Automation Technology for the Food Industry

Catalogue 2018/2019

www.ifm.com/gb/food

Clean solutions for your applications

With over 40 years of experience in sensors and control systems we know how to achieve maximum process reliability and plant uptime: our portfolio covers innovative, high-quality position sensors, level, temperature and pressure sensors as well as diagnostic systems with high temperature and cleaning resistance, which comply with the required standards and directives. In addition, connectors, also with the protection rating IP 68 / 69K.

The world's leading manufacturers in the food industry rely on solutions from ifm – in over 70 countries worldwide.

ifm – close to you!

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This industry-specific catalogue is available for download on our website at:
www.ifm.com/gb/food-industry

ifm – the company matching your requirements

close to you:
Our worldwide sales and service team is here to help you at any time.

Engineering "Made in Germany":
German engineering available worldwide.

Flexible:
Not only our service but our broad product portfolio perfectly suit the most varying requirements.

Innovative:
More than 830 patents and in 2017 about 65 patent applications.

Reliable:
5-year warranty on ifm products.

System instead of just components
ifm provides you with a broad portfolio for flexible automation of your production.
Our range of more than 7,800 articles guarantees flexibility and compatibility.

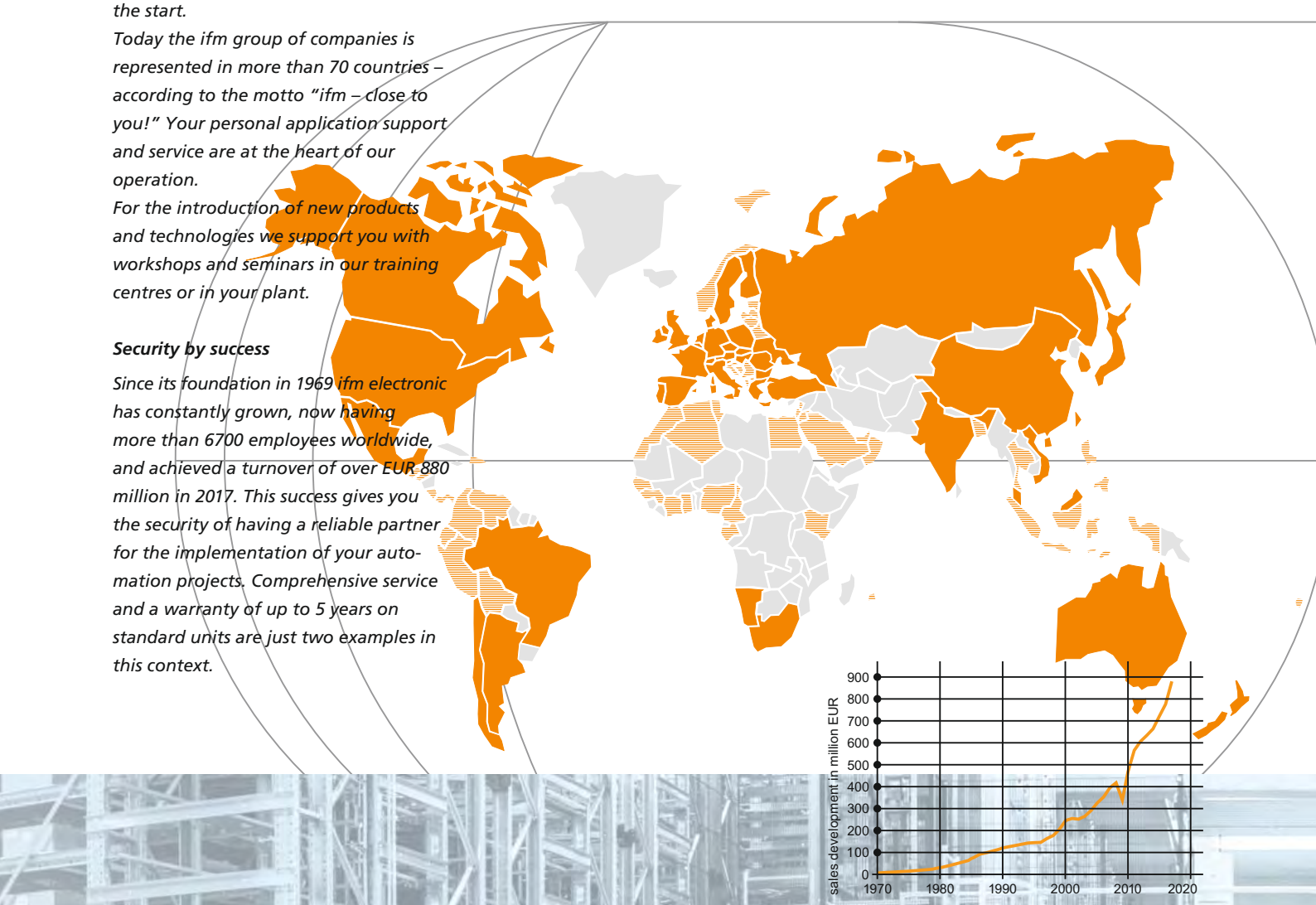
Quality as part of our philosophy
Quality is an inherent part of our philosophy.
We use our customers' feedback to continuously improve the quality of our products.
Our sensors are tested with values far beyond the indicated limits using special procedures.

We are there for you

Close contact with our customers is part of our success. We have consistently developed our sales network right from the start.
Today the ifm group of companies is represented in more than 70 countries – according to the motto "ifm – close to you!" Your personal application support and service are at the heart of our operation.
For the introduction of new products and technologies we support you with workshops and seminars in our training centres or in your plant.

Security by success

Since its foundation in 1969 ifm electronic has constantly grown, now having more than 6700 employees worldwide, and achieved a turnover of over EUR 880 million in 2017. This success gives you the security of having a reliable partner for the implementation of your automation projects. Comprehensive service and a warranty of up to 5 years on standard units are just two examples in this context.



Product availability

Your deadlines matter to us.
That is why we are constantly optimising our production processes.
In order to be able to quickly and flexibly produce large quantities at a constantly high quality – and to continue to shorten delivery times.

See the current ifm company film to get to know us better:
www.ifm.com/gb/close-to-you

The ifm sales platform

Overview:

The ifm product range is clearly structured and the individual product platforms ensure quick orientation.

Selectors:

Choose between the most important technical data and you will get the product selection suitable for your requirements.

Compare:

You can compare the technical data of up to 3 products. Differences are marked in colour.

Search and find:

Enter the search term in the full text search and get suggestions for products, topics and product groups.

Order:

We provide a quick-order and csv import function for the shopping basket on the product pages.

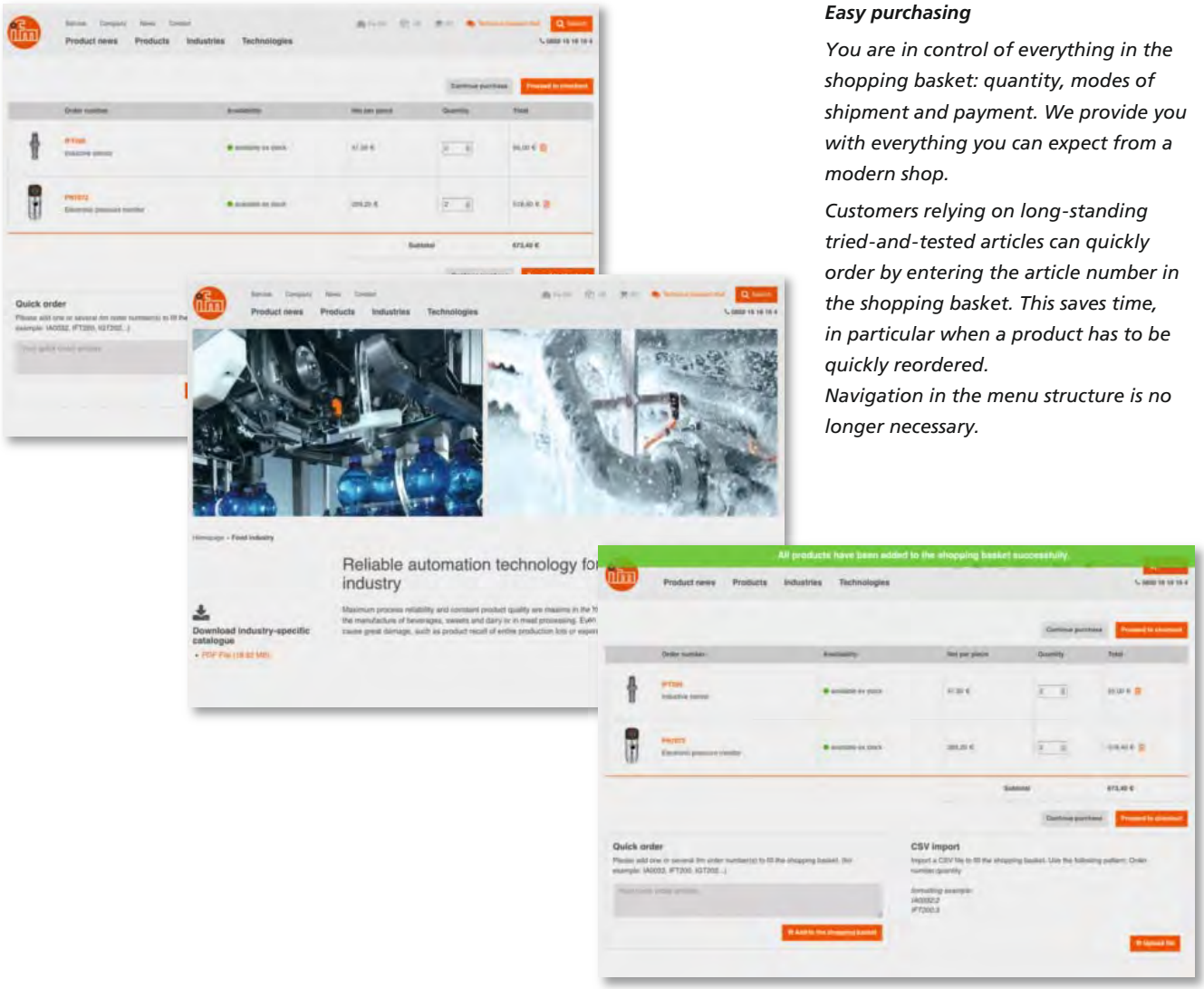
More clarity

For each product group you can make a first selection via the platforms.

A clear visual language and explanatory texts give you a first impression of the products.

Compare products with each other

The selectors are the heart of the product search.
The displayed selection criteria are adapted to each product range and the technical features of the products.
The results can be displayed as tiles or lists.



Easy purchasing

You are in control of everything in the shopping basket: quantity, modes of shipment and payment. We provide you with everything you can expect from a modern shop.

Customers relying on long-standing tried-and-tested articles can quickly order by entering the article number in the shopping basket. This saves time, in particular when a product has to be quickly reordered.
Navigation in the menu structure is no longer necessary.

For all types of display

Whether PC, laptop, tablet or smartphone – the design of the sales platform adapts to any screen size thus increasing user-friendliness. This also makes it possible to buy products using mobile equipment such as a smartphone.

Try us.
Click here to directly get to our homepage:
www.ifm.com

Your start into the industrial revolution. IO-Link solutions from ifm.

Simple:

The sensor parameters can be set from the controller or the master. No crawling or climbing required to set the sensor.

Transparent:

Many sensors supply measured values to the switching signals via IO-Link. The goal is a constant product quality with less energy and raw material consumption.

Reliable:

Transmission that is prone to errors and conversion of analogue signals is replaced with digital measured value transmission.

Low-cost:

Process information, switching status, diagnostic functions are transmitted without loss via a single port to the controller. Expensive analogue signal processing is no longer needed.

Fascination **IO**-Link

In the past binary switches usually provided simple switching signals or analogue values. Today the data from intelligent sensors is the basis for the next industrial revolution.
Sensors that extract all the information from your machines and equipment using the key technology IO-Link.

Leading manufacturers from the fields of sensors, actuators and control technology have developed IO-Link.
Together they developed a standardised and field-bus independent interface for automation providing the user with a point-to-point connection without complex addressing.

Benefit from the appeal of IO-Link, talk to us and stay as productive and competitive for your manufacturing processes of tomorrow.

Head start with **IO**-Link

Use the advantages! Today IO-Link sensors from ifm give the user completely new options.

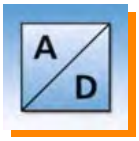
Additional sensor data, for example, is generated to achieve maximum efficiency and cost saving.
This allows process transparency from the machine to ERP to optimise your existing automation. Furthermore IO-Link has a lot more to offer:

No external influence of the signal

Data transfer is based on a 24 V signal. Screened cables and associated grounding are no longer necessary.

Tamper free

No wrong settings by operators.



No measured value losses

The entire measured value transmission is digital. Transmission that is prone to errors and conversion of analogue signals is replaced.

Identification

Only like for like replacement. No wrong sensors accepted.

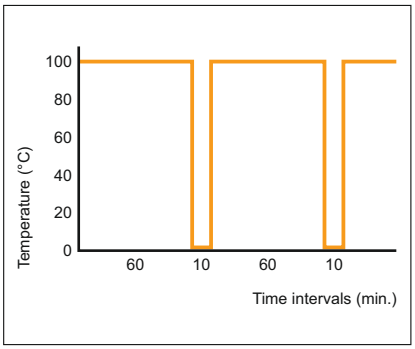
Easy sensor replacement

All sensor parameters are stored in the master and transferred to the replaced unit.

Wire-break detection / diagnostics

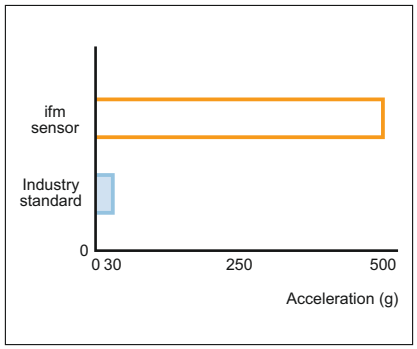
Wire-break or short-circuit is immediately detected.

Point-to-point communication: more details in our IO-Link video:
www.io-link.ifm



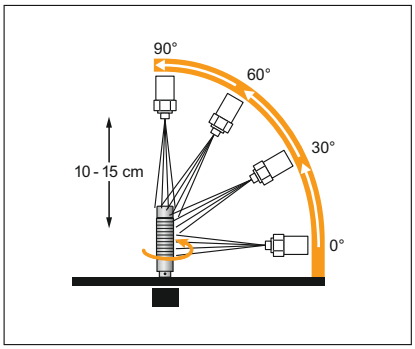
Thermal shock test

In pressure cleaning environments, proximity sensors are exposed to extreme temperature conditions. This is why ifm performs thermal shock tests on the sensors by cycling the temperature between 0 and 100 °C in short time intervals. After the test, the sensors' characteristics are tested to ensure high reliability.



Shock test

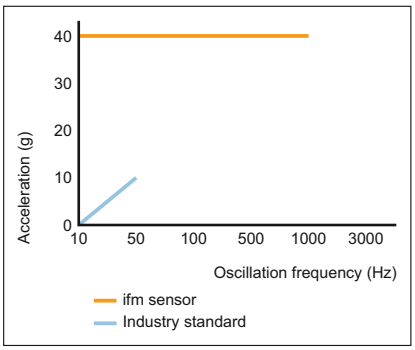
Sensors can be exposed to high levels of shock in industrial environments. This is why ifm sensors are tested at a shock level of 500 g. This test standard sets a new benchmark for inductive sensor product development.



IP 69K high-pressure cleaning test

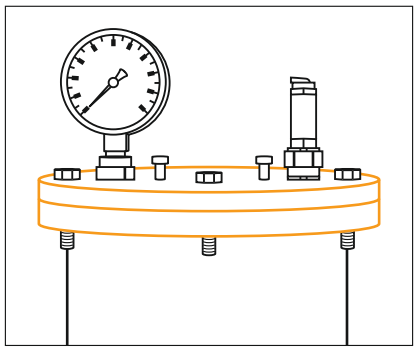
ifm inductive proximity sensors are tested in accordance with the IP 69K standard. The goal is to duplicate pressure cleaning conditions on a plant floor.

In the test fixture, the sensors are exposed to a 80 - 100 bar spray of water at a temperature of 80 °C. The duration of each cleaning cycle is 30 seconds. The test is performed at specified angles using a spray nozzle located at a distance of 10 - 15 cm from the sensor. ifm inductive sensors can withstand test conditions and are still operable providing 100 % of their sensing range.



Vibration test

A vibration test is performed on the sensors at a level of 40 g with the oscillation frequency spanned between 0 and 2,000 Hz. This test checks the integrity of the electronic circuit and the surface-mounted components. The vibration test is designed to far exceed manufacturing plant conditions on industrial automation machinery.



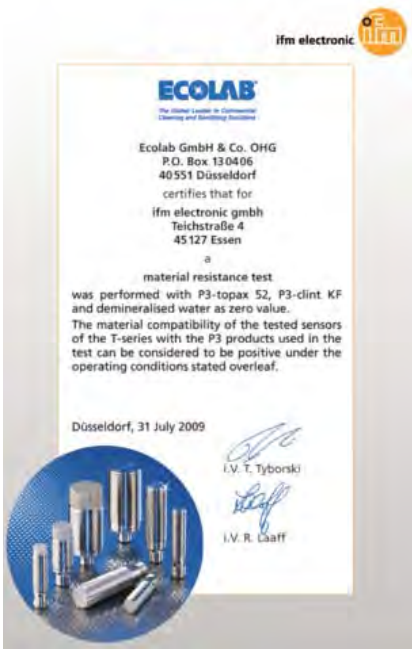
Steam boiler test

To simulate the aging process, the washdown sensors are placed in a steam boiler.

For inductive sensors: the test simulates whether penetrating water molecules can disturb the sensor behaviour. This is recognisable by a change in the sensing range.

For photoelectric sensors: the test simulates whether water can penetrate into the sensor optics. Abrupt cooling in ice water will cause any moisture to fog up the lens on the inside.

Many ifm sensors are Ecolab certified


ifm electronic

ECOLAB

Ecolab GmbH & Co. OHG
P.O. Box 130406
40551 Düsseldorf
certifies that for
ifm electronic gmbh
Teichstraße 4
45127 Essen
a
material resistance test
was performed with P3-topax 52, P3-clint KF and demineralised water as zero value.
The material compatibility of the tested sensors of the T-series with the P3 products used in the test can be considered to be positive under the operating conditions stated overleaf.

Düsseldorf, 31 July 2009
i.V. T. Tyborski
i.V. R. Laaff

Inductive proximity sensors

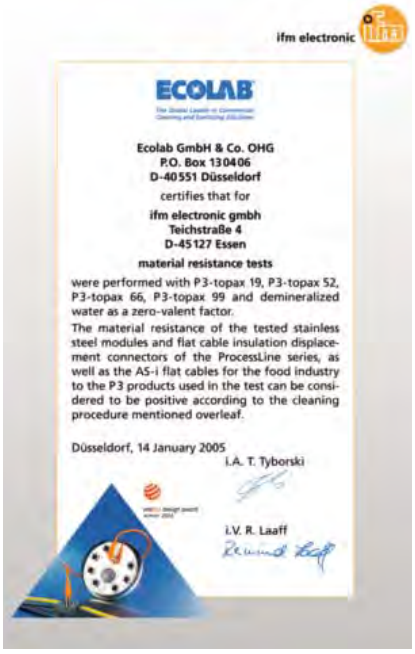
ifm electronic

ECOLAB

ECOLAB Deutschland GmbH
Ecolab-Allee 1
D-40789 Monheim am Rhein
certifies that for
ifm electronic gmbh
Friedrichstraße 1
45128 Essen
a
material resistance test
was performed with P3-topax 19, P3-topax 56, P3-topax 66, P3-topax 990, P3-topactive 200, P3-topactive DES and demineralised water as zero value.
The material compatibility of the tested sensors from the serie O6x3xx with the P3 products used in the test can be considered to be positive under the operating conditions stated overleaf.

Monheim, 19 August 2014
i.V. T. Tyborski
i.V. R. Laaff

Photoelectric sensors of the OG series for washdown


ifm electronic

ECOLAB

Ecolab GmbH & Co. OHG
P.O. Box 130406
D-40551 Düsseldorf
certifies that for
ifm electronic gmbh
Teichstraße 4
D-45127 Essen
material resistance tests
were performed with P3-topax 19, P3-topax 52, P3-topax 66, P3-topax 99 and demineralized water as a zero-valent factor.
The material resistance of the tested stainless steel modules and flat cable insulation displacement connectors of the ProcessLine series, as well as the AS-i flat cables for the food industry to the P3 products used in the test can be considered to be positive according to the cleaning procedure mentioned overleaf.

Düsseldorf, 14 January 2005
i.A. T. Tyborski
i.V. R. Laaff

AS-i ProcessLine modules

Ecolab certified

Ecolab® is a global leader in the development of premium cleaning, sanitizing and hygiene products for the food processing, beverage, dairy and pharmaceutical industries. The integrity and quality of ifm sensors, connectors and cables for use in washdown environments was tested in accordance with the demanding Ecolab standards.

Independent tests were performed by Ecolab on the inductive sensors, photoelectric sensors of the OG series for washdown and AS-i ProcessLine modules of ifm. Ecolab certified that ifm products resisted the cleaning chemicals used in the tests.

3A

3A Sanitary Standards, Inc. (3-A SSI) is an independent, not-for-profit corporation dedicated to advancing hygienic equipment design for the food, beverage, and pharmaceutical industries.

AS-i

Actuator-Sensor Interface. Bus system for the first binary field level.

ATEX

Atmosphère Explosible. ATEX comprises the directives of the European Union in the field of explosion protection. On the one hand there is the 94/9/EC ATEX product directive and on the other hand the 1999/92/EC ATEX operation directive.

CCC

CCC (China Compulsory Certification) is a compulsory Chinese certification for certain products put on the market in China. Which products are concerned is specified in a catalogue created by the Chinese authorities.

cCSAus

Testing of a product by CSA according to the safety standards applicable in Canada and the USA.

CE

Conformité Européenne. By affixing the CE marking to a product, the manufacturer declares that it meets EU safety, health and environmental requirements.

cRUus

Testing of components by UL according to the safety standards applicable in Canada and the USA. Components can be used when the "condition of acceptability" is complied with for the final product.

CSA

Canadian Standards Association. A non-governmental Canadian organisation that sets standards and tests and certifies products for their reliability. By now it is active worldwide.

cULus

Testing of components by UL according to the safety standards applicable in Canada and the USA.

DIBt (WHG)

Deutsches Institut für Bautechnik (Federal Water Act). The Federal Water Act (WHG) is the essential part of the German law relating to water. It contains provisions for the protection and use of surface water and ground water and also regulations about the expansion of waters, water planning and flood protection.

DKD

The Deutscher Kalibrierdienst (DKD) is an association of calibration laboratories of industrial firms, research institutes, technical authorities, inspection and testing institutes. The DKD calibration certificates prove traceability to national standards as required in ISO 9000 and ISO / IEC 17025. They also serve as a metrological basis for the control of measurement and test equipment within the framework of quality management.

E1

Approval by the Kraftfahrt-Bundesamt (German Federal Motor Transport Authority). The E1 type approval by the German Federal Motor Transport Authority certifies that the units comply with the automotive standards. Units with this marking are allowed to be mounted on vehicles without expiry of their operating permit.

EG 1935/2004

The Regulation EC 1935/2004 has been taken into account for process sensors from ifm which are intended for use in contact with food. You can obtain a list of the corresponding products and detailed information on request.

EHEDG

European Hygienic Engineering & Design Group. European supervisory authority for food and drugs. This authority grants approvals for products and materials used in the food and pharmaceutical industries.

FDA

Food and Drug Administration. US-American supervisory authority for food and drugs. This authority grants approvals for products and materials used in the food and pharmaceutical industries.

FM

Factory Mutual Research. A US-based insurance company that specializes in loss prevention services in the property insurance market sector. They provide material research, material testing and certifications in the field of fire and explosion protection.

PROFIBUS

Process Field Bus. Fieldbus system for important data quantities. It is available in several versions such as Profibus FMS, DP or PA. Profibus DP can be used over longer distances, e.g. as fieldbus for AS-i.

TÜV

Technischer Überwachungs Verein (technical inspection association). The German TÜV is a private-sector body carrying out technical safety tests that are stipulated by government laws or instructions.

UL

Underwriters Laboratories. An organisation founded in the USA for testing and certifying products and their safety.

An interactive overview of this process can be found on our website at:
www.ifm.com/gb/milk-processing

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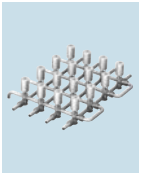
6
7
1
2

Machine	Application	Product group	From page
1	**Tank**		
	Manway monitoring	Fail-safe inductive sensors	**163**
	Level detection	Pressure sensors	**179**
	Temperature measurement	Level sensors	**207**
	Temperature measurement	Temperature sensors	**211**
2	**Valves**		
	Position detection	Inductive sensors	**83**
	Valve connection with AS-i	AS-Interface devices for valves and valve actuators	**245**
	Detection of rising stem valves	Feedback systems for valves and valve actuators	**141**
3	**Pasteuriser**		
	Pressure measurement	Pressure sensors	**179**
	Flow monitoring	Flow sensors / flow meters	**197**
	Temperature measurement	Temperature sensors	**211**
4	**Separator**		
	Pressure measurement	Pressure sensors	**179**
	Vibration monitoring	Vibration monitoring systems	**261**
5	**Heat exchangers**		
	Pressure measurement	Pressure sensors	**179**
	Flow monitoring	Flow sensors / flow meters	**197**
	Temperature measurement	Temperature sensors	**211**
6	**Homogeniser**		
	Pressure measurement	Pressure sensors	**179**
	Flow monitoring	Flow sensors / flow meters	**197**
7	**Distribution plate**		
	Position feedback	Inductive sensors	**83**
	Position feedback	Magnetic sensors	**111**

Machine	Application	Product group	From page
8	**Filling / conveying technology**		
	End position monitoring	Inductive sensors	**83**
	Optical detection	Photoelectric sensors for general applications	**119**
	Pressure measurement	Pressure sensors	**179**
	Level detection	Level sensors	**207**
	Temperature measurement	Temperature sensors	**211**
9	**Cartoner**		
	End position monitoring	Inductive sensors	**83**
	Optical detection	Photoelectric sensors for general applications	**119**
	Monitoring of completeness	3D sensors	**159**
	End position monitoring	Cylinder sensors	**113**
	Reading of codes	1D/2D code readers	**259**
10	**CIP installation**		
	Pressure measurement	Pressure sensors	**179**
	Level detection	Level sensors	**207**
	Temperature measurement	Temperature sensors	**211**
	AS-Interface as control system	AS-Interface controllers / gateways	**231**

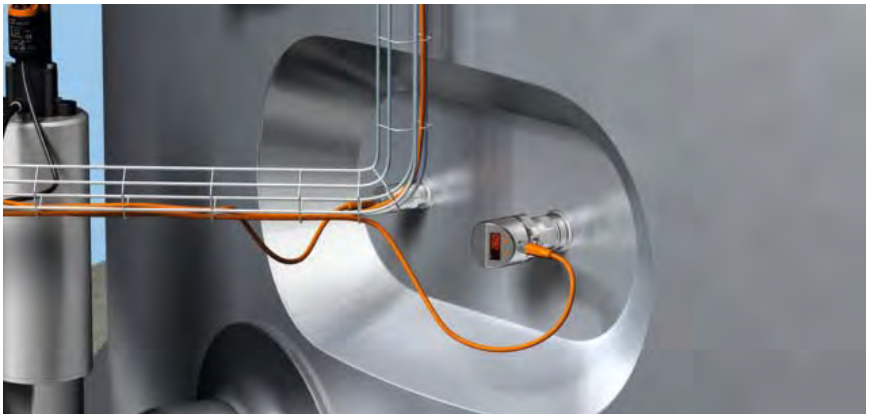
Demanding requirements in milk processing

Milk is one of the most important staple foods. It can be processed into many different products such as cheese, yoghurt, ice cream or milk powder.

Reliable processing is essential in order to obtain a high-quality end product, with quality and food safety playing a decisive role. Sensors are an important element of these processes, for example when separating, homogenising or pasteurising milk.

Sensors from ifm comply with required approvals such as EHEDG or 3A. In addition, they are resistant to CIP / SIP cleaning processes. A wide range of adapters enables easy and hygienic integration into the process equipment.

Storage in tanks



Level detection in a tank

ifm pressure sensors of the PG, PI or PM series detect the level as well as the system pressure in storage tanks.

Pressure sensors for level measurement · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	Aseptoflex Vario	Display unit	-0.05...1	10	30	20...32	**PI2797**

Sensors for point level detection · further products from page 207

Type	Process connection	Process pressure max. [bar]	Application	Protection	Order no.
	G ½ male	-1...40	liquids, viscous media and powders	IP 68 / IP 69K	**LMT100**

Valve monitoring

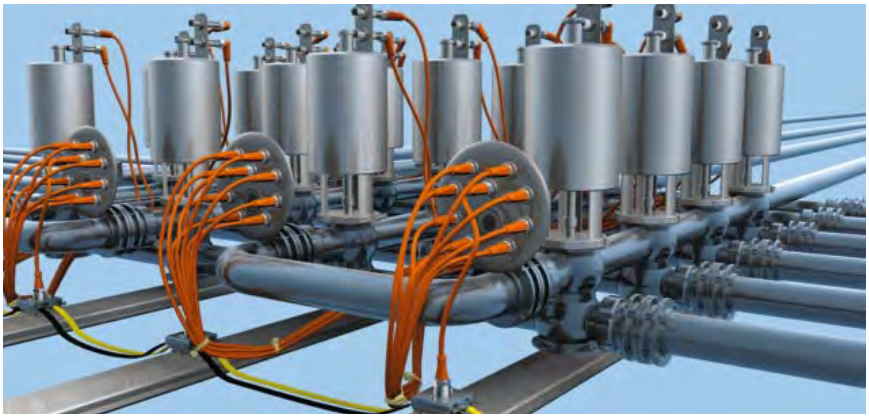
Monitoring of rising stem valves

efector valvis precisely detects the position of rising stem valves. It signals up to three valve positions: valve open, valve closed and any interim position such as seat lift.

Valve sensors for feedback of the valve positions · further products from page 141

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f AC / DC [Hz]	I_{load} AC / DC [mA]	Order no.
	65 x 52 x 110	–	PA	18...36	IP 65 / IP 67	–	100	**IX5010**

Valve island



Valve monitoring with AS-Interface

Inductive sensors of the T series are, for example, used for position detection on valves. All signals can be transferred to the controller via AS-Interface using a flat cable.

ProcessLine module for use in wet areas · further products from page 235

Type	Inputs / outputs	Description	Order no.
	8 digital inputs (2 slaves)	Active ProcessLine module · Version 2.1 with extended addressing mode · Protection rating IP 69K · high-grade stainless steel · Digital inputs · Sockets M12 x 1 · high-grade stainless steel / Makrolon / O-ring: EPDM	**AC2910**

Inductive sensor for detecting the valve position · further products from page 83

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
	M12 / L = 60	3 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IFT240**

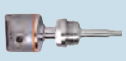
f = flush / nf = non flush / qf = quasi-flush

Pump system

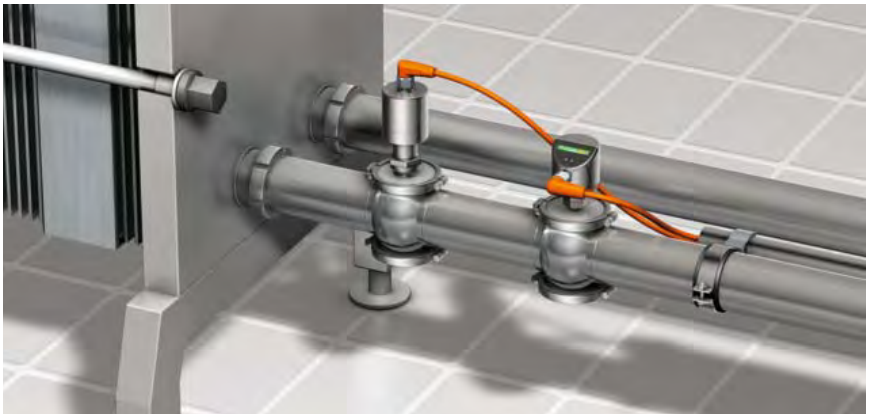
Pump run-dry protection

When conveying dairy products the product flow has to be monitored. Flow sensors of the SI6 series monitor the flow to avoid dry running of the pump.

Flow monitor as run-dry protection · further products from page 197

Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	Probe length [mm]	Order no.
	3...300 / 200...3000	3...100 / 200...800	-25...95	30	1...10	–	**SI6800**

Pasteuriser



Redundant temperature measurement for increased process reliability

For the life of the milk it is of high importance that the correct temperatures are kept. The self-monitoring and diagnostic functions of TAD-type temperature transmitters ensure that the process runs smoothly.

Temperature transmitter with diagnostic output for temperature measurement · further products from page 211

Type	Factory setting [°C / °F]	Process connection	Installation length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Order no.
	0...150 / 32...302	Aseptoflex Vario	33	18...32	3 / 6	**TAD981**

Separator

Continuous bearing monitoring on a separator

The efector octavis vibration diagnostic unit monitors the bearing of the motor.

Maintenance measures can then be precisely planned. This increases plant uptime.

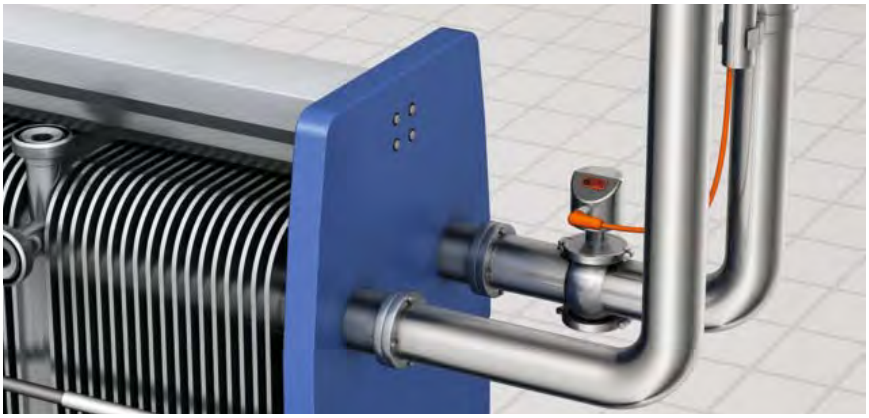
Vibration monitoring units for bearing monitoring · further products from page 261

Type	Description	Order no.
	Accelerometer · for connection to external diagnostic electronics type VSE · Connector · housing: stainless steel 316L / 1.4404	**VSA001**

Pressure monitoring on a separator · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	Aseptoflex Vario	Display unit	-1...25	100	350	18...32	**PG2793**

Heat exchangers



Temperature monitoring on a heat exchanger

In indirect heating a heat exchanger is used for the heat transmission. For the quality of a product it is decisive that the correct temperature is kept.

Temperature sensors for temperature monitoring · further products from page 211

Type	Factory setting [°C / °F]	Process connection	Installation length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Order no.
	-10...150 / -	2" clamp (ISO 2852)	50	18...32	1 / 3	**TD2911**

Homogeniser

Pressure monitoring in homogenisers

An important process is the homogenisation. For a targeted and reproducible process, the pressure conditions in the pump aggregate must be precisely monitored or regulated.

Pressure sensors for pressure monitoring of the pump aggregate · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	Clamp fitting	Display unit	0...600	800	1200	20...30	**PY9000**

Vibration monitoring units for bearing monitoring · further products from page 261

Type	Description	Order no.
	Accelerometer · for connection to external diagnostic electronics type VSE · M8 x 1.25 · Connector · Housing materials: housing: stainless steel 316L / 1.4404	**VSA001**

Distribution plate

Position feedback on a distribution plate

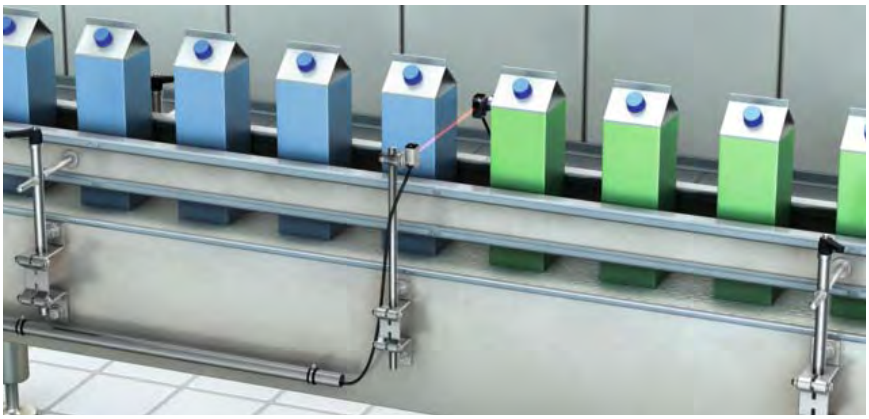
Distribution plates with swing bends are used for manual change between different lines. T series inductive sensors detect the position of the swing bend.

Inductive sensors for position feedback · further products from page 83

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
	M18 / L = 90	8 f	High-grade st. steel	10...36	IP 67	400	100	**IGT241**

f = flush / nf = non flush / qf = quasi-flush

Filling / conveying technology



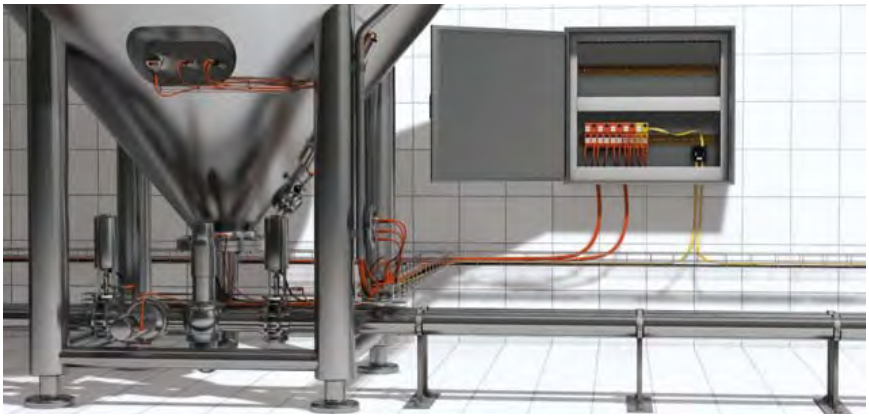
Photoelectric detection of packages on a conveyor

The sensing range of the photoelectric sensor O6 WetLine does not depend on the type and colour of the object to be detected.

