

ifm efector

ifm efector – *close to you!*

Inductive
sensors



Cylinder
sensors



Photoelectric
sensors



Vision
sensors



Pressure
sensors



Flow
sensors

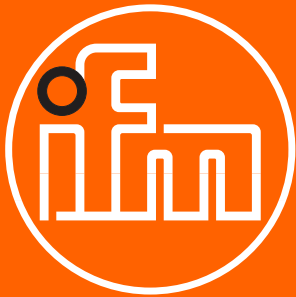


Temperature
sensors



Level
sensors





About ifm...

ifm is one of the world's largest manufacturers of industrial sensors and controls products, producing over 5 million sensors annually.

More than 3,500 ifm employees serve over 90,000 purchasing customers worldwide.

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

Annual global sales exceed \$624 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 24,000 customers.

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 3,500 dedicated ifm employees in over 70 countries, you can count on local support all over the world.



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

ifm North American Operation



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 3,500 dedicated individuals who provide outstanding product support and technical service.

More than 90,000 customers purchase ifm products worldwide.

ifm is currently one of the world's largest manufacturers of industrial sensors and controls, producing over 5 million sensors annually.

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

The ifm Direct Sales Team provides on-site application assistance and technical support throughout North America.

The ifm Service Center is staffed by application engineers and customer service representatives who provide support from 7:30 am to 7:00 pm EST to ensure time-zone coverage.

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

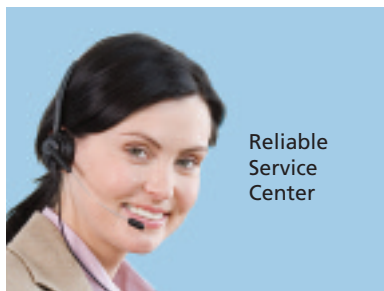
ifm Global Presence

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

You can count on ifm anywhere in the world.



Reliable service from a dedicated team

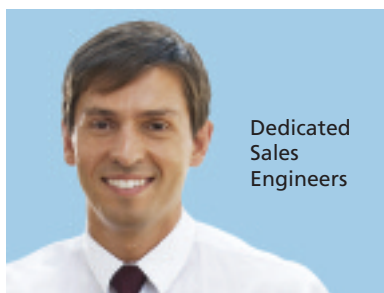


Reliable
Service
Center

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.

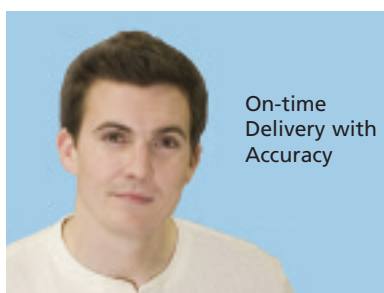


Dedicated
Sales
Engineers

On-Site Sales Support

You can count on our experienced team of ifm sales engineers to understand your applications and challenges.

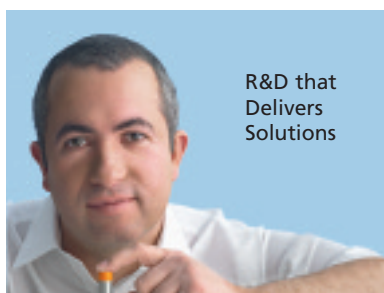
Our sales engineers work with corporations to coordinate global projects and to develop sensor standards that result in reducing inventory costs and simplifying maintenance.



On-time
Delivery with
Accuracy

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 10,000 orders are shipped per month with an accuracy rate of 99.9%.



R&D that
Delivers
Solutions

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.

ifm efector – close to you!



ifm's 2011 Sensors and Controls catalog represents our most popular products for industrial automation

Reliable Products... Innovative Design

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 400 development engineers.

Our R&D team has more than 500 registered ifm patents worldwide.

ifm has received multiple awards for innovation and breakthrough technologies.

An ISO 9001:2008 compliant company.

Markets include:

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

Position sensors

Pages 6 - 87



Inductive sensors

Pages: 6 - 35

Non-contact inductive sensors detect metallic targets in position sensing applications.



Cylinder sensors

Pages: 36 - 41

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



Encoders

Pages: 42 - 43

Incremental rotary encoders evaluate linear or rotational movement.



Capacitive sensors

Pages: 44 - 45

Capacitive proximity sensors detect non-metallic targets such as plastic, glass and wood.



Photoelectrics

Pages: 46 - 79

Visible red, laser and application specific sensors provide long-range detection.



Fiber optics

Pages: 80 - 85

Fiber optic sensors, controllers and amplifiers are designed for applications with limited space.



Speed monitors

Pages: 86 - 87

Self-contained speed monitors detect rotational speed conditions.

Vision sensors

Pages 89 - 97



Multi-Code readers

Pages: 92 - 93

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



efector dualis sensors

Pages: 94 - 95

Designed to provide 100% inspection testing throughout the assembly automation.



3D Image Sensor

Pages: 96 - 97

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



Safety products

Pages 99 - 111



Inductive safety sensors

Pages: 100 - 101

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



Light curtains and grids

Pages: 102 - 105

Light curtains and grids offer hands-free solution to help protect machines and personnel.



Safety relays

Pages: 106 - 107

Multi-function safety relays connect safety devices.



Safety networking

Pages: 108 - 111

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

Fluid and diagnostic sensors

Pages 113 - 171



Pressure sensors

Pages: 113 - 129

Pressure sensors and transmitters monitor system pressure in hydraulic and pneumatic applications.



Flow sensors

Pages: 130 - 141

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



Temperature sensors

Pages: 142 - 155

Modular temperature monitoring products provide feedback in temperature control applications.



Level sensors

Pages: 156 - 169

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



Vibration sensors

Pages: 170 - 171

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

Networking & controls

Pages 173 - 195



Cordsets

Pages: 174 - 175, 178 - 179, 182 - 183

Quick disconnect cordsets, patchcords and field wirable connectors for electrical wiring.



Wiring block systems

Pages: 176 - 177, 180 - 181

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



AS-i networking

Pages: 184 - 193

Networks sensors and actuators with plug-and-play functionality and reduces excessive wiring.



Power supplies

Pages: 194 - 195

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

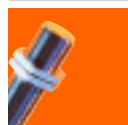


For our complete list of over 5,000 sensors and controls products, visit our website

www.ifm.com/us

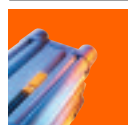
Table of Contents – Position Sensors

Inductive proximity sensors



Tubular Ø4 mm, Ø6.5 mm, M5; DC	8 - 9
Tubular M8, M12, M18, M30; DC	10 - 11
Tubular M8, M12, M18, M30 for metal forming applications; DC	12 - 15
Tubular M8, M12, M18, M30 for oils and coolants applications; DC	16 - 19
Tubular M30 for high temperature applications; DC	20 - 21
Tubular M12, M18, M30; AC	22 - 23
Tubular M12, M18, M30; AC	24 - 25
Miniature rectangular; DC	26 - 27
Miniature rectangular; AC	28 - 29
Medium and large rectangular; DC	30 - 31
Medium and large rectangular; AC	32 - 33
Ring and tube; DC	34 - 35

Cylinder sensors



T-slot cylinder sensors; DC	36 - 37
Mounting accessories	38 - 39
C-slot cylinder sensors; DC	40 - 41

Encoders



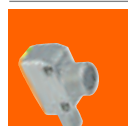
Hollow and solid shaft; DC	42 - 43
----------------------------	---------

Capacitive sensors



Tubular M12; DC	44 - 45
-----------------	---------

Photoelectrics and lasers



Tubular M12; DC – max. range 4 m	46 - 47
Compact M18; DC – max. range 20 m	48 - 49
Compact M18; AC – max. range 20 m	50 - 51
Tubular M18; DC – max. range 25 m	52 - 53
Tubular M18, Class 1 laser light source; DC – max. range 60 m	54 - 55
Tubular M18; AC – max. range 15 m	56 - 57
Miniature rectangular; DC – max. range 1.5 m	58 - 59
Small rectangular; DC – max. range 10 m	60 - 61
Small rectangular, Class 1 laser; DC – max. range 15 m	62 - 63
Medium rectangular; DC – max. range 25 m	64 - 65
Medium rectangular, Class 1 laser; DC – max. range 60 m	66 - 67
Large rectangular; AC – max. range 25 m	68 - 69
Large rectangular; DC – max. range 80 m	70 - 71
Fork and angle; DC – max. range 120 mm	72 - 73

Distance, color and contrast



<i>Large rectangular, Class 1 and Class 2 laser, distance; DC – max. range 75 mm</i>	<i>74 - 75</i>
<i>Medium rectangular, color and contrast; DC – max. range 22 m</i>	<i>76 - 77</i>
<i>Medium and small rectangular, clear object; DC – max. range 1.5 m</i>	<i>78 - 79</i>

Fiber optics



<i>Fiber optic controllers, multi channel; DC</i>	<i>80 - 81</i>
<i>Fiber optic amplifiers, single fiber; DC</i>	<i>82 - 83</i>
<i>Fiber optics, plastic and glass; DC</i>	<i>84 - 85</i>

Speed monitors



<i>Tubular M18 and M30; DC – rotational speed</i>	<i>86 - 87</i>
-------------------------------------------------------------	----------------



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 disconnected and cabled options – visit www.ifm.com/us/inductive 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.



Position										
Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors	
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97	



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 / NPN, N.O.	10...36	2000	100	M8 Pico	IZ 5035	\$117.00
↓	Ø4 / L = 45	1.5 mm nonflush	PNP, N.O.	10...30	1800	100	M8 Pico	IZ 5046	\$100.00
B	Ø4 / L = 30	0.8 mm flush	PNP, N.O.	10...36	2000	100	Prewired	IZ 5036	\$108.00
↓	Ø4 / L = 30	0.8 mm flush	NPN, N.O.	10...36	2000	100	Prewired	IZ 5032	\$100.00
C	Ø6.5 / L = 30	2 mm flush	PNP, N.O.	10...30	1500	100	M8 Pico	IT 5040	\$88.00
D	Ø6.5 / L = 50	4 mm nonflush	PNP, N.O.	10...30	300	100	M8 Pico	IT 5044	\$88.00
E	M5 / L = 45	0.8 mm flush	PNP, N.O.	10...36	2000	100	M8 Pico	IY 5036	\$117.00
↓	M5 / L = 41	1.5 mm nonflush	PNP, N.O.	10...30	1800	100	M8 Pico	IY 5048	\$100.00
F	M5 / L = 30	0.8 mm flush	PNP, N.O.	10...30	1800	100	Prewired	IY 5046	\$100.00
↓	M5 / L = 30	0.8 mm flush	PNP, N.O.	10...36	2000	100	Prewired	IY 5029	\$96.00
↓	M5 / L = 30	0.8 mm flush	NPN, N.O.	10...36	2000	100	Prewired	IY 5034	\$100.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting clamp for 4 mm sensor	E 10204	\$4.00
	Mounting clamp for 6.5 mm sensor	E 10014	\$5.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (3-pin) 2 m, PUR	EVC 141	\$11.95
	M8 Pico DC (3-pin) 5 m, PUR	EVC 142	\$14.95
	M8 Pico DC (3-pin) 10 m, PUR	EVC 143	\$20.50
	M8 Pico DC (3-pin) 2 m, PUR	EVC 144	\$11.95
	M8 Pico DC (3-pin) 5 m, PUR	EVC 145	\$14.95
	M8 Pico DC (3-pin) 10 m, PUR	EVC 146	\$20.50

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

Technical Specs

Protection: IP65: Part Nos. IZ5035, IY5036, IZ5036, IY5046, IY5029, IZ5032
 IP67: Part Nos. IZ5046, IT5040, IT5044, IY5048

Operating Temperature: -13...158 °F (-25...70 °C): Part No. IZ5035, IY5036, IY5048, IZ5036, IY5029, IZ5032, IY5034
 -13...176 °F (-25...80 °C): Part Nos. IZ5046
 32...140 °F (0...60 °C): Part No. IT5044
 -4...158 °F (-20...70 °C): Part No. IT5040

Leakage Current: Negligible

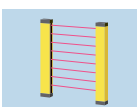
Housing materials: Stainless steel; active face: POM: IZ5035, IZ5046, IZ5036, IZ5032, IY5036, IY5048, IY4046, IY5029, IY5034
 LCP: IT5040, IT5044

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

Safety products



99 - 111

Fluids

Pressure



113 - 129

Flow



130 - 141

Temperature



142 - 155

Level



156 - 169

Vibration



170 - 171

Networking

Cordset solutions



173 - 183

AS-i networking



184 - 193

Power supplies



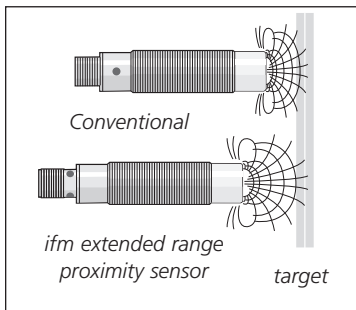
194 - 195



Top five product features!

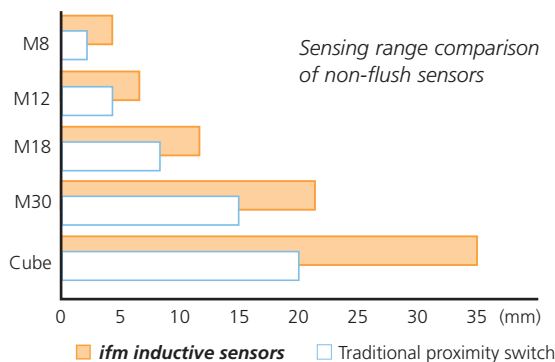
- Extended sensing ranges reduce failure from mechanical damage and increase uptime
- Ideal for non-contact detection of metal targets in position sensing applications
- Four bright LEDs provide 360-degree visibility for status indication and make troubleshooting in applications easy
- Robust industry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

Extended range technology reduces failures from mechanical damage

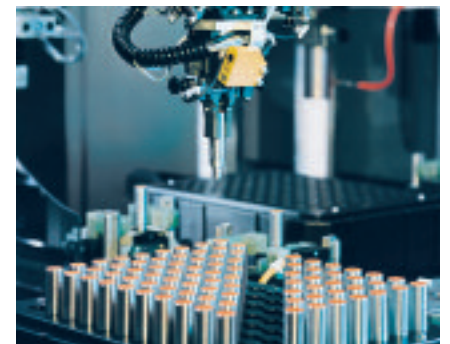


ifm inductive sensors incorporate extended sensing ranges that enable the sensor to be mounted farther away from a target increasing the distance between the target and the sensor. This prevents mechanical damage from physical impact.

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



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.

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	88 - 97



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	IE 5312	\$41.00
M8 / L = 62	4 mm nonflush	PNP, N.O.	10...36	300	200	M12 Micro	IE 5288	\$41.00
M12 / L = 60	2 mm flush	NPN, N.O.	15...30	800	100	M12 Micro	IF 7102	\$36.00
M12 / L = 45	4 mm flush	PNP, N.O.	10...36	700	100	M12 Micro	IFS 204	\$39.00
M12 / L = 60	4 mm nonflush	NPN, N.O.	15...30	800	100	M12 Micro	IF 7103	\$36.00
M12 / L = 50	7 mm nonflush	PNP, N.O.	10...36	700	100	M12 Micro	IFS 205	\$39.00
M18 / L = 60	5 mm flush	NPN, N.O.	15...30	400	100	M12 Micro	IG 7102	\$38.00
M18 / L = 46	8 mm flush	PNP, N.O.	10...36	400	100	M12 Micro	IGS 204	\$41.00
M18 / L = 60	8 mm nonflush	NPN, N.O.	15...30	400	100	M12 Micro	IG 7103	\$38.00
M18 / L = 51	12 mm nonflush	PNP, N.O.	10...36	300	100	M12 Micro	IGS 205	\$41.00
M30 / L = 60	10 mm flush	NPN, N.O.	15...30	200	100	M12 Micro	II 7102	\$41.00
M30 / L = 50	15 mm flush	PNP, N.O.	10...36	100	100	M12 Micro	IIS 204	\$44.00
M30 / L = 60	15 mm nonflush	NPN, N.O.	15...30	200	100	M12 Micro	II 7103	\$41.00
M30 / L = 50	22 mm nonflush	PNP, N.O.	10...36	100	100	M12 Micro	IIS 205	\$44.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Snap clamp for 8 mm sensor	E 11521	\$6.00
	Snap clamp for 12 mm sensor	E 11047	\$6.00
	Snap clamp for 18 mm sensor	E 11048	\$6.00
	Snap clamp for 30 mm sensor	E 11049	\$6.00
	L-bracket for 8 mm sensor	U 20304	\$4.25
	L-bracket for 12 mm sensor	U 20301	\$4.25
	L-bracket for 18 mm sensor	U 20302	\$4.50
	L-bracket for 30 mm sensor	U 20303	\$4.75

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75

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

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. IE 5312)
 Special coated brass; active face: CO-PC (Part No. IE 5288)
 Special coated brass; active face: PBT (Part Nos. IFS 204, IFS 205, IGS 204, IGS 205, IIS 204, IIS 205)
 Nickel-plated brass; active face PBT (Part Nos. IF 7102, IF 7103, IG 7102, IG 7103, II 7102, II 7103)

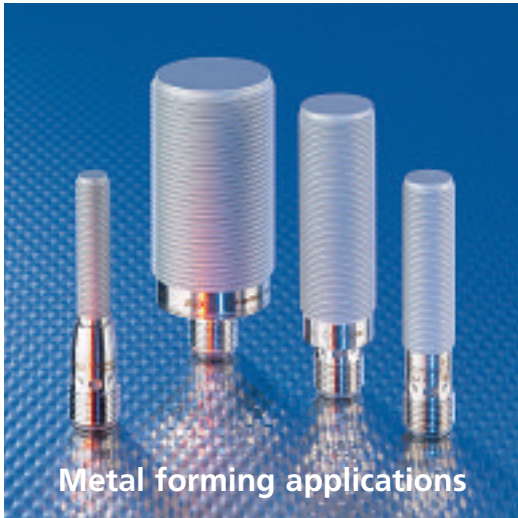


Reliable service center

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

Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
98 - 111	112 - 129	130 - 141	142 - 155	156 - 169	170 - 171	172 - 188	184 - 193	194 - 195



Metal forming applications

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

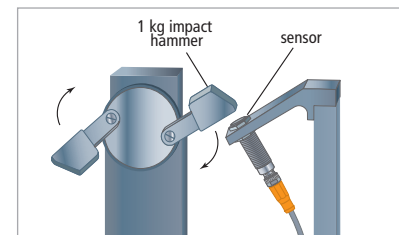
Plastic and teflon sensors life expectancies are reduced from weld-slag build-up and physical impact from the part-loading process in manufacturing cells.



Solution

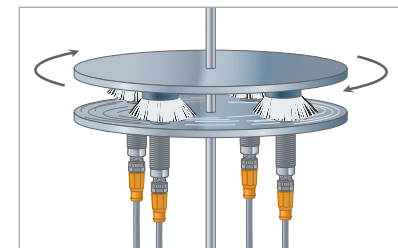
The ifm metal forming sensor's stainless steel construction and high temperature weld-slag resistant coating withstands damage from impact and weld slag build-up.

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		Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
Search Bar											
		1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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	IER 200	\$65.00
M8 / L = 60	2 mm flush	NPN, N.O.	10...36	100	100	M12 Micro DC	IER 201	\$65.00
M12 / L = 60	4 mm flush	PNP, N.O.	10...36	2	100	M12 Micro DC	IFR 200	\$61.00
M12 / L = 60	4 mm flush	NPN, N.O.	10...36	2	100	M12 Micro DC	IFR 202	\$61.00
M18 / L = 70	6 mm flush	PNP, N.O.	10...36	2	100	M12 Micro DC	IGR 200	\$63.00
M18 / L = 70	6 mm flush	NPN, N.O.	10...36	2	100	M12 Micro DC	IGR 202	\$63.00
M30 / L = 70	12 mm flush	PNP, N.O.	10...36	2	100	M12 Micro DC	IIR 200	\$66.00
M30 / L = 70	12 mm flush	NPN, N.O.	10...36	2	100	M12 Micro DC	IIR 202	\$66.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	L-bracket for 8 mm sensor	U 20304	\$4.25
	L-bracket for 12 mm sensor	U 20301	\$4.25
	L-bracket for 18 mm sensor	U 20302	\$4.50
	L-bracket for 30 mm sensor	U 20303	\$4.75

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVW 001	\$15.00
	M12 Micro DC (4-pin) 5 m, PUR	EVW 002	\$19.00
	M12 Micro DC (4-pin) 2 m, PUR	EVW 004	\$15.00
	M12 Micro DC (4-pin) 5 m, PUR	EVW 005	\$19.00

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/inductive

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



On-time delivery with accuracy
 Our goal in the ifm Distribution Center is to ensure uptime in your facility.

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

Fluids						Networking		
<i>Safety products</i>	<i>Pressure</i>	<i>Flow</i>	<i>Temperature</i>	<i>Level</i>	<i>Vibration</i>	<i>Cordset solutions</i>	<i>AS-i networking</i>	<i>Power supplies</i>
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



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*

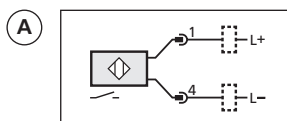
Withstands damage from physical impact in manufacturing cells



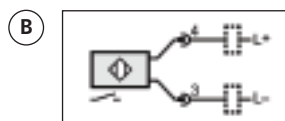
ifm's metal face sensors are designed and tested to provide reliable position detection in the toughest welding and metal stamping applications. The stainless steel sensor face and housing withstand damage from physical impact in the part loading process in manufacturing cells. A high temperature weld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

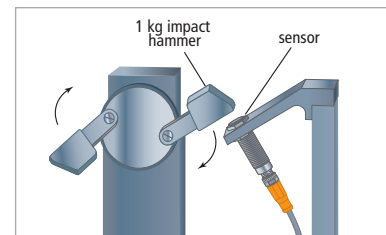


2-wire to directly replace 3-wire PNP



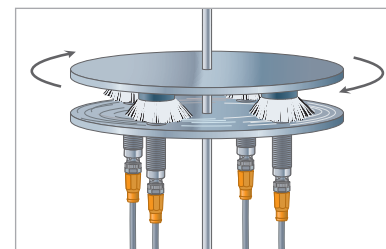
2-wire to directly replace 3-wire NPN

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.

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5



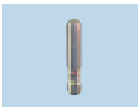
6 - 35



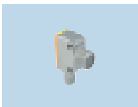
36 - 41



42 - 43



44 - 45



46 - 73



74 - 79



80 - 85



86 - 87



89 - 97



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	IER 203	\$62.00
M12 / L = 40	4 mm flush	PNP/NPN, N.O.	10...36	75	100	M12 0.3 m pigtail	IFR 203	\$62.00
M18 / L = 40	6 mm flush	PNP/NPN, N.O.	10...36	50	100	M12 0.3 m pigtail	IGR 203	\$67.00
M30 / L = 40	12 mm flush	PNP/NPN, N.O.	10...36	25	100	M12 0.3 m pigtail	IIR 203	\$78.00
(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	IER 206	\$67.00
M12 / L = 40	4 mm flush	PNP/NPN, N.O.	10...36	75	100	M12 0.3 m pigtail	IFR 206	\$67.00
M18 / L = 40	6 mm flush	PNP/NPN, N.O.	10...36	50	100	M12 0.3 m pigtail	IGR 206	\$70.00
M30 / L = 40	12 mm flush	PNP/NPN, N.O.	10...36	25	100	M12 0.3 m pigtail	IIR 206	\$83.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	L-bracket for 8 mm sensor	U 20304	\$4.25
	L-bracket for 12 mm sensor	U 20301	\$4.25
	L-bracket for 18 mm sensor	U 20302	\$4.50
	L-bracket for 30 mm sensor	U 20303	\$4.75

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVW 001	\$15.00
	M12 Micro DC (4-pin) 5 m, PUR	EVW 002	\$19.00
	M12 Micro DC (4-pin) 2 m, PUR	EVW 004	\$15.00
	M12 Micro DC (4-pin) 5 m, PUR	EVW 005	\$19.00

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/inductive

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

Fluids						Networking		
<i>Safety products</i>	<i>Pressure</i>	<i>Flow</i>	<i>Temperature</i>	<i>Level</i>	<i>Vibration</i>	<i>Cordset solutions</i>	<i>AS-i networking</i>	<i>Power supplies</i>
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



Oils and coolants applications

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.



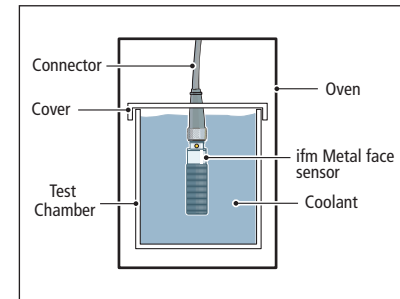
Ferrous-only technology ignores aluminum chips and eliminates false signals.

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.: EVC 01E (5 meters)

List price (1-pc): \$17.00

Position



Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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	IEC 200	\$62.00
M12 / L = 60	3 mm flush	PNP, N.O.	10...36	100	100	IFC 258	\$60.00
M18 / L = 70	5 mm flush	PNP, N.O.	10...36	100	100	IGC 248	\$62.00
M12 / L = 60	10 mm flush	PNP, N.O.	10...36	50	100	IIC 224	\$67.00
M8 / L = 60	2 mm flush	NPN, N.O.	10...36	100	100	IEC 203	\$67.00
M18 / L = 70	3 mm flush	NPN, N.O.	10...36	100	100	IFC 266	\$73.00
M30 / L = 70	5 mm flush	NPN, N.O.	10...36	100	100	IGC 252	\$67.00
M30 / L = 70	10 mm flush	NPN, N.O.	10...36	50	100	IIC 226	\$67.00
Ferrous only sensors • M12 Micro DC quick disconnect							
M12 / L = 60	2.5 mm flush	PNP, N.O.	10...36	100	100	IFC 263	\$65.00
M18 / L = 70	4.5 mm flush	PNP, N.O.	10...36	100	100	IGC 249	\$67.00
M8 Pico DC quick disconnect							
M8 / L = 50	2 mm flush	PNP, N.O.	10...36	100	100	IEC 201	\$62.00
M8 / L = 50	2 mm flush	NPN, N.O.	10...36	100	100	IEC 202	\$67.00





Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Snap clamp for 8 mm sensor	E 11521	\$6.00
	Snap clamp for 12 mm sensor	E 11047	\$6.00
	Snap clamp for 18 mm sensor	E 11048	\$6.00
	Snap clamp for 30 mm sensor	E 11049	\$6.00
	L-bracket for 8 mm sensor	U 20304	\$4.25
	L-bracket for 12 mm sensor	U 20301	\$4.25
	L-bracket for 18 mm sensor	U 20302	\$4.50
	L-bracket for 30 mm sensor	U 20303	\$4.75

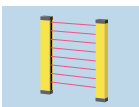
Technical Specs

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	EVC 141	\$11.95
	M8 Pico DC (3-pin) 5 m, PUR	EVC 142	\$14.95
	M8 Pico DC (3-pin) 10 m, PUR	EVC 143	\$20.50
	M8 Pico DC (3-pin) 2 m, PUR	EVC 144	\$11.95
	M8 Pico DC (3-pin) 5 m, PUR	EVC 145	\$14.95
	M8 Pico DC (3-pin) 10 m, PUR	EVC 146	\$20.50
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75

Safety products



99 - 111

Fluids

Pressure



113 - 129

Flow



130 - 141

Temperature



142 - 155

Level



156 - 169

Vibration



170 - 171

Networking

Cordset solutions



173 - 183

AS-i networking



184 - 193

Power supplies



194 - 195



Oils and coolants applications

Top five product features!

- Extended sensing ranges increase distance between the sensor and target which increases uptime
- 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

Stainless steel sensors for oils and coolants



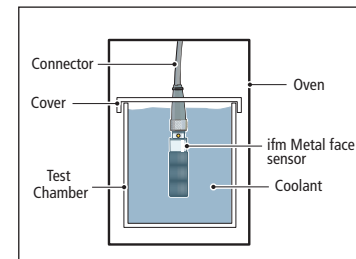
ifm's metal face sensors are designed and tested to provide reliable position detection in the extreme conditions found in oils and coolants applications. The stainless steel sensors are subjected to a variety of tests that insure reliable performance in application, including high performance IP68 coolant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

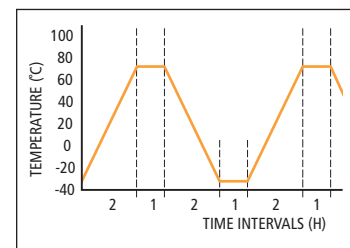
K factor 1 sensing technology

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.

Position		Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
Search Bar	1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97	



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	IFC 204	\$90.00
M12 / L = 60	4 mm flush	PNP, N.O.	10...36	700	200	M12 Micro DC	IF 5775	\$91.00
M12 / L = 50	7 mm nonflush	PNP, N.O.	10...36	700	100	M12 Micro DC	IFC 205	\$90.00
M12 / L = 60	7 mm nonflush	PNP, N.O.	10...36	700	200	M12 Micro DC	IF 5811	\$91.00
M18 / L = 46	8 mm flush	PNP, N.O.	10...36	400	100	M12 Micro DC	IGC 204	\$90.00
M18 / L = 72	8 mm flush	PNP, N.O.	10...36	500	250	M12 Micro DC	IG 5788	\$87.00
M18 / L = 51	12 mm nonflush	PNP, N.O.	10...36	300	100	M12 Micro DC	IGC 205	\$90.00
M18 / L = 70	12 mm nonflush	PNP/NPN, N.O.	10...36	300	100	M12 Micro DC	IGC 213	\$90.00
M18 / L = 72	12 mm nonflush	PNP, N.O.	10...36	300	250	M12 Micro DC	IG 5841	\$87.00
M30 / L = 50	15 mm flush	PNP, N.O.	10...36	100	100	M12 Micro DC	IIC 200	\$94.00
M30 / L = 50	22 mm nonflush	PNP, N.O.	10...36	100	100	M12 Micro DC	IIC 201	\$94.00
Ceramic face								
M12 / L = 45	4 mm flush	PNP, N.O.	10...36	700	100	M12 Micro DC	IFC 206	\$94.00
M12 / L = 70	4 mm flush	PNP/NPN, N.O.	10...36	500	100	M12 Micro DC	IFC 210	\$99.00
M18 / L = 46	8 mm flush	PNP, N.O.	10...36	400	100	M12 Micro DC	IGC 206	\$96.00
M18 / L = 70	8 mm flush	PNP/NPN, N.O.	10...36	400	100	M12 Micro DC	IGC 210	\$99.00
K factor 1 technology								
M12 / L = 65	3 mm flush	PNP, N.O.	10...36	> 2000	100	M12 Micro DC	IFC 259	\$96.00
M12 / L = 65	8 mm nonflush	PNP, N.O.	10...36	> 2000	100	M12 Micro DC	IFC 246	\$96.00
M18 / L = 65	5 mm flush	PNP, N.O.	10...36	> 2000	100	M12 Micro DC	IGC 232	\$96.00
M18 / L = 65	12 mm nonflush	PNP, N.O.	10...36	> 2000	100	M12 Micro DC	IGC 233	\$96.00
M30 / L = 65	10 mm flush	PNP, N.O.	10...36	1000	100	M12 Micro DC	IIC 218	\$100.00
M30 / L = 65	22 mm nonflush	PNP, N.O.	10...36	1000	100	M12 Micro DC	IIC 219	\$100.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Snap clamp for 12 mm sensor	E 11047	\$6.00
	Snap clamp for 18 mm sensor	E 11048	\$6.00
	Snap clamp for 30 mm sensor	E 11049	\$6.00
	Quick-mount sleeve for 12 mm sensor	E 11114	\$11.00
	Quick-mount sleeve for 18 mm sensor	E 11115	\$12.00
	Quick-mount sleeve for 30 mm sensor	E 10808	\$15.00
	L-bracket for 12 mm sensor	U 20301	\$4.25
	L-bracket for 18 mm sensor	U 20302	\$4.50
	L-bracket for 30 mm sensor	U 20303	\$4.75

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVW 001	\$15.00
	M12 Micro DC (4-pin) 5 m, PUR	EVW 002	\$19.00
	M12 Micro DC (4-pin) 2 m, PUR	EVW 004	\$15.00
	M12 Micro DC (4-pin) 5 m, PUR	EVW 005	\$19.00

Technical Specs

Protection: IP68
 Operating temperature: -13...158 °F (-25...70 °C)
 Housing material: Special coated brass (316 stainless steel: IGC246, IGC232, IGC233, IIC218, IIC219) (brass: IFC259)
 Active face: LCP (PBT: IIC219) (ceramic: IFC206, IFC210, IGC206, IGC210)
 Leakage current: < 0.2, < 0.5 mA: IGC210, IFC210; < 0.9 mA: IGC213

Fluids

Safety products	Pressure	Flow	Temperature	Level	Vibration
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171

Networking

Cordset solutions	AS-i networking	Power supplies
173 - 183	184 - 193	194 - 195



Top five product features!

- High temperature inductive sensors withstand extreme heat
- Designed and tested for high temperature applications typically found in the steel, glass and furnace 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



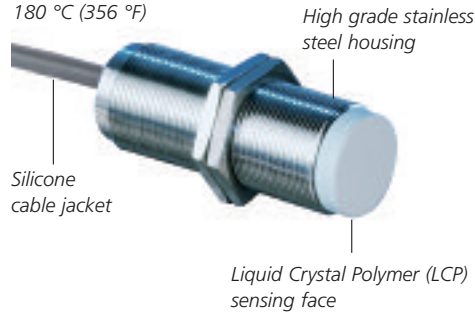
Application example: Hot rolling steel applications

The II 5930 high temperature inductive sensor can monitor the continuous casting line to the cooling bed in a steel forming application.

ifm's compact II 5930 inductive proximity sensor is specifically designed for high temperature applications. The rugged, stainless steel housing can be mounted in permanent operating temperatures up to 180°C (356°F).

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

For permanent operating temperatures up to 180 °C (356 °F)



Application example: Industrial furnaces

The high temperature sensor can monitor the position of hydraulic cylinders on industrial furnaces.





Company	Position									
	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors	
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97	




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.)
M30 / L = 79	15 mm nonflush	PNP, N.O.	10...36	200	150	5 m silicone cable	II 5930	\$387.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Quick-mount sleeve for 30 mm sensor	E 10808	\$15.00
	L-bracket for 30 mm sensor	U 20303	\$4.75

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

Technical Specs

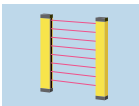








Protection: IP65
 Housing material: Stainless steel; active face: LCP
 Cable material: Silicone
 Temperature: -13...356 °F (-25...180 °C)
 Leakage current: < 0.5 mA



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**
www.ifm.com/us
-  **Shop for products online**
Easy ordering via eShop

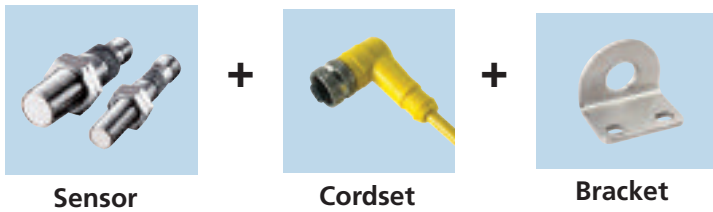
Fluids						Networking		
<i>Safety products</i>	<i>Pressure</i>	<i>Flow</i>	<i>Temperature</i>	<i>Level</i>	<i>Vibration</i>	<i>Cordset solutions</i>	<i>AS-i networking</i>	<i>Power supplies</i>
								
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



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 cabled 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



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.

Select from 3 brackets for installation flexibility



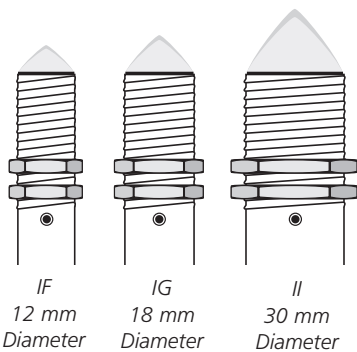
ifm's snap clamp allows quick replacement of a switch with no tools or mounting nuts. The clamp features a "positive stop" that provides exact placement every time.



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



L-Bracket secures tubular sensors and mounts quickly.



Sensing range is determined by the physical size of the sensor

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

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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	IF 0311	\$102.00
M12 / L = 62	7 mm nonflush	N.O.	20...140	25 / 90	200	1/2" Micro AC	IF 0312	\$102.00
M18 / L = 72	8 mm flush	N.O.	20...250	25 / 60	250 / 100	1/2" Micro AC	IG 0344	\$108.00
M18 / L = 72	12 mm nonflush	N.O.	20...250	25 / 90	250 / 100	1/2" Micro AC	IG 0345	\$108.00
M18 / L = 99	5 mm flush	N.O.	20...250	25 / 100	350 / 100	7/8" Mini AC	IG 0310	\$118.00
M18 / L = 99	8 mm nonflush	N.O.	20...250	25 / 100	350 / 100	7/8" Mini AC	IG 0309	\$118.00
M30 / L = 72	15 mm flush	N.O.	20...250	25 / 40	350 / 100	1/2" Micro AC	II 0340	\$113.00
M30 / L = 72	22 mm nonflush	N.O.	20...250	25 / 70	350 / 100	1/2" Micro AC	II 0341	\$113.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Snap clamp for 12 mm sensor	E 11047	\$6.00
	Snap clamp for 18 mm sensor	E 11048	\$6.00
	Snap clamp for 30 mm sensor	E 11049	\$6.00
	Quick-mount sleeve for 12 mm sensor	E 11114	\$11.00
	Quick-mount sleeve for 18 mm sensor	E 11115	\$12.00
	Quick-mount sleeve for 30 mm sensor	E 10808	\$15.00
	L-bracket for 12 mm sensor	U 20301	\$4.25
	L-bracket for 18 mm sensor	U 20302	\$4.50
	L-bracket for 30 mm sensor	U 20303	\$4.75

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	1/2" Micro AC (3-pin) 2 m, PVC	E 18212	\$13.50
	1/2" Micro AC (3-pin) 5 m, PVC	E 18213	\$16.50
	1/2" Micro AC (3-pin) 2 m, PVC	E 18214	\$13.50
	1/2" Micro AC (3-pin) 5 m, PVC	E 18215	\$16.50
	7/8" Mini AC (3-pin) 4 m, PVC	W 80610	\$22.50
	7/8" Mini AC (3-pin) 4 m, PVC	W 80632	\$22.50

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

Technical Specs

Protection: IP67
 Operating Temperature: -13...158 °F (-25...70 °C): (Part Nos. IF 0311, IF 0312, IG 0344, IG 0345, IG 0310, II 0340, II 0341)
 -13...176 °F (-25...80 °C): (Part No. IG 0309)
 Leakage Current: < 0.8 mA: (Part Nos. IF 0311, IF 0312)
 < 1 mA @ 250 VAC: (Part Nos. IG 0344, IG 0345, II 0340, II 0341)
 < 2.5 mA @ 250 VAC: (Part Nos. IG 0310, IG 0309)
 Housing materials: Special coated brass; active face: PBT (Part Nos. IF 0311, IF 0312, II 0340, II 0341)
 Special coated brass; active face: PA, PBT (Part Nos. IG 0344, IG 0345)
 Special coated brass; active face: PC (Part Nos. IG 0310, IG 0309)



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

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

156 - 169

170 - 171

173 - 183

184 - 193

194 - 195



Top five product features!

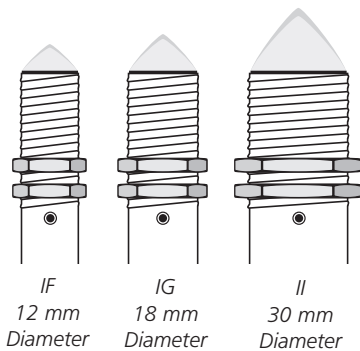
- Extended sensing ranges reduce failure from mechanical damage and increase uptime
- Models available in universal voltage with a range of 20...250 V AC/DC
- Industry standard M12, M18 and M30 diameter housings to fit a variety of industrial automation applications
- 2 meter high-flex PVC cable
- Available in quick disconnect and cabled 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.

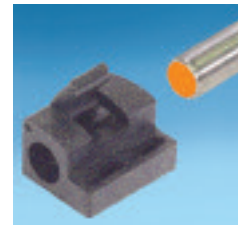
Extended sensing ranges allow the sensors to be placed farther away from a target which reduces the chance of damage from physical impact. The sensor's high-flex PVC cable can withstand repetitive movement.



Sensing range is determined by the physical size of the sensor

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

Select from 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

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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	IF 0295	\$85.00
M12 / L = 71	4 mm nonflush	N.O.	20...250	25	250	Prewired 2 m cable	IF 0302	\$94.00
M18 / L = 80	5 mm flush	N.O.	20...250	25 / 50	350 / 100	Prewired 2 m cable	IG 0325	\$87.00
M18 / L = 80	8 mm nonflush	N.O.	20...250	25 / 50	350 / 100	Prewired 2 m cable	IG 0307	\$95.00
M18 / L = 81	10 mm flush	N.O.	20...250	25 / 50	350 / 100	Prewired 2 m cable	II 0272	\$98.00
M30 / L = 81	15 mm nonflush	N.O.	20...250	25 / 25	350 / 100	Prewired 2 m cable	II 0275	\$99.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Snap clamp for 12 mm sensor	E 11047	\$6.00
	Snap clamp for 18 mm sensor	E 11048	\$6.00
	Snap clamp for 30 mm sensor	E 11049	\$6.00
	Quick-mount sleeve for 12 mm sensor	E 11114	\$11.00
	Quick-mount sleeve for 18 mm sensor	E 11115	\$12.00
	Quick-mount sleeve for 30 mm sensor	E 10808	\$15.00
	L-bracket for 12 mm sensor	U 20301	\$4.25
	L-bracket for 18 mm sensor	U 20302	\$4.50
	L-bracket for 30 mm sensor	U 20303	\$4.75

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

Technical Specs

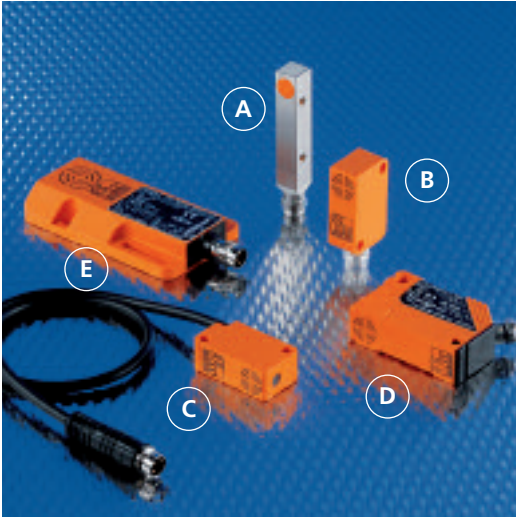
Protection: IP67
 Operating Temperature: -13...176 °F (-25...80 °C)
 Leakage Current: < 2 mA (Part Nos. IF 0302, IF 0295)
 < 2.5 mA (Part Nos. IG 0325, IG 0307, II 0272, II 0275)
 Housing materials: Special coated brass; active face: PC (Part Nos. IF 0302, IG 0307)
 PBT (Part Nos. IF 0295, IG 0325)
 Special coated brass (Part Nos. II 0272, II 0275)



On-time delivery with accuracy
 Our goal in the ifm Distribution Center is to ensure uptime in your facility.

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

Fluids						Networking		
<i>Safety products</i>	<i>Pressure</i>	<i>Flow</i>	<i>Temperature</i>	<i>Level</i>	<i>Vibration</i>	<i>Cordset solutions</i>	<i>AS-i networking</i>	<i>Power supplies</i>
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



Top five product features!

