	See required accessories	Oil and water-based solutions	32…176 °F (0…80 °C)	**LR3000**	**$492.00**

B Required Accessory - Probe (choose one)

Type	Description	Part No.	List Price (1-pc.)
	10″ Probe, 303 stainless steel	**E43203**	**$19.00**
	18″ Probe, 303 stainless steel	**E43204**	**$29.00**
	27″ Probe, 303 stainless steel	**E43205**	**$40.00**
	39″ Probe, 303 stainless steel	**E43207**	**$63.00**
	47″ Probe, 303 stainless steel	**E43208**	**$73.00**
	55″ Probe, 303 stainless steel	**E43209**	**$88.00**
	63″ Probe, 303 stainless steel	**E43210**	**$100.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**
	M12 Micro DC (8-pin) 2 m, PUR (for LR8)	**E11231**	**$28.00**
	M12 Micro DC (8-pin) 5 m, PUR (for LR8)	**E11232**	**$34.00**

C Required Accessory - Coaxial Tube (choose one)

Type	Description	Part No.	List Price (1-pc.)
	18″ Coaxial tube, 3/4″ NPT, stainless steel	**E43218**	**$86.00**
	27″ Coaxial tube, 3/4″ NPT, stainless steel	**E43219**	**$97.00**
	39″ Coaxial tube, 3/4″ NPT, stainless steel	**E43220**	**$110.00**
	47″ Coaxial tube, 3/4″ NPT, stainless steel	**E43223**	**$133.00**
	55″ Coaxial tube, 3/4″ NPT, stainless steel	**E43224**	**$155.00**
	63″ Coaxial tube, 3/4″ NPT, stainless steel	**E43221**	**$176.00**
	10″ Coaxial tube, G3/4 BSPP, stainless steel	**E43211**	**$74.00**
	18″ Coaxial tube, G3/4 BSPP, stainless steel	**E43212**	**$86.00**
	27″ Coaxial tube, G3/4 BSPP, stainless steel	**E43213**	**$97.00**
	39″ Coaxial tube, G3/4 BSPP, stainless steel	**E43214**	**$110.00**
	47″ Coaxial tube, G3/4 BSPP, stainless steel	**E43215**	**$133.00**
	55″ Coaxial tube, G3/4 BSPP, stainless steel	**E43216**	**$155.00**
	63″ Coaxial tube, G3/4 BSPP, stainless steel	**E43217**	**$176.00**

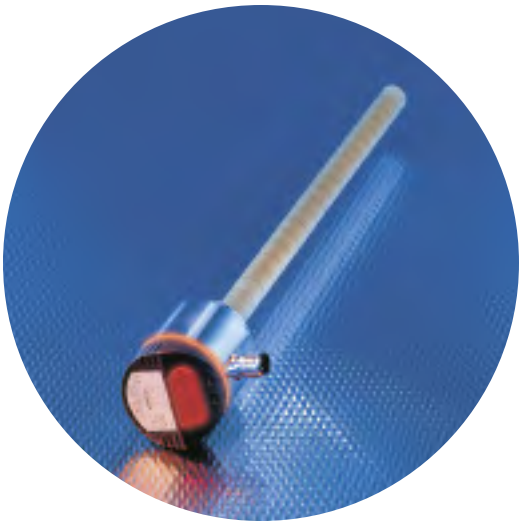
Optional Accessory

Type	Description	Part No.	List Price (1-pc.)
	Replacement centering piece with fixing bracket and o-ring for coaxial tubes	**E43222**	**$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 VDC
Current consumption:	< 80 mA
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:	303 stainless steel, PTFE, NBR
Protection rating:	IP67



Top five product features!

- *Electronic level sensor replaces mechanical float switches that can stick*
- *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.

Easy mounting

ifm's electronic LK level sensors can be inserted into a tank opening as small as 20 mm in diameter.

Search Bar

Company	Position Sensors: Inductive	Position Sensors: Capacitive	Position Sensors: Cylinder position	Position Sensors: Photoelectrics and lasers	Position Sensors: Distance, color and contrast	Position Sensors: Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Product + accessory selector

Output	Probe Length	Active Measuring Zone	Inactive Zones Top / Bottom	Required Accessories	Suitable Media	Part No.	List Price (1-pc.)
Continuous Level Monitoring							
2x PNP, N.O. / N.C.	10.4″	7.7″	2.1″ / 0.6″	See below	Oil	**LK1022**	**$403.00**
2x PNP, N.O. / N.C.	18.6″	15.4″	2.1″ / 1.2″	See below	Oil	**LK1023**	**$437.00**
2x PNP, N.O. / N.C.	28.7″	23.0″	4″ / 1.6″	See below	Oil	**LK1024**	**$466.00**
3x PNP, N.O. / N.C. & OP	10.4″	7.7″	2.1″ / 0.6″	See below	Oil	**LK8122**	**$459.00**
3x PNP, N.O. / N.C. & OP	18.6″	15.4″	2.1″ / 1.2″	See below	Oil	**LK8123**	**$498.00**
3x PNP, N.O. / N.C. & OP	28.7″	23.0″	4″ / 1.6″	See below	Oil	**LK8124**	**$526.00**
4…20 mA / 0…10 V & OP	10.4″	7.7″	2.1″ / 0.6″	See below	Oil	**LK3122**	**$465.00**
4…20 mA / 0…10 V & OP	18.6″	15.4″	2.1″ / 1.2″	See below	Oil	**LK3123**	**$503.00**
4…20 mA / 0…10 V & OP	28.7″	23.0″	4″ / 1.6″	See below	Oil	**LK3124**	**$530.00**
Continuous Level and Temperature Monitoring							
2x PNP, N.O. / N.C. (level and temp)	10.4″	7.7″	2.1″ / 0.6″	See below	Oil	**LT8022**	**$490.00**
2x PNP, N.O. / N.C. (level and temp)	18.6″	15.4″	2.1″ / 1.2″	See below	Oil	**LT8023**	**$527.00**
2x PNP, N.O. / N.C. (level and temp)	28.7″	23.0″	4″ / 1.6″	See below	Oil	**LT8024**	**$553.00**

Required Accessories

Type	Description	Part No.	List Price (1-pc.)
	3/4″ NPT adapter	**E43012**	**$39.00**
	1″ NPT adapter	**E43013**	**$43.00**
	G3/4 BSPP adapter	**E43003**	**$39.00**
	G1 BSPP adapter	**E43004**	**$41.00**
	Flange adapter	**E43001**	**$37.00**
	Weldable adapter	**E43002**	**$39.00**

Optional Accessories and Cordsets

Type	Description	Part No.	List Price (1-pc.)
	T-splitter (8-pin female M12 to two 4-pin M12 male)	**E11627**	**$51.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**
	M12 Micro DC (8-pin) 5 m, PUR (for LK8 and LT8)	**E11232**	**$34.00**

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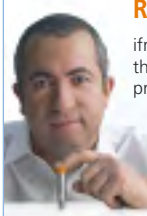
Technical Specs

Supply voltage:	18…30 VDC
Current consumption:	<60 mA
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
Housing material:	304 S15, FKM; NBR; PBT; PC; PEI; PP; TPE/V
Protection rating:	IP67



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 five 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.

Quick setup! Rotating setup dials establish parameters

TK temperature switches feature mechanical adjustment dials that rotate to quickly establish the setpoint and resetpoint.

Position Sensors | Motion Control | Vision Sensors

Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Search Bar

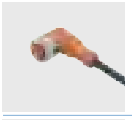
Product + accessory selector

Output	RTD Length	Setpoint Range	Resetpoint Range	Process Connection	Response Time	Part No.	List Price (1-pc.)
PNP, N.O. / N.C. adjustable hysteresis	35 mm	3...284 °F (-16…140 °C)	-4...277 °F (-20...136 °C)	1/4" NPT	< 3 sec.	**TK6330**	**$140.00**
PNP, 2X N.O. with fixed hysteresis (9 °F / 5 °C)	35 mm	-4...284 °F (-20...140 °C)	–	1/4" NPT	< 3 sec.	**TK7330**	**$140.00**
PNP, N.O. / N.C. adjustable hysteresis	25 mm	3...284 °F (-16…140 °C)	-4...277 °F (-20...136 °C)	G1/4 BSPP	< 3 sec.	**TK6130**	**$144.00**
PNP, 2X N.O. with fixed hysteresis (9 °F / 5 °C)	25 mm	-4...284 °F (-20...140 °C)	–	G1/4 BSPP	< 3 sec.	**TK7130**	**$144.00**

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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR, LED	**EVC007**	**$12.75**
	M12 Micro DC (4-pin) 5 m, PUR, LED	**EVC008**	**$15.00**
	M12 Micro DC (4-pin) 10 m, PUR, LED	**EVC009**	**$19.00**

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Technical Specs

Measuring element:	Pt1000, class B
Supply voltage:	9.6…32 VDC
Current consumption:	<30 mA
Maximum load current:	2x 500 mA
Voltage drop:	<2 V
Pressure rating:	4350 psi (300 bar)
Accuracy of switch point:	± 5.4 °F (± 3 °C)
Repeatability:	±0.18 °F (± 0.1 C)
Wetted parts:	316L stainless steel
Protection rating:	IP67

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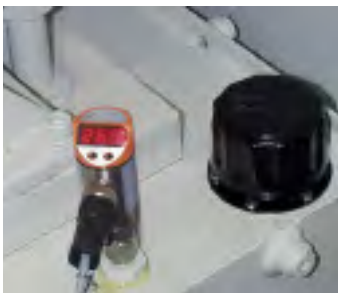
Top five product features!

- Integrated solution: RTD, display and switching/transmitter output
- One-piece solution is ideal for small pipe mounting
- Stainless steel wetted parts and simple pushbutton setup
- Compatible with wide range of chemicals
- Very fast response on temperature changes (less than 3 seconds)

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.