Photoelectric sensors for the detection of milk cartons · further products from page 119

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
	Transmitter	10 m	Red	300	–	**O6S301**
	Receiver	10 m	Red	–	H/D PNP	**O6E301**

Sterile storage tank



IO-Link for the transmission of measured values in process areas

Via IO-Link modules, process sensors communicate with higher-level bus systems, for example for parameter setting or diagnostics. Measured values, too, are digitally transmitted without loss via unscreened standard cables.

IO-Link modules for the connection of IO-Link sensors · further products from page 235

Type	Inputs / outputs	Description	Order no.
	2 IO-Link ports	Active ClassicLine module · 2 IO-Link ports · For the connection of IO-Link sensors and actuators, binary sensors and binary actuators · Addressing socket · Three orientations of the flat cable are possible · Only for operation with AS-i masters with the profile M4 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5225**

Hygienic pressure sensor for differential pressure measurement

Two hygienic pressure sensors detect the differential pressure on a sterile storage tank. Via IO-Link, the measured values are transmitted without loss and plant states are quickly diagnosed.

Pressure sensors with IO-Link for the detection of differential pressure · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	Aseptoflex Vario	Display unit	-0.124...2.5	20	50	20...32	**PI2796**

Level sensors with IO-Link for point level detection · further products from page 207

Type	Process connection	Process pressure max. [bar]	Application	Protection	Order no.
	G ½ male	-1...40	liquids, viscous media and powders	IP 68 / IP 69K	**LMT102**

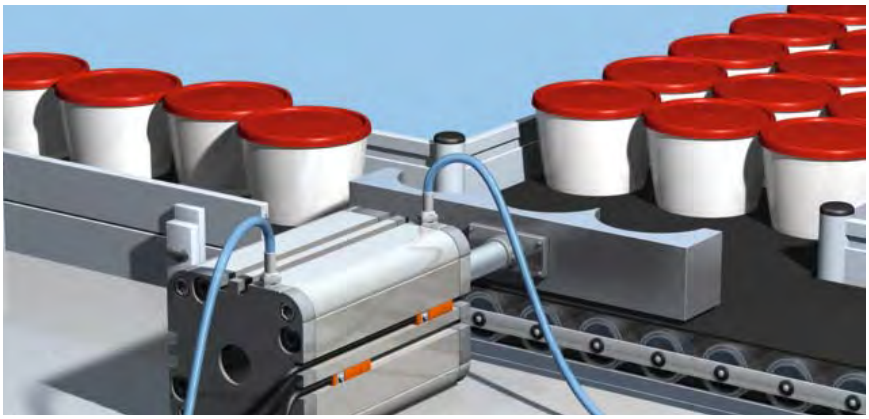
Ice cream production

Photoelectric distance sensor monitors ice-cream production

From a safe distance several efector pmd units check whether the pneumatic grippers have each picked a wafer.

Photoelectric distance sensors for detection from a safe distance · further products from page 133

Type	Operating principle	Range	Sampling rate [Hz]	Spot Ø at max. range [mm]	U_b [V]	Order no.
	Background suppression	0.2...10 m	1...50	< 15 x 15	18...30	**O1D100**



Position feedback on pneumatic cylinders

ifm cylinder sensors with protection rating IP 69K meet the high requirements in the food industry and reliably detect the piston position.

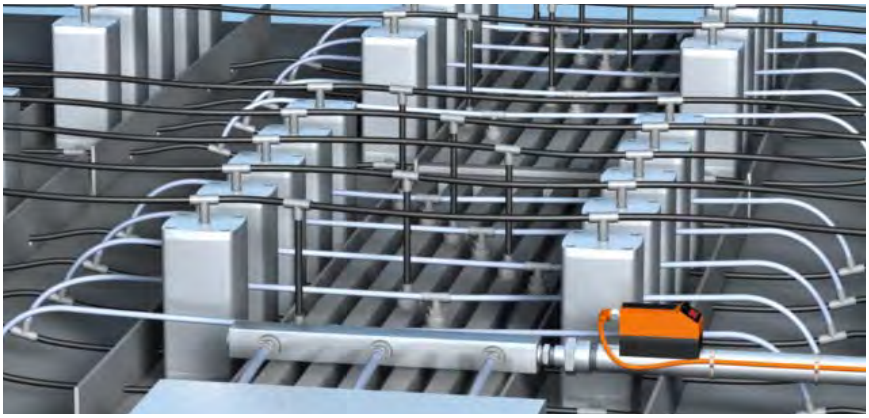
Cylinder sensors for position feedback · further products from page 113

Type	Dimensions [mm]	Material	U_b [V]	f [Hz]	Protection	I_{load} [mA]	T_a [°C]	Order no.
	25 x 5 x 6.5	PA (polyamide)	10...30	6000	IP 65 / IP 67 / IP 69K	100	-25...85	**MK5157**

Speed monitor for rotational speed monitoring on a conveyor · further products from page 151

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Order no.
	110...240 AC / 27 (24) DC	1	PNP	0.1...10 / 10...1000	–	–	1	–	**DD0203**

Cheese production



Compressed air meter monitors cheese production

Different types of presses are used to withdraw the remaining liquid from the curd. The compressed air of the pneumatic cylinders is monitored by the efector metris compressed air meter (SD series).

Compressed air meter for the measurement of compressed air consumption · further products from page 197

Type	Process connection	Setting range [Nm³/h]	Pressure rating [bar]	Response time [s]	U_b [V]	Order no.
	R½ (DN15)	0.6...75.0	16	< 0.1	18...30	**SD6000**

Compressed air measurement on a cheese press · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	G ½ male	Display unit	-1...10	50	150	18...32	**PG2454**

CIP / SIP system

Pressure monitoring

For monitoring CIP / SIP systems ifm offers many different measuring systems such as pressure and temperature sensors or electronic contact manometers.

Pressure sensors for measuring system pressure · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	Aseptoflex Vario	Display unit	-1...10	50	150	18...32	**PG2794**

Conveyor technology

Photoelectric detection of yoghurt pots

Shiny, matt, dark or light surfaces of any colour: the photoelectric sensors of the PMDLine even reliably detect difficult objects, such as yoghurt pots.

Photoelectric distance sensors for detection from a safe distance · further products from page 133

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	**OID200**

IO-Link modules for the connection of IO-Link sensors · further products from page 235

Type	Inputs / outputs	Description	Order no.
	2 IO-Link ports	Active ClassicLine module · 2 IO-Link ports · For the connection of IO-Link sensors and actuators, binary sensors and binary actuators · Addressing socket · Three orientations of the flat cable are possible · Only for operation with AS-i masters with the profile M4 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5225**

Chiller unit

Vibration transmitter for the monitoring of fans

Increased lifetime due to vibration monitoring by means of efector octavis (conforming to the ISO 10816 standard). Secured process by means of predictive maintenance.

Vibration monitoring units for bearing monitoring · further products from page 261

Type	Description	Order no.
	Vibration transmitter · Connection via M12 connector · Vibration transmitter to ISO 10816 · Measuring range RMS: 0...25 mm/s · Analogue output 4...20 mA · 2-wire connection technology · stainless steel 316L / 1.4404	**VTV122**

An interactive overview of this process can be found on our website at:
www.ifm.com/gb/beverages

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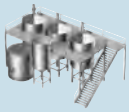
Machine	Application	Product group	From page
1	**Malt mill**		
	Position detection	Inductive sensors	**83**
	Level detection	Capacitive sensors	**105**
	Level detection	Level sensors	**207**
	Vibration monitoring	Vibration monitoring systems	**261**
2	**Brewhouse tank**		
	Detection of rising stem valves	Feedback systems for valves and valve actuators	**141**
	Level detection	Level sensors	**207**
	Level detection	Pressure sensors	**179**
	Temperature measurement	Temperature sensors	**211**
	Manway monitoring	Inductive sensors	**83**
	Position feedback	Inductive sensors	**83**
3	**Wort cooler**		
	Pressure measurement	Pressure sensors	**179**
	Temperature measurement	Temperature sensors	**211**
	Flow monitoring	Flow sensors / flow meters	**197**
4	**Fermentation / storage tanks**		
	Level detection	Level sensors	**207**
	Level detection	Pressure sensors	**179**
	Temperature measurement	Temperature sensors	**211**
	Manway monitoring	Fail-safe inductive sensors	**163**
5	**Separator**		
	Pressure measurement	Pressure sensors	**179**
	Vibration monitoring	Vibration monitoring systems	**261**
6	**Diatomaceous earth filter**		
	Pressure / differential pressure measurement	Pressure sensors	**179**
	Level detection	Level sensors	**207**
	Flow monitoring	Flow sensors / flow meters	**197**

Machine	Application	Product group	From page
7	**Flash pasteuriser**		
	Pressure measurement	Pressure sensors	**179**
	Temperature measurement	Temperature sensors	**211**
	Flow monitoring	Flow sensors / flow meters	**197**
8	**Keg cleaning system**		
	Optical detection	Photoelectric sensors for general applications	**119**
	Level detection	Level sensors	**207**
	Pressure measurement	Pressure sensors	**179**
	Temperature measurement	Temperature sensors	**211**
	Flow monitoring	Flow sensors / flow meters	**197**
9	**Palletiser**		
	Position detection	Inductive sensors	**83**
	Optical detection	Photoelectric sensors for general applications	**119**
	Safety monitoring	Safety light grids	**173**
	Monitoring of completeness	3D sensors	**159**
	AS-Interface as control system	AS-Interface controllers / gateways	**231**
10	**Filling / conveying technology**		
	End position monitoring	Inductive sensors	**83**
	Optical detection	Photoelectric sensors for general applications	**119**
	Safety monitoring	Fail-safe inductive sensors	**163**
	Monitoring of completeness	3D sensors	**159**
	Pressure measurement	Pressure sensors	**179**
	Level detection	Level sensors	**207**
	Vibration monitoring	Vibration monitoring systems	**261**
11	**CIP installation**		
	Pressure measurement	Pressure sensors	**179**
	Temperature measurement	Temperature sensors	**211**
	Level detection	Level sensors	**207**
	AS-Interface as control system	AS-Interface controllers / gateways	**231**

For the processes in the manufacture of beverages

In most cases beverages are manufactured in individual, highly-automated processes. One of the most complex food processes is that of brewing beer.

Reliable sensors guaranteeing maximum process safety are required here so that a high-quality product results without quality fluctuations.

ifm offers solutions for all areas of the manufacture of beverages. From the process and the bottling or canning of the beverages to packaging and conveying.

Sensors from ifm comply with required approvals such as EHEDG or 3A. In addition, they are resistant to CIP / SIP cleaning processes. A wide range of adapters enables easy and hygienic integration into the process equipment.

Malt mill

Continuous bearing monitoring on a malt mill

The efector octavis vibration sensor monitors the bearing on the mash pump. Wear rates can be detected continuously so as to predict downtimes and thus to increase plant uptime.

Vibration sensor for bearing monitoring · further products from page 261

Type	Description	Order no.
	Accelerometer · for connection to external diagnostic electronics type VSE · Connector · housing: stainless steel 316L / 1.4404	**VSA001**

Brewhouse tank

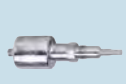
Level detection on a brewhouse tank

PG series pressure sensors, with flush diaphragm and CIP resistance, are used for level detection in mash tuns, for example. A range of adapters offers many different possibilities for fitting.

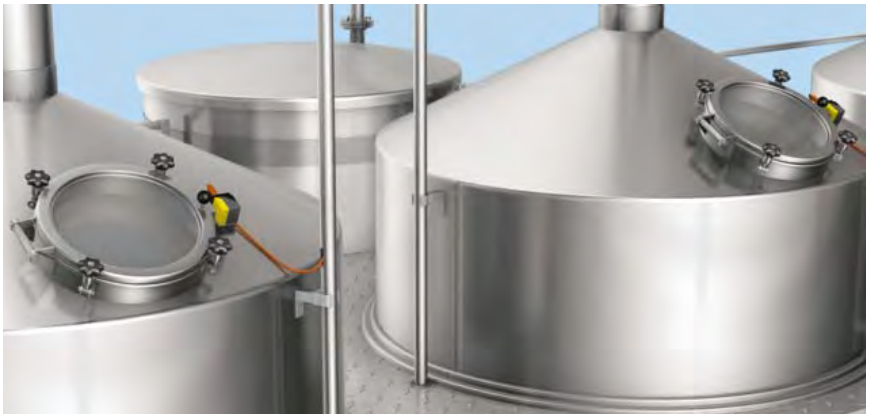
Pressure sensor for level monitoring · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	Aseptoflex Vario	Display unit	-0.05...1	10	30	18...32	**PG2797**

Temperature transmitter with diagnostic output for temperature measurement · further products from page 211

Type	Factory setting [°C / °F]	Process connection	Installation length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Order no.
	0...150 / 32...302	G ½ male	33	18...32	3 / 6	**TAD991**

Brewhouse tank



Manway monitoring on the brewhouse tank

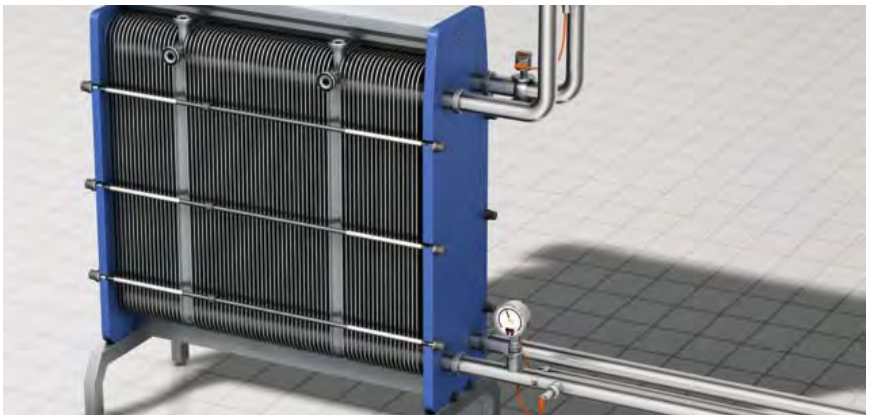
If manways are open agitator drives and valves must be shut off.
Here, fail-safe inductive sensors without magnetic target or coded actuator monitor the manway.

Fail-safe inductive sensor for monitoring manways · further products from page 163

Type	Length [mm]	Enable zone [mm]	Housing material	U_b DC [V]	Protection	Response time in case of a safety request / enable time [ms]	Order no.
	66	10...15 nf	PPE	24	IP 65 / IP 67	≤ 20 / ≤ 200	**GM504S**

f = flush / nf = non flush / qf = quasi-flush

Wort cooler



Temperature measurement on a wort cooler

Before it is fed into the fermentation tank, the wort is cooled in the wort cooler. Temperature sensors of the TAD/TD series are used to monitor the fermentation temperature before and after the wort cooler.

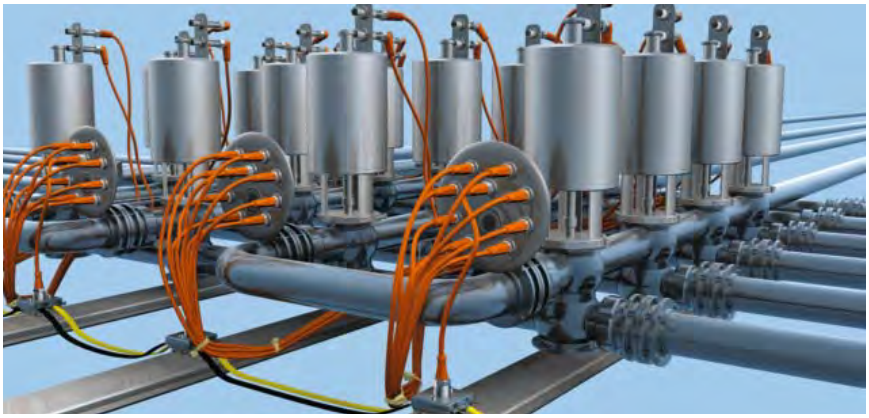
Temperature sensors for temperature monitoring · further products from page 211

Type	Factory setting [°C / °F]	Process connection	Installation length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Order no.
	-10...150 / -	2" clamp (ISO 2852)	50	18...32	1 / 3	**TD2911**

Pressure sensor for monitoring the system pressure · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	Aseptoflex Vario	Display unit	-1...10	50	150	18...32	**PG2794**

Valve island



Valve monitoring with AS-Interface

Inductive sensors of the T series are, for example, used for position detection on valves. All signals can be transferred to the controller via AS-Interface using a flat cable.

ProcessLine module for use in wet areas · further products from page 235

Type	Inputs / outputs	Description	Order no.
	8 digital inputs (2 slaves)	Active ProcessLine module · Version 2.1 with extended addressing mode · Protection rating IP 69K · high-grade stainless steel · Digital inputs · Sockets M12 x 1 · high-grade stainless steel / Makrolon / O-ring: EPDM	**AC2910**

Inductive sensor for detecting the valve position · further products from page 83

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
	M12 / L = 60	3 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IFT240**

f = flush / nf = non flush / qf = quasi-flush

Dual inductive sensor for position feedback on valve actuators.

Pneumatic valve actuators are used for the automatic control of butterfly valves in many different areas. Inductive dual sensors of the IND series provide feedback of the position.

Dual inductive sensor with actuator interface connection · further products from page 245

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	–	100	**AC2316**

f = flush / nf = non flush / qf = quasi-flush

Fermentation / storage tanks

Level detection on fermentation / storage tanks

In the cold area of the brewery there are, for example, fermentation and storage tanks. Pressure sensors of the PI series detect both the level and the pressure of the generated CO_2 in the upper part of the fermentation tank.

Pressure sensors for level measurement · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	Aseptoflex Vario	Display unit	-0.124...2.5	20	50	20...32	**PI2796**

Electronic level sensor for limit value monitoring · further products from page 207

Type	Process connection	Process pressure max. [bar]	Application	Protection	Order no.
	G ½ male	-1...40	liquids, viscous media and powders	IP 68 / IP 69K	**LMT100**

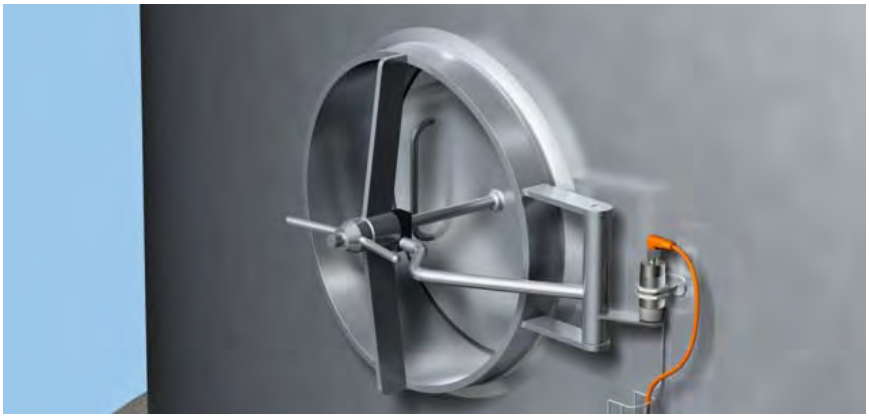
Temperature monitoring of the different cooling zones in fermentation tanks

Various temperature sensors measure the temperatures in the different cooling zones of the fermentation tanks.

Temperature transmitter with diagnostic output for temperature measurement · further products from page 211

Type	Factory setting [°C / °F]	Process connection	Installation length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Order no.
	0...150 / 32...302	Aseptoflex Vario	87.5	18...32	3 / 6	**TAD181**

Fermentation / storage tanks



Monitoring manways on fermentation / storage tanks

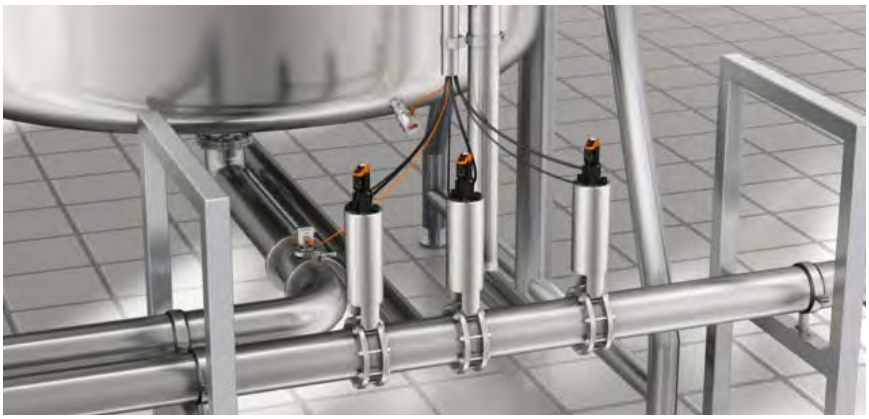
Fail-safe inductive sensors to category 3 and SIL 2 detect the stainless steel lid of the tank without contact and without any specific counterpart.

Fail-safe inductive sensor for monitoring manways · further products from page 163

Type	Length [mm]	Enable zone [mm]	Housing material	U_b DC [V]	Protection	Response time in case of a safety request / enable time [ms]	Order no.
	39	6...12 nf	High-grade st. steel	24	IP 68 / IP 69K	≤ 20 / ≤ 200	**GI505S**

f = flush / nf = non flush / qf = quasi-flush

Diatomaceous earth filter



Differential pressure monitoring during filtration

After storage a variety of beers are filtered. In this respect diatomaceous earth filtering is often used. Hygienic pressure sensors of the PI series monitor the differential pressure in the filter unit.

Pressure sensor for differential pressure monitoring · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	Aseptoflex Vario	Display unit	-0.05...1	10	30	20...32	**PI2797**

Valve sensors for feedback of the valve positions · further products from page 141

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f AC / DC [Hz]	I_{load} AC / DC [mA]	Order no.
	65 x 52 x 110	–	PA	18...36	IP 65 / IP 67	–	100	**IX5010**

Diatomaceous earth filter

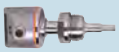
Level measurement in a diatomaceous earth tank

Diatomaceous earth is mixed with the beer via a separate tank and then fed into the filter. The LMT level sensor detects the limit value for the min / max detection.

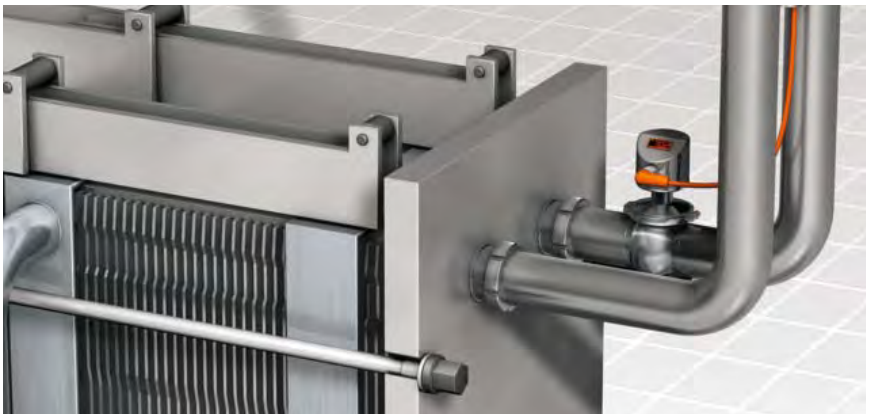
Adjustable level sensor for level measurement on diatomaceous earth tanks · further products from page 207

Type	Process connection	Process pressure max. [bar]	Application	Protection	Order no.
	G ½ male	-1...40	liquids, viscous media and powders	IP 68 / IP 69K	**LMT121**

Flow monitor as run-dry protection · further products from page 197

Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	Probe length [mm]	Order no.
	3...300 / 200...3000	3...100 / 200...800	-25...95	30	1...10	54.8	**SI6700**

Flash pasteuriser



Temperature monitoring on a flash pasteuriser

The hygienic temperature transmitters are distinguished by a compact, hygienic design with integrated adapters and a display for local indication of the temperature.

Temperature sensors for temperature monitoring · further products from page 211

Type	Factory setting [°C / °F]	Process connection	Installation length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Order no.
	0...100 / -	2" clamp (ISO 2852)	30	18...32	1 / 3	**TD2907**

CIP installation

Temperature measurement on a CIP installation

CIP cleaning is standard in the beverage industry. The TR2432 evaluation unit in conjunction with the TM4531 hygienic temperature sensor is, for example, used to monitor the cleaning temperature.

Temperature evaluation on CIP tanks · further products from page 211

Type	Measuring range [°C]	Process connection	Display	U_b [V]	Current consumption [mA]	I_{load} [mA]	Order no.
	-40...300	G ½ male	Display unit	18...32	50	250	**TR2439**

Hygienic temperature sensor with G1/2 process connection · further products from page 211

Type	Measuring range [°C]	Process connection	Installation length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Order no.
	-40...150	G½ with sealing cone	100	1 x Pt 100	1 / 3	**TM4531**

Bottle filling system

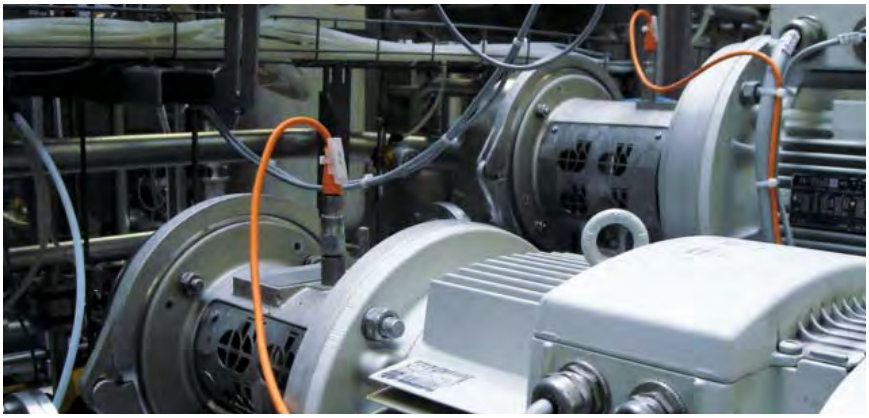
Flow rate measurement for water

In the filling process, water is used for example on bottle washing systems and tunnel pasteurisers. The efector mid volumetric flow sensor measures the consumed amount of water to use the resource water economically.

Flow rate measurement for water on cleaning systems and tunnel pasteurisers · further products from page 197

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Order no.
	G½	0.25...25.00	-10...70	16	< 0.150	18...30	**SM6100**

Bottle filling system



Condition monitoring of pumps

Pumps convey various media in all areas of the brewery. efector octavis continuously monitors the vibration characteristics of pumps so that beginning pump damage can be detected in time.

Vibration monitoring on feeding pumps · further products from page 261

Type	Description	Order no.
	Accelerometer · for connection to external diagnostic electronics type VSE · Connector · housing: stainless steel 316L / 1.4404	**VSA001**

Pressure sensor for measuring the system pressure · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	Aseptoflex Vario	Display unit	-1...25	100	350	20...32	**PI2793**

Full crate inspection

The efector pmd 3d sensor can be used for checking the completeness of beverage crates. The sensor checks the volume of the object. If bottles are missing, the volume decreases and the crate is discharged.

3D sensor for monitoring the presence of bottles · further products from page 159

Type	Operating principle	Resolution (pixels)	Angle of aperture (horizontal x vertical) [°]	Lighting	Max. sampling rate [Hz]	Ambient temperature [°C]	Order no.
	3D sensor	64 x 48	40 x 30	Infrared LED	25	-10...50	**O3D310**

Filling / conveying technology

Photoelectric sensor for the detection of bottles

The O5G500 photoelectric sensor reliably detects glass and PET bottles on the conveyor of the filling system. All signals can be transferred to the controller via AS-Interface using a cable.

Photoelectric sensor for the detection of bottles · further products from page 139

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
	Polarisation filter	0...3 m	Red	80	H/D PNP/NPN	**O5G500**

ProcessLine module for use in wet areas · further products from page 235

Type	Inputs / outputs	Description	Order no.
	8 digital inputs (2 slaves)	Active ProcessLine module · Version 2.1 with extended addressing mode · Protection rating IP 69K · high-grade stainless steel · Digital inputs · Sockets M12 x 1 · high-grade stainless steel / Makrolon / O-ring: EPDM	**AC2910**

Keg palletising

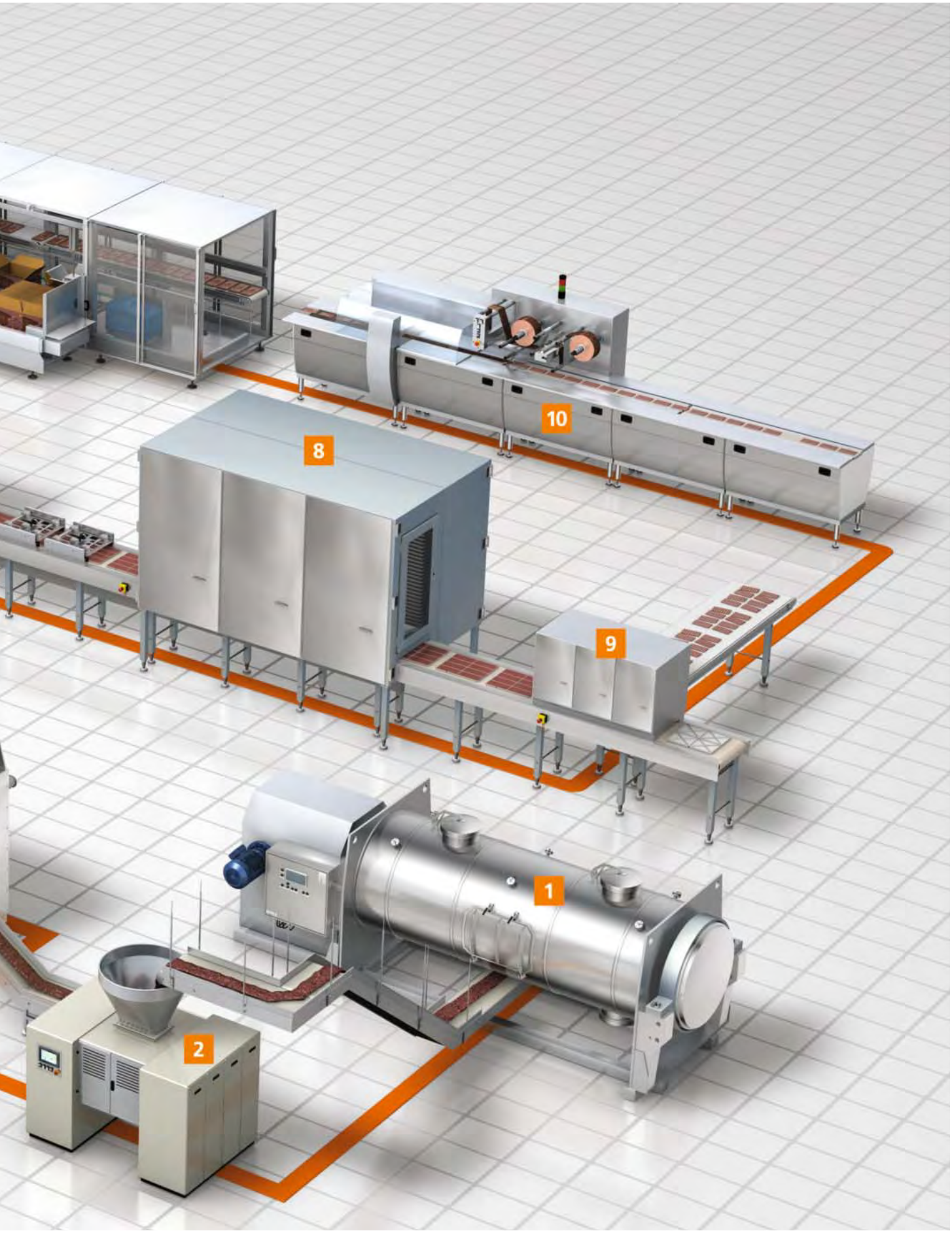
Access prevention in keg palletising

For operator protection, safety light curtains of the OY series protect accessible areas such as pallet inlet and outlet against unauthorised access. The safety light curtains correspond to type 2 or 4 to EN61496, depending on the design.

Safety light curtains for access prevention · further products from page 167

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U_b [V]	Order no.
	1563	50	1510	0...4 / 3...12	11	24	**OY090S**

An interactive overview of this process can be found on our website at:
www.ifm.com/gb/sweets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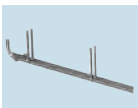
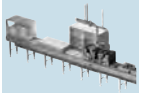
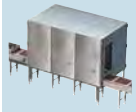
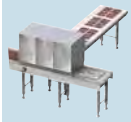
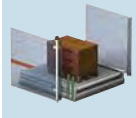
Machine	Application	Product group	From page
1	**Mixer**		
	Position detection	Inductive sensors	83
	Safety monitoring	Fail-safe inductive sensors	163
	Optical detection	Photoelectric sensors for general applications	119
	Level detection	Level sensors	207
	Vibration monitoring	Vibration monitoring systems	261
2	**Refiner**		
	Level detection	Level sensors	207
	Detection of pneumatic cylinders	Cylinder sensors	113
	Safety monitoring	Fail-safe inductive sensors	163
	Vibration monitoring	Vibration monitoring systems	261
3	**Conche**		
	Position detection	Inductive sensors	83
	Conveying pressure measurement	Pressure sensors	179
	Level monitoring	Pressure sensors	179
	Temperature measurement	Temperature sensors	211
	Vibration monitoring	Vibration monitoring systems	261
4	**Tank**		
	Photoelectric level detection	Level sensors	207
	Level detection	Level sensors	207
	Level detection	Pressure sensors	179
	Temperature measurement	Temperature sensors	211
	Vibration monitoring	Vibration monitoring systems	261
5	**Tempering system**		
	Pressure measurement	Pressure sensors	179
	Temperature measurement	Temperature sensors	211
6	**Pipes**		
	Magnetic detection	Magnetic sensors	111
	Temperature measurement	Temperature sensors	211

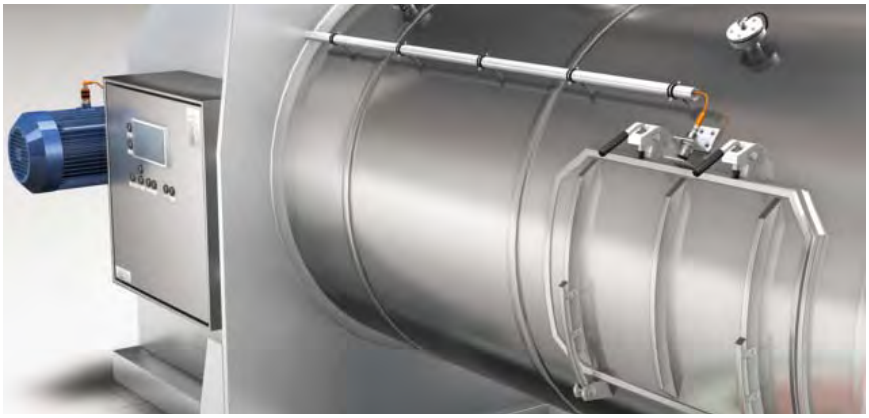
Machine	Application	Product group	From page
7	**Moulding system**		
	Optical detection	Photoelectric sensors for general applications	**119**
	Photoelectric level detection	Photoelectric sensors for general applications	**119**
	Mould identification / detection	RFID	**257**
	Mould testing	Vision sensors	**155**
	AS-Interface as control system	AS-Interface controllers / gateways	**231**
8	**Cooling tunnel**		
	Position detection	Inductive sensors	**83**
	Temperature measurement	Temperature sensors	**211**
	Optical detection	Photoelectric sensors for general applications	**119**
	Mould identification / detection	RFID	**257**
9	**Demoulding system**		
	Optical detection	Photoelectric sensors for general applications	**119**
	Mould identification / detection	RFID	**257**
	Assessment of damage	Vision sensors	**155**
10	**Packaging machine**		
	End position monitoring	Inductive sensors	**83**
	Optical detection	Photoelectric sensors for general applications	**119**
	AS-Interface as control system	AS-Interface controllers / gateways	**231**
11	**Cartoner**		
	Optical detection	Photoelectric sensors for general applications	**119**
	Monitoring of completeness	3D sensors	**159**
	Reading of codes	1D/2D code readers	**259**
	AS-Interface as control system	AS-Interface controllers / gateways	**231**
12	**Palletiser**		
	End position monitoring	Inductive sensors	**83**
	Optical detection	Photoelectric sensors for general applications	**119**
	Monitoring of completeness	3D sensors	**159**
	AS-Interface as control system	AS-Interface controllers / gateways	**231**

Highest quality in the confectionary industry

Many innovative solutions are required to manufacture products with constantly high quality. This includes photoelectric sensors for level monitoring in tanks as well as camera systems for the inspection of chocolate moulds, or the vibration monitoring of drives.

ifm offers a wide range of solutions for the confectionary industry. This includes the corresponding mounting and process adapters as well as suitable connection technology.

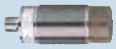
Mixer



Monitoring manways

Fail-safe inductive sensors to category 3 / SIL 2 detect the stainless steel cover of the mixer directly and without contact. A specially coded target is not required.