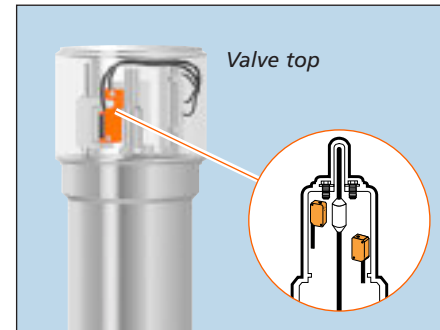
- Small package, large sensing range! Compact design is ideal for applications with limited mounting space
- Sensors retrofit V3 mechanical switches which increases uptime and reduces installation time
- Wiring flexibility – sensors available with quick disconnect or prewired 300 mm cable with M8 Pico 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



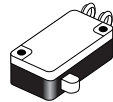
ifm efector's small rectangular proximity sensors are ideal for sensing the "open" and "closed" positions of a rising stem valve. The housing design of the Series IS family is a direct replacement for V3 style mechanical devices. The sensors are based on standard inductive technology and are mounted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

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

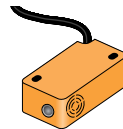


Compact rectangular sensors can be mounted in the valve top for non-contact sensing of the stem.

Retrofits V3 style mechanical switches



V3 style mechanical device



ifm Series IS non-contact sensor

Company	Position									
	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors	
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97	



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	IL 5004	\$88.00
B	28 x 10 x 16	2 mm flush	PNP, N.O.	10...36	800	200	M8 Pico	IS 5035	\$96.00
C	28 x 10 x 16	2 mm flush	PNP, N.O.	10...36	800	200	Prewired 2 m cable	IS 5001	\$77.00
	28 x 10 x 16	2 mm flush	NPN, N.O.	10...36	800	200	Prewired 2 m cable	IS 5003	\$77.00
	28 x 10 x 16	2 mm flush	PNP/NPN, N.O./N.C.	10...36	2000	200	Prewired 2 m cable	IS 5026	\$80.00
	28 x 10 x 16	2 mm flush	PNP, N.O.	10...36	800	200	Pigtail 0.3 m cable w/ M8 Pico	IS 5068	\$99.00
	28 x 10 x 16	2 mm flush	NPN, N.O.	10...36	800	200	Pigtail 0.3 m cable w/ M8 Pico	IS 5069	\$99.00
D	40 x 12 x 26	2 mm flush	PNP, N.O.	10...36	1400	250	M8 Pico	IN 5230	\$102.00
	40 x 12 x 26	4 mm nonflush	PNP, N.O.	10...36	1300	250	M8 Pico	IN 5212	\$102.00
	40 x 12 x 26	2 mm flush	PNP, N.O.	10...36	1400	250	Prewired 2 m cable	IN 5121	\$84.00
	40 x 12 x 26	2 mm flush	NPN, N.O.	10...36	1400	250	Prewired 2 m cable	IN 5125	\$87.00
	40 x 12 x 26	4 mm nonflush	PNP, N.O.	10...36	1300	250	Prewired 2 m cable	IN 5129	\$84.00
E	60 x 36 x 10	8 mm nonflush	PNP, N.O.	10...36	300	250	M8 Pico	IW 5064	\$97.00
	60 x 36 x 10	8 mm nonflush	NPN, N.O.	10...36	120	250	Prewired 2 m cable	IW 5008	\$87.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (3-pin) 2 m, PUR	EVC 141	\$11.95
	M8 Pico DC (3-pin) 5 m, PUR	EVC 142	\$14.95
	M8 Pico DC (3-pin) 2 m, PUR	EVC 144	\$11.95
	M8 Pico DC (3-pin) 5 m, PUR	EVC 145	\$14.95

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

Technical Specs

Protection: IP65 (Part Nos. IL5004, IN5212, IW5064)
 IP67: (Part Nos. IS5035, IN5230, IS5001, IS5003, IS5026, IN5121, IN5125, IN5129, IN5133, IW5008, IS5064, IS5069)

Operating Temperature: -13...158 °F (-25...70 °C): (Part Nos. IL5004, IS5001, IS5064)
 -13...176 °F (-25...80 °C): (Part Nos. IS5035, IN5212, IS5003, IS5026, IN5121, IN5125, IN5129, IN5133, IW5008)
 -4...176 °F (-20...80 °C) (Part Nos. IN5230, IW5064, IS5069)

Leakage Current: Negligible

Housing materials: Special coated brass; active face: LCP: IL5004
 PBT: IS5035, IS5001, IS5003, IS5068, IS5069, IN5230, IN5069, IN5230, IN5212, IN5121, IN5125, IN5129, IN5133, IW5064 and IW5008

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

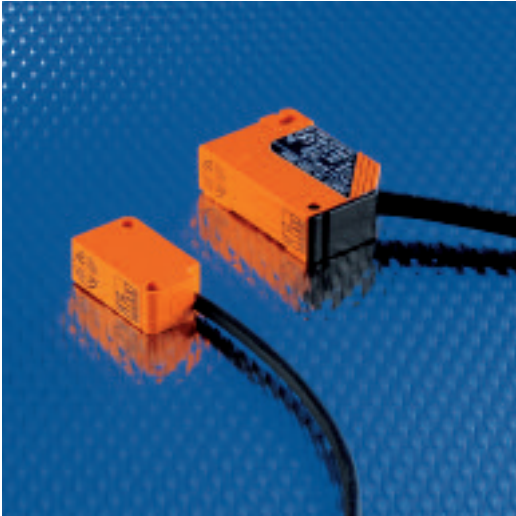
156 - 169

170 - 171

173 - 183

184 - 193

194 - 195



Top five product features!

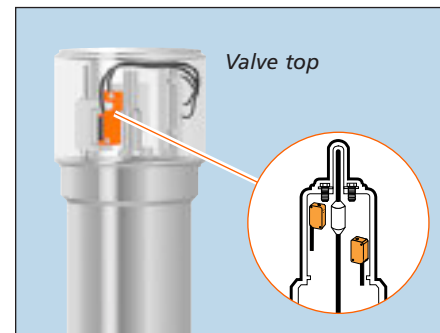
- Robust industry standard miniature housing for applications with limited mounting space
- Sensors retrofit V3 mechanical switches which increases uptime and reduces installation time
- Corrosion resistant plastic housing designed and tested to withstand industrial automation environments
- Wide dual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

Compact sensors with powerful performance



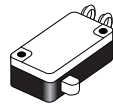
ifm efector's small rectangular proximity sensors are ideal for sensing the "open" and "closed" positions of a rising stem valve. The housing design of the Series IS family is a direct replacement for V3 style mechanical devices. The sensors are based on standard inductive technology and are mounted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

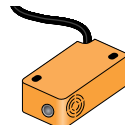


Compact rectangular sensors can be mounted in the valve top for non-contact sensing of the stem.

Retrofits V3 style mechanical switches



V3 style mechanical device




ifm Series IS non-contact sensor

Company	Position									
	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors	
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97	



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	IS 3501	\$85.00
28 x 10 x 16	2 mm flush	N.C.	20...140 AC / 10...140 DC	25	200	Prewired 0.3 m cable	IS 0008	\$85.00
40 x 12 x 26	2 mm flush	N.O.	20...250	25 / 50	350 / 250	Prewired 2m cable	IN 0097	\$91.00
40 x 12 x 26	4 mm nonflush	N.O.	20...250	25 / 50	350 / 250	Prewired 2m cable	IN 0098	\$91.00

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

Technical Specs

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

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

Fluids

Safety products

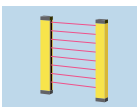
Pressure

Flow

Temperature

Level

Vibration



99 - 111



113 - 129



130 - 141



142 - 155



156 - 169



170 - 171

Networking

Cordset solutions

AS-i networking

Power supplies



173 - 183



184 - 193



194 - 195



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.

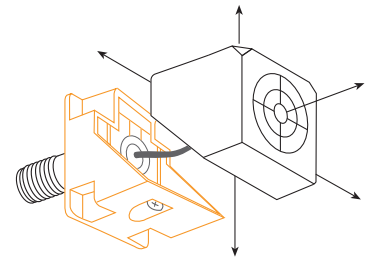
Ideal for packaging lines and conveying applications, the IMC "Cube" sensor offers two corner-mounted LEDs to indicate power and output.

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.: EVC 01E (5 meters)
List price (1-pc): \$17.00

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97





Product + accessory selector


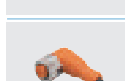
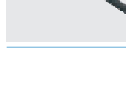

Dimensions (mm)	Sensing Range	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Sensor Termination	Part No.	List Price (1-pc.)
40 x 40 x 66	20 mm flush	PNP, N.O.	10...36	100	200	M12 Micro DC	IM 5115	\$46.00
40 x 40 x 66	35 mm nonflush	PNP, N.O.	10...36	80	200	M12 Micro DC	IM 5116	\$46.00
92 x 80 x 40	50 mm flush*	PNP, N.O.	10...36	70	250	M12 Micro DC	ID 5055	\$164.00
105 x 80 x 40	60 mm nonflush	PNP, Programmable N.O./N.C.	10...36	100	250	1/2" NPT Terminal Chamber	ID 5052	\$196.00

*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	U 20200	\$19.00
	Protective Bracket for ID	E 10730	\$10.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75

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

Technical Specs

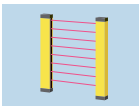








Protection: IP67
 Operating Temperature: -13...158 °F (-25...70 °C)
 Leakage Current: Negligible
 Housing material: PA (polyamide)



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

Fluids						Networking		
<i>Safety products</i>	<i>Pressure</i>	<i>Flow</i>	<i>Temperature</i>	<i>Level</i>	<i>Vibration</i>	<i>Cordset solutions</i>	<i>AS-i networking</i>	<i>Power supplies</i>
								
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



Top five product features!

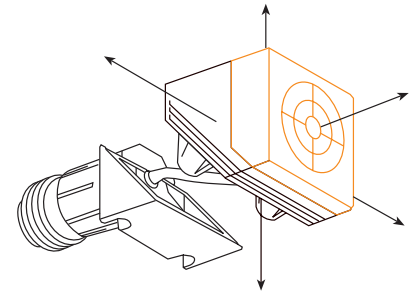
- IM Series "Cube" sensing face can rotate in one of five different directions for application versatility
- Two corner-mounted bright LEDs indicate power and switching status
- Easily retrofits limit switches using only half the space
- ID and IM Series feature extended sensing ranges reduce failure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

Robust rectangular sensors easily retrofit limit switches

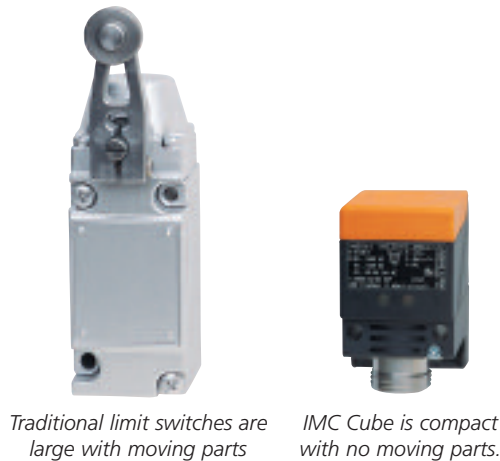


Smaller and more robust than traditional limit switches, ifm's IM Series rectangular inductive proximity sensors feature extended sensing ranges for industrial automation applications. Both ID and IM Series sensors offer extended sensing ranges that allow them to be placed farther away from the target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

Application flexibility



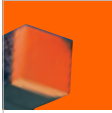
The IMC "Cube" sensor can rotate in one of five different directions for application versatility.



Traditional limit switches are large with moving parts

IMC Cube is compact with no moving parts.

Position										
Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors	
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97	





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	IM 0055	\$96.00
40 x 40 x 66	35 mm nonflush	N.O.	20...140	25 / 100	350	1/2" Micro AC	IM 0041	\$112.00
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	IM 0020	\$103.00
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	IM 0013	\$103.00
40 x 80 x 112	50 mm flush*	N.O.	20...140 AC/ 10...140 DC	25	450	1/2" Micro AC	ID 0039	\$170.00
40 x 80 x 92	50 mm flush*	N.O.	20...140 AC/ 10...140 DC	25	450	7/8" Mini AC	ID 0038	\$170.00
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	ID 0036	\$196.00


*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	U 20200	\$19.00
	Protective Bracket for ID	E 10730	\$10.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	1/2" Micro AC (3-pin) 2 m, PVC	E 18212	\$13.50
	1/2" Micro AC (3-pin) 5 m, PVC	E 18213	\$16.50
	1/2" Micro AC (3-pin) 2 m, PVC	E 18214	\$13.50
	1/2" Micro AC (3-pin) 5 m, PVC	E 18215	\$16.50
	7/8" Mini AC (3-pin) 4 m, PVC	W 80610	\$22.50
	7/8" Mini AC (3-pin) 4 m, PVC	W 80632	\$22.50

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

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 (Part Nos. IM 0055) PPE
 Connector housing: brass
 Bracket: diecast zinc (Part Nos. IM 0041)



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

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

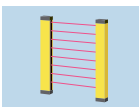
Vibration

Networking

Cordset solutions

AS-i networking

Power supplies



99 - 111



113 - 129



130 - 141



142 - 155



156 - 169



170 - 171



173 - 183



184 - 193



194 - 195



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 0.6mm 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.

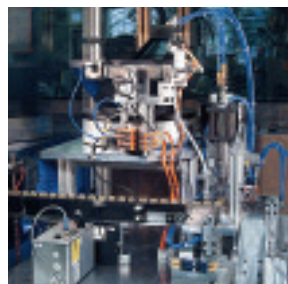
Static and dynamic operating principal

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.

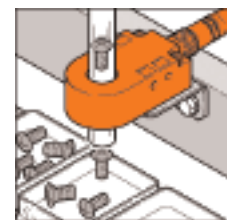
Dynamic sensors are used when very small parts with low mass or fast-moving parts need to be detected. When the sensor detects a part, it generates an output, which is adjustable from 0.1 to 150 ms. The resolution is also adjustable for the application needs and will remain stable, even in the case of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

Ring and tube sensors with high resolution

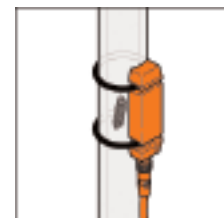
Ideal for assembly automation applications that include feeder processes and parts counting.



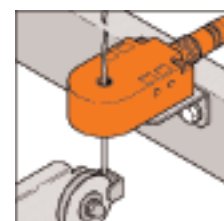
Application solutions



Ring sensor detects parts in hoses



Tube sensor detects parts in feed hose



Wire break detection

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



Search Bar





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	I7R 201	\$181.00
10.1	–	NPN, N.O./N.C.	Static	1.5	M12 Micro	10...150	0.5 / 10	I7R 202	\$181.00
15.1	–	PNP, N.O./N.C.	Static	2	M12 Micro	10...150	0.5 / 10	I7R 205	\$181.00
15.1	–	NPN, N.O./N.C.	Static	2	M12 Micro	10...150	0.5 / 10	I7R 206	\$181.00
20.1	–	PNP, N.O./N.C.	Static	2.5	M12 Micro	10...150	0.5 / 10	I7R 209	\$181.00
20.1	–	NPN, N.O./N.C.	Static	2.5	M12 Micro	10...150	0.5 / 10	I7R 210	\$181.00
25.1	–	PNP, N.O./N.C.	Static	3	M12 Micro	10...150	0.5 / 10	I7R 213	\$181.00
25.1	–	NPN, N.O./N.C.	Static	3	M12 Micro	10...150	0.5 / 10	I7R 214	\$181.00
51	–	PNP, N.O./N.C.	Static	6	M12 Micro	10...150	0.5 / 10	I7R 217	\$253.00
10.1	–	PNP, N.O./N.C.	Dynamic	0.6	M12 Micro	0.1...150	0.2 / 0.2	I7R 203	\$191.00
10.1	–	NPN, N.O./N.C.	Dynamic	0.6	M12 Micro	0.1...150	0.2 / 0.2	I7R 204	\$191.00
15.1	–	PNP, N.O./N.C.	Dynamic	0.8	M12 Micro	0.1...150	0.2 / 0.2	I7R 207	\$191.00
15.1	–	NPN, N.O./N.C.	Dynamic	0.8	M12 Micro	0.1...150	0.2 / 0.2	I7R 208	\$191.00
20.1	–	PNP, N.O./N.C.	Dynamic	1	M12 Micro	0.1...150	0.2 / 0.2	I7R 211	\$191.00
20.1	–	NPN, N.O./N.C.	Dynamic	1	M12 Micro	0.1...150	0.2 / 0.2	I7R 212	\$191.00
25.1	–	PNP, N.O./N.C.	Dynamic	1.2	M12 Micro	0.1...150	0.2 / 0.2	I7R 215	\$191.00
25.1	–	NPN, N.O./N.C.	Dynamic	1.2	M12 Micro	0.1...150	0.2 / 0.2	I7R 216	\$191.00
Tube sensors									
–	14	PNP, N.O.	Static	3	M8 Pico	100	0.5 / 100	I8 5000	\$181.00
–	14	NPN, N.O.	Static	3	M8 Pico	100	0.5 / 100	I8 5001	\$181.00
–	20	PNP, N.O.	Dynamic	1	M8 Pico	100	0.2 / 100	I8 5004	\$181.00
–	20	NPN, N.O.	Dynamic	1	M8 Pico	100	0.2 / 100	I8 5005	\$181.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (3-pin) 2 m, PUR	EVC 141	\$11.95
	M8 Pico DC (3-pin) 5 m, PUR	EVC 142	\$14.95
	M8 Pico DC (3-pin) 2 m, PUR	EVC 144	\$11.95
	M8 Pico DC (3-pin) 5 m, PUR	EVC 145	\$14.95

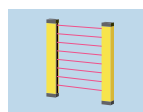
Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75

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

Fluids

Safety products



99 - 111

Pressure



113 - 129

Flow



130 - 141

Temperature



142 - 155

Level



156 - 169

Vibration



170 - 171

Networking

Cordset solutions



173 - 183

AS-i networking



184 - 193

Power supplies



194 - 195



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*

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.

Top loading sensor – no need to remove endcaps



The sensor simply drops in the top of the cylinder providing simple mounting. No need to remove cylinder endcaps or thread sensor into slot.

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



See next page for mounting accessories.

Position

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



Product + accessory selector

Dimensions (mm)	No. of Wires	Output Function	Supply Voltage	Switching Frequency (Hz)	Max Load Current (mA)	Electrical Connection	Part No.	List Price (1-pc.)
25 x 5.1 x 5	3	PNP, N.O.	10...30 VDC	6000	100	M8 Snap-fit 0.3m pigtail	MK 5138	\$47.00
25 x 5.1 x 5	3	PNP, N.C.	10...30 VDC	3000	100	M8 Snap-fit 0.3m pigtail	MK 5155	\$47.00
25 x 5.1 x 5	3	NPN, N.O.	10...30 VDC	6000	100	M8 Snap-fit 0.3m pigtail	MK 5137	\$47.00
25 x 5.1 x 5	2	PNP / NPN, N.O.	10...30 VDC	4000	100	M8 Snap-fit 0.3m pigtail	MK 5104	\$44.00
25 x 5.1 x 5	3	PNP, N.O.	10...30 VDC	6000	100	M8 Threaded 0.3m pigtail	MK 5159	\$49.00
25 x 5.1 x 5	3	NPN, N.O.	10...30 VDC	10000	100	M8 Threaded 0.3m pigtail	MK 5152	\$46.00
25 x 5.1 x 5	3	PNP, N.O.	10...30 VDC	6000	100	M12 Threaded 0.3m pigtail	MK 5139	\$47.00
25 x 5.1 x 5	3	NPN, N.O.	10...30 VDC	6000	100	M12 Threaded 0.3m pigtail	MK 5186	\$47.00
25 x 5.1 x 5	3	PNP, N.O.	10...30 VDC	6000	100	Prewired 2 m cable	MK 5140	\$45.00
25 x 5.1 x 5	3	PNP, N.C.	10...30 VDC	3000	100	Prewired 2 m cable	MK 5156	\$45.00
25 x 5.1 x 5	3	NPN, N.O.	10...30 VDC	10000	100	Prewired 2 m cable	MK 5114	\$42.00
25 x 5.1 x 5	2	PNP / NPN, N.O.	10...30 VDC	4000	100	Prewired 2 m cable	MK 5103	\$42.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (3-pin) 2 m, PUR	EVC 141	\$11.95
	M8 Pico DC (3-pin) 5 m, PUR	EVC 142	\$14.95
	M8 Pico DC (3-pin) 2 m, PUR	EVC 144	\$11.95
	M8 Pico DC (3-pin) 5 m, PUR	EVC 145	\$14.95

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75

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

Technical Specs

Voltage drop MK Series: 2.5 V (MK5103, MK5104: 3.5 V)
 Min. load current: N/A (MK5103 and MK5104: 5 mA)
 Leakage current: < 0.8 (MK5103, MK5104)
 Operating temperature: MK Series: -13...185 °F (-25...85 °C)
 Protection rating: IP67
 Cable jacket material: PUR
 Magnetic sensitivity: 2.0 mT
 (2.8 mT: MK5103, MK5104, MK5114, MK 5152)
 Travel speed: max > 10 m/s
 Repeatability: < 0.2 mm
 Housing material: PA (polyamide); stainless steel



On-time delivery with accuracy
 Our goal in the ifm Distribution Center is to ensure uptime in your facility.

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155






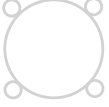





156 - 169

170 - 171

173 - 183

184 - 193

194 - 195

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)	E 11975	\$8.00
			Outside Ø 18...29 mm Bore size 7/8 to 1-1/16" (20-25 mm)	E 11976	\$8.00
			Outside Ø 28...39 mm Bore size 1-1/4" (32 mm)	E 11977	\$9.00
			Outside Ø 38...49 mm Bore size 1-1/2" (40 mm)	E 11978	\$9.00
			Outside Ø 48...59 mm Bore size 1-3/4" to 2" (50 mm)	E 11979	\$9.00
			Outside Ø 58...69 mm Bore size 2-1/2" (63 mm)	E 11980	\$9.00
			Outside Ø 78...89 mm Bore size 3" (80 mm)	E 11981	\$10.00
			Outside Ø 98...109 mm Bore size 4" (100 mm)	E 11982	\$10.00
	Mounting Adapter 		Bore size 5/16 to 1/2" (8, 10, 12 mm)	E 11816	\$7.00
			Bore size 9/16 to 7/8" (16 & 20 mm)	E 11817	\$7.00
Bore size 1-1/16 to 1-1/4" (25 & 32 mm)			E 11818	\$7.00	
Bore size 1-1/2" (40 mm)			E 11819	\$7.00	
Bore size 1-3/4 to 2" (50 mm)			E 11820	\$8.00	
Bore size 2-1/2" (63 mm)			E 11821	\$8.00	
Bore size 3" (80 mm)			E 11822	\$8.00	
Tie-Rod Cylinder 	Protective Bracket 		Ø tie-rod 3...5 mm	E 11913	\$8.00
			Ø tie-rod 5...7 mm	E 11912	\$9.00
			Ø tie-rod 5...11 mm	E 11797	\$7.00
			Ø tie-rod 9...15 mm	E 11799	\$8.00
Dovetail Cylinder 	Trapezoidal Slot 		Trapezoidal slot for 12 mm and 1/2" slots	E 11796	\$7.00

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5



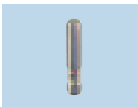
6 - 35



36 - 41



42 - 43



44 - 45



46 - 73



74 - 79



80 - 85




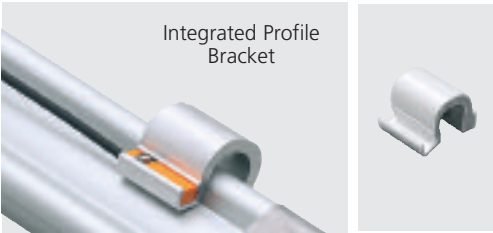


86 - 87



89 - 97

Search Bar



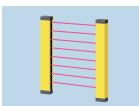








Cylinder Type	Accessory Type	Accessory Description	Part No.	List Price (1-pc.)
Integrated Profile Cylinders 	Integrated Profile Bracket 	Integrated profile thickness 9...15 mm	E 11799	\$8.00
		Integrated profile thickness 14...20 mm	E 11801	\$11.00
Standard Cylinders 		Standard T-slot cylinders typically 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/cylinder

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

Safety products	Fluids					Networking		
	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
								
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



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

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.

Top loading sensor – no need to remove endcaps



The sensor simply drops in the top of the cylinder providing simple mounting. No need to remove cylinder endcaps or thread sensor into slot.

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.

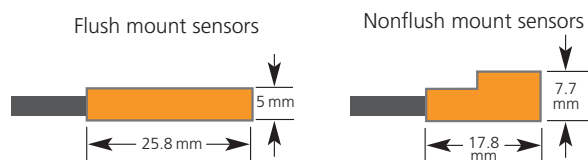
ifm sensors:
Cable and mounting screw are at the same end. If the cable is pulled, the sensor stays put.

Company	Position									
	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors	
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97	





Product + accessory selector

	Dimensions (mm)	Output Function	Supply Voltage (V DC)	Switching Frequency (Hz)	Max Load Current (mA)	Electrical Connection	Part No.	List Price (1-pc.)
 <p>Flush mount sensors for standard C-slot cylinders</p>	25.8 x 5 x 2.8	PNP, N.O.	10...30	5000	100	M8 Snap-fit 0.3 m pigtail	MK 5326	\$47.00
	25.8 x 5 x 2.8	NPN, N.O.	10...30	10,000	100	M8 Snap Fit 0.3 m pigtail	MK 5308	\$49.00
	25.8 x 5 x 2.8	PNP, N.O.	10...30	5000	100	M8 Threaded 0.3 m pigtail	MK 5328	\$51.00
	25.8 x 5 x 2.8	PNP, N.O.	10...30	10,000	100	M12 Threaded 0.3 m pigtail	MK 5314	\$52.00
	25.8 x 5 x 2.8	PNP, N.O.	10...30	5000	100	Prewired 2 m cable	MK 5325	\$47.00
	25.8 x 5 x 2.8	NPN, N.O.	10...30	10,000	100	Prewired 2 m cable	MK 5309	\$47.00
 <p>Nonflush mount sensors for small grippers and short stroke cylinders</p>	17.8 x 7.7 x 2.8	PNP, N.O.	10...30	5000	100	M8 Snap-fit 0.3 m pigtail	MK 5330	\$47.00
	17.8 x 7.7 x 2.8	NPN, N.O.	10...30	10,000	100	M8 Snap Fit 0.3 m pigtail	MK 5307	\$49.00
	17.8 x 7.7 x 2.8	PNP, N.O.	10...30	5000	100	M8 Threaded 0.3 m pigtail	MK 5331	\$51.00
	17.8 x 7.7 x 2.8	PNP, N.O.	10...30	10,000	100	M12 Threaded 0.3 m pigtail	MK 5304	\$52.00
	17.8 x 7.7 x 2.8	PNP, N.O.	10...30	5000	100	Prewired 2 m cable	MK 5329	\$47.00
	17.8 x 7.7 x 2.8	NPN, N.O.	10...30	10,000	100	Prewired 2 m cable	MK 5306	\$47.00



Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M8 Pico DC (3-pin) 2 m, PUR	EVC 141	\$11.95
	M8 Pico DC (3-pin) 5 m, PUR	EVC 142	\$14.95

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

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; (2.8 mT: MK5304, MK5306, MK5307, MK5308, MK5309, MK5314)
 Travel speed: max > 10 m/s
 Repeatability: < 0.2mm
 Housing material: PA (polyamide); stainless steel

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

99 - 111

113 - 129

130 - 141

142 - 155

156 - 169

170 - 171

Networking

Cordset solutions

AS-i networking

Power supplies

173 - 183

184 - 193

194 - 195



Top five product features!

- For applications in material handling, packaging, robotics, and metalworking
- Multiple flange housings available in a variety of resolutions
- Shock resistant up to 30 g and vibration resistant up to 200 g
- Non-contact optical sensing technology offers wear-free position detection
- Incremental encoders offer a great price / performance value

Reliable position detection using optical technology



ifm introduces a new family of incremental rotary encoders that provide reliable position detection in a variety of applications found in material handling, packaging, robotics, metalworking, printing, and the elevator / escalator markets.

Incremental encoders are used wherever linear or rotational movements need to be evaluated. They generate a precisely defined number of pulses per revolution.

ifm's incremental encoders withstand shock and vibration environments, offer high switching frequencies and are a great price / performance value to meet the needs of industrial automation applications.

Application examples include:

- Pallet and container positioning
- Conveyor position
- Position of stacker and gantry cranes
- Forklift speeds and direction monitoring
- Material length verification
- Cut-to-length measurements
- Roll diameter measurement and end-of-roll detection
- Elevator door position
- Rotational direction

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



Product + accessory selector

Type	Housing Diameter	Shaft / Diameter	Flange	Resolution / Pulse Rate	Operating Voltage	Connection	Part No.	List Price (1-pc.)
Separate coupling • Maximum RPM: 10,000								
	Ø36.5	solid / 6 mm	direct	50	10...30 VDC	2 m cable	RB 6005	\$236.00
	Ø36.5	solid / 6 mm	direct	100	10...30 VDC	2 m cable	RB 6007	\$236.00
	Ø36.5	solid / 6 mm	direct	200	10...30 VDC	2 m cable	RB 6011	\$236.00
	Ø36.5	solid / 6 mm	direct	500	10...30 VDC	2 m cable	RB 6015	\$236.00
	Ø36.5	solid / 6 mm	direct	1000	10...30 VDC	2 m cable	RB 6029	\$236.00
Integrated stator coupling • Maximum RPM: 12,000								
	Ø58	hollow / 12 mm	direct	100	10...30 VDC	1 m cable	RO 6342	\$249.00
	Ø58	hollow / 12 mm	direct	360	10...30 VDC	1 m cable	RO 6316	\$249.00
	Ø58	hollow / 12 mm	direct	500	10...30 VDC	1 m cable	RO 6344	\$249.00
	Ø58	hollow / 12 mm	direct	1024	10...30 VDC	1 m cable	RO 6345	\$249.00
	Ø58	hollow / 12 mm	direct	3600	10...30 VDC	1 m cable	RO 6348	\$249.00
Separate coupling • Maximum RPM: 12,000								
	Ø58	solid / 10 mm	clamp	100	10...30 VDC	2 m cable	RV 6003	\$326.00
	Ø58	solid / 10 mm	clamp	360	10...30 VDC	2 m cable	RV 6013	\$326.00
	Ø58	solid / 10 mm	clamp	500	10...30 VDC	2 m cable	RV 6016	\$326.00
	Ø58	solid / 10 mm	clamp	1000	10...30 VDC	2 m cable	RV 6024	\$326.00
	Ø58	solid / 10 mm	clamp	2000	10...30 VDC	2 m cable	RV 6033	\$326.00

Accessories

Type	Description	Part No.	List Price (1-pc.)	Type	Description	Part No.	List Price (1-pc.)
	Angle bracket for type RV	E 60035	\$81.00		Spring disc coupling, Ø 6 mm / Ø 10 mm, diecast zinc, PA	E 60117	\$66.00
					Spring disc coupling, Ø 6 mm / Ø 6 mm, diecast zinc, PA		
	Flexible coupling with clamp connection Ø6 mm / Ø10 mm	E 60065	\$57.00		2" square flange for RB	UX 0009	\$25.00
	Flexible coupling with clamp connection Ø6 mm / Ø10 mm	E 60066	\$62.00				
	Flexible coupling with clamp connection Ø10 mm / Ø10 mm	E 60067	\$62.00		2.5" square flange for RV	UX 0010	\$25.00

For additional product offering, please visit www.ifm.com/us/encoders

Technical Specs

Protection rating: Shaft: IP64
Housing: IP67

Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



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

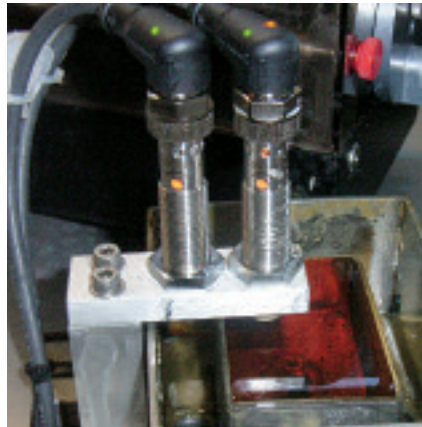
Capacitive proximity sensors detect the position of non-metallic objects

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.: EVC 01E (5 meters)
List price (1-pc): \$17.00

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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	KF 5001	\$123.00
M12 / L = 61	8 mm nonflush	PNP, N.O.	10...36	50	100	M12 Micro	KF 5002	\$123.00

Optional Accessories

Type	Description	Part No.	Unit Price (1-pc.)
	Quick-mount sleeve for 12 mm sensor with hex nut (M16 x 1)	E 11114	\$11.00
	Snap clamp for 12 mm sensor	E 11047	\$6.00
	L-bracket for 12 mm sensor	U 20301	\$4.25

Cordsets

Type	Description	Part No.	Unit Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR, LED	EVC 007	\$12.75
	M12 Micro DC (4-pin) 5 m, PUR, LED	EVC 008	\$14.25
	M12 Micro DC (4-pin) 10 m, PUR, LED	EVC 009	\$17.25

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

Technical Specs

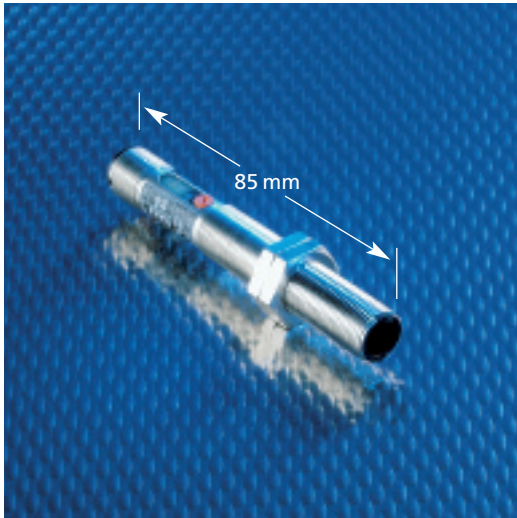
Operating voltage: 10...36 VDC
 Voltage drop: 2.5 V
 Supply current: < 12 mA
 Operating temperature: -13...158 °F (-25...70 °C)
 Housing material: stainless steel, PEEK
 Protection: IP65
 Switchpoint drift of Sr: ± 20 %
 Correction factors: water 1, glass 0.6, ceramics 0.5, PVC 0.4



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

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

Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195

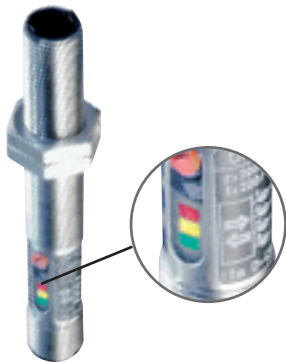


Top five product features!

- Industry standard 12mm 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 3Hz frequency.

Compact and reliable



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

Position

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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	OF 5027	\$106.00
		1...400 mm	LO/DO NPN	185 mm	35 mA	400 Hz	Infrared 880 nm	OF 5060	\$106.00
Polarized retro-reflective		200...800 mm	LO/DO PNP	70 mm	35 mA	400 Hz	Red light 660 nm	OF 5025	\$101.00
		200...800 mm	LO/DO NPN	70 mm	35 mA	400 Hz	Red light 660 nm	OF 5062	\$101.00
Thru-beam receiver		0...4 m	LO/DO PNP	–	30 mA	400 Hz	–	OF 5022	\$77.00
		0...4 m	LO/DO NPN	–	30 mA	400 Hz	–	OF 5053	\$77.00
Thru-beam transmitter		0...4 m	–	700 mm	25 mA		Infrared 880 nm	OF 5021	\$67.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Short swivel bracket for OF	E 20860	\$9.00
	Tall swivel bracket for OF	E 20856	\$10.00
	80 mm reflector	E 20005	\$6.00
	50 mm reflector	E 20956	\$7.00
	Swivel bracket with 80 mm reflector	E 20995	\$21.00
	Swivel bracket with 50 mm reflector	E 20997	\$14.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR, LED	EVC 007	\$12.75
	M12 Micro DC (4-pin) 5 m, PUR, LED	EVC 008	\$14.25

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

Technical Specs

Supply voltage: 10...36 VDC
 No. of wires: 3-wire (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



On-time delivery with accuracy
 Our goal in the ifm Distribution Center is to ensure uptime in your facility.

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

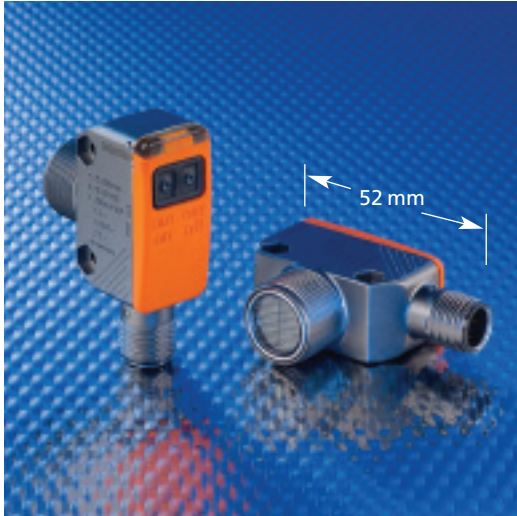
156 - 169

170 - 171

173 - 183

184 - 193

194 - 195



Top five product features!

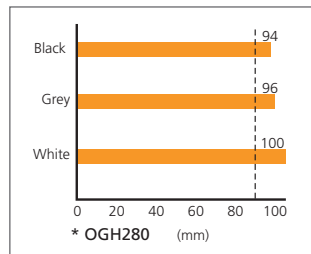
- Robust photoelectric resists mechanical damage
- Metal M18 mounting threads will not strip – eliminating a common problem with plastic threads
- Long sensing range in a small package offers more application flexibility
- Powerful visible red light source with large spot diameter enables easy alignment 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.

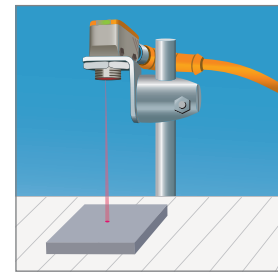


Reliable performance regardless of target color

* The 100 mm sensing range background suppression model is rated for $\pm 10\%$ 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.



Position

Company

Inductive

Cylinder position

Encoders

Capacitive

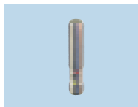
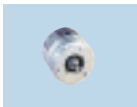
Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5

6 - 35

36 - 41

42 - 43

44 - 45

46 - 73

74 - 79

80 - 85

86 - 87

89 - 97





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	OGH 280	\$77.00
	100 mm	LO NPN	7 mm	25 mA	1000 Hz	Red light 624 nm	OGH 282	\$77.00
Diffuse background suppression	200 mm	LO PNP	13 mm	25 mA	1000 Hz	Red light 624 nm	OGH 281	\$77.00
	200 mm	LO NPN	13 mm	25 mA	1000 Hz	Red light 624 nm	OGH 283	\$77.00
Diffuse background suppression with pushbutton adjustment	15...200 mm	LO/DO PNP	13 mm	25 mA	1000 Hz	Red light 624 nm	OGH 580	\$81.00
	15...200 mm	LO/DO NPN	13 mm	25 mA	1000 Hz	Red light 624 nm	OGH 581	\$81.00
Polarized retro-reflective	0.1...4 m	DO PNP	160 mm	20 mA	1000 Hz	Red light 624 nm	OGP 280	\$71.00
	0.1...4 m	DO NPN	160 mm	20 mA	1000 Hz	Red light 624 nm	OGP 282	\$71.00
Thru-beam receiver	0...20 m	DO PNP	–	20 mA	1000 Hz	–	OGE 280	\$68.00
	0...20 m	DO NPN	–	20 mA	1000 Hz	–	OGE 282	\$68.00
Thru-beam transmitter	0...20 m	–	800 mm	20 mA	–	Red light 624 nm	OGS 280	\$60.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Extended rail bracket for OG sensor	UE 0002	\$11.50
	80 mm reflector	E 20005	\$6.00
	50 mm reflector	E 20956	\$7.00
	Extended rail bracket w/ 80 mm reflector	UE 0005	\$25.00
	Extended rail bracket w/ 50 mm reflector	UE 0004	\$20.50

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR, LED	EVC 007	\$12.75
	M12 Micro DC (4-pin) 5 m, PUR, LED	EVC 008	\$14.25

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

Technical Specs

Supply voltage: 10...30 VDC
 No. of wires: 3-wire (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

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

Fluids

Safety products

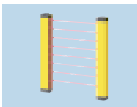
Pressure

Flow

Temperature

Level

Vibration



99 - 111



113 - 129



130 - 141



142 - 155



156 - 169



170 - 171

Networking

Cordset solutions

AS-i networking

Power supplies



173 - 183



184 - 193



194 - 195



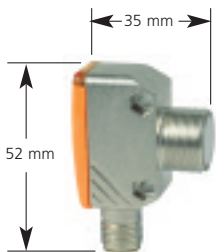
Top five product features!

- 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

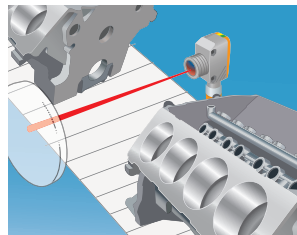
ifm's OG sensor is designed to provide reliable position detection in harsh industrial applications. The sensor's metal housing is more durable than traditional plastic housings that can wear or break over time.

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.

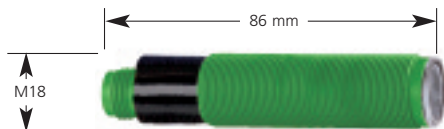


Smaller profile AC sensor

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

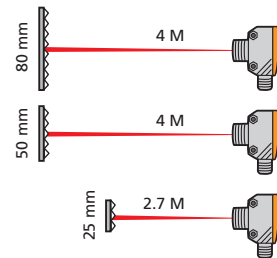


OG retro-reflective models contain a polarizing filter that eliminates false triggers from shiny targets.



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.