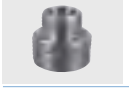
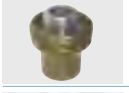
Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Product + accessory selector

Output	Switchpoint Setting Range	In Steps of	Scaleable Analog Start Point	Scaleable Analog End Point	Process Connection	Part No.	List Price (1-pc.)
4-20 mA / 0-10 V and PNP / NPN N.O. / N.C.	-40…302 °F (-40…150 °C)	0.1 °F (0.1 °C)	-40…293 °F (-40…145 °C)	-31…302 °F (-35…150 °C)	See Required Accessories	**TN2531**	**$294.00**
2 X PNP / NPN N.O. / N.C.	-40…302 °F (-40…150 °C)	0.1 °F (0.1 °C)	–	–	See Required Accessories	**TN7531**	**$265.00**

Required Accessories (choose 1)

	Description	Part No.	List Price (1-pc.)
	1/4" NPT adapter	**E40106**	**$21.00**
	1/2" NPT adapter	**E40107**	**$23.00**
	3/4" NPT adapter	**U40085**	**$45.00**
	1" NPT adapter, 304 stainless steel and brass	**U40080**	**$72.00**
	G1/4 BSPP adapter	**E40099**	**$21.00**
	G1/2 BSPP adapter	**E40096**	**$26.00**
	Weldable adapter, carbon steel	**E40113**	**$19.00**
	Weldable adapter, 316 stainless steel	**E40124**	**$39.00**
	1/2" NPT thermowell, 27 mm (no other adapters required)	**UT0028**	**$45.00**

Cordsets and Optional Accessories

	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**
	Transparent protective cover	**E30006**	**$8.00**

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Technical Specs

Measuring element:	Pt1000, Class B
Response time T05/T09:	1/3 sec
Supply voltage:	18…32 VDC
Current consumption:	<50 mA
Maximum load current:	TN2531: 250 mA , TN7531: 2 x 250 mA
Voltage drop:	< 2 VDC
Resolution of analog signal:	TN 2531: < 0.18 °F (0.1 °C)
Accuracy of analog signal:	TN 2531: ± 0.54 °F (± 0.3 °C)
Accuracy of switch point:	± 0.54 °F (± 0.3 °C)
Pressure rating:	4350 psi (300 bar)
Ambient temperature:	-13…158 °F (-25…70 °C)
Wetted parts:	316 stainless steel
Protection rating:	IP67

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Top five product features!

- *High accuracy across Pt1000 RTD sensor element*
- *Fully enclosed and sealed 316 stainless steel construction*
- *Wide temperature range with quick response time*
- *Flexible mounting with easy adjustment of insertion depth*
- *No compromise in quality – high performance at a great price!*

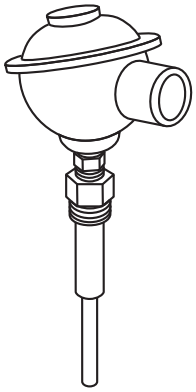
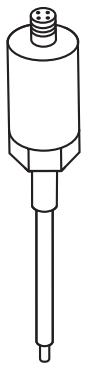
Compact temperature transmitter with excellent response times

The TA series temperature transmitter offers a compact measuring system that can be easily installed with common 1/4" NPT mounting adapters.

The transmitters are available with fixed 4 - 20 mA analog output and measuring ranges of 0…300 °F and 0…100 °C. They feature Pt 1000 RTDs with an accuracy of better than ±0.7 °F over the entire range of the transmitter.

With its fast response time of 3 seconds, the TA Series temperature transmitter is an ideal choice for critical temperature monitoring applications.

More compact and easier to install than head-and-well assemblies

Challenge	Solution
	
Bulky head-and-well assemblies with open cavities are subject to liquid ingress.	*ifm's compact temperature transmitter features a zero-leak design that resists liquid ingress.*

Search Bar

	Position Sensors						Motion Control	Vision Sensors	
Company	*Inductive*	*Capacitive*	*Cylinder position*	*Photoelectrics and lasers*	*Distance, color and contrast*	*Fiber optics*	*Speed monitors*	*2D / 3D inspection*	
1 - 7	*8 - 43*	*44 - 47*	*48 - 53*	*54 - 83*	*84 - 89*	*90 - 95*	*96 - 99*	*100 - 113*	

Product + accessory selector

	RTD Length [in]	Temperature Range	Output	Process Connection	Part No.	List Price (1-pc.)
	1.8 in	0 - 100 °C	4 - 20 mA	1/4" NPT	**TA3337**	**$206.00**
	1.8 in	0 - 300 °F	4 - 20 mA	1/4" NPT	**TA3333**	**$206.00**
	4.8 in	0 - 100 °C	4 - 20 mA	See required accessories	**TA3237**	**$200.00**
	4.8 in	0 - 300 °F	4 - 20 mA	See required accessories	**TA3233**	**$200.00**

Required Accessories

Type	Description	Part No.	List Price (1-pc.)
	1/4" NPT adapter (for TA3237 & TA3233)	**E30049**	**$34.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

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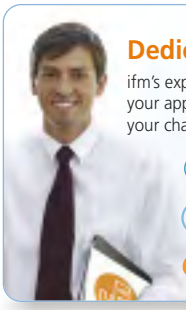
Technical Specs

Measuring element:	Pt1000 Class A
Supply voltage:	10…30 VDC
Maximum load:	500 Ω
Accuracy of analog signal:	TA3337 and TA3237: ± 0.54 °F (± 0.3 °C) TA3333 and TA3233: ± 0.72 °F (± 0.4 °C)
Resolution of analog signal:	<0.036 °F (<0.02 °C)
Pressure rating:	TA3333 and TA3337: 4350 psi (300 bar) TA3237 and TA3233: 725 psi (50 bar)
Response time T05 / T09:	1/3 second
Ambient temperature:	-13…158 °F (-25…70 °C)
Wetted parts:	316 stainless steel
Protection rating:	IP69K



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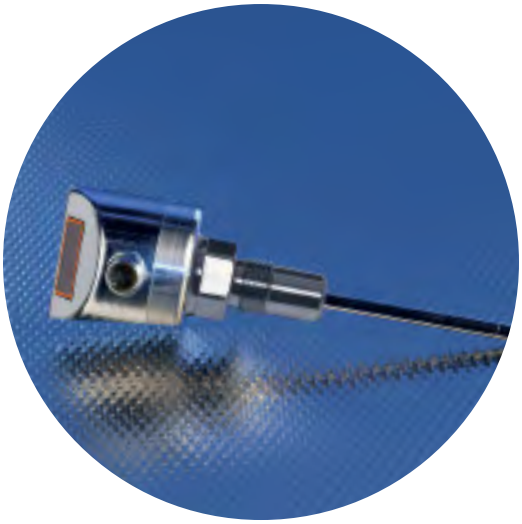


Top five product features!

- Transmitter provides long-term, highly accurate temperature indication in a variety of industrial automation applications
- The 2-wire loop powered transmitter is fully programmable and comes in a pre-scaled range of 0…100 °C
- One-piece housing features integrated electronics, process connector and Class "A" RTD probe that are laser-welded and factory calibrated
- Bright, 4-digit LED display indicates measured temperature directly at the instrument for easy verification of proper operation
- 316 stainless steel housing is robust for harsh industrial applications

TD temperature transmitters are completely assembled, calibrated and ready to install

NEW! The TD 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 0…100 °C. A bright, 4-digit LED display 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 comes fully assembled and factory calibrated for the highest degree of reliability. This saves both installation and commissioning time.

Challenge

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.

Solution

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.

Position Sensors | Motion Control | Vision Sensors

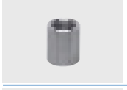
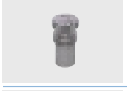
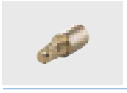
Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Search Bar

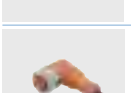
Product + accessory selector

	Output	Process Connection	Pre-scaled Range	RTD Length	Part No.	List Price (1-pc.)
	4-20 mA / 20…4 mA	G 1/2 BSPP	32…212 °F (0…100 °C)	30 mm	**TD2507**	**$210.00**
				50 mm	**TD2517**	**$210.00**
				100 mm	**TD2537**	**$215.00**
				150 mm	**TD2547**	**$220.00**

Accessories

	Description	Part No.	List Price (1-pc.)
	3/4" NPT adapter, 316 stainless steel	**E43313**	**$46.00**
	G 3/4 adapter, 316 stainless steel	**E43302**	**$46.00**
	Weldable adapter for tanks, 316 stainless steel	**E43300**	**$38.00**
	Weldable adapter for pipes, 316 stainless steel	**E43301**	**$44.00**
	Weldable adapter for thin walls, 316 stainless steel	**E43315**	**$52.00**
	G 1/2 sealing plug, 316 stainless steel	**E43308**	**$43.00**
	G 1/2 welding mandrel, brass	**E43314**	**$34.00**

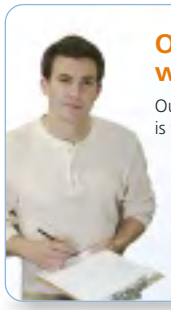
Cordsets

	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

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

Technical Specs

Measuring element	Pt 1000, Class A
Response time T05 / T09	1/3 sec.
Supply voltage	18…32 V DC
Current consumption	< 50 mA
Maximum load	300 Ω
Resolution of display	0.18 °F (0.1 °C)
Accuracy of analog signal	± 0.54 + (0.1 % of measuring span) °F ± 0.3 + (0.19 % of measuring span) °C
Pressure rating	-14.5…2321 psi
Ambient temperature	-13…176 °F (-25…80 °C)
Maximum measuring range	-58…302 °F (-50…150 °C)
Wetted parts	316L stainless steel
Protection rating	IP67 / IP68 / IP69K
Default display units	°C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Top five product features!