Fail-safe inductive sensor for monitoring manways · further products from page 163

Type	Length [mm]	Enable zone [mm]	Housing material	U_b DC [V]	Protection	Response time in case of a safety request / enable time [ms]	Order no.
	39	6...12 nf	High-grade st. steel	24	IP 68 / IP 69K	≤ 20 / ≤ 200	**GI505S**

f = flush / nf = non flush / qf = quasi-flush

Refiner

Bearing monitoring on a refiner

efector octavis is suited for vibration monitoring on bearings and refiners. It does not only detect vibration data but also carries out the signal analysis and machine diagnosis already on the machine.

Vibration sensor for bearing monitoring on refiners. · further products from page 261

Type	Description	Order no.
	Accelerometer · for connection to external diagnostic electronics type VSE · M8 x 1.25 · Connector · Housing materials: housing: stainless steel 316L / 1.4404	**VSA001**
	Diagnostic electronics for vibration sensors · Integrated history memory with real-time clock · Counter function · TCP/IP Ethernet interface · Active wire break detection and self-test (only MEMS) of the connected acceleration sensors · Parameter setting via PC software VES004 · Mounting on DIN rail · Combicon connection · Housing materials: PA	**VSE100**

Refiner

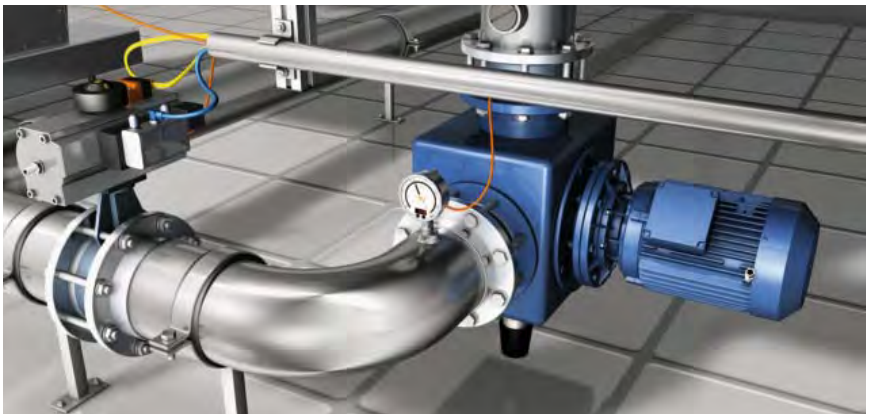
Flow rate and temperature measurement of cooling water

The SM magnetic-inductive volumetric flow sensor monitors the cooling process of refiners. It detects the smallest deviations of volumetric flow quantity, e.g. in the event of leakage. Simultaneously it also monitors the cooling water temperature.

Magnetic-inductive flow meter for measuring cooling water in refiners · further products from page 197

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Order no.
	G1	0.7...100.0	-10...70	16	< 0.150	18...30	**SM8000**

Conche



Pressure measurement on feeding pumps

Pressure sensors are used for measuring the conveying pressure in pipes and on pumps. The fully electronic PG manometer is used. It combines the advantages of a manometer with those of electronic pressure sensors.

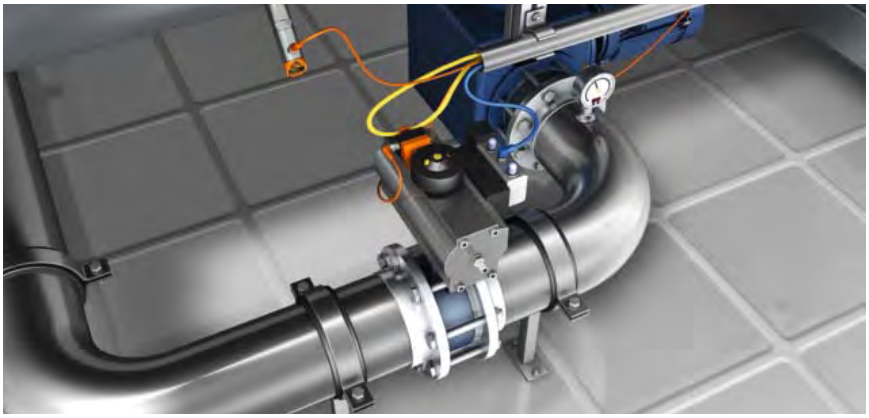
Pressure sensor for measuring the conveying pressure · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	Aseptoflex Vario	Display unit	-1...25	100	350	18...32	**PG2793**

Front-flush temperature sensor for measuring the temperature in pipes · further products from page 211

Type	Measuring range [°C / °F]	Process connection	Installation length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Order no.
	0...100 / -	G½ with sealing cone	–	18...32	10 / 40	**TA3597**

Conche



Position feedback on valve actuators

The devices in the IND range contain two inductive sensors for "open / close" detection of the valve position by means of target pucks. The digital output controls the solenoid valve for the pneumatic valve actuator. It is connected directly to AS-i.

Dual inductive sensor for position feedback on valve actuators · further products from page 245

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	–	100	**AC2316**

f = flush / nf = non flush / qf = quasi-flush

Storage tank

Level monitoring on storage tanks

The O1D300 photoelectric sensor detects levels of bulk materials and non-transparent liquids without contact with the medium. It uses the time of flight measurement on the basis of a laser beam.

Level sensor for level detection in storage tanks · further products from page 133

Type	Operating principle	Range	Sampling rate [Hz]	Spot Ø at max. range [mm]	U_b [V]	Order no.
	Optical level sensor	0.2...10 m	1...33	< 15 x 15	18...30	**O1D300**

Adjustable level sensor on a storage tank · further products from page 207

Type	Process connection	Process pressure max. [bar]	Application	Protection	Order no.
	G ½ male	-1...40	liquids, viscous media and powders	IP 68 / IP 69K	**LMT121**

Tempering system

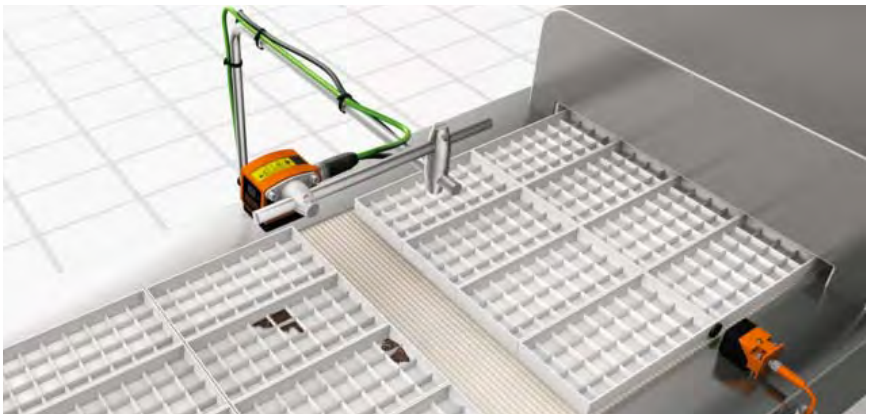
Pressure monitoring on a tempering machine

Hygienic pressure sensors with IO-Link measure the conveying pressure. IO-Link can be used to automatically parameterise sensors, diagnose plant states and transmit measured values without loss.

Pressure sensor for measuring the conveying pressure · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	Aseptoflex Vario	Display unit	-1...10	50	150	20...32	**PI2794**

Moulding plant



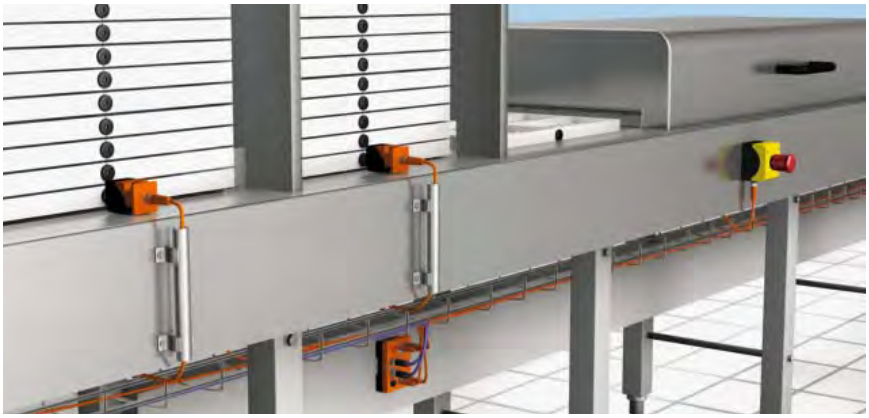
Detection of empty moulds on a moulding plant

Before the liquid chocolate is filled into moulds, it has to be ensured that the moulds are empty. The O2V vision sensor is used for this task. It checks the presence, size, position or completeness on the basis of variable features.

Vision sensor for the detection of empty chocolate moulds · further products from page 155

Type	Operating principle	Max. field of view size [mm]	Resolution [mm]	Detection rate [Hz]	Type of light	Ambient temperature [°C]	Order no.
	CMOS image sensor B/W, VGA resolution 640 x 480	640 x 480	1.0	10	White light	-10...60	**O2V100**

Moulding plant



Traceability of chocolate moulds

Traceability is of great importance in the food industry. The RFID system from ifm is used to identify chocolate moulds. It ensures for example that the correct mould is used.

RFID evaluation unit for the connection of up to 4 read/write heads · further products from page 257

Type	Dimensions [mm]	Travel speed read / write [m/s]	Process interface	Order no.
	115 x 46.2 x 85	–	Profibus-DP	**DTE100**

RFID antenna for the identification of chocolate moulds · further products from page 257

Type	Description	Order no.
	Read/write head · M12 connector · 5 positions of the sensing face selectable · Housing materials: housing: PA / Metal parts: stainless steel	**ANT513**

Limit detection on a dosing station

Capacitive sensors detect the levels of bulk material. Parameter setting is made via pushbuttons or IO-Link. Also, versatile further processing of the measured values is possible via IO-Link.

Capacitive sensors for level detection for bulk materials · further products from page 105

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f AC / DC [Hz]	I_{load} AC / DC [mA]	Order no.
	M30 / L = 90	8 f	High-grade st. steel	10...30	IP 65 / IP 67	10	100	**KI5085**

f = flush / nf = non flush / qf = quasi-flush

Cooling line

Temperature monitoring on cooling lines

After moulding, the chocolate is cooled in a controlled manner.
The ifm temperature sensors have a very good response time, a high protection rating (IP 68 / IP 69K) and a sanitary surface definition.

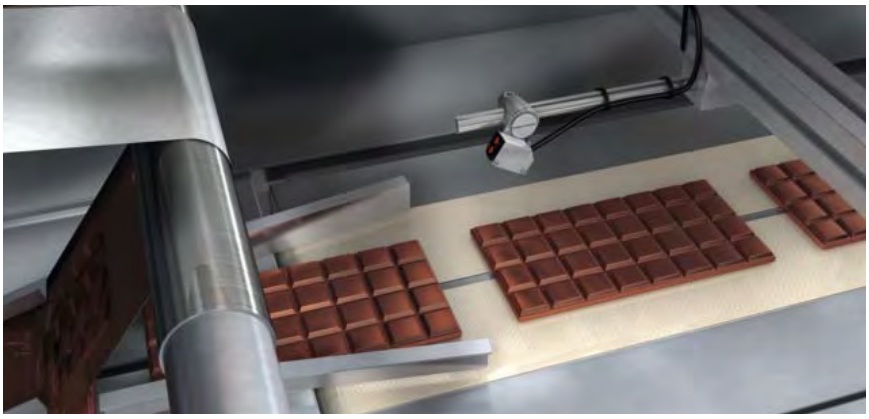
Temperature sensor for measurement in cooling lines · further products from page 211

Type	Measuring range [°C]	Process connection	Installation length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Order no.
	-40...150	G½ with sealing cone	150	1 x Pt 100	1 / 3	**TM4541**

Evaluation units for temperature sensors · further products from page 211

Type	Measuring range [°C]	Process connection	Display	U_b [V]	Current consumption [mA]	I_{load} [mA]	Order no.
	-40...300	G ½ male	Display unit	18...32	50	250	**TR2439**

Packaging machine



Optical detection of chocolate on a packaging machine

The O6 photoelectric sensor is used for the optical detection of chocolate on packaging machines. It has a stainless housing with a smooth surface and a plastic lens that does not shatter in case of damage.

Photoelectric sensor for use in hygienic and wet areas · further products from page 119

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
	Background suppression	2...200 mm	Red	8	H/D PNP	**O6H300**

Product selectors and further information can be found at: www.ifm.com

Conveyor technology

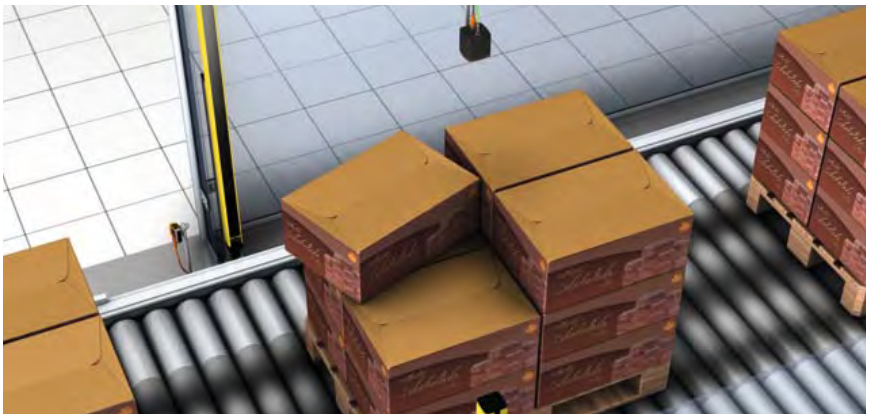
Photoelectric detection of cardboard packages of different colours

Shiny, matt, dark or light objects of any colour: the photoelectric sensors of the PMDLine reliably detect all objects, irrespective of the angle of incidence. This allows flexible installation positions.

PMDLine photoelectric sensors with time of flight measurement · further products from page 133

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	**O5D100**

Palletiser



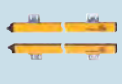
Detection of the filling status of pallets

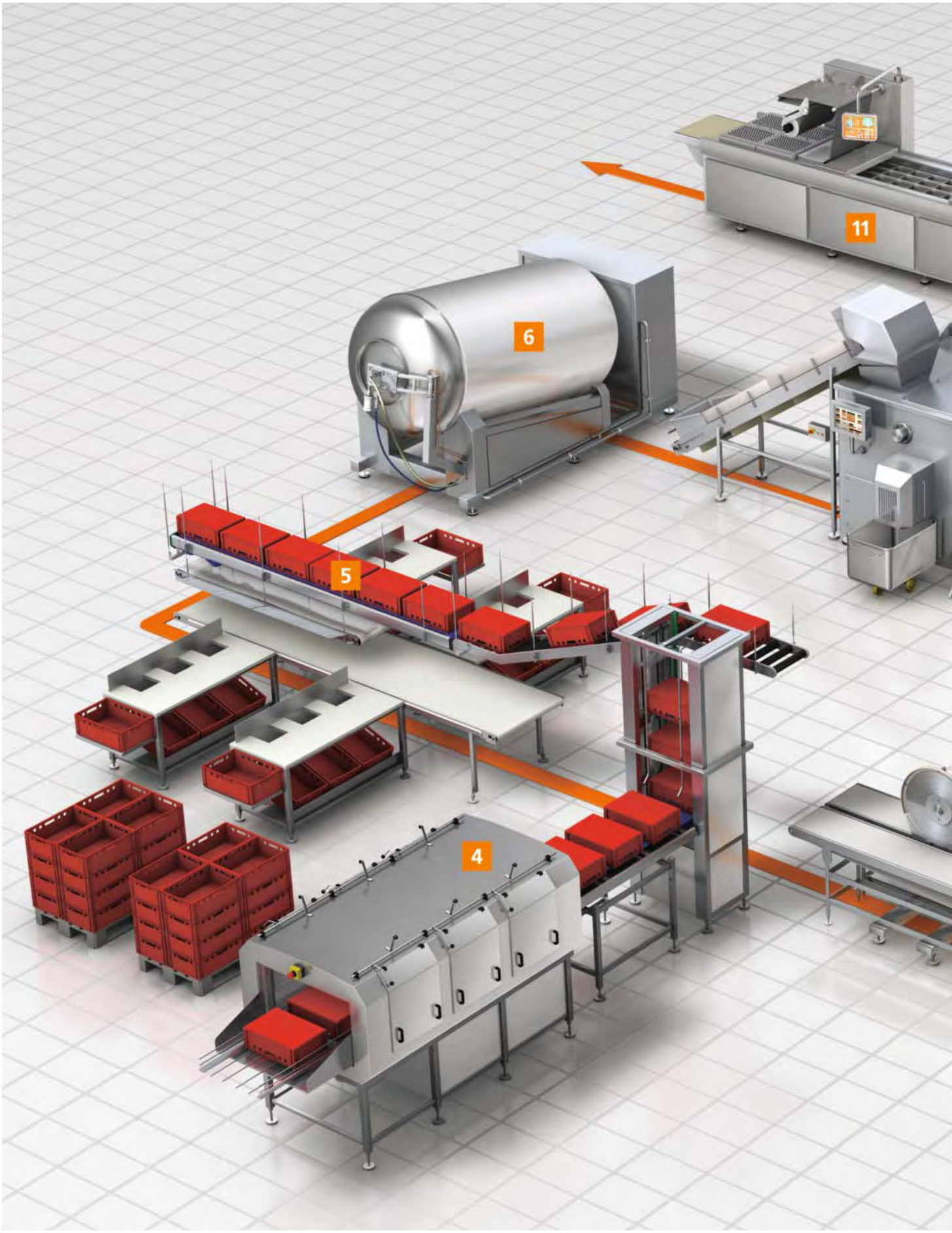
The efector pmd 3d detects not only overfilling or underfilling but also protruding parts during palletising. The time of flight measurement used enables the evaluation of volume, distance or level.

3D vision sensor for monitoring of the palletising process · further products from page 159

Type	Operating principle	Resolution (pixels)	Angle of aperture (horizontal x vertical) [°]	Lighting	Max. sampling rate [Hz]	Ambient temperature [°C]	Order no.
	3D sensor	64 x 48	40 x 30	Infrared LED	25	-10...50	**O3D310**

Safety light curtains for access prevention · further products from page 167

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U_b [V]	Order no.
	1563	50	1510	0...4 / 3...12	11	24	**OY090S**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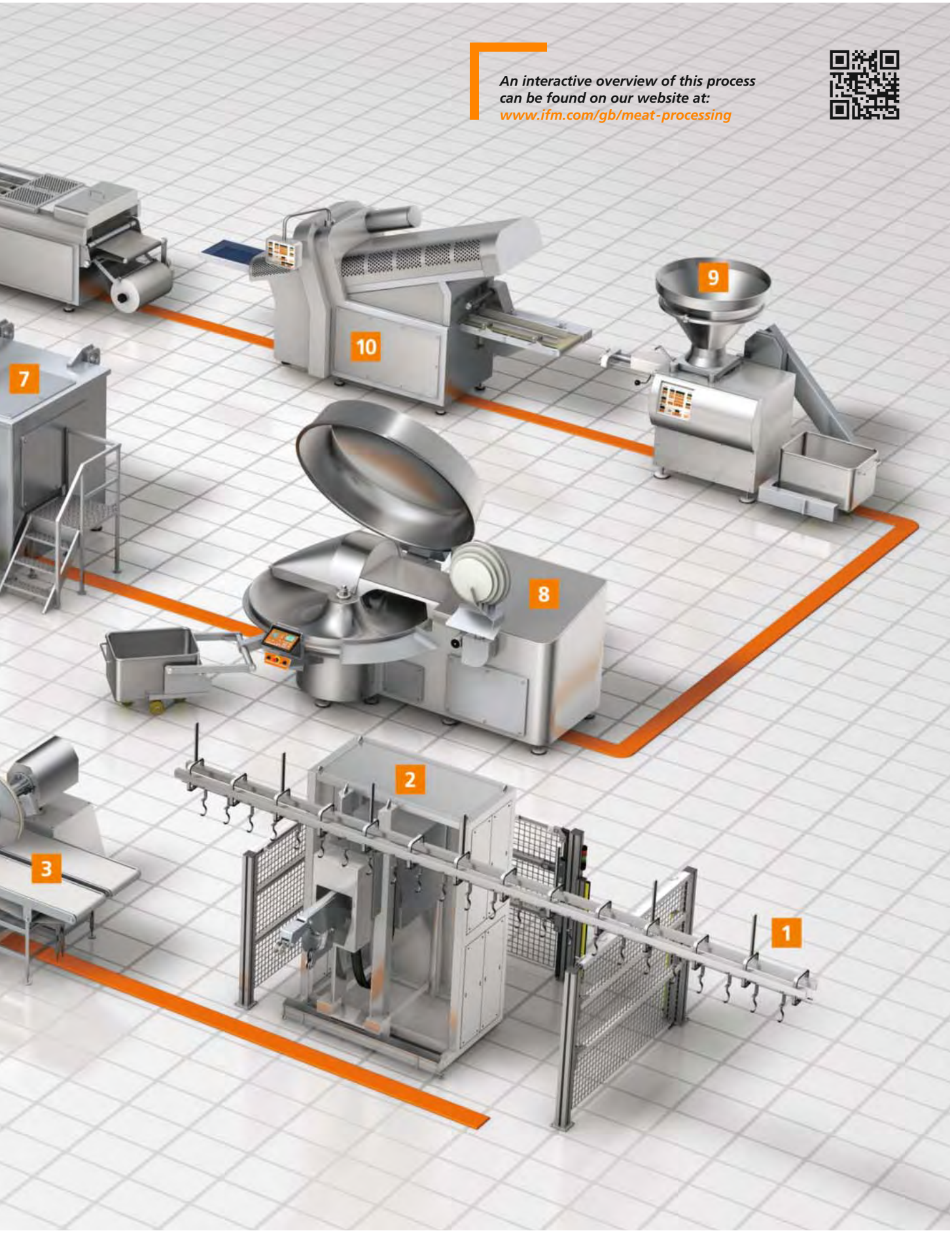
An interactive overview of this process
can be found on our website at:
www.ifm.com/gb/meat-processing
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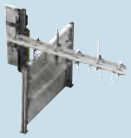
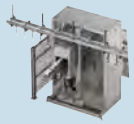
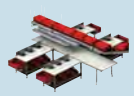
Machine	Application	Product group	From page
1	**Slaughtering plant**		
	Position detection	Inductive sensors	**83**
	Optical detection	Photoelectric sensors for general applications	**119**
	Detection of pneumatic cylinders	Cylinder sensors	**113**
	Level detection	Level sensors	**207**
	Traceability	RFID	**257**
	Compressed air measurement	Flow sensors / flow meters	**197**
	AS-Interface as control system	AS-Interface controllers / gateways	**231**
2	**Automatic saw slaughtering**		
	Position detection	Inductive sensors	**83**
	Optical detection	Photoelectric sensors for general applications	**119**
	Safety monitoring	Fail-safe inductive sensors	**163**
	AS-Interface as control system	AS-Interface controllers / gateways	**231**
3	**Automatic saw butchering**		
	Optical detection	Photoelectric sensors for general applications	**119**
	Safety monitoring	Fail-safe inductive sensors	**163**
	AS-Interface as control system	AS-Interface controllers / gateways	**231**
4	**Box washer**		
	Optical detection	Photoelectric sensors for general applications	**119**
	Level detection	Level sensors	**207**
	Level detection	Pressure sensors	**179**
	Temperature measurement	Temperature sensors	**211**
	Flow rate measurement	Flow sensors / flow meters	**197**
5	**Cutting line**		
	Position detection	Inductive sensors	**83**
	Optical detection	Photoelectric sensors for general applications	**119**
	Traceability	RFID	**257**
	AS-Interface as control system	AS-Interface controllers / gateways	**231**
	Reading of codes	1D/2D code readers	**259**

Machine	Application	Product group	From page
6	**Tumbler**		
	Position detection	Inductive sensors	**83**
	Temperature measurement	Temperature sensors	**211**
7	**Mixer / mincer**		
	Optical detection	Photoelectric sensors for general applications	**119**
	Level detection	Level sensors	**207**
	Safety monitoring	Fail-safe inductive sensors	**163**
8	**Cutter**		
	Temperature measurement	Temperature sensors	**211**
	Vibration monitoring	Vibration monitoring systems	**261**
9	**Vacuum filling machine**		
	Photoelectric level detection	Level sensors	**207**
	Vacuum measurement	Pressure sensors	**179**
10	**Slicer**		
	Position detection	Inductive sensors	**83**
	Optical detection	Photoelectric sensors for general applications	**119**
11	**Thermoforming machine**		
	End position monitoring	Inductive sensors	**83**
	Optical detection	Photoelectric sensors for general applications	**119**
	Safety monitoring	Fail-safe inductive sensors	**163**
	Compressed air measurement	Flow sensors / flow meters	**197**
	AS-Interface as control system	AS-Interface controllers / gateways	**231**

Sensors
for the meat industry

The hygienic requirements in the meat-processing industry are particularly high. Frequent and intensive cleaning processes are normal.

High-quality housing materials of the sensors, e.g. high-grade stainless steel withstand the aggressive cleaning agents in the complete process. The sensors remain ingress-resistant even in case of steam cleaning thanks to the high protection rating IP 69K. The reliable ifm sensors allow downtime to be kept to a minimium and productivity maximised.

Sensors from ifm comply with required approvals such as EHEDG or 3A. A wide range of adapters enables easy and hygienic integration into the process. Suitable connectors with high-quality housing materials and protection rating IP 69K complete the product range.

Slaughtering plant

Detection of hooks in conveyor technology

Full-metal inductive sensors detect the position of the hooks in wet areas. They are resistant to aggressive cleaning agents and temperature shocks.

Inductive sensors for detecting hook · further products from page 83

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
	M30 / L = 70	25 nf	High-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	250	100	**IIT231**

f = flush / nf = non flush / qf = quasi-flush

Traceability in the slaughtering process

For traceability in the slaughtering process the RFID system from ifm is used. The Profibus interface allows easy connection to the controller.

RFID system for traceability tasks in the slaughtering process · further products from page 257

Type	Dimensions [mm]	Travel speed read / write [m/s]	Process interface	Order no.
	115 x 46.2 x 85	–	Profibus-DP	**DTE100**

Read / write head for the RFID system · further products from page 257

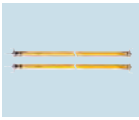
Type	Description	Order no.
	Read/write head · M12 connector · 5 positions of the sensing face selectable · Housing materials: housing: PA / Metal parts: stainless steel	**ANT513**

Slaughtering plant

Protection of hazardous areas

The ifm safety light curtains with protective tube and IP 69K are used for the protection of e.g. saws or robots. They are both hygienic and robust.

Safety light curtains for securing hazardous areas · further products from page 167

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U_b [V]	Order no.
	1687	30	1510	0...7 / 3...15	11	24	**OY450S**

Level monitoring on conveying systems

The LMT level sensor is installed in the upper part of the tank. The hopper is only emptied when it is completely filled. Compressed air consumption is reduced.

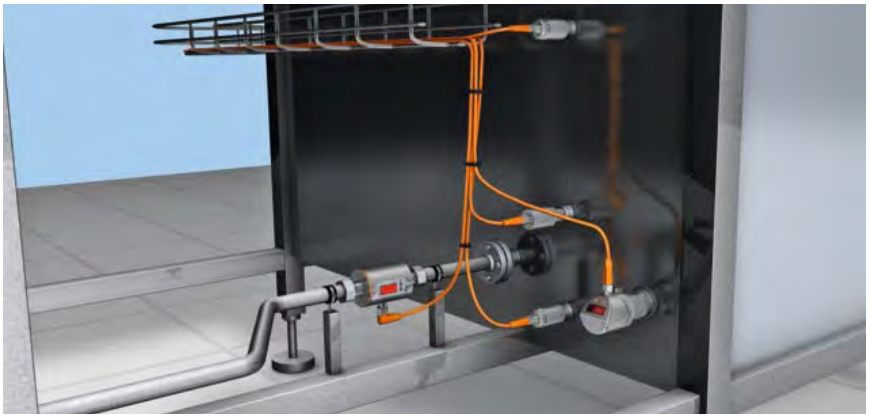
Level sensor on pneumatic conveyors · further products from page 207

Type	Process connection	Process pressure max. [bar]	Application	Protection	Order no.
	G ½ male	-1...40	liquids, viscous media and powders	IP 68 / IP 69K	**LMT121**

Compressed air meter for measuring compressed air and detecting leakage · further products from page 197

Type	Process connection	Setting range [Nm^3/h]	Pressure rating [bar]	Response time [s]	U_b [V]	Order no.
	R1 (DN25)	1.8...225.0	16	< 0.1	18...30	**SD8000**

Cutting line



Water level measurement on a box washer

Flush pressure sensors are used for level measurement. They measure, as opposed to conventional float switches, the water level continuously.

Pressure sensor for measuring the water level on a box washer · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	Aseptoflex Vario	Display unit	-0.0124...0.25	10	30	20...32	**PI2798**

Reading the bar codes on transport boxes

After each cleaning process, new bar code labels are attached to the transport boxes. The multi code reader reads the codes, irrespective of their orientation in respect of the sensor.

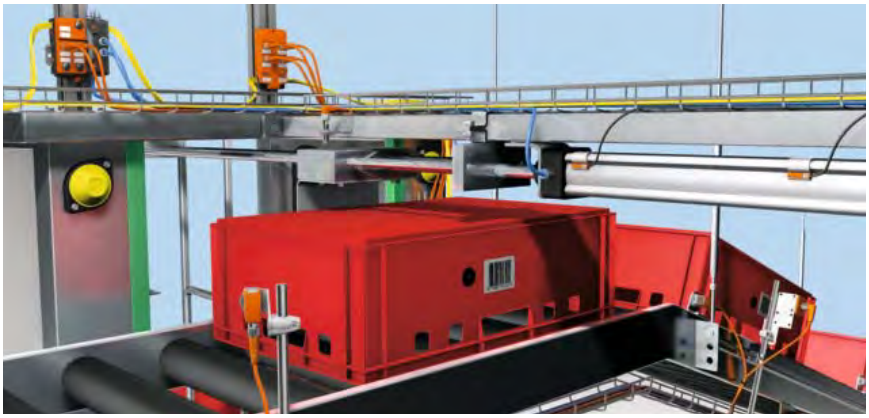
Multicode reader for reading the bar codes on transport boxes · further products from page 259

Type	Dimensions [mm]	Max. field of view size [mm]	Type of light LED	Motion speed int. / ext. lighting [m/s]	Process interface	Order no.
	60 x 42 x 53.5	64 x 48	red light	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	**O2I300**

Photoelectric sensor for the detection of transport boxes in a harsh environment · further products from page 119

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
	Background suppression	2...200 mm	Red	8	H/D PNP	**O6H300**

Cutting line



AS-i in butchering

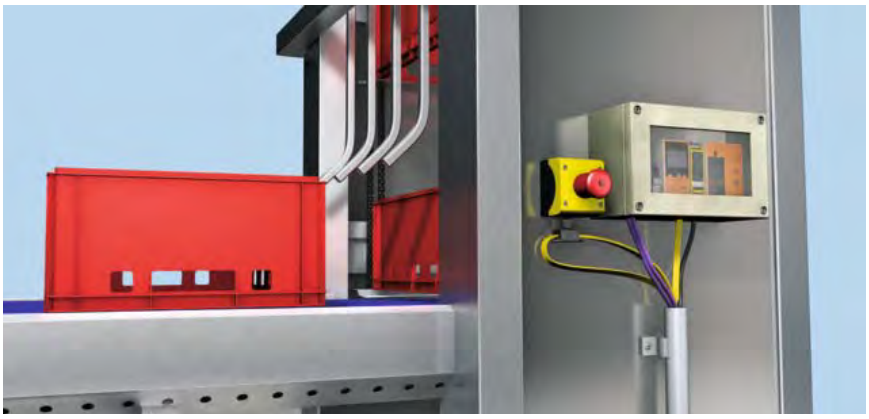
A variety of sensors are used in butchering. The AS-Interface bus system connects sensors and actuators with the controller with little wiring complexity.

AS-i AirBox for controlling pneumatic valve actuators · further products from page 243

Type	Inputs / outputs	Description	Order no.
	2 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 2 x 3/2-way slide valves free from overlapping · monostable · Three orientations of the flat cable are possible · AS-i flat cable connection · Addressing socket · AS-i profile S-3.F.F · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5227**

Cylinder sensors for detecting the position of pistons in pneumatic cylinders · further products from page 113

Type	Dimensions [mm]	Material	U_b [V]	f [Hz]	Protection	I_{load} [mA]	T_a [°C]	Order no.
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67 / IP 69K	100	-25...85	**MK5111**



AS-i Safety at Work on conveying systems

In the field of conveying systems there are many areas where safety technology is absolutely necessary. This is where AS-i Safety at Work (control category 4) to EN 954-1 (IEC 61508 / SIL 3) is used.

AS-i Safety at Work for detecting safety-related signals · further products from page 247

Type	Description	Order no.
	AS-i safety monitor · Extended functionality · 1-channel · Configuration and setup by configuration software ASIMON · Screw terminal · Housing materials: polyamide black · Complies with the requirements: · ISO 13849-1: PL e · IEC 61508: SIL 3	**AC031S**

Tumbler

Temperature measurement on a tumbler

Before further processing, the meat is massaged under vacuum in the tumbler. The TA temperature transmitter is used for measuring the temperature in the tumbler.

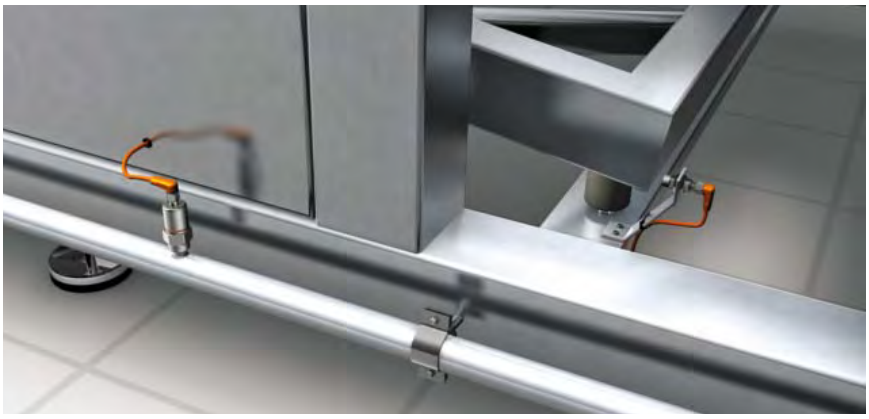
Probes for measuring the temperature on a tumbler · further products from page 211

Type	Measuring range [°C / °F]	Process connection	Installation length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Order no.
	-50...200 / -	G½ with sealing cone	50	18...32	< 0.5 / < 2	**TA2512**

Inductive sensors for detecting the end position on a tumbler · further products from page 83

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
	M18 / L = 51	12 nf	High-grade st. steel	10...36	IP 68 / IP 69K	300	100	**IGT200**

f = flush / nf = non flush / qf = quasi-flush



Vacuum measurement on a tumbler

Vacuum sensors of type PA have an accuracy of 0.5%. The ceramic-capacitive measuring cell ensures reliable and long-term stable analogue values.

Vacuum sensor for measuring the vacuum on a tumbler · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	G ¼ female	–	-1...0	10	30	9.6...32	**PA3029**

Mixer / mincer

Level detection on a mixer / mincer

The meat is chopped in the mincer. The LMT121 is especially suited to detect the level. It can be adjusted to liquid and viscous media as well as bulk materials via IO-Link.

Adjustable level sensor on a mixer / mincer · further products from page 207

Type	Process connection	Process pressure max. [bar]	Application	Protection	Order no.
	G ½ male	-1...40	liquids, viscous media and powders	IP 68 / IP 69K	**LMT121**

Photoelectric detection on a mixer / mincer

When filling the mixer via a conveyor, photoelectric sensors are used for the deactivation of the belt.
These have to withstand the harsh operating conditions.

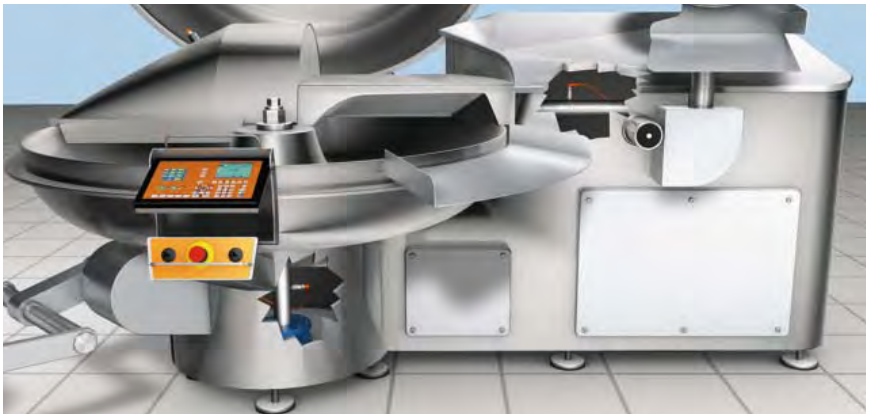
Photoelectric sensors for conveyor control · further products from page 119

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
	Background suppression	100 mm	Red	7	H PNP	**OGH380**

Vibration monitoring in idle run or under reference conditions · further products from page 261

Type	Description	Order no.
	Accelerometer · for connection to external diagnostic electronics type VSE · M8 x 1.25 · Connector · Housing materials: housing: stainless steel 316L / 1.4404	**VSA001**

Cutter



Bearing monitoring on a cutter

On a cutter, knife and bowl bearings rotate at high rpm. The VSA001 vibration sensor detects bearing damage at an early stage, which allows planning of the downtimes.

Vibration sensor for monitoring the bearing on a cutter · further products from page 261

Type	Description	Order no.
	Accelerometer · for connection to external diagnostic electronics type VSE · M8 x 1.25 · Connector · Housing materials: housing: stainless steel 316L / 1.4404	**VSA001**

Safe standstill monitoring on a cutter · further products from page 151

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Order no.
	24 DC	1	PNP	–	0.2 / 0.5 / 1.0 / 2.0	–	2	1	**DA102S**

Cleaning system

Pressure measurement in a cleaning system

Electronic pressure sensors monitor the pressure in the cleaning system.