Position

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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	30 Hz	Red Light 633 nm	OGH 080*	\$87.00
	100 mm	DO	7 mm	5	30 Hz	Red Light 633 nm	OGH 081*	\$87.00
Polarized retro-reflective	0.1...4 m	DO	160 mm	5	30 Hz	Red Light 633 nm	OGP 080*	\$81.00
	0.1...4 m	LO	160 mm	5	30 Hz	Red Light 633 nm	OGP 081*	\$81.00
Thru-beam receiver	0...20 m	DO	160 mm	5	30 Hz	–	OGE 080*	\$78.00
	0...20 m	LO	160 mm	5	30 Hz	–	OGE 081*	\$78.00
Thru-beam transmitter	0...20 m	–	800 mm	5	–	Red Light 633 nm	OGS 080*	\$70.00

* Product available March, 2011

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Extended rail bracket for OG sensor	UE 0002	\$8.50
	80 mm reflector	E 20005	\$6.00
	50 mm reflector	E 20956	\$7.00
	Extended rail bracket w/ 80 mm reflector	UE 0005	\$22.00
	Extended rail bracket w/ 50 mm reflector	UE 0004	\$17.50

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	1/2" Micro AC (3-pin), 2m, TPE-S	E 18200	\$19.50
	1/2" Micro AC (3-pin), 5m, TPE-S	E 18201	\$22.50
	1/2" Micro AC (3-pin), 2m, TPE-S	E 18203	\$19.50
	1/2" Micro AC (3-pin), 5m, TPE-S	E 18204	\$22.50
	1/2" Micro AC, (3-pin), 5 m, PVC	E 18206	\$22.50
	1/2" Micro AC, (3-pin), 10 m, PVC	E 18207	\$27.50
	1/2" Micro AC, (3-pin), 5 m, PVC	E 18209	\$22.50
	1/2" Micro AC, (3-pin), 10 m, PVC	E 18210	\$27.50

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

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

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

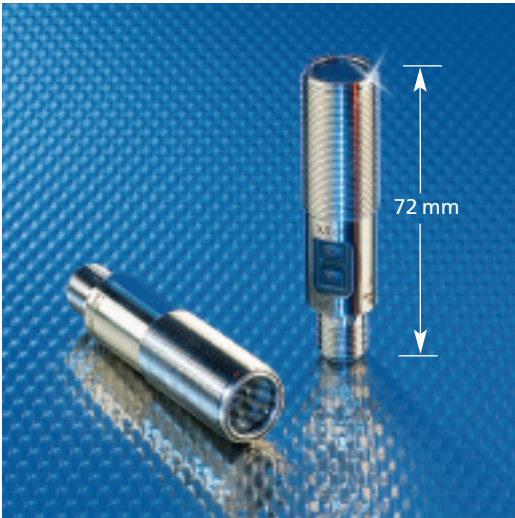
156 - 169

170 - 171

173 - 183

184 - 193

194 - 195

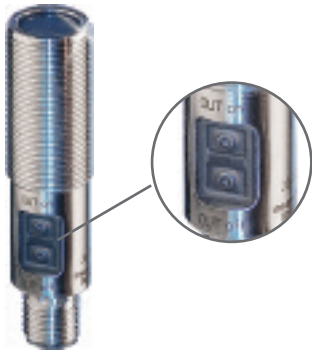


Top five product features!

- 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.





Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97






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	OGH 500	\$102.00
	15...300 mm	LO/DO NPN	25 mm	25 mA	1000 Hz	Red light 624 nm	OGH 502	\$102.00
Diffuse	2...800 mm	LO/DO PNP	66 mm	25 mA	2000 Hz	Red light 624 nm	OGT 500	\$98.00
Polarized retro-reflective	0.03...5 m	LO/DO PNP	200 mm	20 mA	2000 Hz	Red light 624 nm	OGP 500	\$98.00
	0.03...5 m	LO/DO NPN	200 mm	20 mA	2000 Hz	Red light 624 nm	OGP 503	\$98.00
Thru-beam receiver	0...25 m	LO/DO PNP	-	11 mA	1000 Hz	-	OGE 500	\$86.00
	0...25 m	LO/DO NPN	-	11 mA	1000 Hz	-	OGE 503	\$86.00
Thru-beam transmitter	0...25 m		1000 mm	20 mA		Red light 624 nm	OGS 500	\$70.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Short swivel bracket for OG, die cast zinc	E 20718	\$10.00
	Tall swivel bracket for OG, die cast zinc	E 20719	\$9.00
	80 mm reflector	E 20005	\$6.00
	50 mm reflector	E 20956	\$7.00
	Swivel bracket with 80 mm reflector	E 20995	\$21.00
	Swivel bracket with 50 mm reflector	E 20997	\$14.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR, LED	EVC 007	\$12.75
	M12 Micro DC (4-pin) 5 m, PUR, LED	EVC 008	\$14.25

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

Technical Specs

Supply voltage: 10...36 VDC
 No. of wires: 3-wire (OGS 500: 2-wire)
 Maximum load current: 200 mA (60°C) / 150 mA (80°C)
 Voltage drop: <2.5 V
 Leakage current: Negligible
 Connector: M12
 Housing material: 316 stainless steel, PA, LCP, EPDM, TPU
 Lens material: PMMA
 Operating temperature: -13...176°F (-25...80°C)
 Protection: IP67

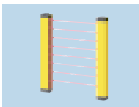







Reliable service center




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

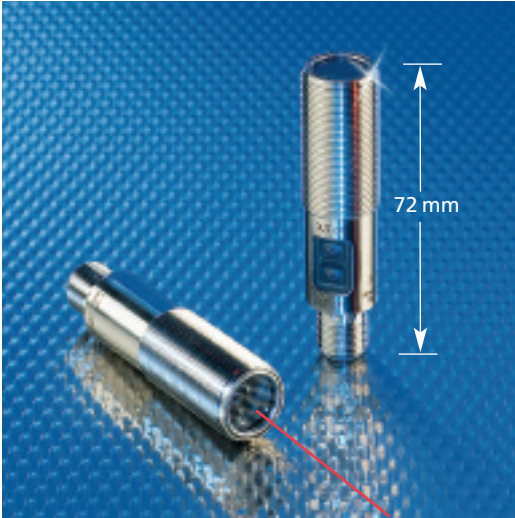
-  **Place orders, tech support**
800-441-8246
-  **Visit our product catalog**
www.ifm.com/us
-  **Shop for products online**
Easy ordering via eShop

Fluids

<i>Safety products</i>	<i>Pressure</i>	<i>Flow</i>	<i>Temperature</i>	<i>Level</i>	<i>Vibration</i>
					
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171

Networking

<i>Cordset solutions</i>	<i>AS-i networking</i>	<i>Power supplies</i>
		
173 - 183	184 - 193	194 - 195



Top five product features!

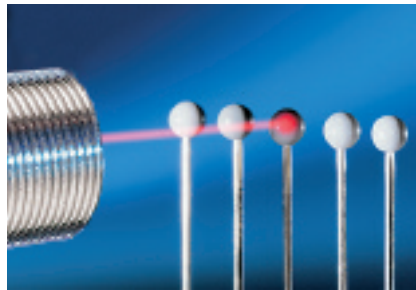
- Class 1 laser light source detects small objects and provides visual indication of beam alignment
- 316 stainless steel housing designed and tested to withstand industrial automation applications
- Extremely long sensing ranges for application flexibility
- Innovative two-pushbutton 'Teach Mode' offers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

Class 1 laser sensors detect small parts at long distances

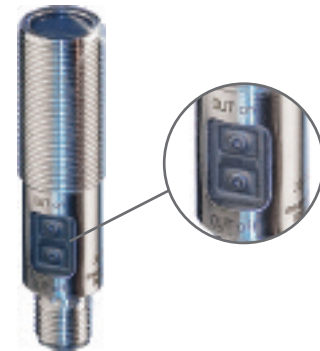
Laser sensors are used where detection of small objects or precise positioning is required. Laser light consists of light waves of a single wavelength, high in energy and power density because the waves are in phase with each other. This results in a tightly focused, almost parallel light beam that can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

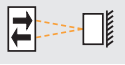

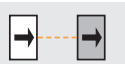
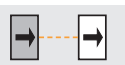
This cordset converts PNP outputs to NPN outputs.

Part no.: EVC 01E (5 meters)
List price (1-pc): \$17.00





Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97






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	OGH 700	\$230.00
Polarized retro-reflective 	0.2...15 m	LO/DO PNP	40 mm	15 mA	2000 Hz	Class 1 laser	OGP 700	\$228.00
	0.2...2 m	LO/DO PNP	5 mm	15 mA	2000 Hz	Class 1 laser	OGP 701	\$228.00
Thru-beam receiver 	0...60 m	LO/DO PNP	–	11 mA	1000 Hz	Class 1 laser	OGE 700	\$123.00
	0...2 m	LO/DO PNP	–	11 mA	1000 Hz	Class 1 laser	OGE 701	\$123.00
Thru-beam transmitter 	0...60 m	–	150 mm	13 mA	–	Class 1 laser	OGS 700	\$178.00
	0...2 m	–	5 mm	13 mA	–	Class 1 laser	OGS 701	\$178.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Fine adjust swivel bracket for OG laser	E 20987	\$41.00
	Rail mount package, fine adjust swivel bracket for OG laser	E 20868	\$50.00
	50 x 50 mm reflector	E 20722	\$13.00
	10 x 50 mm reflector	E 20988	\$14.00
	10 mm reflector	E 20990	\$10.00
	19 mm reflector	E 20993	\$10.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR, LED	EVC 007	\$12.75
	M12 Micro DC (4-pin) 5 m, PUR, LED	EVC 008	\$14.25

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

Technical Specs

Supply voltage: 10...36 VDC
 Light source: Red light 655nm
 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



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

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

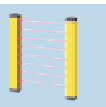
Vibration

Networking

Cordset solutions

AS-i networking

Power supplies



99 - 111



113 - 129



130 - 141



142 - 155



156 - 169



170 - 171



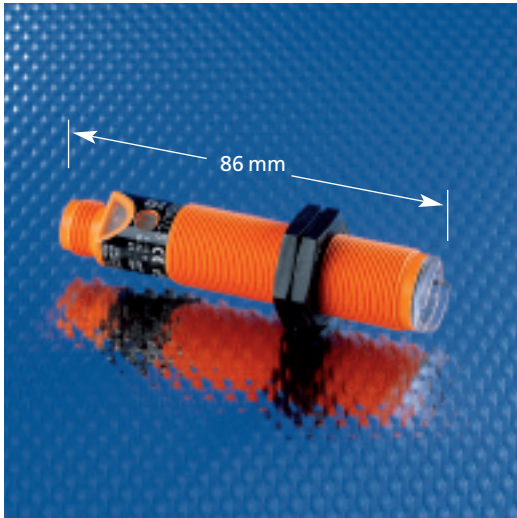
173 - 183



184 - 193



194 - 195



Top five product features!

- Industry standard 18mm 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 and an alarm output on certain models.

The pushbutton can be locked after calibration, reducing maintenance and service calls caused by tampering with the adjustment. It can also be unlocked if recalibration is necessary.



Mounting versatility



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

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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	OG 0035	\$90.00
		1...600 mm	DO	169 mm	5 mA	25 Hz	Infrared 880 nm	OG 0041	\$90.00
Polarized retro-reflective		0.1...3 m	LO	262 mm	5 mA	25 Hz	Red light 660 nm	OG 0044	\$90.00
		0.1...3 m	DO	262 mm	5 mA	25 Hz	Red light 660 nm	OG 0033	\$90.00
Thru-beam receiver		0...15 m	LO	–	5 mA	25 Hz	–	OG 0031	\$78.00
		0...15 m	DO	–	5 mA	25 Hz	–	OG 0039	\$78.00
Thru-beam transmitter		0...15 m	–	2000 mm	5 mA	25 Hz	Infrared 880 nm	OG 0030	\$62.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Short swivel bracket for OG, die cast zinc	E 20718	\$10.00
	Tall swivel bracket for OG, die-cast zinc	E 20719	\$9.00
	80 mm reflector	E 20005	\$6.00
	50 mm reflector	E 20956	\$7.00
	Swivel bracket with 80 mm reflector	E 20995	\$21.00
	Swivel bracket with 50 mm reflector	E 20997	\$14.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	1/2" Micro AC (3-pin), 2m, TPE-S	E 18200	\$19.50
	1/2" Micro AC (3-pin), 5m, TPE-S	E 18201	\$22.50
	1/2" Micro AC (3-pin), 2m, TPE-S	E 18203	\$19.50
	1/2" Micro AC (3-pin), 5m, TPE-S	E 18204	\$22.50
	1/2" Micro AC, (3-pin), 5 m, PVC	E 18206	\$22.50
	1/2" Micro AC, (3-pin), 10 m, PVC	E 18207	\$27.50
	1/2" Micro AC, (3-pin), 5 m, PVC	E 18209	\$22.50
	1/2" Micro AC, (3-pin), 10 m, PVC	E 18210	\$27.50

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

Technical Specs

Supply voltage: 20...250 V AC/DC
 No. of wires: 2-wire
 Maximum load current: 180 mA
 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



On-time delivery with accuracy
 Our goal in the ifm Distribution Center is to ensure uptime in your facility.

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

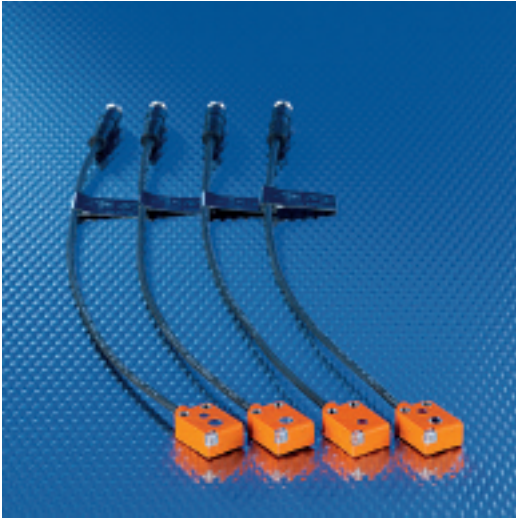
156 - 169

170 - 171

173 - 183

184 - 193

194 - 195



Top five product features!

- Visible red light for an easy alignment and setup
- Ideal for position detection in part feeding and material handling applications
- Small light spot and narrow light cone for detecting small objects
- Thru-beam, retro-reflective and diffuse reflection sensors with fixed sensing ranges for quick setup
- Diffuse reflective sensors with precise background suppression

Powerful photoelectric in a miniature housing

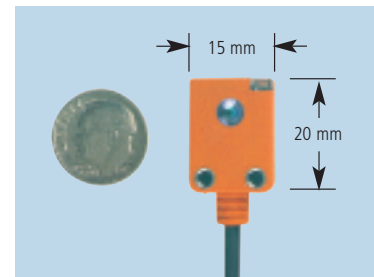
The O7 Series of photoelectric sensors are specifically designed for small part detection or when there is minimal mounting space for sensors. Typical applications are part feeding and material handling technologies. The sensor's small light spot and the narrow light cone enable the detection of small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

Fixed sensing ranges enable quick setup

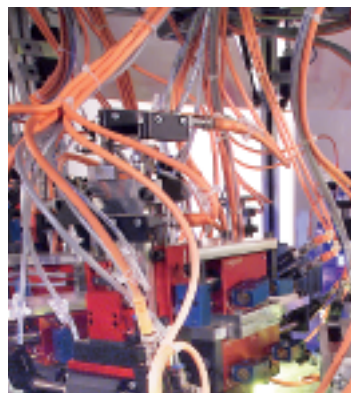
Fixed sensing ranges make the sensors plug-and-play and ready for operation immediately after installation. Visible red light allows fast and simple alignment.

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

Miniature sensor mounts in tight areas



Ideal for position detection in part feeding and material handling applications



Position										
Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors	
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97	



Product + accessory selector

Function		Range	Output	Spot Ø at max range	Supply Current	Switching Frequency	Light Source	Part No.	List Price (1-pc.)
Diffuse background suppression		1...30 mm	LO PNP	2.5 mm	20 mA	750 Hz	red light 633 nm	O7H 200	\$94.00
		1...30 mm	DO PNP	2.5 mm	20 mA	750 Hz	red light 633 nm	O7H 201	\$94.00
Diffuse background suppression		1...30 mm	LO NPN	2.5 mm	20 mA	750 Hz	red light 633 nm	O7H 206	\$94.00
		1...30 mm	DO NPN	2.5 mm	20 mA	750 Hz	red light 633 nm	O7H 207	\$94.00
Diffuse background suppression		0...50 mm	LO PNP	2.5 mm	20 mA	750 Hz	red light 633 nm	O7H 202	\$94.00
		0...50 mm	DO PNP	2.5 mm	20 mA	750 Hz	red light 633 nm	O7H 203	\$94.00
Diffuse background suppression		0...50 mm	LO NPN	2.5 mm	20 mA	750 Hz	red light 633 nm	O7H 208	\$94.00
		0...50 mm	DO NPN	2.5 mm	20 mA	750 Hz	red light 633 nm	O7H 209	\$94.00
Diffuse background suppression		0...100 mm	LO PNP	7 mm	20 mA	750 Hz	red light 633 nm	O7H 204	\$94.00
		0...100 mm	DO PNP	7 mm	20 mA	750 Hz	red light 633 nm	O7H 205	\$94.00
Diffuse background suppression		0...100 mm	LO NPN	7 mm	20 mA	750 Hz	red light 633 nm	O7H 210	\$94.00
		0...100 mm	DO NPN	7 mm	20 mA	750 Hz	red light 633 nm	O7H 211	\$94.00
Polarized retro-reflective		0.03...1 m	DO PNP	55 mm	20 mA	1000 Hz	red light 633 nm	O7P 200	\$90.00
		0.03...1 m	LO PNP	55 mm	20 mA	1000 Hz	red light 633 nm	O7P 201	\$90.00
Polarized retro-reflective		0.03...1 m	DO NPN	55 mm	20 mA	1000 Hz	red light 633 nm	O7P 202	\$90.00
		0.03...1 m	LO NPN	55 mm	20 mA	1000 Hz	red light 633 nm	O7P 203	\$90.00
Thru-beam receiver		0...1.5 m	DO PNP	–	10 mA	1000 Hz	red light 633 nm	O7E 200	\$78.00
		0...1.5 m	LO PNP	–	10 mA	1000 Hz	red light 633 nm	O7E 201	\$78.00
Thru-beam receiver		0...1.5 m	DO NPN	–	10 mA	1000 Hz	red light 633 nm	O7E 202	\$78.00
		0...1.5 m	LO NPN	–	10 mA	1000 Hz	red light 633 nm	O7E 203	\$78.00
Thru-beam transmitter		0...1.5 m	–	90 mm	20 mA	–	red light 633 nm	O7S 200	\$62.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting set for clamp mounting, stainless steel (requires mounting rod below)	E21237	\$18.00
	Mounting rod, 120 mm M8 thread, Ø 10mm, stainless steel	E21081	\$11.00
	Mounting set with ball joint, galvanized, stainless steel	E 21240	\$10.00
	25 mm reflector	E 20953	\$6.00
	50 mm reflector	E 20956	\$7.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico (3-pin) 2 m, PUR cable	EVC 141	\$11.95
	M8 Pico (3-pin) 5 m, PUR cable	EVC 142	\$14.95
	M8 Pico (3-pin) 2 m, PUR cable	EVC 144	\$11.95
	M8 Pico (3-pin) 5 m, PUR cable	EVC 145	\$14.95

Technical Specs

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

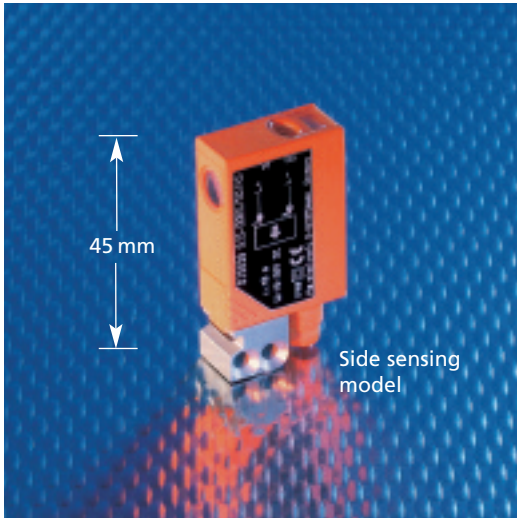
156 - 169

170 - 171

173 - 183

184 - 193

194 - 195



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 μ s 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.

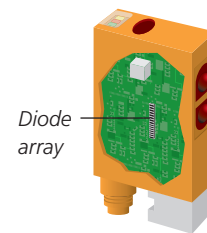
An advanced microprocessor provides powerful signal processing and analysis capabilities. This enables the OJ to learn the characteristics of both the target and the background in a specific application.

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.

Company	Position									
	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors	
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97	



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	OJ 5048	\$84.00
	15...400 mm	LO/DO NPN	48 mm	21 mA	1000 Hz	Red light 660 nm	OJ 5049	\$84.00
Diffuse	1...600 mm	LO/DO PNP	60 mm	22 mA	2000 Hz	Red light 660 nm	OJ 5022	\$84.00
	1...600 mm	LO/DO NPN	60 mm	22 mA	2000 Hz	Red light 660 nm	OJ 5023	\$84.00
	1...1000 mm	LO/DO PNP	150 mm	32 mA	2000 Hz	Infrared 880 nm	OJ 5071	\$84.00
Polarized retro-reflective	0...2 m	LO/DO PNP	64 mm	22 mA	2000 Hz	Red light 660 nm	OJ 5026	\$84.00
	0...2 m	LO/DO NPN	64 mm	22 mA	2000 Hz	Red light 660 nm	OJ 5027	\$84.00
Thru-beam receiver	0...10 m	LO/DO PNP	–	12 mA	1200 Hz	–	OJ 5031	\$64.00
	0...10 m	LO/DO NPN	–	12 mA	1200 Hz	–	OJ 5032	\$64.00
Thru-beam transmitter	0...10 m		1000 mm	19 mA		Red light 660 nm	OJ 5030	\$48.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Ball and socket bracket	E 20974	\$11.00
	Swivel bracket for side sensing OJ	E 20968	\$14.00
	80 mm reflector	E 20005	\$6.00
	50 mm reflector	E 20956	\$7.00
	Swivel bracket with 80 mm reflector	E 20995	\$21.00
	Swivel bracket with 50 mm reflector	E 20997	\$14.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (4-pin) 2 m, PUR	EVC 150	\$12.95
	M8 Pico DC (4-pin) 5 m, PUR	EVC 151	\$15.95
	M8 Pico DC (4-pin) 2 m, PUR	EVC 153	\$12.95
	M8 Pico DC (4-pin) 5 m, PUR	EVC 154	\$15.95



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

Technical Specs

Supply voltage: 10...30 VDC
 No. of wires: 3-wire (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 (OJ 5048 and OJ 5049: 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.

Place orders, tech support
800-441-8246

Visit our product catalog
www.ifm.com/us

Shop for products online
Easy ordering via eShop

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

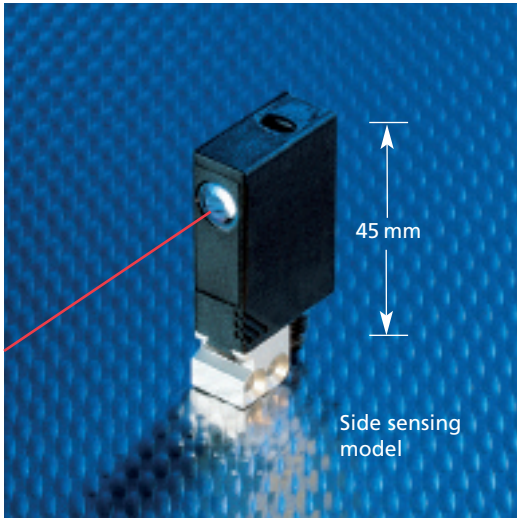
156 - 169

170 - 171

173 - 183

184 - 193

194 - 195



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.

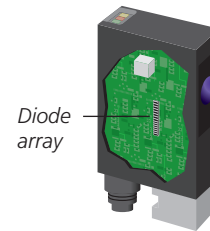
An advanced microprocessor provides powerful signal processing and analysis capabilities. This enables the OJ to learn the characteristics of both the target and the background in a specific application.

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.

Position

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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	OJ 5058	\$208.00
Diffuse background suppression	15...200 mm	LO/DO, PNP	1000 Hz	1 x 2 mm	13 mA	Class 1 Laser	OJ 5054	\$208.00
	15...200 mm	LO/DO, NPN	1000 Hz	1 x 2 mm	13 mA	Class 1 Laser	OJ 5055	\$208.00
Polarized retro-reflective	0...8 m	LO/DO, PNP	2000 Hz	12 mm	15 mA	Class 1 Laser	OJ 5036	\$185.00
Thru-beam receiver	0...1 m	LO/DO, PNP	1200 Hz	–	12 mA	Class 1 Laser	OJ 5042	\$87.00
Thru-beam transmitter	0...1 m	–	–	4 mm	12 mA	Class 1 Laser	OJ 5041	\$140.00
Thru-beam receiver	0...15 m	LO/DO, PNP	1200 Hz	–	12 mA	Class 1 Laser	OJ 5039	\$87.00
Thru-beam transmitter	0...15 m	–	–	24 mm	12 mA	Class 1 Laser	OJ 5038	\$140.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Fine adjust bracket for OJ sensor	E 20976	\$24.00
	Ball and socket bracket for OJ	E 20974	\$11.00
	50 x 50 mm reflector	E 20722	\$13.00
	10 x 50 mm reflector	E 20988	\$14.00
	10 mm reflector	E 20990	\$10.00
	19 mm reflector	E 20993	\$10.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (4-pin) 2 m, PUR	EVC 150	\$12.95
	M8 Pico DC (4-pin) 5 m, PUR	EVC 151	\$15.95
	M8 Pico DC (4-pin) 2 m, PUR	EVC 153	\$12.95
	M8 Pico DC (4-pin) 5 m, PUR	EVC 154	\$15.95

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

Technical Specs

Lens material: Glass (OJ 5054, OJ 5055, OJ 5058: PMMA)
 Light source: Red light, 650 nm
 Housing material: ABS, Fixture: die cast zinc
 LED window: SEPS
 Push button: SEPS
 Supply voltage: 10...30 V DC
 Max Load current: 200 mA
 Voltage drop: <2.5 V
 Leakage current: negligible
 Operating temperature: 14...140 °F (-10...60 °C)
 Protection: IP67

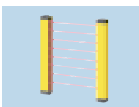
Simple and comprehensive website

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

Fluids

Safety products



99 - 111

Pressure



113 - 129

Flow



130 - 141

Temperature



142 - 155

Level



156 - 169

Vibration



170 - 171

Networking

Cordset solutions



173 - 183

AS-i networking

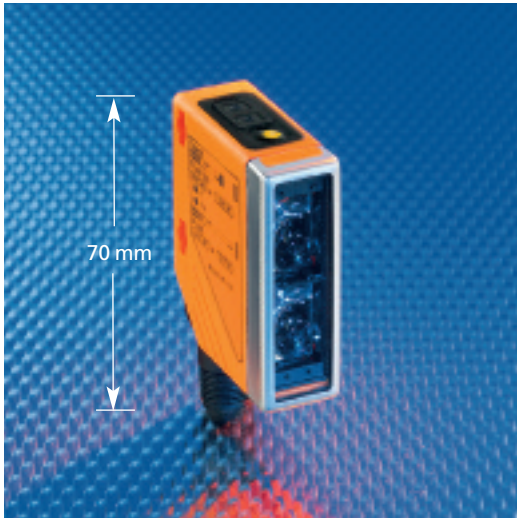


184 - 193

Power supplies



194 - 195



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.



Actual size

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.

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.

Position

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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	O5H 500	\$102.00
		50...1800 mm	LO/DO NPN	90 mm	25 mA	1000 Hz	Red light 624 nm	O5H 504	\$102.00
Polarized retro-reflective		0.075...10 m	LO/DO PNP	250 mm	20 mA	2000 Hz	Red light 624 nm	O5P 500	\$92.00
		0.075...10 m	LO/DO NPN	250 mm	20 mA	2000 Hz	Red light 624 nm	O5P 502	\$92.00
Thru-beam receiver		0...25 m	LO/DO PNP	–	11 mA	1000 Hz	–	O5E 500	\$86.00
		0...25 m	LO/DO NPN	–	11 mA	1000 Hz	–	O5E 502	\$86.00
Thru-beam transmitter		0...25 m	–	625 mm	20 mA	–	Red light 624 nm	O5S 500	\$79.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Short swivel bracket for rod with clamp	E 21083	\$9.00
	Freestanding mounting bracket	E 21087	\$12.00
	80 mm reflector	E 20005	\$6.00
	50 mm reflector	E 20956	\$7.00
	Swivel bracket with 80 mm reflector	E 20995	\$21.00
	Swivel bracket with 50 mm reflector	E 20997	\$14.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR, LED	EVC 007	\$12.75
	M12 Micro DC (4-pin) 5 m, PUR, LED	EVC 008	\$14.25

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

Technical Specs

Supply voltage: 10...36 V DC
 No. of wires: 3-wire (O5S 500: 2-wire)
 Maximum load current: 200 mA
 Voltage drop: <2.5 V
 Leakage current: Negligible
 Connector: M12
 Housing material: PA, stainless steel, TPU
 Lens material: PMMA
 Operating temperature: -13...140 °F (-25...60 °C)
 Protection: IP67



Reliable service center

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

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

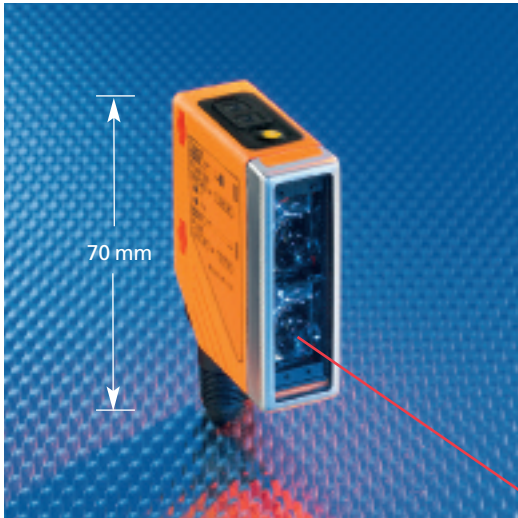
156 - 169

170 - 171

173 - 183

184 - 193

194 - 195

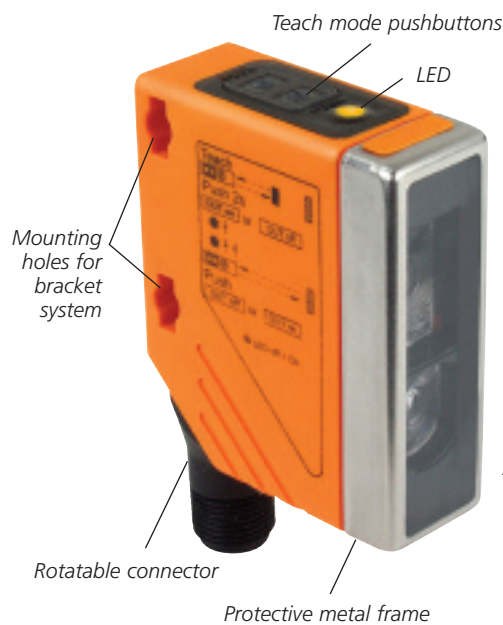


Top five product features!

- Class 1 laser light source provides precise alignment and simplifies adjustment
- Extremely long sensing ranges – 15 meters for polarized models; 60 meters for thru-beam pairs
- Innovative two-pushbutton 'Teach mode' simplifies setup procedure
- 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

Compact and powerful laser sensor

ifm's O5 laser sensors can detect objects with diameters as small as 1.5 mm. They are listed as FDA Class 1 laser products and comply with the international standard IEC60825 and European standard EN60825.



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 200 mm 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

Various mounting options



Swivel bracket with rod
Metal prongs are inserted into the side of the sensor for a secure fit. The sensor can be rotated in multiple directions to suit the application.



Freestanding mounting bracket
The sensor bracket is bolted to a surface to provide freestanding mounting. The metal plate protects the sensor from damage.

For more mounting options, visit www.ifm.com/us



PNP to NPN converter cordset



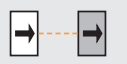
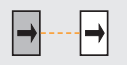
This cordset converts PNP outputs to NPN outputs.
Part no.: EVC 01E (5 meters)
List price (1-pc): \$17.00

Position





Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97





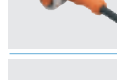
Product + accessory selector


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	O5H 700	\$243.00
Polarized retro-reflective 	0...15 m	LO/DO PNP	40 mm	15 mA	2000 Hz	Class 1 laser	O5P 700	\$237.00
Thru-beam receiver 	0...60 m	LO/DO PNP	–	11 mA	1000 Hz	–	O5E 700	\$134.00
Thru-beam transmitter 	0...60 m	–	150 mm	13 mA	–	Class 1 laser	O5S 700	\$191.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Short swivel bracket for rod with clamp	E 21083	\$9.00
	Freestanding mounting bracket	E 21087	\$12.00
	80 mm reflector	E 20005	\$6.00
	50 mm reflector	E 20956	\$7.00
	Swivel bracket with 80 mm reflector	E 20995	\$21.00
	Swivel bracket with 50 mm reflector	E 20997	\$14.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR, LED	EVC 007	\$12.75
	M12 Micro DC (4-pin) 5 m, PUR, LED	EVC 008	\$14.25

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

Technical Specs

Supply voltage: 10...36 V DC
 Light source: Red light 655nm
 No. of wires: 3-wire (O5S 700: 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: 14...140 °F (-10...60 °C)
 Protection: IP67



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

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

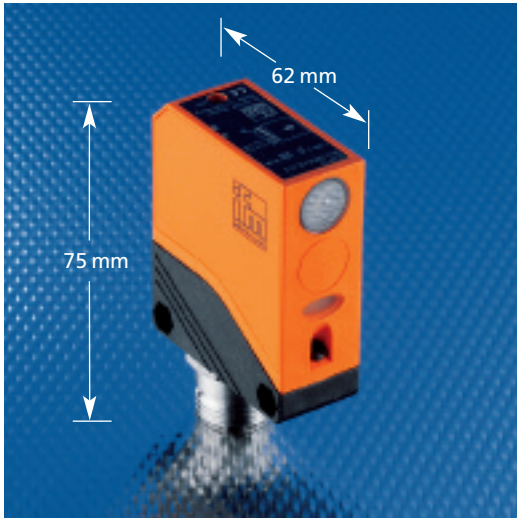
156 - 169

170 - 171

173 - 183

184 - 193

194 - 195



Top five product features!

- Corrosion-resistant plastic housing withstands harsh industrial automation applications
- Three highly-visible three-LED display indicates power, output and marginal signal
- Additional output LED on sensing face assists with alignment
- Sensitivity is automatically calibrated to provide maximum safety margin
- SPST relay output to switch higher load current

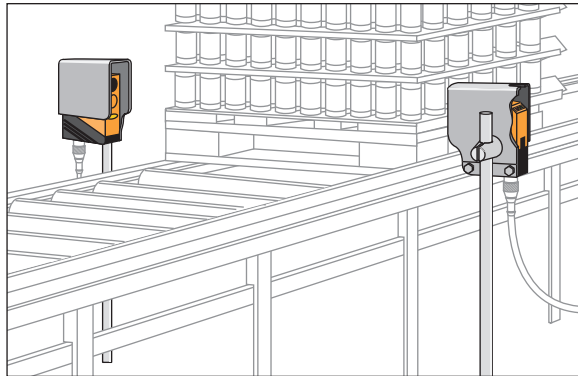
Automatic setup and long sensing range



The microprocessor allows the OL 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.

Pallet sensing using OL thru-beam pair

Other application solutions include part sensing on pallets, zone detection on conveyors, jam detection and traffic control.



Armor mounting



Stainless steel mounting brackets protect the sensor from potential damage on conveyors. These innovative mounting brackets rotate 360° in each of two axes, providing quick and easy setup.

Position

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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...800 mm	LO/DO SPST	80 mm	4 mA	10 Hz	Infrared 880 nm	OL 0014	\$102.00
Polarized retro-reflective		0.3...5 m	LO/DO SPST	250 mm	4 mA	10 Hz	Red light 660 nm	OL 0010	\$102.00
Thru-beam receiver		0...25 m	LO/DO SPST	–	4 mA	10 Hz	–	OL 0013	\$110.00
Thru-beam transmitter		0...25 m	–	2000 mm	–	–	Infrared 880 nm	OL 0012	\$86.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Swivel bracket for OL	E 20792	\$12.00
	Protective swivel bracket for OL	E 20793	\$15.00
	80 mm reflector	E 20005	\$6.00
	50 mm reflector	E 20956	\$7.00
	Swivel bracket with 80 mm reflector	E 20995	\$21.00
	Swivel bracket with 50 mm reflector	E 20997	\$14.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	7/8" Mini (5-pin) 2m, PVC cable	W 80654	\$28.50
	7/8" Mini (5-pin) 4m, PVC cable	W 80655	\$40.50

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

Technical Specs

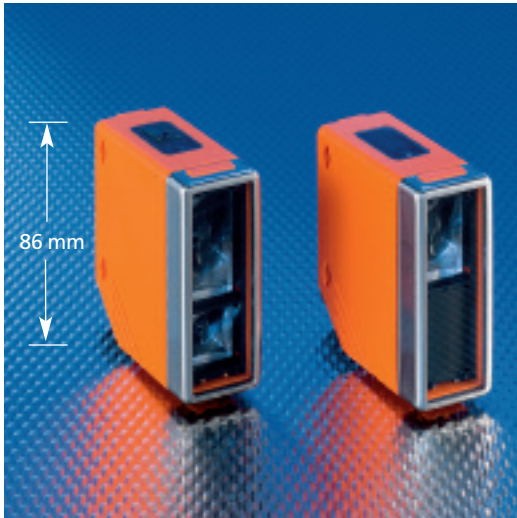
Supply voltage: 20...250 V AC/DC
 No. of wires: 5-wire (OL0012: 2-wire)
 Maximum load current: 3 A @ 250 V AC, 5 A @ 125 V DC
 Leakage current: Negligible
 Connector: 7/8"
 Housing material: PA, PBT
 Lens material: PMMA
 Operating temperature: -13...176 °F (-25...80 °C)
 Protection: IP67



On-time delivery with accuracy
 Our goal in the ifm Distribution Center is to ensure uptime in your facility.

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

Fluids						Networking		
<i>Safety products</i>	<i>Pressure</i>	<i>Flow</i>	<i>Temperature</i>	<i>Level</i>	<i>Vibration</i>	<i>Cordset solutions</i>	<i>AS-i networking</i>	<i>Power supplies</i>
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



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 tests.

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.: EVC 01E (5 meters)
List price (1-pc): \$17.00

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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	O4H 500	\$105.00
Polarized retro-reflective	0.3...22 m	LO/DO PNP	660 mm	20 mA	2000 Hz	Red light 624 nm	O4P 500	\$97.00
Thru-beam receiver	0...80 m	LO/DO PNP	–	12 mA	1000 Hz	–	O4E 500	\$85.00
Thru-beam transmitter	0...80 m	–	2400 mm	20 mA	–	Red light 624 nm	O4S 500	\$77.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Swivel bracket	E 21118	\$19.00
	Protective bracket	E 21119	\$33.00
	80 mm reflector	E 20005	\$6.00
	50 mm reflector	E 20956	\$7.00
	Swivel bracket with 80 mm reflector	E 20995	\$21.00
	Swivel bracket with 50 mm reflector	E 20997	\$14.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR, LED	EVC 007	\$12.75
	M12 Micro DC (4-pin) 5 m, PUR, LED	EVC 008	\$14.25

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

Technical Specs

Supply voltage	10...36 V DC
No. of wires	3-wire (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

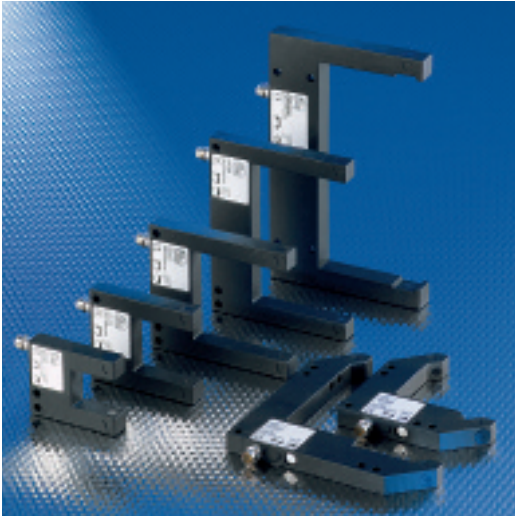
ifm R&D engineers design products that reduce machine downtime, increase productivity and simplify installation.

Place orders, tech support
800-441-8246

Visit our product catalog
www.ifm.com/us

Shop for products online
Easy ordering via eShop

Fluids						Networking		
<i>Safety products</i>	<i>Pressure</i>	<i>Flow</i>	<i>Temperature</i>	<i>Level</i>	<i>Vibration</i>	<i>Cordset solutions</i>	<i>AS-i networking</i>	<i>Power supplies</i>
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



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

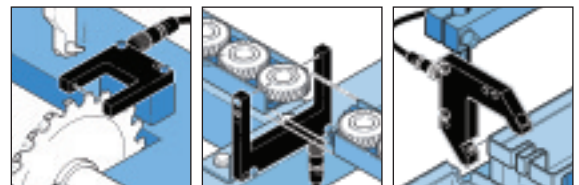
ifm's optical fork and angle sensors offer a flexible solution for a broad range of packaging and material handling applications. Unlike traditional thru-beam photoelectric sensor pairs, ifm's fork and angle sensors offer a one-piece, fixed-distance transmitter and receiver design. This design eliminates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



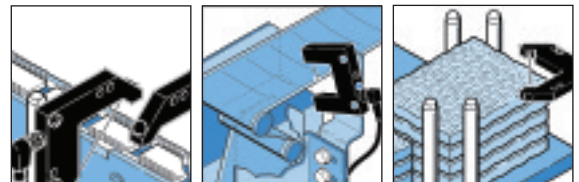
Application solutions



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

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5



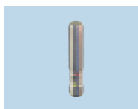
6 - 35



36 - 41



42 - 43



44 - 45



46 - 73



74 - 79



80 - 85



86 - 87



89 - 97



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								
	10 mm	17 mm	LO / DO, PNP / NPN	0.3 mm	Red light 880 nm	10000 Hz	OPU 200	\$129.00
	20 mm	25 mm	LO / DO, PNP	0.4 mm	Red light 660 nm	4000 Hz	OPU 201	\$140.00
	30 mm	35 mm	LO / DO, PNP	0.5 mm	Red light 660 nm	4000 Hz	OPU 202	\$160.00
	50 mm	55 mm	LO / DO, PNP	0.5 mm	Red light 660 nm	4000 Hz	OPU 203	\$170.00
	80 mm	55 mm	LO / DO, PNP	0.5 mm	Red light 660 nm	4000 Hz	OPU 204	\$186.00
	120 mm	60 mm	LO / DO, PNP	0.8 mm	Red light 660 nm	2000 Hz	OPU 205	\$191.00

Class 2 Laser

	30 mm	30 mm	LO / DO, PNP	0.05 mm	Class 2 laser, Red light 670 nm	3000 Hz	OPU 700	\$253.00
	50 mm	50 mm	LO / DO, PNP	0.05 mm	Class 2 laser, Red light 670 nm	3000 Hz	OPU 701	\$263.00
	80 mm	50 mm	LO / DO, PNP	0.05 mm	Class 2 laser, Red light 670 nm	3000 Hz	OPU 702	\$284.00

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	OPL 200	\$181.00
	80 mm	100 mm	LO / DO, PNP	0.7 mm	Red light	4000 Hz	OPL 201	\$196.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico (3-pin) 2 m, PUR cable	EVC 141	\$11.95
	M8 Pico (3-pin) 5 m, PUR cable	EVC 142	\$14.95
	M8 Pico (3-pin) 2 m, PUR cable	EVC 144	\$11.95
	M8 Pico (3-pin) 5 m, PUR cable	EVC 145	\$14.95

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

Technical Specs

Operating voltage: 10...35 V DC
 Laser: 10...30 V DC

Short-circuit protection, pulsed: yes

Reverse polarity / overload protection: yes / yes

Operating temperature: -13...140 °F (-25...60 °C)
 Laser: 5...45 °C

Current rating: 200 mA

Protection: IP67

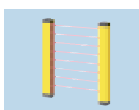
Housing material: Diecast zinc

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

Safety products



99 - 111

Fluids

Pressure



113 - 129

Flow



130 - 141

Temperature



142 - 155

Level



156 - 169

Vibration



170 - 171

Networking

Cordset solutions



173 - 183

AS-i networking

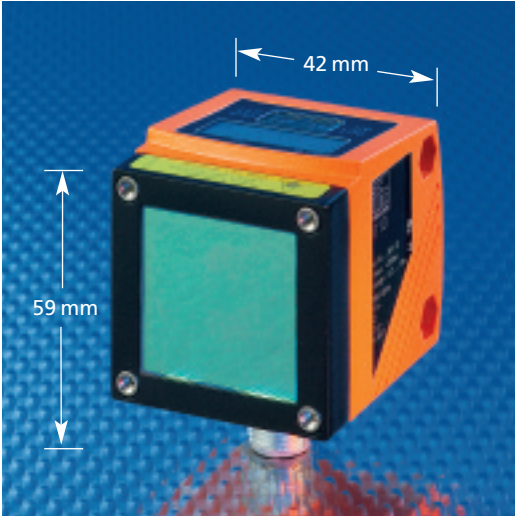


184 - 193

Power supplies



194 - 195



Top five product features!