- *Compact size with "Lock in Place" M12 connectors*
- *Plug-and-play connection eliminates wiring errors*
- *Scaleable and offsetable Pt100 / Pt1000 evaluation with temperature ranges from -58… 572 °F (-50… 300 °C)*
- *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.

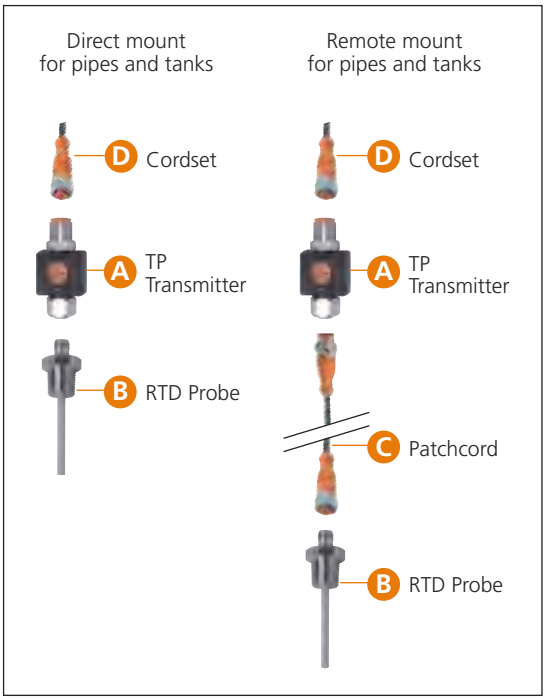
Error sources from screw terminals, wiring mistakes, and fluid ingress are eliminated. An integrated LED gives local indication that the transmitter is powered and transmitting.

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	$84.00
		-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	$84.00
		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	$84.00
		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	$84.00
	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	$84.00

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	2" (50 mm)	6 mm	-40…302 °F (-40…150 °C)	1/3 sec.	TM4311	$92.00
1/2" NPT	4" (100 mm)	6 mm	-40…302 °F (-40…150 °C)	1/3 sec.	TM4331	$95.00
1/2" NPT	6" (150 mm)	6 mm	-40…302 °F (-40…150 °C)	1/3 sec.	TM4341	$97.00
1/2" NPT	10" (250 mm)	6 mm	-40…302 °F (-40…150 °C)	1/3 sec.	TM4361	$104.00

* For other RTD probes and accessories, please see pages 186 - 187.

Accessories

Type	Description	Part No.	List Price (1-pc.)
	USB programming device	E30396	$140.00

Technical Specs

Supply voltage:	20…32 VDC
Ambient Temperature:	-13…158 °F (-25…70 °C)
Maximum load:	300 Ω
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 Viton 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	$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC002	$13.50
	M12 Micro DC (4-pin) 10 m, PUR	EVC003	$18.00
	M12 Micro DC (4-pin) 2 m, PUR	EVC004	$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC005	$13.50
	M12 Micro DC (4-pin) 10 m, PUR	EVC006	$18.00

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

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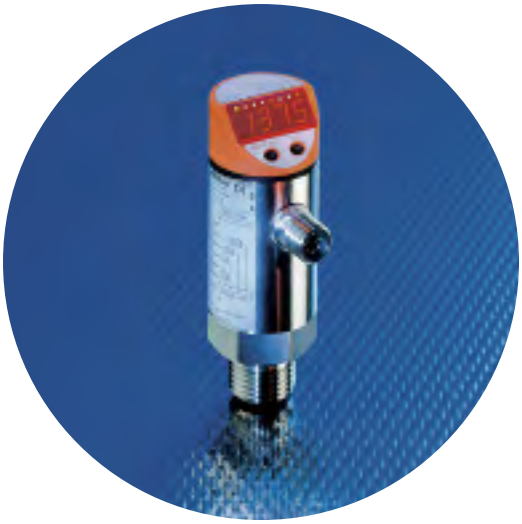


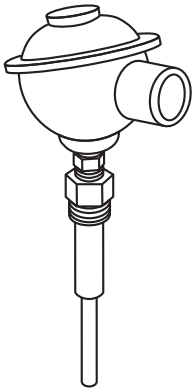
Top five product features!

- *Integrated display with switching and transmitter outputs*
- *Easy direct mounting in tanks*
- *Display can be remotely mounted with simple 4-wire patchcord*
- *Enclosure-free housing eliminates problems with moisture ingress*
- *Directly interfaces with any 2, 3, and 4 wire RTDs*

More compact and easier to install than head-and-well assemblies

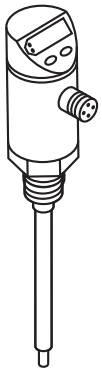
The TR Series process temperature monitors provide highly accurate temperature indication of fluids. The monitor's integrated display allows a user to view temperature directly at the process. The robust, stainless steel housing withstands harsh conditions. Programmable in either °F or °C, the highly-visible display can be viewed from a distance which is advantageous in low-lit areas.

Challenge



Bulky head-and-well assemblies with open cavities are subject to liquid ingress and do not have localized displays.

Solution

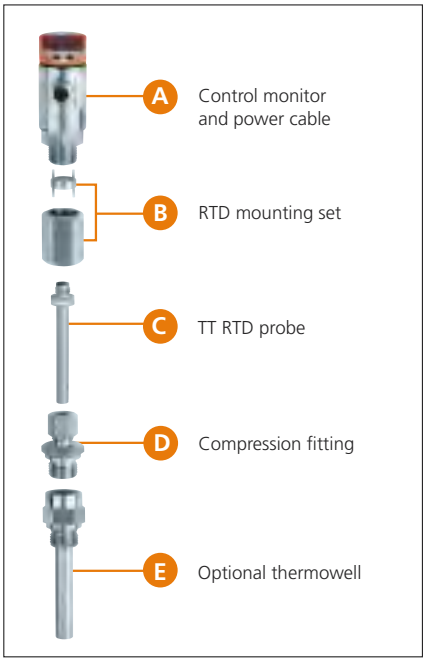


ifm's zero-leak, compact temperature monitor connects to a variety of RTDs and features local numeric display.

Two monitors available:

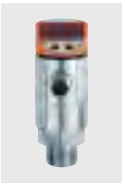
- Model TR2432 provides a scaleable analog and switching output.
- Model TR7432 features a dual switching output.
- Both monitors have a temperature range of -40 to 572 °F and interface with 2-, 3- and 4-wire RTDs (Pt 100 or Pt 1000). The compact monitors feature a 4-digit numeric LED display that indicates temperature in 0.1 °F resolution.

Component Guide



Product + accessory selector

A Control Monitor



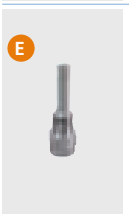
Output	Switchpoint Setting Range	In steps of	Scaleable Analog Start Point	Scaleable Analog End Point	Part No.	List Price (1-pc.)
4-20mA / 0-10V and PNP / NPN N.O. / N.C.	-40…572 °F (-40…300 °C)	0.1 °F (0.1 °C)	-40.0…482 °F (-40.0…250 °C)	50…572.0 °F (10…300.0 °C)	**TR2432**	**$270.00**
Dual PNP / NPN N.O. / N.C.	-40…572 °F (-40…300 °C)	0.1 °F (0.1 °C)	–	–	**TR7432**	**$228.00**

C Pt 100 RTD Probes, 316L Stainless Steel*

Usable RTD Length	Total RTD Length	RTD Diameter	Temperature Range	Part No.	List Price (1-pc.)
3.9 inch (100 mm)	6.3 inch (160 mm)	10 mm	-40…302 °F (-40…150 °C)	**TT1081**	**$75.00**
7.9 inch (200 mm)	10.2 inch (260 mm)	10 mm	-40…302 °F (-40…150 °C)	**TT2081**	**$82.00**
11.8 inch (300 mm)	14.2 inch (360 mm)	10 mm	-40…302 °F (-40…150 °C)	**TT3081**	**$88.00**
19.7 inch (500 mm)	22.0 inch (560 mm)	10 mm	-40…302 °F (-40…150 °C)	**TT5081**	**$97.00**

* For other RTD probes and accessories, please see pages 186 - 187.

Accessories

Type	Description	Part No.	List Price (1-pc.)
B	RTD mounting set	**E30017**	**$34.00**
D	1/2" NPT Compression fitting, 316 stainless steel	**E30024**	**$26.00**
E 	1/2" NPT Thermowell, 100 mm, 316 stainless steel	**UT0009**	**$32.00**
	1/2" NPT Thermowell, 200 mm, 316 stainless steel	**UT0010**	**$38.00**
	1/2" NPT Thermowell, 300 mm, 316 stainless steel	**UT0011**	**$45.00**
	1/2" NPT Thermowell, 500 mm, 316 stainless steel	**UT0012**	**$52.00**
	Thermal grease for thermowells	**700692**	**$2.50**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

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Technical Specs

Supply voltage:	18...32 VDC
Current consumption:	<50 mA
Voltage drop:	<2 V
Maximum load current:	TR2432: 250 mA, TR7432: 2 x 250 mA
Resolution of analog signal:	TR2432: 0.18 °F (0.1 °C)
Accuracy of switch point:	±0.54 °F (±0.3 °C)
Accuracy of analog signal:	TR2432: ± 0.54 °F (±0.3 °C)
Ambient temperature:	-13…158 °F (-25…70 °C)
Protection rating:	IP67

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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Top five 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

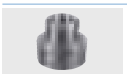
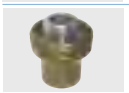
A 6 mm diameter · Pt 100 · M12 connector Integrated 1/2" process connection