Pressure sensor for monitoring the system pressure · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	G ¼ male / M5 female	Operation	0...25	60	500	9.6...32	**PK6523**

Filling machine

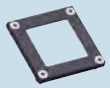
Level detection on a hopper

The O1D photoelectric level sensor can be installed at a safe distance from the goods to be detected. It replaces manual level monitoring by the operators.

Photoelectric level sensor for level detection · further products from page 133

Type	Operating principle	Range	Sampling rate [Hz]	Spot Ø at max. range [mm]	U_b [V]	Order no.
	Optical level sensor	0.2...10 m	1...33	< 15 x 15	18...30	**O1D300**

Protective cover for the photoelectric level sensor · further products from page 287

Type	Description	Order no.
	Protective cover · O1D · Housing materials: bezel: ZnAl4Cu1 finish black / window: PMMA transparent and colourless / sealing: FPM 75+/-5 Shore A black / screws: stainless steel	**E21133**

Vacuum measurement on a filling machine

The sausage meat is fed via a hopper and sucked by the vacuum.
The vacuum sensors of type PA transfer the measured value to the controller via the analogue output.

Vacuum sensor for measuring the vacuum on a filling machine · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	G ¼ female	–	-1...0	10	30	9.6...32	**PA3029**

Thermoforming machine

Controlling a thermoforming machine

A number of sensors are installed on a thermoforming machine.
The AS-Interface bus system allows fast connection to sensors, actuators and modules.

AS-Interface for controlling a thermoforming machine · further products from page 231

Type	Number of AS-i masters	Description	Order no.
	1	AS-i Profibus gateway · AS-i master · Ethernet configuration interface with dynamic web interface for configuration and diagnosis including remote maintenance · Profibus DP (DPV0 + DPV1) · LCD colour display · Device supply either via 24 V or AS-i (AS-i bus 1) · Housing materials: aluminium powder-coated / steel sheet galvanised / Makrolon	**AC1411**

AS-i AirBox for controlling pneumatic valve actuators · further products from page 243

Type	Inputs / outputs	Description	Order no.
	2 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 2 x 3/2-way slide valves free from overlapping · monostable · Three orientations of the flat cable are possible · AS-i flat cable connection · Addressing socket · AS-i profile S-3.F.F · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5227**

Pressure measurement on a thermoforming packaging machine

The film is formed to the requested end product by means of vacuum and compressed air. The precise and fast-switching IO-Link pressure sensors are suited for this task.

Pressure sensor to measure the pressure on a thermoforming machine · further products from page 179

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	G ¼ female	Display unit	-1...10	75	150	18...30	**PN7094**

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AC0017	CE	245
AC0020	CE	245
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(CCC) = CCC approval is not required

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(CCC) = CCC approval is not required

More than just sensors: The ifm group of companies offers a wide range of solutions for the food industry. On the following pages you will find an overview of all the products summarized into categories. In addition to the system descriptions we will also show you the most important features of the units. For more information please visit us online at www.ifm.com

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Full-metal inductive sensors
3-wire DC PNP, connector

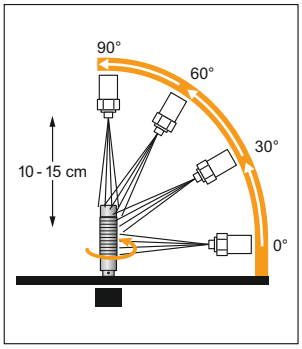
- **Sensing face and stainless-steel housing protect against damage**
- **Resistant to industrial alkalis and acids**
- **High temperature range up to 100 °C, temperature shock resistant**
- **Absolutely ingress-resistant to IP 68 / IP 69K, resists high-pressure and steam cleaning**
- **Clearly visible switch point indication via LED for quick and safe mounting**

For high temperatures in the food and beverage industry

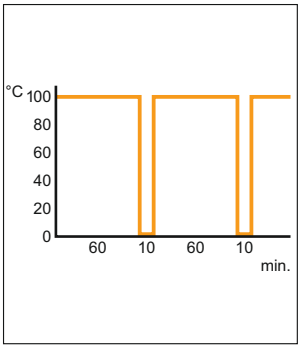
The ifm full metal sensors with sensing face made of stainless steel are made for position detection in extreme environments as in the food and beverage industry. The high-grade stainless steel sensor housing is resistant to industrial cleaning agents. The 100 % ingress-resistant sensor housing with protection rating IP 69K prevents the penetration of liquids during high-pressure and steam cleaning. The high-grade stainless steel housing resists damage caused by impact e.g. in distribution plates.

Tested to extremes

Stainless steel sensors from ifm are subjected to numerous tests to ensure reliable functioning in the application.



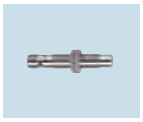
High-pressure cleaning test
IP 69K: Spray test with 100 bar from a distance of 10 to 15 cm. The hot water at 80 °C is sprayed in cycles of 30 seconds.



Temperature shock test:
The sensors are subjected to temperature fluctuations from 0 to 100 °C in short intervals.

Product selectors and further information can be found at: www.ifm.com

Full metal sensors for hygienic and wet areas

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
M12 connector · Output function ⎍ · 3-wire · DC PNP								
	M12 / L = 45	4 f	High-grade st. steel	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	**IFT257**
	M12 / L = 60	3 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IFT240**
	M12 / L = 70	6 nf	High-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	500	100	**IFT245**
	M18 / L = 45	8 f	High-grade st. steel	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	**IGT258**
	M18 / L = 70	5 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IGT247**
	M18 / L = 70	12 nf	High-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	500	100	**IGT249**
	M30 / L = 50	15 f	High-grade st. steel	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	50	100	**IIT243**
	M30 / L = 70	10 f	High-grade st. steel	10...36	IP 68 / IP 69K	50	100	**IIT228**
	M30 / L = 70	25 nf	High-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	250	100	**IIT231**

f = flush / nf = non flush / qf = quasi-flush

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF001**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF004**

Full-metal inductive sensors
3-wire DC NPN, connector

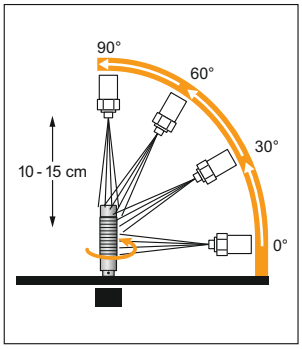
- **Sensing face and stainless-steel housing protect against damage**
- **Resistant to industrial alkalis and acids**
- **High temperature range up to 100 °C, temperature shock resistant**
- **Absolutely ingress-resistant to IP 68 / IP 69K resists high-pressure and steam cleaning**
- **Clearly visible switch point indication via LED for quick and safe mounting**

For high temperatures in the food and beverage industry

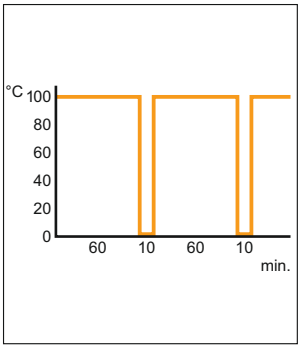
The ifm full metal sensors with sensing face made of stainless steel are made for position detection in extreme environments as in the food and beverage industry. The high-grade stainless steel sensor housing is resistant to industrial cleaning agents. The 100 % ingress-resistant sensor housing with protection rating IP 69K prevents the penetration of liquids during high-pressure and steam cleaning. The high-grade stainless steel housing resists damage caused by impact e.g. in distribution plates.

Tested to extremes

Stainless steel sensors from ifm are subjected to numerous tests to ensure reliable functioning in the application.



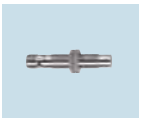
High-pressure cleaning test
IP 69K: Spray test with 100 bar from a distance of 10 to 15 cm. The hot water at 80 °C is sprayed in cycles of 30 seconds.



Temperature shock test:
The sensors are subjected to temperature fluctuations from 0 to 100 °C in short intervals.

Product selectors and further information can be found at: www.ifm.com

Full metal sensors for hygienic and wet areas

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
M12 connector · Output function ⎍ · 3-wire · DC NPN								
	M12 / L = 60	3 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IFT244**
	M12 / L = 70	6 nf	High-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	500	100	**IFT246**
	M18 / L = 70	5 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IGT248**
	M18 / L = 70	12 nf	High-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	500	100	**IGT250**
	M30 / L = 70	10 f	High-grade st. steel	10...36	IP 68 / IP 69K	50	100	**IIT230**
	M30 / L = 70	25 nf	High-grade st. steel	10...36	IP 65 / IP 67 / IP 68 / IP 69K	250	100	**IIT232**

f = flush / nf = non flush / qf = quasi-flush

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF001**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF004**

Inductive sensors, M12
3-wire DC PNP / 2-wire DC PNP / NPN, connector

- **High-grade stainless steel housing with IP 68 / IP 69K, resists even high-pressure cleaning**
- **Extended sensing range reduces the risk of mechanical damage**
- **Food-grade and temperature-resistant housing (PEEK), gold-plated contacts**
- **Ecolab certified – resistant to cleaning agents and rough environments**
- **Clearly visible switch point indication via LED for quick and safe mounting**

Position detection in the food and beverage industry

These inductive sensors have been designed for the reliable position detection in the food and beverage industry. Two output functions are available: 3-wire DC PNP and 2-wire DC PNP / NPN. The high-grade stainless steel housing with protection rating IP 69K prevents the penetration of liquids in environments with high-pressure cleaning. The material of the active face made of FDA approved PEEK is resistant to extreme temperature fluctuations from 0 to 100 °C.

Increased sensing range

The sensing range of the inductive ifm sensors is up to twice as long as that of conventional sensors with the same housing length. The distance between the sensors and the object to be detected can be long, which is an additional protection against mechanical damage.

Sensors for hygienic and wet areas with increased sensing range

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
M12 connector · Output function ⎍ · 3-wire · DC PNP								
	M12 / L = 45	4 f	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	**IFT203**
	M12 / L = 70	4 f	High-grade st. steel	10...36	IP 68 / IP 69K	700	100	**IFT216**
	M12 / L = 50	7 nf	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	**IFT200**
	M12 / L = 70	7 nf	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	**IFT217**
M12 connector · Output function ⎍ · 3-wire · DC PNP								
	M12 / L = 45	4 f	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	**IFT204**
	M12 / L = 50	7 nf	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	**IFT201**
M12 connector · Output function ⎍ · 3-wire DC PNP · 2-wire DC PNP/NPN								
	M12 / L = 70	4 f	High-grade st. steel	10...36	IP 68 / IP 69K	500	100	**IFT205**
	M12 / L = 70	7 nf	High-grade st. steel	10...30	IP 68 / IP 69K	700	100	**IFT202**

f = flush / nf = non flush / qf = quasi-flush

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**

Inductive sensors, M12
3-wire DC PNP, connection cable

- **High-grade stainless steel housing with IP 68 / IP 69K, resists even high-pressure cleaning**
- **Extended sensing range reduces the risk of mechanical damage**
- **Food-grade and temperature-resistant housing (PEEK), gold-plated contacts**
- **Ecolab certified – resistant to cleaning agents and rough environments**
- **Clearly visible LED switch point indication for quick and safe mounting**

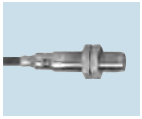
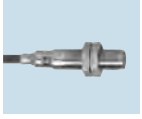
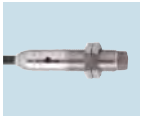
Position detection in the food and beverage industry

These inductive sensors have been designed for the reliable position detection in the food and beverage industry.
A 3-wire DC PNP connection is available for output functions.
The high-grade stainless steel housing with protection rating IP 69K prevents the penetration of liquids in environments with high-pressure cleaning. The material of the active face made of FDA approved PEEK is resistant to extreme temperature fluctuations from 0 to 100 °C.

Increased sensing range

The sensing range of the inductive ifm sensors is up to twice as long as that of conventional sensors with the same housing length. The distance between the sensors and the object to be detected can be long, which is an additional protection against mechanical damage.

Sensors for hygienic and wet areas with increased sensing range

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
Cable 6 m · Output function ⎍ · 3-wire · DC PNP								
	M12 / L = 50	4 f	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	**IFT206**
	M12 / L = 61	7 nf	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	**IFT208**
Cable 6 m · Output function ⎍ · 3-wire DC PNP · 2-wire DC PNP/NPN								
	M12 / L = 79	7 nf	High-grade st. steel	10...30	IP 68 / IP 69K	700	100	**IFT213**
Cable 10 m · Output function ⎍ · 3-wire · DC PNP								
	M12 / L = 50	4 f	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	**IFT207**
	M12 / L = 61	7 nf	High-grade st. steel	10...36	IP 68 / IP 69K	800	100	**IFT209**

f = flush / nf = non flush / qf = quasi-flush

System components

Type	Description	Order no.
	Angle bracket · for type M12 · Housing materials: stainless steel	**E10735**
	Mounting set · Ø 12.2 mm · Clamp mounting · aluminium profile · for type OF, IF · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: diecast zinc / Cube: diecast zinc	**E20865**
	Mounting set · Ø 12.2 mm · Clamp mounting · rod mounting Ø 10 mm · for type OF, IF · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	**E21201**

Inductive sensors, M18
3-wire DC PNP / 2-wire DC PNP / NPN, connector

- **High-grade stainless steel housing with IP 68 / IP 69K, resists even high-pressure cleaning**
- **Extended sensing range reduces the risk of mechanical damage**
- **Food-grade and temperature-resistant housing (PEEK), gold-plated contacts**
- **Ecolab certified – resistant to cleaning agents and rough environments**
- **Clearly visible LED switch point indication for quick and safe mounting**

Position detection in the food and beverage industry

These inductive sensors have been designed for the reliable position detection in the food and beverage industry. Two output functions are available: 3-wire DC PNP and 2-wire DC PNP / NPN. The high-grade stainless steel housing with protection rating IP 69K prevents the penetration of liquids in environments with high-pressure cleaning. The material of the active face made of FDA approved PEEK is resistant to extreme temperature fluctuations from 0 to 100 °C.

Increased sensing range

The sensing range of the inductive ifm sensors is up to twice as long as that of conventional sensors with the same housing length. The distance between the sensors and the object to be detected can be long, which is an additional protection against mechanical damage.

Sensors for hygienic and wet areas with increased sensing range

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
M12 connector · Output function ⎍ · 3-wire · DC PNP								
	M18 / L = 46	8 f	High-grade st. steel	10...36	IP 68 / IP 69K	600	100	**IGT203**
	M18 / L = 51	12 nf	High-grade st. steel	10...36	IP 68 / IP 69K	300	100	**IGT200**
	M18 / L = 70	8 f	High-grade st. steel	10...36	IP 68 / IP 69K	400	100	**IGT219**
	M18 / L = 70	12 nf	High-grade st. steel	10...36	IP 68 / IP 69K	300	100	**IGT220**
M12 connector · Output function ⎍ · 3-wire · DC PNP								
	M18 / L = 46	8 f	High-grade st. steel	10...36	IP 68 / IP 69K	600	100	**IGT204**
	M18 / L = 51	12 nf	High-grade st. steel	10...36	IP 68 / IP 69K	300	100	**IGT201**
M12 connector · Output function ⎍ · 3-wire DC PNP · 2-wire DC PNP/NPN								
	M18 / L = 70	8 f	High-grade st. steel	10...36	IP 68 / IP 69K	400	100	**IGT205**
	M18 / L = 70	12 nf	High-grade st. steel	10...30	IP 68 / IP 69K	300	100	**IGT202**

f = flush / nf = non flush / qf = quasi-flush

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**

Inductive sensors, M18
3-wire DC PNP, connection cable

- **High-grade stainless steel housing with IP 68 / IP 69K, resists even high-pressure cleaning**
- **Extended sensing range reduces the risk of mechanical damage**
- **Food-grade and temperature-resistant housing (PEEK), gold-plated contacts**
- **Ecolab certified – resistant to cleaning agents and rough environments**
- **Clearly visible LED switch point indication for quick and safe mounting**

Position detection in the food and beverage industry

These inductive sensors have been designed for the reliable position detection in the food and beverage industry.
A 3-wire DC PNP connection is available for output functions.
The high-grade stainless steel housing with protection rating IP 69K prevents the penetration of liquids in environments with high-pressure cleaning. The material of the active face made of FDA approved PEEK is resistant to extreme temperature fluctuations from 0 to 100 °C.

Increased sensing range

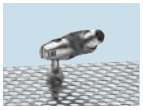
The sensing range of the inductive ifm sensors is up to twice as long as that of conventional sensors with the same housing length. The distance between the sensors and the object to be detected can be long, which is an additional protection against mechanical damage.

Sensors for hygienic and wet areas with increased sensing range

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
Cable 6 m · Output function ⎍ · 3-wire · DC PNP								
	M18 / L = 57	8 f	High-grade st. steel	10...36	IP 68 / IP 69K	600	100	**IGT206**
	M18 / L = 62	12 nf	High-grade st. steel	10...36	IP 68 / IP 69K	300	100	**IGT208**
Cable 10 m · Output function ⎍ · 3-wire · DC PNP								
	M18 / L = 57	8 f	High-grade st. steel	10...36	IP 68 / IP 69K	600	100	**IGT207**
	M18 / L = 62	12 nf	High-grade st. steel	10...36	IP 68 / IP 69K	300	100	**IGT209**
Cable 10 m · Output function ⎍ · 3-wire DC PNP · 2-wire DC PNP/NPN								
	M18 / L = 81	12 nf	High-grade st. steel	10...30	IP 68 / IP 69K	300	100	**IGT213**
Cable 25 m · Output function ⎍ · 3-wire · DC PNP								
	M18 / L = 62	12 nf	High-grade st. steel	10...36	IP 68 / IP 69K	300	100	**IGT215**

f = flush / nf = non flush / qf = quasi-flush

System components

Type	Description	Order no.
	Angle bracket · for type M18 · Housing materials: stainless steel	**E10736**
	Mounting set · Ø 18.5 mm · Clamp mounting · Free-standing M10 · for type OG, IG, KG · Housing materials: clamp: diecast zinc / fixture: steel	**E20718**
	Mounting set · Ø 18.5 mm · Clamp mounting · rod mounting Ø 12 mm · for type OG, IG, KG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	**E20872**
	Mounting set · Ø 18.5 mm · Clamp mounting · rod mounting Ø 12 mm · for type OG, IG, KG · Housing materials: clamp: diecast zinc / fixture: steel	**E20720**

Inductive sensors, M30
3-wire DC PNP / 2-wire DC PNP / NPN, connector

- **High-grade stainless steel housing with IP 68 / IP 69K, resists even high-pressure cleaning**
- **Extended sensing range reduces the risk of mechanical damage**
- **Food-grade and temperature-resistant housing (PEEK), gold-plated contacts**
- **Ecolab certified – resistant to cleaning agents and rough environments**
- **Clearly visible LED switch point indication for quick and safe mounting**

Position detection in the food and beverage industry

These inductive sensors have been designed for the reliable position detection in the food and beverage industry. Two output functions are available: 3-wire DC PNP and 2-wire DC PNP / NPN. The high-grade stainless steel housing with protection rating IP 69K prevents the penetration of liquids in environments with high-pressure cleaning. The material of the active face made of FDA approved PEEK is resistant to extreme temperature fluctuations from 0 to 100 °C.

Increased sensing range

The sensing range of the inductive ifm sensors is up to twice as long as that of conventional sensors with the same housing length. The distance between the sensors and the object to be detected can be long, which is an additional protection against mechanical damage.

Sensors for hygienic and wet areas with increased sensing range

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
M12 connector · Output function ⎍ · 3-wire · DC PNP								
	M30 / L = 50	14 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IIT205**
	M30 / L = 50	22 nf	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IIT200**
	M30 / L = 70	15 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IIT212**
	M30 / L = 70	22 nf	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IIT213**
M12 connector · Output function ⎍ · 3-wire DC PNP · 2-wire DC PNP/NPN								
	M30 / L = 70	14 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IIT204**
	M30 / L = 70	22 nf	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IIT202**
M12 connector · Output function ⎍ · 3-wire · DC PNP								
	M30 / L = 70	15 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IIT218**
	M30 / L = 70	22 nf	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IIT219**

f = flush / nf = non flush / qf = quasi-flush

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**

Inductive sensors, M30
3-wire DC PNP / 2-wire DC PNP / NPN, connection cable

- **High-grade stainless steel housing with IP 68 / IP 69K, resists even high-pressure cleaning**
- **Extended sensing range reduces the risk of mechanical damage**
- **Food-grade and temperature-resistant housing (PEEK), gold-plated contacts**
- **Ecolab certified – resistant to cleaning agents and rough environments**
- **Clearly visible LED switch point indication for quick and safe mounting**

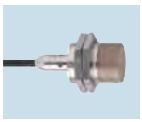
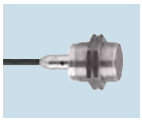
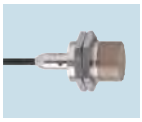
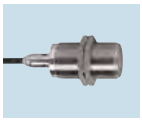
Position detection in the food and beverage industry

These inductive sensors have been designed for the reliable position detection in the food and beverage industry. Two output functions are available: 3-wire DC PNP and 2-wire DC PNP / NPN. The high-grade stainless steel housing with protection rating IP 69K prevents the penetration of liquids in environments with high-pressure cleaning. The material of the active face made of FDA approved PEEK is resistant to extreme temperature fluctuations from 0 to 100 °C.

Increased sensing range

The sensing range of the inductive ifm sensors is up to twice as long as that of conventional sensors with the same housing length. The distance between the sensors and the object to be detected can be long, which is an additional protection against mechanical damage.

Sensors for hygienic and wet areas with increased sensing range

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
Cable 6 m · Output function ⎍ · 3-wire · DC PNP								
	M30 / L = 59	22 nf	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IIT207**
	M30 / L = 59	14 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IIT209**
Cable 10 m · Output function ⎍ · 3-wire · DC PNP								
	M30 / L = 59	14 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IIT206**
	M30 / L = 59	22 nf	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IIT208**
Cable 10 m · Output function ⎍ · 3-wire DC PNP · 2-wire DC PNP/NPN								
	M30 / L = 81	14 f	High-grade st. steel	10...36	IP 68 / IP 69K	100	100	**IIT210**

f = flush / nf = non flush / qf = quasi-flush

System components

Type	Description	Order no.
	Angle bracket · for type M30 · Housing materials: stainless steel	**E10737**
	Mounting set · Ø 30.2 mm · Clamp mounting · free-standing M12 · for type OI, II, KI · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	**E20874**

Inductive sensors
2-wire AC/DC, connector

- **High-grade stainless steel housing with IP 68 / IP 69K, resists even high-pressure cleaning**
- **Extended sensing range reduces the risk of mechanical damage**
- **Food-grade and temperature-resistant housing (PEEK), gold-plated contacts**
- **Ecolab certified – resistant to cleaning agents and rough environments**
- **Clearly visible LED switch point indication for quick and safe mounting**

Inductive AC/DC sensors for the food and beverage industry

These inductive sensors have been designed for the reliable position detection in the food and beverage industry. The high-grade stainless steel housing with protection rating IP 69K prevents the penetration of liquids in environments with high-pressure cleaning. The material of the active face made of FDA approved PEEK is resistant to extreme temperature fluctuations from 0 to 100 °C.

Increased sensing range

The sensing range of the inductive ifm sensors is up to twice as long as that of conventional sensors with the same housing length. The distance between the sensors and the object to be detected can be long, which is an additional protection against mechanical damage.

Sensors for hygienic and wet areas with increased sensing range

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
1/2" UNF-Connector · Output function ⎍ · 2-wire · AC/DC								
	M18 / L = 70	5 f	High-grade st. steel	20...140	IP 68 / IP 69K	25 / 400	80	**IGT002**
	M18 / L = 70	12 nf	High-grade st. steel	20...140	IP 68 / IP 69K	25 / 300	80	**IGT001**
	M30 / L = 70	14 f	High-grade st. steel	20...140	IP 68 / IP 69K	25 / 100	80	**IIT001**
	M30 / L = 70	22 nf	High-grade st. steel	20...140	IP 68 / IP 69K	25 / 100	80	**IIT002**

f = flush / nf = non flush / qf = quasi-flush

System components

Type	Description	Order no.
	Angle bracket · for type M18 · Housing materials: stainless steel	**E10736**
	Angle bracket · for type M30 · Housing materials: stainless steel	**E10737**

1/2" sockets for industrial applications

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
1/2" connector 5 m · 3-wire · AC/DC								
	5 m yellow PVC cable	3 x AWG 22, Ø 5.2 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 67	–	**E10200**
	5 m yellow PVC cable	3 x AWG 22, Ø 5.2 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 67	–	**E10191**
1/2" connector 10 m · 3-wire · AC/DC								
	10 m yellow PVC cable	3 x AWG 22, Ø 5.2 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 67	–	**E10261**
	10 m yellow PVC cable	3 x AWG 22, Ø 5.2 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 67	–	**E11661**

Inductive sensors for conveying

- **Very long sensing ranges up to 60 mm**
- **Different sizes for demanding applications**
- **M12 connector easy to mount and maintain**
- **Versions in 3-wire and 4-wire technology**
- **Type IM: sensing face can be adjusted in 5 positions, clearly visible corner LEDs**

Applications

The inductive rectangular sensors are particularly suited for use in conveying.

Type IM

The two clearly visible LEDs of the inductive rectangular sensor IM (40 x 40 mm) can be seen even under adverse installation conditions.

By loosening the adjusting screw, the sensing face can be rotated to 5 different positions and thus be optimally adapted to your applications.

Long sensing ranges

The high sensing ranges are guaranteed over the complete temperature range. They provide sufficient protection against mechanical damage ensuring higher machine uptime.

Sensors for industrial applications, rectangular housings

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
M12 connector · Output function ⎍/⎍ · 3-wire · DC PNP								
	105 x 80 x 40	60 nf	PPE	10...36	IP 67	100	250	**ID5046**
M12 connector · Output function ⎍ · 3-wire · DC PNP								
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	100	200	**IM5115**
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	80	200	**IM5116**
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67	60	200	**IM5117**
	92 x 80 x 40	50 f	PPE	10...36	IP 67	70	250	**ID5055**
M12 connector · Output function ⎍+⎍ · 4-wire · DC PNP								
	40 x 40 x 54	20 f	PA (polyamide)	10...36	IP 67	200	200	**IM5132**
	40 x 40 x 54	40 nf	PA (polyamide)	10...36	IP 67 / IP 69K	200	200	**IM5135**
	40 x 40 x 54	35 nf	PA (polyamide)	10...36	IP 67	200	200	**IM5133**

f = flush / nf = non flush / qf = quasi-flush

System components

Type	Description	Order no.
	Mounting plate · for type IMC · Housing materials: Mounting plate: stainless steel / washer: stainless steel / screws: stainless steel	**E12106**
	Mounting bracket · with integrated snap-on rail · for type IDC · Housing materials: stainless steel	**E10730**

Inductive sensors for different applications

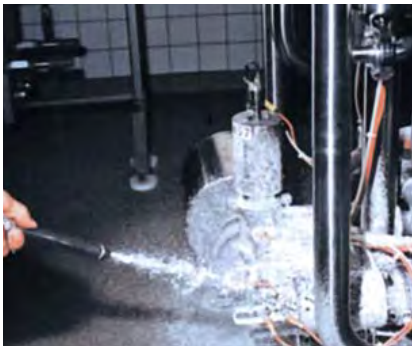
- **Large temperature range of -40...85 °C for greater flexibility**
- **Protection rating IP 65 to IP 69K for increased machine uptime**
- **Reliable detection due to improved sensor tolerances**
- **Reduced stock-keeping – one sensor for many applications**

New standard

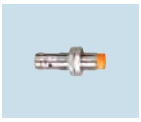
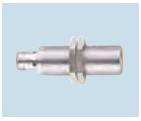
This newly developed generation of inductive sensors is the first to present one sensor that can be used for three different applications. Whether in factory automation, in applications with coolants and lubricants or in mobile applications – the new ifm technology platform distinguishes itself with universal and permanent usability while guaranteeing high performance, temperature stability and higher sensing ranges.

Resistant and reliable

A large temperature range of -40...85 °C and protection ratings IP 65, IP 66, IP 67, IP 68 and IP 69K guarantee maximum reliability. This new generation meets the user's increased machine uptime requirements while offering a reliable switching function that assures the avoidance of standstills. All in all, a universal sensor for permanent use.



Sensors for industrial applications, oils and coolants and mobile applications with increased sensing range

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
M12 connector · Output function ⎍ · 3-wire · DC PNP								
	M12 / L = 60	4 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	**IFS240**
	M12 / L = 45	4 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	**IFS244**
	M12 / L = 60	7 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	**IFS241**
	M12 / L = 45	7 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	**IFS245**
	M18 / L = 60	8 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	400	100	**IGS232**
	M18 / L = 45	8 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	400	100	**IGS236**
	M18 / L = 60	12 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	300	100	**IGS233**
	M18 / L = 45	12 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	300	100	**IGS237**

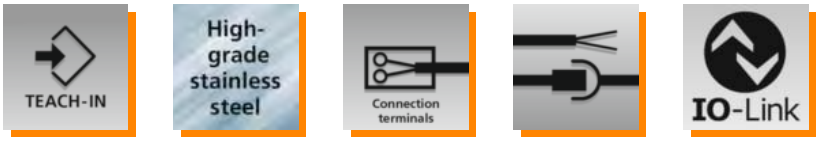
f = flush / nf = non flush / qf = quasi-flush

System components

Type	Description	Order no.
	Angle bracket · for type M12 · Housing materials: stainless steel	**E10735**
	Angle bracket · for type M18 · Housing materials: stainless steel	**E10736**

Capacitive sensors

- **High noise immunity guarantees high operational reliability**
- **Sensing range adjustable by means of a potentiometer or pushbuttons**
- **Plastic or metal housing for different applications**
- **Capacitive sensors for position and level detection**
- **Different mounting accessories for tank and sight glass (bypass)**



Capacitive sensors

Capacitive sensors are used for the non-contact detection of any objects as well as for level monitoring. In contrast to inductive sensors, which only detect metallic objects, capacitive sensors can also detect non-metallic materials.

Typical applications are in the wood, paper, glass, plastic, food and chemical industries. In packaging systems, capacitive sensors might check the presence of cardboard boxes, or monitor the medium level in a carton (e.g. full / empty check in milk cartons). Another application is the detection of sheets of glass or wood panels on a roller conveyor.

Parameter setting

The parameters can either be set via the buttons on the sensor or via IO-Link interface. This can be done using the USB interface E30396 or a memory plug E30398. The LR SENSOR software also simplifies the monitoring of different types of sensors.

Sensors for industrial applications

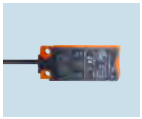
Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f AC / DC [Hz]	I_{load} AC / DC [mA]	Order no.
M12 connector · Output function ⎍⎓ / ⎍⏚ · DC PNP								
	M30 / L = 90	8 f	High-grade st. steel	10...30	IP 65 / IP 67	10	100	**KI5085**
	M30 / L = 90	15 nf	High-grade st. steel	10...30	IP 65 / IP 67	10	100	**KI5087**
	M30 / L = 90	20 nf	PBT	10...36	IP 65 / IP 67	10	200	**KI5083**
	M30 / L = 92	25 nf	PBT	10...30	IP 65 / IP 67 / IP 69K	40	200	**KI6000**
Cable 2 m · Output function ⎍⎓ · AC/DC								
	M30 / L = 81	15 nf	PBT	20...250	IP 65	25 / 40	200	**KI0016***
Terminals · Output function ⎍⎓ / ⎍⏚ · AC/DC								
	M30 / L = 125	15 nf	PBT	20...250	IP 65	25 / 40	200	**KI0024***

f = flush / nf = non flush / qf = quasi-flush

*** Note on use of miniature fuses for electrical connection**

Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting)
Recommendation: check the unit for reliable function after a short circuit.

Sensors with IO-Link

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f AC / DC [Hz]	I_{load} AC / DC [mA]	Order no.
Cable 2 m · Output function ⎍⎓ / ⎍⏚ · DC PNP								
	20 x 14 x 48	12 nf	PBT	10...30	IP 65 / IP 67	10	100	**KQ6002**
Cable 2 m · Output function ⎍⎓ / ⎍⏚ · DC NPN								
	20 x 14 x 48	12 nf	PBT	10...36	IP 65 / IP 67	10	100	**KQ6006**

f = flush / nf = non flush / qf = quasi-flush

Capacitive sensors – Use in hazardous areas

- **Robust metal and plastic housings with 4 joules shock test**
- **Simple connection using connector or terminals**
- **Clearly visible indication of the switching status**
- **Direct connection to the plant control or to the switching amplifier**
- **High mechanical stability**

Use in hazardous areas

Sensors for hazardous dust areas of categories 3G/3D must withstand extreme requirements. Any risk from sensors must be excluded by special test methods. Selected materials and a special sensor design ensure that prevention of ignition sources is guaranteed even in long-term use. This considerably increases plant safety. Namur sensors of the categories 1G/1D can be connected to intrinsically safe circuits. The connection to the required ifm switching amplifiers is made via connectors of the ENC ecolink series.

Sensors with ATEX approval

Type	Dimensions [mm]	Sensing range [mm]	Material	$U_{nom.}$ at 1 KΩ [V]	U_b [V]	Internal capacit. [nF]	Internal inductance [µH]	f [Hz]	Order no.
Cable 2 m · Output function ⏚ · Connection to certified intrinsically safe circuits with the max. values U = 15 V / I = 50 mA / P = 120 mW									
	M30 / L = 81	15 nf	PBT	8.2 DC	7.5...15	375	1	40	**KI5030**
Terminals · Output function ⏚+⏚ · DC PNP									
	M30 / L = 125	15 nf	PBT	10...30 DC	–	–	–	10	**KI505A**
	M30 / L = 150	15 nf	PBT	10...30 DC	–	–	–	10	**KI503A**
Terminals · Output function ⏚/⏚ · AC/DC									
	M30 / L = 150	15 nf	PBT	20...250 DC / 30...250 AC	–	–	–	10	**KI000A***
	M30 / L = 125	15 nf	PBT	20...250 DC / 30...250 AC	–	–	–	10	**KI001A***
	105 x 80 x 42	60 nf	modified PPE	20...250 AC/DC	–	–	–	4	**KD001A***
Terminals · Output function ⏚/⏚ · DC PNP									
	105 x 80 x 42	60 nf	modified PPO	10...36 DC	–	–	–	10	**KD501A**

f = flush / nf = non flush / qf = quasi-flush

*** Note on use of miniature fuses for electrical connection**

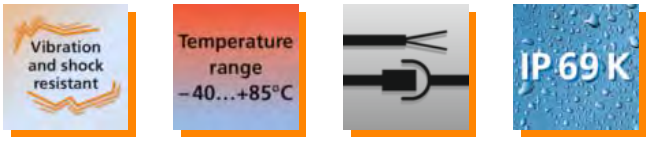
Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting)
Recommendation: check the unit for reliable function after a short circuit.

System components

Type	Description	Order no.
	Switching amplifier for Namur sensors according to 94/9/EG (ATEX) · ATEX approval · Group II, category (1) G D · 2-channel · Relay outputs · Programmable output function · Short-circuit and wire monitoring	**N0533A**
	Switching amplifier for Namur sensors according to 94/9/EG (ATEX) · ATEX approval · Group II, category (1) G D · 2-channel · Transistor outputs · Programmable output function · Short-circuit and wire monitoring	**N0534A**
	Mounting adapter · M30 x 1.5 - G 1½ · Housing materials: POM / EPDM	**E11033**
	Locknut · G 1½ · for mounting adapter · Housing materials: POM	**E11031**

Capacitive touch sensors and illuminated push-buttons

- **Dynamic, static function, preset**
- **High IP 69K protection rating and wide temperature range -40...85 °C**
- **Symbols on the sensing face can be selected separately**
- **Easy installation into housing with Ø 22.5 mm bore thanks to M22 x 1.5 thread**
- **Wear-free and maintenance-free thanks to switching without any mechanical pressure**

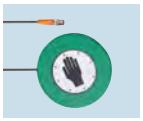


Functions and technology

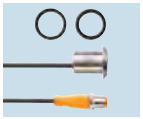
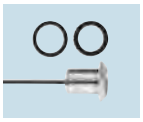
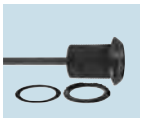
Capacitive touch sensors can be used, for example, as start and stop function on machines, as enable switch and for opening and closing gates. Compared to mechanical switches the sensors operate without wear. Dynamic touch sensors detect an approaching human hand and suppress interference such as water, layers of ice or foreign bodies to a large extent. However, a gloved hand will still trigger them.

Static touch sensors detect hands and objects even through glass for as long as the sensing face is covered which provides, for example, protection against vandalism. With the latching operating principle it is possible to switch the sensor on by touching briefly and to switch it off again by touching briefly again. Furthermore, the housing is resistant to oils and it is also impact and scratch resistant. It offers the protection rating IP 69K. LEDs for optical feedback signal that the sensor has been activated. The green LEDs can be controlled separately and, for example, be used to indicate the status of plant and machinery.

Dynamic capacitive touch sensors

Type	U_b [V]	I_{load} [mA]	Current consumption [mA]	Ambient temperature [°C]	Protection	Order no.
Cable with connector 0.3 m · Output function ⎍ · DC PNP						
	24	200	30	-40...85	IP 67 / IP 69K	**KT5011**
	24	200	30	-40...85	IP 67 / IP 69K	**KT5002**

Illuminated dynamic capacitive touch sensors

Type	U_b [V]	I_{load} [mA]	Current consumption [mA]	Ambient temperature [°C]	Protection	Order no.
Cable with connector 0.3 m · Output function ⎍ · DC PNP						
	24	200	30	-40...85	IP 65 / IP 67 / IP 69K	**KT5106**
	24	200	30	-40...85	IP 65 / IP 67 / IP 69K	**KT5312**
Cable 2 m · Output function ⎍ · DC PNP						
	24	200	30	-40...85	IP 65 / IP 67 / IP 69K	**KT5310**
	24	200	30	-40...85	IP 65 / IP 67 / IP 69K	**KT5110**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
Socket M8, 4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT135**

Magnetic sensors

- **Absolutely ingress-resistant to IP 68 / IP 69K, resists high-pressure and steam cleaning**
- **Small housings with extended sensing ranges up to 100 mm**
- **Stainless steel sensing face and housing protect against damage**
- **High temperature range up to 100 °C, temperature shock resistant**

Detection through covers

Magnetic sensors allow non-contact position detection even at high switching frequencies. They can detect a magnet through materials such as stainless steel, non-ferrous metal, aluminium, plastic or wood.