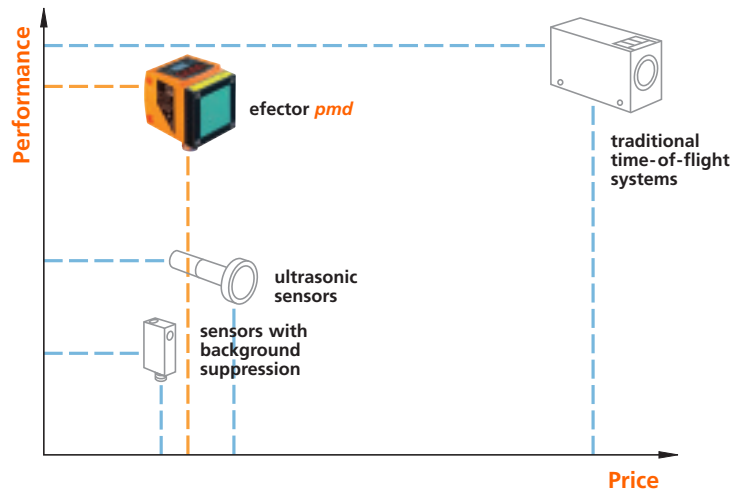
- Right balance of performance, size and price for distance measurement applications
- Photoelectric is ideal for long-range background suppression applications
- Simple pushbutton setup quickly establishes parameters
- Large 4-digit alphanumeric display indicates measured distance
- Multiple setpoints: single switching, dual switching or switching and analog output

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.



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.

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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	O1D 100	\$376.00
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	O1D 103	\$376.00
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	O1D 155	\$376.00
Distance measurement sensor	1...75 m (requires reflector)	4-20 mA / 0-10 VDC PNP	150 mm	2 x 200 mA	1...33 Hz	Class 2 laser Red light 650 nm	O1D 106	\$402.00
Distance measurement sensor	0.2...10 m	LO/DO PNP	6 mm	150 mA	5 Hz	Class 2 laser Red light 650 nm	O1D 101	\$351.00
Distance measurement sensor	0.2...10 m	LO/DO NPN	6 mm	150 mA	5 Hz	Class 2 laser Red light 650 nm	O1D 104	\$351.00
Level measurement sensor	1...10 m	4-20 mA / 0-10 VDC PNP	6 mm	2 x 200 mA	1...33 Hz	Class 2 laser Red light 650 nm	O1D 300	\$376.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Rail mount swivel bracket for O1D	E 21079	\$49.00
	Plastic cover for O1D	E 21133	\$27.00
	95 x 95 mm reflector (for O1D106)	E 20454	\$21.00
	226 x 262 mm reflector (for O1D106)	E 21159	\$182.00

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

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR, LED	EVC 007	\$12.75
	M12 Micro DC (4-pin) 5 m, PUR, LED	EVC 008	\$14.25

Technical Specs

Supply voltage: O1D100, O1D103, O1D106, O1D155 and O1D300: 18...30 V DC; O1D101 and O1D104: 10...30 V DC
 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



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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

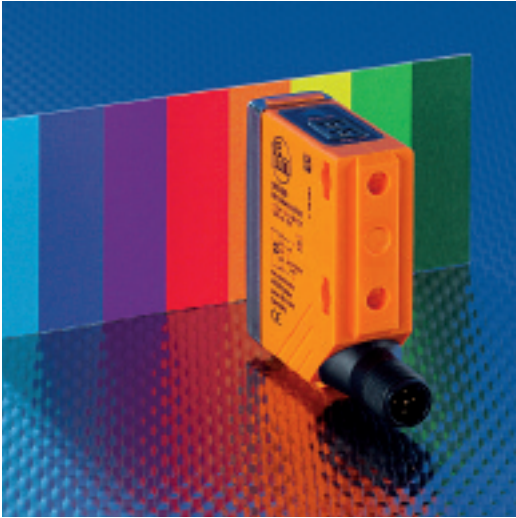
156 - 169

170 - 171

173 - 183

184 - 193

194 - 195



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

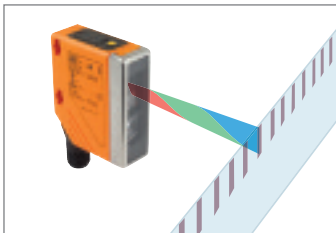
O5 contrast and color photoelectric sensors



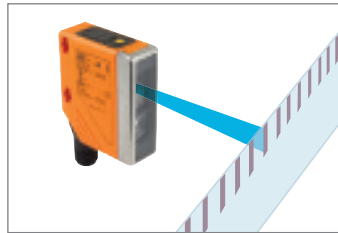
ifm's high performance O5 Series Contrast and Color sensors offer a variety of sensing solutions for the packaging, assembly, material handling and printing industries.

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

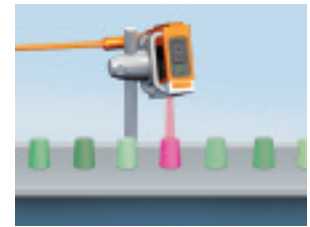


The Contrast Sensor's visible light processes through red, green and blue to identify the best color for contrast.

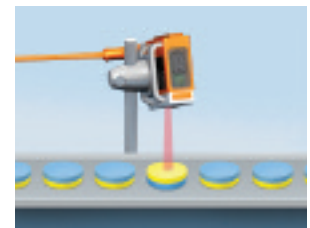


In this example, the sensor selects blue for the highest contrast color. The sensor's high switching frequency can handle the application's short mark-to-space ratio.

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.

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97










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	O5K 500	\$181.00
Color sensor 	15...19 mm	LO/DO PNP/NPN	2.5 x 6 mm	200 mA	2000 Hz	RGB	O5C 500	\$335.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Short swivel bracket for rod with clamp	E 21083	\$9.00
	Freestanding mounting bracket	E 21087	\$12.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR, LED	EVC 007	\$12.75
	M12 Micro DC (4-pin) 5 m, PUR, LED	EVC 008	\$14.25

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

Technical Specs

Type of light: Red light 625 nm
Green light 525 nm
Blue light 465 nm

Supply voltage: 10...36 V DC

No. of wires: 3-wire

Maximum load current: 200 mA

Voltage drop: <2.5 V

Leakage current: Negligible

Connector: M12

Housing material: PA, stainless steel, TPU/PC

Lens material: PMMA

Operating temperature: -13...140 °F (-25...60 °C)

Protection: IP67



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

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

Fluids

Safety products

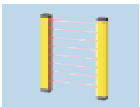
Pressure

Flow

Temperature

Level

Vibration



99 - 111



113 - 129



130 - 141



142 - 155



156 - 169



170 - 171

Networking

Cordset solutions

AS-i networking

Power supplies



173 - 183



184 - 193



194 - 195



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

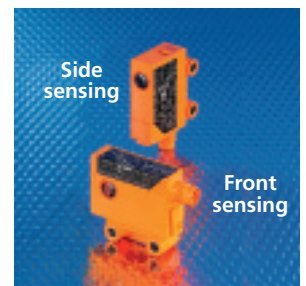
ifm’s OJ Series retroreflective sensor offers a low switching hysteresis specifically for the detection of transparent objects. The sensors incorporate an innovative technology that allows the sensitivity to be automatically set using an easy-to-use teach function. The teach function eliminates the need 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.







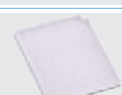
Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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	\$126.00	
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 PNP	2000	< 22	front	OJ 5185	\$121.00
		M8	LO PNP	2000	< 22	side	OJ 5186	\$121.00

Optional Accessories



Type	Description	Part No.	List Price (1-pc.)
	O5 Sensor swivel bracket for rod Complete set includes clamp	E 21083	\$9.00
	O5 Sensor protective bracket for rod Complete set includes clamp	E 21084	\$14.00
	O5 Sensor freestanding mounting bracket	E 21087	\$12.00
	OJ Sensor stainless steel clip	E 20965	\$20.00
	OJ sensor swivel bracket for front sensing OJ, die-cast zinc	E 20966	\$13.00
	OJ sensor swivel bracket for side sensing OJ, die-cast zinc	E 20968	\$14.00
	50 x 50 mm reflector	E 20722	\$13.00
	95 x 95 mm reflector	E 20454	\$21.00


*3 m range with E20454 reflector

Cordsets for O5 Sensors

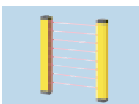
Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75

Cordsets for OJ Sensors

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (4-pin) 2 m, PUR	EVC 150	\$12.95
	M8 Pico DC (4-pin) 5 m, PUR	EVC 151	\$15.95
	M8 Pico DC (4-pin) 5 m, PUR	EVC 154	\$15.95
	M8 Pico DC (4-pin) 10 m, PUR	EVC 155	\$21.50

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

Safety products



99 - 111

Fluids

Pressure



113 - 129

Flow



130 - 141

Temperature



142 - 155

Level



156 - 169

Vibration



170 - 171

Networking

Cordset solutions



173 - 183

AS-i networking



184 - 193

Power supplies



194 - 195



Top five product features!

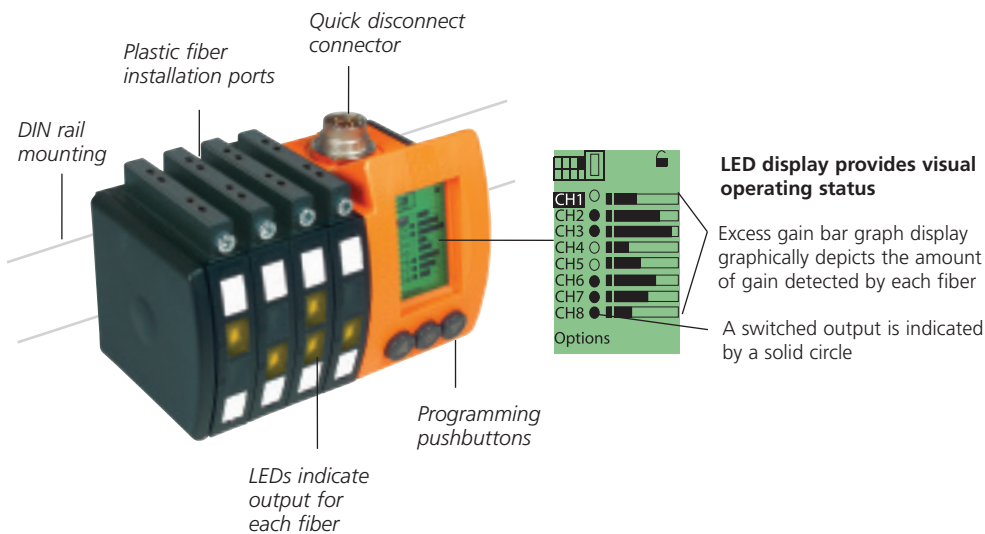
- Multi-channel fiber optic controller with central operating display is designed for applications with multiple sensing points
- Features LCD operator interface that can be used to program multiple fibers and perform AND / OR logic functions
- Available in 2-fiber, 4-fiber, 6-fiber and 8-fiber models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

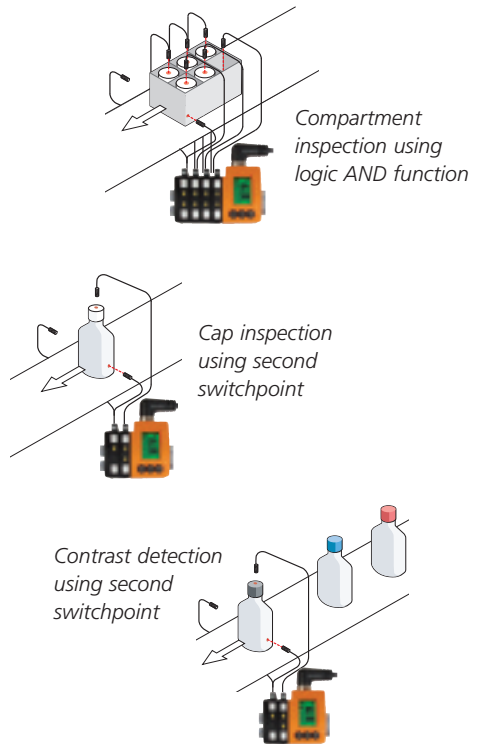
Fiber optics can be used in applications with limited mounting space or as an alternative to a standard photoelectric sensor. Because the electronics are contained in a separate housing that can be remotely located, only the miniature fiber must be mounted near the target.

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




Position

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97






Product + accessory selector

Function	Connector	Number of Channels	Output	Supply Current	Switching Frequency	Part No.	List Price (1-pc.)
	M12	2	LO/DO PNP	50 mA	2700 Hz	OO 5000	\$289.00
	M12	2	LO/DO NPN	50 mA	2700 Hz	OO 5008	\$289.00
	M12	4	LO/DO PNP	50 mA	1500 Hz	OO 5001	\$425.00
	M12	4	LO/DO NPN	50 mA	1500 Hz	OO 5009	\$425.00
	M16	6	LO/DO PNP	50 mA	1000 Hz	OO 5002	\$560.00
	M16	6	LO/DO NPN	50 mA	1000 Hz	OO 5010	\$560.00
	M16	8	LO/DO PNP	50 mA	800 Hz	OO 5003	\$690.00
	M16	8	LO/DO NPN	50 mA	800 Hz	OO 5011	\$690.00

See page 84 for fibers

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (8-pin) 2 m black, right angle	E 11231	\$26.00
	M12 Micro DC (8-pin) 5 m black, right angle	E 11232	\$31.00
	M16 Micro DC (14-pin) 2 m black, right angle	E 11645	\$59.00
	M16 Micro DC (14-pin) 5 m black, right angle	E 11697	\$77.00

 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 V DC
 Maximum Load Current: 200 mA
 Voltage Drop: <2 V
 Leakage Current: negligible
 Operating Temp: -4...140 °F (-20...60 °C)
 Protection: IP65



On-time delivery with accuracy
 Our goal in the ifm Distribution Center is to ensure uptime in your facility.

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

156 - 169

170 - 171

173 - 183

184 - 193

194 - 195



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



OFB 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.

OFB amplifiers

The OFB 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.

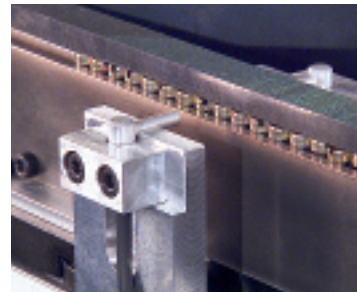
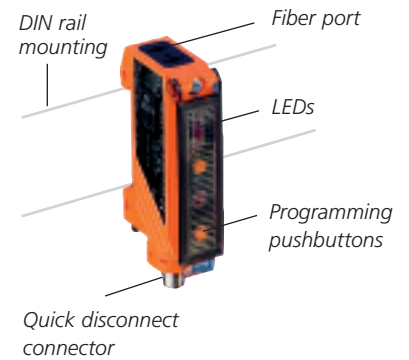
Typical applications:

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

Powerful amplifier in a compact housing



Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97





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 84 for fibers							
	M12	1	PNP/NPN, LO/DO	< 50 mA	3000 Hz	OBF 500	\$134.00
	M8 3-pin*	1	PNP/NPN, LO/DO	< 50 mA	3000 Hz	OBF 503	\$134.00
	M8 4-pin	1	PNP/NPN, LO/DO	< 50 mA	3000 Hz	OBF 501	\$134.00
	Prewired	1	PNP/NPN, LO/DO	< 50 mA	3000 Hz	OBF 502	\$134.00

* Does not have marginal signal output

Amplifier for glass fibers – See page 85 for fibers							
	M12	1	PNP/NPN, LO/DO	< 50 mA	1000 Hz	OBF 504	\$134.00
	M8 3-pin*	1	PNP/NPN, LO/DO	< 50 mA	1000 Hz	OBF 507	\$134.00
	M8 4-pin	1	PNP/NPN, LO/DO	< 50 mA	1000 Hz	OBF 505	\$134.00

* Does not have marginal signal output

Cordsets (4-pin)

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75

Cordsets (3-pin and 4-pin)

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (3-pin) 2 m, PUR	EVC 141	\$11.95
	M8 Pico DC (3-pin) 5 m, PUR	EVC 142	\$14.95
	M8 Pico DC (3-pin) 2 m, PUR	EVC 144	\$11.95
	M8 Pico DC (3-pin) 5 m, PUR	EVC 145	\$14.95
	M8 Pico DC (4-pin) 2 m, PUR	EVC 150	\$12.95
	M8 Pico DC (4-pin) 5 m, PUR	EVC 151	\$15.95
	M8 Pico DC (4-pin) 2 m, PUR	EVC 153	\$12.95
	M8 Pico DC (4-pin) 5 m, PUR	EVC 154	\$15.95

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

Technical Specs

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

R&D that delivers solutions

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

Place orders, tech support
800-441-8246

Visit our product catalog
www.ifm.com/us

Shop for products online
Easy ordering via eShop

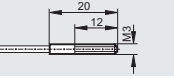
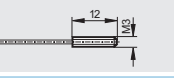
Fluids						Networking		
<i>Safety products</i>	<i>Pressure</i>	<i>Flow</i>	<i>Temperature</i>	<i>Level</i>	<i>Vibration</i>	<i>Cordset solutions</i>	<i>AS-i networking</i>	<i>Power supplies</i>
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



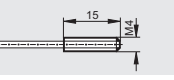
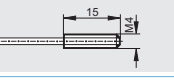
Thru-beam plastic fibers for OO and OBF amplifiers

Type	Range OO / OBF [mm]	Effective beam/ Min bend radius	Part No.	List Price (1-pc.)
------	---------------------	---------------------------------	----------	--------------------

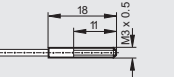
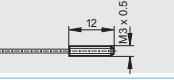
Thru-beam type · M3 sensing head · High flex

	750 / 350	1 mm / 3 mm	E 21101	\$82.00
	120 / 56	0.5 mm / 3 mm	E 21103	\$65.00

Thru-beam type · M4 sensing head · High flex

	750 / 350	1 mm / 3 mm	E 21102	\$82.00
	120 / 56	0.5 mm / 3 mm	E 21104	\$65.00

Thru-beam type · M3 sensing head

	800 / 350	1 mm / 30 mm	E 20603	\$40.00
	160 / 130	0.5 mm / 10 mm	E 20609	\$40.00

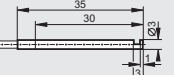
Thru-beam type · M4 sensing head

	800 / 210	1 mm / 9 mm	E 20615	\$46.00
	800 / 450	1 mm / 30 mm	E 20606	\$46.00

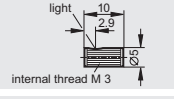
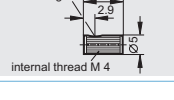
Thru-beam type · integrated lens

	1600 / 900	2 mm / 30 mm	E 20753	\$75.00
	3800 / 2000	6 mm / 30 mm	E 20752	\$75.00

Thru-beam type · right angle lens

	400 / 230	side-sensing / 25 mm	E 20714	\$120.00
-------------------------------------------------------------------------------------	-----------	----------------------	---------	----------

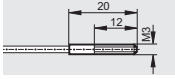
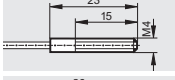
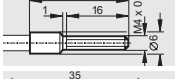
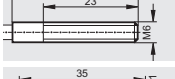
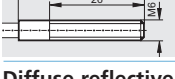
Accessories · for thru-beam fibers only

	Right angle lens adapter for M3 fibers, increases range by 15-20%	E 20754	\$49.00
	Right angle lens adapter for M4 fibers, increases range by 15-20%	E 20755	\$41.00

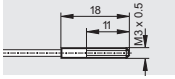
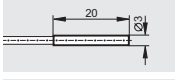
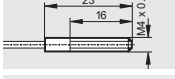
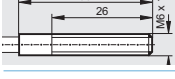
Diffuse plastic fibers for OO and OBF amplifiers

Type	Range OO / OBF [mm]	Min bend radius	Part No.	List Price (1-pc.)
------	---------------------	-----------------	----------	--------------------

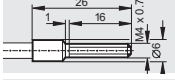
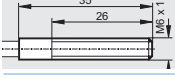
Diffuse reflective type · high flex

	30 / 10	3 mm	E 21107	\$65.00
	30 / 10	3 mm	E 21106	\$71.00
	300 / 70	9 mm	E 20645	\$46.00
	180 / 104	3 mm	E 21105	\$82.00
	300 / 70	9 mm	E 20648	\$41.00

Diffuse reflective type · standard fiber

	60 / 25	10 mm	E 20712	\$42.00
	60 / 25	10 mm	E 20711	\$47.00
	60 / 25	10 mm	E 20639	\$39.00
	300 / 100	10 mm	E 20633	\$46.00

Diffuse reflective type · high accuracy fiber

	300 / 90	30 mm	E 20651	\$46.00
	300 / 90	30 mm	E 20654	\$41.00











Diffuse reflective type · right angle lens

	150 / 60	25 mm	E 20715	\$126.00
--------------------------------------------------------------------------------------	----------	-------	---------	----------

Technical Specs

Sensing head: Aluminum (stainless steel: E20711, E20714, E20715)
 Fiber sheathing: Polyethylene
 Fiber length: 2 meters

Position

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
									
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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'	E 20823	\$60.00
	500	6'	E 21026	\$101.00
	1000	3'	E 20827	\$101.00
	500	6'	E 21027	\$146.00
	1000	3'	E 20825	\$84.00
	500	6'	E 21028	\$127.00
	1000	3'	E 20828	\$72.00

Diffuse glass fibers for OBF amplifiers

Type	Range OBF [mm]	Length	Part No.	List Price (1-pc.)
Diffuse reflective type				
	150	3'	E 20822	\$81.00
	75	6'	E 21031	\$123.00
	150	3'	E 20826	\$126.00
	75	6'	E 21032	\$173.00
	150	3'	E 20824	\$106.00
	75	6'	E 21033	\$151.00
	150	3'	E 20829	\$96.00

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)

Fluids

Networking

Safety products

Pressure

Flow

Temperature

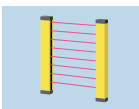
Level

Vibration

Cordset solutions

AS-i networking

Power supplies



99 - 111



113 - 129



130 - 141



142 - 155



156 - 169



170 - 171



173 - 183



184 - 193



194 - 195



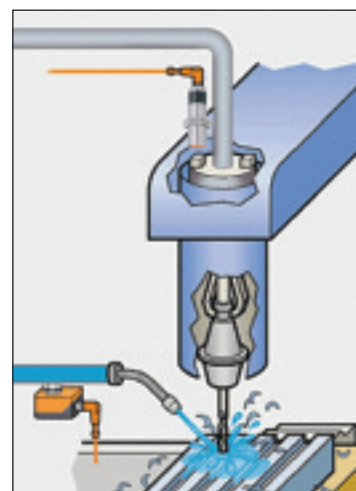
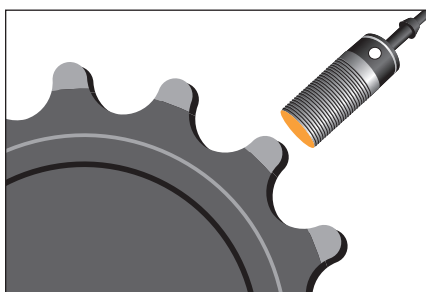
Top five product features!

- 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 an 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										
Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors	
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97	




Search Bar





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	DI 6001	\$140.00
M30 / L = 81	10	Flush	N.O.	5...300	20...250 AC/DC	Prewired 2m cable	DI 0001	\$166.00
M30 / L = 81	10	Flush	N.O.	50...3000	20...250 AC/DC	Prewired 2m cable	DI 0002	\$174.00
M30 / L = 81	10	Flush	PNP, N.O.	3...300	10...36 DC	Prewired 2m cable	DI 5001	\$166.00
M30 / L = 81	10	Flush	PNP, N.O.	30...3000	10...36 DC	Prewired 2m cable	DI 5003	\$166.00
M30 / L = 82	10	Flush	PNP, N.O.	3...300	10...36 DC	M12 Micro DC	DI 5009	\$168.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Snap clamp for 18 mm sensor	E 11048	\$6.00
	Snap clamp for 30 mm sensor	E 11049	\$6.00
	Quick-mount sleeve for 18 mm sensor	E 11115	\$12.00
	Quick-mount for 30 mm sensor	E 10808	\$15.00
	L-bracket for 18 mm sensor	U 20302	\$4.50
	L-bracket for 30 mm sensor	U 20303	\$4.75

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75

 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



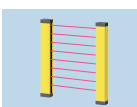
Data sheets, application examples, software downloads, virtual product demos... just one click away.

 **Place orders, tech support**
800-441-8246

 **Visit our product catalog**
www.ifm.com/us

 **Shop for products online**
Easy ordering via eShop

Safety products



99 - 111

Fluids

Pressure



113 - 129

Flow



130 - 141

Temperature



142 - 155

Level



156 - 169

Vibration



170 - 171

Networking

Cordset solutions



173 - 183

AS-i networking



184 - 193

Power supplies



194 - 195

Table of Contents – Vision Sensors

Vision sensors



Multi-Code Reader identifies data matrix and 1D codes 92 - 93



efector dualis Inspection Sensor for error-proofing applications 94 - 95



3D Image Sensor evaluates shape, size and volume 96 - 97

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

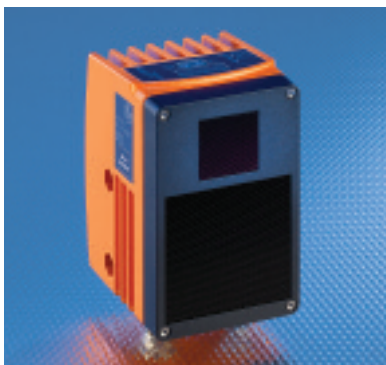
efector dualis Inspection Sensor monitors error-proofing applications



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

3D Image Sensor evaluates shape, size and volume

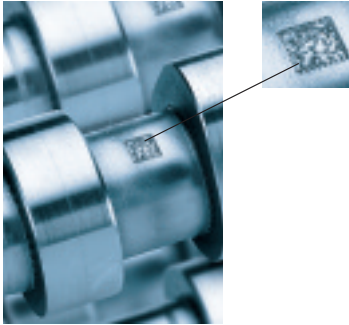


ifm's 3D Image Sensor evaluates size, shape and volume in a variety of industrial automation applications. The compact sensor uses time-of-flight distance measurement and photonic mixer device technology to identify an object in the sensor's field of view. An integrated 64 x 48 pixel array – in which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

Position									
Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97

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°.

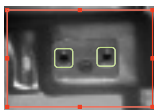
Application solutions:

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

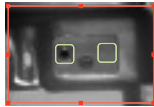
efector dualis Inspection Sensor application example



hole present



hole missing



Assembly monitoring

During the assembly process, a problem at one station can lead to multiple problems down the line. efcator dualis is a cost-effective solution to detect assembly problems at each station as part of the assembly process.

In this example, efcator dualis evaluates the shape of a car component. In the first picture, the holes in the car component match the preset application parameters. In the second picture, efcator dualis detects a missing hole and sends an alarm.

Application solutions:

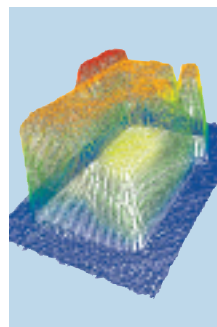
- Right part / wrong part*
- Correct orientation*
- Missing component*
- Object character verification*
- Counting*
- Sorting*
- Logic functions*
- Pass / fail*

3D Image Sensor application example



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.



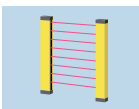
ifm Solution: View layer in 3D

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.

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*

Safety products



99 - 111

Fluids

Pressure



113 - 129

Flow



130 - 141

Temperature



142 - 155

Level



156 - 169

Vibration



170 - 171

Networking

Cordset solutions



173 - 183

AS-i networking



184 - 193

Power supplies



194 - 195



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

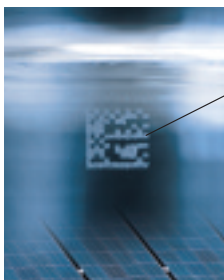


The ifm Multi-Code Reader is designed to read 2D data matrix codes and 1D bar codes in high speed industrial automation applications.

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.

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.

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	\$895

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

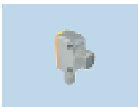
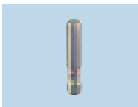
Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5

6 - 35

36 - 41

42 - 43

44 - 45

46 - 73

74 - 79

80 - 85

86 - 87




89 - 97






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 50 mm	20 Hz	7 m/s	Ethernet TCP/IP, EtherNet/IP, RS-232	24 VDC ± 10 %	300 mA	O2I 100	\$895.00
80 x 42 x 53.5	Visible red	140 x 100 mm	20 Hz	7 m/s	Ethernet TCP/IP, EtherNet/IP, RS-232	24 VDC ± 10 %	300 mA	O2I 102	\$895.00
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	O2I 104	\$895.00
80 x 42 x 53.5	Infrared	68 x 50 mm	20 Hz	7 m/s	Ethernet TCP/IP, EtherNet/IP, RS-232	24 VDC ± 10 %	300 mA	O2I 101	\$895.00
80 x 42 x 53.5	Infrared	140 x 100 mm	20 Hz	7 m/s	Ethernet TCP/IP, EtherNet/IP, RS-232	24 VDC ± 10 %	300 mA	O2I 103	\$895.00
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	O2I 105	\$895.00

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Plastic lens for diffusing light	E21165	\$102.00
	Plastic protective lens for food and beverage applications	E21166	\$89.00
	Glass protective lens	E21168	\$89.00
	Mounting Set, 100 mm rod	U60042	\$41.00
	Mounting Set, 100 mm rod with rail mount cube	U60043	\$47.00
	Spot Light for optional lighting enhancement. M12 connector, transmitter red light 630 mm	O2D909	\$309.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (8-pin) 2 m, PUR	E11231	\$26.00
	M12 Micro DC (8-pin) 5 m, PUR	E11232	\$31.00
	M12 Micro DC (8-pin) 2 m, PUR	E11950	\$26.00
	M12 Micro DC (8-pin) 5 m, PUR	E11807	\$31.00
	Ethernet cable, 2 m, M12 D-coded / RJ45, cross-link	E11898	\$41.50
	Ethernet cable, 5 m, M12 D-coded / RJ45, cross-link	E18422	\$50.00
	Ethernet cable, 10 m, M12 D-coded / RJ45, cross-link	E18423	\$64.00

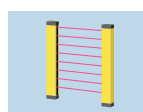
 Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Maximum load current:	100 mA (per switching output)
Short-circuit protection, pulsed:	Yes
Reversed polarity, overload protection:	Yes
Operating temperature:	14...122 °F (-10...50 °C)
Protection:	IP67, III
Material:	Housing: die-cast zinc, Front pane: glass, LED window: polycarbonate
Trigger:	External 24 V PNP, internal, RS-232, TCP/IP, E/IP
Switching outputs:	Max. 2, 100 mA
Connection external lighting:	24 V DC PNP
Parameter setting / process data interface:	Ethernet 10 Base-T / 100 Base-TX, RS-232, EtherNet/IP

Fluids

Safety products



99 - 111

Pressure



113 - 129

Flow



130 - 141

Temperature



142 - 155

Level



156 - 169

Vibration



170 - 171

Networking

Cordset solutions



173 - 183

AS-i networking



184 - 193

Power supplies



194 - 195



Top five product features!

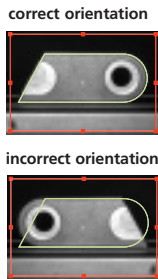
- Robust design and compact metal housings provide long life and reliability in industrial environments
- CMOS image sensor and Digital Signal Processor with no moving parts provide high performance and durability
- Easy-to-use Setup Wizard guides you step-by-step for simple installation
- Flexible connections 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.

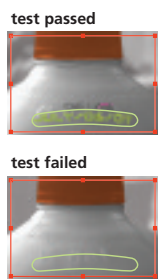
Additional application examples



Feeding technology

Feeder bowls are commonly used to constantly supply an assembly line with small parts. These parts, however, must be in the proper orientation to allow correct assembly.

efector dualis can identify incorrect orientation of parts in a feeder bowl before they are applied.

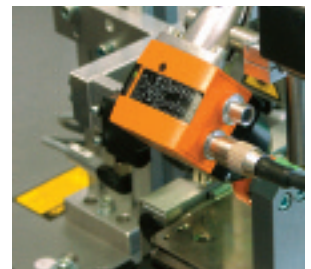


Object character verification

Even the smallest error, such as a missing date on a milk bottle, can cause large problems in a production line. The efector dualis is ideal for object character verification in a moving production line.

In this example, efector dualis detects a series of preset characters that indicate expiration date. In the following picture, efector dualis detects the missing characters and sends an alarm.

Built-in intelligence



Independent evaluation: efector dualis includes an image sensor, evaluation electronics and lighting integrated in one robust, industrial compatible housing.

Position									
Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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	O2D 224	\$895.00
80 x 42 x 53.5	PNP	infrared 850 nm	640 x 480 mm	20 Hz	1 m/s	24 VDC ± 10 %	< 300 mA	O2D 220	\$895.00
80 x 42 x 53.5	PNP	infrared 850 nm	1280 x 960 mm	20 Hz	1 m/s	24 VDC ± 10 %	< 300 mA	O2D 222	\$895.00
80 x 42 x 59	NPN	infrared 850 nm	400 x 300 mm	20 Hz	1 m/s	24 VDC ± 10 %	< 300 mA	O2D 225	\$895.00
80 x 42 x 53.5	NPN	infrared 850 nm	640 x 480 mm	20 Hz	1 m/s	24 VDC ± 10 %	< 300 mA	O2D 227	\$895.00
80 x 42 x 53.5	NPN	infrared 850 nm	1280 x 960 mm	20 Hz	1 m/s	24 VDC ± 10 %	< 300 mA	O2D 229	\$895.00

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting Set, 100 mm rod	U 60042	\$39.00
	Mounting Set, 100 mm rod with rail mount cube	U 60043	\$47.00
	Spot Light for optional lighting enhancement. M12 connector, transmitter red light 630 nm	O2D 909	\$309.00
	Illumination unit Backlight 25 x 25 IR/0.15m M12	O2D 906	\$299.00
	Illumination unit Backlight 50 x 50 IR/0.15m M12	O2D 907	\$330.00
	Illumination unit Backlight 100 x 100 IR/0.15m M12	O2D 908	\$366.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (8-pin) 2 m, PUR	E 11231	\$26.00
	M12 Micro DC (8-pin) 5 m, PUR	E 11232	\$31.00
	M12 Micro DC (8-pin) 2 m, PUR	E 11950	\$26.00
	M12 Micro DC (8-pin) 5 m, PUR	E 11807	\$31.00
	Ethernet cable, 2 m, M12 D-coded / RJ45, cross-link	E 11898	\$41.50
	Ethernet cable, 5 m, M12 D-coded / RJ45, cross-link	E 18422	\$50.00
	Ethernet cable, 10 m, M12 D-coded / RJ45, cross-link	E 18423	\$64.00

See page 91 for protective lenses

▶ 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)
 Short-circuit protection, pulsed: Yes
 Reversed polarity, overload protection: Yes
 Operating temperature: 14...122 °F (-10...50 °C)
 Protection: IP67, III
 Material: Housing: die-cast zinc, Front pane: glass, LED window: polycarbonate
 Trigger: External 24 V PNP, internal, RS-232, TCP/IP
 Switching outputs: Max. 5, 100 mA
 Connection external lighting: 24 V DC PNP
 Parameter setting / process data interface: Ethernet 10 Base-T / 100 Base-TX, RS-232

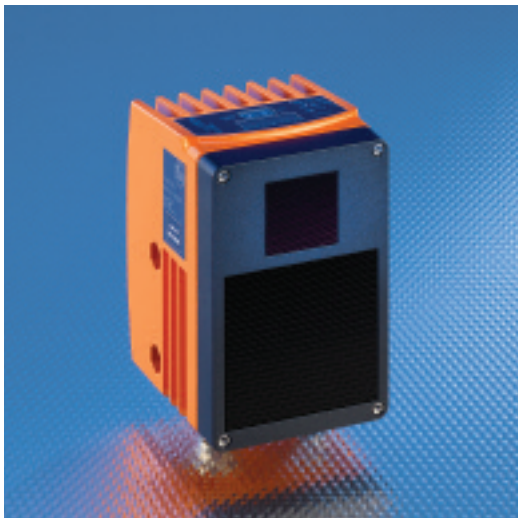


Reliable service center

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

Fluids						Networking		
<i>Safety products</i>	<i>Pressure</i>	<i>Flow</i>	<i>Temperature</i>	<i>Level</i>	<i>Vibration</i>	<i>Cordset solutions</i>	<i>AS-i networking</i>	<i>Power supplies</i>
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



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.

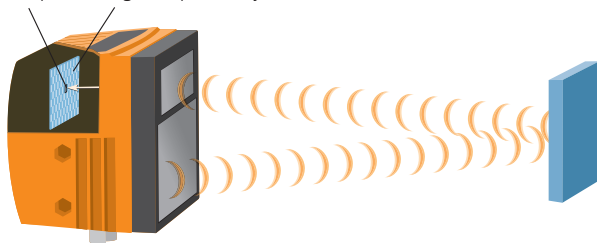
Time-of-flight principle

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.

Smart pixel Integrated pixel array



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.

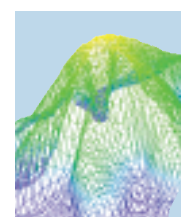
Additional application examples



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.

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



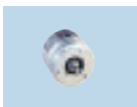
1 - 5



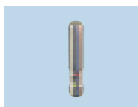
6 - 35



36 - 41



42 - 43



44 - 45



46 - 73



74 - 79



80 - 85



86 - 87




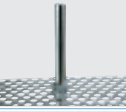

89 - 97






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 \pm 10 %	2500 mA	via 2 pushbuttons and 10-segment display or via PC / notebook with operating software	Ethernet; 10Base-T / 100Base-TX	O3D 200	\$1,450.00

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting set for rod mounting \varnothing 14 mm	E3D 103	\$29.00
	Mounting rod, 100 mm, \varnothing 14 mm, M12 thread, stainless steel	E 20939	\$8.00
	Switched-mode power supply 24 V DC / 2.5 A	DN 2011	\$217.00
	Switched-mode power supply 24 V DC / 5 A	DN 2012	\$285.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (8-pin) 2 m, PUR	E 11231	\$26.00
	M12 Micro DC (8-pin) 5 m, PUR	E 11232	\$31.00
	M12 Micro DC (8-pin) 2 m, PUR	E 11950	\$26.00
	M12 Micro DC (8-pin) 5 m, PUR	E 11807	\$31.00
	Ethernet cable, 2 m, M12 D-coded / RJ45, cross-link	E 11898	\$41.50
	Ethernet cable, 5 m, M12 D-coded / RJ45, cross-link	E 18422	\$50.00
	Ethernet cable, 10 m, M12 D-coded / RJ45, cross-link	E 18423	\$64.00

 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



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

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

Fluids

Safety products

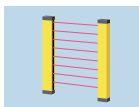
Pressure

Flow

Temperature

Level

Vibration



99 - 111



113 - 129



130 - 141



142 - 155



156 - 169



170 - 171

Networking

Cordset solutions

AS-i networking

Power supplies



173 - 183



184 - 193



194 - 195

Table of Contents – Safety Products

Safety sensors



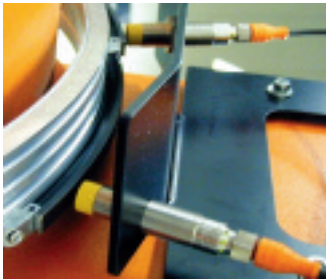
<i>Tubular M12, M18, M30, cube; DC</i>	100 - 101
<i>Light curtains; DC – max. range 12 m</i>	102 - 103
<i>Light curtains</i>	104 - 105
<i>Multi-functional safety relays</i>	106 - 107
<i>Safety at Work overview</i>	108 - 109
<i>Safety at Work product offering</i>	110 - 111



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.

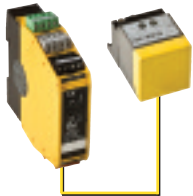
ifm's non-contact fail-safe sensors may be used with any standard safety relay, safety PLC and bus system.

Fail-Safe Sensors for Series Connection

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.

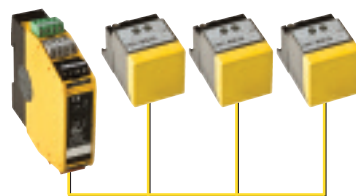
Single connection

Safety relay Safety sensor



Series connection (up to 10 sensors)

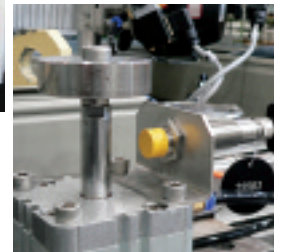
Safety relay Safety sensors



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.

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

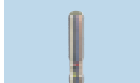
Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5

6 - 35

36 - 41

42 - 43

44 - 45

46 - 73

74 - 79



80 - 85

86 - 87



89 - 97





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	GF 711S	\$165.00
	M18 x 71 mm	1...5 f	SIL 2, PL d	≤ 1 ms	≤ 1 ms	IP67	Plated brass, PBT	GG 712S	\$170.00
	M18 x 71 mm	1...8 nf	SIL 2, PL d	≤ 1 ms	≤ 1 ms	IP67	316 S.S., PBT	GG 711S	\$170.00
	M30 x 70 mm	1...10 f	SIL 2, PL d	≤ 10 ms	≤ 1 ms	IP67	Plated brass / PBT	GI 712S	\$176.00
	M30 x 70 mm	1...15 nf	SIL 2, PL d	≤ 10 ms	≤ 1 ms	IP67	316 S.S., PBT	GI 711S	\$176.00
	M30 x 80 mm	6...12 nf	SIL 3, PL e	< 50 ms	< 200 ms	IP69K	316 S.S., PBT	GI 701S	\$176.00
	40 x 40 x 66mm	10...15 nf	SIL 3, PL e, Cat 4	< 50 ms	< 200 ms	IP67	PPE, diecast zinc	GM 701S	\$222.00
	40 x 40 x 66mm	4...20 nf	SIL 3, PL e, Cat 4	< 50 ms	< 200 ms	IP67	PPE, diecast zinc	GM 705S	\$222.00



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, Cat 4	< 20 ms	< 200 ms	IP69K	Plated brass, PBT	GG 507S	\$222.00
	M18 x 91 mm	3...6 nf	SIL 3, PL e, Cat 4	< 20 ms	< 200 ms	IP69K	316 S.S., PBT	GG 505S	\$222.00
	M30 x 80 mm	6...12 nf	SIL 3, PL e, Cat 4	< 20 ms	< 200 ms	IP69K	316 S.S. / PEEK	GI 505S	\$222.00
	40 x 40 x 66mm	10...15 nf	SIL 3, PL e, Cat 4	< 20 ms	< 200 ms	IP67	PPE, diecast zinc	GM 504S	\$222.00
	40 x 40 x 66mm	10...20 nf	SIL 3, PL e, Cat 4	< 20 ms	< 200 ms	IP67	PPE, diecast zinc	GM 505S	\$222.00

Accessories

Housing	Description	Part No.	List Price (1-pc.)
	Safety relay for the connection of electronic and mechanical fail-safe sensors/switches and for use as two-hand control.	G 1501S	\$166.00
	AS-i ClassicLine module	AC 016S	\$359.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75

 Want to learn more about safety approvals, visit www.ifm.com/us

Technical Specs

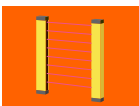








Operating voltage: 19.2...30 VDC
 Number of wires: 4-wire
 Connector: M12
 Operating temperature: -13...158 °F (-25...70 °C)

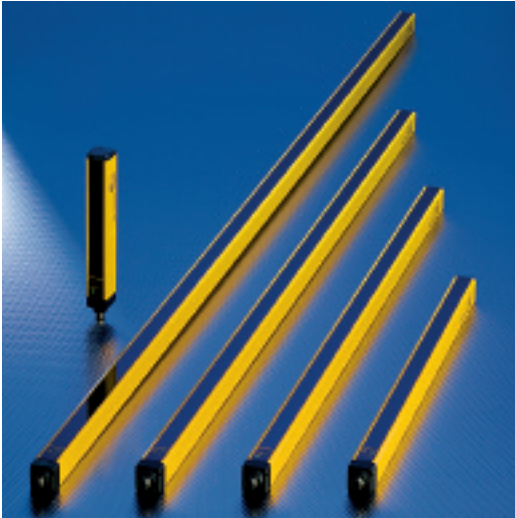


Reliable service center

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

Safety products	Fluids					Networking		
	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
								
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



Top five product features!