Type	Usable Length (after fitting)	Temperature Range	Part No.	List Price (1-pc.)
	2 inch (50 mm)	-40…302 °F (-40… 150 °C)	TM4311	$92.00
	3.9 inch (100 mm)	-40…302 °F (-40… 150 °C)	TM4331	$95.00
	5.9 inch (150 mm)	-40…302 °F (-40… 150 °C)	TM4341	$97.00
	9.8 inch (250 mm)	-40…302 °F (-40… 150 °C)	TM4361	$104.00

Selection Guide for RTD Probes, Fittings and Thermowells

A 8.2 mm diameter · Pt 100 · M12 quick disconnect for small pipes

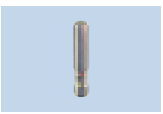
Type	Usable Length (after fitting)	Temperature Range	Part No.	List Price (1-pc.)
	23 mm	-40…257 °F (-40… 125 °C)	TM9950	$109.00

B Process Fitting	Part No.	List Price (1-pc.)
1/4" NPT adapter	E40106	$21.00
1/2" NPT adapter	E40107	$23.00
 3/4" NPT adapter	U40085	$45.00
 1" NPT adapter, 304 stainless steel and brass	U40080	$72.00
G1/4 BSPP adapter	E40099	$21.00
G1/2 BSPP adapter	E40096	$26.00
Weldable adapter, carbon steel	E40113	$19.00
Weldable adapter, 316 ss	E40124	$39.00

C Optional Thermowell, 1/2" NPT	Part No.	List Price (1-pc.)
1/2" NPT thermowell, 27 mm (no other adapters required)	UT0028	$45.00

Position Sensors | Motion Control | Vision Sensors

Search Bar

Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
								
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

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.)
.5 inch (12 mm)	-40…302 °F (-40…150 °C)	**TT9291**	**$86.00**
2.4 inch (62 mm)	-40…302 °F (-40…150 °C)	**TT0291**	**$95.00**
4 inch (100 mm)	-40…302 °F (-40…150 °C)	**TT1291**	**$97.00**
8 inch (200 mm)	-40…302 °F (-40…150 °C)	**TT2291**	**$95.00**
12 inch (300 mm)	-40…302 °F (-40…150 °C)	**TT3291**	**$103.00**

B Compression Fitting

Part No.	List Price (1-pc.)
E30049 1/4" NPT	**$34.00**
E30049 1/4" NPT	**$34.00**
E30049 1/4" NPT	**$34.00**
E30049 1/4" NPT	**$34.00**
E30049 1/4" NPT	**$34.00**

C Optional Thermowell, 1/2" NPT (requires E30049)*

Length	Part No.	List Price (1-pc.)
N/A	N/A	N/A
N/A	N/A	N/A
100 mm	**UT0022**	**$34.00**
200 mm	**UT0023**	**$39.00**
300 mm	**UT0024**	**$45.00**

A 10 mm diameter · Pt 100 · M12 quick disconnect

3.9 inch (100 mm)	-40…302 °F (-40…150 °C)	**TT1081**	**$75.00**
7.9 inch (200 mm)	-40…302 °F (-40…150 °C)	**TT2081**	**$82.00**
11.8 inch (300 mm)	-40…302 °F (-40…150 °C)	**TT3081**	**$88.00**
19.7 inch (500 mm)	-40…302 °F (-40…150 °C)	**TT5081**	**$97.00**

B Compression Fitting

Part No.	List Price (1-pc.)
E30024 1/2" NPT	**$26.00**
E30024 1/2" NPT	**$26.00**
E30024 1/2" NPT	**$26.00**
E30024 1/2" NPT	**$26.00**

C Optional Thermowell, 1/2" NPT (requires E30024)*

Length	Part No.	List Price (1-pc.)
100 mm	**UT0009**	**$32.00**
200 mm	**UT0010**	**$38.00**
300 mm	**UT0011**	**$45.00**
500 mm	**UT0012**	**$52.00**

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**	**$55.00**
5 m, PUR	-40…194 °F (-40…90 °C)	**TS5089**	**$60.00**
2 m, PTFE	-58…482 °F (-50…250 °C)	**TS2056**	**$107.00**

B Compression Fitting

Part No.	List Price (1-pc.)
E30025 1/2" NPT	**$26.00**
E30025 1/2" NPT	**$26.00**
E30025 1/2" NPT	**$26.00**

C Optional Thermowell, 1/2" NPT (requires E30025)*

Length	Part No.	List Price (1-pc.)
100 mm	**UT0009**	**$32.00**
200 mm	**UT0010**	**$38.00**
300 mm	**UT0011**	**$45.00**
500 mm	**UT0012**	**$52.00**

*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**	**$68.00**

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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

Top five product features!

- *Reliable part-presence detection of hot objects up to 2462 °F (1350 °C) using non-contact long-distance sensing technology*
- *30 mm threaded stainless steel housing designed for harsh environments*
- *Scratch-resistant, optically coated precision lens for minimum sensitivity to scattered light ensures reliability*
- *Easy setup via pushbutton and display on the sensor*
- *Two independent switching outputs*

Compact infrared temperature switch for detecting objects with temperatures up to 2462 °F

NEW! 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 122 to 2462 °F (50 to 1350 °C).

The TW switch solves these applications by detecting the infrared radiation emitted by the object and converting it into an output signal. If the temperature detected is above the programmed setpoint the output switches.

High precision in a robust housing

ifm's TW temperature switch 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

The switch provides two independent switching outputs that are easily set using the sensor's pushbuttons and digital display. During operation the display shows the measured value in percent of signal strength.

The TW Series temperature switch can be used to detect a hot steel slab by measuring the infrared radiation intensity emitted from the hot slab on a scale of 0 to 100% and displays that percentage. If the temperature detected is above the programmed setpoint, which is also set as a percentage value, the output switches.

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

Product + accessory selector

M30, 2 switching outputs · output function 2 x N.O. / N.C. programmable

Type	Description	Temperature range	Ambient Temperature	Distance ratio / angle of aperture	Material lens	Part No.	List Price (1-pc.)
	self-contained IR temperature switch	122…932 °F 50...500 °C	32…140 °F (0…60 °C)	25:1 / 2.3°	crystal lens with anti-reflective coating	**TW7000**	**$778.00**
	self-contained IR temperature switch	482…2282 °F 250...1250 °C	32…149 °F (0…65 °C)	95:1 / 0.6°	tempered optical glass	**TW7001**	**$1,100.00**
	IR temperature switch for fiber optics	662…2462 °F 350...1350 °C	32…149 °F (0…65 °C)	70:1 / 0.8°	tempered optical glass	**TW7011**	**$1,050.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Air purge	**E35063**	**$119.00**
	Cooling jacket	**E35064**	**$270.00**
	Mounting bracket	**E35065**	**$55.00**
	Protective tube	**E35066**	**$82.00**
	Heat isolator	**E35067**	**$45.00**

Accessories TW7011

	Description	Part No.	List Price (1-pc.)
	Fiber optic cable, 2 m	**E35061**	**$265.00**
	Fiber optic cable, 5 m	**E35062**	**$320.00**
	Sensor head, lens attachment for IR temperature sensors	**E35060**	**$275.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (5 pin) 10 m, PUR, shielded	**E12074**	**$55.00**
	M12 Micro DC (5 pin) 10 m, PUR, shielded	**E11987**	**$54.00**

Can't find the right sensor for your application, call 855-436-2262 or visit www.ifm.com/us

Technical Specs

Supply voltage:	10…34 VDC
Current rating:	2 x 150 mA
Switchpoint accuracy:	1% of measuring range (**Є**=1)
Current consumption:	≤ 30
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

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www.ifm.com/us

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Low-profile field modules; cables, adapters, accessories . . . . . 200 - 201

Power supplies

Compact 24 VDC power supplies . . . . . 202 - 203

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

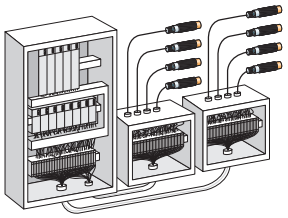
ifm is committed to investing in new product development for AS-interface. Our goal is to improve functionality, simplify installation and maintain competitive price points.

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.

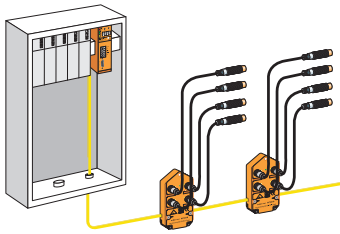
Current methods for wiring include point-to-point connection or bus systems. However, point-to-point wiring results in large wire bundles, and bus systems can be too complex for networking simple binary devices.

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	Position Sensors: Inductive	Position Sensors: Capacitive	Position Sensors: Cylinder position	Position Sensors: Photoelectrics and lasers	Position Sensors: Distance, color and contrast	Position Sensors: Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
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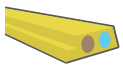
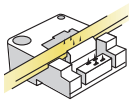
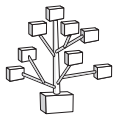


A simple 2-wire flat cable
The normal collection of wire bundles are replaced by a single, two-wire flat cable that carries both data and power.



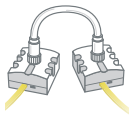
Insulation displacement
Insulation displacement technology enables fast connection to all devices. The cable is pierced to make the electric connection and features a mechanical profile to proper insure polarity.



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 186 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.