Long sensing range and high switching frequency

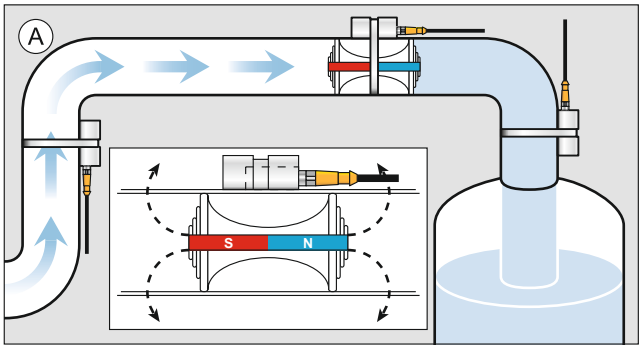
Thanks to the GMR technology (giant magneto resistive) the magnetic sensors have very long sensing ranges compared to inductive sensors. They detect magnets up to a distance of 100 mm. The maximum switching frequency of 5,000 Hz applies over the complete temperature range.

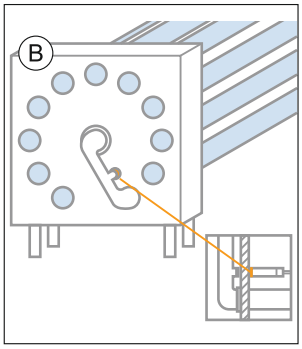
Examples:

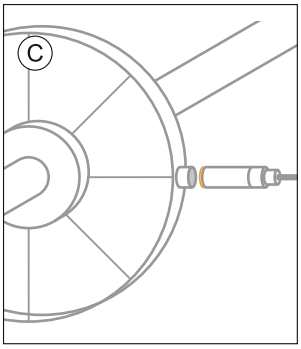
(A) Detection of a pig during the cleaning of pipes.

(B) Magnetic sensors detect the U-tube position on a distribution plate by sensing a magnet through a stainless steel plate.

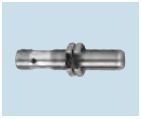
(C) Reliable detection: The magnetic sensor from ifm is used for pulse evaluation at high speed.







Full metal sensors for hygienic and wet areas

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
M12 connector · Output function ⎍ · DC PNP								
	M12 / L = 60	60	High-grade st. steel	10...30	IP 65 / IP 68 / IP 69K	5000	100	**MFT202**
	M18 / L = 60	70	High-grade st. steel	10...30	IP 65 / IP 68 / IP 69K	5000	100	**MGT203**
	M18 / L = 60	100	High-grade st. steel	10...30	IP 68 / IP 69K	–	200	**MGT201**

Accessories damping magnets

Type	Description	Order no.
	Damping magnet · M 3.1 · Housing materials: Barium ferrite / stainless steel	**E12291**
	Damping magnet · M 4.1 · Housing materials: Barium ferrite / stainless steel	**E11803**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF005**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF002**

T-slot cylinder sensors for hygienic and wet areas

- **Wear-free, without mechanical components (in contrast to reed switches)**
- **Simple installation on round cylinder by means of protective bracket and a jubilee clip**
- **High switching frequencies and travel speed possible**
- **Mounting accessories and adapters for different cylinder types**

Compact housing and simple mounting for washdown environments

The small cylinder sensors can be easily mounted on clean line cylinders, even if space is at a premium. A protective bracket available as accessory protects the sensor in the application.

Advantages compared to reed switches

In contrast to reed switches the cylinder sensors work without mechanical components and thus without wear. This guarantees an unlimited number of switching cycles.

Mechanical wear of reed switches can lead to switch point drift.

The cylinder sensors from ifm however have a very good repeatability permanently.

ifm sensors also function in case of weak magnetic fields. Reed switches require a higher field intensity. The cylinder sensors are also characterised by a fast response time.

T-slot sensors for hygienic and wet areas

Type	Dimensions [mm]	Material	U_b [V]	f [Hz]	Protection	I_{load} [mA]	T_a [°C]	Order no.
Cable with connector 0.3 m · Output function ⎍ · DC PNP								
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67 / IP 69K	100	-25...85	**MK5111**
	25 x 5 x 6.5	PA (polyamide)	10...30	6000	IP 65 / IP 67 / IP 69K	100	-25...85	**MK5157**
Cable 6 m · Output function ⎍ · DC PNP								
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67 / IP 69K	100	-25...85	**MK5128**

Fixing straps for clean line cylinders

Type	Description	Order no.
	Fixing strap for clean-line cylinders · Piston diameter 20...25 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	**E11976**
	Fixing strap for clean-line cylinders · Piston diameter 32 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	**E11977**
	Fixing strap for clean-line cylinders · Piston diameter 40 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	**E11978**
	Fixing strap for clean-line cylinders · Piston diameter 63 mm · for type MKT · Housing materials: adapter: stainless steel / Fixing strap: stainless steel	**E11980**
	Adapter for clean-line cylinders · for types MKT (T-slot cylinder sensors) · Housing materials: stainless steel	**E11877**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF001**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**

T-slot cylinder sensors for industrial applications

- **Wear-free, without mechanical components (in contrast to reed switches)**
- **Simple installation on round cylinder by means of protective bracket and a jubilee clip**
- **High switching frequencies and travel speed possible**
- **Mounting accessories and adapters for different cylinder types**

Compact housing and simple mounting for washdown environments

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The cylinder sensors from ifm however have a very good repeatability permanently.

ifm sensors also function in case of weak magnetic fields. Reed switches require a higher field intensity. The cylinder sensors are also characterised by a fast response time.

T-slot sensors for industrial applications

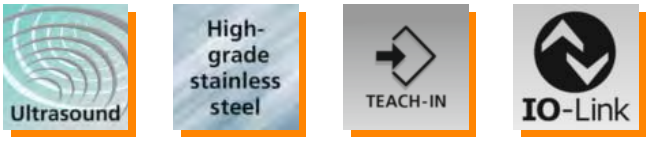
Type	Dimensions [mm]	Material	U_b [V]	f [Hz]	Protection	I_{load} [mA]	T_a [°C]	Order no.
Cable 2 m · Output function ⎍ · DC PNP/NPN								
	25 x 5 x 6.5	PA (polyamide)	10...30	4000	IP 65 / IP 67	100	-25...85	**MK5103**
Cable 2 m · Output function ⎍ · DC PNP								
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	**MK5100**
Cable with connector 0.3 m · Output function ⎍ · DC PNP/NPN								
	25 x 5 x 6.5	PA (polyamide)	10...30	4000	IP 65 / IP 67	100	-25...85	**MK5104**
	25 x 5 x 6.5	PA (polyamide)	10...30	4000	IP 65 / IP 67	100	-25...85	**MK5109**
Cable with connector 0.3 m · Output function ⎍ · DC PNP								
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	**MK5101**
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	**MK5107**
Cable 6 m · Output function ⎍ · DC PNP								
	25 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	200	-25...85	**MK5117**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M8, 3-pole, 3-wire								
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT123**
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**

Ultrasonic sensors in stainless steel housing

- **Robust high-grade stainless steel housing for demanding applications**
- **Sensing range up to 1.2 m in M18 cube design and 2.2 m in M18 design**
- **The vibrating sound transducer reduces the deposit of dirt**
- **Retro-reflective operation for orientation-independent object detection**
- **Easy setting via teach button, wire teach or IO-Link**



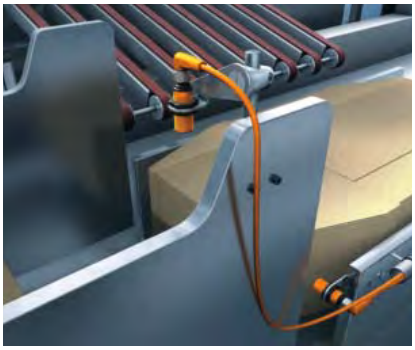
The alternative for difficult surfaces

Ultrasonic sensors transmit and receive sound waves in the ultrasonic range. The object to be detected reflects the sound waves and the distance information is determined via time of flight measurement. As opposed to photoelectric sensors colour, transparency or the object's surface shine do not play a role. Blister packages in packaging technology or transparent plastic bowls in the food industry, for example, can be reliably detected.

High performance

The ifm ultrasonic sensors in M18 design provide a particularly small blind zone and long sensing ranges which are usually only achieved by sensors of a consid-erably larger design.

The sensors operate reliably with heavy soiling so that they can be used in applications in which photoelectric sensors meet their limits.



Ultrasonic diffuse-reflection sensor with stainless steel housing

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
M12 connector · Output function 2 x normally open / closed programmable · 3-wire · DC PNP								
	M18 / L = 97.5	1600	stainless steel 316L / 1.4404	10...30	IP 67	3	100	**UGT509**
	M18 / L = 97.5	2200	stainless steel 316L / 1.4404	10...30	IP 67	2	100	**UGT512**
M12 connector · Output function 1 x NO / NC programmable + 1 x current output · 3-wire · DC PNP								
	M18 / L = 97.5	1600	stainless steel 316L / 1.4404	10...30	IP 67	3	100	**UGT510**
	M18 / L = 97.5	2200	stainless steel 316L / 1.4404	10...30	IP 67	2	100	**UGT513**
	53 x 20 x 37.7	300	stainless steel (17-4 PH/1.4542)	10...30	IP 67	8	100	**UGT580**
	53 x 20 x 37.7	800	stainless steel (17-4 PH/1.4542)	10...30	IP 67	5	100	**UGT582**
	53 x 20 x 37.7	1200	stainless steel (17-4 PH/1.4542)	10...30	IP 67	5	100	**UGT584**

System components

Type	Description	Order no.
	Angle bracket · for type M18 · Housing materials: stainless steel	**E10736**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Protection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**

Photoelectric sensors
M18 design, connector

- **Industrially compatible high-grade stainless steel M18 housing**
- **Ecolab certified – resistant to cleaning agents and harsh environments**
- **Visible red light simplifies alignment and maintenance**
- **Plastic lens, avoids glass splinters in case of damage**
- **Mounting accessories in stainless steel**

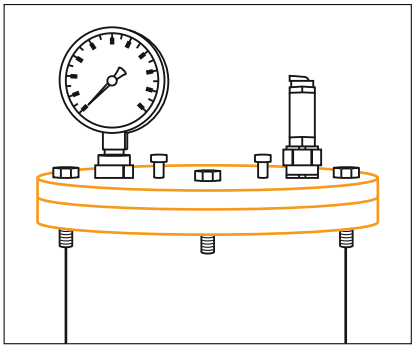
For washdown applications

The OG series photoelectric sensors have been designed and tested for reliable detection even in extreme washdown conditions. The industrially compatible M18 housing is made of high-grade stainless steel. It is perfectly suited for food and beverage applications.

The visible red light simplifies alignment and maintenance. Extensive accessories made of stainless steel ensure fast and safe installation.

Ecolab-certified for food and beverage

The Ecolab-certified sensors are resistant to chemical solutions used in cleaning. Even in case of high-pressure cleaning the sensor remains absolutely ingress-resistant to IP 69K.



Tested to extremes: To simulate the aging process, the sensors are alternately put into hot water at 80 °C and into ice water several times.

Product selectors and further information can be found at: www.ifm.com

Cylindrical housing OG (M18) WetLine for hygienic and wet areas

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
Diffuse reflection sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 / IP68 / IP69K						
	Background suppression	100 mm	Red	9	H PNP	**OGH300**
	Background suppression	100 mm	Red	9	D PNP	**OGH301**
	Background suppression	200 mm	Red	17	H PNP	**OGH302**
	Background suppression	300 mm	Red	25	H PNP	**OGH304**
Diffuse reflection sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP69K						
	Background suppression	20...200 mm	Red	17	H/D PNP	**OGH314**
Diffuse reflection sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP65 / IP67 / IP68 / IP69K						
	Background suppression	15...300 mm	Red	25	H/D PNP	**OGH312**
Through-beam sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 / IP68 / IP69K						
	Transmitter	20 m	Red	800	–	**OGS300**
	Receiver	20 m	Red	–	D PNP	**OGE300**
	Receiver	20 m	Red	–	H PNP	**OGE301**
Retro-reflective sensor · M12 connector · 10...36 DC · high-grade stainless steel · IP67 / IP68 / IP69K						
	Polarisation filter	0.03...4 m	Red	160	D PNP	**OGP300**
	Polarisation filter	0.03...4 m	Red	160	H PNP	**OGP301**

System components

Type	Description	Order no.
	Prismatic reflector · Ø 80 mm · round · For red light and infrared light retro-reflective sensors · Housing materials: plastics	**E20005**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm^2, Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**

Photoelectric sensors
M18 housing, connection cable

- **Industrially compatible high-grade stainless steel M18 housing**
- **Ecolab certified – resistant to cleaning agents and rough environments**
- **Visible red light simplifies alignment and maintenance**
- **Plastic lens, avoids glass splinters in case of damage**
- **Mounting accessories in stainless steel**

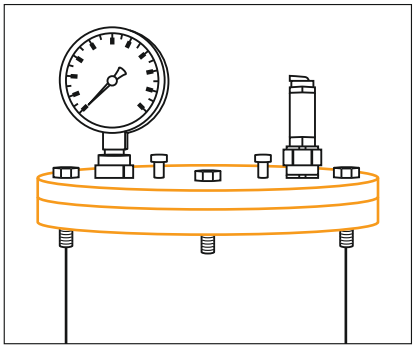
For washdown applications

The OG series photoelectric sensors have been designed and tested for reliable detection even in extreme washdown conditions. The industrially compatible M18 housing is made of high-grade stainless steel. It is perfectly suited for food and beverage applications.

The visible red light simplifies alignment and maintenance. Extensive accessories made of stainless steel ensure fast and safe installation.

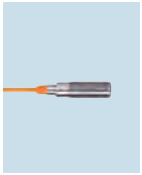
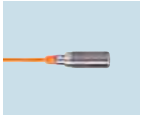
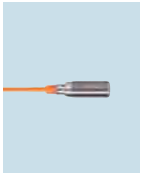
Ecolab-certified for food and beverage

The Ecolab-certified sensors are resistant to chemical solutions used in cleaning. Even in case of high-pressure cleaning the sensor remains absolutely ingress-resistant to IP 69K.

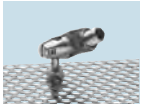


Tested to extremes: To simulate the aging process, the sensors are alternately put into hot water at 80 °C and into ice water several times.

Cylindrical housing OG (M18) WetLine for hygienic and wet areas

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
Diffuse reflection sensor · Cable 6 m · 10...36 DC · high-grade stainless steel · IP67 / IP68 / IP69K						
	Background suppression	100 mm	Red	9	H PNP	**OGH306**
	Background suppression	200 mm	Red	17	H PNP	**OGH308**
	Background suppression	300 mm	Red	25	H PNP	**OGH310**
Diffuse reflection sensor · Cable 6 m · 10...36 DC · high-grade stainless steel · IP65 / IP67 / IP68 / IP69K						
	Background suppression	15...300 mm	Red	25	H/D PNP	**OGH313**
Retro-reflective sensor · Cable 6 m · 10...36 DC · high-grade stainless steel · IP67 / IP68 / IP69K						
	Polarisation filter	0.03...4 m	Red	160	D PNP	**OGP302**
	Polarisation filter	0.03...4 m	Red	160	H PNP	**OGP303**
Through-beam sensor · Cable 6 m · 10...36 DC · high-grade stainless steel · IP67 / IP68 / IP69K						
	Transmitter	20 m	Red	800	–	**OGS301**
	Receiver	20 m	Red	–	D PNP	**OGE302**
	Receiver	20 m	Red	–	H PNP	**OGE303**

System components

Type	Description	Order no.
	Prismatic reflector · Ø 80 mm · round · For red light and infrared light retro-reflective sensors · Housing materials: plastics	**E20005**
	Angle bracket · for type M18 · Housing materials: stainless steel	**E10736**
	Mounting set · Ø 18.5 mm · Clamp mounting · rod mounting Ø 12 mm · for type OG, IG, KG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	**E20872**
	Mounting set · Ø 18.5 mm · Clamp mounting · Free-standing M10 · for type OG, IG, KG · Housing materials: clamp: diecast zinc / fixture: steel	**E20718**
	Mounting set · Ø 18.5 mm · Clamp mounting · Free-standing M10 · for type OG, IG, KG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	**E20869**
	Mounting set · Ø 18.5 mm · Clamp mounting · Free-standing M10 · for type OG, IG, KG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	**E20870**

Photoelectric sensors with rectangular housing

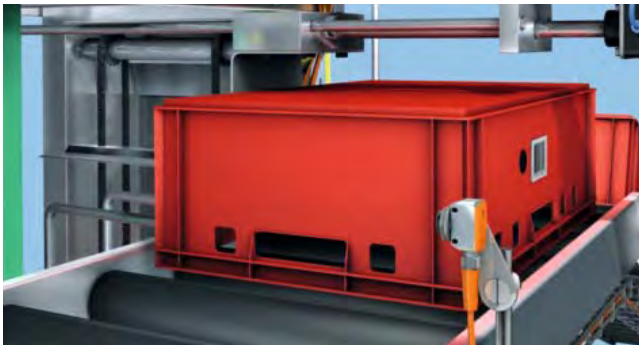
- **Selected materials, suited for food applications.**
- **Consistent implementation of ifm's application know-how.**
- **Ideal sealing concept, IP 67, IP 68 and IP 69K.**
- **Fixed ranges – easy set-up (plug & play).**

Photoelectric sensors for washdown

The OG series photoelectric sensors have been designed and tested for reliable detection of positions even in extreme washdown conditions. The industrially compatible housing is made of high-grade stainless steel and is perfectly suited for applications in the food industry, e.g. cheese plants, breweries or the meat industry. A visible red light source simplifies installation and maintenance. Stainless steel accessories are available for quick installation.

The 100 % ingress-resistant sensor design prevents the penetration of moisture during high-pressure cleaning.

The sensor has a plastic lens to prevent glass splinters from getting into the process in case of damage to the sensor. This is a special requirement in the food and beverage industry.



OG series (M18) WetLine with rectangular housing for hygienic and wet areas

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
Diffuse reflection sensor · M12 connector · 10...30 DC · metal · IP67 / IP68 / IP69K						
	Background suppression	100 mm	Red	7	H PNP	**OGH380**
	Background suppression	200 mm	Red	13	H PNP	**OGH381**
	Background suppression	100 mm	Red	7	H NPN	**OGH382**
	Background suppression	200 mm	Red	13	H NPN	**OGH383**
Through-beam sensor · M12 connector · 10...30 DC · metal · IP67 / IP68 / IP69K						
	Transmitter	15 m	Red	800	–	**OGS380**
	Receiver	15 m	Red	–	D PNP	**OGE380**
	Receiver	15 m	Red	–	H PNP	**OGE381**
	Receiver	15 m	Red	–	D NPN	**OGE382**

System components

Type	Description	Order no.
	Angle bracket · for type M18 · Housing materials: stainless steel	**E10736**
	Mounting set · Ø 18.5 mm · Clamp mounting · rod mounting Ø 12 mm · for type OG, IG, KG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	**E20872**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF001**

O5 photocells for conveying

- Extremely long ranges
- Reliable background suppression
- Easy setting of “ON” and “OFF” state by pushbuttons
- Versions with fixed setting or with potentiometer available
- Universal mounting using system components and mounting accessories

All-round photocell

High-quality technology, extraordinary features and an outstanding price / performance ratio allow use of this sensor in almost all industrial areas. Easy installation is ensured by a clever mounting concept, with special fixtures as well as an adapter plate. The plug can be rotated by 270° so that it can be aligned in any direction.

Versions without setting options

For use in standard applications.

Versions with potentiometer

For easy setting and simple applications.

Versions with teach function

This innovative setting method makes complicated programming unnecessary. The unit features one button each for setting a precise on and off state.

Rectangular housing O5 BasicLine

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
Diffuse reflection sensor · M12 connector · 10...36 DC · plastics · IP65						
	Background suppression	50...1400 mm	Red	50	H PNP	**O5H200**
Retro-reflective sensor · M12 connector · 10...36 DC · plastics · IP67						
	Polarisation filter	0.1...7 m	Red	175	D PNP	**O5P200**
Through-beam sensor · M12 connector · 10...36 DC · plastics · IP67						
	Transmitter	20 m	Red	500	–	**O5S200**
	Receiver	20 m	Red	–	D PNP	**O5E200**

Rectangular housing O5 PerformanceLine

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
Diffuse reflection sensor · M12 connector · 10...36 DC · plastics · IP67						
	Background suppression	50...1800 mm	Red	50	H/D PNP	**O5H500**
Retro-reflective sensor · M12 connector · 10...36 DC · plastics · IP67						
	Polarisation filter	0.075...10 m	Red	250	H/D PNP	**O5P500**
Through-beam sensor · M12 connector · 10...36 DC · plastics · IP67						
	Transmitter	25 m	Red	625	–	**O5S500**
	Receiver	25 m	Red	–	H/D PNP	**O5E500**

Accessories

Type	Description	Order no.
	Mounting set · Clamp mounting · With protective cover · Free-standing M10 · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	**E21084**
	Mounting set · Clamp mounting · Free-standing M10 · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	**E21083**

Photoelectric sensors
O6 WetLine series, PNP

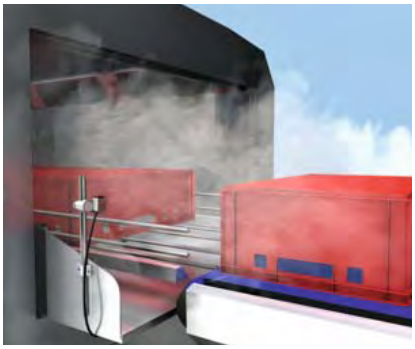
- **Stainless steel housing with protection rating IP 65 / IP 67 / IP 68 / IP 69K**
- **Easy adjustment by potentiometer**
- **Diffuse reflection sensors with reliable background suppression**
- **Colour of the object has no influence on the range**
- **Also available as through-beam or retro-reflective system**

Best optical performance

The optimised diffuse reflection sensors suppress background interference effectively. Even highly reflective backgrounds like stainless steel have no influence on the background suppression. The sensing range is independent of the characteristics and colour of the object to be detected. A special feature is the automatic sensitivity compensation that guarantees reliable operation even in steam, smoke or highly reflective environments. The clean round light spot in the operating area ensures a consistent light distribution in the light cone. Scattered light around the light spot potentially disturbing other sensors due to reflections is avoided. This provides additional safety.

Perfectly sealed

The compact O6 offers maximum ingress protection. A double seal protects the two setting potentiometers. The front pane and the potentiometers are embedded flush to allow residue-free cleaning. The stainless steel housing has the high protection ratings IP 65 / IP 67 / IP 68 / IP 69K. A transparent black housing cover provides a good contrast to the integrated LEDs (operating status, switch point) for optimum visibility from any angle even in bright lighting conditions. The coated front pane is made of resistant, shatterproof plastic.



O6 series WetLine with rectangular housing for hygienic and wet areas

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
Cable with connector 0.3 m, 4 poles · 10...30 DC · high-grade stainless steel · IP65 / IP67 / IP68 / IP69K						
	Diffuse reflection sensor	5...500 mm	Red	15	H/D PNP	**O6T301**
	Background suppression	2...200 mm	Red	8	H/D PNP	**O6H301**
	Receiver	10 m	Red	–	H/D PNP	**O6E301**
	Polarisation filter	0.05...5 m	Red	150	H/D PNP	**O6P301**
	Transmitter	10 m	Red	300	–	**O6S301**
Cable 2 m · 10...30 DC · high-grade stainless steel · IP65 / IP67 / IP68 / IP69K						
	Diffuse reflection sensor	5...500 mm	Red	15	H/D PNP	**O6T300**
	Background suppression	2...200 mm	Red	8	H/D PNP	**O6H300**
	Receiver	10 m	Red	–	H/D PNP	**O6E300**
	Polarisation filter	0.05...5 m	Red	150	H/D PNP	**O6P300**
	Transmitter	10 m	Red	300	–	**O6S300**
M8 connector, 3 poles · 10...30 DC · high-grade stainless steel · IP65 / IP67 / IP68 / IP69K						
	Diffuse reflection sensor	5...500 mm	Red	15	H/D PNP	**O6T302**
	Background suppression	2...200 mm	Red	8	H/D PNP	**O6H302**
	Receiver	10 m	Red	–	H/D PNP	**O6E302**
	Polarisation filter	0.05...5 m	Red	150	H/D PNP	**O6P302**
	Transmitter	10 m	Red	300	–	**O6S302**
M8 connector, 4 poles · 10...30 DC · high-grade stainless steel · IP65 / IP67 / IP68 / IP69K						
	Diffuse reflection sensor	5...500 mm	Red	15	H/D PNP	**O6T303**
	Background suppression	2...200 mm	Red	8	H/D PNP	**O6H303**
	Receiver	10 m	Red	–	H/D PNP	**O6E303**
	Polarisation filter	0.05...5 m	Red	150	H/D PNP	**O6P303**
	Transmitter	10 m	Red	300	–	**O6S303**

Photoelectric sensors
O6 WetLine series, NPN

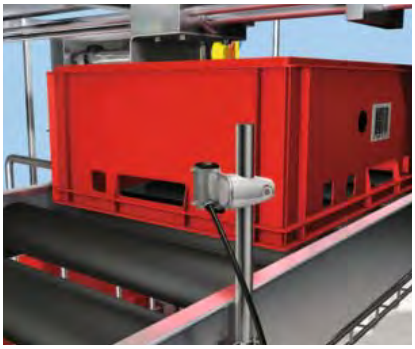
- **Stainless steel housing with protection rating IP 65 / IP 67 / IP 68 / IP 69K**
- **Easy adjustment by potentiometer**
- **Diffuse reflection sensors with reliable background suppression**
- **Colour of the object has no influence on the range**
- **Also available as through-beam or retro-reflective system**

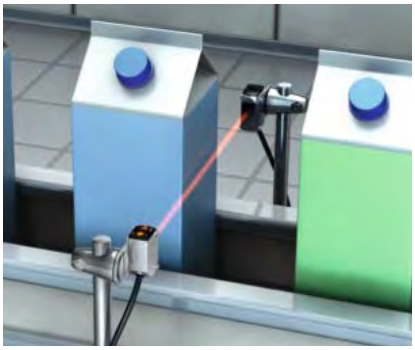
Best optical performance

The optimised diffuse reflection sensors suppress background interference effectively. Even highly reflective backgrounds like stainless steel have no influence on the background suppression. The sensing range is independent of the characteristics and colour of the object to be detected. A special feature is the automatic sensitivity compensation that guarantees reliable operation even in steam, smoke or highly reflective environments. The clean round light spot in the operating area ensures a consistent light distribution in the light cone. Scattered light around the light spot potentially disturbing other sensors due to reflections is avoided. This provides additional safety.

Perfectly sealed

The compact O6 offers maximum ingress protection. A double seal protects the two setting potentiometers. The front pane and the potentiometers are embedded flush to allow residue-free cleaning. The stainless steel housing has the high protection ratings IP 65 / IP 67 / IP 68 / IP 69K. A transparent black housing cover provides a good contrast to the integrated LEDs (operating status, switch point) for optimum visibility from any angle even in bright lighting conditions. The coated front pane is made of resistant, shatterproof plastic.





O6 series WetLine with rectangular housing for hygienic and wet areas

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
Cable with connector 0.3 m, 4 poles · 10...30 DC · high-grade stainless steel · IP65 / IP67 / IP68 / IP69K						
	Diffuse reflection sensor	5...500 mm	Red	15	H/D NPN	**O6T305**
	Background suppression	2...200 mm	Red	8	H/D NPN	**O6H305**
	Receiver	10 m	Red	–	H/D NPN	**O6E305**
	Polarisation filter	0.05...5 m	Red	150	H/D NPN	**O6P305**
	Transmitter	10 m	Red	300	–	**O6S301**
Cable 2 m · 10...30 DC · high-grade stainless steel · IP65 / IP67 / IP68 / IP69K						
	Diffuse reflection sensor	5...500 mm	Red	15	H/D NPN	**O6T304**
	Background suppression	2...200 mm	Red	8	H/D NPN	**O6H304**
	Receiver	10 m	Red	–	H/D NPN	**O6E304**
	Polarisation filter	0.05...5 m	Red	150	H/D NPN	**O6P304**
	Transmitter	10 m	Red	300	–	**O6S300**
M8 connector, 3 poles · 10...30 DC · high-grade stainless steel · IP65 / IP67 / IP68 / IP69K						
	Diffuse reflection sensor	5...500 mm	Red	15	H/D NPN	**O6T306**
	Background suppression	2...200 mm	Red	8	H/D NPN	**O6H306**
	Receiver	10 m	Red	–	H/D NPN	**O6E306**
	Polarisation filter	0.05...5 m	Red	150	H/D NPN	**O6P306**
	Transmitter	10 m	Red	300	–	**O6S302**
M8 connector, 4 poles · 10...30 DC · high-grade stainless steel · IP65 / IP67 / IP68 / IP69K						
	Diffuse reflection sensor	5...500 mm	Red	15	H/D NPN	**O6T307**
	Background suppression	2...200 mm	Red	8	H/D NPN	**O6H307**
	Receiver	10 m	Red	–	H/D NPN	**O6E307**
	Polarisation filter	0.05...5 m	Red	150	H/D NPN	**O6P307**
	Transmitter	10 m	Red	300	–	**O6S303**

Photoelectric sensors
O6 WetLine series, IO-Link

- **Stainless steel housing with protection rating IP 65 / IP 67 / IP 68 / IP 69K**
- **Diffuse reflection sensors with reliable background suppression**
- **Well-defined light spot for precise object detection, no scattered light**
- **Also available as through-beam or retro-reflective system**
- **Many functions can be set via IO-Link, e.g. range and sensitivity**

IP 65
IP 67

IP 68
IP 69 K

IO-Link

High-grade stainless steel

ECOLAB certified

Best performance

The diffuse reflection sensors distinguish themselves by reliable background suppression, even in case of highly reflective backgrounds.

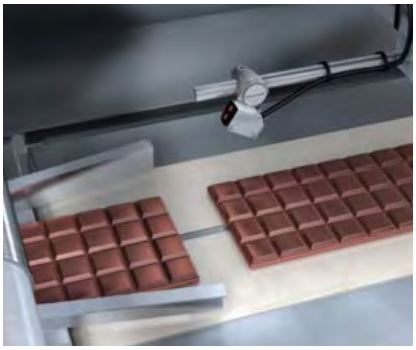
A special feature is the automatic switch point adjustment that guarantees reliable operation even in steam, smoke or highly reflective environments.

The WetLine series features a particularly robust stainless steel housing with protection rating IP 65 / IP 67 / IP 68 / IP 69K.

The potentiometer with double sealing ensures maximum ingress resistance. The flush front lens ensures cleaning without residues.

IO-Link

The O6 WetLine sensors are now also available as versions with IO-Link. Via this interface, the user can set range, sensitivity, light-on / dark-on mode, switching delay or deactivation of the operating elements.



O6 series WetLine with rectangular housing for hygienic and wet areas

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
M8 connector, 4 poles · 10...30 DC · high-grade stainless steel · IP65 / IP67 / IP68 / IP69K						
	Diffuse reflection sensor	5...500 mm	Red	15	H/D PNP	**O6T309**
	Background suppression	2...200 mm	Red	8	H/D PNP	**O6H309**
	Receiver	10 m	Red	–	H/D PNP	**O6E309**
	Polarisation filter	0.05...5 m	Red	150	H/D PNP	**O6P309**
	Transmitter	10 m	Red	300	–	**O6S305**

System components

Type	Description	Order no.
	Mounting set · O6 · Clamp mounting · rod mounting Ø 10 mm · for type O6 · Housing materials: stainless steel 316Ti / 1.4571	**E21272**
	Mounting set · O6 · Clamp mounting · rod mounting Ø 12 mm · for type O6 · Housing materials: stainless steel 316Ti / 1.4571	**E21275**
	Angle bracket · O6 · for type O6 · Housing materials: stainless steel 316Ti / 1.4571	**E21271**
	Protective cover · O6 · for type O6 · Housing materials: stainless steel 316Ti / 1.4571	**E21273**
	Prismatic reflector · 48 x 48 mm · rectangular · For red light and infrared light retro-reflective sensors · Housing materials: Solidchem	**E21269**
	Prismatic reflector · 56 x 38 mm · rectangular · For red light and infrared light retro-reflective sensors · Housing materials: Solidchem	**E21268**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M8, 4-pole, 4-wire								
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT134**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT135**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT136**

Laser distance and level sensors

- **Compact distance sensor with extremely good price / performance ratio**
- **Ideal for applications with long ranges and background suppression**
- **Level detection with the O1D300, e.g. non-transparent liquids**
- **Teach mode for fast set-up**
- **Big 4-digit alphanumeric display for measured values**

Detection of objects with long ranges

The O1D laser sensor provides non-contact distance measurement up to 10 metres. The O1D106 measures long distances of up to 75 m using a reflector.

Non-contact level measurement

O1D300 has been designed especially to measure the level in food processing. The range is 10 m.

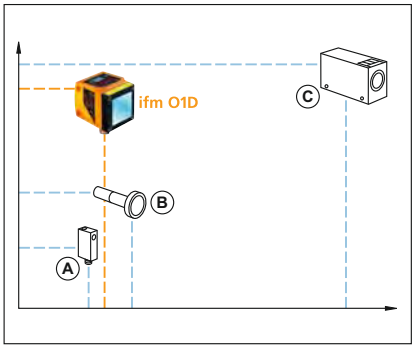
Compact and flexible

The sensors in a compact robust metal housing of only 42 x 42 mm are suited for use in the food and beverage industry. They can be mounted easily in applications where space is at a premium.

The outputs can be programmed for two switch points or one switch point and one analogue output. The display can also provide the measured values in inches, millimetres or metres.

Combined advantages

Photoelectric systems with background suppression (A, see graph to the right) and ultrasonic sensors (B) are inexpensive alternatives for distance measurement, however their ranges are shorter. Traditional time-of-flight systems (C) offer an improved level of performance but are much higher in cost. The O1D combines the advantages of these systems at an attractive price.



Price / performance comparison: The O1D combines the advantages of background suppression (A), ultrasonic sensors (B) and traditional time-of-flight systems (C).

Product selectors and further information can be found at: www.ifm.com

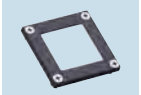
Rectangular housing O1 for optical distance measurement, laser class 1

Type	Operating principle	Range	Sampling rate [Hz]	Spot Ø at max. range [mm]	U_b [V]	Order no.
Output function OUT1: normally open / closed programmable OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scalable)						
	Photoelectric distance sensor	0.3...6 m	1...33	< 8 x 8	18...30	**O1D155**

Rectangular housing O1 for optical distance measurement, laser class 2

Type	Operating principle	Range	Sampling rate [Hz]	Spot Ø at max. range [mm]	U_b [V]	Order no.
Output function OUT1: normally open / closed programmable OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scalable)						
	Photoelectric distance sensor	1...75 m on reflector E21159	1...33	< 150 x 150	18...30	**O1D106**
	Photoelectric distance sensor	0.2...10 m	1...33	< 15 x 15	18...30	**O1D105**
	Background suppression	0.2...10 m	1...50	< 15 x 15	18...30	**O1D100**
	Photoelectric distance sensor	0.2...10 m	1...50	< 15 x 15	18...30	**O1D103**
	Optical level sensor	0.2...10 m	1...33	< 15 x 15	18...30	**O1D300**
	Background suppression	0.2...10 m	1...50	< 15 x 15	18...30	**O1D120**

Accessories O1 housing

Type	Description	Order no.
	Mounting adapter · O1D · for optical distance sensors · for type O1D · Housing materials: flange: stainless steel 316L / 1.4404 / sealing: FKM / Protective cover: PMMA transparent / screws: high-grade stainless steel / washers: high-grade stainless steel	**E21224**
	Protective cover · O1D · Housing materials: bezel: ZnAl4Cu1 finish black / window: PMMA transparent and colourless / sealing: FPM 75+/-5 Shore A black / screws: stainless steel	**E21133**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm^2, Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**

Photoelectric sensors with time of flight measurement (PMD)

- **Reliable background suppression and colour-independent detection**
- **Shiny surfaces are detected reliably (e.g. stainless steel)**
- **Any sensor position, even an oblique angle to the object**
- **IO-Link integrated, e.g. for reading the actual value**

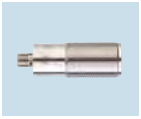
Time of flight measurement for standard sensors

The OID/O5D with time of flight measurement (PMD = photonic mixer device) combines the following advantages: long ranges, reliable background suppression, visible red light and high excess gain. In the same price range as standard sensors, it is a clever alternative.

Any surface and any mounting position

Shiny, matt, dark or light objects of any colour: the OID/O5D features reliable bakkground suppression. The unit allows any angle of incidence and thus flexible mounting positions. This simplifies installation and saves costs.