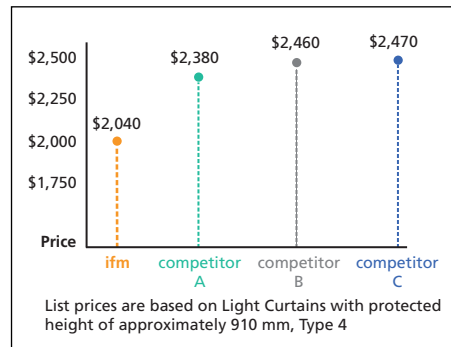
- Type 2 and Type 4 safety light curtains and grids according to IEC 61496
- Compact 28 x 30 mm housing profile for less intrusive mounting
- Up to 12 meter sensing range – no software required
- Light curtains offer protected heights of 160 mm to 1510 mm in intervals of 150 mm
- Light grids available in 2-, 3- and 4-beam versions

Curtains and grids help to protect plant personnel

- 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

ifm's safety light curtains and grids provide an optical solution for protecting plant personnel in unsafe work areas. Unlike mechanical options such as safety gates and pull-back restraints, ifm's hands-free solution eliminates excessive handling when entering hazardous areas and using equipment.

ifm's safety light curtains and grids consist of an emitter and receiver pair that create a multi-beam barrier of infrared light in front of, or around, a hazardous area. When any of the beams are blocked by intrusion in the sensing field, the light curtain sends a signal to the machine's e-stop.



ifm's Light Curtains offer the best price-performance in the market.

Application solutions



Perimeter guarding
Light curtains can be placed along the floor to detect foot traffic. The light curtains send an alarm when a passerby penetrates the perimeter of a hazardous zone.



Access prevention
ifm's light grids can be used to detect the presence of personnel and signal the machine controller to stop while personnel are present within the area.



Point of operation guarding
Light curtains help protect an operator from the hazards associated with material positioning such as mechanical power presses.

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97

Product + accessory selector

Safety light curtains for hand protection Protected area width 0...4 m / 3...12 m

Resolution	Protected area height*	Type 2 / SIL 2		Type 4 / SIL 3	
		Part No. (pair)	List Price (1-pc.)	Part No. (pair)	List Price (1-pc.)
30 mm	610 mm	OY 034S	\$1010.00	OY 044S	\$1751.00
	910 mm	OY 036S	\$1339.00	OY 046S	\$2266.00
	1210 mm	OY 038S	\$1854.00	OY 048S	\$2781.00
40 mm	610 mm	OY 054S	\$927.00	OY 064S	\$1602.00
	910 mm	OY 056S	\$1216.00	OY 066S	\$2040.00
	1210 mm	OY 058S	\$1700.00	OY 068S	\$2483.00

*Also available: 160, 310, 460, 760, 1060, 1360, 1510 mm heights

Safety light grids / body protection Protected area width 0...4 m / 3...12 m

No of Beams	Distance between beams	Protected area height	Type 2 / SIL 2		Type 4 / SIL 3	
			Part No. (pair)	List Price (1-pc.)	Part No. (pair)	List Price (1-pc.)
2	500mm	510mm	OY 111S	\$716.00	OY 114S	\$1020.00
3	400mm	810mm	OY 112S	\$768.00	OY 115S	\$1185.00
4	300mm	910mm	OY 113S	\$861.00	OY 116S	\$1391.00

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

Safety light curtains / body, body parts protection Protected area width 0...4 m / 3...12 m



Resolution	Protected area height*	Type 2 / SIL 2		Type 4 / SIL 3	
		Part No. (pair)	List Price (1-pc.)	Part No. (pair)	List Price (1-pc.)
50 mm	610 mm	OY 074S	\$897.00	OY 084S	\$1515.00
	910 mm	OY 076S	\$1185.00	OY 086S	\$1916.00
	1210 mm	OY 078S	\$1669.00	OY 088S	\$2328.00

*Also available: 310, 460, 760, 1060, 1360, 1510 mm heights



90 mm	610 mm	OY 094S	\$866.00	OY 104S	\$1401.00
	910 mm	OY 096S	\$1154.00	OY 106S	\$1710.00
	1210 mm	OY 098S	\$1638.00	OY 108S	\$2066.00

*Also available: 760, 1060, 1360, 1510 mm heights

Cordsets for transmitters

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (5-pin) 5 m, PUR	EVC 071	\$17.00
	M12 Micro DC (5-pin) 10 m, PUR	EVC 072	\$22.00
	M12 Micro DC (5-pin) 5 m, PUR	EVC 074	\$17.00
	M12 Micro DC (5-pin) 10 m, PUR	EVC 075	\$22.00

Cordsets for receivers

	M12 Micro DC (8-pin) 5 m, PUR	E 12166	\$46.00
	M12 Micro DC (8-pin) 10 m, PUR	E 12167	\$58.00
	M12 Micro DC (8-pin) 5 m, PUR	E 12168	\$46.00
	M12 Micro DC (8-pin) 10 m, PUR	E 12169	\$58.00

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 2 / Type 4 (IEC 61496-1)
 SIL 2 / SIL 3 (IEC 61508)
 SILcl 2 / SILcl 3 (IEC 62061)
 PL d / PL e (EN ISO 13849-1)



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

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

Fluids

Networking

Safety products

Pressure

Flow

Temperature

Level

Vibration

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

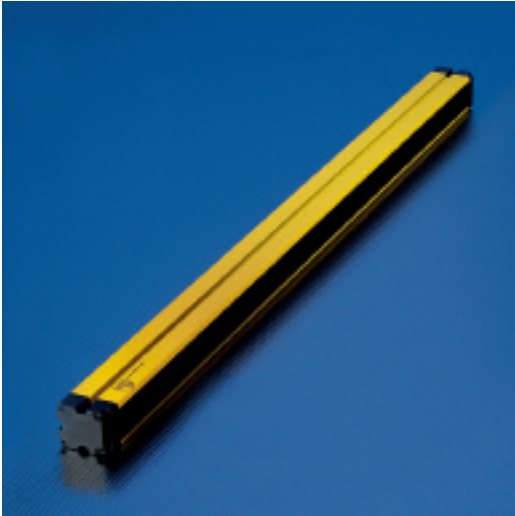
156 - 169

170 - 171

173 - 183

184 - 193

194 - 195



Top five product features!

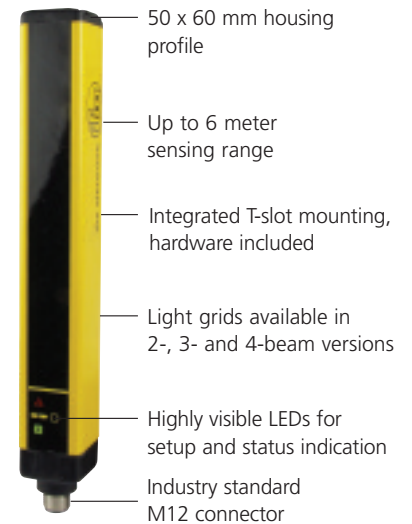
- Transmitter and receiver are integrated into one housing making wiring simple
- Type 4 safety light grids according to IEC 61496
- Up to 6 meter sensing range – no software required
- Light grids available in 2-, 3- and 4-beam versions
- Standardized connection via 8-pin M12 connector

Safety light grids with reflective mirror



Light grids are used for perimeter guarding to prevent access to work areas containing dangerous machinery. When any of the light beams are blocked by an intrusion in the sensing field, the light grid sends a signal to stop the machine. Light grids are available in 2-, 3- and 4-beam versions.

ifm's active / passive light grids lower installation costs by reducing the amount of wiring required. The transmitter and receiver are contained in one housing (active element) and are used with a reflecting mirror (passive element). All electrical connections are made to the active element. This is very useful for applications where it is difficult to wire both sides of a light grid such as conveyors.




Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97

Product + accessory selector


Safety light curtains for body protection Protected area width 0...6 m

Number of beams	Distance between beams	Protected area height	Type 4 / SIL 3	
			Part No. (pair)	List Price (1-pc.)
2	500 mm	510 mm	OY 901S	\$760.00
3	400 mm	810 mm	OY 902S	\$1195.00
4	300 mm	910 mm	OY 903S	\$1335.00



Mirrors

	Length	Use with light grid type	Part No.	List Price (1-pc.)
	715 mm	2-beam	EY 1004	\$361.00
	1060 mm	3-beam	EY 1006	\$449.00
	1230 mm	4-beam	EY 1007	\$495.00

Mirrors with integrated bases

	Length	Use with light grid type	Part No.	List Price (1-pc.)
	1010 mm	2-beam	EY 1011	\$443.00
	1340 mm	3 & 4-beam	EY 1013	\$541.00

Cordsets

	M12 Micro DC (8-pin) 5 m, PUR	E 12166	\$46.00
	M12 Micro DC (8-pin) 10 m, PUR	E 12167	\$58.00
	M12 Micro DC (8-pin) 5 m, PUR	E 12168	\$46.00
	M12 Micro DC (8-pin) 10 m, PUR	E 12169	\$58.00

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






Technical Specs

Operating voltage: 19.2...28.8 VDC
 Current rating: 2 x 500 mA
 Current consumption: 250 mA
 Safety outputs (OSSDs): 2 x PNP
 Operating temperature: 14...131 °F (-10...55 °C)
 Protection: IP65
 Dimensions (W x D): 50 x 60 mm
 Connection: M12 (8-pin)
 Max. cable length: 100 m
 Safety category: Type 4 (IEC 61496-1)
 SIL 3 (IEC 61508)
 SILcl 3 (IEC 62061)
 PL e (EN ISO 13849-1)



On-time delivery with accuracy
 Our goal in the ifm Distribution Center is to ensure uptime in your facility.

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

Safety products	Fluids					Networking		
	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
								
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



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

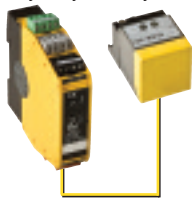
Up to 10 non-contact, fail-safe sensors can be connected in a series with the ifm clocked input versions. Ideal for monitoring multiple stations, such as robotics cells, the fail-safe sensors will provide an output if the one point along chain is stopped. Using ifm's quick disconnect T-piece connectors, wiring is greatly reduced and simplified.

ifm's multi-functional safety relay is compatible with industry standard devices



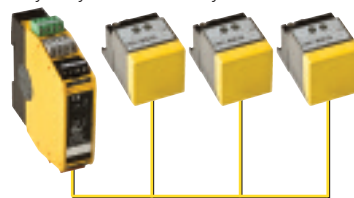
Single connection

Safety relay Safety sensor



Series connection (up to 10 sensors)

Safety relay Safety sensors



Position

Company

Inductive

Cylinder position

Encoders

Capacitive

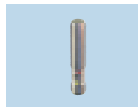
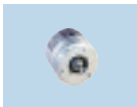
Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5

6 - 35

36 - 41

42 - 43

44 - 45

46 - 73

74 - 79


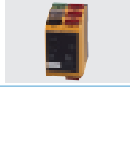

80 - 85

86 - 87

89 - 97



Product + accessory selector

Type	Dimensions	Supply Voltage	Safety Outputs	Auxiliary 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)	G 1501S	\$166.00
	100 x 25 x 105 mm	19.2...30 V DC	2 x N.O. transistor outputs (PNP)	1 N.O. transistor output (PNP)	G 1503S	\$155.00
	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. contacts 1 N.C. contacts 1 N.O. transistor (PNP)	G 1502S	\$268.00

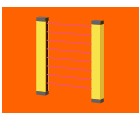




▶ Can't find the right product for your application, call 800-441-8246 or visit www.ifm.com/us

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

Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
								
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



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.

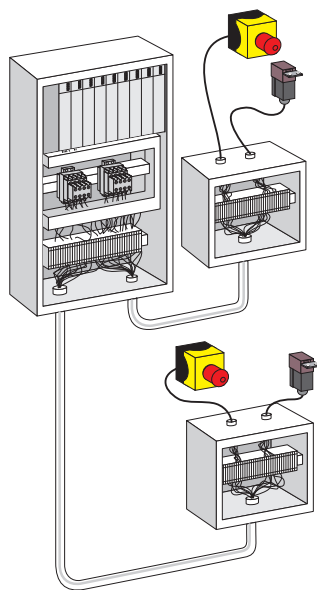
Seamless Integration of Safety Components

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.

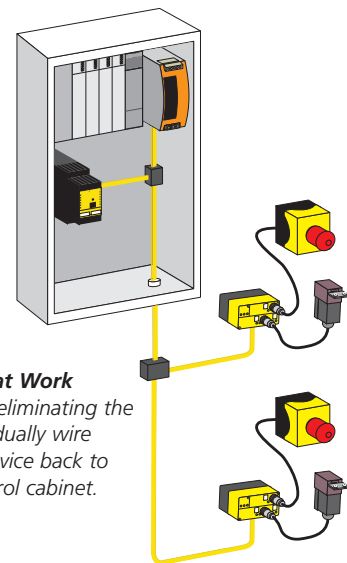
Mechanical safety components such as door switches, emergency stop buttons and safety input modules are connected with the AS-i two-wire cable that carries power and signal to each safety device. The system simplifies wiring by eliminating wire bundles that form when connecting numerous input/output 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.



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.

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5

6 - 35

36 - 41

42 - 43

44 - 45

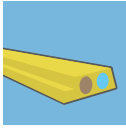
46 - 73

74 - 79

80 - 85

86 - 87

89 - 97



Saves wiring time

Safety at Work is plug and play. Connect an entire safety system with one cable that carries both data and power. This eliminates the need to individually wire each safety device back to the main control cabinet.



Simplifies design and build time

With less wires to handle, termination points are reduced. The system uses minimal cabinet space and machine drawings are less complex.



Saves time in disassembly and rebuild

Save installation and reduce rebuild-time by days. Equipment can be disassembled and rebuilt faster with Safety at Work's single-cable design.



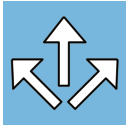
Provides diagnostic feedback

The Safety at Work system provides increased diagnostic feedback for trouble-shooting. The system indicates where and when a fault occurs without any additional wiring.



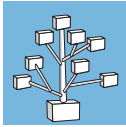
Simple zone control

No more wiring changes! Safety zones can be configured easily and changed through a drag-and-drop configuration software.



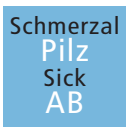
Universal connectivity

The Safety at Work system can be used directly with most major PLCs including Allen Bradley and Siemens, as well as, DeviceNet, Profibus, and Ethernet bus systems. There are no requirements for special safety PLCs.



Flexible topology

The Safety at Work system can be configured in ring, star, and trunk and drop topologies. The system is also capable of handling multiple safety zones on one network.



Implements standard safety devices

The system is designed to use standard mechanical safety devices including door switches and e-stop buttons. There are no requirements to use system specific I/O devices.



Approved technology

Approved by TUV (nationally recognized testing lab) for up to Category 4, Sil 3 according to EN 954-1, IEC 61508. Also approved for upcoming standards IEC 62061 and 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 Category 4 according to EN954-1 and SIL 3 according to IEC 61508, IEC 62061, and PL e according to ISO 13849-1.

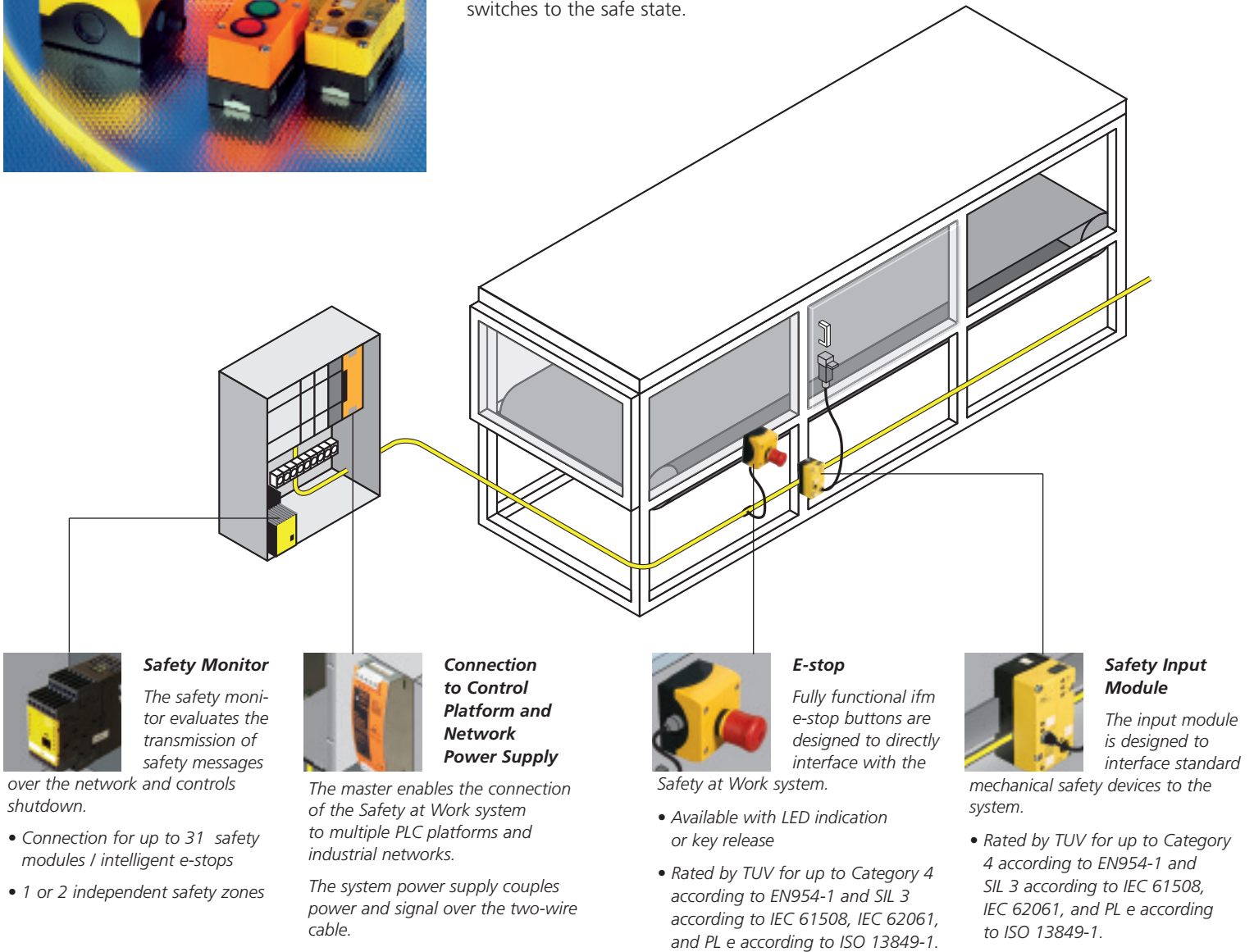
The Safety at Work system uses the internationally accepted AS-i protocol. With over 2 million nodes installed, AS-i has been a major success in automation since 1994.

<p>Safety products</p> <p>99 - 111</p>	Fluids					Networking		
	<p>Pressure</p> <p>113 - 129</p>	<p>Flow</p> <p>130 - 141</p>	<p>Temperature</p> <p>142 - 155</p>	<p>Level</p> <p>156 - 169</p>	<p>Vibration</p> <p>170 - 171</p>	<p>Cordset solutions</p> <p>173 - 183</p>	<p>AS-i networking</p> <p>184 - 193</p>	<p>Power supplies</p> <p>194 - 195</p>



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.



Position

Company

Inductive

Cylinder position

Encoders

Capacitive

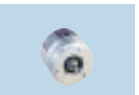
Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5

6 - 35

36 - 41

42 - 43

44 - 45

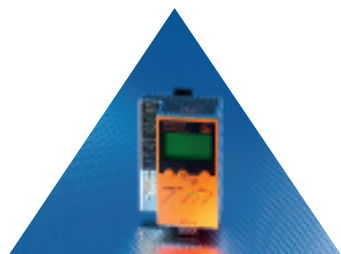
46 - 73

74 - 79

80 - 85

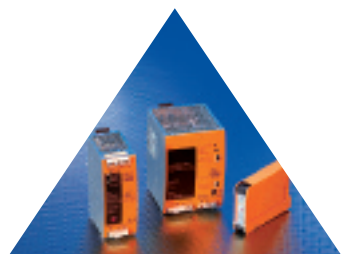
86 - 87

89 - 97



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.



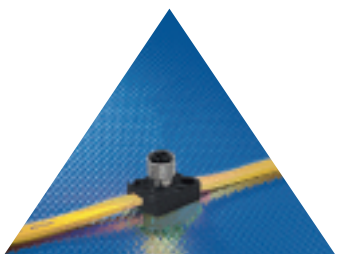
Safety Relays

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.



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
- Visit our product catalog www.ifm.com/us
- Shop for products online Easy ordering via eShop

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

Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195

Table of Contents – Fluid and Diagnostic Sensors

Pressure



Pressure switches – dual switching outputs with numeric display	114 - 115
Pressure switches – complementary output and adjustable dials	116 - 117
Pressure switches – dual switching outputs with numeric display	118 - 119
Pressure switches – switching output with numeric display	120 - 121
Pressure transmitters – analog output	122 - 123
Pressure transmitters – analog and switching output or dual switching outputs with numeric display	124 - 125
Pressure transmitters – analog and switching outputs with gauge display	126 - 127
Pressure transmitter – tank level applications – analog output	128 - 129

Flow



Thermal flow switches – switching output with bar graph display	130 - 131
Thermal remote flow monitors and probes – switching output with bar graph display	132 - 133
Thermal flow meters – dosing applications – configurable flow and temperature output	134 - 135
Magnetic inductive flow meters – conductive media – configurable flow and temperature output	136 - 137
Ultrasonic flow meters – water, glycol and oil – configurable flow and temperature output	138 - 139
Thermal flow meters – compressed air and specialty gases – switching, analog and pulse outputs	140 - 141

Temperature



Temperature switches – self-contained with integrated RTD, switching output	142 - 143
Temperature sensors – self-contained with integrated RTD and display, analog and switching outputs	144 - 145
Temperature transmitters – self-contained RTD, analog output	146 - 147
Temperature transmitters – self-verifying with integrated RTD, scaleable analog output	148 - 149
Temperature transmitters – module connects to any RTD, scaleable analog output	150 - 151
Temperature sensors – control monitor connects to modular RTD lengths, analog and switching outputs	152 - 153
Pt 100 and Pt 1000 RTDs and accessories	154 - 155

Level

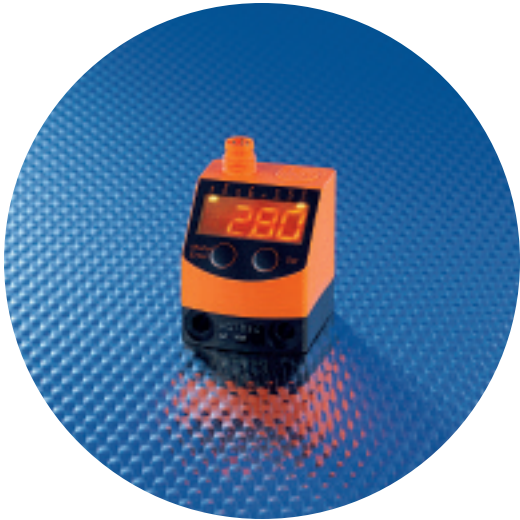


Point-level sensors – bulk powders/liquids – pushbutton adjustment, switching output	156 - 157
Point-level sensors – bulk powders/liquids – potentiometer adjustment, switching output	158 - 159
Point-level sensors – bulk materials/liquids – pushbutton set-up, switching output	160 - 161
Point-level sensors – overflow protection – switching output	162 - 163
Continuous level sensors – water-based media – analog and switching outputs	164 - 165
Continuous level sensors – oils and water-based media – analog and switching outputs	166 - 167
Continuous level sensors – oils and coolants – analog and switching outputs	168 - 169

Vibration



Vibration sensors – simple machine condition monitoring – switching and analog outputs	170 - 171
-----------------------------------------------------------------------------------------------------	-----------



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
- Two programmable switching outputs or one switching and diagnostic output

Compact pressure switch for applications in robotics and material handling



ifm's PQ Series pressure switches are designed for pneumatic applications in robotics and material handling. The switches precisely measure the full range of vacuum and pressure typical in these applications.

The 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 $\pm 0.5\%$.

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.

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



Product + accessory selector

Output	Measuring Range	Overload Pressure	Set Point Range	Reset Point Range	In Steps of	Display Units Available	Port Size	Part No.	List Price (1-pc.)
Dual PNP Programmable	-14.5...14.5 psi	290 psi	-14.2...14.6 psi	-14.4...14.4 psi	0.2 psi	bar, psi, kPa, inHg	G1/8 BSPP	PQ 7809	\$149.00
Dual PNP Programmable	-14.5...145 psi	290 psi	-13...145 psi	-14...144 psi	1 psi	bar, psi, kPa, inHg	G1/8 BSPP	PQ 7834	\$149.00

Required Accessories

Type	Description	Part No.	List Price (1-pc.)
	1/8" NPT adapter	U60102	\$7.50
	6 mm Ø tube adapter	E30076	\$8.00
	8 mm Ø tube adapter	E30077	\$8.00
	DIN rail mounting bracket	E37340	\$8.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M8 Pico DC (4-pin) 2 m, PUR cable	EVC 150	\$12.95
	M8 Pico DC (4-pin) 5 m, PUR cable	EVC 151	\$15.95
	M8 Pico DC (4-pin) 2 m, PUR cable	EVC 153	\$12.95
	M8 Pico DC (4-pin) 5 m, PUR cable	EVC 154	\$15.95

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

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

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

Fluids

<p>Safety products</p> <p>99 - 111</p>	<p>Pressure</p> <p>113 - 129</p>	<p>Flow</p> <p>130 - 141</p>	<p>Temperature</p> <p>142 - 155</p>	<p>Level</p> <p>156 - 169</p>	<p>Vibration</p> <p>170 - 171</p>
----------------------------------------	----------------------------------	------------------------------	-------------------------------------	-------------------------------	-----------------------------------

Networking

<p>Cordset solutions</p> <p>173 - 183</p>	<p>AS-i networking</p> <p>184 - 193</p>	<p>Power supplies</p> <p>194 - 195</p>
-------------------------------------------	-----------------------------------------	----------------------------------------



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

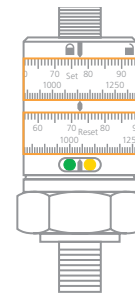


PK pressure switches feature mechanical adjustment dials that rotate to quickly establish the setpoint and resetpoint. The switch is adjustable without system pressure and supply voltage.

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).

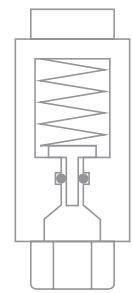
The PK's compact design is ideal for space saving mounting. Quick electrical connection is made using an industry standard Micro DC connector.

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.

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5

6 - 35

36 - 41

42 - 43

44 - 45

46 - 73

74 - 79

80 - 85

86 - 87




89 - 97












Product + accessory selector


Output	Measuring Range [psi]	Setpoint Range [psi]	Resetpoint Range [psi]	Overload Pressure [psi]	Port Size	Part No.	List Price (1-pc.)
Dual PNP, Complementary	0...145	7.5...145	5.0...142	362	1/4" NPT Male	PK 6224	\$142.00
Dual PNP, Complementary	0...1450	75...1450	50...1420	2900	1/4" NPT Male	PK 6222	\$142.00
Dual PNP, Complementary	0...5800	290...5800	175...5685	8700	1/4" NPT Male	PK 6220	\$142.00
Dual PNP, Complementary	0...145	7.5...145	5.0...142	362	G1/4 BSPP Male	PK 6524	\$142.00
Dual PNP, Complementary	0...363	18...363	11.0...355	870	G1/4 BSPP Male	PK 6523	\$142.00
Dual PNP, Complementary	0...1450	75...1450	50...1450	2900	G1/4 BSPP Male	PK 6522	\$142.00
Dual PNP, Complementary	0...3625	181...3625	109...3553	5800	G1/4 BSPP Male	PK 6521	\$142.00
Dual PNP, Complementary	0...5800	2900...5800	175...5685	8700	G1/4 BSPP Male	PK 6520	\$142.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Protective cover	E 30094	\$8.00
	G1/4 BSPP female to 1/4" NPT male, 316 stainless steel	U 25003	\$19.00
	G1/4 BSPP female to 7/16" SAE male, 316 stainless steel	US 0017	\$35.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR, LED	EVC 007	\$12.75
	M12 Micro DC (4-pin) 5 m, PUR, LED	EVC 008	\$14.25
	M12 Micro DC (4-pin) 10 m, PUR, LED	EVC 009	\$17.25

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

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






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

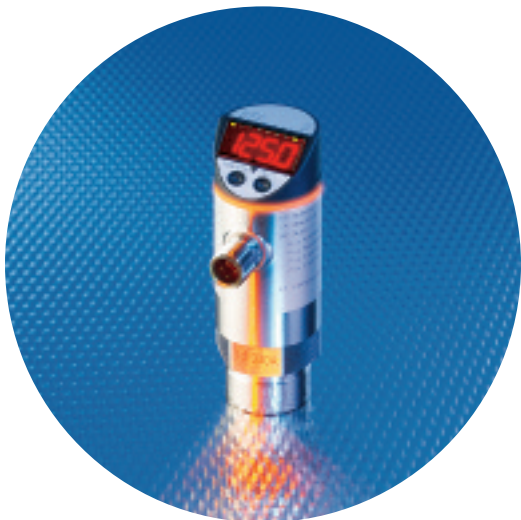
-  **Place orders, tech support**
800-441-8246
-  **Visit our product catalog**
www.ifm.com/us
-  **Shop for products online**
Easy ordering via eShop

Fluids

 Safety products 99 - 111	 Pressure 113 - 129	 Flow 130 - 141	 Temperature 142 - 155	 Level 156 - 169	 Vibration 170 - 171
--------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------

Networking

 Cordset solutions 173 - 183	 AS-i networking 184 - 193	 Power supplies 194 - 195
-------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------


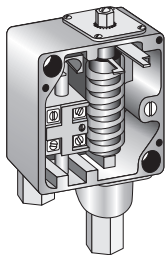
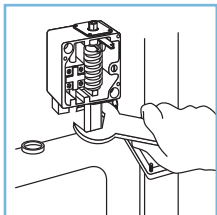
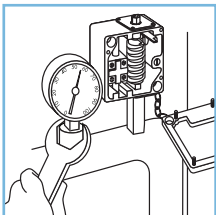
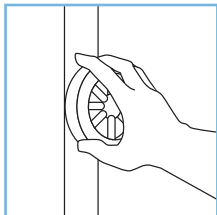
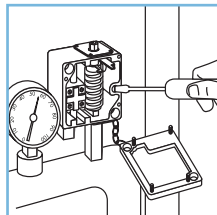
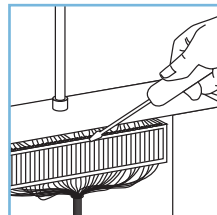


Top five product features!

- 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



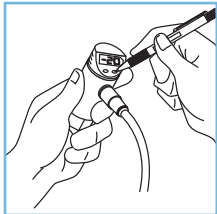
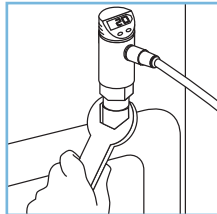
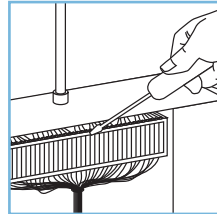
Customer benefits!

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 electronic 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

Company

Inductive

Cylinder position

Encoders

Capacitive

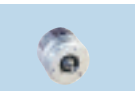
Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5

6 - 35

36 - 41

42 - 43

44 - 45

46 - 73

74 - 79

80 - 85

86 - 87

89 - 97



Product + accessory selector

Measuring Range	Display in Steps of	Overload Pressure	Display Units Available	Part No. 1/4" NPT Port Size	Part No. G1/4 BSPP Port Size	Part No. SAE 7/16-20 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	PN 7209	PN 7009	–	\$345.00
Pressure switches · PNP / NPN · 2x Normally open or normally closed output							
0...14.5 psi	0.1 psi	145 psi	mbar, kPa, psi, inHg	PN 7207	PN 7007	–	\$345.00
0...36.3 psi	0.2 psi	290 psi	bar, kPa, psi	PN 7206	PN 7006	–	\$345.00
-14.5...145 psi	1 psi	1087 psi	bar, MPa, psi	PN 7204	PN 7004	PN 7304	\$345.00
0...363 psi	2 psi	2175 psi	bar, MPa, psi	PN 7203	PN 7003	PN 7303	\$345.00
0...1450 psi	10 psi	4350 psi	bar, MPa, psi	PN 7202	PN 7002	PN 7302	\$345.00
0...3625 psi	20 psi	5800 psi	bar, MPa, psi	PN 7201	PN 7001	–	\$345.00
0...5800 psi	30 psi	8700 psi	bar, MPa, psi	PN 7200	PN 7000	PN 7300	\$345.00
0...8700 psi	50 psi	11,600 psi	bar, MPa, psi	–	PN 7060	–	\$345.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Transparent protective cover	E 30006	\$7.00
	G 1/4 BSPP male to 1/4" NPT male adapter	U 20172	\$16.00
	G 1/4 BSPP male to 7/16" SAE male adapter	U 20171	\$21.00
	1/4" NPT male to 1/4" NPT male	U 30039	\$9.50
	Mounting clamp	E 10077	\$7.00
	Conduit adapter	E 30062	\$73.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR, LED	EVC 007	\$12.75
	M12 Micro DC (4-pin) 5 m, PUR, LED	EVC 008	\$14.25
	M12 Micro DC (4-pin) 10 m, PUR, LED	EVC 009	\$17.25

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

Technical Specs

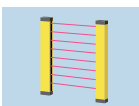
Supply voltage: 18...36 VDC
 Maximum load current: 2 x 250 mA
 Current consumption: <50 mA
 Voltage drop: <2 V
 Medium temperature range: -13...176 °F (-25...80 °C)
 Accuracy of switch point: < ± 0.5% of full range
 Repeatability: < ± 0.1% of full range
 Wetted parts: 303 stainless steel, ceramic, Viton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



On-time delivery with accuracy
 Our goal in the ifm Distribution Center is to ensure uptime in your facility.

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


Safety products



99 - 111


Fluids

Pressure




113 - 129

Flow




130 - 141

Temperature




142 - 155

Level



156 - 169


Vibration



170 - 171


Networking

Cordset solutions




173 - 183

AS-i networking

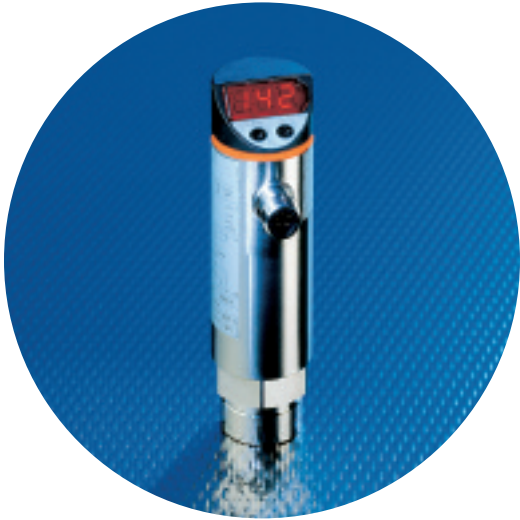


184 - 193

Power supplies



194 - 195

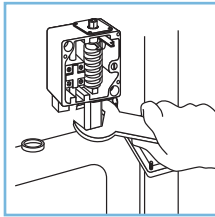
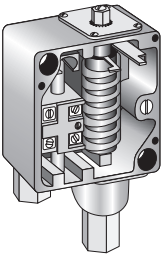


Top five product features!

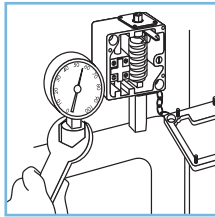
- Simple pushbutton setup allows the switch to be adjusted and mounted in less than 5 minutes
- Ceramic pressure sensor element is more reliable than mechanical switches
- Solid state relay output to switch loads up to 2.5 A
- Integrated built-in display eliminates the need for a reference gauge
- Stainless steel construction designed to last in harsh environments

Customer benefits!

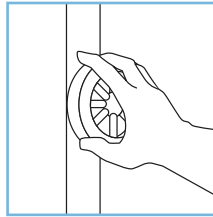
Mechanical pressure switches are not reliable and are time-consuming to install



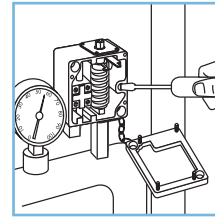
1. Mount the switch and connect conduit.



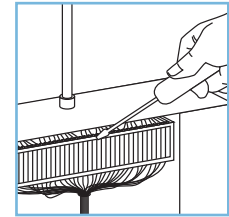
2. Install reference gauge.



3. Apply system pressure.

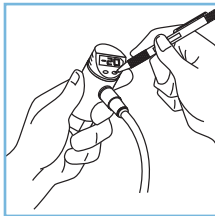


4. Adjust setpoint and differential.

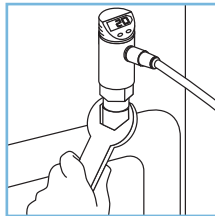


5. Make electrical connections.

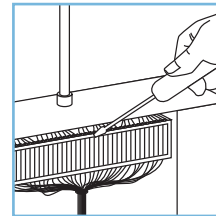
ifm electronic pressure switches have no moving parts and can be installed in less than five minutes



1. Program the switch.



2. Install the switch.



3. Make electrical connections.

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5



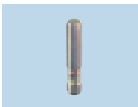
6 - 35



36 - 41



42 - 43



44 - 45



46 - 73



74 - 79



80 - 85



86 - 87



89 - 97



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	PN 4229	\$349.00
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	PN 4227	\$349.00
0...36.3 psi	0.1 psi	290 psi	bar, kPa, psi	1/4" NPT Female	PN 4226	\$349.00
0...145 psi	1 psi	725 psi	bar, kPa, psi	1/4" NPT Female	PN 4224	\$349.00
0...363 psi	1 psi	1450 psi	bar, MPa, psi	1/4" NPT Female	PN 4223	\$349.00
0...1450 psi	10 psi	4350 psi	bar, MPa, psi	1/4" NPT Female	PN 4222	\$349.00
0...3630 psi	10 psi	5800 psi	bar, MPa, psi	1/4" NPT Female	PN 4221	\$349.00
0...5800 psi	10 psi	8700 psi	bar, MPa, psi	1/4" NPT Female	PN 4220	\$349.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Transparent protective cover	E 30006	\$7.00
	1/4" NPT male to 1/4" NPT male	U 30039	\$9.50
	Mounting clamp	E 10077	\$7.00
	Conduit adapter	E 30062	\$73.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	1/2" Micro AC (5-pin), 4 m, PUR	E 18026	\$30.50
	1/2" Micro AC (5-pin), 4 m, PUR	E 18027	\$30.50

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

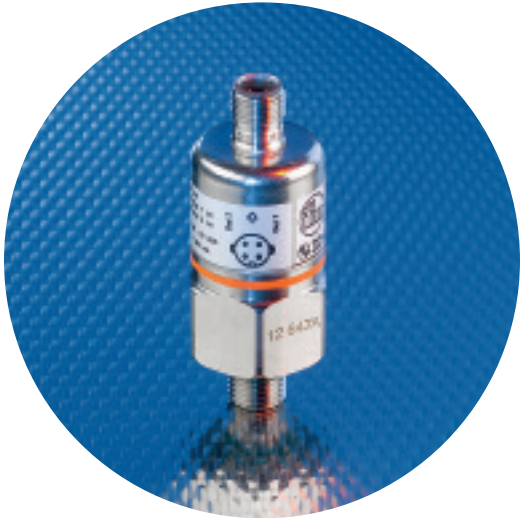
Technical Specs

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 (363psi/25bar ranges and lower: IP65)

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

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

Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



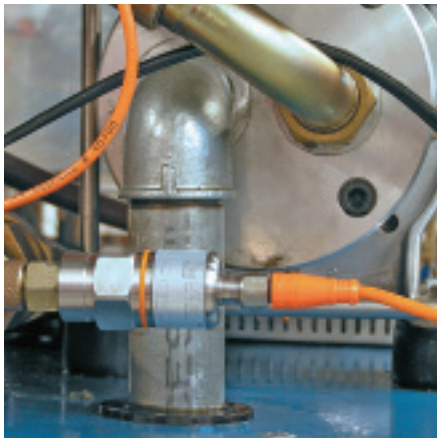
Top five product features!

- 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 gas-tight measuring cell that reliably detects gas and liquid pressure and withstands aggressive media.