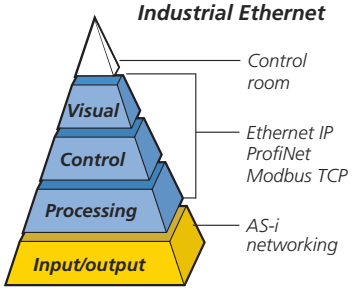
Industrial Ethernet and AS-i networking offer the best of both worlds

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



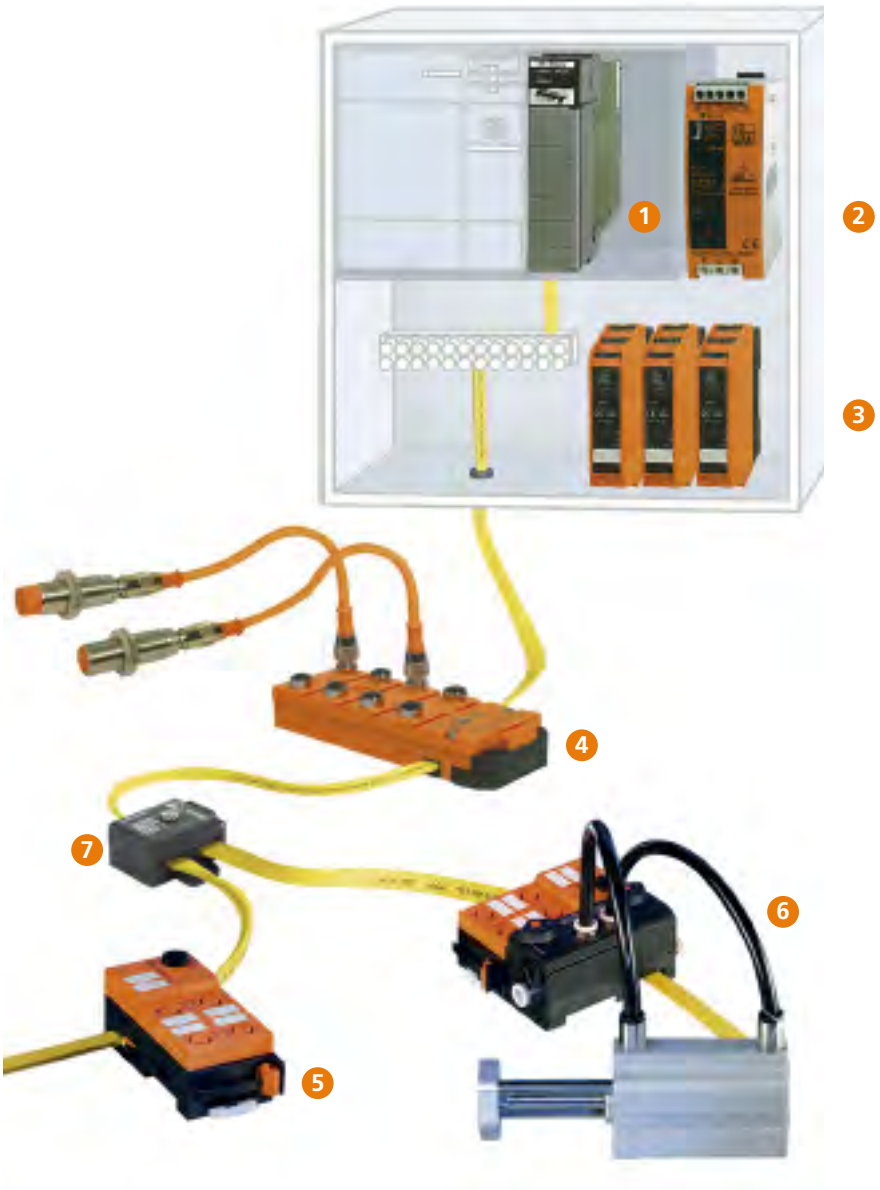
ifm is an AS-interface founding member

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.

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.

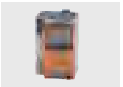


Technical Specifications:

- *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 DeviceNet, EtherNet/IP, and to Profibus*
- *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 IP	3.0	< 500	< 10	**AC1421**	**$1,088.00**
	2	–	Ethernet IP	3.0	< 500	< 10	**AC1422**	**$1,307.00**
AS-i Profinet Gateway • Full master functions • Color graphic display								
	1	Ethernet RJ 45	Profinet	3.0	< 500	< 10	**AC1401**	**$1,088.00**
	2	Ethernet RJ 45	Profinet	3.0	< 500	< 10	**AC1402**	**$1,307.00**
SmartLink DP • AS-i gateway / Profibus DP • Full master functions • Graphic display								
	1	–	Profibus-DP	3.0	–	< 200	**AC1375**	**$845.00**
	2	–	Profibus-DP	3.0	< 400	< 10	**AC1376**	**$1,051.00**
AS-i DeviceNet controller E • AS-i controller with DeviceNet interface • Full master functions • Graphic display								
	1	–	DeviceNet	3.0	< 500	< 10	**AC1318**	**$1,393.00**
	2	–	DeviceNet	3.0	< 500	< 10	**AC1324**	**$1,574.00**

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**	**$1,104.00**
	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**	**$1,450.00**

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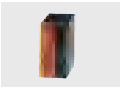
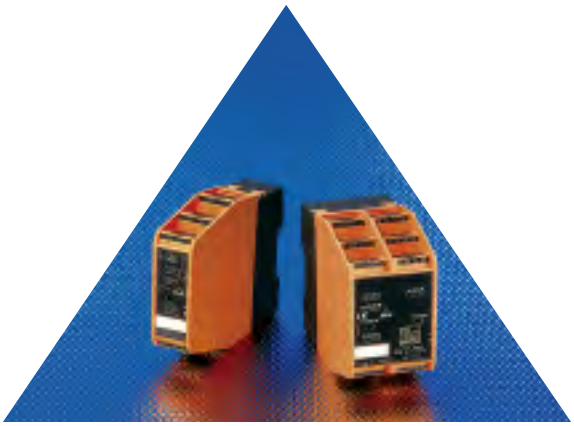
Machine Condition — *Diagnostic systems* — *204 - 209*

Wiring Technology — *Cordset solutions* — *210 - 223*

AS-i power supplies

- **New** *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							
	45 x 90 x 100	0.95	29.5…31.6 DC	100…240 AC (± 10 %)	η = 86	**AC1220**	**$171.00**
	45 x 90 x 100	1.9	29.5…31.6 DC	100…240 AC (± 10 %)	η = 88	**AC1221**	**$218.00**
	40 x 124 x 114.6	2.8	30.5 DC	115 / 230 AC	η = 86.9	**AC1256**	**$387.00**
	40 x 124 x 114.6	4	30.5 DC	115 / 230 AC	η = 88	**AC1254**	**$425.00**
	62 x 124 x 114.6	8	30.5 DC	115 / 230 AC	η = 89.4	**AC1258**	**$505.00**
	40 x 124 x 114.6	4	30.5 DC	24 DC	η = 90.5	**AC1257**	**$390.00**
Power supply • 3-phase							
	62 x 124 x 114.6	8	30.5 DC	3 x 400 AC	η = 92	**AC1253**	**$565.00**



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.)
	25 x 114 x 105	4	–	200	–	S-0.A.E	2.1	yes	**AC2250**	**$119.00**
	25 x 114 x 105	–	4 PNP	–	1 / 4	S-8.0.E	2.1	no	**AC2252**	**$140.00**
	25 x 114 x 105	4	4 PNP	200	1 / 4	S-7.0.E	2.1	no	**AC2251**	**$160.00**
	25 x 114 x 105	4	4 PNP	200	1 / 4	S-7.0.E	3.0	yes	**AC2261**	**$160.00**
	25 x 114 x 105	4	3 PNP	200	1 / 3	S-7.A.E	2.1	yes	**AC2264**	**$160.00**
	25 x 114 x 105	4	4 PNP	200	1 / 4	S-7.A.7	3.0	yes	**AC2267**	**$161.00**
	25 x 114 x 105	4	2 relay	200	6 / 6	S-7.A.E	2.1	yes	**AC2255**	**$166.00**
	50 x 114 x 105	4	4 relay	200	6 / 6	S-7.0.E	2.1	no	**AC2258**	**$205.00**

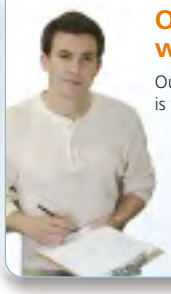
Accessories

Type	Description	Part No.	List Price (1-pc.)
	Addressing unit	**AC1154**	**$471.00**
	Cable for addressing unit	**E70213**	**$20.00**

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

Technical Specs

Output voltage supply: AC2267: 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



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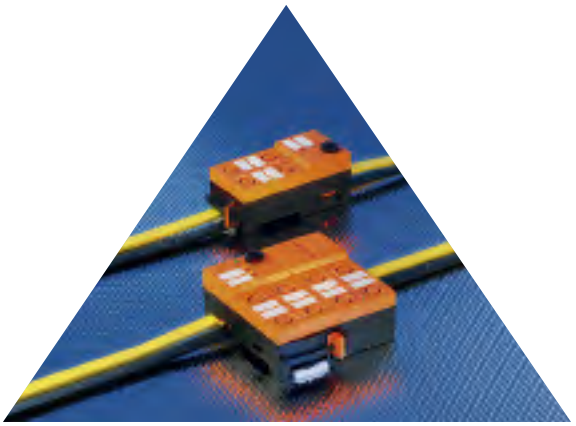
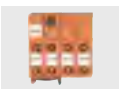


Input / output field modules

- *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	2.11 & 3.0	yes	**AC5215**	**$153.00**
	45 x 103 x 45	4	–	1000	–	S.0.A.E	2.11 & 3.0	yes	**AC5290**	**$153.00**
	45 x 103 x 45	–	4 PNP	–	2 / 4	S.8.0.E	2.11 & 3.0	no	**AC5208**	**$171.00**
	45 x 103 x 45	2	2 PNP	100	1 / 2	S.B.A.E	2.11 & 3.0	yes	**AC5214**	**$166.00**
	90 x 103 x 45	4	4 PNP	200	1 / 2	S.7.A.7	3.0	yes	**AC5235**	**$240.00**
	90 x 103 x 45	4	4	1000	1 / 3	S.7.A.7	3.0	yes	**AC5293**	**$240.00**