Cylindrical OI housing (M30) for optical distance measurement, laser class 1

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
Photoelectric distance sensor · M12 connector · 10...30 DC · metal · IP65 / IP67 / IP68 / IP69K · Display unit: cm						
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	**OID254**
Photoelectric distance sensor · M12 connector · 10...30 DC · metal · IP65 / IP67 · Display unit: cm, inch						
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	**OID250**
Photoelectric distance sensor · M12 connector · 10...30 DC · metal · IP65 / IP67 · Display unit: cm						
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	**OID251**

Cylindrical OI housing (M30) for optical distance measurement, laser class 2

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
Photoelectric distance sensor · M12 connector · 10...30 DC · metal · IP65 / IP67 · Display unit: cm, inch						
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	**OID200**
Photoelectric distance sensor · M12 connector · 10...30 DC · metal · IP65 / IP67 · Display unit: cm						
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	**OID201**
Photoelectric distance sensor · M12 connector · 10...30 DC · metal · IP65 / IP67 / IP68 / IP69K · Display unit: cm						
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	**OID204**

System components

Type	Description	Order no.
	Angle bracket · for type M30 · Housing materials: stainless steel	**E10737**
	Mounting set · Ø 30.2 mm · Clamp mounting · free-standing M12 · for type OI, II, KI · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	**E20874**

O5D – first standard photocell with time of flight measurement (PMD)

- Reliable background suppression and colour-independent detection
- Precise time of flight measurement in housing sizes of standard photoelectric sensors
- Shiny surfaces are detected reliably (e.g. stainless steel)
- Any sensor position, even an oblique angle to the object
- Switch point setting to the nearest centimetre via “+/-“ buttons and display

Time of flight measurement as standard sensor

The O5D with time of flight measurement (PMD = Photonic Mixer Device) combines the following advantages: long range, reliable background suppression, visible red light and high excess gain. In the same price range as standard sensors, it is a clever alternative.

Easy handling

The switch point is set easily to the nearest centimetre via “+/-” buttons and display or alternative via IO-Link, which also allows read-out of the actual value.

Any surface and any mounting position

Shiny, matt, dark or light objects of any colour: the O5D features reliable background suppression. The unit allows any angle of incidence and thus any mounting position. This simplifies installation and saves costs.

Rectangular housing O5 for optical distance measurement, laser class 2

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
Photoelectric distance sensor · M12 connector · 10...30 DC · metal · IP65 / IP67 · Display unit: cm						
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	**O5D100**
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary NPN	**O5D102**
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	**O5D150**
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary NPN	**O5D152**
Photoelectric distance sensor · M12 connector · 10...30 DC · metal · IP65 / IP67 · Display unit: inch						
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	**O5D101**
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	**O5D151**

System components

Type	Description	Order no.
	Mounting set · Clamp mounting · Free-standing M10 · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	**E21083**
	Mounting set · Clamp mounting · With protective cover · Free-standing M10 · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	**E21084**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**

Colour, contrast sensor and sensor for transparent objects

- The colour sensor detect finest shades of colour, 5 tolerance steps can be selected
- Contrast sensor with teach function for automatic transmitted-light colour
- The sensor for transparent objects detects glass, films and PET bottles
- High switching frequencies for fast moving applications
- Auto-Detect for PNP / NPN configuration, time-saving teach functions

Colour sensor for production control

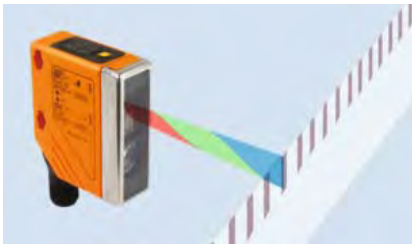
The colour sensor detects objects based on their colour and is particularly suited for applications in the food and beverage industry. With five selectable tolerance steps the user defines the permissible colour differences. An adjustment to the application is made via pushbuttons. The high switching frequency of 2,000 Hz allows precise colour detection even for very fast applications.

Contrast sensor for object detection

The powerful type O5K contrast sensor can be used in many applications in the packaging, assembly, material handling and printing industries. It detects registration marks or printed colour bars by determining the difference between the target and the background. The high colour contrast sensitivity and resolution guarantee reliable detection.

Detection of transparent objects

The O5G series sensors are suited for one of the most difficult photoelectric applications: the detection of transparent objects such as film, glass, PET / plastic bottles or transparent packagings. Normal photoelectric sensors are not suited for this. Their excess gain is too high and they look through the transparent material without detecting it.



Sensors for colour detection

Type	Operating principle	Measuring range	Light spot diameter [mm]	U_b [V]	Current consumption [mA]	Sampling rate / switching frequency [Hz]	Order no.
M12 connector · Output function light-on / dark-on programmable · DC PNP/NPN							
	Colour sensor	15...19 mm	2.5 x 6	10...36	50	2000	**O5C500**

Contrast sensors

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
M12 connector · 10...36 DC · plastics · IP67						
	Diffuse contrast sensor	18...22 mm	RGB	1.5 x 5	H/D PNP/NPN	**O5K500**

Sensors for the detection of transparent objects

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
M12 connector · 10...36 DC · plastics · IP67						
	Polarisation filter	0...3 m	Red	80	H/D PNP/NPN	**O5G500**

System components

Type	Description	Order no.
	Prismatic reflector · 48 x 48 mm · rectangular · for retro-reflective laser sensors and glass and film detection · Housing materials: plastics	**E20722**
	Mounting set · Clamp mounting · Free-standing M10 · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	**E21083**
	Mounting set · Clamp mounting · With protective cover · Free-standing M10 · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	**E21084**

Valve sensors for quarter-turn actuators

- **Quick and secure mounting using only three screws**
- **Units with M12 connector or terminal chamber**
- **Non-contact and self-cleaning system**
- **Resistant to mechanical stress such as vibration and shocks**
- **Large selection of switching cams**

IP 67

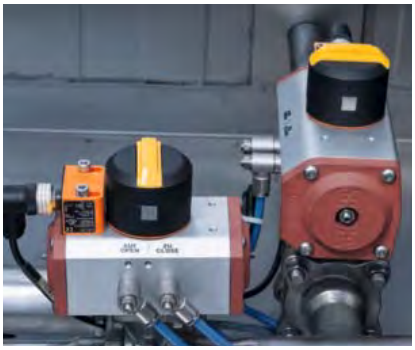
Electronic valve position monitoring

In industrial processes where liquids, air or gases are used, valves are needed for dosing and control. Pneumatic valve actuators are normally used for mechanical positioning. The valve position must be monitored electronically.

Dual sensor for valve actuators

ifm offers a compact dual inductive sensor with two integral sensors for position feedback on valve actuators.

A round target, also called a 'puck', with two metal screws offset by 90° is mounted on the actuator shaft. The screws are located at a different height. A compact dual inductive sensor (type IND) with two integral sensors detects the upper or lower metal screw depending on the valve position and thus the two switch positions. This system operates reliably with no wear at all. It is virtually resistant to external influence and insensitive to mechanical stress such as vibration and shock.



Sensors for industrial applications

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f AC / DC [Hz]	I_{load} AC / DC [mA]	Order no.
M12 connector · Output function ⎍/⎍ · DC PNP/NPN								
	40 x 26 x 26	4 nf	PBT	10...36	IP 67	1300	250	**IN5224**
M12 connector · Output function ⎍/⎍ · DC PNP								
	40 x 26 x 26	4 nf	PBT	10...36	IP 67	1300	250	**IN5225**
	40 x 26 x 47	4 nf	PBT	10...36	IP 67	1300	250	**IN5327**
Terminals · Output function ⎍/⎍ · DC PNP								
	33 x 60 x 92	4 nf	PA (polyamide)	10...30	IP 67	500	100	**IN5409**
7/8" connector · Output function ⎍/⎍ · AC/DC								
	–	4 nf	stainless steel (303S22)	20...140	IP 67	25	200	**IN0117***

f = flush / nf = non flush / qf = quasi-flush

*** Note on use of miniature fuses for electrical connection**

Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting)
Recommendation: check the unit for reliable function after a short circuit.

Switching cams for sensors with quarter-turn actuators

Type	Description	Order no.
	Target puck · Ø 53 mm · 3 possible switching flag positions · Housing colour: black · Housing materials: Target puck: PA 6 black / screws: V2A	**E17320**
	Target puck · Ø 65 mm · 3 possible switching flag positions · Housing colour: black · Housing materials: Target puck: PA 6 / screws: V2A	**E17327**
	Target puck · Ø 102 mm · 3 possible switching flag positions · Housing colour: black · Housing materials: Target puck: PA 6 / screws: V2A	**E17328**
	Target puck · Ø 53 mm · Housing materials: Target puck: PA 6 black / Metal parts: stainless steel	**E12517**

Feedback for hand valves and ball valves

- **Suitable for ISO top flange valves from F04 to F10**
- **Easy installation on manual valves and ball valves**
- **Height-adjustable for flexibility**
- **Stainless steel components for long life**
- **Ideal for hazardous areas**

End position feedback for manual valves and ball valves

With this mounting kit, you can very easily equip your manual valves with sensors and target pucks. A large number of sensors and pucks can be used on the 80 x 30 mm actuator interface to VDI/VDE 3845. The entire system can be used at ambient temperatures from -30...80 °C.

Versatile and flexible

The upper part is made out of Vestamid and allows operation in hazardous areas. The lower part fits on many ISO flange valves (DIN EN ISO 5211) and is connected to the valve shaft by a shaft extension.

Stainless steel components guarantee increased service life.

Accessories for rising stem valve sensors

Type	Description	Order no.
	Mounting set · for type IND, INE · Housing materials: Mounting plate: plastics / Metal parts: stainless steel	**E12519**
	Mounting set · for type IND, INE · Housing materials: Mounting plate: plastics / Metal parts: stainless steel	**E12520**
	Mounting set · for type IND, INE · Housing materials: Mounting plate: plastics / Metal parts: stainless steel	**E12521**
	Mounting set · for type IND, INE · Housing materials: Mounting plate: plastics / Metal parts: stainless steel	**E12522**
	Mounting set · for type IND, INE · Housing materials: Mounting plate: plastics / Metal parts: stainless steel	**E12523**
	Mounting set · for type IND, INE · Housing materials: Mounting plate: plastics / Metal parts: stainless steel	**E12524**

System components

Type	Description	Order no.
	Inductive sensor · Dual sensor · Connector · Housing materials: PBT / PC	**IN5224**
	Inductive sensor · Connector · Housing materials: PBT	**IN5225**
	Inductive sensor · Connector · Housing materials: housing: PBT / connector housing: stainless steel	**IN5327**

Switching cams for sensors with quarter-turn actuators

Type	Description	Order no.
	Target puck · Ø 53 mm · 3 possible switching flag positions · Housing colour: black · Housing materials: Target puck: PA 6 black / screws: V2A	**E17320**
	Target puck · Ø 65 mm · 3 possible switching flag positions · Housing colour: black · Housing materials: Target puck: PA 6 / screws: V2A	**E17327**
	Target puck · Ø 53 mm · Housing materials: Target puck: PA 6 black / Metal parts: stainless steel	**E12517**

Valve sensors for rising stem valves

- **Continuous position feedback for rising stem valves up to 80 mm**
- **Three switching outputs: “open”, “closed” and “seat lift”, optional AS-i.**
- **Resolution of 0.2 mm across the entire measuring range**
- **Simple pushbutton setup and LED feedback**
- **Permanent valve monitoring for condition-based maintenance**

Continuous position feedback on rising stem valves

The efector valvis rising stem valve position sensor is an innovative solution for position feedback of linear valves. The sensor continuously detects the position of rising stem valves with a stroke of up to 80 mm.

It is placed on top of the the valve stem with an adapter. The valve positions “open” and “closed” are set via teach button. The sensor indicates three key positions of the valve: “valve open”, “valve closed” and any intermediate position, e.g. seat lift. efector valvis transmits this information to a controller via switching outputs.

The sensor detects the position of the piston rod with a resolution of 0.2 mm. This eliminates mechanical adjustment and significantly reduces the setup time of a valve.

Single and double seat valves

For double seat valves, efector valvis detects the “open”, “closed” and “seat lift” positions. For single seat valves, the sensor detects the “open” and “closed” positions and provides an additional output for seal contact wear.

Sensors for rising stem valves

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f AC / DC [Hz]	I_{load} AC / DC [mA]	Order no.
Cable with connector 0.3 m · Output function 3 x normally open · DC PNP								
	65 x 52 x 110	–	PA	18...36	IP 65 / IP 67	–	100	**IX5010**

Sensors for rising stem valves, AS-i system

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f AC / DC [Hz]	I_{load} AC / DC [mA]	Order no.
Cable with connector 0.15 m · AS-i								
	65 x 52 x 110	–	PA	26.5...31.6	IP 65 / IP 67	–	–	**IX5030**

Accessories for rising stem valve sensors

Type	Description	Order no.
	Mounting adapter · for Alfa Laval valves type SSV (Single Seat Valves) · accessory for IX5010, IX5030 · Housing materials: adapter: PA / target: stainless steel 316L / 1.4404	**E11900**
	Mounting adapter · for Bardiani valves · accessory for IX5010, IX5030 · Housing materials: adapter: PA / target: stainless steel 316L / 1.4404	**E12170**
	Mounting adapter · for APV/SPX valves · Adapter for APV/SPX valve · Housing materials: target: Stainless steel 303 / fixing plate: stainless steel 303/1.4305 / spacer: POM	**E12411**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5-pole, 5-wire								
	5 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT013**
	5 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT010**

Intelligent incremental encoder with display and IO-Link

- **Resolution of 1...10,000 and signal level (TTL / HTL) freely programmable**
- **Display: Two-colour electronic rotatable display of the process values**
- **Versatile: M12 connector can be used radially or axially**
- **Standard fitting: Solid shaft (clamp / synchro flange) or hollow shaft design**

Motion controller:Encoder, speed / direction monitor and counter all in one

The magnetic sensing principle provides the accuracy of photoelectric encoders and the robustness of magnetic systems.

Resolution and signal level can be programmed. The encoders have a wide voltage range of 4.75...30 V DC and are therefore suited for universal use.

Performance Line encoders have an integrated signal evaluation for speed monitoring, counter functions and detection of the direction of rotation.

They provide easy setting, position indication by means of display and operating keys and intuitive menu navigation.

Diagnostic and parameter data are reliably transferred via IO-Link.

Ready for Industry 4.0.

Encoders with display, programmable via IO-Link or pushbuttons

Type	Resolution	U_b [V]	f [kHz]	I_{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Order no.
Type ROP · M12 connector · stainless steel · DC								
	1...10000	4.75...30	1000	50	12 H7	-40...85	radial / axially	**ROP520**
	1...10000	4.75...30	1000	50	12 H7	-40...85	radial / axially	**ROP521**
Type RVP · M12 connector · stainless steel · DC								
	1...10000	4.75...30	1000	50	10	-40...85	radial / axially	**RVP510**
Type RUP · M12 connector · metal · DC								
	1...10000	4.75...30	1000	50	6	-40...85	radial / axially	**RUP500**

Accessories

Type	Description	Order no.
	Fastening clamp · for solid shaft encoders · Housing materials: steel	**E60041**
	Flexible coupling with clamp connection [KV] · Ø 6 mm / Ø 10 mm · Housing materials: aluminium	**E60066**
	Flexible coupling with clamp connection [KV] · Ø 10 mm / Ø 10 mm · Housing materials: aluminium	**E60067**
	USB IO-Link master · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4.8, 38.4 and 230 Kbits/s) · for operation with FDT framework software “ifm Container” or software “LR SENSOR”	**E30390**
	Memory plug · Parameter memory for IO-Link sensors · Storage capacity: 2 Kbytes · Housing materials: PA PACM 12 / PET / sealing: FPM / nut: stainless steel 316L / 1.4404 / connector: TPU	**E30398**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, screened, screen connected to the socket, 8/7-pole, 8-wire								
	5 m black PUR cable	8 x 0.25 mm²	TPU / Brass	30 AC 36 DC	-25...90	IP 67	–	**E12403**

Compact speed monitors

- **2 in 1: speed sensor and evaluation in one compact housing**
- **Particularly space-saving design**
- **Reduced installation complexity**
- **Easy parameter setting by potentiometer or pushbutton**
- **For direct connection to a PLC**

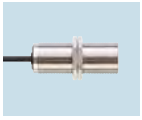
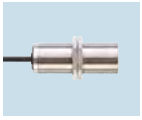
Compact speed monitors

In many industrial applications drives need to be monitored for rotational speed or standstill. In the automotive, food & beverage, steel and mining industries, speed sensors are used to safely detect standstill, overspeed and underspeed of drives or belt break on conveyors.

The compact speed monitors of the DI series integrate rotational speed detection and monitoring in one unit. The sensor head operates using inductive sensing principles. The sensor detects metal actuating surfaces on rotating machine parts, e.g. on toothed wheels or camshafts. The integrated evaluation converts this information into rotational speed.

The target speed is set easily via potentiometer or pushbutton on the unit.

Speed monitor with integrated sensor

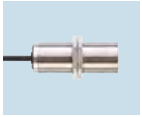
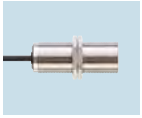
Type	Dimensions [mm]	Sensing range [mm]	Electrical design	U_b [V]	Setting range [puls. / min.]	Start-up delay [s]	Order no.
Type DGA M18 x 1 · M12 connector · high-grade stainless steel							
	M18 / L = 68	12 nf	DC PNP	10...36 DC	3...6000	0...15	**DI6001**
Type DIA M30 x 1.5 · Cable 2 m · metal							
	M30 / L = 80	10 f	DC PNP	10...36 DC	5...3600	15	**DI5020**
	M30 / L = 80	10 f	AC/DC	20...250 AC/DC	5...3600	12	**DI0101***

f = flush / nf = non flush / qf = quasi-flush

*** Note on use of miniature fuses for electrical connection**

Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting)
Recommendation: check the unit for reliable function after a short circuit.

Speed monitors with integrated sensor, ATEX category 3D

Type	Dimensions [mm]	Sensing range [mm]	Electrical design	U_b [V]	Setting range [puls. / min.]	Start-up delay [s]	Order no.
Type DIA M30 x 1.5 · Cable 2 m · metal							
	M30 / L = 80	10 f	DC PNP	10...36 DC	5...3600	15	**DI520A**
	M30 / L = 80	10 f	AC/DC	20...250 AC/DC	5...3600	12	**DI103A***

f = flush / nf = non flush / qf = quasi-flush

*** Note on use of miniature fuses for electrical connection**

Miniature fuse to IEC60127-2 sheet 1, ≤ 2 A (fast acting)
Recommendation: check the unit for reliable function after a short circuit.

Multifunctional displays for digital signals / frequency input

Type	Inputs / outputs	Description	Order no.
AX460 · universal unit for displaying and monitoring analogue signals (e.g. pressure sensors, temperature sensors or flow sensors)			
	2 x analogue in	Digital display · Multi-functional display and evaluation system · for analogue standard signals · Ambient temperature -20...60 °C · screw terminals · Operating voltage 115...230 AC (50...60 Hz) / 18...30 V DC · IP 65	**DX2041**

Evaluation systems

- **Intuitive, user-friendly handling**
- **Integrated wide-range power supply**
- **Easily programmable output functions**
- **Devices for monitoring standstill, speed, direction, slip, and frequency**
- **Switching relays and transistor outputs, scalable analogue output**

Evaluation systems

Pulse evaluation systems monitor rotating and linear movements as well as all physical quantities which can be converted into pulse sequences.Units with different functions allow customised monitoring of slow and fast rotational speeds as well as complex synchronous or direction monitoring.Relay or transistor outputs give a signal if the actual value is above or below the set limit value.

Product selectors and further information can be found at: www.ifm.com

Universal speed monitors

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Order no.
Type FR-1 · dual-chamber terminals 2 x 2.5 mm² (2 x AWG 14) · plastics									
	110...240 AC (50...60 Hz) / 27 DC (typ. 24 DC)	1	PNP / NPN / Namur	1...60000	0.1...1000	1	2	2	**DD2503**

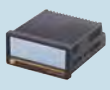
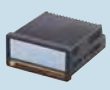
Standard speed monitors / standstill monitor

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Order no.
Type D200 · Unit: 4-pole terminal strips, pin separation 5.0 mm · plastics									
	110...240 AC / 27 (24) DC	1	PNP / NPN / Namur	0.1...10 / 10...1000	–	1	2	2	**DD0203**

Universal speed monitors with sensor wire monitoring

Type	U_b [V]	In-puts	Input function	Setting range [puls. / min.]	Setting range [Hz]	Out-puts analogue	Out-puts relays	Out-puts transist.	Order no.
Type FR-1N · dual-chamber terminals 2 x 2.5 mm² (2 x AWG 14) · plastics									
	110...240 AC (50...60 Hz) / 27 DC (typ. 24 DC)	1	Namur 8.2 V	1...60000	0.1...1000	1	2	2	**DD2603**

Multifunctional displays for digital signals / frequency input

Type	Inputs / outputs	Description	Order no.
AX460 · universal unit for displaying and monitoring analogue signals (e.g. pressure sensors, temperature sensors or flow sensors)			
	2 x analogue in	Digital display · Multi-functional display and evaluation system · for analogue standard signals · Ambient temperature -20...60 °C · screw terminals · Operating voltage 115...230 AC (50...60 Hz) / 18...30 V DC · IP 65	**DX2041**
	2 x analogue in 4 x digital out	Digital display · Multi-functional display and evaluation system · for analogue standard signals · Ambient temperature -20...60 °C · screw terminals · Operating voltage 115...230 AC (50...60 Hz) / 18...30 V DC · IP 65	**DX2042**

Decentralised display, preprocessing and conversion of analogue signals

- **Mini display to monitor values**
- **Clearly visible display with red / green colour change**
- **Compact design with protection rating IP 67**
- **Parameter setting via IO-Link**
- **Conversion of analogue measured values to an IO-Link communication**

Analogue signals at a glance

The compact connector unit is simply inserted in the connection cable of analogue sensors (4...20 mA). It displays the measured values locally.

The user can set a switch point or limit at which the transistor output switches. A colour change (red / green) of the display indicates this unmistakably. Critical process states or operational problems are reliably signalled.

Converter for Industry 4.0

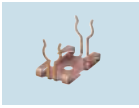
A special feature is the signal conversion: The threshold display converts analogue signals to digital IO-Link signals.

Today they are required in almost any modern industrial environment and for Industry 4.0 applications.

Multifunctional displays for analogue standard signals

Type	Inputs / outputs	Description	Order no.
Decentralised display, preprocessing and conversion of 4...20 mA analogue signals			
	–	Threshold display · 4...20 mA analogue input · transistor output · IO-Link interface · 4-digit alphanumeric display / alternating indication of red and green · Conversion of analogue measured values to an IO-Link communication · Analogue input 4...20 mA · Ambient temperature -25...60 °C · Operating voltage 18...30 V DC · IP 67	**DP2200**

Accessories for rising stem valve sensors

Type	Description	Order no.
	mounting clip · Housing materials: 2.1247	**E89208**
	USB IO-Link master · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4.8, 38.4 and 230 Kbits/s) · for operation with FDT framework software “ifm Container” or software “LR SENSOR”	**E30390**

Software

Type	Description	Order no.
	LR DEVICE (USB stick) · Parameter setting of the units via the network · Software for clear online and offline parameter setting of IO-Link sensors via USB adapter · Use via USB connection cable (drivers are supplied): E30396 IO-Link interface or E30390 IO-Link master (note the respective data sheet) · IODD import and update from ifm's homepage · Reading of IODDs via storage media · Automatic sensor identification · Graphic representation of the process values and history incl. export function · Documentation and archiving · Transferable parameter sets · Full memory plug support for IO-Link 1.1	**QA0011**

Contour sensor efector dualis

- **Object inspection by means of defined shapes and contours**
- **For applications in production and quality control**
- **Robust housing for harsh industrial environments**
- **Wizard for easy parameter setting**

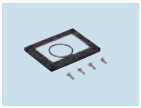
Orientation-independent detection of contours

The contour sensor efector dualis detects shape and object on the basis of their contour. It is ideal in applications where the object's shape is repeatable and defined. Quality control is a typical application. Adjustment with a reference model allows to detect faulty parts or object features and provides one signal per switching output. Fast image capture and evaluation allow precise evaluation even for fast processes or moving parts.

Sensors for object recognition with PNP output function

Type	Operating principle	Max. field of view size [mm]	Resolution [mm]	Detection rate [Hz]	Type of light	Ambient temperature [°C]	Order no.
Type O2D2 · M12 plug, 8 poles · M12 socket, 4 poles · metal · DC · PNP							
	CMOS image sensor B/W, VGA resolution 640 x 480	400 x 300	0.633	10	Infrared	-10...60	**O2D224**
	CMOS image sensor B/W, VGA resolution 640 x 480	640 x 480	1.0	10	Infrared	-10...60	**O2D220**
	CMOS image sensor B/W, VGA resolution 640 x 480	1320 x 945	2.0	10	Infrared	-10...60	**O2D222**

System components

Type	Description	Order no.
	Mounting set · O2D, O2M, O2I, O2V · Clamp mounting · rod mounting Ø 12 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	**E2D110**
	Plastic protective pane for the food industry · O2D / O2I · Housing materials: housing: diecast zinc black / lens: PMMA	**E21166**

Connection cables for 2D and 3D sensors

Type	Description	Order no.
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR / PC	**E11898**
	Socket · angled · Free from silicone · Free from halogen · Gold-plated contacts · M12 connector · 2 m · Housing materials: PUR	**E11231**
	Socket · straight · Free from halogen · M12 connector · 2 m · Housing materials: PUR	**E11950**

Software

Type	Description	Order no.
	Operating software · O2D	**E2D200**

Pixel counter efector dualis

- **Object inspection based on variable features**
- **For applications in production and quality control**
- **CMOS image element and powerful digital signal processor**
- **Robust housing for harsh industrial environments**
- **Wizard for easy parameter setting**

Detection based on variable features

Whereas conventional vision sensors verify components based on defined contours, such as the efector dualis O2D contour sensor, the O2V pixel counter uses variable features for comparison.

Instead of a defined contour the user determines relative features used by the sensor to assess an object or a scene. Within freely selectable tolerances the sensor determines features such as area, size, roundness or compactness of an object.

Grey-scale values can also be used for assessment.

Compact and robust

The pixel counter can solve a variety of error-proofing and inspection applications throughout the complete manufacturing process. It includes evaluation electronics and integrated lighting in a robust die-cast metal housing that withstands harsh environments.

(A) A packing crate is filled in several layers, in this case with packs of chewing gum.

(B) The pixel counter detects if one layer is missing by means of the visible area at the inside of the cardboard box.

Sensors for optical object inspection with PNP switching outputs

Type	Operating principle	Max. field of view size [mm]	Resolution [mm]	Detection rate [Hz]	Type of light	Ambient temperature [°C]	Order no.
Type O2V · M12 plug, 8 poles · M12 socket, 4 poles · metal · DC · PNP							
	CMOS image sensor B/W, VGA resolution 640 x 480	400 x 300	0.633	10	White light	-10...60	**O2V104**
	CMOS image sensor B/W, VGA resolution 640 x 480	400 x 300	0.633	10	Infrared	-10...60	**O2V124**
	CMOS image sensor B/W, VGA resolution 640 x 480	640 x 480	1.0	10	White light	-10...60	**O2V100**
	CMOS image sensor B/W, VGA resolution 640 x 480	640 x 480	1.0	10	Infrared	-10...60	**O2V120**
	CMOS image sensor B/W, VGA resolution 640 x 480	1320 x 945	2.0	10	White light	-10...60	**O2V102**
	CMOS image sensor B/W, VGA resolution 640 x 480	1320 x 945	2.0	10	Infrared	-10...60	**O2V122**

System components

Type	Description	Order no.
	Mounting set · O2D, O2M, O2I, O2V · Clamp mounting · rod mounting Ø 12 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	**E2D110**

Connection cables for 2D and 3D sensors

Type	Description	Order no.
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR / PC	**E11898**
	Socket · angled · Free from silicone · Free from halogen · Gold-plated contacts · M12 connector · 2 m · Housing materials: PUR	**E11231**
	Socket · straight · Free from halogen · M12 connector · 2 m · Housing materials: PUR	**E11950**

Software

Type	Description	Order no.
	Operating software · O2V	**E2V100**

Photoelectric 3D level measurement and point level detection

- Continuous measurement of uneven surfaces
- Determines min, max or mean values
- Teaching of different tank shapes
- Interfering structures are suppressed
- Non-contact detection of opaque media for levels of up to 10 m

IP 65 IP 67 | High-grade stainless steel | Ethernet | EtherNet/IP | IP 69 K | PROFINET

Flexible configuration

The system detects solid, opaque solids and bulk materials in tanks, silos or hoppers with levels of up to 10 m. The O3D reliably detects the load height in machinery for mechanical handling, e.g. belts, and the loading of pallets.

The sensor determines the level via a defined background and transmits the process value via analogue output or digitally and noise immune via the Ethernet process interface. Alternatively, the O3D may be used as a point level switch.

The measuring segment of the sensor can be adapted to the shape of the respective tank. Agitators and other attachments can be suppressed via “exclusion regions”. Various container shapes, such as hoppers, silos or even inclined belts can be recognised by the sensor.

This means that for bulk materials the average level is indicated, even if there are conical heaps or funnelling.

Sensors for 3D object recognition

Type	Operating principle	Resolution (pixels)	Angle of aperture (horizontal x vertical) [°]	Lighting	Max. sampling rate [Hz]	Ambient temperature [°C]	Order no.
3D sensor · Type O3D · M12 connector · metal · DC							
	3D sensor	64 x 48	40 x 30	Infrared LED	25	-10...50	**O3D300**
	3D sensor	64 x 48	60 x 45	Infrared LED	25	-10...50	**O3D302**
	3D sensor	64 x 48	40 x 30	Infrared LED	25	-10...50	**O3D310**
	3D sensor	64 x 48	60 x 45	Infrared LED	25	-10...50	**O3D312**

System components

Type	Description	Order no.
	Mounting set · O3D · Clamp mounting · Type Smart Camera · rod mounting Ø 14 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	**E3D301**

Connection cables for 2D and 3D sensors

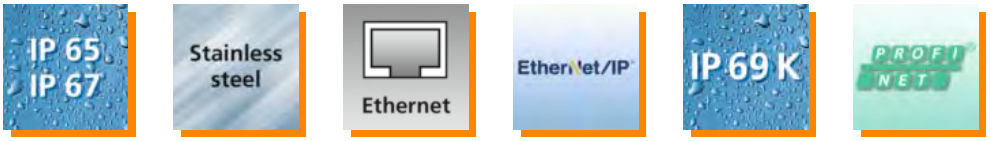
Type	Description	Order no.
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR / PC	**E11898**
	Socket · angled · Free from silicone · Free from halogen · Gold-plated contacts · M12 connector · 2 m · Housing materials: PUR	**E11231**
	Socket · straight · Free from halogen · M12 connector · 2 m · Housing materials: PUR	**E11950**

Software

Type	Description	Order no.
	Operating software for PMD 3D sensor · O3D	**E3D200**

Completeness monitoring for the packaging technology

- Different handling units can be taught
- Reliable detection of underfill or overfill
- Automatic position tracking
- Colour-independent and extraneous-light resistant due to time-of-flight technology (PMD).
- Switching outputs and Ethernet process data interface



Incomplete shipments – never again

If a pallet with only one incomplete handling unit reaches the customer, he often returns all goods. This does not only lead to dissatisfaction but also to additional costs. Completeness monitoring provides the remedy. Often individual sensors are installed above each individual handling unit position. This is, however, not very flexible if the handling unit type or size changes. Then changes become necessary. If colour or texture of the handling units change, conventional sensors reach their limits.

All these problems are unknown to completeness monitoring on the basis of 3D sensors: The 3D sensor looks at the handling unit from above and compares it with the models taught in by the user. It signals any deviation via a switching output.

Continuous exchange with users and extensive handling tests have lead to extraordinarily simple operation and integrability of the sensor.

Sensors for 3D object recognition

Type	Operating principle	Resolution (pixels)	Angle of aperture (horizontal x vertical) [°]	Lighting	Max. sampling rate [Hz]	Ambient temperature [°C]	Order no.
3D sensor · Type O3D · M12 connector · metal · DC							
	3D sensor	64 x 48	40 x 30	Infrared LED	25	-10...50	**O3D300**
	3D sensor	64 x 48	60 x 45	Infrared LED	25	-10...50	**O3D302**
	3D sensor	64 x 48	40 x 30	Infrared LED	25	-10...50	**O3D310**
	3D sensor	64 x 48	60 x 45	Infrared LED	25	-10...50	**O3D312**

System components

Type	Description	Order no.
	Mounting set · O3D · Clamp mounting · Type Smart Camera · rod mounting Ø 14 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	**E3D301**

Connection cables for 2D and 3D sensors

Type	Description	Order no.
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR / PC	**E11898**
	Jumper · straight / straight · Ethernet · Gold-plated contacts · 2 m · Housing materials: TPU	**E21138**
	Socket · straight · Free from halogen · M12 connector · 2 m · Housing materials: PUR	**E11950**

Software

Type	Description	Order no.
	Operating software · O3Mxxx · O3D3xx	**E3D300**

Fail-safe inductive sensors

- **No special key or coded magnet is required as target**
- **High tolerance to misalignment and nuisance tripping**
- **Self-monitoring sensor function**
- **Rated up to SIL 2 or SIL 3 according to IEC 61508**

Safe and sound.

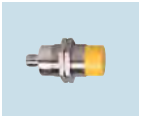
The non-contact fail-safe inductive sensors detect standard targets made of metal such as stainless steel or mild steel. Coded magnets or special mechanical keys are not required as targets. This reduces the installation time considerably and avoids misalignment issues and nuisance tripping. The sensors continuously monitor the sensing window for target position and dwell time. They can be used with all standard safety relays, PLCs and bus systems.

Critical applications

The sensor can be used to monitor safety applications including high-speed door monitoring, open and closed valve position, part presence, lift positions or the travel range of robots and robotic arms.

The ifm fail-safe sensors are installed quickly, no coded target is required. This saves time and money.

Inductive sensors for safety-related applications, 2 x OSSD, SIL 2, PL d

Type	Length [mm]	Enable zone [mm]	Housing material	U_b DC [V]	Protection	Response time in case of a safety request / enable time [ms]	Order no.
M12 connector · Output function 2 x OSSD (A1 and A2) · 4-wire · DC PNP							
	45	0.5...4 nf	High-grade st. steel	24	IP 65 / IP 67	≤ 1 / ≤ 1	**GF711S**
	35	1...8 nf	High-grade st. steel	24	IP 65 / IP 67	≤ 1 / ≤ 1	**GG711S**
	44.5	1...5 f	Brass	24	IP 65 / IP 67	≤ 1 / ≤ 1	**GG712S**
	30	1...15 nf	High-grade st. steel	24	IP 65 / IP 67	≤ 10 / ≤ 1	**GI711S**
	45	1...10 f	High-grade st. steel	24	IP 65 / IP 67	≤ 10 / ≤ 1	**GI712S**

f = flush / nf = non flush / qf = quasi-flush

Inductive sensors for safety-related applications, 2 x OSSD, SIL 3, PL e

Type	Length [mm]	Enable zone [mm]	Housing material	U_b DC [V]	Protection	Response time in case of a safety request / enable time [ms]	Order no.
M12 connector · Output function 2 x OSSD (A1 and A2) · 4-wire · DC PNP							
	39	6...12 nf	High-grade st. steel	24	IP 68 / IP 69K	≤ 50 / ≤ 200	**GI701S**
	66	10...15 nf	PPE	24	IP 65 / IP 67	≤ 50 / ≤ 200	**GM701S**
	66	4...20 nf	PPE	24	IP 65 / IP 67	≤ 50 / ≤ 200	**GM705S**

f = flush / nf = non flush / qf = quasi-flush

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**

Fail-safe inductive sensors

- **No special key or coded magnet is required as target**
- **High tolerance to misalignment and nuisance tripping**
- **Self-monitoring sensor function**
- **Rated up to SIL 2 or SIL 3 according to IEC 61508**

Safe and sound.

The non-contact fail-safe inductive sensors detect standard targets made of metal such as stainless steel or mild steel. Coded magnets or special mechanical keys are not required as targets. This reduces the installation time considerably and avoids misalignment issues and nuisance tripping. The sensors continuously monitor the sensing window for target position and dwell time. They can be used with all standard safety relays, PLCs and bus systems.

Critical applications

The sensor can be used to monitor safety applications including high-speed door monitoring, open and closed valve positions, part presence, escalators and lift position, and the travel range of robots and robotic arms.

Fail-safe inductive sensors to IEC 61508 SIL 3, IEC 62061 SILcl 3 and ISO 13849-1 PL e with the possibility of connection in series

Type	Length [mm]	Enable zone [mm]	Housing material	U_b DC [V]	Protection	Response time in case of a safety request / enable time [ms]	Order no.
M12 connector · Output function Clock signal · 4-wire · DC							
	55	3...6 nf	High-grade st. steel	24	IP 68 / IP 69K	≤ 20 / ≤ 200	**GG505S**
	65	1...4 f	Brass	24	IP 68 / IP 69K	≤ 20 / ≤ 200	**GG507S**
	39	6...12 nf	High-grade st. steel	24	IP 68 / IP 69K	≤ 20 / ≤ 200	**GI505S**
	66	10...15 nf	PPE	24	IP 65 / IP 67	≤ 20 / ≤ 200	**GM504S**
	66	10...20 nf	PPE	24	IP 65 / IP 67	≤ 20 / ≤ 200	**GM505S**

f = flush / nf = non flush / qf = quasi-flush

Accessories

Type	Description	Order no.
	Safety T-splitter · M12 socket - 1 M12 connector / 1 M12 socket · T-piece for the pseudo-serial connection of fail-safe sensors · Housing materials: PUR	**E11569**
	Safety relay · Terminal block Phoenix Contact MSTBO · For the connection of electronic and mechanical fail-safe sensors / switches and for use as two-hand control · Housing materials: PA · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3 · EN 574: type IIIC	**G1501S**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**

Safety light curtains
Hand protection

- **Safety light curtains type 2 and type 4 to IEC 61496**
- **With SIL to IEC 61508 and PL to ISO 13849**
- **Compact housing dimensions (28 x 30 mm), can be installed in L shape without dead band**
- **Up to 12 metre protected area width**
- **Light curtains for hand protection offer protected area heights of 610 to 1210 mm**

Protection for the plant personnel

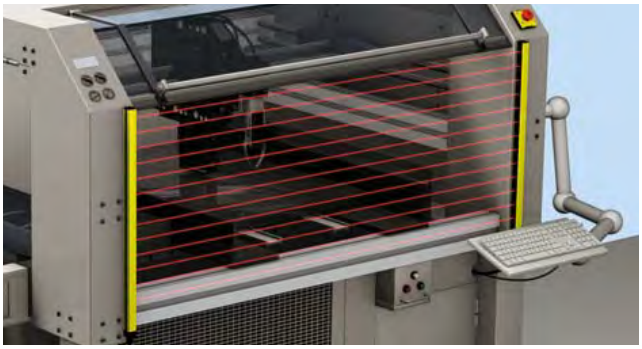
Safety light curtains prevent unsafe access to or reaching inside dangerous machinery and work areas.