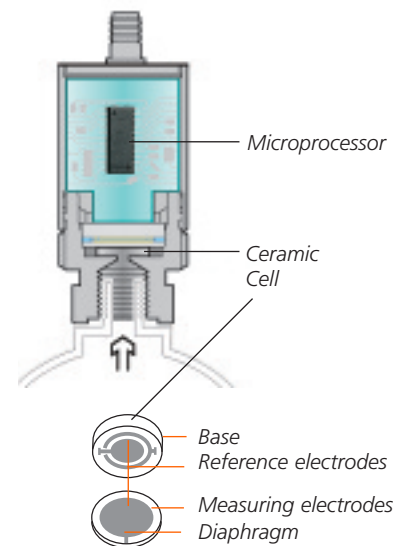


Capacitive sensing technology using ceramic measuring cells

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



Position

Company

Inductive

Cylinder position

Encoders

Capacitive

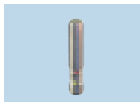
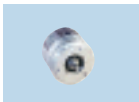
Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5

6 - 35

36 - 41

42 - 43

44 - 45

46 - 73

74 - 79

80 - 85

86 - 87


89 - 97









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	PX 3229	\$199.00
4...20 mA	0...100 inH ₂ O	4015 inH ₂ O	1/4" NPT Male	PX 3228	\$199.00
4...20 mA	0...15 psi	145 psi	1/4" NPT Male	PX 3227	\$199.00
4...20 mA	0...30 psi	290 psi	1/4" NPT Male	PX 3226	\$199.00
4...20 mA	0...100 psi	1087 psi	1/4" NPT Male	PX 3224	\$199.00
4...20 mA	0...150 psi	1087 psi	1/4" NPT Male	PX 3244	\$199.00
4...20 mA	0...200 psi	1087 psi	1/4" NPT Male	PX 3234	\$199.00
4...20 mA	0...250 psi	2175 psi	1/4" NPT Male	PX 3233	\$199.00
4...20 mA	0...500 psi	2175 psi	1/4" NPT Male	PX 3223	\$199.00
4...20 mA	0...1000 psi	4350 psi	1/4" NPT Male	PX 3222	\$199.00
4...20 mA	0...3000 psi	5800 psi	1/4" NPT Male	PX 3111	\$199.00
4...20 mA	0...5000 psi	11,600 psi	1/4" NPT Male	PX 3220	\$199.00
0...10 V	-14.5...0 psi	145 psi	1/4" NPT Male	PX 9119	\$199.00
0...10 V	0...100 inH ₂ O	4015 inH ₂ O	1/4" NPT Male	PX 9118	\$199.00
0...10 V	0...15 psi	145 psi	1/4" NPT Male	PX 9117	\$199.00
0...10 V	0...30 psi	290 psi	1/4" NPT Male	PX 9116	\$199.00
0...10 V	0...100 psi	1087 psi	1/4" NPT Male	PX 9114	\$199.00
0...10 V	0...200 psi	1087 psi	1/4" NPT Male	PX 9134	\$199.00
0...10 V	0...1000 psi	4350 psi	1/4" NPT Male	PX 9112	\$199.00
0...10 V	0...3000 psi	5800 psi	1/4" NPT Male	PX 9111	\$199.00
0...10 V	0...5000 psi	11,600 psi	1/4" NPT Male	PX 9110	\$199.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting clamp	E 10077	\$7.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75

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

Technical Specs

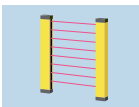








Supply voltage: PX3: 9.6...32 VDC; PX9: 16...32 VDC
 Max. load for PX3: [(supply voltage - 9.6) x 50] Ω
 Min. load for PX9: 2000 Ω
 Medium temperature range: -13...194 °F (-25...90 °C)
 Accuracy: < ± 0.75% of full range
 Repeatability: < ± 0.15% of full range
 Wetted parts: 303 stainless steel, ceramic, Viton
 Protection rating: IP68 / IP69K (363psi/25bar ranges and lower: IP65)

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

Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
								
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



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



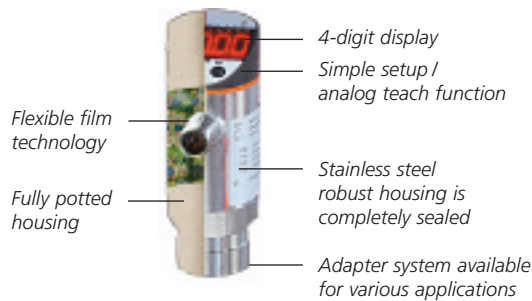
ifm offers the PN Series of pressure and vacuum transmitters for hydraulic and pneumatic applications. Simple pushbutton setup allows the sensor to be parameterized and mounted in less than 5 minutes.

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.



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

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



Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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 Port Size	Part No. G1/4 BSPP Port Size	List Price (1-pc.)
Vacuum transmitters · 4-20 mA / 0-10 V and PNP/NPN or dual PNP/NPN								
-14.5...14.5 psi	0.1 psi	-14.4...-2.9 psi	-7.1...14.5 psi	290 psi	mbar, psi, kPa, inHg, inH ₂ O	PN 2209	PN 2009	\$444.00
Pressure transmitters · 4-20 mA / 0-10 V and PNP/NPN or dual PNP/NPN								
-5...100.4 inH ₂ O	0.2 inH ₂ O	-5...40.2 inH ₂ O	20.2...100.4 inH ₂ O	4000 inH ₂ O	mbar, inH ₂ O, kPa, mmWS	PN 2228	PN 2028	\$444.00
-0.74...14.50 psi	0.02 psi	-0.74...5.80 psi	3.64...14.50 psi	145 psi	mbar, psi, kPa, inH ₂ O	PN 2227	PN 2027	\$444.00
-1.45...36.25 psi	0.05 psi	-1.80...14.50 psi	7.25...36.25 psi	290 psi	bar, psi, kPa	PN 2226	PN 2026	\$444.00
-14.5...145.0 psi	0.2 psi	-14.6...49.4 psi	25.4...145.0 psi	1087 psi	bar, psi, kPa	PN 2224	PN 2024	\$444.00
-14.5...362.5 psi	0.5 psi	-14.5...145.0 psi	76.0...362.5 psi	1450 psi	bar, psi, MPa	PN 2223	PN 2023	\$444.00
0...1450 psi	2 psi	0...580 psi	364...1450 psi	4350 psi	bar, psi, MPa	PN 2222	PN 2022	\$444.00
0...3625 psi	5 psi	0...1450 psi	905...3625 psi	5800 psi	bar, psi, MPa	PN 2221	PN 2021	\$444.00
0...5800 psi	10 psi	0...2320 psi	1450...5800 psi	8700 psi	bar, psi, MPa	PN 2220	PN 2020	\$444.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Transparent protective cover	E 30006	\$7.00
	G 1/4 BSPP male to 1/4" NPT male adapter	U 20172	\$16.00
	G 1/4 BSPP male to 7/16" SAE male adapter	U 20171	\$21.00
	1/4" NPT male to 1/4" NPT male	U 30039	\$9.50
	Mounting clamp	E 10077	\$7.00
	Conduit adapter	E 30062	\$73.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75

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

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 (363psi/25bar ranges and lower: IP65)



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

Fluids

Safety products	Pressure	Flow	Temperature	Level	Vibration
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171

Networking

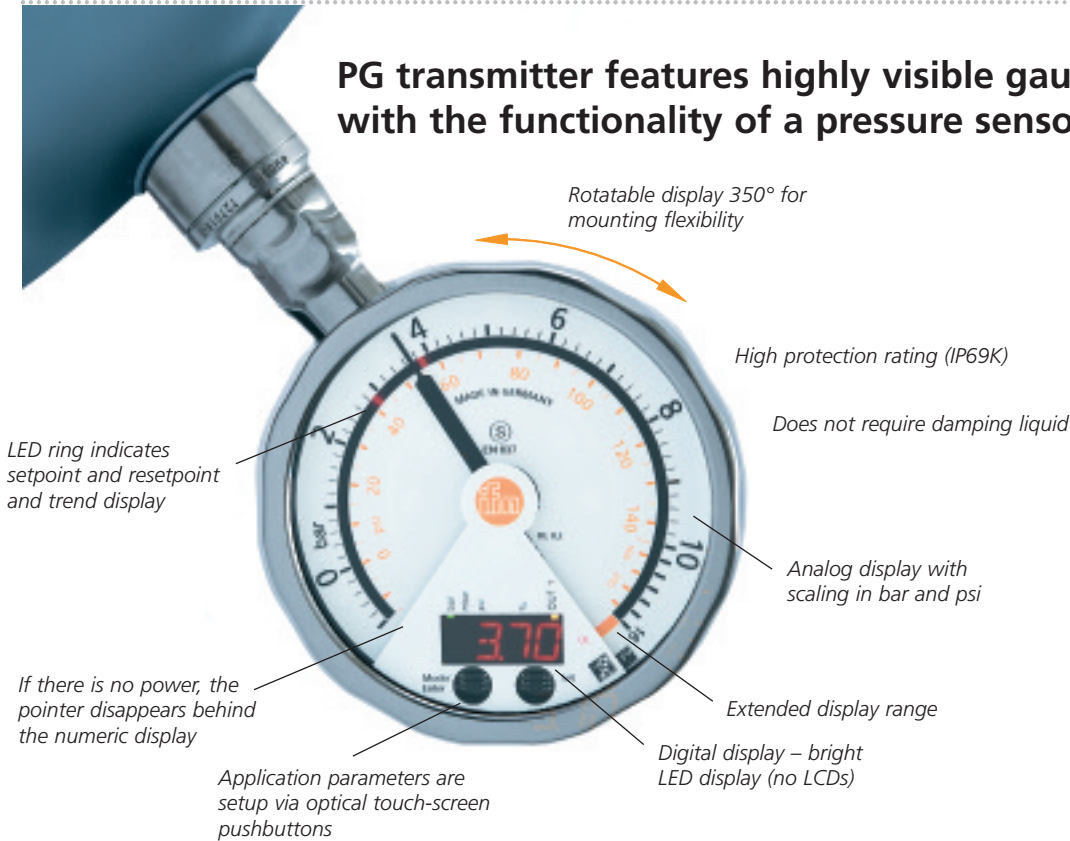
Cordset solutions	AS-i networking	Power supplies
173 - 183	184 - 193	194 - 195



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.

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5

6 - 35

36 - 41

42 - 43

44 - 45

46 - 73

74 - 79

80 - 85

86 - 87


89 - 97





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.)
-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	PG 2489	\$399.00
-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	PG 2458	\$399.00
-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	PG 2457	\$399.00
-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	PG 2456	\$399.00
-14.4...145 psi	232 psi	725 psi	-14.4...196 psi	22...232 psi	-14...232 psi	G 1/2 BSPP	PG 2454	\$399.00
-14.5...363 psi	580 psi	1450 psi	-14.5...490 psi	76...580 psi	-13...580 psi	G 1/2 BSPP	PG 2453	\$399.00
0...1449 psi	2322 psi	4350 psi	0...1959 psi	363...2322 psi	6...2322 psi	G 1/2 BSPP	PG 2452	\$399.00
0...3625 psi	5800 psi	8700 psi	0...5075 psi	725...5800 psi	15...5800 psi	G 1/2 BSPP	PG 2451	\$399.00
0...5800 psi	8700 psi	11,600 psi	0...7250 psi	1450...8700 psi	30...8700 psi	G 1/2 BSPP	PG 2450	\$399.00

Required Accessories

Type	Description	Part No.	List Price (1-pc.)
	G 1/2 BSPP to 1/2" NPT adapter	UP 0021	\$36.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75

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

Technical Specs

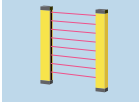





Operating voltage: 18...32 VDC
 Maximum load current: 250 mA
 Current consumption: < 70 mA
 Switchpoint accuracy: <± 0.6%
 Switchpoint accuracy in extended display range: <± 1.5%
 Repeatability: <± 0.1%
 Medium temperature: -13...176 °F (-25...80 °C)
 Wetted parts: 316L stainless steel, ceramic, FPM (Viton)
 Analog scaling turndown: 4:1
 Protection Rating: IP67/IP69K






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

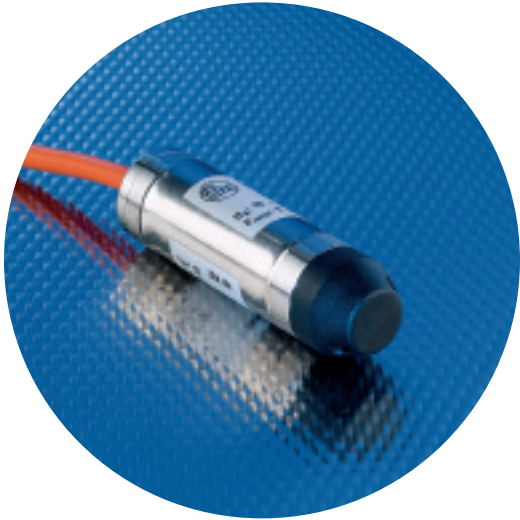
-  **Place orders, tech support**
800-441-8246
-  **Visit our product catalog**
www.ifm.com/us
-  **Shop for products online**
Easy ordering via eShop

Fluids

Safety products	Pressure	Flow	Temperature	Level	Vibration
					
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171

Networking

Cordset solutions	AS-i networking	Power supplies
		
173 - 183	184 - 193	194 - 195



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
- Three models available with measuring ranges of 100, 240 and 400 inH₂O
- 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.

Three models are available:

- 100 inH₂O measuring range with a 3 meter cable length
- 240 inH₂O measuring range with a 10 meter cable length
- 400 inH₂O measuring range with a 12 meter cable length

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

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



Product + accessory selector

Output	Measuring Range	Overload Pressure	Connection	Operating Voltage	Part No.	List Price (1-pc.)
4...20 mA	0...100 inH ₂ O	803 inH ₂ O	PUR cable 3 m	10...30 V DC	PS 3208	\$511.00
4...20 mA	0...241 inH ₂ O	1606 inH ₂ O	PUR cable 10 m	10...30 V DC	PS 3407	\$563.00
4...20 mA	0...401 inH ₂ O	2007 inH ₂ O	PUR cable 30 m	10...30 V DC	PS 3417	\$583.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Junction box with ventilation	E 30401	\$93.00
	Filter element to protect vent tube in cable	E 30400	\$9.00
	Cable clamp	E 30399	\$27.00
	Additional weight to stabilize transmitter	E 30402	\$58.00

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

Technical Specs

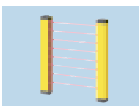
Maximum load: [(supply voltage - 10) x 50] Ω
 Medium temperature range: 14...122 °F (-10...50 °C)
 Accuracy: <± 0.5% of full range
 Repeatability: <± 0.1% of full range
 Wetted parts: 316 stainless steel
 Protection rating: IP68



On-time delivery with accuracy
 Our goal in the ifm Distribution Center is to ensure uptime in your facility.

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


Safety products



99 - 111


Fluids

Pressure




113 - 129

Flow




130 - 141

Temperature




142 - 155

Level



156 - 169


Vibration



170 - 171


Networking

Cordset solutions




173 - 183

AS-i networking




184 - 193

Power supplies



194 - 195





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

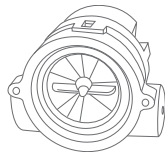
ifm's flow switches are an ideal alternative to mechanical flow switches



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 effector 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 effector 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 effector flow switches eliminate the maintenance headaches of mechanical flow switches.



Challenge

Mechanical flow switches that stick.

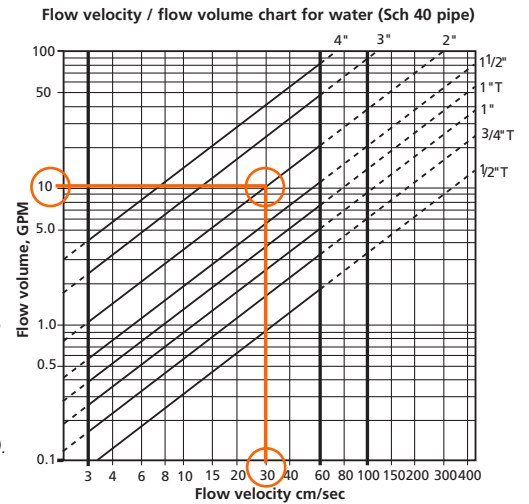


Solution

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 131): 3...100 cm/sec. for water
- SF xxxx (pg 133): 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

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5



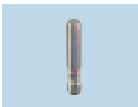
6 - 35



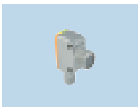
36 - 41



42 - 43



44 - 45



46 - 73



74 - 79



80 - 85



86 - 87



89 - 97



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)	SI 5010	\$297.00
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)	SI 5011	\$297.00
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)	SI 5006	\$346.00

* 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	E 40106	\$20.00
	1/2" NPT adapter, 316 stainless steel	E 40107	\$22.00
	3/4" NPT adapter, 304 stainless steel	U 40085	\$43.00
	1" NPT adapter, 304 stainless steel	U 40080	\$67.00
	G1/4 BSPP adapter, 316 stainless steel	E 40099	\$20.00
	G1/2 BSPP adapter, 316 stainless steel	E 40096	\$25.00
	Weldable adapter, carbon steel	E 40113	\$18.00
	Weldable adapter, 316 stainless steel	E 40124	\$37.00

Optional Accessories and Cordsets

Type	Description	Part No.	List Price (1-pc.)
	1/2" tee, brass	U 40029	\$17.00
	1/2" tee, stainless steel	U 40030	\$63.00
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75
	1/2" Micro AC (5-pin) 4 m, PUR (for SI5006)	E 18026	\$30.50
	1/2" Micro AC (5-pin) 4 m, PUR (for SI5006)	E 18027	\$30.50

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

Technical Specs

Medium temperature range: -13...176 °F (-25...80 °C)
 Ideal switchpoint setting range for oils: 60...600 ft/min (30...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

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

Safety products

99 - 111

Fluids

Pressure
Flow
Temperature
Level
Vibration

113 - 129
130 - 141
142 - 155
156 - 169
170 - 171

Networking

Cordset solutions
AS-i networking
Power supplies

173 - 183
184 - 193
194 - 195



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

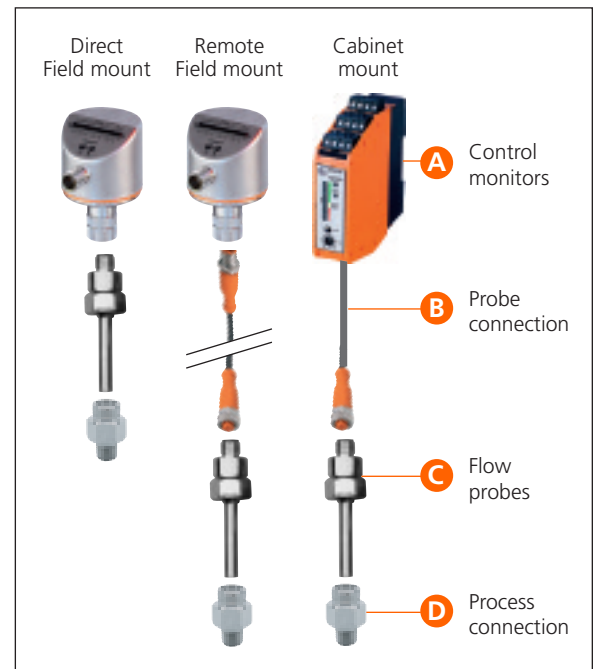
ifm's cabinet mount control monitor offers easy to access terminal connections and can be wired prior to installing inside the control cabinet. The connection to the flow probe is low voltage and does not require a conduit for protection. The control monitor's LED display provides a visual indication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

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5



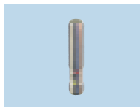
6 - 35



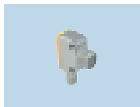
36 - 41



42 - 43



44 - 45



46 - 73



74 - 79



80 - 85



86 - 87



89 - 97



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	SR 5900	\$266.00
	Field mount control monitor	AC, relay	1/2" Micro AC	90...240 AC	yes / no / yes	SR 5906	\$299.00
	Cabinet mount control monitor	3 x SPDT relay	Combicon	24 VDC	yes / yes / yes	SR 0150	\$374.00
	Cabinet mount control monitor	3 x SPDT relay	Combicon	90...240 AC	yes / yes / yes	SN 0150	\$374.00

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 EVC 059 patchcord for remote mount	Use EVC 074 cordset for remote mount	SF 5200	\$219.00
	Requires E40174	Connect directly for field mount or use EVC 059 patchcord for remote mount	Use EVC 074 cordset for remote mount	SF 6200	\$254.00
	Requires E40106, E40107, U40085, or U40080	Use E11506 connector for remote mount	Wire directly to combicon cable connector	SF 5300	\$305.00

D Process connection

Type	Description	Part No.	List Price (1-pc.)
	1/2" NPT adapter (SF6200 only)	E 40174	\$59.00
	1/4" NPT adapter (SF5200 or SF5300)	E 40106	\$20.00
	1/2" NPT adapter (SF5200 or SF5300)	E 40107	\$22.00
	3/4" NPT adapter (SF5200 or SF5300)	U 40085	\$43.00
	1" NPT adapter (SF5200 or SF5300)	U 40080	\$67.00

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)	EVC 004	\$9.95
	1/2" Micro AC (5-pin), 4 m, PUR (for SR5906)	E 18027	\$30.50
	M12 Micro DC patchcord (5-pin), PUR (for SF 5200 or SF 6200)	EVC 059	\$32.00
	M12 Micro DC connector (5-pin), PA (for SF 5300)	E 11506	\$15.00
	M12 Micro DC Cordset (5-pin) 5 m, PUR (for SF 5200 or SF 6200)	EVC 074	\$17.00

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

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. 130)

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

156 - 169

170 - 171

173 - 183

184 - 193

194 - 195



Top five product features!

- In-line flow meter for chemical / additive dosing applications
- Designed to monitor small dosing quantities in water and aqueous solutions up to 200 ml/min.
- Meter indicates flow rate, process temperature and total flow volume
- 4-digit alphanumeric LED display with simple pushbutton display and 316 stainless steel wetted parts
- Fast response time and high response sensitivity

High precision flow meter

SQ Series volumetric flow meter is designed for chemical and additive dosing applications typically found in chemical processing, water treatment facilities, irrigation systems and fertigation skids. The SQ is designed to monitor small dosing quantities in water and aqueous solutions up to 200 ml/min.

Multiple parameters in one device

The SQ flow meter features a 4-digit numeric display with simple pushbutton setup. The meter indicates flow rate, process temperature and features a totalizer function. Various outputs include switching, pulse and analog.

Reliable sensing technology

The technology behind the SQ flow meter is based on the calorimetric flow sensing principle. Two sensing elements attached to the outside of the stainless steel measuring pipe 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 insure a constant temperature difference (CTD) between the two elements. The CTD method allows for greater sensitivity and provides the highest signal at the lowest flow rate.

Numeric display with pushbutton setup



The SQ Flow Meter is mounted in-line to provide exact dosing quantities in applications such as chemical processing, water treatment, irrigation systems and fertigation skids.


Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97




Product + accessory selector

Measuring range Flow [ml/min]	Outputs	Process Connection	Pulse Value [ml]	Scaleable Analog Start Point	Scaleable Analog End Point	Part No.	List Price (1-pc.)
1...200 ml/min	OUT1: PNP or pulse OUT2: PNP or 4...20 mA analog	G 1/8 BSPP	0.1 minimum in steps of 0.1 ml	0...150 ml/min	50...200 ml/min	SQ 0500	\$499.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	1/8" NPT adapter, zinc (two pieces required)	U 60102	\$7.50
	1/8" NPT adapter, 316 stainless steel (two pieces required)	US 0025	\$32.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75

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

Technical Specs

Supply voltage:	19...30 VDC
Maximum load current:	2 x 250 mA
Current consumption:	<110 mA
Measuring range temp:	32...140 F° (0...60 C°)
Accuracy (flow):	< 100 ml/min: ± (5% measured value + 0.8% of full range) > 100 ml/min: ± 15% measured value
Response time (flow):	< 0.3 sec for rising flow < 2.5 sec for falling flow
Pressure rating:	145 psi (10 bar)
Wetted parts:	316L stainless steel
Protection rating:	IP65
Analog scaling turndown:	4:1



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

Fluids

Safety
products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset
solutions

AS-i
networking

Power
supplies

99 - 111

113 - 129

130 - 141

142 - 155

156 - 169

170 - 171

173 - 183

184 - 193

194 - 195



Top five product features!

- Magnetic inductive flow technology provides high-precision measurement of all conductive media
- Monitors conductive media up to 26.4 gpm
- Configurable output: switching, pulse or analog (flow and temperature)
- Compact stainless steel housing
- No compromise in quality – high performance at a great price

Easy installation, simple setup

The SM Series Magmeter is designed to reliably detect the flow rate of conductive media up to 26.4 gallons per minute. The SM Magmeter's stainless steel, mechanically-robust design is mounted in-line providing a compact, low-profile installation occupying minimal space in the pipe.

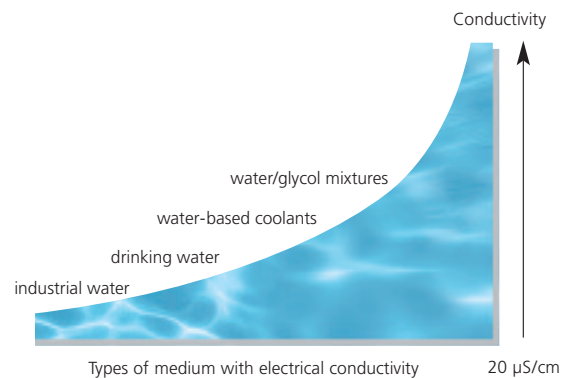
The sensor display includes a 4-digit numeric display with eight integrated LEDs that together indicate the flow rate (gal/min or l/min), total volume (gallons or liters), and temperature (°F or °C) of all conductive media. Simple pushbutton programming quickly establishes application parameters and the flow meter can be setup to provide a switching output, analog output and pulsed output. Electrical connection is made through an M12 connector.



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

Monitors conductive liquids >20µS/cm



The volumetric flow meter monitors a variety of conductive media > 20 µS / cm including

- industrial water
- drinking water
- water-based coolants
- water/glycol mixtures

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5

6 - 35

36 - 41

42 - 43

44 - 45

46 - 73

74 - 79

80 - 85

86 - 87





89 - 97





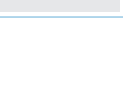
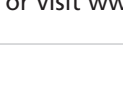


Product + accessory selector

Measuring Range (Flow)	Output	Measuring Range (Temperature)	Display Units Available	Part No.	List Price (1-pc.)
0...6.6 gpm	OUT1: PNP / NPN or pulse OUT2: PNP / NPN or 4...20 mA / 0...10V analog	-4...176 °F (-20...80 °C)	gpm, gph, gal, °F	SM 6001	\$477.00
0...25 l/min	OUT1: PNP / NPN or pulse OUT2: PNP / NPN or 4...20 mA / 0...10V analog	-4...176 °F (-20...80 °C)	lpm, m ³ /h, l, °C	SM 6000	\$477.00
0...25 l/min	OUT1: 4...20 mA analog temperature OUT2: 4...20 mA analog flow	-4...176 °F (-20...80 °C)	lpm, m ³ /h, gpm, gph, °C, °F	SM 6004	\$477.00
0...13.2 gpm	OUT1: PNP / NPN or pulse OUT2: PNP / NPN or 4...20 mA / 0...10V analog	-4...176 °F (-20...80 °C)	gpm, gph, gal, °F	SM 7001	\$569.00
0...50 l/min	OUT1: PNP / NPN or pulse OUT2: PNP / NPN or 4...20 mA / 0...10V analog	-4...176 °F (-20...80 °C)	lpm, m ³ /h, l, °C	SM 7000	\$569.00
0...50 l/min	OUT1: 4...20 mA analog temperature OUT2: 4...20 mA analog flow	-4...176 °F (-20...80 °C)	lpm, m ³ /h, gpm, gph, °C, °F	SM 7004	\$569.00
0...26.4 gpm	OUT1: PNP / NPN or pulse OUT2: PNP / NPN or 4...20 mA / 0...10V analog	-4...176 °F (-20...80 °C)	gpm, gph, gal, °F	SM 8001	\$685.00
0...100 l/min	OUT1: PNP / NPN or pulse OUT2: PNP / NPN or 4...20 mA / 0...10V analog	-4...176 °F (-20...80 °C)	lpm, m ³ /h, l, °C	SM 8000	\$685.00
0...100 l/min	OUT1: 4...20 mA analog temperature OUT2: 4...20 mA analog flow	-4...176 °F (-20...80 °C)	lpm, m ³ /h, gpm, gph, °C, °F	SM 8004	\$685.00

Required Accessories (2 adapters per package)

Type	Description	Part No.	List Price (1-pkg.)
	1/2" NPT adapter (for SM 600x), 316 stainless steel	E 40200	\$52.00
	1/2" NPT adapter (for SM 700x), 316 stainless steel	E 40191	\$52.00
	1/2" NPT adapter (for SM 800x), 316 stainless steel	E 40192	\$52.00
	3/4" NPT adapter (for SM 800x), 316 stainless steel	E 40193	\$52.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75

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

Technical Specs

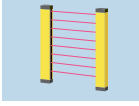





Supply voltage: 19...30 VDC (SMxxx4: 20...30 VDC)
 Maximum load current: 2 x 200 mA
 Voltage drop: <2 V
 Current consumption: 120 mA
 Load resistance for analog output: Max. 500 Ω (4...20 mA)
 Min. 2000 Ω (0...10 V)
 Accuracy (flow): ± (2% measured value + 0.5% of full range)
 Repeatability (flow): ± 0.2%
 Response time (flow): < 0.15 sec
 Pressure rating: 232 psi (16 bar)
 Medium temp range: 14...158 °F (-10...70 °C)
 Wetted parts: 316 stainless steel, PEEK, FKM (Viton)
 Protection rating: IP67






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

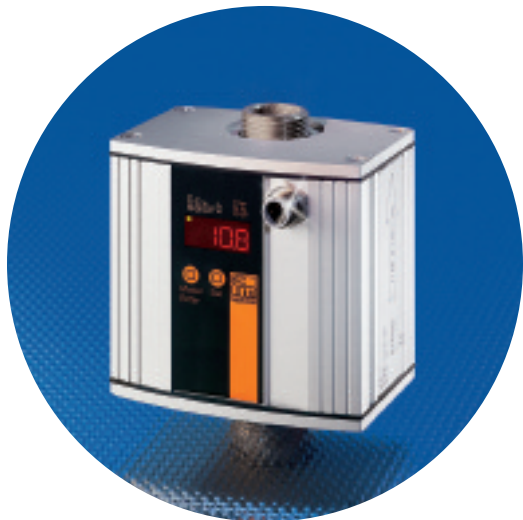
-  **Place orders, tech support**
800-441-8246
-  **Visit our product catalog**
www.ifm.com/us
-  **Shop for products online**
Easy ordering via eShop

Fluids

Safety products	Pressure	Flow	Temperature	Level	Vibration
					
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171

Networking

Cordset solutions	AS-i networking	Power supplies
		
173 - 183	184 - 193	194 - 195



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

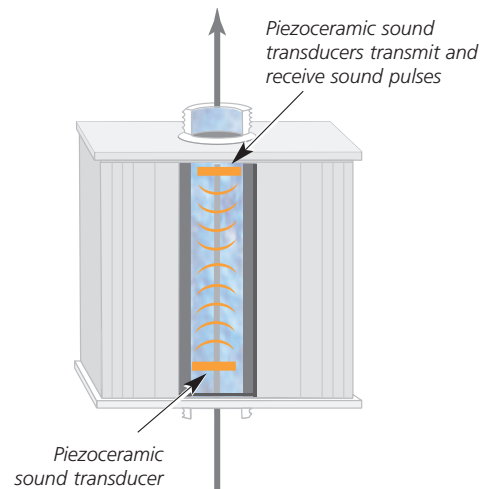
a simple pushbutton setup. The meter can be programmed to provide switching output (flow rate and/or temperature), pulse output (flow volume), or analog output (flow rate or temperature).

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.

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5



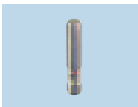
6 - 35



36 - 41



42 - 43



44 - 45



46 - 73



74 - 79



80 - 85



86 - 87



89 - 97



Product + accessory selector

Measuring Range (Flow)	Output	Measuring Range (Temperature)	Display Units Available	Part No.	List Price (1-pc.)
0...13.2 gpm	OUT1: PNP / NPN or pulse OUT2: PNP / NPN or 4...20 mA / 0...10V analog	14...176 °F (-10...80 °C)	gpm, gph, gal, °F	SU 7001	\$672.00
0...50 lpm	OUT1: PNP / NPN or pulse OUT2: PNP / NPN or 4...20 mA / 0...10V analog	14...176 °F (-10...80 °C)	lpm, m³/h, l, °C	SU 7000	\$672.00
0...26.4 gpm	OUT1: PNP / NPN or pulse OUT2: PNP / NPN or 4...20 mA / 0...10V analog	14...176 °F (-10...80 °C)	gpm, gph, gal, °F	SU 8001	\$696.00
0...100 lpm	OUT1: PNP / NPN or pulse OUT2: PNP / NPN or 4...20 mA / 0...10V analog	14...176 °F (-10...80 °C)	lpm, m³/h, l, °C	SU 8000	\$696.00
0...53 gpm	OUT1: PNP / NPN or pulse OUT2: PNP / NPN or 4...20 mA / 0...10V analog	14...176 °F (-10...80 °C)	gpm, gph, gal, °F	SU 9001	\$1,235.00
0...200 lpm	OUT1: PNP / NPN or pulse OUT2: PNP / NPN or 4...20 mA / 0...10V analog	14...176 °F (-10...80 °C)	lpm, m³/h, l, °C	SU 9000	\$1,235.00
0...200 lpm	OUT1: 4...20 mA analog temperature OUT2: 4...20 mA analog flow	14...176 °F (-10...80 °C)	lpm, m³/h, gpm, gph, °C, °F	SU 9004	\$1,235.00

Required Accessories (2 adapters per package)

Type	Description	Part No.	List Price (1-pkg.)
	1/2" NPT adapter (for SU 700x), 316 stainless steel	E 40191	\$52.00
	1/2" NPT adapter (for SU 800x), 316 stainless steel	E 40192	\$52.00
	3/4" NPT adapter (for SU 800x), 316 stainless steel	E 40193	\$52.00
	1" NPT adapter (for SU 900x), 316 stainless steel	E 40206	\$199.00

Optional Accessories and Cordsets

Type	Description	Part No.	List Price (1-pc.)
	SU mounting bracket	E 40166	\$24.00
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75

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

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



On-time delivery with accuracy
 Our goal in the ifm Distribution Center is to ensure uptime in your facility.

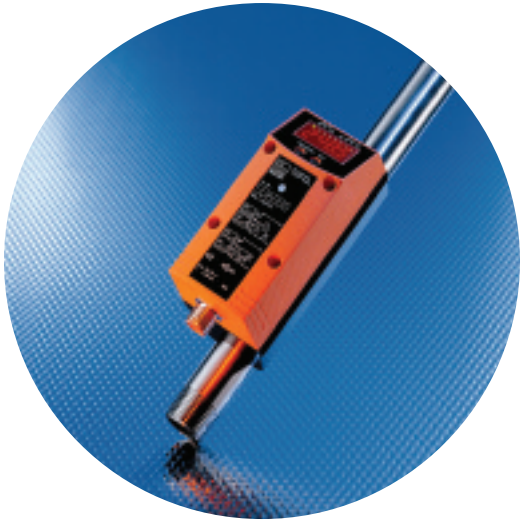
- Place orders, tech support**
800-441-8246
- Visit our product catalog**
www.ifm.com/us
- Shop for products online**
Easy ordering via eShop

Fluids

Networking

Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195

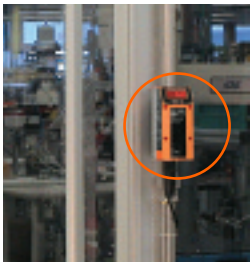




Top five product features!

- In-line flow meter monitors compressed air systems and specialty gases (Ar, CO₂, N₂)
- 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 with and without integrated pipes ensure easy mounting and installation

efector metris compressed air and specialty gas meter



efector Metris monitors compressed air and specialty gases such as Argon (Ar), Carbon dioxide (CO₂), and Nitrogen (N₂) 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.

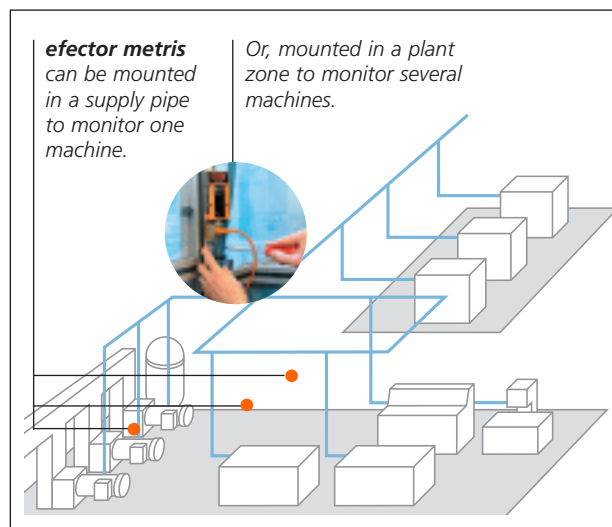
The compact sensor is fitted with an integrated pipe to ensure easy mounting and proper installation depth. The sensor's 4-digit numeric display provides air and gas consumption readings and features

microprocessor-based pushbutton setup. Three display options are available: cubic feet per minute, cubic feet per hour, and total consumed 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.

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5



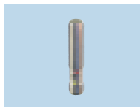
6 - 35



36 - 41



42 - 43



44 - 45



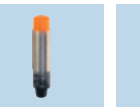
46 - 73



74 - 79



80 - 85



86 - 87



89 - 97




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							
Dual 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	SD 6001	\$691.00
		1" NPT	0...132	0...7945	0...4,294,967	SD 8001	\$720.00
		2" NPT	0...412	0...24,720	0...4,294,967	SD 2001	\$958.00

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								
Dual 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	SD 6101	\$746.00

Required Accessories

Type	Description	Part No.	List Price (1-pc.)
	Totalizer (pulse output) display with dual switching output	DX 2003	\$433.00
	Analog signal display, with dual switching output	DX 2012	\$509.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75

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

Technical Specs

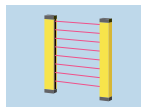
Supply voltage: 19...30 VDC
 Maximum load current: 2 x 250mA
 Current consumption: < 100mA
 Response time: < 0.1 sec
 Maximum relative air humidity: 90%
 Pressure rating: 230 psi (16 bar)
 Medium temperature range: 32...140 °F (0...60 °C)
 Wetted parts: 304 stainless steel, ceramics, passivated glass, PEEK, polyester, Viton, anodized aluminum
 Protection: IP65



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


Safety products



99 - 111


Fluids

Pressure




113 - 129

Flow




130 - 141

Temperature




142 - 155

Level



156 - 169


Vibration



170 - 171


Networking

Cordset solutions




173 - 183

AS-i networking



184 - 193

Power supplies



194 - 195



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										
Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors	
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97	



Product + accessory selector

Output 1/ Output 2	RTD Length	Setpoint Range	Resetpoint Range	Process Connection	Response Time	Part No.	List Price (1-pc.)
PNP, NO / NC adjustable hysteresis	35 mm	3...284 °F (-16...+140 °C)	-4...+277 °F (-20...+136 °C)	1/4" NPT	< 3 sec.	TK 6330	\$132.00
PNP, 2X NO with fixed hysteresis (9 °F / 5 °C)	35 mm	-4...284 °F (-20...+140 °C)	-	1/4" NPT	< 3 sec.	TK 7330	\$132.00
PNP, NO / NC adjustable hysteresis	39 mm	3...284 °F (-16...+140 °C)	-4...+277 °F (-20...+136 °C)	G1/4 BSPP	< 3 sec.	TK 6130	\$132.00
PNP, 2X NO with fixed hysteresis (9 °F / 5 °C)	39 mm	-4...284 °F (-20...+140 °C)	-	G1/4 BSPP	< 3 sec.	TK 7130	\$132.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Protective cover	E 30094	\$8.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR, LED	EVC 007	\$12.75
	M12 Micro DC (4-pin) 5 m, PUR, LED	EVC 008	\$14.25
	M12 Micro DC (4-pin) 10 m, PUR, LED	EVC 009	\$17.25

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

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

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

156 - 169

170 - 171

173 - 183

184 - 193

194 - 195



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 with-

stands 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.

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

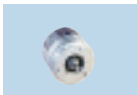
Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5

6 - 35

36 - 41

42 - 43

44 - 45

46 - 73

74 - 79

80 - 85

86 - 87






89 - 97






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	TN 2531	\$278.00
2 X PNP / NPN N.O./N.C.	-40...+302 °F -40...+150 °C	0.1 °F 0.1 °C	—	—	See Required Accessories	TN 7531	\$251.00

Required Accessories (choose 1)

Description	Part No.	List Price (1-pc.)
 1/4" NPT adapter	E 40106	\$20.00
1/2" NPT adapter	E 40107	\$22.00
 3/4" NPT adapter	U 40085	\$43.00
1" NPT adapter	U 40080	\$67.00
 G1/4 BSSP adapter	E 40099	\$20.00
G1/2 BSSP adapter	E 40096	\$25.00
 Weldable adapter, carbon steel	E 40113	\$18.00
Weldable adapter, 316 stainless steel	E 40124	\$37.00
 1/2" NPT thermowell, 27 mm (no other adapters required)	UT 0028	\$41.00

Cordsets and Optional Accessories

Description	Part No.	List Price (1-pc.)
 M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
 M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75
 Transparent protective cover	E 30006	\$7.00

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

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



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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

156 - 169

170 - 171

173 - 183

184 - 193

194 - 195



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

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5



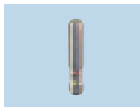
6 - 35



36 - 41



42 - 43



44 - 45



46 - 73



74 - 79



80 - 85



86 - 87



89 - 97



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	TA 3337	\$189.00
	1.8 in	0 - 300 °F	4 - 20 mA	1/4" NPT	TA 3333	\$189.00
	4.8 in	0 - 100 °C	4 - 20 mA	See required accessories	TA 3237	\$189.00
	4.8 in	0 - 300 °F	4 - 20 mA	See required accessories	TA 3233	\$189.00

Required Accessories

Type	Description	Part No.	List Price (1-pc.)
	1/4" NPT adapter (for TA3237 & TA3233)	E 30049	\$31.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75

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

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



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

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

156 - 169

170 - 171

173 - 183

184 - 193

194 - 195





Top five product features!

- Transmitter provides long-term, highly accurate temperature indication in a variety of industrial automation applications
- No calibration necessary – dual sensing elements provide continuous temperature drift monitoring
- Eliminates need for regular and costly calibration checks
- 2-wire transmitter allows for quick and easy installation
- Scaleable analog and diagnostic outputs provide process temperature and drift warning / alarm conditions

TAD temperature transmitter indicates process temperature in critical applications

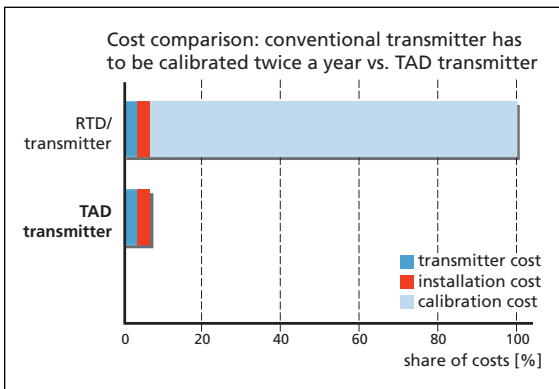
The TAD temperature transmitter features high-precision RTD and NTC measuring elements that monitor process temperature in a variety of industrial automation applications. Dual measuring elements ensure that a developing sensor drift is detected and reliably diagnosed. If one measuring element fails, the process continues with the second measuring element (back-up function). Therefore, no calibration is necessary.

Drift thresholds and parameters can be easily set using configuration software. Once setpoints are established, the TAD continuously self-monitors temperature drift.

Continuous self-verifying eliminates need for regular calibration checks



The TAD transmitter provides a switching output to indicate when a drift occurs. The warning and alarm levels are configurable.



efector TAD: Cost savings up to 95%

When compared to a typical RTD / transmitter system that requires regular calibration (2x per year), the TAD temperature transmitter provides a significant cost savings over a five-year period.