Technical Specs

Output voltage supply: AC5290, AC5293: 24 VDC power supply required 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

Position Sensors
Motion Control
Vision Sensors
Company
Inductive
Capacitive
Cylinder position
Photoelectrics and lasers
Distance, color and contrast
Fiber optics
Speed monitors
2D / 3D inspection
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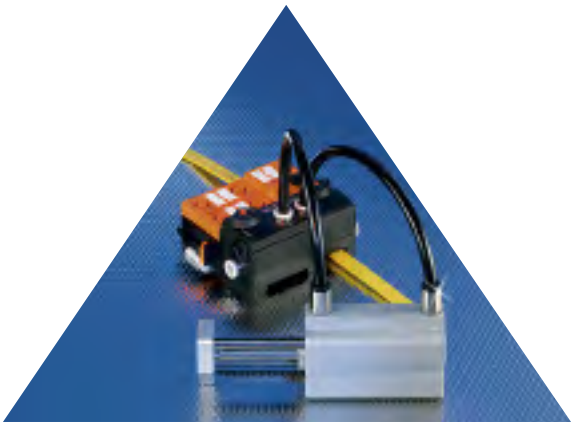
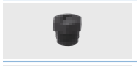


Pneumatic airboxes

- *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*

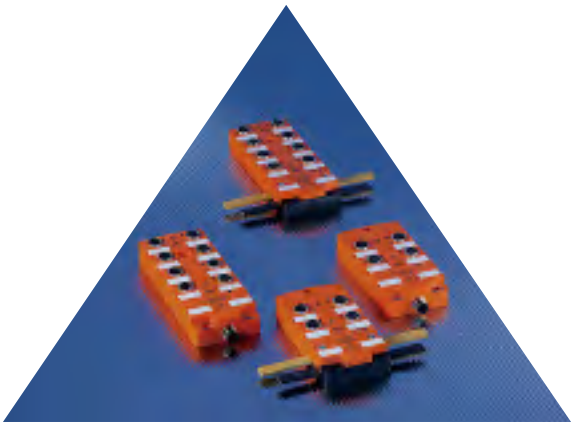
Type	Dimensions (mm)	No. of Inputs	Output Supply Voltage	No. of Outputs	Max Input Current per Module (mA)	AS-i Profile	AS-i Version	Extended Addressing Mode	Part No.	List Price (1-pc.)
Digital inputs with two 3/2 way valves										
	85 x 108 x 50	4	24 VDC	2 single acting cylinders, monostable	200	S-7.A.E	2.11 & 3.0	yes	**AC5243**	**$313.00**
	85 x 108 x 50	4	AS-i	2 single acting cylinders, monostable	200	S-7.A.E	2.11 & 3.0	yes	**AC5228**	**$313.00**
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	2.11 & 3.0	yes	**AC5249**	**$280.00**
	85 x 108 x 50	4	24 VDC	1 double acting cylinder, bistable	200	S-7.A.E	2.11 & 3.0	yes	**AC5253**	**$336.00**
	85 x 108 x 50	4	AS-i	1 double acting cylinder, monostable	200	S-7.A.E	2.11 & 3.0	yes	**AC5246**	**$280.00**
	85 x 108 x 50	4	AS-i	1 double acting cylinder, bistable	200	S-7.A.E	2.11 & 3.0	yes	**AC5251**	**$336.00**
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	2.11 & 3.0	yes	**AC5270**	**$356.00**
	85 x 108 x 50	4	24 VDC	1 double acting cylinder	200	S-7.A.E	2.11 & 3.0	yes	**AC5271**	**$356.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Addressing unit	**AC1154**	**$471.00**
	Cable for addressing unit	**E70213**	**$20.00**
	Protective cap – 10 pack	**L35001**	**$8.00**
	Silencer – 10 pack	**E75232**	**$52.00**
	Push-in T-fitting – 10 pack	**E75227**	**$57.00**
	Push-in L-fitting – 10 pack	**E75228**	**$50.00**

Patchcords

Type	Design			Cable Length	Part No.	List Price (1-pc.)
	Male	Female	M12 straight male to M12 straight female	1 M	**EVC012**	**$18.00**
				2 M	**EVC013**	**$20.00**
				5 M	**EVC014**	**$21.00**
	Male	Female	M12 straight male to M12 90° female	1 M	**EVC017**	**$18.00**
				2 M	**EVC018**	**$20.00**
				5 M	**EVC019**	**$21.00**

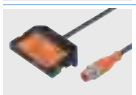


Low-profile field modules

- Low profile housing
- Fully potted for harsh 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	2.11 & 3.0	yes	**AC2457**	**$194.00**
	60 x 118 x 27	2	2 PNP	200	2 / 4	S-3.F.E	2.11 & 3.0	no	**AC2458**	**$231.00**
	60 x 152 x 27	4	4 PNP	200	2 / 4	S-7.F.E	2.11 & 3.0	no	**AC2459**	**$312.00**
M8 Pico DC Connectors										
	30 x 90.5 x 23.5	2	2 PNP	180	2 / 2	S-B.A.E	2.11 & 3.0	yes	**AC2482**	**$145.00**
	30 x 90.5 x 23.5	4	–	180	–	S-0.A.E	2.11 & 3.0	yes	**AC2484**	**$135.00**
	30 x 134.5 x 23.5	8	–	180	–	S-7.A.A.	3.0	yes	**AC2488**	**$170.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Protective cap – 10 pack	**L35001**	**$8.00**
	Addressing cable	**E70423**	**$40.00**

Patchcords

Type	Design			Cable Length	Part No.	List Price (1-pc.)
	Male	Female	M12 straight male to M12 straight female	1 M	**EVC012**	**$18.00**
				2 M	**EVC013**	**$20.00**
				5 M	**EVC014**	**$21.00**
	Male	Female	M12 straight male to M12 90° female	1 M	**EVC017**	**$18.00**
				2 M	**EVC018**	**$20.00**
				5 M	**EVC019**	**$21.00**
	Male	Female	M8 straight male to M8 straight female	1 M	**EVC267**	**$22.00**
				2 M	**EVC268**	**$24.00**
				5 M	**EVC269**	**$27.00**
	Male	Female	M8 straight male to M8 90° female	1 M	**EVC277**	**$22.00**
				2 M	**EVC278**	**$24.00**
				5 M	**EVC279**	**$27.00**

Search Bar

Company	Position Sensors: Inductive	Position Sensors: Capacitive	Position Sensors: Cylinder position	Position Sensors: Photoelectrics and lasers	Position Sensors: Distance, color and contrast	Position Sensors: Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
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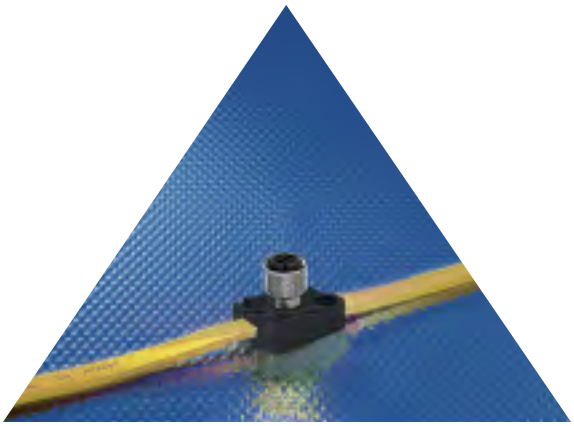


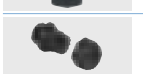
Cables, adapters and accessories

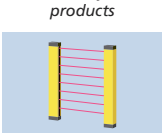
- *AS-i flat cable provides 2-wire communication and power for AS-i network*
- *Flat cable easily connects I/O modules*
- *Splitter boxes split either AS-i or 24 VDC flat cable*
- *Insulation displacement connector distributes AS-i voltage and the external 24 V supply to an M12 socket*

Type	Description	Part No.	List Price (1-pc.)
AS-i cable			
	AS-i flat cable, yellow, available in lengths of 100 m, EPDM	**E74000**	**$198.00**
	AS-i flat cable, black available in lengths of 100 m, EPDM	**E74010**	**$209.00**
Splitters and connectors			
	Flat cable splitter, two channel, 8A current rating	**E70381**	**$22.00**
	Insulation displacement connector	**E70487**	**$28.00**
	Flat cable to 4-pin female M12 Micro DC connector, 1 m length	**E70481**	**$28.00**
	Flat cable to 4-pin female M12 Micro DC connector	**AC5005**	**$15.00**

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Flat cable stripping tool	**E70062**	**$35.00**
	Cable clip for AS-i cable – 100 pack	**E70067**	**$89.00**
	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**	**$35.00**
	Cable gland 1/2" NPT	**E10101**	**$7.00**
	Cable grommet PG11 for AS-i flat cables – 10 pack	**AC3003**	**$20.00**

Safety Technology
Safety products

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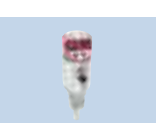
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Cordset solutions

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Top five 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

Company	Position Sensors: Inductive	Position Sensors: Capacitive	Position Sensors: Cylinder position	Position Sensors: Photoelectrics and lasers	Position Sensors: Distance, color and contrast	Position Sensors: Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
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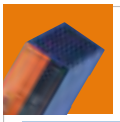

Product + accessory selector

Dimensions (mm)	Current (A)	Output Voltage (V)	Nominal Input Voltage (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...230 AC	84.0	**DN1030**	**$171.00**
45 x 90 x 100	2.5	24...28 DC	100...230 AC	88.0	**DN1031**	**$197.00**
40 x 130 x 127	2.5	24…28 DC	115...230 AC	89.8	**DN4011**	**$150.00**
40 x 130 x 127	5.0	24…28 DC	115...230 AC	90.2	**DN4012**	**$199.00**
62 x 130 x 127	10.0	24...28 DC	115...230 AC	91.6	**DN4013**	**$259.00**
65 x 130 x 137	20.0	24...28 DC	115…230 AC	94	**DN4014**	**$300.00**
Power supply • 3-phase (24 V DC)						
40 x 130 x 127	5.0	24…28 DC	3 x 380…480 AC	90	**DN4032**	**$232.00**
62 x 130 x 127	10.0	24…28 DC	3 x 380…480 AC	92.8	**DN4033**	**$299.00**
65 x 130 x 137	20.0	24...28 DC	3 x 380…480 AC	94	**DN4034**	**$399.00**

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

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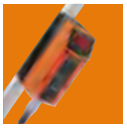
Table of Contents – Machine condition

Machine condition

Vibration sensors – simple machine condition monitoring – switching and analog outputs *206- 207*



Thermal flow meters – compressed air and specialty gases – switching, analog and pulse outputs . . . . . *208 - 209*

Top five product features!