They consist of a transmitter 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 broken by intrusion in the sensing field, the light curtain sends a signal to stop the machine.

Point-of-operation guarding

Light curtains can protect an operator from the hazards associated with material positioning, such as on mechanical and hydraulic power presses, moulding presses, stamping, forming and assembly machines.

See www.ifm.com for safety light curtains with additional protected heights and widths.



Safety light curtains type 2, SIL 1, PL c, protected area width up to 12 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U_b [V]	Order no.
M12 connector							
	513	30	460	0...4 / 3...12	8	24	**OY033S**
	963	30	910	0...4 / 3...12	12.5	24	**OY036S**
	1563	30	1510	0...4 / 3...12	19.5	24	**OY040S**
	513	40	460	0...4 / 3...12	6	24	**OY053S**
	963	40	910	0...4 / 3...12	9.5	24	**OY056S**
	1563	40	1510	0...4 / 3...12	13.5	24	**OY060S**

Safety light curtains type 4, SIL 3, PL e, protected area width up to 12 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U_b [V]	Order no.
M12 connector							
	513	30	460	0...4 / 3...12	7.5	24	**OY043S**
	963	30	910	0...4 / 3...12	12	24	**OY046S**
	1563	30	1510	0...4 / 3...12	18.5	24	**OY050S**
	513	40	460	0...4 / 3...12	5.5	24	**OY063S**
	963	40	910	0...4 / 3...12	9	24	**OY066S**
	1563	40	1510	0...4 / 3...12	13	24	**OY070S**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5-pole, 5-wire								
	5 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT010**
Socket M12, 8/7-pole, 8-wire								
	5 m black PUR cable	8 x 0.25 mm²	TPU / Brass	30 AC 36 DC	-40...80	IP 67	–	**E12166**

Safety light curtains
Body protection

- **Safety light curtains type 2 and type 4 to IEC 61496**
- **With SIL to IEC 61508 and PL to ISO 13849**
- **Compact housing dimensions (28 x 30 mm), can be installed in L shape without dead band**
- **Up to 12 metre protected area width**
- **Light curtains for body protection offer protected heights of 610 to 1210 mm**

Protection for the plant personnel

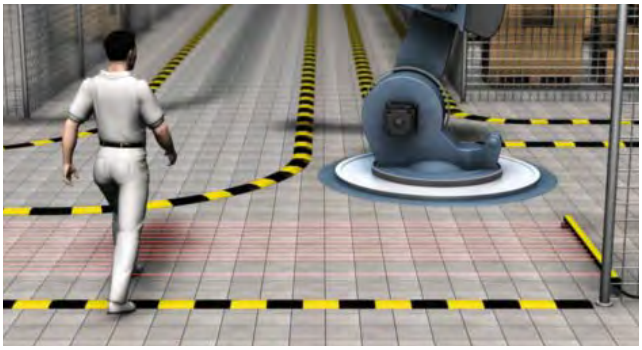
Safety light curtains prevent unsafe access to or reaching inside dangerous machinery and work areas.

They consist of a transmitter 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 broken by intrusion in the sensing field, the light curtain sends a signal to stop the machine.

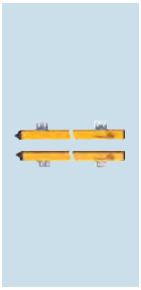
Perimeter guarding

To safeguard a larger area in a plant, light curtains can be placed horizontally along the floor to detect foot traffic of plant personnel.

See www.ifm.com for safety light curtains with additional protected heights and widths.



Safety light curtains type 2, SIL 1, PL c, protected area width up to 12 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U_b [V]	Order no.
M12 connector							
	513	50	460	0...4 / 3...12	5.5	24	**OY073S**
	663	50	610	0...4 / 3...12	6	24	**OY074S**
	963	50	910	0...4 / 3...12	8	24	**OY076S**
	1263	50	1210	0...4 / 3...12	10	24	**OY078S**
	1563	50	1510	0...4 / 3...12	11.5	24	**OY080S**

Safety light curtains type 4, SIL 3, PL e, protected area width up to 12 m

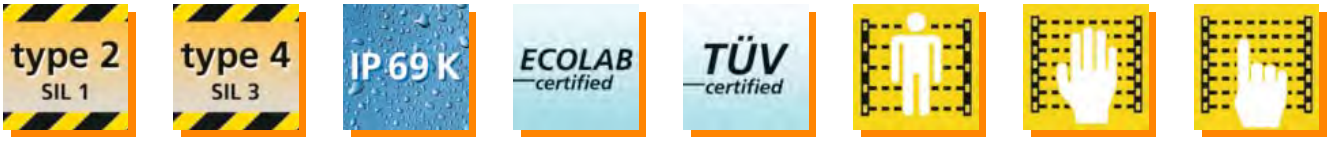
Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U_b [V]	Order no.
M12 connector							
	513	50	460	0...4 / 3...12	4.5	24	**OY083S**
	663	50	610	0...4 / 3...12	5.5	24	**OY084S**
	963	50	910	0...4 / 3...12	7.5	24	**OY086S**
	1263	50	1210	0...4 / 3...12	9	24	**OY088S**
	1563	50	1510	0...4 / 3...12	11	24	**OY090S**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5-pole, 5-wire								
	5 m orange PVC cable	5 x 0.34 mm^2, Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT010**
Socket M12, 8/7-pole, 8-wire								
	5 m black PUR cable	8 x 0.25 mm^2	TPU / Brass	30 AC 36 DC	-40...80	IP 67	–	**E12166**

Safety light curtains for washdown, IP 69K

- Safety light curtains with protection IP 69K
- Resistant to steam and high-pressure cleaning
- With SIL to IEC 61508 and PL to ISO 13849
- Both type 2 / SIL 1 and type 4 / SIL 3 versions available
- Up to 15 metre protected area width



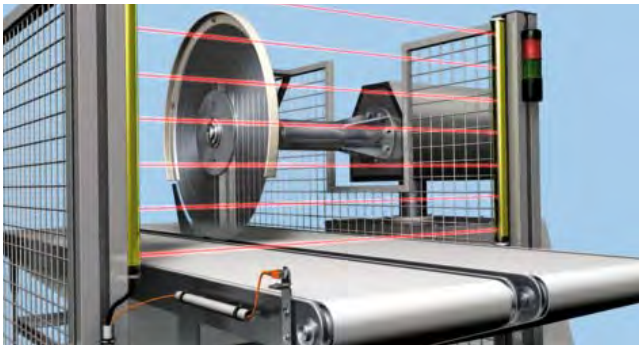
Hygienic design

The new safety light curtains with protective tube and protection rating IP 69K are designed without corners and edges. They can be used for perimeter guarding, access prevention and point-of-operation guarding. The safety light curtains are housed in a hygienic PMMA transparent tubing with IP 69K protection rating. They are thus resistant to high-pressure and steam cleaning.

Features:

- A heater element coupled with sealing O-rings prevents moisture build-up inside the tubing
- Highly-visible LEDs provide status, setup and trouble-shooting indication
- Easy installation using integrated slots
- Delivered fully assembled – this reduces the installation costs

See www.ifm.com for safety light curtains with additional protected heights and widths.



Safety light curtains type 4, SIL 3, PL e, protected area width up to 5 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U_b [V]	Order no.
Cable 15 m							
	637	14	460	0...2 / 1...5	7.5	24	**OY403S**
	937	14	760	0...2 / 1...5	11	24	**OY405S**
	1237	14	1060	0...2 / 1...5	14.5	24	**OY407S**

Safety light curtains type 4, SIL 3, PL e, protected area width up to 15 m

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U_b [V]	Order no.
Cable 15 m							
	337	30	160	0...7 / 3...15	3	24	**OY441S**
	487	30	310	0...7 / 3...15	4	24	**OY442S**
	637	30	460	0...7 / 3...15	5	24	**OY443S**
	787	30	610	0...7 / 3...15	6	24	**OY444S**
	937	30	760	0...7 / 3...15	6.5	24	**OY445S**
	1087	30	910	0...7 / 3...15	7.5	24	**OY446S**
	1237	30	1060	0...7 / 3...15	8.5	24	**OY447S**
	1387	30	1210	0...7 / 3...15	9.5	24	**OY448S**
	1537	30	1360	0...7 / 3...15	10	24	**OY449S**
	1687	30	1510	0...3 / 2...10	19.5	24	**OY440S**
	1687	30	1510	0...7 / 3...15	11	24	**OY450S**

Safety relays for safety light curtains / safety lights grids

Type	Description	Order no.
	Safety relay · Muting relay · Housing for DIN rail mounting · For the connection of safety light curtains / safety light grids with OSSD · Safety category type 4 to IEC 61496 · for industrial applications · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	**G2001S**

Safety light grid
Body protection

- **Type 2 and type 4 safety light curtains to IEC 61496**
- **With SIL to IEC 61508 and PL to ISO 13849**
- **Compact housing dimensions (28 x 30 mm), can be installed in L shape without dead band**
- **Up to 12 metre protected area width**
- **2-, 3- or 4-beam versions available**

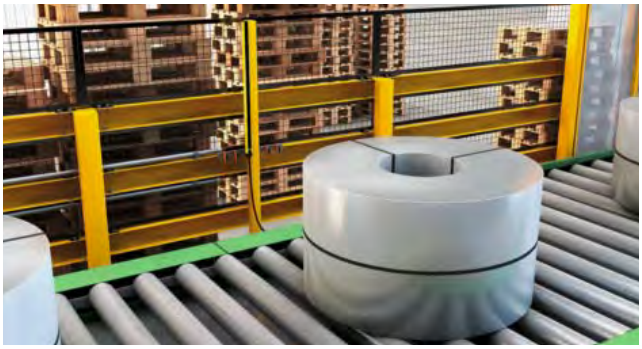
Protection for the plant personnel

Safety light grids prevent unsafe access to or reaching inside dangerous machinery and work areas.

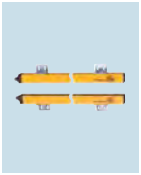
They consist of a transmitter and receiver pair that create a multi-beam barrier of infrared light in front of, or around, a hazardous area. When any of the beams are broken by intrusion in the sensing field, the light grid sends a signal to stop the machine.

If the area is to be protected from several sides, corner mirrors can be used.

See www.ifm.com for safety light grids with additional protected heights and widths.



Safety light grids type 2, SIL 1, PL c, 2, 3, 4 beams, protected area width up to 12 m

Type	Dimensions [mm]	Number of beams	Protected area height [mm]	Protected area width [m]	Response time [ms]	U_b [V]	Order no.
M12 connector							
	L x 28 x 30	2	510	0...4 / 3...12	3	24	**OY111S**
	L x 28 x 30	3	810	0...4 / 3...12	3.5	24	**OY112S**
	L x 28 x 30	4	910	0...4 / 3...12	3.5	24	**OY113S**

Safety light grids type 4, SIL 3, PL e, 2, 3, 4 beams, protected area width up to 12 m

Type	Dimensions [mm]	Number of beams	Protected area height [mm]	Protected area width [m]	Response time [ms]	U_b [V]	Order no.
M12 connector							
	L x 28 x 30	2	510	0...4 / 3...12	2.5	24	**OY114S**
	L x 28 x 30	3	810	0...4 / 3...12	3	24	**OY115S**
	L x 28 x 30	4	910	0...4 / 3...12	3	24	**OY116S**

Safety relays for safety light curtains / safety lights grids

Type	Description	Order no.
	Safety relay · Muting relay · Housing for DIN rail mounting · For the connection of safety light curtains / safety light grids with OSSD · Safety category type 4 to IEC 61496 · for industrial applications · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	**G2001S**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5-pole, 5-wire								
	5 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT010**
	5 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT013**
Socket M12, 8/7-pole, 8-wire								
	5 m black PUR cable	8 x 0.25 mm²	TPU / Brass	30 AC 36 DC	-40...80	IP 68	–	**E12168**
	5 m black PUR cable	8 x 0.25 mm²	TPU / Brass	30 AC 36 DC	-40...80	IP 67	–	**E12166**

Safety light grid for washdown, IP 69K

- **Safety light grid with IP 69K protection rating**
- **Resistant to steam and high-pressure cleaning**
- **SIL to IEC 61508 and PL to ISO 13849**
- **Both type 2 / SIL 1 and type 4 / SIL 3 versions available**
- **Up to 15 metre protected area width**

Hygienic design

The new safety light grids with protective tube and IP 69K protection rating are designed without corners and edges. They can be used for perimeter guarding, access prevention and point-of-operation guarding. The safety light grids are housed in a hygienic PMMA transparent tubing with IP 69K protection rating. They are thus resistant to high-pressure and steam cleaning.

Features:

- A heater element coupled with sealing O-rings prevents moisture build-up inside the tubing
- Highly-visible LEDs provide status, setup and troubleshooting indication
- Easy installation using integrated slots
- Delivered fully assembled – this reduces the installation costs

See www.ifm.com for safety light grids with additional protected heights and widths.

Safety light grids type 2, SIL 1, PL c, 2, 3, 4 beams, protected area width up to 10 m

Type	Dimensions [mm]	Number of beams	Protected area height [mm]	Protected area width [m]	Response time [ms]	U_b [V]	Order no.
Cable 15 m							
	L x 76 x 74	2	510	0...3 / 2...10	3	24	**OY411S**
	L x 76 x 74	3	810	0...3 / 2...10	3.5	24	**OY412S**
	L x 76 x 74	4	910	0...3 / 2...10	3.5	24	**OY413S**

Safety light grids type 4, SIL 3, PL e, 2, 3, 4 beams, protected area width up to 15 m

Type	Dimensions [mm]	Number of beams	Protected area height [mm]	Protected area width [m]	Response time [ms]	U_b [V]	Order no.
Cable 15 m							
	L x 76 x 74	2	510	0...7 / 3...15	2.5	24	**OY421S**
	L x 76 x 74	3	810	0...7 / 3...15	2.5	24	**OY422S**
	L x 76 x 74	4	910	0...7 / 3...15	2.5	24	**OY423S**

Accessories

Type	Description	Order no.
	Safety relay · Terminal block Phoenix Contact MSTBO · For the connection of electronic and mechanical fail-safe sensors / switches and for use as two-hand control · Housing materials: PA · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3 · EN 574: type IIIC	**G1501S**
	Safety relay · Terminal block Phoenix Contact MSTBO · For the connection of electronic and mechanical fail-safe sensors/switches and for use as two-hand control · Housing materials: PA · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3 · EN 574: type IIIC	**G1502S**
	Safety relay · Muting relay · Housing for DIN rail mounting · For the connection of safety light curtains / safety light grids with OSSD · Safety category type 4 to IEC 61496 · for industrial applications · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	**G2001S**
	Safe active AS-i output module · SIL 3 to EN 62061, IEC 61508 / SIL 3 and EN ISO 13849 - 1 / PL e · for the safe triggering of actuators · Combicon connection · Housing materials: PA · Complies with the requirements: · ISO 13849-1: PL e · IEC 61508: SIL 3	**AC030S**

Safety relays

- **Multifunctionality reduces the number of versions and thus stock levels**
- **Combines cross-fault monitoring and simultaneous monitoring**
- **Connects two-hand controls, light curtains and protective guards**
- **Two normally-open safety contacts are rated for up to 6 A load current**
- **Auxiliary output for feedback to the PLC**

type 4
SIL 3

TÜV certified

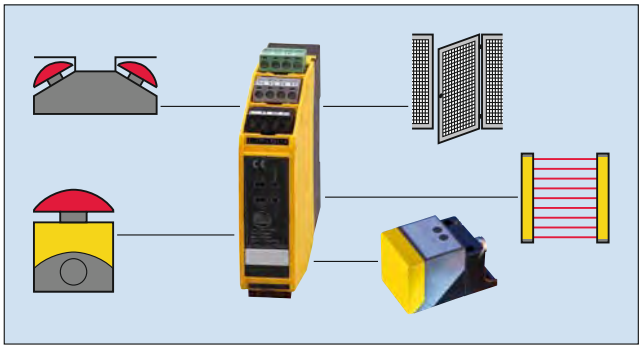
Multifunctionality reduces stock levels

The multifunction relays are compatible with the standard safety relays for the industry. They connect single or dual channel emergency stops, mechanical safety switches, transistor-based safety devices, light curtains, two-hand controls and fail-safe inductive sensors.

All this protective equipment can be monitored with only one safety relay. The benefit is a large reduction in stock levels that eliminates the need for different types of safety relays for various applications.

The G1501S features a selectable "monitor" or "automatic" reset. Two normally-open safety contacts are rated for up to 6 A. A solid state auxiliary non-safety output is designed to provide the status of the safety contacts. Dual channel ESPE's can be configured to monitor simultaneous logic and cross-fault detection across the inputs.

ifm's safety relay is certified to IEC 61508, EN 954-1, EN 574 type IIIC.



Different ESPE's can be connected to the safety relay.

Safety relays with relay outputs for fail-safe sensors

Type	Description	Order no.
	Safety relay · Terminal block Phoenix Contact MSTBO · For the connection of electronic and mechanical fail-safe sensors/ switches and for use as two-hand control · Housing materials: PA · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3 · EN 574: type IIIC	**G1501S**
	Safety relay · Terminal block Phoenix Contact MSTBO · For the connection of electronic and mechanical fail-safe sensors/switches and for use as two-hand control · Housing materials: PA · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3 · EN 574: type IIIC	**G1502S**

Safety relays with solid state outputs for fail-safe sensors

Type	Description	Order no.
	Safety relay · Terminal block Phoenix Contact MSTBO · For the connection of electronic and mechanical fail-safe sensors/switches and for use as two-hand control · Housing materials: PA · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3 · EN 574: type IIIC	**G1503S**

Safety relays for safety light curtains / safety lights grids

Type	Description	Order no.
	Safety relay · Muting relay · Housing for DIN rail mounting · For the connection of safety light curtains / safety light grids with OSSD · Safety category type 4 to IEC 61496 · for industrial applications · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	**G2001S**

2-wire pressure sensor with display, stainless steel, Aseptoflex Vario process connection

- **High-grade stainless steel housing for hygienic applications, level and pressure measurement**
- **2-wire transmitter for simplified wiring and retrofitting**
- **Big 4-digit alphanumeric display for measured values.**
- **High overall accuracy (0.2 %) and electronic temperature compensation**
- **High temperature resistance, therefore suitable for SIP and CIP processes**

100 % stainless steel housing – ingress-resistant and robust

The new PI27 series pressure transmitters are 2-wire units with a clearly readable 4-digit LED display constantly showing the measured value. The robust high-grade stainless steel housing has been optimised for hygienic applications, e.g. for monitoring levels in tanks or for pressure measurement in pipe systems.

The completely-welded housing with protection rating IP 69K prevents seepage from aggressive cleaning agents and withstands harsh washdown conditions. The sensor vent contains a Gore-Tex® membrane which itself resists high-pressure cleaning and is resistant to aggressive cleaning agents.

A variety of process adapters allows easy integration into the application. The Aseptoflex adapters feature PEEK and Viton sealing for food and beverage applications. These materials provide long-term sealing and are particularly resistant to swelling and aggressive chemicals.

Product selectors and further information can be found at: www.ifm.com

Flush pressure sensors with switching and analogue output, IO-Link

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
M12 connector · Output function 1 x normally open / normally closed programmable + 1 x normally open / normally closed programmable or 1 x analogue (4...20 / 20...4 mA, scalable)							
	Aseptoflex Vario	Display unit	-0.005...0.1	4	30	20...32	**PI2789**
	Aseptoflex Vario	Display unit	-0.0124...0.25	10	30	20...32	**PI2798**
	Aseptoflex Vario	Display unit	-0.05...1	10	30	20...32	**PI2797**
	Aseptoflex Vario	Display unit	-0.124...2.5	20	50	20...32	**PI2796**
	Aseptoflex Vario	Display unit	-1...25	100	350	20...32	**PI2793**
	Aseptoflex Vario	Display unit	-1...10	50	150	20...32	**PI2794**
	Aseptoflex Vario	Display unit	-1...4	30	100	20...32	**PI2795**
	Aseptoflex Vario	Display unit	-1...1	10	30	20...32	**PI2799**

Adapters

Type	Description	Order no.
	Clamp adapter · with leakage port · Clamp · 1-1.5" · with sealing ring · ISO 2852 · for units with Aseptoflex Vario adapter · Housing materials: stainless steel 316L / 1.4435	**E33208**
	Aseptoflex Vario adapter · with leakage port · Clamp · 2" · with sealing ring · ISO 2852 · for units with Aseptoflex Vario adapter · Housing materials: stainless steel 316L / 1.4435	**E33209**
	Welding adapter · Ø 50 mm · with leakage port · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	**E30130**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF005**

Further adapters from page 296

2-wire pressure sensor with display, stainless steel, G1A process connection

- **High-grade stainless steel housing for hygienic applications, level and pressure measurement**
- **2-wire transmitter for simplified wiring and retrofitting**
- **Big 4-digit alphanumeric display for measured values.**
- **High overall accuracy (0.2 %) and electronic temperature compensation**
- **High temperature resistance, therefore suitable for SIP and CIP processes**

EHEDG | FDA | IP 67 IP 69 K | High-grade stainless steel | IO-Link | CIP/SIP | LED Display

100 % stainless steel housing – ingress-resistant and robust

The new PI28 series pressure transmitters are 2-wire units with a clearly readable 4-digit LED display constantly showing the measured value. The robust high-grade stainless steel housing has been optimised for hygienic applications, e.g. for monitoring levels in tanks or for pressure measurement in pipe systems.

The completely-welded housing with protection rating IP 69K prevents seepage from aggressive cleaning agents and withstands harsh washdown conditions. The sensor vent contains a Gore-Tex® membrane which itself resists high-pressure cleaning and is resistant to aggressive cleaning agents.

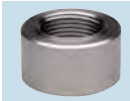
A variety of G1 process adapters allows easy integration into the application.

Flush pressure sensors with switching and analogue output, IO-Link

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
M12 connector · Output function 1 x normally open / normally closed programmable + 1 x normally open / normally closed programmable or 1 x analogue (4...20 / 20...4 mA, scalable)							
	Sealing cone G1 male	Display unit	-1...25	100	350	20...32	**PI2893***
	Sealing cone G1 male	Display unit	-1...10	50	150	20...32	**PI2894***
	Sealing cone G1 male	Display unit	-1...4	30	100	20...32	**PI2895***
	Sealing cone G1 male	Display unit	-0.124...2.5	20	50	20...32	**PI2896***
	Sealing cone G1 male	Display unit	-0.05...1	10	30	20...32	**PI2897***
	Sealing cone G1 male	Display unit	-0.0124...0.25	10	30	20...32	**PI2898***
	Sealing cone G1 male	Display unit	-1...1	10	30	20...32	**PI2899***
	Sealing cone G1 male	Display unit	-0.005...0.1	4	30	20...32	**PI2889***

* Attention: The unit must only be installed in a process connection for G1 sealing cone!
The G1 male sealing cone of the unit is only suited for adapters with metal end stop!

Adapters

Type	Description	Order no.
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 · for units with G 1 adaptation · Housing materials: stainless steel 316L / 1.4435	**E33601**
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN40 (1.5") · DIN 11851 · for units with G 1 adaptation · Housing materials: stainless steel 316L / 1.4435	**E33612**
	Clamp adapter · Varivent Adapter · Varivent type N · DN40...DN150 (1.5...6"), D = 68 · for units with G 1 adaptation · Housing materials: stainless steel 316L / 1.4435	**E33622**
	Welding adapter · G 1 - Ø 50 mm · Housing materials: stainless steel 316L / 1.4404	**E30013**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF005**

Further adapters from page 296

2-wire pressure sensor with display, stainless steel, 1.5" and 2" clamp process connection

- **Pressure monitoring in the temperature range from -25 to 200 °C**
- **Integrated 1.5" or 2" clamp diaphragm seal with stainless steel membrane**
- **All wetted parts made of stainless steel**
- **Programmable analogue output in 2-wire operation and display**
- **6-point factory calibration certificate supplied**

100 % stainless steel housing – ingress-resistant and robust

The PI22/PI23 series pressure sensors are designed for high-temperature applications as can among others be found in UHT plants (ultra high temperature).

The pressure sensors with clearly visible LED display can not only be connected as 3- or 4-wire units but also as loop-powered 2-wire units. This reduces the wiring complexity in new installations and facilitates exchange in existing 2-wire connections.

The parameters can either be set via the buttons on the sensor or via IO-Link interface: via USB IO-Link master, PLC or memory plug.

Full-metal high-temperature sensors up to 200 °C for hygienic and wet areas with switching output and analogue output, IO-Link

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
M12 connector · Output function 1 x normally open / normally closed programmable + 1 x normally open / normally closed programmable or 1 x analogue (4...20 / 20...4 mA, scalable)							
	Clamp DN 38 / 1½"	Display unit	-1...25	80	150	20...32	**PI2203**
	Clamp DN 38 / 1½"	Display unit	-1...10	50	100	20...32	**PI2204**
	Clamp DN 38 / 1½"	Display unit	-1...4	30	50	20...32	**PI2205**
	Clamp DN 38 / 1½"	Display unit	-0.124...2.5	20	50	20...32	**PI2206**
	Clamp DN 38 / 1½"	Display unit	-0.05...1	10	30	20...32	**PI2207**
	Clamp DN 38 / 1½"	Display unit	-1...1	10	30	20...32	**PI2209**
	Clamp DN 51 / 2"	Display unit	-1...25	80	150	20...32	**PI2303**
	Clamp DN 51 / 2"	Display unit	-1...10	50	100	20...32	**PI2304**
	Clamp DN 51 / 2"	Display unit	-1...4	30	50	20...32	**PI2305**
	Clamp DN 51 / 2"	Display unit	-0.124...2.5	20	50	20...32	**PI2306**
	Clamp DN 51 / 2"	Display unit	-0.05...1	10	30	20...32	**PI2307**
	Clamp DN 51 / 2"	Display unit	-1...1	10	30	20...32	**PI2309**

Adapters

Type	Description	Order no.
	IO-Link interface · for parameter setting and analysis of units with max. 65 mA current consumption · Supported communication protocols: IO-Link (4800 and 38400 bits/s) EPS protocol (19200 bits/s) · for operation with FDT framework software "ifm Container" or software "LR SENSOR"	**E30396**
	Memory plug · Parameter memory for IO-Link sensors · Storage capacity: 2 Kbytes · Housing materials: PA PACM 12 / PET / sealing: FPM / nut: stainless steel 316L / 1.4404 / connector: TPU	**E30398**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF005**

Further adapters from page 296

PM pressure transmitters

- **0.2 % accuracy**
- **Overload-resistant ceramic-capacitive measuring cell with good long-term stability**
- **Factory certificate for download free of charge**
- **Rear hexagonal nut for easy installation in tanks with double-walled and blind fittings**
- **Zero point calibration via teach button or IO-Link**

IO-Link · IP 67 IP 68 IP 69 K · EHEDG · FDA · 3A · EC 1935/2004

High accuracy

The new PM type pressure transmitter has a total accuracy of 0.2 %.

Furthermore, temperature compensation with fast temperature changes (e.g. in CIP/SIP processes) has been improved considerably. The sensor is therefore suitable for all common food applications.

Free factory certificate

For every PM pressure sensor a factory certificate can be downloaded free at www.factory-certificate.ifm. This allows easy access even after the sensor has been bought.

Flexible fitting

ifm offers all common process connections (e.g. welding adapter, Tri Clamp, Varivent, etc.) as accessories for the adapter threads G1 sealing cone and G1 Aseptoflex Vario of the PM pressure sensor.

Pressure transmitters

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
M12 connector · 2-wire DC; 3-wire DC							
	Aseptoflex Vario	–	-1...25	100	350	18...30	**PM1703**
	Aseptoflex Vario	–	-1...16	75	250	18...30	**PM1714**
	Aseptoflex Vario	–	–	50	150	18...30	**PM1704**
	Aseptoflex Vario	–	-1...6	30	100	18...30	**PM1715**
	Aseptoflex Vario	–	-1...4	30	100	18...30	**PM1705**
	Aseptoflex Vario	–	-0.125...2.5	20	50	18...30	**PM1706**
	Aseptoflex Vario	–	-0.05...1	10	30	18...30	**PM1707**
	Aseptoflex Vario	–	-1...1	10	30	18...30	**PM1709**
	Aseptoflex Vario	–	-0.0125...0.25	10	30	18...30	**PM1708**
	Aseptoflex Vario	–	–	4	30	18...30	**PM1789**

Software

Type	Description	Order no.
	LR DEVICE (USB stick) · Parameter setting of the units via the network · Software for clear online and offline parameter setting of IO-Link sensors via USB adapter · Use via USB connection cable (drivers are supplied): E30396 IO-Link interface or E30390 IO-Link master (note the respective data sheet) · IODD import and update from ifm's homepage · Reading of IODDs via storage media · Automatic sensor identification · Graphic representation of the process values and history incl. export function · Documentation and archiving · Transferable parameter sets · Full memory plug support for IO-Link 1.1	**QA0011**

Fully electronic contact manometer
Aseptoflex Vario process connection

- 3-in-1: Transmitter, switch and manometer
- Optimum readability by pointer and digital measured value display
- Rotatable display with LED bar graph and switch point indication
- The pointer is driven by a stepper motor and does not require any damping liquid
- Easy mounting and parameter setting by means of optical touch buttons

Pressure transmitter, pressure switch and convenient manometer display in one housing.

The PG series electronic "contact manometer" combines the high visibility of a manometer display with the advantages of an electronic pressure sensor. Compared to mechanical contact manometers it features more varied options. The manometer display is enhanced with a ring of LEDs that can either indicate the position of the set point and the reset point or follow the position of the pointer needle (trend display). An LED display helps with the setting and also serves as digital display of measured values.

Setting is made via two optical touch fields behind the front glass. Advantage: Cavities such as those found on mechanical switches are avoided, and thus liquid ingress is prevented.

The pointer is driven by a stepper motor. This avoids the typical oscillation that occurs with mechanical pointers.

The permissible medium temperature range is from -25...125 °C (145 °C for max. 1 hour). The high accuracy is 0.2 %. The fully electronic contact manometer provides high overload resistance as well as an integrated temperature compensation.

Product selectors and further information can be found at: www.ifm.com

Electronic contact manometers with switching output and analogue output

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
M12 connector · Output function 1 x normally open / closed programmable + 1 x analogue (4...20 / 20...4 mA, scalable) · DC PNP/NPN							
	Aseptoflex Vario	Display unit	-0.005...0.1	4	30	18...32	**PG2789**
	Aseptoflex Vario	Display unit	-0.0124...0.25	10	30	18...32	**PG2798**
	Aseptoflex Vario	Display unit	-0.05...1	10	30	18...32	**PG2797**
	Aseptoflex Vario	Display unit	-0.124...2.5	20	50	18...32	**PG2796**
	Aseptoflex Vario	Display unit	-1...25	100	350	18...32	**PG2793**
	Aseptoflex Vario	Display unit	-1...10	50	150	18...32	**PG2794**
	Aseptoflex Vario	Display unit	-1...4	30	100	18...32	**PG2795**
	Aseptoflex Vario	Display unit	-1...1	10	30	18...32	**PG2799**

Adapters

Type	Description	Order no.
	Clamp adapter · with leakage port · Clamp · 1-1.5" · with sealing ring · ISO 2852 · for units with Aseptoflex Vario adapter · Housing materials: stainless steel 316L / 1.4435	**E33208**
	Aseptoflex Vario adapter · with leakage port · Clamp · 2" · with sealing ring · ISO 2852 · for units with Aseptoflex Vario adapter · Housing materials: stainless steel 316L / 1.4435	**E33209**
	Welding adapter · Ø 50 mm · with leakage port · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	**E30130**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**

Further adapters from page 296

Fully electronic contact manometer
G 1 male connection

- 3-in-1: Transmitter, switch and manometer
- Optimum readability by pointer and digital measured value display
- Rotatable display with LED bar graph and switch point indication
- The pointer is driven by a stepper motor and does not require any damping liquid
- Easy mounting and parameter setting by means of optical touch buttons

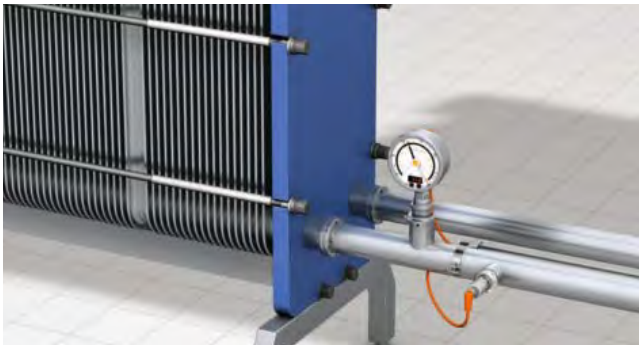
Pressure transmitter, pressure switch and convenient manometer display in one housing.

The fully electronic contact manometer is integrated in pipes and serves as clearly visible display of the process conditions. The manometer display is enhanced with a ring of LEDs that can either indicate the position of the set point and the reset point or follow the position of the pointer needle (trend display). An LED display helps with the setting and also serves as digital display of measured values.

Setting is made via two optical touch fields behind the front glass. Advantage: Cavities such as those found on mechanical switches are avoided, and thus liquid ingress is prevented.

The pointer is driven by a stepper motor. This avoids the typical oscillation that occurs with mechanical pointers.

The permissible medium temperature range is from -25...125 °C (145 °C for max. 1 hour). The high accuracy is 0.2 %. The fully electronic contact manometer provides high overload resistance as well as an integrated temperature compensation.



Electronic contact manometers with switching output and analogue output

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
M12 connector · Output function 1 x normally open / closed programmable + 1 x analogue (4...20 / 20...4 mA, scalable)							
	Sealing cone G1 male	Display unit	-1...25	100	350	18...32	**PG2893***
	Sealing cone G1 male	Display unit	-1...10	50	150	18...32	**PG2894***
	Sealing cone G1 male	Display unit	-1...4	30	100	18...32	**PG2895***
	Sealing cone G1 male	Display unit	-0.124...2.5	20	50	18...32	**PG2896***
	Sealing cone G1 male	Display unit	-0.05...1	10	30	18...32	**PG2897***
	Sealing cone G1 male	Display unit	-0.0124...0.25	10	30	18...32	**PG2898***
	Sealing cone G1 male	Display unit	-1...1	10	30	18...32	**PG2899***
	Sealing cone G1 male	Display unit	-0.005...0.1	4	30	18...32	**PG2889***

* Attention: The unit must only be installed in a process connection for G1 sealing cone!
The G1 male sealing cone of the unit is only suited for adapters with metal end stop!

Adapters

Type	Description	Order no.
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 · for units with G 1 adaptation · Housing materials: stainless steel 316L / 1.4435	**E33601**
	Pipe fitting · Hygienic pipe fitting · Hygienic pipe fitting · DN40 (1.5") · DIN 11851 · for units with G 1 adaptation · Housing materials: stainless steel 316L / 1.4435	**E33612**
	Clamp adapter · Varivent Adapter · Varivent type N · DN40...DN150 (1.5...6"), D = 68 · for units with G 1 adaptation · Housing materials: stainless steel 316L / 1.4435	**E33622**
	Welding adapter · G 1 - Ø 50 mm · Housing materials: stainless steel 316L / 1.4404	**E30013**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**

Further adapters from page 296

Pressure sensors especially for homogenisers

- **Optimised for the monitoring of homogeniser processes**
- **Easy parameter setting via pushbuttons**
- **Flexible thanks to configurable switching and analogue outputs**
- **The integrated display does not require any reference display**
- **Long-term stability thanks to ceramic measuring cell**

Precise monitoring of homogeniser processes

Homogenisers are used to emulsify two liquids or to spread solids evenly in a liquid. This improves stability and other characteristics of the product.

In the dairy industry, the product is pumped into a homogeniser and, under very high pressure, pushed through small screens. This breaks up the fat globules in the milk and creates a consistent homogeneous mixture.

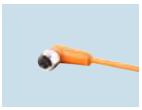
For reproducible process results the pressure during homogenising must be monitored and controlled with precision. These pressure sensors have been designed especially for this purpose.

PY9970 is fitted with a mounting block and a diaphragm seal filled with an FDA-approved fluid. The PY9000 however can be mounted via a connection already existing on the homogeniser.

Pressure sensors for homogenisers

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
M12 connector · Output function 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x analogue (4...20 mA / 0...10 V; scaleable 1:4)							
	–	Display unit	0...400	600	1000	20...32	**PY9970**
	Clamp fitting	Display unit	0...600	800	1200	20...30	**PY9000**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT002**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT005**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF001**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF004**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF005**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF002**

Pressure sensors – Type PN with digital display

- **Clearly indicate the acceptable ranges: programmable red / green display**
- **The process connection can be rotated for optimum alignment**
- **Intuitive, user-friendly handling**
- **Clearly visible indication of the switching status**
- **Permanently legible laser type label**

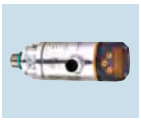
PN series with digital display

The pressure sensors of the PN series are characterised by a modern and user-friendly design. The maximum robustness, high protection rating and captive laser labelling ensure reliable operation of the sensors even in in harsh industrial environments. The ceramic-capacitive measuring principle with a special support of the measuring diaphragm makes the sensors immune to overload operation and high pressure peaks, ensuring outstanding long-term stability.

Set-up, maintenance and operation are facilitated by a 4-digit LED display, which is visible from all sides even at greater distances, and two switching status LEDs on the sensor head. The display can be switched from the indication of "red" to an alternating indication of "red – green". So, switching states can be highlighted or an independent colour window can be created.