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



Product + accessory selector

	Output	Process Connection	RTD Length	Drift Detection Setting Range	In Steps of	Scaleable Analog Start Point	Scaleable Analog End Point	Part No.	List Price (1-pc.)
	4-20 mA / 20...4 mA and diagnostic PNP/NPN	G 1/2 BSPP	33 mm	0.4...9.0 °F (0.2...5.0 °C)	0.1 °F (0.05 °C)	-13...+212 °F (-25...100 °C)	104...302 °F (40...150 °C)	TAD 991	\$389.00
	4-20 mA / 20...4 mA and diagnostic PNP/NPN	G 1/2 BSPP	87.5 mm	0.4...9.0 °F (0.2...5.0 °C)	0.1 °F (0.05 °C)	-13...+212 °F (-25...100 °C)	104...302 °F (40...150 °C)	TAD 191	\$410.00

Accessories

	Description	Part No.	List Price (1-pc.)
	1/2" NPT Compression fitting, 316 stainless steel	E 30024	\$24.00
	Weldable adapter, 316 stainless steel	E 30055	\$55.00
	Thread cover (optional), 316 stainless steel	E 30090	\$40.00
	Weldable thermowell for TAD 191, 316 stainless steel	E 30403	\$88.00
	USB Programming device	E 30396	\$299.00

Cordsets

	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75

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

Technical Specs

Supply voltage: 18...32 VDC
 Maximum load current: 250 mA
 Current consumption: < 6mA (at 24 VDC)
 Max load for analog output: [(supply voltage -15) x 50]Ω
 Accuracy for drift monitoring: <± 0.54 °F (0.3 °C)
 Accuracy of analog output: <± 0.54 °F (0.3 °C)
 Pressure rating: 725 psi (50 bar)
 Wetted parts: 316 stainless steel
 Ambient temperature: -13...158 °F (-25...70 °C)
 Protection rating: IP68 / IP69K

On-time delivery with accuracy

Our goal in the ifm Distribution Center is to ensure uptime in your facility.

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

Fluids

99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171

Networking

173 - 183	184 - 193	194 - 195





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.

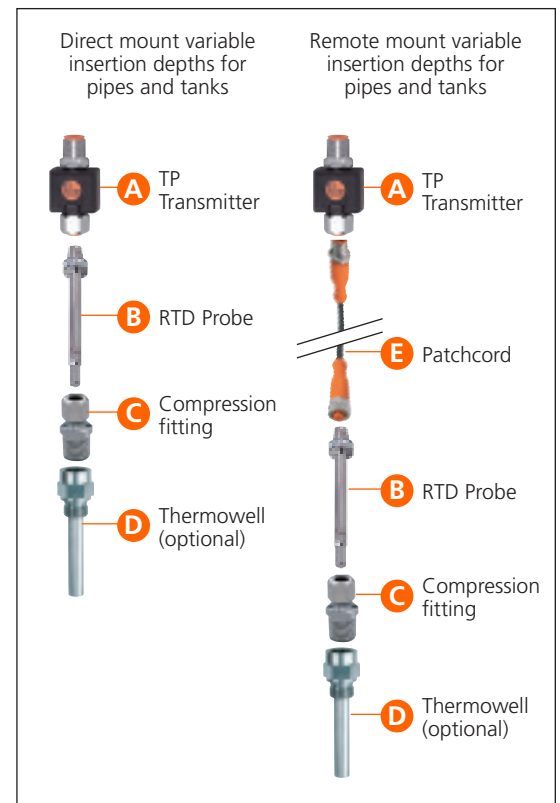
Error sources from screw terminals, wiring mistakes, and fluid ingress are eliminated. An integrated LED gives local indication that the transmitter is powered and transmitting.











Challenge	Solution
 <p>Bulky traditional head transmitters are costly and are subject to moisture ingress.</p>	 <p>ifm's compact TP transmitter is rated to withstand liquid ingress and provide reliable temperature indication</p>

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 its "overmolded" construction, the TP is suitable for harsh environments allowing for use in almost any application.

Component guide



Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
									
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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.)
	4-20mA	-58...302 °F (-50...150 °C)	-58...+563 °F (-50...+295 °C)	-49...+572 °F (-45...+300 °C)	0.1 °F (0.1 °C)	TP 3231	\$79.00
		-58...572 °F (-50...300 °C)	-58...+563 °F (-50...+295 °C)	-49...+572 °F (-45...+300 °C)	0.1 °F (0.1 °C)	TP 3232	\$79.00
		0...300 °F (-18...149 °C)	-58...+563 °F (-50...+295 °C)	-49...+572 °F (-45...+300 °C)	0.1 °F (0.1 °C)	TP 3233	\$79.00
		32...212 °F (0...100 °C)	-58...+563 °F (-50...+295 °C)	-49...+572 °F (-45...+300 °C)	0.1 °F (0.1 °C)	TP 3237	\$79.00

B 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)	TT 1081	\$70.00
7.9 inch (200 mm)	10.2 inch (260 mm)	10 mm	-40...302 °F (-40...150 °C)	TT 2081	\$77.00
11.8 inch (300 mm)	14.2 inch (360 mm)	10 mm	-40...302 °F (-40...150 °C)	TT 3081	\$83.00
19.7 inch (500 mm)	22.0 inch (560 mm)	10 mm	-40...302 °F (-40...150 °C)	TT 5081	\$88.00

* For other RTD probes and accessories, please see page 155.

Accessories

Type	Description	Part No.	List Price (1-pc.)
	1/2" NPT Compression fitting	E 30024	\$24.00
	1/2" NPT Thermowell, 100 mm	UT 0009	\$29.00
	1/2" NPT Thermowell, 200 mm	UT 0010	\$35.00
	1/2" NPT Thermowell, 300 mm	UT 0011	\$41.00
	1/2" NPT Thermowell, 500 mm	UT 0012	\$48.00
	Thermal grease for thermowells	700692	\$2.50
	USB programming device	E 30396	\$299.00

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

Cordsets

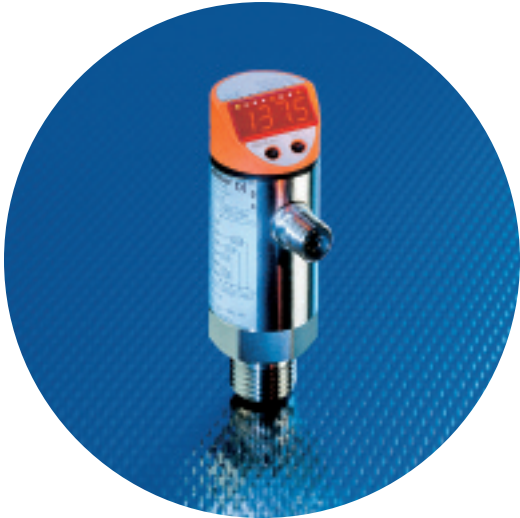
Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75

E Patchcords for remote mount

Type	Description	Part No.	List Price (1-pc.)
	M12, straight to straight, 2 m, PUR	EVC 013	\$17.75
	M12, straight to straight, 5 m, PUR	EVC 014	\$18.75
	M12, straight to straight, 10 m, PUR	EVC 108	\$23.75

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

Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



Top five product features!

- Integrated display with switching and transmitter outputs
- Easy handling for tanks
- Direct or remote mount display for flexible installation
- 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

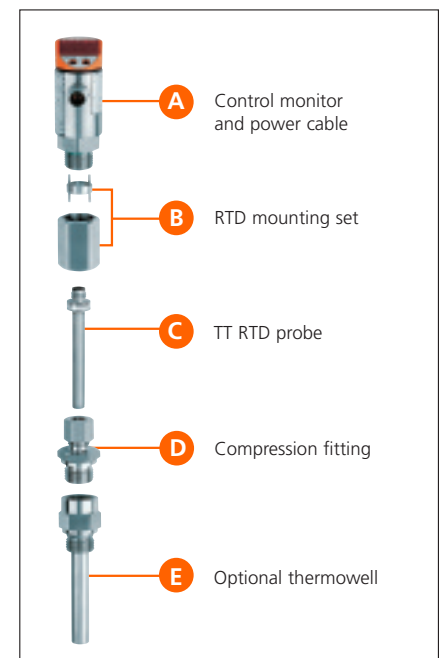
The TR Series process temperature monitors provide highly accurate temperature indication of fluids. The monitor's integrated display allows a user to view temperature directly at the process. The robust, stainless steel housing withstands harsh conditions. Programmable in either °F or °C, the highly-visible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

Challenge	Solution
<p><i>Bulky head-and-well assemblies with open cavities are subject to liquid ingress and do not have localized displays.</i></p>	<p><i>ifm's zero-leak, compact temperature monitor connects to a variety of RTDs and features local numeric display.</i></p>

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




Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97




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	TR 2432	\$256.00
	Dual PNP/NPN N.O./N.C.	-40...+572 °F -40...+300 °C	0.1 °F 0.1 °C	—	—	TR 7432	\$217.00

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)	TT 1081	\$70.00
	7.9 inch (200 mm)	10.2 inch (260 mm)	10 mm	-40...302 °F (-40...150 °C)	TT 2081	\$77.00
	11.8 inch (300 mm)	14.2 inch (360 mm)	10 mm	-40...302 °F (-40...150 °C)	TT 3081	\$83.00
	19.7 inch (500 mm)	22.0 inch (560 mm)	10 mm	-40...302 °F (-40...150 °C)	TT 5081	\$88.00

* For other RTD probes and accessories, please see page 155.

Accessories

Type	Description	Part No.	List Price (1-pc.)
	RTD mounting set	E 30017	\$31.00
	1/2" NPT Compression fitting, 316 stainless steel	E 30024	\$24.00
	1/2" NPT Thermowell, 100 mm, 316 stainless steel	UT 0009	\$29.00
	1/2" NPT Thermowell, 200 mm, 316 stainless steel	UT 0010	\$35.00
	1/2" NPT Thermowell, 300 mm, 316 stainless steel	UT 0011	\$41.00
	1/2" NPT Thermowell, 500 mm, 316 stainless steel	UT 0012	\$48.00
	Thermal grease for thermowells	700692	\$2.50

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75

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

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**
800-441-8246
-  **Visit our product catalog**
www.ifm.com/us
-  **Shop for products online**
Easy ordering via eShop

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

156 - 169

170 - 171

173 - 183

184 - 193

194 - 195



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 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)	TM 9950	\$102.00

B Process Fitting

	Part No.	List Price (1-pc.)
1/4" NPT adapter	E 40106	\$20.00
1/2" NPT adapter	E 40107	\$22.00
3/4" NPT adapter	U 40085	\$43.00
1" NPT adapter	U 40080	\$67.00
G1/4 BSPP adapter	E 40099	\$20.00
G1/2 BSPP adapter	E 40096	\$25.00
Weldable adapter, carbon steel	E 40113	\$18.00
Weldable adapter, 316 stainless steel	E 40124	\$37.00

C Optional Thermowell, 1/2" NPT

	Part No.	List Price (1-pc.)
1/2" NPT thermowell, 27 mm (no other adapters required)	UT 0028	\$41.00

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



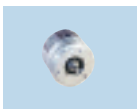
1 - 5



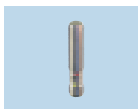
6 - 35



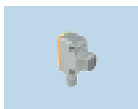
36 - 41



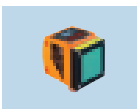
42 - 43



44 - 45



46 - 73



74 - 79



80 - 85



86 - 87



89 - 97



Selection Guide for RTD Probes, Fittings and Thermowells (continued)

A 6 mm diameter · Pt 1000 · M12 quick disconnect

Usable Length (after fitting)	Temperature Range	Part No.	List Price (1-pc.)
3.9 inch (100 mm)	-40...302 °F (-40... 150 °C)	TT 1250	\$88.00
7.9 inch (200 mm)	-40...302 °F (-40... 150 °C)	TT 2250	\$128.00
11.8 inch (300 mm)	-40...302 °F (-40... 150 °C)	TT 3250	\$135.00

B Compression Fitting

Part No.	List Price (1-pc.)
E30049 1/4" NPT	\$31.00
E30049 1/4" NPT	\$31.00
E30049 1/4" NPT	\$31.00

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

Length	Part No.	List Price (1-pc.)
100 mm	UT 0022	\$31.00
200 mm	UT 0023	\$36.00
300 mm	UT 0024	\$41.00

A 10 mm diameter · Pt 100 · M12 quick disconnect

Usable Length (after fitting)	Temperature Range	Part No.	List Price (1-pc.)
3.9 inch (100 mm)	-40...302 °F (-40... 150 °C)	TT 1081	\$70.00
7.9 inch (200 mm)	-40...302 °F (-40... 150 °C)	TT 2081	\$77.00
11.8 inch (300 mm)	-40...302 °F (-40... 150 °C)	TT 3081	\$83.00
19.7 inch (500 mm)	-40...302 °F (-40... 150 °C)	TT 5081	\$88.00

B Compression Fitting

Part No.	List Price (1-pc.)
E30024 1/2" NPT	\$24.00
E30024 1/2" NPT	\$24.00
E30024 1/2" NPT	\$24.00
E30024 1/2" NPT	\$24.00

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

Length	Part No.	List Price (1-pc.)
100 mm	UT 0009	\$29.00
200 mm	UT 0010	\$35.00
300 mm	UT 0011	\$41.00
500 mm	UT 0012	\$48.00

A 10 mm diameter · Prewired with M12 quick disconnect

Cable Length	RTD Element	Temperature Range	Part No.	List Price (1-pc.)
2 m, FPM (Viton)	Pt 1000	-40...302 °F (-40... 150 °C)	TS 2051	\$59.00
5 m, FPM (Viton)	Pt 1000	-40...302 °F (-40... 150 °C)	TS 5051	\$65.00
2 m, PTFE	Pt 100	High Temp -58...482 °F (-50... 250 °C)	TS 2056	\$102.00

B Compression Fitting

Part No.	List Price (1-pc.)
E30025 1/2" NPT	\$24.00
E30025 1/2" NPT	\$24.00
E30025 1/2" NPT	\$24.00

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

Length	Part No.	List Price (1-pc.)
100 mm	UT 0009	\$29.00
200 mm	UT 0010	\$35.00
300 mm	UT 0011	\$41.00
500 mm	UT 0012	\$48.00

* Thermal grease for thermowells (order separately), Part No. 70692, 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)	TS 2229	\$63.00

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	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75

Navigation bar with categories: Safety products, Fluids, Networking, Cordset solutions, AS-i networking, Power supplies.

Fluids sub-categories: Pressure, Flow, Temperature (highlighted), Level, Vibration.

Product grid with images and part numbers: 99 - 111, 113 - 129, 130 - 141, 142 - 155 (highlighted), 156 - 169, 170 - 171, 173 - 183, 184 - 193, 194 - 195.



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.

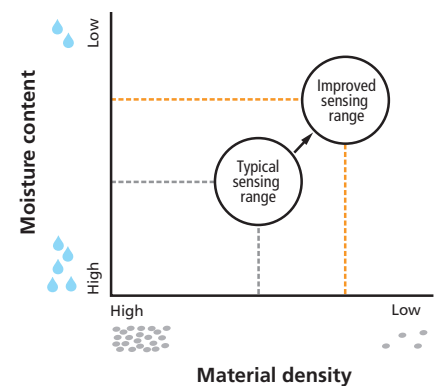
Pushbutton teach function

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.



Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97







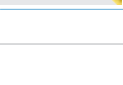
Product + accessory selector


Output Function	Housing Diameter	Sensing Face Temperature	Sensor Connection	Part No.	List Price (1-pc.)
DC units 					
PNP / NPN - N.O. or N.C.	30 mm	-13...230 °F (-25...110 °C)	M12 Micro DC	KI 5082	\$120.00
PNP - N.O. or N.C.	30 mm	-13...230 °F (-25...110 °C)	M12 Micro DC	KI 5083	\$120.00
PNP / NPN - N.O. or N.C.	18 mm	-13...230 °F (-25...110 °C)	M12 Micro DC	KG 5065	\$153.00
PNP - N.O. or N.C.	18 mm	-13...230 °F (-25...110 °C)	M12 Micro DC	KG 5066	\$153.00
AC units 					
N.O. or N.C.	30 mm	-13...230 °F (-25...110 °C)	1/2" Micro AC	KI 0054	\$145.00
N.O. or N.C.	18 mm	-13...230 °F (-25...110 °C)	1/2" Micro AC	KG 0016	\$145.00

Optional Accessories



Type	Description	Part No.	List Price (1-pc.)
	3/4" NPT Mounting adapter, PTFE (KG series 18 mm housing)	U10000	\$44.00
	1-1/4" NPT Mounting adapter, PTFE (KI series 30 mm housing)	U10003	\$46.00
	1/2" OD... 3/4" OD Sight glass mounting set, Delrin (KI series 30 mm housing)	U20213	\$36.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR, LED	EVC 007	\$12.75
	M12 Micro DC (4-pin) 5 m, PUR, LED	EVC 008	\$14.25
	M12 Micro DC (4-pin) 10 m, PUR, LED	EVC 009	\$17.25
	1/2" Micro AC 2 m, PVC	E 18212	\$13.50
	1/2" Micro AC 5 m, PVC	E 18213	\$16.50
	1/2" Micro AC 2 m, PVC	E 18214	\$13.50
	1/2" Micro AC 5 m, PVC	E 18215	\$16.50

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

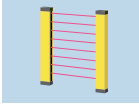








Technical Specs

	 DC units	 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

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

Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
								
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



Top five product features!

- No moving parts for reliable point-level indication
- Easy setpoint adjustment with 15-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

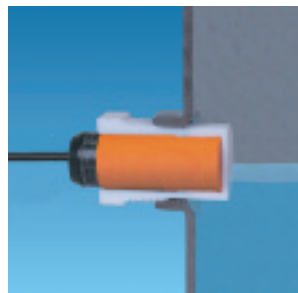
The sensors feature a potentiometer that adjusts the sensitivity of the sensor. This feature allows the sensor to be precisely tuned for a specific application. These sensors are available in prewired, quick disconnect, and terminal chamber models.

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.

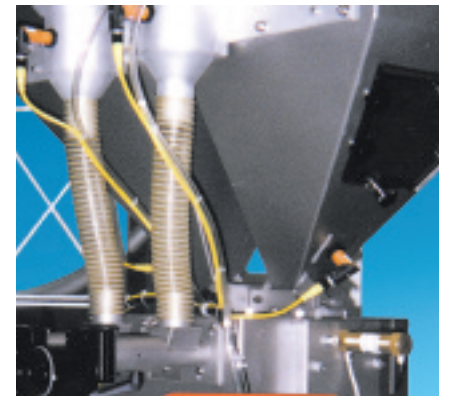


The KI and KG sensors detect granulars such as plastic regrind.













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.

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
									
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



Product + accessory selector

Output Function	Housing Diameter	Sensing Face Temperature	Electrical Connection	Supply Voltage	Part No.	List Price (1-pc.)
DC units						
PNP, N.O. / N.C.	30 mm	-13...158 °F (-25...70 °C)	Prewired, 2 m cable	10...36 VDC	KI 5207	\$116.00
NPN, N.O. / N.C.	30 mm	-13...158 °F (-25...70 °C)	Prewired, 2 m cable	10...36 VDC	KI 5208	\$116.00
PNP, N.O. / N.C.	30 mm	-13...176 °F (-25...80 °C)	0.1 m pigtail with M12 micro DC	10...36 VDC	KI 5209	\$116.00
NPN, N.O. / N.C.	30 mm	-13...176 °F (-25...80 °C)	0.1 m pigtail with M12 micro DC	10...36 VDC	KI 5210	\$116.00
PNP, N.O.	18 mm	-13...176 °F (-25...80 °C)	Prewired, 2 m cable	10...36 VDC	KG 5043	\$175.00
PNP, N.C.	18 mm	-13...176 °F (-25...80 °C)	Prewired, 2 m cable	10...36 VDC	KG 5044	\$175.00
NPN, N.O.	18 mm	-13...176 °F (-25...80 °C)	Prewired, 2 m cable	10...36 VDC	KG 5045	\$175.00
NPN, N.C.	18 mm	-13...176 °F (-25...80 °C)	Prewired, 2 m cable	10...36 VDC	KG 5046	\$175.00
AC units						
N.O.	30 mm	-13...158 °F (-25...70 °C)	Prewired, 2 m cable	20...250 VAC	KI 0202	\$140.00
N.C.	30 mm	-13...158 °F (-25...70 °C)	Prewired, 2 m cable	20...250 VAC	KI 0203	\$140.00
N.O./N.C.	30 mm	-13...158 °F (-25...70 °C)	Terminal chamber	20...250 VAC	KI 0205	\$150.00
N.O./N.C.	30 mm	-13...158 °F (-25...70 °C)	0.1 m pigtail with 1/2" Micro AC	20...250 VAC	KI 0206	\$140.00
N.O./N.C.	30 mm	-13...158 °F (-25...70 °C)	0.1 m pigtail with 1/2" Micro AC	20...250 VAC	KI 0207	\$140.00
N.C./N.O.	30 mm	-13...158 °F (-25...70 °C)	1/2" Micro AC	20...250 VAC	KI 3511	\$165.00
N.O./N.C.	30 mm	-13...158 °F (-25...70 °C)	1/2" Micro AC	20...250 VAC	KI 3513	\$165.00
N.O.	18 mm	-13...158 °F (-25...70 °C)	Prewired, 2 m cable	20...250 VAC	KG 0009	\$156.00
N.C.	18 mm	-13...158 °F (-25...70 °C)	Prewired, 2 m cable	20...250 VAC	KG 0010	\$156.00
N.O./N.C.	18 mm	-13...158 °F (-25...70 °C)	Terminal chamber	20...250 VAC	KG 0008	\$159.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	3/4" NPT Mounting adapter, PTFE (KG series 18 mm housing)	U10000	\$44.00
	1-1/4" NPT Mounting adapter, PTFE (KI series 30 mm housing)	U10003	\$46.00
	1/2" OD... 3/4" OD Sight glass mounting set, Delrin (KI series 30 mm housing)	U20213	\$36.00

Technical Specs

DC sensors

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

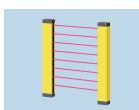
AC sensors

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	E 18212	\$13.50
	1/2" Micro AC 5 m, PVC	E 18213	\$16.50
	1/2" Micro AC 2 m, PVC	E 18214	\$13.50
	1/2" Micro AC 5 m, PVC	E 18215	\$16.50
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR, LED	EVC 007	\$12.75
	M12 Micro DC (4-pin) 5 m, PUR, LED	EVC 008	\$14.25
	M12 Micro DC (4-pin) 10 m, PUR, LED	EVC 009	\$17.25

Safety products



99 - 111

Fluids

Pressure



113 - 129

Flow



130 - 141

Temperature



142 - 155

Level



156 - 169

Vibration



170 - 171

Networking

Cordset solutions



173 - 183

AS-i networking

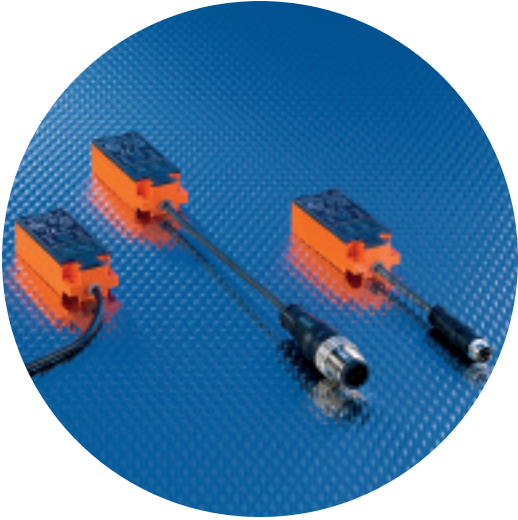


184 - 193

Power supplies



194 - 195



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

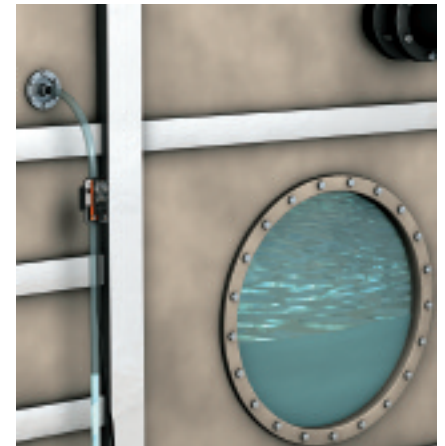
KQ Series point-level sensor with simple pushbutton setup

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 10mm 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.



Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97





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 Prewired	KQ 6001	\$91.00
PNP, N.O. or N.C.	10...36 VDC	100 mA	17 mA	2.5 V	2m Prewired	KQ 6002	\$91.00
PNP/NPN, N.O. or N.C.	10...36 VDC	100 mA	17 mA	2.5 V	1.5" pigtail with M8 Pico DC	KQ 6003	\$90.00
PNP, N.O. or N.C.	10...36 VDC	100 mA	17 mA	2.5 V	1.5" pigtail with M8 Pico	KQ 6004	\$90.00
PNP, N.O. or N.C.	10...36 VDC	100 mA	17 mA	2.5 V	4" pigtail with M12 Micro DC	KQ 6005	\$96.00

Mounting Accessories

Type	Description	Part No.	List Price (1-pc.)
	Mounting straps (set of 5)	E 10880	\$5.00
	Mounting adapter for strap mounting	E 12153	\$5.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M8 Pico DC (4-pin) 2 m, PUR cable	EVC 150	\$12.95
	M8 Pico DC (4-pin) 5 m, PUR cable	EVC 151	\$15.95

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

Technical Specs

Dimensions: 48 x 20 x 14 mm
 Materials: Plastic (PBT, TPE-U and PC)
 Cable material: PVC
 Protection rating: IP65/IP67

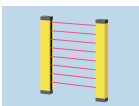


Reliable service center

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


Safety products



99 - 111


Fluids

Pressure




113 - 129

Flow




130 - 141

Temperature




142 - 155

Level



156 - 169


Vibration



170 - 171


Networking

Cordset solutions




173 - 183

AS-i networking



184 - 193

Power supplies



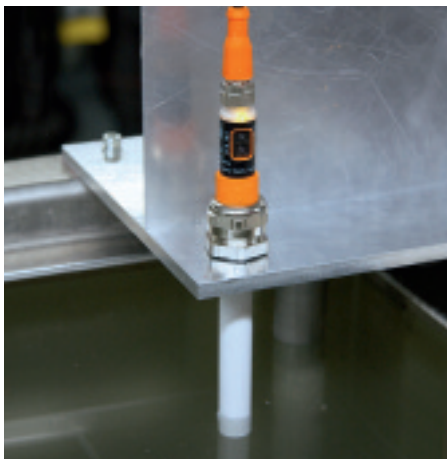
194 - 195



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

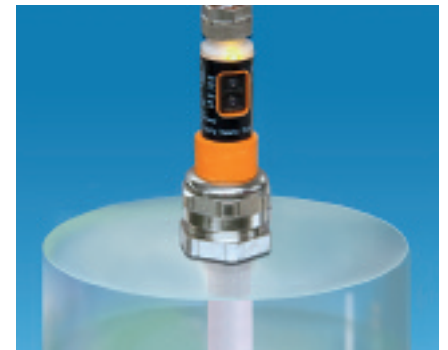


The LI Series level sensor offers reliable limit level detection in tanks, indicating high or low level of hydraulic oils and coolants. They may also be used to monitor the minimum level, leakage or overflow of tanks.

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.





Position										
Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors	
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97	





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 (31mm)	See Required Accessories	32...149 °F (0...65 °C)	LI 5141	\$149.00
PNP, N.O./N.C.	10.7 in (273 mm)	1.2 inch (31mm)	See Required Accessories	32...149 °F (0...65 °C)	LI 5142	\$155.00
PNP, N.O./N.C.	18.9 in (481 mm)	1.2 inch (31mm)	See Required Accessories	32...149 °F (0...65 °C)	LI 5143	\$160.00
PNP, N.O./N.C.	29.0 in (737 mm)	1.2 inch (31mm)	See Required Accessories	32...149 °F (0...65 °C)	LI 5144	\$167.00

Required Accessories (choose one)

Type	Description	Part No.	List Price (1-pc.)
	3/4" NPT adapter	E 43012	\$36.00
	1" NPT adapter	E 43013	\$39.00
	G3/4 BSPP adapter	E 43003	\$36.00
	G1 BSPP adapter	E 43004	\$38.00
	Flange adapter	E 43001	\$34.00
	Weldable adapter	E 43002	\$36.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75

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

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



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

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

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

99 - 111

113 - 129

130 - 141

142 - 155

156 - 169

170 - 171

Networking

Cordset solutions

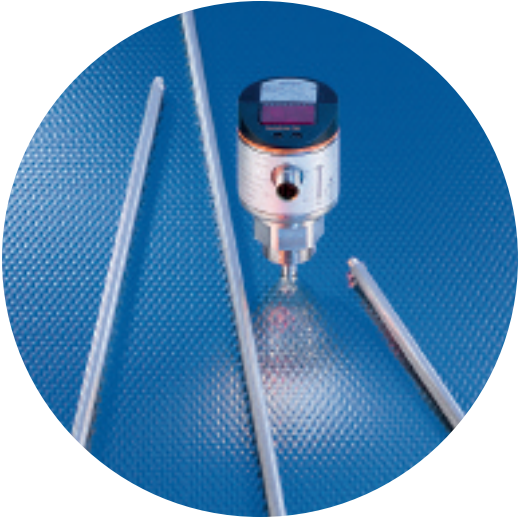
AS-i networking

Power supplies

173 - 183

184 - 193

194 - 195



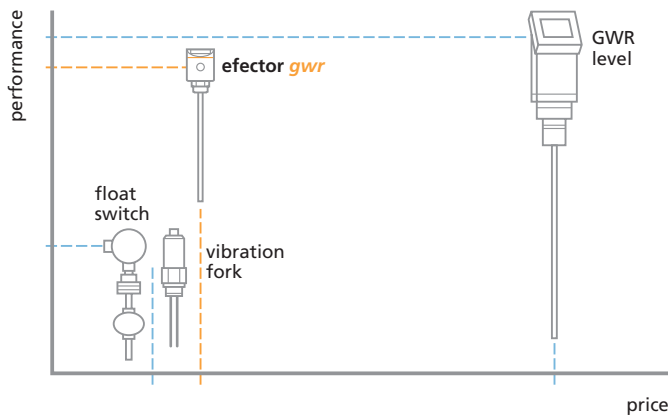
Top five product features!

- 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.

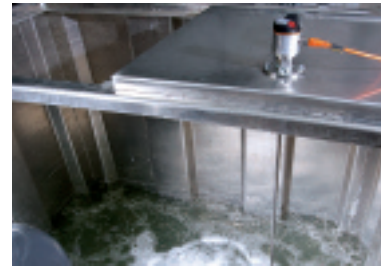


Easy installation



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

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5

6 - 35

36 - 41

42 - 43

44 - 45

46 - 73

74 - 79

80 - 85

86 - 87

89 - 97



Product + accessory selector

Output	Process Connection	Probe Length	Media	Medium Temperature Range	Part No.	List Price (1-pc.)
PNP, 2x NO / NC	3/4" NPT	See required accessories	Water-based solutions	32...176 °F (0...80 °C)	LR 7300	\$391.00
PNP, 4x NO / NC	3/4" NPT	See required accessories	Water-based solutions	32...176 °F (0...80 °C)	LR 8300	\$455.00
4...20 mA / 0...10 V and PNP, NO / NC	3/4" NPT	See required accessories	Water-based solutions	32...176 °F (0...80 °C)	LR 3300	\$465.00
PNP, 2x NO / NC	G3/4 BSPP	See required accessories	Water-based solutions	32...176 °F (0...80 °C)	LR 7000	\$391.00
PNP, 4x NO / NC	G3/4 BSPP	See required accessories	Water-based solutions	32...176 °F (0...80 °C)	LR 8000	\$455.00
4...20 mA / 0...10 V and PNP, NO / NC	G3/4 BSPP	See required accessories	Water-based solutions	32...176 °F (0...80 °C)	LR 3000	\$465.00

Required Accessories (choose one)

Type	Description	Part No.	List Price (1-pc.)
	10" Sensing probe, 303 stainless steel	E 43203	\$17.00
	18" Sensing probe, 303 stainless steel	E 43204	\$27.00
	27" Sensing probe, 303 stainless steel	E 43205	\$37.00
	39" Sensing probe, 303 stainless steel	E 43207	\$58.00
	47" Sensing probe, 303 stainless steel	E 43208	\$68.00
	55" Sensing probe, 303 stainless steel	E 43209	\$82.00
	63" Sensing probe, 303 stainless steel	E 43210	\$93.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75
	M12 Micro DC (8-pin) 2 m, PUR (for LR8)	E 11231	\$26.00
	M12 Micro DC (8-pin) 5 m, PUR (for LR8)	E11232	\$31.00

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

Technical Specs

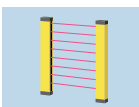
Supply voltage: 18...30 VDC
 Current consumption: < 80 mA
 Maximum load current: 200 mA per output
 Pressure rating: -14.5...58 psi (-1...4 bar)
 Accuracy: ±0.6" +0.5% of full range (±1.5 cm +0.5% of full range)
 Repeatability: ±0.2" (±0.5 cm)
 Wetted parts: 303 stainless steel, PTFE, NBR
 Protection rating: IP67



On-time delivery with accuracy
 Our goal in the ifm Distribution Center is to ensure uptime in your facility.

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


Safety products



99 - 111


Fluids

Pressure




113 - 129

Flow




130 - 141

Temperature




142 - 155

Level



156 - 169


Vibration



170 - 171


Networking

Cordset solutions




173 - 183

AS-i networking

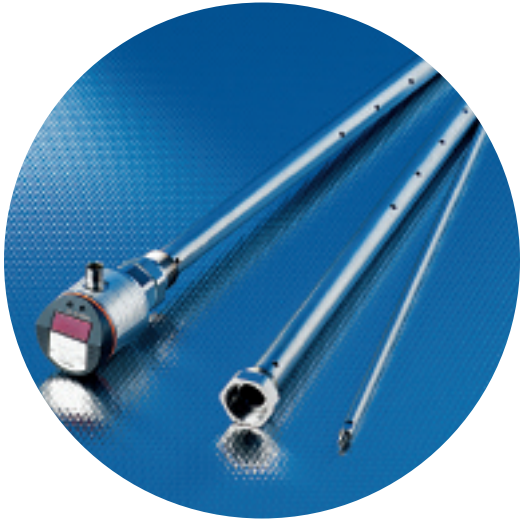


184 - 193

Power supplies



194 - 195



Top five product features!

- Modular level sensor is ideal for level detection of oils and 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

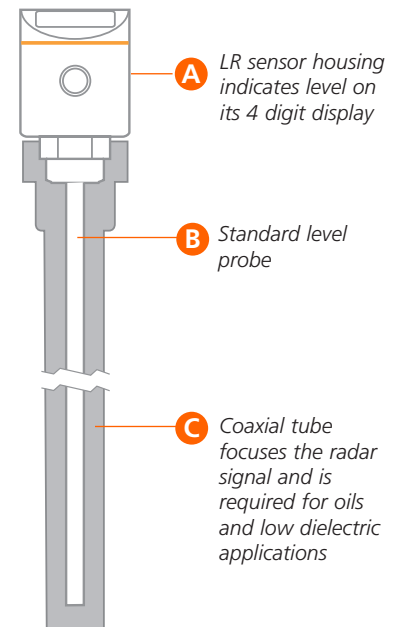
The efector gwr sensor's measuring principle is echo time of flight using guided wave radar technology to detect liquid level in applications such as parts cleaning, coolant monitoring, water treatment and hydraulic power units. This technology enables a strong signal strength and the ability to ignore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



Position

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



Product + accessory selector

A LR Level Sensor

Output	Probe Length	Media	Medium Temperature Range	Part No.	List Price (1-pc.)
PNP, 2x NO / NC	See required accessories	Oil and water-based solutions	32...176 °F (0...80 °C)	LR 7000	\$391.00
PNP, 4x NO / NC	See required accessories	Oil and water-based solutions	32...176 °F (0...80 °C)	LR 8000	\$455.00
4...20 mA / 0...10 V and PNP, NO / NC	See required accessories	Oil and water-based solutions	32...176 °F (0...80 °C)	LR 3000	\$465.00

B Required Accessory - Probe (choose one)

Type	Description	Part No.	List Price (1-pc.)
	10" Probe, 303 stainless steel	E 43203	\$17.00
	18" Probe, 303 stainless steel	E 43204	\$27.00
	27" Probe, 303 stainless steel	E 43205	\$37.00
	39" Probe, 303 stainless steel	E 43207	\$58.00
	47" Probe, 303 stainless steel	E 43208	\$68.00
	55" Probe, 303 stainless steel	E 43209	\$82.00
	63" Probe, 303 stainless steel	E 43210	\$93.00

C Required Accessory - Coaxial Tube (choose one)

Type	Description	Part No.	List Price (1-pc.)
	18" Coaxial tube, 3/4" NPT, stainless steel	E 43218	\$80.00
	27" Coaxial tube, 3/4" NPT, stainless steel	E 43219	\$90.00
	39" Coaxial tube, 3/4" NPT, stainless steel	E 43220	\$103.00
	63" Coaxial tube, 3/4" NPT, stainless steel	E 43221	\$165.00
	10" Coaxial tube, G3/4 BSPP, stainless steel	E 43211	\$69.00
	18" Coaxial tube, G3/4 BSPP, stainless steel	E 43212	\$80.00
	27" Coaxial tube, G3/4 BSPP, stainless steel	E 43213	\$90.00
	39" Coaxial tube, G3/4 BSPP, stainless steel	E 43214	\$103.00
	47" Coaxial tube, G3/4 BSPP, stainless steel	E 43215	\$124.00
	55" Coaxial tube, G3/4 BSPP, stainless steel	E 43216	\$145.00
	63" Coaxial tube, G3/4 BSPP, stainless steel	E 43217	\$165.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75
	M12 Micro DC (8-pin) 2 m, PUR (for LR8)	E 11231	\$26.00
	M12 Micro DC (8-pin) 5 m, PUR (for LR8)	E11232	\$31.00

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

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

Fluids

Networking

Safety products

Pressure

Flow

Temperature

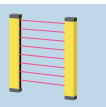
Level

Vibration

Cordset solutions

AS-i networking

Power supplies



99 - 111

113 - 129

130 - 141

142 - 155

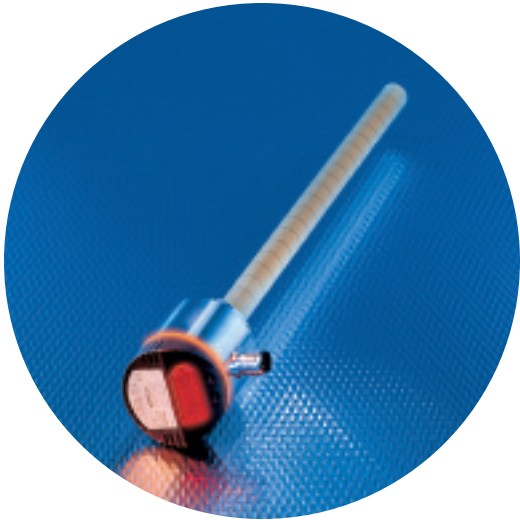
156 - 169

170 - 171

173 - 183

184 - 193

194 - 195

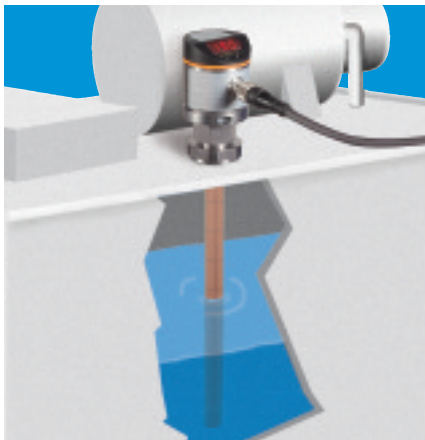


Top five product features!

- *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.

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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	LK 1022	\$379.00
2x PNP, N.O. / N.C.	18.6"	15.4"	2.1" / 1.2"	See below	Oil	LK 1023	\$441.00
2x PNP, N.O. / N.C.	28.7"	23.0"	4" / 1.6"	See below	Oil	LK 1024	\$439.00
3x PNP, N.O. / N.C. & OP	10.4"	7.7"	2.1" / 0.6"	See below	Oil	LK 8122	\$432.00
3x PNP, N.O. / N.C. & OP	18.6"	15.4"	2.1" / 1.2"	See below	Oil	LK 8123	\$469.00
3x PNP, N.O. / N.C. & OP	28.7"	23.0"	4" / 1.6"	See below	Oil	LK 8124	\$495.00
4...20 mA / 0...10 V & OP	10.4"	7.7"	2.1" / 0.6"	See below	Oil	LK 3122	\$438.00
4...20 mA / 0...10 V & OP	18.6"	15.4"	2.1" / 1.2"	See below	Oil	LK 3123	\$474.00
4...20 mA / 0...10 V & OP	28.7"	23.0"	4" / 1.6"	See below	Oil	LK 3124	\$499.00

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	LT 8022	\$446.00
2x PNP, N.O. / N.C. (level and temp)	18.6"	15.4"	2.1" / 1.2"	See below	Oil	LT 8023	\$494.00
2x PNP, N.O. / N.C. (level and temp)	28.7"	23.0"	4" / 1.6"	See below	Oil	LT 8024	\$514.00

Required Accessories

Type	Description	Part No.	List Price (1-pc.)
	3/4" NPT adapter	E 43012	\$36.00
	1" NPT adapter	E 43013	\$39.00
	G3/4 BSP adapter	E 43003	\$36.00
	G1 BSP adapter	E 43004	\$38.00
	Flange adapter	E 43001	\$34.00
	Weldable adapter	E 43002	\$36.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$14.25
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75
	M12 Micro DC (8-pin) 2 m, PUR (for LK8 and LT8)	E 11231	\$26.00
	M12 Micro DC (8-pin) 5 m, PUR (for LK8 and LT8)	E11232	\$31.00

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

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.

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

Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



Top five product features!

- Easy-to-use sensors make vibration monitoring simple and prevent machine downtime
- Analog signal enables trending of vibration levels
- 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

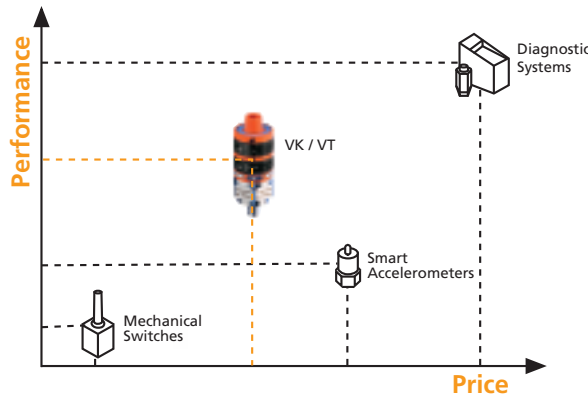
ifm's compact vibration sensors detect changing conditions of machinery to indicate machine damage

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.

The VK Series and VT Series 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, the VK and VT sensor can prevent equipment from catastrophically failing, reduce secondary damage and eliminate expensive downtime.

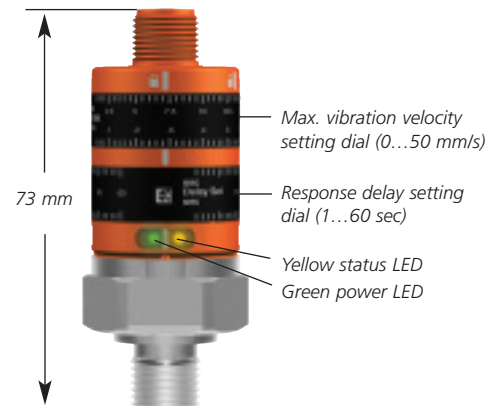
The VK and VT sensors monitor vibration levels on:

- 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.