- *Easy-to-use sensors make vibration monitoring simple and prevent machine downtime*
- *Within 5 minutes, the sensors can be ready to monitor most rotating and vibrating equipment*
- *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 transmitter with display and trend history*

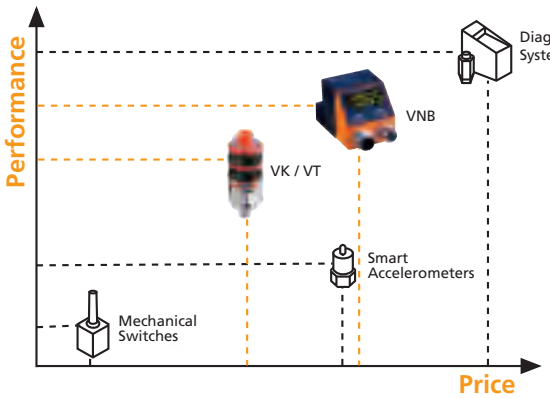
ifm's compact vibration sensors detect changing conditions of machinery to indicate machine damage

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; no need for software or a PC

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
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Product + accessory selector

	Output 1	Output 2	Measuring Range	Frequency Range	Measuring Principle	Part No.	List Price (1-pc.)
	N.C., PNP	4...20 mA	0…25 mm/s	10…1000 Hz	Vibration velocity RMS	**VKV021**	**$230.00**
	N.C., PNP	4...20 mA	0…50 mm/s	10…1000 Hz	Vibration velocity RMS	**VKV022**	**$230.00**
	n/a	4...20 mA	0…25 mm/s	10…1000 Hz	Vibration velocity RMS	**VTV122**	**$251.00**
	N.O. / N.C. programmable, PNP or 4…20 mA scaleable	N.O. / N.C. programmable, PNP	0…500 mm/s	2…1000 Hz	Vibration velocity peak or RMS (set via pushbuttons)	**VNB001**	**$465.00**

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**	**$56.00**
	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**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

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

Technical Specs

	VKVxxx	VTV122	VNB001
Mounting threads:	M8 x 1.25	M8 x 1.25 / UNF 1/4-28	M8 x 1
Supply voltage:	18…32 VDC	9.6…32 VDC	9.6…30 VDC
Maximum load current:	500 mA	–	100 mA
Current consumption:	<50 mA	–	< 200 mA
Ambient temperature:	-13…176 °F (-25...80 °C)	-22…221 °F (-30…105 °C)	-22…140 °F (-30…60 °C)
Accuracy:	<± 4% of full range	± 3 % of full range	3% of measured value
Repeatability:	< 1 % of full range	< 0.5 % of full range	< 0.1 mm / sec
Shock resistance:	400 g	400 g	100 g
Housing material:	Pocan; Makrolon; Viton; 316L stainless steel	316L stainless steel	Die-cast zinc, nickel plated
Protection rating:	IP67	IP69K	IP67

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Top five 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

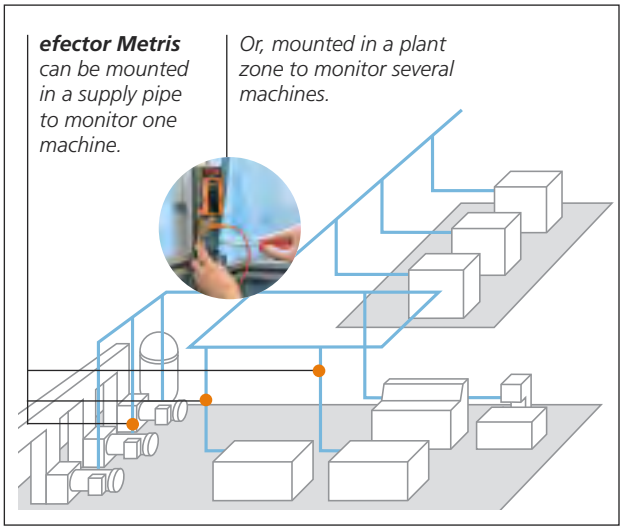
efector Metris monitors compressed air and specialty gases such as argon (Ar), carbon dioxide (CO_2), and nitrogen (N_2) to detect leakage areas and improve energy efficiencies. Compressed gases are considered one of the most expensive sources of energy consumption in a plant. By identifying leakage 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	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
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Product + accessory selector

Output	Accuracy	Process Connection	Operating Range [scfm]	Operating Range [scfh]	Operating Range [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…4,294,967	**SD6001**	**$719.00**
		1" NPT	0...132	0...7945	0…4,294,967	**SD8001**	**$754.00**
		2" NPT	0...412	0...24,720	0…4,294,967	**SD2001**	**$999.00**

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**	**$785.00**

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	**EVC001**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC002**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC003**	**$18.00**
	M12 Micro DC (4-pin) 2 m, PUR	**EVC004**	**$9.95**
	M12 Micro DC (4-pin) 5 m, PUR	**EVC005**	**$13.50**
	M12 Micro DC (4-pin) 10 m, PUR	**EVC006**	**$18.00**

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Technical Specs

Supply voltage:	19...30 VDC
Maximum load current:	2 x 250 mA
Current consumption:	< 100 mA
Response time:	< 0.1 sec
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

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

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M12 Micro wiring block systems

4-port and 8-port M12 Micro DC wiring blocks,
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M12 Micro cordsets

3-pin 1/2" – 20 UNF Micro AC cordsets,
Field wirable connectors . . . . . *222 - 223*

Top five 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 cRLus 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.

Special insert design acts as a mechanical end-stop preventing possible damage to Viton o-ring from over tightening.

High flex, halogen-free PUR-jacketed cable rated for over 5 million cycles.

Position Sensors | Motion Control | Vision Sensors

Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection
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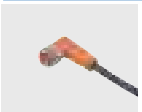
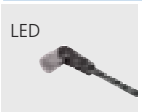
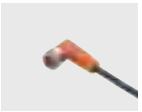
Product + accessory selector

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 4 3 1	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**	**$23.00**
	Female 4 3 1	Pin 1 brown Pin 3 blue Pin 4 black	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25…90 °C	2 m	**EVC144**	**$14.00**
					5 m	**EVC145**	**$17.00**
					10 m	**EVC146**	**$23.00**
 LED	Female 4 3 1	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**	**$21.00**
					10 m, 2 LED	**EVC149**	**$26.00**
Pico M8 DC cordsets • 4-pin • PUR jacket							
	Female 4 2 3 1	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**	**$24.00**
	Female 4 2 3 1	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**	**$24.00**
Field wirable connectors • 3-pin • IDC termination							
	Male 4 1 3		–	IP68 -25…90 °C	3.0…5.0 mm range	**E11550**	**$15.00**
	Female 4 3 1		–	IP68 -25…90 °C	3.0…5.0 mm range	**E11552**	**$15.00**
Field wirable connectors • 4-pin • IDC termination							
	Male 2 4 1 3		–	IP68 -25…90 °C	3.0…5.0 mm range	**E11551**	**$16.00**
	Female 4 2 3 1		–	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	cRUus
Coupling nut:	Nickel plated brass		

Top five 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.

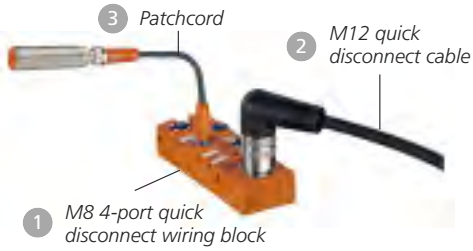
ifm's wiring block systems are vibration and shock resistant. Status indication LEDs indicate power and output at each port location. Dust caps and labels are provided with each port.

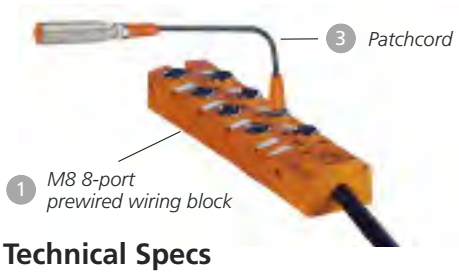
ecolink M8 patchcords ensure reliable connection

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	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

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**	**$55.00**
2	Female	M12 straight connector	8	-25…80 °C	–	5 m	**E11807**	**$34.00**
						10 m	**E11311**	**$69.00**
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**	**$100.00**
						10 m	**EBC055**	**$110.00**
1	Female ports	4-port block for 3-wire sensors	3	-25…80 °C	green / 4 x yellow	5 m	**EBC048**	**$70.00**
						10 m	**EBC049**	**$85.00**

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**	**$21.00**
						1 m	**EVC267**	**$22.00**
						2 m	**EVC268**	**$24.00**
						5 m	**EVC269**	**$27.00**
	Male	Female	M8 straight male to M8 right angle female	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25…90 °C	0.6 m	**EVC276**	**$21.00**
						1 m	**EVC277**	**$22.00**
						2 m	**EVC278**	**$24.00**
						5 m	**EVC279**	**$27.00**
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**	**$21.00**
						5 m	**EVC259**	**$25.00**
	Male	Female	M8 straight male to M12 right angle female	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25…90 °C	0.6 m	**EVC261**	**$22.00**
						1 m	**EVC262**	**$23.00**
						2 m	**EVC263**	**$25.00**
						5 m	**EVC264**	**$28.00**

Top five 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.