Set-up vibration monitoring in less than 5 minutes



VK installation and setup steps

1. Mount the VK by its M8 threaded stud radially to shaft rotation (both glue-on and magnetic bases are available).
2. Rotate the top dial to the maximum allowable velocity.
3. Rotate the second dial to the maximum delay time to eliminate false triggering.
4. Wire power and output.
5. Installation is complete.

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

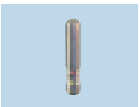
Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5

6 - 35

36 - 41

42 - 43

44 - 45

46 - 73

74 - 79

80 - 85

86 - 87

89 - 97



Product + accessory selector

Switching Output	Analog Output	Measuring Range	Frequency Range	Measuring Principle	Part No.	List Price (1-pc.)
1 switching output NC, PNP	4...20 mA	0...25 mm/s	10...1000 Hz	Vibration velocity RMS	VKV 021	\$220.00
1 switching output NC, PNP	4...20 mA	0...50 mm/s	10...1000 Hz	Vibration velocity RMS	VKV 022	\$220.00
-	4...20 mA	0...25 mm/s	10...1000 Hz	Vibration velocity RMS	VTV 122	\$240.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)
	Protective cover, transparent plastic	E 30094	\$8.00
	Magnetic mounting base for temporary mounting, flat surface	UW 0004	\$51.50
	Magnetic mounting base for temporary mounting, curved surface	F 90043	\$105.00
	Glue-on base for permanent mounting	F 90042	\$17.50
	Adhesive for F90042	F 90037	\$41.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PUR	EVC 001	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 002	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 003	\$15.75
	M12 Micro DC (4-pin) 2 m, PUR	EVC 004	\$9.95
	M12 Micro DC (4-pin) 5 m, PUR	EVC 005	\$12.75
	M12 Micro DC (4-pin) 10 m, PUR	EVC 006	\$15.75

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

Technical Specs

Mounting threads:	VKV xxx M8 x 1.25	VTV 122 M8 x 1.25 / UNF 1/4-28
Supply voltage:	18...32 VDC	9.6...32 VDC
Maximum load current:	500 mA	-
Current consumption:	<50 mA	-
Ambient temperature:	-13...176 °F (-25...80 °C)	-22...221 °F (-30...105 °C)
Accuracy:	<± 4% of full range	± 3% of full range
Repeatability:	< 1% of full range	< 0.5% of full range
Shock resistance:	400 g	400 g
Housing material:	Pocan; Makrolon; Viton; 316L stainless steel	316L stainless steel
Protection rating:	IP67	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
www.ifm.com/us

Shop for products online
Easy ordering via eShop

Fluids

Safety products

Pressure

Flow

Temperature

Level

Vibration

Networking

Cordset solutions

AS-i networking

Power supplies

99 - 111

113 - 129

130 - 141

142 - 155

156 - 169

170 - 171

173 - 183

184 - 193

194 - 195

Table of Contents – Cordset Solutions

M8 Pico cordsets



3-pin and 4-pin M8 Pico cordsets, Field wirable connectors	172 - 173
---------------------------------------------------------------------	-----------

M8 Pico wiring block systems



4-port and 8-port M8 Pico wiring blocks M8 Pico patchcords	174 - 175
---------------------------------------------------------------------	-----------

M12 Micro cordsets



4-pin Micro DC cordsets, Field wirable connectors	176 - 177
------------------------------------------------------------	-----------

M12 Micro wiring block systems



4-port and 8-port M12 Micro DC wiring blocks, M12 Micro patchcords	178 - 179
-----------------------------------------------------------------------------	-----------

M12 Micro cordsets



3-pin 1/2" – 20 UNF Micro AC cordsets, Field wirable connectors	180 - 181
--------------------------------------------------------------------------	-----------

AS-i networking



Controllers and gateways	186 - 187
AS-i power supplies and Cabinet modules	188 - 189
Quick slide field modules and airboxes	190 - 191
Low-profile field modules; cables, adapters, accessories	192 - 193

Power supplies



Compact 24 VDC power supplies	194 - 195
-------------------------------------	-----------



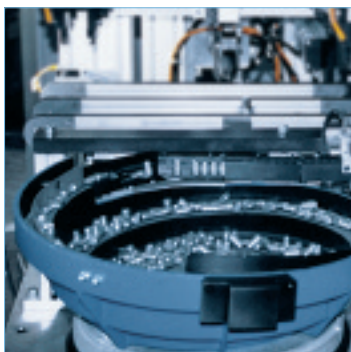
Top five product features!



- ifm's ecolink cordset features "Lock-in-Place" coupling nut that resists high levels of shock and vibration
- Cordsets offer high-flex PUR jacketed cable rated for over 2 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

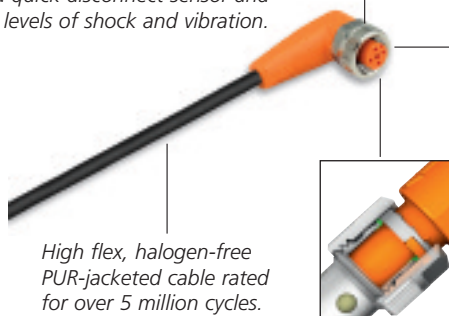


ifm's rugged ecolink cordsets are designed and tested to withstand the harsh conditions in industrial automation applications. The product line meets cRULus approval, RoHS standards and is silicon and halogen free. The high-flex PUR jacketed cable is rated to over 5 million flex cycles. ecolink's connection technology meets the M8 standard EN 61076.



Problem	Solution
Traditional cordsets with transparent housings are hard to see.	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.















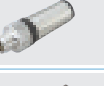

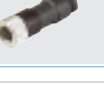

Special insert design acts as a mechanical end-stop preventing possible damage to Viton o-ring from over tightening.

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

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



Product + accessory selector

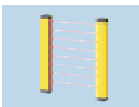








Type	Face View	Maximum Supply Voltage	Protection Rating / Temperature Rating Approval	Cable Length	Part No.	List price USD
Pico M8 DC cordsets • 3-pin • PUR jacket						
	Female 4 3 1 	Pin 1 brown Pin 3 blue Pin 4 black	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25...90 °C	2 m	EVC 141 \$11.95
					5 m	EVC 142 \$14.95
					10 m	EVC 143 \$20.50
	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	EVC 144 \$11.95
					5 m	EVC 145 \$14.95
					10 m	EVC 146 \$20.50
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	EVC 147 \$15.50
					5 m, 2 LED	EVC 148 \$18.50
					10 m, 2 LED	EVC 149 \$23.50
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	EVC 150 \$12.95
					5 m	EVC 151 \$15.95
					10 m	EVC 152 \$21.50
	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	EVC 153 \$12.95
					5 m	EVC 154 \$15.95
					10 m	EVC 155 \$21.50
Field wirable connectors • 3-pin • Solder termination						
	Male 4 1 3 		—	IP67 -25...90 °C	3.5...5.0 mm range	L 33600 \$14.50
	Female 4 3 1 		—	IP67 -25...90 °C	3.5...5.0 mm range	L 33602 \$14.50
Field wirable connectors • 4-pin • Solder termination						
	Male 2 4 1 3 		—	IP67 -25...90 °C	3.5...5.0 mm range	L 33601 \$15.50
	Female 4 2 3 1 		—	IP67 -25...90 °C	3.5...5.0 mm range	L 33603 \$15.50

Technical Specs

Current rating: 3 A
 Tightening torque coupling nut: 0.3...0.5 Nm
 Cable characteristics: 2 million flex cycles
 Housing / molded body: TPU
 Coupling nut: Nickel plated brass

Contacts:
 Sealing ring:
 Cable:
 Approvals

Gold-plated
 Viton
 PUR, halogen-free, 22 AWG
 cRUus

Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
								
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195

Top five product features!



- Designed to reduce installation time and simplify wiring
- Wiring block can be used as input and / or output device
- Power and signal LED displays for quick and accurate troubleshooting
- Available with power and output LED indication
- Dust caps and identification labels available

M8 wiring block systems offer quick installation and eliminate junction boxes and terminal strips



Eliminate junction boxes and terminal strips and make your wiring plug-and-play. ifm's wiring block systems ensure quick connection in industrial automation applications. Available in 4-port and 8-port configurations.

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.

Passive I/O Wiring block systems can be used as input and/or output devices

ecolink M8 patchcords ensure reliable connection

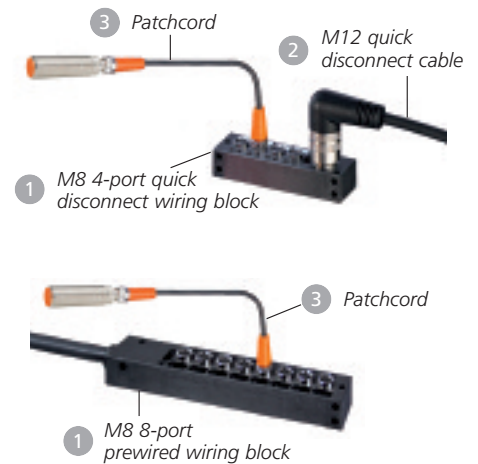
In addition to ecolink cordsets, ifm manufactures patchcords with the same reliable features such as "lock-in-place" coupling nuts, mechanical end stops that protect O-rings and stainless steel sleeves that maintain optimum sealing.

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 or 8-port pre-wired



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

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97

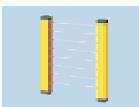


Product + accessory selector

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	4-port block for 3-wire sensors	3	-25...90 °C	green / 4 x yellow	–	E 11216	\$62.00	
2	Female M12 straight connector	8	-25...85 °C	–	5 m	E 10976	\$42.00	
					10 m	E 10977	\$54.00	
M8 Pico wiring block • PNP • 3-Pin • Pre-wired								
1	Female ports 8-port block for 3-wire sensors	3	-25...90 °C	green / 8 x yellow	5 m	E 11214	\$120.00	
					10 m	E 11215	\$165.00	
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								
3	Male Female M8 straight male to M8 straight female	4 1 3	4 3 1	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25...90 °C	0.6 m	EVC 266	\$19.00
						1 m	EVC 267	\$20.00
						2 m	EVC 268	\$22.00
						5 m	EVC 269	\$25.00
3	Male female M8 straight male to M8 right angle female	4 1 3	4 3 1	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25...90 °C	0.6 m	EVC 276	\$19.00
						1 m	EVC 277	\$20.00
						2 m	EVC 278	\$22.00
						5 m	EVC 279	\$25.00
3 Pico M8 / Micro M12 patchcords • 3-pin • PUR jacket								
3	Male Female M8 straight male to M12 straight female	4 1 3	4 2 4 3	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25...90 °C	0.6 m	EVC 256	\$16.25
						1 m	EVC 257	\$17.25
						2 m	EVC 258	\$18.50
						5 m	EVC 259	\$22.50
3	Male female M8 straight male to M12 right angle female	4 1 3	4 2 3 1	50 VAC / 60 VDC	IP67 / IP68 / IP69K -25...90 °C	0.6 m	EVC 261	\$16.25
						1 m	EVC 262	\$21.00
						2 m	EVC 263	\$23.00
						5 m	EVC 264	\$24.00

Fluids

Safety products



99 - 111

Pressure



113 - 129

Flow



130 - 141

Temperature



142 - 155

Level



156 - 169

Vibration



170 - 171

Networking

Cordset solutions



173 - 183

AS-i networking



184 - 193

Power supplies



194 - 195

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



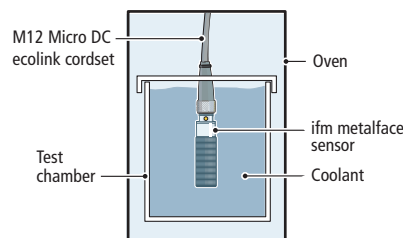
ifm's ecolink M12 cordsets are designed and tested to resist harsh conditions in industrial automation and oils and coolants. The product line meets cRUs approval, RoHS standards and is silicon and halogen free. The high-flex PUR jacketed cable is rated to over 5 million flex cycles. ecolink's connection 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.


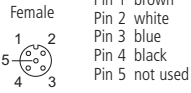

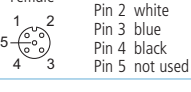

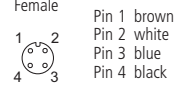


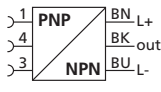






The 316 stainless steel sleeve with sawtooth contour maintains optimum sealing and prevents the cordset from detaching.

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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							
	 <p>Female Pin 1 brown Pin 2 white Pin 3 blue Pin 4 black Pin 5 not used</p>	250 VAC / 300 VDC	IP67 / IP68 / IP69K -25 °C...90 °C cRUus	2 M	EVC 001	\$9.95	
				5 M	EVC 002	\$12.75	
				10 M	EVC 003	\$15.75	
				2 M	EVC 004	\$9.95	
				5 M	EVC 005	\$12.75	
				10 M	EVC 006	\$15.75	
	 <p>Female Pin 1 brown Pin 2 white Pin 3 blue Pin 4 black Pin 5 not used</p>	10...36 VDC	IP67 / IP68 / IP69K -25 °C...90 °C cRUus	2 M	EVC 007	\$12.75	
				5 M	EVC 008	\$14.25	
				10 M	EVC 009	\$17.25	
Micro DC cordsets • 4 pin • PUR jacket • weld slag resistant							
	 <p>Female Pin 1 brown Pin 2 white Pin 3 blue Pin 4 black</p>	250 VAC / 300 VDC	IP67 / IP68 / IP69K -25 °C...90 °C	2 M	EVW 001	\$15.00	
				5 M	EVW 002	\$19.00	
				2 M	EVW 004	\$15.00	
				5 M	EVW 005	\$19.00	
				Converter cable PNP to NPN			
	 <p>Female Pin 1: Brown Pin 3: Blue Pin 4: Black</p>	 <p>PNP NPN</p>	24 VDC ±10%	IP67 / IP68 / IP69K -25 °C...60 °C	5 M	EVC 01E	\$17.00
Field wirable connectors • 4 Pin							
	 <p>Female</p>	M12 connector straight	250 AC / DC	IP68 -25...100 °C	–	E 11508	\$14.00
	 <p>Male</p>	M12 connector straight	250 AC / DC	IP68 -25...100 °C	–	E 11504	\$14.00

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

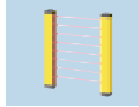



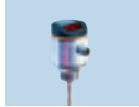




Technical Specs

High flex PUR cable jacket:	EVC 001 - EVC 009; and EVC 01E
Nickel plated brass coupling nut:	EVC 001 - EVC 009; and EVC 01E
Weld slag resistant PUR jacket:	EVW 001, EVW 002, EVW 004, EVW 005
Epoxy coated zinc coupling nut:	EVW 001, EVW 002, EVW 004, EVW 005
Contacts:	Gold plated
Conductors:	22 AWG
PNP LED:	EVC 007, EVC 008, EVC 009
O-ring material:	Viton
Current rating:	4A (0.1 A for EVC 01E)
Tightening torque coupling nut:	0.6...1.5 Nm

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

Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
								
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



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








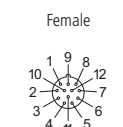

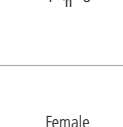

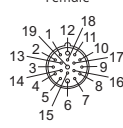

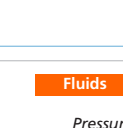






Patchcords are available in cable lengths starting at 0.3 meters up to 5 meters.



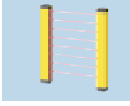
Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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 for 3-wire sensors	5	10...30 VDC	green / 4 x yellow	5 M	EBC 015	\$114.00
	4-port block for 3-wire sensors	5	10...30 VDC	green / 4 x yellow	10 M	EBC 027	\$140.00
	8-port block for 3-wire sensors	5	10...30 VDC	green / 8 x yellow	5 M	EBC 023	\$165.00
	8-port block for 3-wire sensors	5	10...30 VDC	green / 8 x yellow	10 M	EBC 035	\$196.00
1 M12 Micro DC wiring blocks • PNP • Dual output LED • Prewired							
	4-port block for 4-wire sensors	5	10...30 VDC	green / 8 x yellow	5 M	EBC 016	\$150.00
	4-port block for 4-wire sensors	5	10...30 VDC	green / 8 x yellow	10 M	EBC 028	\$170.00
	8-port block for 4-wire sensors	5	10...30 VDC	green / 16 x yellow	5 M	EBC 024	\$191.00
	8-port block for 4-wire sensors	5	10...30 VDC	green / 16 x yellow	10 M	EBC 036	\$232.00
1 M12 Micro DC wiring blocks • PNP • Single output LED • M23 quick disconnect							
	4-port block for 3-wire sensors	5	10...30 VDC	green / 4 x yellow	–	EBC 002	\$85.00
	8-port block for 4-wire sensors	5	10...30 VDC	green / 8 x yellow	–	EBC 010	\$134.00
M12 Micro DC wiring blocks • PNP • Dual output LED • M23 quick disconnect							
	4-port block for 3-wire sensors	5	10...30 VDC	green / 8 x yellow	–	EBC 004	\$124.00
	8-port block for 4-wire sensors	5	10...30 VDC	green / 16 x yellow	–	EBC 012	\$145.00
2 M23 quick disconnect cable							
Type	Face View	Cable Length	Part No.	List Price (1-pc.)			
	Female 	5 m	E11736	\$124.00			
		10 m	E11737	\$172.00			
	Female 	5 m	E11739	\$124.00			
		10 m	E11740	\$172.00			
	Female 	5 m	E11742	\$176.00			
		10 m	E11743	\$237.00			
	Female 	5 m	E11745	\$176.00			
		10 m	E11746	\$237.00			
3 Micro DC patchcords • 4 pin • PUR jacket							
Type	Design	Cable Length	Part No.	List Price (1-pc.)			
	Male Female  	0.6 M	EVC 011	\$15.75	M12 straight male to M12 straight female		
		1 M	EVC 012	\$16.25			
		2 M	EVC 013	\$17.75			
		5 M	EVC 014	\$18.75			
	Male Female  	0.6 M	EVC 016	\$15.75	M12 straight male to M12 90° female		
		1 M	EVC 017	\$16.25			
		2 M	EVC 018	\$17.75			
		5 M	EVC 019	\$18.75			
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					
Patchcords protection:		IP67 / IP68 / IP69K					
Operating temperature:		-15...80 °C (wiring blocks) -25...90 °C (patchcords)					


Safety products





99 - 111


Fluids

Pressure  113 - 129


Flow  130 - 141


Temperature  142 - 155


Level  156 - 169

Vibration  170 - 171

Networking

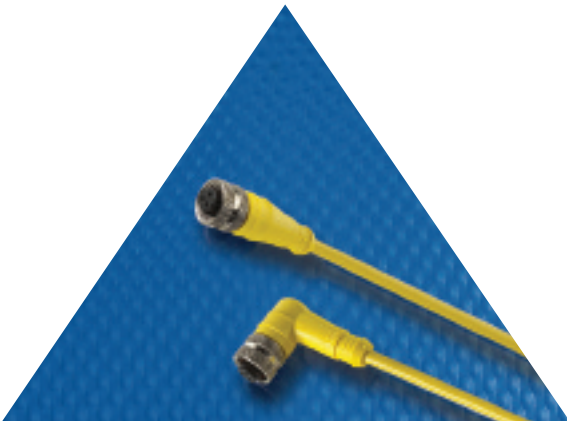
Cordset solutions  173 - 183

AS-i networking  184 - 193

Power supplies  194 - 195



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
PVC: -20 to 80 °C
TPE: -45 to 105 °C



Materials of construction tested to withstand harsh conditions and aggressive oils and coolants.












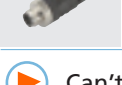



UL and CSA approved

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



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  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	E 18212	\$13.50
					5 M	E 18213	\$16.50
					2 M	E 18214	\$13.50
					5 M	E 18215	\$16.50
Micro AC cordsets • 3 Pin 1/2" - 20 UNF • TPE cable							
	Female  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	E 18200	\$19.50
					5 M	E 18201	\$22.50
					10 M	E 18202	\$35.50
					2 M	E 18203	\$19.50
					5 M	E 18204	\$22.50
					10 M	E 18205	\$35.50
Micro AC wirable connectors, screw termination • 3-Pin 1/2" – 20 UNF							
	Female  Pin 1 green Pin 2 red/black Pin 3 red/white	-	250 VAC	IP67 NEMA 6P (in fully locked position) -25 °C...90 °C	4 - 6 mm	L 34103	\$13.50
					4 - 6 mm	E 10789	\$13.50
	Male  Pin 1 green Pin 2 red/black Pin 3 red/white	-	250 VAC	IP67 NEMA 6P (in fully locked position) -25 °C...90 °C	4 - 6 mm	L 34101	\$13.50
					4 - 6 mm	E 10788	\$13.50

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

Technical Specs

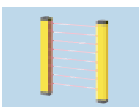








Nickel plated brass coupling nut
 Nylon housing – L 34101, L 34103, E 10788, E 10789
 Gold plated contacts
 22 AWG conductors
 Maximum conductor size, 18 AWG L 34101, L 34103, E 10788 and E 10789
 Viton O-ring




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

Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
								
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195





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

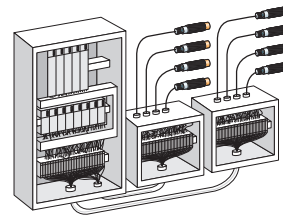
ifm is committed to investing in new product development for AS-interface. Our goal is to improve functionality, simplify installation and maintain competitive price points.

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.

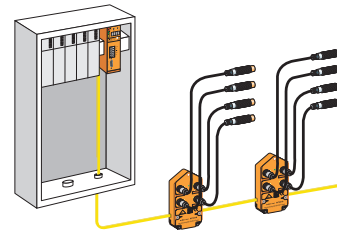
Current methods for wiring include point-to-point connection or bus systems. However, point-to-point wiring results in large wire bundles, and bus systems can be too complex for networking simple binary devices.

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.













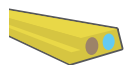
After

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.



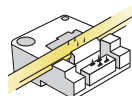
Visit www.ifm.com/us to view all AS-i networking products.

Company	Position									
	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors	
										
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97	



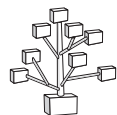
A simple 2-wire flat cable

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.



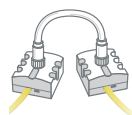
Extremely fast system

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.

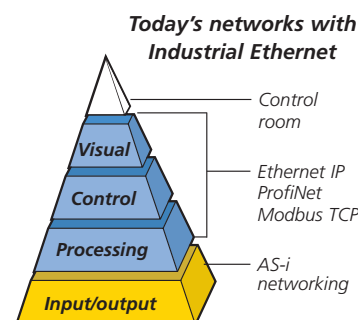
Industrial Ethernet and AS-i networking offer the best of both worlds

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.



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.



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

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

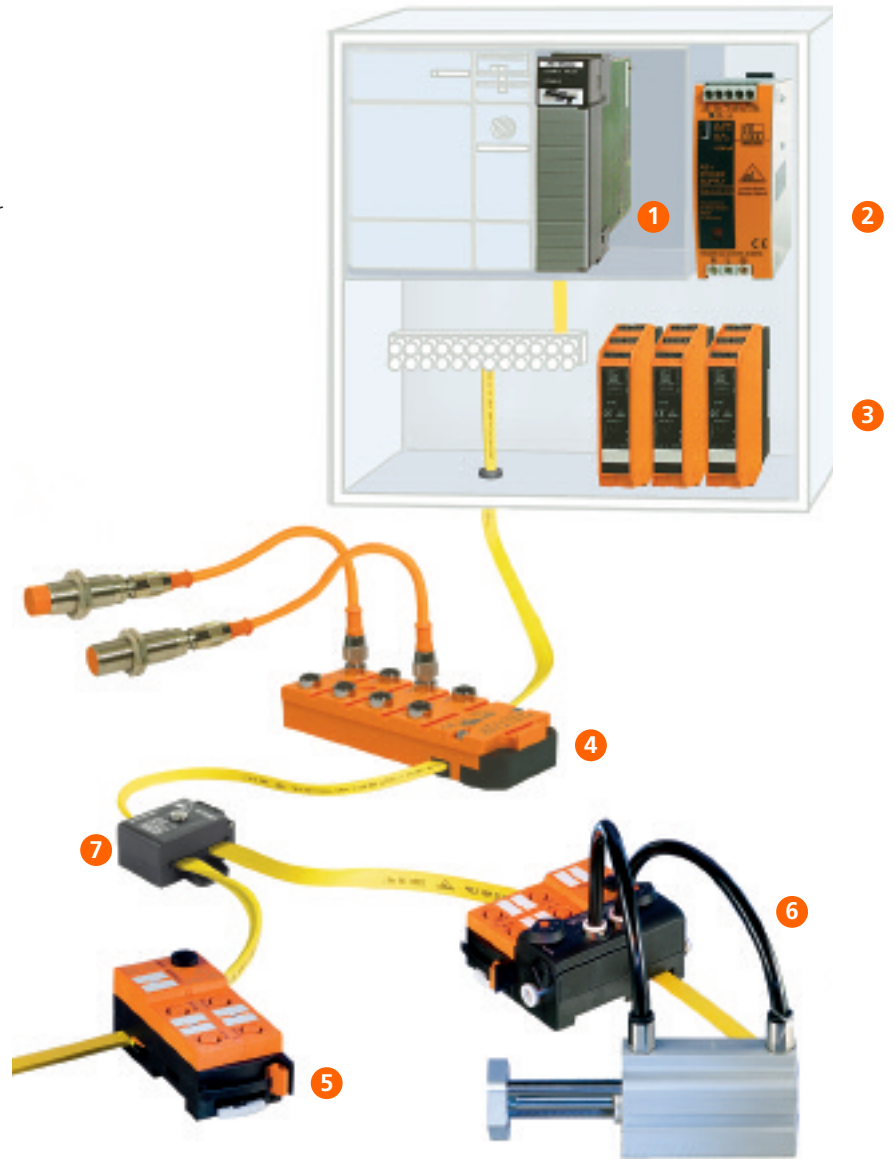
Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



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.

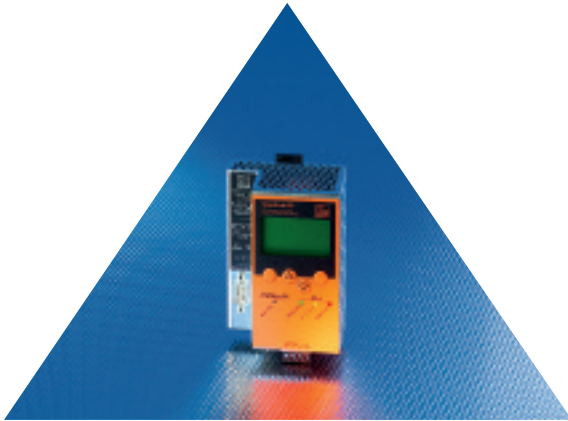
- 1 AS-i Master / Gateway**
Controls the data transfer for the AS-i network.
- 2 AS-i Power Supply**
Couples power and signal together for transmission over the 2-wire flat cable.
- 3 Cabinet Module**
Designed to be an inexpensive solution for connecting control cabinet I/O to the AS-i network.
- 4 Compact 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)
- 100m network length (up to 300m with repeaters)
- Less than 10 ms scan time on a fully loaded system (62 nodes)

Company	Position									
	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors	
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97	



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 • Graphic display								
	1	–	Ethernet IP	3.0	< 400	< 10	AC 1327	\$1,576.00
	2	–	Ethernet IP	3.0	< 400	< 10	AC 1337	\$1,854.00
AS-i Profinet Gateway • Full master functions • Color graphic display								
	1	Ethernet RJ 45	Profinet	3.0	< 500	< 10	AC 1401	\$1,025.00
	2	Ethernet RJ 45	Profinet	3.0	< 500	< 10	AC 1402	\$1,231.00
SmartLink DP • AS-i gateway / Profibus DP • Full master functions • Graphic display								
	1	–	Profibus-DP	3.0	–	< 200	AC 1375	\$796.00
	2	–	Profibus-DP	3.0	< 400	< 10	AC 1376	\$990.00
AS-i DeviceNet controller E • AS-i controller with DeviceNet interface • Full master functions • Graphic display								
	1	–	DeviceNet	3.0	< 500	< 10	AC 1318	\$1,313.00
	2	–	DeviceNet	3.0	< 500	< 10	AC 1324	\$1,483.00

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	U 71000	\$1,040.00
	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	U 71003	\$804.00
	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	U 71005	\$1,366.00

Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195



AS-i power supplies

- Couples and de-couples power and signal for transmission over the network
- Compact housing with DIN rail occupies minimal cabinet space
- High efficiency design generates less heat and eliminates external cooling
- 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	AC 1220	\$160.00
	45 x 90 x 100	1.9	29.5...31.6 DC	100...240 AC (± 10 %)	η = 88	AC 1221	\$204.00
	50 x 129 x 136	2.8	29.5...31.6 DC	100...240 AC (± 10 %)	η = 88	AC 1236	\$364.00
	50 x 129 x 136	4	29.5...31.6 DC	100...240 AC (± 10 %)	η = 88	AC 1244	\$500.00
Power supply • AS-i switch power supplies SilverLine							
	91 x 131 x 96	8	29.5...31.6 DC	115 / 230 AC	η = 92	AC 1218	\$596.00
Power supply • AS-i switch power supplies							
	120 x 134 x 118	2 x 4	2 x 29.5...31.6 DC	115 / 230 AC	η = 87	AC 1212	\$596.00

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5



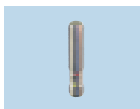
6 - 35



36 - 41



42 - 43



44 - 45



46 - 73



74 - 79



80 - 85



86 - 87



89 - 97



Cabinet modules

- DIN rail mountable modules designed for cabinet or junction box applications
- Removable combicon connectors included for easy connection of peripheral 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	AC 2250	\$112.00
	25 x 114 x 105	–	4 PNP	–	1 / 4	S-8.0.E	2.1	no	AC 2252	\$131.00
	25 x 114 x 105	4	4 PNP	200	1 / 4	S-7.0.E	2.1	no	AC 2251	\$150.00
	25 x 114 x 105	4	3 PNP	200	1 / 3	S-7.A.E	2.1	yes	AC 2264	\$150.00
	25 x 114 x 105	4	4 PNP	200	1 / 4	S-7.A.7	3.0	yes	AC 2267	\$155.00
	25 x 114 x 105	4	2 relay	200	6 / 6	S-7.A.E	2.1	yes	AC 2255	\$155.00
	50 x 114 x 105	4	4 relay	200	6 / 6	S-7.0.E	2.1	no	AC 2258	\$193.00

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Addressing unit	AC 1154	\$443.00
	Cable for addressing unit	E 70213	\$18.00

Technical Specs

Output voltage supply: AC 2267: 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

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



On-time delivery with accuracy
 Our goal in the ifm Distribution Center is to ensure uptime in your facility.

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

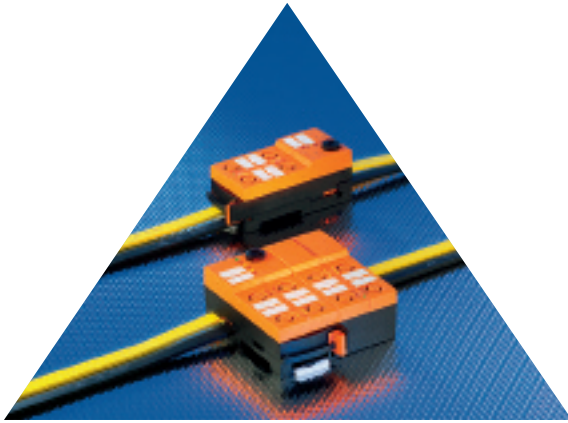
Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195





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



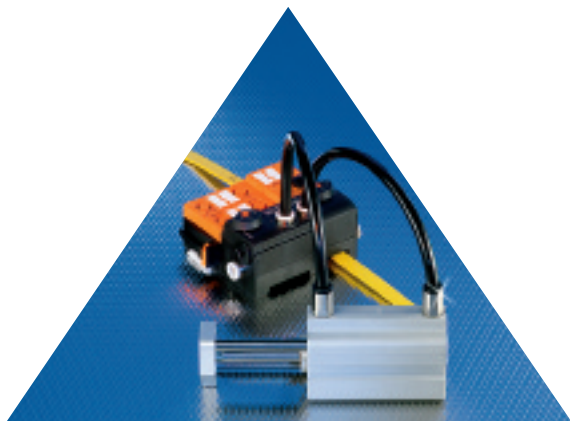
Type	Dimensions (mm)	No. of Inputs	No. / Type of Outputs	Max. Input Current per Module	Output Current per Channel / Total (A)	AS-i Profile	AS-i Version	Extended Addressing Mode	Part No.	List Price (1-pc.)
	45 x 103 x 45	4	–	200	–	S.0.A.E	2.11 & 3.0	yes	AC 5215	\$143.00
	45 x 103 x 45	4	–	1000	–	S.0.A.E	2.11 & 3.0	yes	AC 5290	\$143.00
	45 x 103 x 45	–	4 PNP	–	2 / 4	S.8.0.E	2.11 & 3.0	no	AC 5208	\$160.00
	45 x 103 x 45	2	2 PNP	100	1 / 2	S.B.A.E	2.11 & 3.0	yes	AC 5214	\$155.00
	90 x 103 x 45	4	4 PNP	200	1 / 2	S.7.A.7	3.0	yes	AC 5235	\$237.00
	90 x 103 x 45	4	3 PNP	1000	1 / 3	S.7.A.7	2.11 & 3.0	yes	AC 5292	\$217.00

Technical Specs

Output voltage supply: AC 5290, AC 5292: 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/cordsets

Company	Position									
	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors	
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97	



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	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	2 single acting cylinders	200	S-7.A.E	2.11 & 3.0	yes	AC 5243	\$294.00
	85 x 108 x 50	4	2 single acting cylinders	200	S-7.A.E	2.11 & 3.0	yes	AC 5228	\$294.00
Digital inputs with one 5/2 way valve									
	85 x 108 x 50	4	1 double acting cylinder	200	S-7.A.E	2.11 & 3.0	yes	AC 5249	\$263.00
	85 x 108 x 50	4	1 double acting cylinder	200	S-7.A.E	2.11 & 3.0	yes	AC 5253	\$315.00
	85 x 108 x 50	4	1 double acting cylinder	200	S-7.A.E	2.11 & 3.0	yes	AC 5246	\$263.00
	85 x 108 x 50	4	1 double acting cylinder	200	S-7.A.E	2.11 & 3.0	yes	AC 5251	\$315.00
Digital inputs with one 5/3 way valve									
	85 x 108 x 50	4	1 double acting cylinder	200	S-7.A.E	2.11 & 3.0	yes	AC 5270	\$335.00
	85 x 108 x 50	4	1 double acting cylinder	200	S-7.A.E	2.11 & 3.0	yes	AC 5271	\$335.00

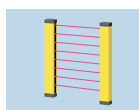
Accessories

Type	Description	Part No.	List Price (1-pc.)
	Addressing unit	AC 1154	\$443.00
	Cable for addressing unit	E 70213	\$18.00
	Protective cap	L 35001	\$1.50
	Silencer - 10 pk.	E 75232	\$48.00
	Push-in T-fitting - 10 pk.	E 75227	\$53.00
	Push-in L-fitting - 10 pk.	E 75228	\$48.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC patchcord, 0.3 m, PUR	EVC 010	\$15.75
	M12 Micro DC patchcord, 0.6 m, PUR	EVC 011	\$15.75
	M12 Micro DC patchcord, 1 m, PUR	EVC 012	\$16.25
	M12 Micro DC patchcord, 2 m, PUR	EVC 013	\$17.75
	M12 Micro DC patchcord, 5 m, PUR	EVC 014	\$18.75
	M12 Micro DC patchcord, 0.3 m, PUR	EVC 015	\$15.75
	M12 Micro DC patchcord, 0.6 m, PUR	EVC 016	\$15.75
	M12 Micro DC patchcord, 1 m, PUR	EVC 017	\$16.25
	M12 Micro DC patchcord, 2 m, PUR	EVC 018	\$17.75
	M12 Micro DC patchcord, 5 m, PUR	EVC 019	\$18.75

Safety products



99 - 111

Fluids

Pressure



113 - 129

Flow



130 - 141

Temperature



142 - 155

Level



156 - 169

Vibration



170 - 171

Networking

Cordset solutions



173 - 183

AS-i networking



184 - 193

Power supplies

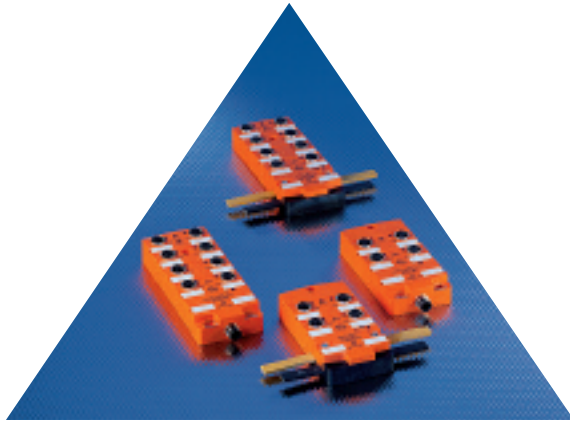


194 - 195



Low-profile field modules

- Low profile housing
- Fully potted for harsh environments (IP67 rating)
- Up to 4 Amps available for output devices
- 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.)
	60 x 118 x 27	4	–	200	–	S-0.A.E	2.11 & 3.0	yes	AC 2457	\$182.00
	60 x 118 x 27	2	2 PNP	200	2 / 4	S-3.FE	2.11 & 3.0	no	AC 2458	\$217.00
	60 x 152 x 27	4	4 PNP	200	2 / 4	S-7.FE	2.11 & 3.0	no	AC 2459	\$301.00

Accessories

Type	Description	Part No.	List Price (1-pc.)
	Protective cap	L 35001	\$1.50
	Addressing cable	E 70423	\$37.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC patchcord, 0.3 m, PUR	EVC 010	\$15.75
	M12 Micro DC patchcord, 0.6 m, PUR	EVC 011	\$15.75
	M12 Micro DC patchcord, 1 m, PUR	EVC 012	\$16.25
	M12 Micro DC patchcord, 2 m, PUR	EVC 013	\$17.75
	M12 Micro DC patchcord, 5 m, PUR	EVC 014	\$18.75
	M12 Micro DC patchcord, 0.3 m, PUR	EVC 015	\$15.75
	M12 Micro DC patchcord, 0.6 m, PUR	EVC 016	\$15.75
	M12 Micro DC patchcord, 1 m, PUR	EVC 017	\$16.25
	M12 Micro DC patchcord, 2 m, PUR	EVC 018	\$17.75
	M12 Micro DC patchcord, 5 m, PUR	EVC 019	\$18.75

Position

Company

Inductive

Cylinder position

Encoders

Capacitive

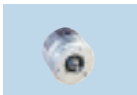
Photoelectrics and lasers

Distance, color and contrast

Fiber optics

Speed monitors

Vision sensors



1 - 5

6 - 35

36 - 41

42 - 43

44 - 45

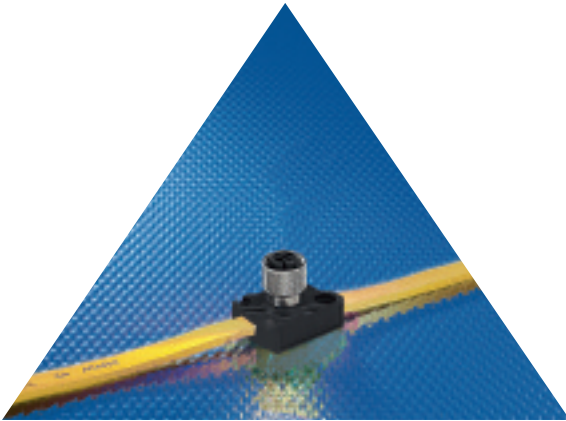
46 - 73

74 - 79

80 - 85

86 - 87

89 - 97



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	AC 4000	\$186.00
	AS-i flat cable, black available in lengths of 100 m, EPDM	AC 4002	\$196.00
Splitters and connectors			
	Flat cable splitter, two channel, 8A current rating	E 70381	\$20.00
	Flat cable to 4-pin female M12 Micro DC connector, 1 m length	E 70481	\$26.00
	Flat cable to 4-pin female M12 Micro DC connector	AC 5005	\$13.00

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

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

Fluids						Networking		
Safety products	Pressure	Flow	Temperature	Level	Vibration	Cordset solutions	AS-i networking	Power supplies
99 - 111	113 - 129	130 - 141	142 - 155	156 - 169	170 - 171	173 - 183	184 - 193	194 - 195

↑



Top five product features!

- Wide-range input range, single phase 100...240 V AC $\pm 10\%$
- Robust metal housing or compact plastic housings occupy minimal control cabinet space
- Extra power due to "power boost" design
- Energy-saving efficiencies from 84 to 92% generate less heat and eliminate the need for external cooling
- Short-circuit and overload protection

Low power loss ensures uptime

ifm's power supplies are designed to provide the voltage supply for sensors, actuators, controllers, and other electronic loads. These power supplies are compact and light-weight, 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 $\pm 15\%$ 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.

Company	Inductive	Cylinder position	Encoders	Capacitive	Photoelectrics and lasers	Distance, color and contrast	Fiber optics	Speed monitors	Vision sensors
1 - 5	6 - 35	36 - 41	42 - 43	44 - 45	46 - 73	74 - 79	80 - 85	86 - 87	89 - 97



Product + accessory selector

Dimensions (mm)	Current (A)	Output Voltage (V)	Nominal Input Voltage (V)	Efficiency (%)	Part No.	List Price (1-pc.)
90 x 45 x 100	1.25	24...28 DC	100...240 AC	84.0	DN 1030	\$160.00
90 x 45 x 100	2.5	24...28 DC	100...240 AC	88.0	DN 1031	\$185.00
129 x 50 x 136	2.5	24...28 DC	100...240 AC	87.1	DN 3011	\$217.00
129 x 50 x 136	5.0	24...28 DC	100...240 AC	88.9	DN 3012	\$285.00
120 x 131 x 107	10.0	24...28 DC	115...230 AC	90.0	DN 2013	\$370.00
220 x 123 x 95	20.0	24...28 DC	115...230 AC	90.0	DN 2114	\$578.00
275 x 123 x 105	20.0	24...28 DC	3 x 400 AC	92.0	DN 2034	\$418.00

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

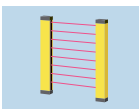
Simple and comprehensive website



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

Safety products



99 - 111

Fluids

Pressure



113 - 129

Flow



130 - 141

Temperature



142 - 155

Level



156 - 169

Vibration



170 - 171

Networking

Cordset solutions



173 - 183

AS-i networking



184 - 193

Power supplies



194 - 195



We stand behind our products

All ifm products are backed with the longest established warranty program in the sensor industry. ifm position sensors and fluid sensors carry a 5-year and 2-year warranty, respectively. For your convenience, a downloadable shipping form is available on our website: www.ifm.com/us.



Position sensors Five year limited warranty

ifm efector warrants that its position control sensors, i.e. proximity switches and photoelectric sensors, will be free from defects in materials and workmanship for five years, and ifm efector will repair or replace any proximity switch which is found to be defective within five years of shipment and which is 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.



Fluid and diagnostic sensors Two year limited warranty

ifm efector warrants that its fluid control sensors will be free from defects in materials and workmanship for two years, and ifm efector will repair or replace any sensor which is found to be defective within two years of shipment and which is 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.

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.

ifm efector



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. Get to know us...

ifm efector – *close to you!*

Call 800-441-8246 • visit www.ifm.com/us

Inductive sensors



Cylinder sensors



Photoelectric sensors



Vision sensors



Pressure sensors



Flow sensors



Temperature sensors



Level sensors