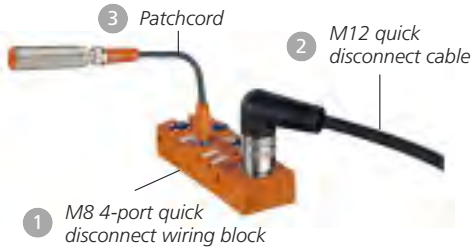
ifm's wiring block systems are vibration and shock resistant. Status indication LEDs indicate power and output at each port location. Dust caps and labels are provided with each port.

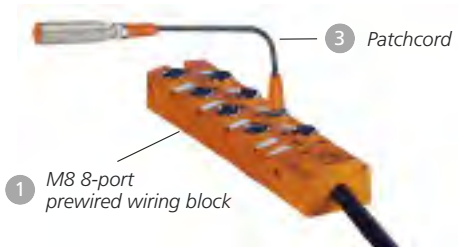
ecolink M8 patchcords ensure reliable connection

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

	Position Sensors						Motion Control	Vision Sensors	
Company	Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	2D / 3D inspection	
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113	

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**	**$90.00**
2	Female M16 right angle connector	14	-25…90 °C	–	5 m	**E11697**	**$76.00**
2	Female M16 right angle connector	14	-25…90 °C	–	10 m	**E11227**	**$116.00**
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**	**$80.00**
					10 m	**EBC052**	**$105.00**
1	Female ports 8-port block for 4-wire sensors	4	-25…80 °C	green / 8 x yellow	5 m	**EBC056**	**$130.00**
					10 m	**EBC057**	**$150.00**

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	0.3 m	**EVC310**	**$22.00**
				0.6 m	**EVC311**	**$23.00**
				1 m	**EVC312**	**$24.00**
				2 m	**EVC313**	**$26.00**
				5 m	**EVC314**	**$29.00**
	Male Female M8 straight male to M8 right angle female	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25…90 °C	0.3 m	**EVC315**	**$22.00**
				0.6 m	**EVC316**	**$23.00**
				1 m	**EVC317**	**$24.00**
				2 m	**EVC318**	**$26.00**
				5 m	**EVC319**	**$29.00**

Top five 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 cRUus approval

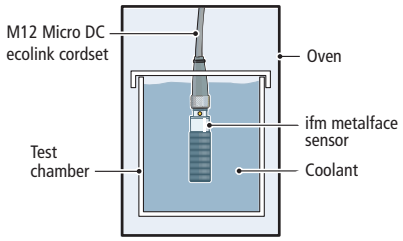
ecolink M12 Micro DC cordsets

ifm's ecolink M12 cordsets are designed and tested to resist harsh conditions in industrial automation and oils and coolants. The product line meets cRUus 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

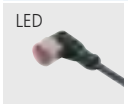
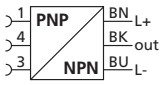
ifm ecolink cordsets are available in a variety of configurations and cable lengths for application versatility. The family includes right angle models with LEDs, standard straight cordsets, standard right angle cordsets and patchcords.

The 316 stainless steel sleeve with sawtooth contour maintains optimum sealing and prevents the cordset from detaching.

Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

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 cRUus	2 M	**EVC001**	**$9.95**
					5 M	**EVC002**	**$13.50**
					10 M	**EVC003**	**$18.00**
					2 M	**EVC004**	**$9.95**
					5 M	**EVC005**	**$13.50**
					10 M	**EVC006**	**$18.00**
 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 cRUus	2 M	**EVC007**	**$12.75**
					5 M	**EVC008**	**$15.00**
					10 M	**EVC009**	**$19.00**
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**	**$21.00**
					2 M	**EVW004**	**$17.00**
					5 M	**EVW005**	**$21.00**
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							
		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**
		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**

Field wirable connectors also available with Insulation Displacement Connector (IDC)

Technical Specs

High flex PUR cable jacket:	EVC001 - EVC009; and EVC01E
Nickel plated brass coupling nut:	EVC001 - EVC009; and EVC01E
Weld slag resistant PUR jacket:	EVW001, EVW002, EVW004, EVW005
Epoxy coated zinc coupling nut:	EVW001, EVW002, EVW004, EVW005
Contacts:	Gold plated
Conductors:	22 AWG
PNP LED:	EVC007, EVC008, EVC009
O-ring material:	Viton
Current rating:	4A (0.1 A for EVC01E)
Tightening torque coupling nut:	0.6…1.5 Nm

Simple and comprehensive website

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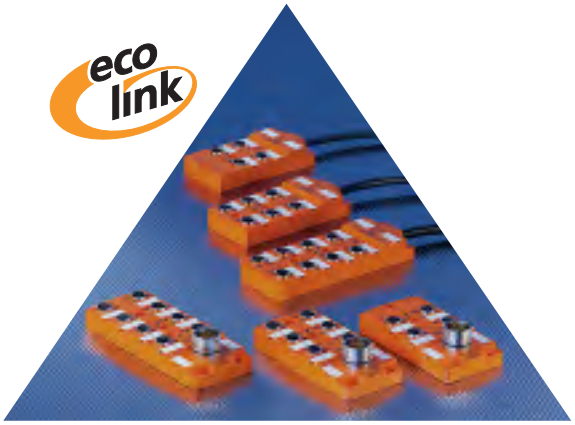


Top five product features!

- 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

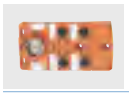
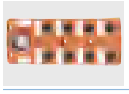
Patchcords are available in cable lengths starting at 0.3 meters up to 5 meters.

* For 6-port and non-LED versions, visit www.ifm.com/us

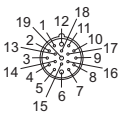
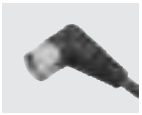
Search Bar

Company	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

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**	**$121.00**
	4-port block with output on pin 4	5	10…30 VDC	green / 4 x yellow	10 M	**EBC027**	**$149.00**
	8-port block with output on pin 4	5	10…30 VDC	green / 8 x yellow	5 M	**EBC023**	**$176.00**
	8-port block with output on pin 4	5	10…30 VDC	green / 8 x yellow	10 M	**EBC035**	**$209.00**
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**	**$160.00**
	4-port block with output on pin 2 and 4	5	10…30 VDC	green / 8 x yellow	10 M	**EBC028**	**$181.00**
	8-port block with output on pin 2 and 4	5	10…30 VDC	green / 16 x yellow	5 M	**EBC024**	**$203.00**
	8-port block with output on pin 2 and 4	5	10…30 VDC	green / 16 x yellow	10 M	**EBC036**	**$248.00**
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**	**$91.00**
	8-port block with output on pin 2 and 4	5	10…30 VDC	green / 8 x yellow	–	**EBC010**	**$143.00**
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**	**$133.00**
	8-port block with output on pin 2 and 4	5	10…30 VDC	green / 16 x yellow	–	**EBC012**	**$155.00**

2 M23 quick disconnect cable

Type	Face View	Cable Length	Part No.	List Price (1-pc.)
	Female	5 m	**E11736**	**$133.00**
		10 m	**E11737**	**$184.00**
		5 m	**E11739**	**$133.00**
		10 m	**E11740**	**$184.00**
	Female 	5 m	**E11742**	**$188.00**
		10 m	**E11743**	**$253.00**
		5 m	**E11745**	**$188.00**
		10 m	**E11746**	**$253.00**

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 (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 five 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	Position Sensors: Inductive	Capacitive	Cylinder position	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Motion Control: Speed monitors	Vision Sensors: 2D / 3D inspection
1 - 7	8 - 43	44 - 47	48 - 53	54 - 83	84 - 89	90 - 95	96 - 99	100 - 113

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

Nickel plated brass coupling nut
Nylon housing – L34101, L34103, E10788, E10789
Gold plated contacts
22 AWG conductors
Maximum conductor size, 18 AWG L34101, L34103, E10788 and E10789
Viton O-ring

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

We stand behind our products

All ifm efector products are backed with the longest established warranty program in the sensor industry. Products carry either a 5-year or 2-year warranty after date of shipment.

ifm efector warrants that products will be free from defects in materials and workmanship. ifm efector will repair or replace any of these products which are found to be defective and which are returned to us, shipping prepaid, within one year after the defect is discovered.

This warranty is in lieu of and excluding any implied warranty of merchantability or fitness for a particular purpose and this remedy is the exclusive remedy, as ifm efector will not be responsible for any incidental or consequential damages.

Products with Five-year Limited Warranty:

Position sensors
Sensors for Motion Control
Safety Technology
Wiring Technology

Products with Two-year Limited Warranty:

Process Sensors
Vision Sensors
Industrial Networks
Identification Systems
Machine Condition Monitoring
Systems for Mobile Machines

Concerning safety…

ifm efector makes every effort to build a dependable product, but every product will eventually fail. Therefore, your equipment must be designed to prevent property damage and personal injury if our products fail.

ifm efector products are not designed to be used as stand-alone devices to protect or guard human life or limb.

Prices F.O.B. Exton, PA. Prices and specifications subject to change without notice.

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

You can count on our Service Center to be a reliable partner. That means easy order placement and knowledgeable technical support. Your time is too valuable to waste.

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