The screwed-on sensor can be rotated in any direction. Mounting brackets, which can be obtained as an option, allow installation in any position.

Sensors with switching and analogue outputs, display and IO-Link

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
M12 connector · Output function 2 x normally open / closed programmable							
	G ¼ female	Display unit	-1...10	75	150	18...30	**PN7094**
	G ¼ female	Display unit	0...2.5	20	50	18...30	**PN7096**
	G ¼ female	Display unit	-1...1	20	50	18...30	**PN7099**
	G ¼ female	Display unit	0...1	10	30	18...30	**PN7097**
	G ¼ male / M5 female	Display unit	-1...10	75	150	18...30	**PN7594**

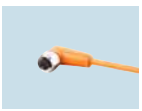
Sensors with switching outputs and display with IO-Link

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
M12 connector · Output function 2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x analogue (4...20 mA / 0...10 V; scaleable 1:5)							
	G ¼ female	Display unit	-1...10	75	150	18...30	**PN2094**
	G ¼ female	Display unit	-0.125...2.5	20	50	18...30	**PN2096**
	G ¼ female	Display unit	-1...1	20	50	18...30	**PN2099**
	G ¼ female	Display unit	-0.05...1	10	30	18...30	**PN2097**
	G ¼ male / M5 female	Display unit	-1...10	75	150	18...30	**PN2594**

Accessories

Type	Description	Order no.
	Protective cover · for fluid sensors with M12 connector · Housing materials: Polypropylene homopolymer	**E30420**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**

IO-Link displays: process values at a glance

- **Plug & play process value display for ifm IO-Link sensors**
- **Display for freely defined texts, measured values and messages**
- **Up to four process values / texts with unit and description**
- **Two clearly visible LEDs**
- **Easy integration into each IO-Link structure**

More plant transparency

The two IO-Link displays are a flexible solution to display process conditions and messages in plant modules or small plants.

Integration and function

The E30391 IO-Link display is controlled by a PLC via IO-Link. It displays process values, freely defined texts, messages, and QR codes. Clear text and a colour change of text and background guarantee a quick overview. By means of buttons the user can trigger control actions of the PLC or acknowledge messages.

The E30430 IO-Link inline display is installed between sensor and IO-Link master. It receives process values directly from the sensor. No PLC programming is required. It displays up to four process values and two switching states. For ifm units operated in the IO-Link mode, it is a plug & play solution.

Alternatively, texts and settings can be predetermined via an IO-Link device tool such as LR DEVICE.

IO-Link displays

Type	Description	Order no.
	IO-Link display unit · Connector · Housing materials: stainless steel / PC / PBT-GF 30 / PPS / FKM / PA66 GF30	**E30391**
	IO-Link display unit · IO-Link inline display for visualising process data of a connected IO-Link sensor; plug & play for ifm devices; internal updatable ifm device catalogue · Connector · Housing materials: stainless steel / PC / PBT-GF 30 / PPS / FKM	**E30430**

Accessories

Type	Description	Order no.
	DIN rail clip · for IO-Link display unit · Housing materials: PA / stainless steel	**E30429**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Y splitter , 5-pole								
	M12 connector	–	PUR / diecast zinc	60 DC	-25...85	IP 67	–	**E12481**

Flow sensors
for hygienic applications

- **Wear-free due to calorimetric measuring principle.**
- **Extensive range of process adapters available**
- **LED bar graph display for flow and set point**
- **Easy parameter setting via pushbuttons, flexible mounting options**
- **Different probe lengths for optimum insertion depth**

Without wear

The flow sensors of the SI series are electronic alternatives for mechanical flow switches. They are used to detect the flow velocity in liquids and gases. Since flow sensors have no moving parts to jam or break, they are free from wear and maintenance.

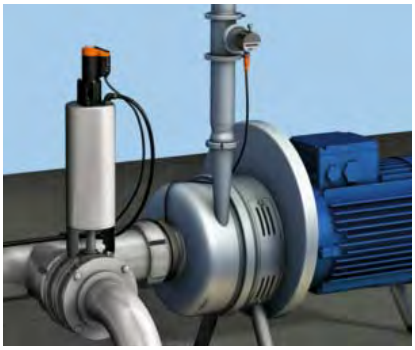
Switching output, installation in process

Evaluation, LED status display and stainless steel probe are integrated in one compact housing. The probe is inserted directly into the medium. The user can set the application parameters via two buttons. The sensor switches if the flow velocity is below or above the set flow value

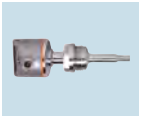
Multiple hygienic mounting options

The sensors allow the connection of industrially compatible adapters and connections. This flexibility allows the sensor to be easily installed in many different applications that have various mounting requirements.

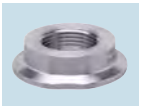
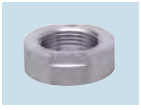
The SI series flow sensors for hygienic applications verify for example the return flow in CIP systems. The stainless steel sensing probe is resistant to damage from solids and harsh chemicals in the fluid stream.



Compact flow sensors

Type	Setting range liquids / gases [cm/s]	Greatest sensitivity [cm/s]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	Probe length [mm]	Order no.
M12 connector · Output function ⎍ / ⎍							
	3...300 / 200...3000	3...100 / 200...800	-25...95	30	1...10	–	**SI6600**
	3...300 / 200...3000	3...100 / 200...800	-25...95	30	1...10	54.8	**SI6700**
	3...300 / 200...3000	3...100 / 200...800	-25...95	30	1...10	–	**SI6800**

Adapters

Type	Description	Order no.
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 · for units with Aseptoflex Vario adapter · Metal to metal seal · Housing materials: stainless steel 316L / 1.4435	**E33701**
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	**E33201**
	Clamp adapter · with leakage port · Clamp · 1-1.5" · with sealing ring · ISO 2852 · for units with Aseptoflex Vario adapter · Housing materials: stainless steel 316L / 1.4435	**E33208**
	Aseptoflex Vario adapter · with leakage port · Clamp · 2" · with sealing ring · ISO 2852 · for units with Aseptoflex Vario adapter · Housing materials: stainless steel 316L / 1.4435	**E33209**
	Welding adapter · Ø 50 mm · with leakage port · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	**E30130**
	Welding adapter · Ø 50 mm · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	**E30122**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**

Further adapters from page 296

Inline volumetric flow sensors for precise measurement of liquids up to 900 l/min

- **Makes the purchase of further sensors superfluous: Measurement and transmission via IO-Link**
- **Minimum / maximum memory and simulation mode for extended diagnostics**
- **Suited for liquids with a conductivity from 20 µS/cm**
- **Integrated empty pipe detection and simulation mode**
- **With volumetric flow quantity, total quantity and temperature indication**

MID Technology | IO-Link | Broad measurement dynamics | IP 67

Compact and low cost.

efector mid – a volumetric flow sensor up to 900 l/min, with electronics and evaluation unit in one of the most compact housings. It is not only more compact but also less expensive than comparable sensors.

Three functions

One single sensor monitors the volumetric flow quantity, the total quantity as well as the temperature.

Data processing

Analogue, binary, pulse and frequency outputs offer various options to process the measured data. The sensor is designed for the machine tool, solar and water industries. It is used in conductive liquids (conductivity: ≥ 20 µS/cm / viscosity: < 70 mm²/s at 40 °C).

Magnetic-inductive flow meters with integrated temperature measurement

Type	Process connection	Measuring range [l/min]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Order no.
M12 connector · Output function OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scaleable)							
	G½	0.25...25.00	-10...70	16	< 0.150	18...30	**SM6000**
	G¾	0.5...50.0	-10...70	16	< 0.150	18...30	**SM7000**
	G1	0.7...100.0	-10...70	16	< 0.150	18...30	**SM8000**
M12 connector · Output function OUT1: normally open / normally closed programmable or pulse or frequency or empty pipe detection or IO-Link OUT2: normally open / normally closed programmable or analogue (4...20 mA; 0...10 V, scalable) or empty pipe detection							
	G2 flat seal	6.5...300	-10...70	16	< 0.35	18...32	**SM9000**
	G2 flat seal	8...600	-10...70	16	< 0.35	18...32	**SM2000**
	G2 flat seal	10...900	-10...70	16	< 0.35	18...32	**SM0510**

Accessories for flow sensors

Type	Description	Order no.
	Adapter · G ½ - R ½ · for flow monitor type SM6 · flat seal · Housing materials: stainless steel 316Ti / 1.4571	**E40199**
	Adapter · G 1 - R ¾ · for flow monitor type SM8 / SU8 · Housing materials: stainless steel 316L / 1.4404	**E40180**
	Adapter · G 2 - 2" TRICLAMP · for flow sensors type SM2, SM9 · Housing materials: stainless steel 316L / 1.4404	**E40254**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**

Further adapters from page 296

Calorimetric flow sensors in robust stainless steel housing

- **Digital signal transmission for improved transmission of measured values**
- **Increased repeatability across the extended measuring range**
- **Simplified setting mode for quick set-up**
- **Variable process connection using adapters**
- **Reliable monitoring of gases and liquids**

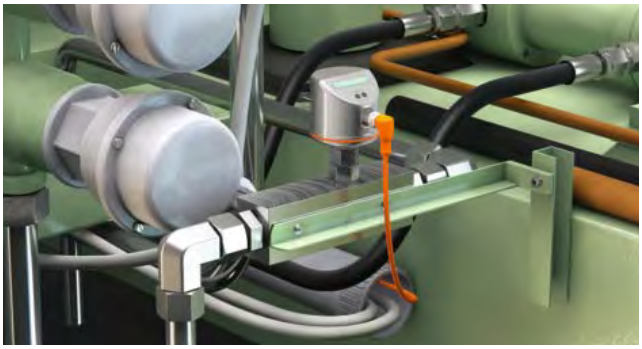
IP 67 | High-grade stainless steel | TEACH-IN | Vibration and shock resistant | IO-Link

Simple, fast and flexible installation.

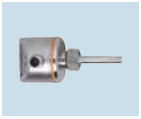
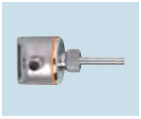
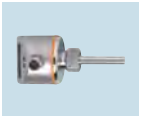
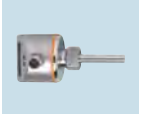
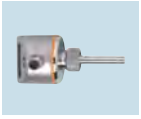
The flow sensors of the SI5 series can be integrated into almost every application by means of a wide selection of process adapters. Their robust stainless steel housing provides high reliability even in harsh environmental conditions.

Ease of use and high functionality

A pushbutton is used to set the flow range and adjust the switch. Current flow and switch point are indicated locally by multi-coloured LEDs. Electronic locking of the settings and factory reset of the parameters provide additional safety.



Compact flow sensors

Type	Setting range liquids / gases [cm/s]	Material sensor tip	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Order no.
M12 connector · Output function ⎍ / ⎍							
	3...300 / 200...3000	stainless steel 316L / 1.4404	-25...80	30	1...10	19...36	**SI5000**
	3...300 / 200...3000	stainless steel 316L / 1.4404	-25...80	300	1...2 / 1...10	18...36	**SI5010**
M12 connector · Output function 4...20 mA analogue							
	3...300 / -	stainless steel 316L / 1.4404	-25...80	300	1...10	19...36	**SI5004**
M12 connector · Output function 2 x normally open / closed programmable							
	3...300 / 200...3000	stainless steel 316L / 1.4404	-25...80	300	1...10	18...36	**SI5002**
	3...300 / 200...3000	stainless steel 316L / 1.4404	-25...80	300	1...10	18...36	**SI5007**
1/2" UNF-Connector · Output function ⎍ / ⎍							
	3...300 / 200...3000	stainless steel 316L / 1.4404	-25...80	300	1...10	85...265	**SI5006***

*** Note on use of miniature fuses for electrical connection**

Miniature fuse to IEC60127-2 sheet 1, ≤ 5 A (fast acting)
Recommendation: check the unit for reliable function after a short circuit.

Adapters

Type	Description	Order no.
	Welding adapter · M18 x 1.5 - Ø 24 mm · Insertion depth of the probe of SID, SFD, TN: · 15 mm · Housing materials: stainless steel 316L / 1.4404	**E40124**
	Adapter · M18 x 1.5 - G ½ · Insertion depth of the probe of SID, SFD, TN: · 21 mm · Housing materials: stainless steel 316L / 1.4404	**E40096**
	Adapter · M18 x 1.5 - G ¼ · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: stainless steel 316L / 1.4404	**E40099**
	Adapter · M18 x 1.5 - ½" NPT · Insertion depth of the probe of SID, SFD, TN: · 23 mm · Housing materials: stainless steel 316L / 1.4404	**E40107**
	Adapter · M18 x 1.5 - M12 x 1 · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: stainless steel 316L / 1.4404	**E40101**

Further adapters from page 296

Calorimetric flow meter for liquids and gases

- **Optimised for water, oils, glycol and air**
- **Fast response time and integrated temperature measurement**
- **Red/green colour change for process values**
- **Internal pipe diameter selectable from 15...400 mm**
- **The process connection can be rotated for optimum alignment**

Measurement technique

The SA volumetric flow sensor operates using the calorimetric measuring principle. Measuring elements as well as a heat source are located on the measuring tip. The physical effect that a flowing medium absorbs heat energy and conducts it away is used. The resulting temperature change is an indication of flow.

Device function

The new SA-type sensor has been designed to detect and measure flow and temperature even in large internal pipe diameters up to 400 mm.

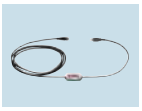
A serial number on the device enables unambiguous traceability.

Therefore it serves different applications. Switching outputs, analogue signals and IO-Link provide various options to further process the signals. That means that the user is best-equipped for Industry 4.0.

Compact housings can be configured for T-pieces for flow monitoring

Type	Setting range liquids / gases [cm/s]	Material sensor tip	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Order no.
Output function OUT1: normally open / normally closed programmable or frequency or IO-Link OUT2: normally open / normally closed programmable or frequency or analogue (4...20 mA scaleable)							
	0.04...3	stainless steel (316L / 1.4404)	-20...90	100	0.5	18...30	**SA5000**
	0.04...3	stainless steel (316L / 1.4404)	-20...100	50	0.5	18...30	**SA4100**
	0.04...3	stainless steel (316L / 1.4404)	-20...100	50	0.5	18...30	**SA4300**

System components

Type	Description	Order no.
	IO-Link interface · for parameter setting and analysis of units with max. 65 mA current consumption · Supported communication protocols: IO-Link (4800 and 38400 bits/s) EPS protocol (19200 bits/s) · for operation with FDT framework software “ifm Container” or software “LR SENSOR”	**E30396**
	Progressive ring fitting · Ø 8 mm - G1/2 · Housing materials: stainless steel	**E40258**
	Progressive ring fitting · Ø 8 mm - G 1/4 · Housing materials: stainless steel	**E40259**
	Protective cover · for fluid sensors with M12 connector · Housing materials: Polypropylene homopolymer	**E30420**
	Adapter · M18 x 1.5 - G ½ · Insertion depth of the probe of SID, SFD, TN: · 21 mm · Housing materials: stainless steel 316L / 1.4404	**E40096**
	Adapter · M18 x 1.5 - G ¼ · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: stainless steel 316L / 1.4404	**E40099**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**

Compressed air meter with display

- **Inline flow meter for compressed air and special gases (Ar, CO_2, N_2)**
- **The detection of minute leakage helps to improve the energy efficiency**
- **Makes consumption transparent and thus helps to reduce costs**
- **Totaliser function to determine the total consumption**
- **Integrated pipe length ensures easy mounting and installation**

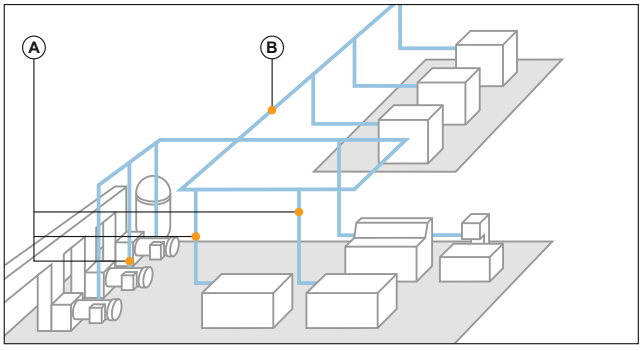
Compressed air and special gas at a glance

efector metris monitors compressed air and specialty gases such as argon (Ar), carbon dioxide (CO2), and nitrogen (N2) to detect leakage and improve energy efficiencies.

Compressed air is one of the most expensive energy carriers in a plant. With the detection of leakage, efector metris helps to optimise compressed air consumption, to improve the system performance and to reduce energy costs.

The compact sensor features a fixed pipe with integrated measuring range. This facilitates mounting. It functions according to the calorimetric measuring principle, that is without mechanical parts and free from wear.

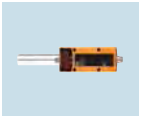
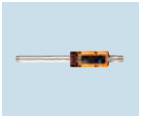
A 4-digit display indicates compressed air or gas consumption. It also helps during parameter setting of the unit. Three display options are available: cubic metre a minute, cubic metre an hour and total consumption in cubic metre. The 24 V DC unit provides switching, analogue and pulse outputs.



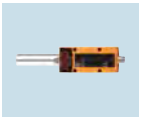
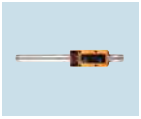
(A) Installation in a supply pipe to monitor a machine.
(B) Installation in one main line to monitor several machines.

Product selectors and further information can be found at: www.ifm.com

Compressed air meters with display

Type	Process connection	Setting range [Nm³/h]	Pressure rating [bar]	Response time [s]	U_b [V]	Order no.
Output function OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA scaleable)						
	G ¼ (DN8)	0.12...15.00	16	< 0.1	18...30	**SD5000**
	R½ (DN15)	0.6...75.0	16	< 0.1	18...30	**SD6000**
	R1 (DN25)	1.8...225.0	16	< 0.1	18...30	**SD8000**
	R1½ (DN40)	3.5...410.0	16	< 0.1	18...30	**SD9000**
	R2 (DN50)	5...700	16	< 0.1	18...30	**SD2000**

Compressed air meter for special gases

Type	Process connection	Setting range [Nm³/h]	Medium temperature [°C]	Pressure rating [bar]	Response time [s]	U_b [V]	Order no.
Output function OUT1: normally open / closed programmable or pulse OUT2: normally open / closed programmable or analogue (4...20 mA scaleable)							
	G ¼ (DN8)	N_2: 0.04...15.00 Ar: 0.08...24.04 CO_2: 0.04...14.36	0...60	16	< 0.1	18...30	**SD5100**
	R½ (DN15)	N_2: 0.2...75.0 Ar: 0.4...122.0 CO_2: 0.2...74.7	0...60	16	< 0.1	18...30	**SD6100**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**

The LMT point-level sensor ignores foam and deposit build-up

- **Adjustment to the medium (LMT100 / 110) preset or via IO-Link (LMT121)**
- **Hygienic design with maintenance-free sealing concept**
- **Robust stainless steel housing with laser type label for durable legibility**
- **Resistant to foam and deposits**
- **Easy mounting using orientation-independent installation**

Reliable even if covered in residues

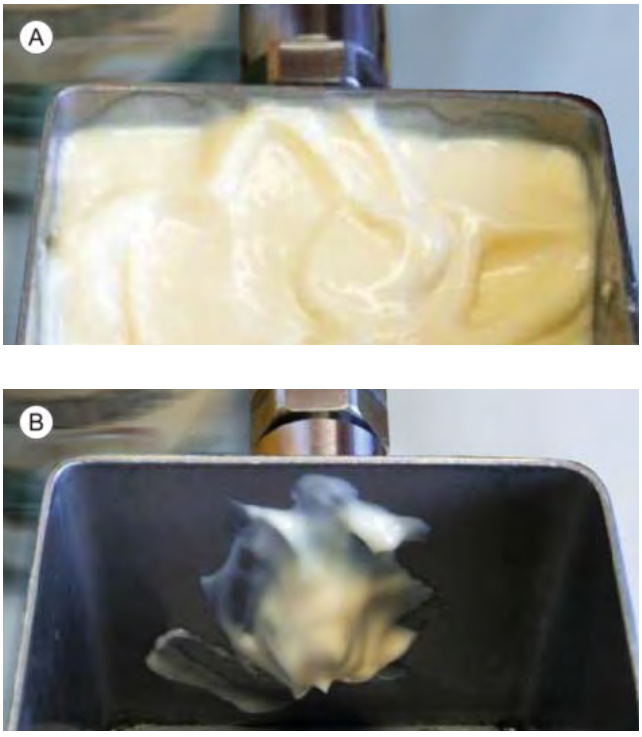
LMT series point level sensors have been designed for the monitoring of the levels of liquids, viscous media and powders in food applications. The sensor uses high-frequency capacitance spectrum profiling technology to effectively eliminate challenges with deposits, residue and foam build-up that commonly cause traditional point-level sensors to output false results.

Suited for food and hygienic applications

The sensor's 316 stainless steel body and smooth food-grade PEEK sensing tip ensure chemical compatibility even with the harshest cleaning agents. The high protection rating of IP 68 / IP 69K prevents liquid ingress.

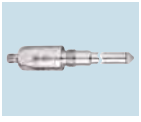
Media adjustment

For LMT100 and LMT110 no media adjustment is required since they are preset to the respective medium in the factory. The LMT121 can be set to almost any liquid or viscous medium and bulk materials via IO-Link. Each of the two switching outputs can be set independently of each other so it is also possible to differentiate between two different media.



(A) The LMT sensor monitors the level of mayonnaise using the high-frequency capacitance spectrum profiling technology.
(B) Despite deposits on the sensor the empty tank is detected reliably.

Point level sensors

Type	Process connection	Process pressure max. [bar]	Application	Protection	Order no.
M12 connector · Output function 2 x normally open / closed programmable · DC PNP/NPN					
	G ½ male	-1...40	liquids, viscous media and powders	IP 68 / IP 69K	**LMT100**
	G ½ male	-1...40	liquids, viscous media and powders	IP 68 / IP 69K	**LMT110**
	G ½ male	-1...40	liquids, viscous media and powders	IP 68 / IP 69K	**LMT121**
	G ½ male	-1...40	liquids, viscous media and powders	IP 68 / IP 69K	**LMT102**
	G ¾ male	-1...40	liquids, viscous media and powders	IP 68 / IP 69K	**LMT202**
	G 1 male	-1...40	liquids, viscous media and powders	IP 68 / IP 69K	**LMT302**
	G ½ male	-1...40	liquids, viscous media and powders	IP 68 / IP 69K	**LMT104**
	G ½ male	-1...40	liquids, viscous media and powders	IP 68 / IP 69K	**LMT105**

Adapters

Type	Description	Order no.
	Welding adapter · G ½ - Ø 29 mm · for pipes · Housing materials: stainless steel 316L / 1.4435	**E43301**
	Welding adapter · G ½ - Ø 30 mm · for tanks · Housing materials: stainless steel 316L / 1.4435	**E43300**
	Welding adapter · G ½ - Ø 30 mm · for tanks · with leakage port · with leakage port · Housing materials: stainless steel 316L / 1.4435	**E43309**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Protection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**

Further adapters from page 296

Level sensor LR
with modular transmitter concept

- **Installation adjustment for optimum setting to the installation situation**
- **Aseptoflex Vario thread for a multitude of process adapters**
- **Probe lengths of 15...200 cm**
- **Suitable for medium temperatures up to150 °C**

IO-Link EC 1935/2004 FDA

Versatile use

Whether smaller storage tanks, compensating tanks, separators or in filling processes: There are no limits to applications for LR. Even adverse operating conditions such as foam or high temperature do not affect precise level detection.

Successful thanks to modular concept

The probes can be shortened, or changed, so the LR reduces stock-keeping and simplifies replacement. IO-Link means the fiddly parameter setting on the device is a matter of the past.

Resistant materials

High-quality materials such as PEEK and EPDM as sealing material or the high-grade stainless steel housing are suitable for internal and external cleaning and resist the most adverse operating conditions.

Variable level sensors, guided wave radar

Type	Process connection	Probe length [mm]	Active zone [mm]	U_b [V]	Medium temperature [°C]	I_{load} [mA]	Order no.
M12 connector (according to EN 61076-2-101) · Output function OUT1: normally open / closed programmable / IO-Link OUT2: normally open / closed programmable or analogue (4...20 mA scaleable, invertable) · DC PNP/NPN							
	Aseptoflex Vario	150...2000	L-40	18...30	-40...150	150	**LR2750**

Accessories

Type	Description	Order no.
	Clamp adapter · Clamp · 2" · ISO 2852 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	**E33202**
	Welding adapter · Ø 50 mm · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	**E30122**
	Probe · Probe length: 150 mm · hygienic, for LR level sensors · hygienic systems · Housing materials: stainless steel	**E43345**
	Probe · Probe length: 300 mm · hygienic, for LR level sensors · hygienic systems · Housing materials: stainless steel	**E43346**
	Probe · Probe length: 500 mm · hygienic, for LR level sensors · hygienic systems · Housing materials: stainless steel	**E43340**
	Probe · Probe length: 700 mm · hygienic, for LR level sensors · hygienic systems · Housing materials: stainless steel	**E43347**
	Probe · Probe length: 1000 mm · hygienic, for LR level sensors · hygienic systems · Housing materials: stainless steel	**E43341**
	Probe · Probe length: 1500 mm · hygienic, for LR level sensors · hygienic systems · Housing materials: stainless steel	**E43348**
	Probe · Probe length: 2000 mm · hygienic, for LR level sensors · hygienic systems · Housing materials: stainless steel	**E43342**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**

Further adapters from page 296

Temperature plug and temperature probes with integrated 2" clamp connection

- **Using the temperature plug, the probe sensor functions as programmable transmitter**
- **Versions for different temperature ranges**
- **Compact housing with ecolink M12 connection technology**
- **One-piece probes for hygienic temperature measurements**
- **Excellent response times and high accuracy thanks to PT100 element, class A**

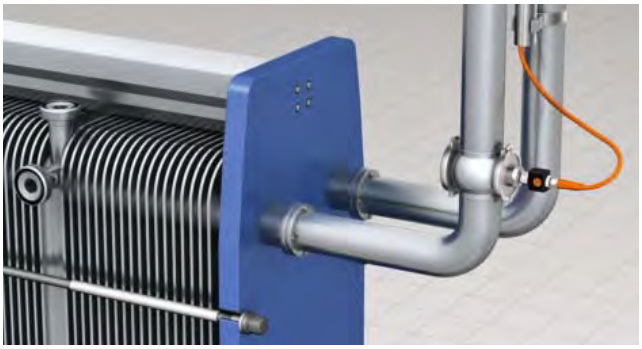
Pt100 | High-grade stainless steel | 3A | EHEDG | CIP/SIP | FDA

Transmitter for probe sensors

The innovative and extremely compact temperature plug is simply connected to a temperature probe sensor via M12 connection and allows its use as programmable transmitter. Error sources from screw terminals, wiring mistakes, and fluid ingress are eliminated. An integrated LED shows the operating status on site.

Integrated clamp process connections

The temperature probes of the TM49 series require no separate hygienic process adapter. The one-piece probe with integrated clamp connection eliminates potential contamination ingress points. The 6 mm thin sensor tip guarantees an excellent response time of T05 = 1 s and T09 = 3 s while ensuring high stability.



Left: Traditional head transmitters are large, expensive and subject to moisture ingress. Middle: Temperature plug for direct installation. Right: Temperature plug for external installation.

Modular temperature transmitters, IO-Link

Type	Factory setting [°C / °F]	Process connection	U_b [V]	Ambient temperature [°C]	Measuring element	Order no.
M12 connector · Output function 4...20 mA analogue · DC						
	-50...300 / -	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	**TP3232**
	0...100 / -	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	**TP3237**
	-50...150 / -	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	**TP3231**
	- / 0...300	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	**TP3233**
M12 connector · Output function 0...10 V analogue · DC						
	0...100 / -	M12	18...32	-25...70	for Pt100 and Pt1000 measuring elements	**TP9237**

Temperature probe sensors with clamp process connection (also suited for connection to the TR evaluation unit)

Type	Measuring range [°C]	Process connection	Installation length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Order no.
M12 connector · high-grade stainless steel						
	-40...150	Clamp 2"	30	1 x Pt 100	1 / 3	**TM4901**
	-40...150	Clamp 2"	50	1 x Pt 100	1 / 3	**TM4911**
	-40...150	Clamp 2"	100	1 x Pt 100	1 / 3	**TM4931**
	-40...150	Clamp 2"	150	1 x Pt 100	1 / 3	**TM4941**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Jumper M12 plug / M12 socket, 4/5-pole, 4-wire								
	1 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF042**
	2 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF043**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF044**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF045**

Temperature plug and temperature probes with integrated 1-1.5" clamp connection

- **Using the temperature plug, the probe sensor functions as programmable transmitter**
- **Versions for different temperature ranges**
- **Compact housing with ecolink M12 connection technology**
- **One-piece probes for hygienic temperature measurements**
- **Excellent response times and high accuracy thanks to PT100 element, class A**

Transmitter for probes

The innovative and extremely compact temperature plug is simply connected to a temperature probe sensor via M12 connection and allows its use as programmable transmitter. Error sources from screw terminals, wiring mistakes, and fluid ingress are eliminated. An integrated LED shows the operating status on site.

Integrated clamp process connections

The TM48 series temperature probes require no separate hygienic process adapter. The one-piece probe with integrated clamp connection eliminates potential contamination ingress points. The 6 mm thin sensor tip guarantees an excellent response time of T05 = 1 s and T09 = 3 s while ensuring high stability.

Modular temperature transmitters, IO-Link

Type	Factory setting [°C / °F]	Process connection	U_b [V]	Ambient temperature [°C]	Measuring element	Order no.
M12 connector · Output function 4...20 mA analogue · DC						
	-50...300 / -	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	**TP3232**
	0...100 / -	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	**TP3237**
	-50...150 / -	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	**TP3231**
	- / 0...300	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	**TP3233**
M12 connector · Output function 0...10 V analogue · DC						
	0...100 / -	M12	18...32	-25...70	for Pt100 and Pt1000 measuring elements	**TP9237**

Temperature probe sensors with clamp process connection (also suited for connection to the TR evaluation unit)

Type	Measuring range [°C]	Process connection	Installation length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Order no.
M12 connector · high-grade stainless steel						
	-40...150	Clamp 1-1.5" ISO 2852	30	1 x Pt 100	1 / 3	**TM4801**
	-40...150	Clamp 1-1.5" ISO 2852	50	1 x Pt 100	1 / 3	**TM4811**
	-40...150	Clamp 1-1.5" ISO 2852	100	1 x Pt 100	1 / 3	**TM4831**
	-40...150	Clamp 1-1.5" ISO 2852	150	1 x Pt 100	1 / 3	**TM4841**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Jumper M12 plug / M12 socket, 4/5-pole, 4-wire								
	1 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF042**
	2 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF043**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF044**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF045**

Temperature plug and temperature probes with G 1/2 process connection

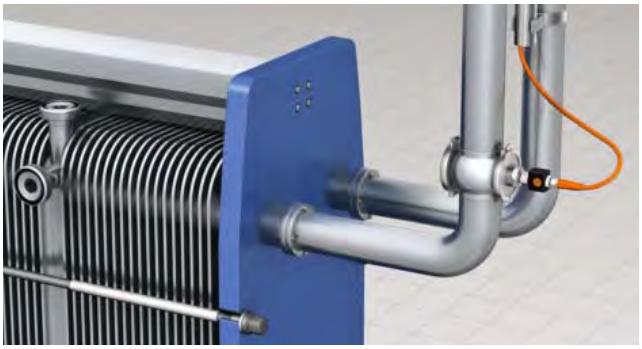
- **Using the temperature plug, the probe sensor functions as programmable transmitter**
- **Versions for different temperature ranges**
- **Compact housing with ecolink M12 connection technology**
- **One-piece probes for hygienic temperature measurements**
- **Excellent response times and high accuracy thanks to Pt100 element, class A**

Transmitter for probes

The innovative and extremely compact temperature plug is simply connected to a temperature probe sensor via M12 connection and allows its use as programmable transmitter. Error sources from screw terminals, wiring mistakes, and fluid ingress are eliminated. An integrated LED shows the operating status on site.

Integrated G 1/2 process connections

The TM45 series temperature probes require no separate hygienic process adapter. The one-piece probe with integrated G 1/2 connection eliminates potential septic ingress points. The 6 mm thin sensor tip guarantees an excellent response time of T05 = 1 s and T09 = 3 s while ensuring high stability.



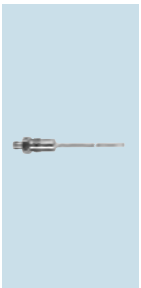
Left: Traditional head transmitters are large, expensive and subject to moisture ingress.
Middle: Temperature plug for direct installation.
Right: Temperature plug for external installation.

Product selectors and further information can be found at: www.ifm.com

Modular temperature transmitters, IO-Link

Type	Factory setting [°C / °F]	Process connection	U_b [V]	Ambient temperature [°C]	Measuring element	Order no.
M12 connector · Output function 4...20 mA analogue · DC						
	-50...300 / -	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	**TP3232**
	0...100 / -	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	**TP3237**
	-50...150 / -	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	**TP3231**
	- / 0...300	M12	20...32	-25...70	for Pt100 and Pt1000 measuring elements	**TP3233**
M12 connector · Output function 0...10 V analogue · DC						
	0...100 / -	M12	18...32	-25...70	for Pt100 and Pt1000 measuring elements	**TP9237**

Sensors with process connection for hygienic and wet areas

Type	Measuring range [°C]	Process connection	Installation length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Order no.
M12 connector · high-grade stainless steel						
	-40...150	G½ with sealing cone	20	1 x Pt 100	1 / 3	**TM4591**
	-40...150	G½ with sealing cone	30	1 x Pt 100	1 / 3	**TM4501**
	-40...150	G½ with sealing cone	50	1 x Pt 100	1 / 3	**TM4511**
	-40...150	G½ with sealing cone	100	1 x Pt 100	1 / 3	**TM4531**
	-40...150	G½ with sealing cone	150	1 x Pt 100	1 / 3	**TM4541**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Jumper M12 plug / M12 socket, 4/5-pole, 4-wire								
	1 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF042**
	2 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF043**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF044**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF045**

Evaluation unit and temperature probe sensors

- **Clearly indicate the acceptable ranges: programmable red / green display**
- **Quick and easy handling via 3 pushbuttons**
- **Visualisation of the switching states by clearly visible LEDs**
- **Flexible installation thanks to modular concept**
- **Versions with analogue (4...20 mA/0...10 V) or switching output (2 x PNP/NPN)**

IO-Link | Pt100 Pt1000 | IP 67 | EHEDG | CIP/SIP | FDA

One unit for many sensors

The TR evaluation unit is a universal control and display unit for connection of PT100 / PT1000 sensors (TT, TM and TS series)

Automatic detection of the probe

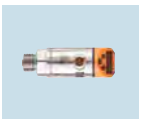
The evaluation unit automatically detects whether two-wire, three-wire or four-wire Pt100 or Pt1000 sensors are connected.

Wide measuring range

Thanks to the extended measuring range of -100...600 °C, an enormous number of common temperature measurement and monitoring tasks in the manufacturing and process industries can be solved.

Installation example: The evaluation electronics is directly mounted on the temperature sensor.

Control monitors for temperature sensors, IO-Link

Type	Measuring range [°C]	Process connection	Display	U_b [V]	Current consumption [mA]	I_{load} [mA]	Order no.
M12 connector · Output function 1 x normally open / closed programmable + 1 x analogue (4...20 mA / 0...10 V, scalable) · DC PNP/NPN							
	-100...600	G ½ male	Display unit	18...32	50	250	**TR2439**
M12 connector · Output function 2 x normally open / closed programmable · DC PNP/NPN							
	-100...600	G ½ male	Display unit	18...32	50	250	**TR7439**

Temperature probe sensors (also suited for connection to the TP evaluation unit)

Type	Measuring range [°C]	Diameter [mm]	Installation length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Order no.
M12 connector · high-grade stainless steel						
	-40...150	6	50	1 x Pt 100	1 / 3	**TT9291**
	-40...150	6	100	1 x Pt 100	1 / 3	**TT0291**
	-40...150	6	150	1 x Pt 100	1 / 3	**TT1291**
	-40...150	6	250	1 x Pt 100	1 / 3	**TT2291**
	-40...150	6	350	1 x Pt 100	1 / 3	**TT3291**

Adapters

Type	Description	Order no.
	Mounting set · for direct connection of temperature sensors TT to control monitors TR · Housing materials: stainless steel	**E30017**
	Clamp fitting · Ø 6/8/10 mm - G ½ · for temperature sensors · Housing materials: stainless steel / FPM	**E30018**

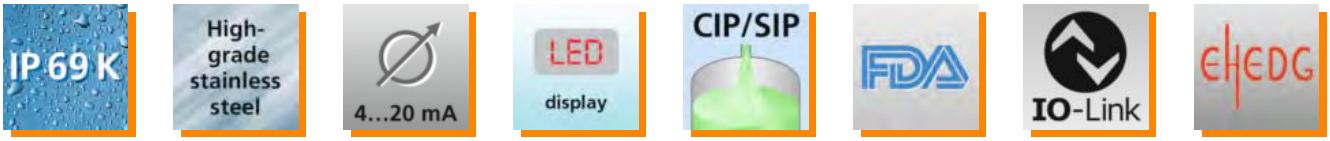
Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF004**

Further adapters from page 296

Temperature transmitter with display and IO-Link, preset to 0...100 °C

- **Bright 4-digit LED display for optimum readability**
- **Fast response time T05 / 09 = 1 / 3s**
- **Pre-scaled measuring ranges, IO-Link 1.1 programmable**
- **Available in various probe lengths from 30...350 mm**
- **Hygienic and robust design: high-grade stainless steel (1.4404 / 316L) and IP 69K**



TD temperature transmitters

The TD series temperature transmitters are distinguished by a compact, hygienic design with integrated process connections and a display for local indication of the temperature.

Easy installation and set-up

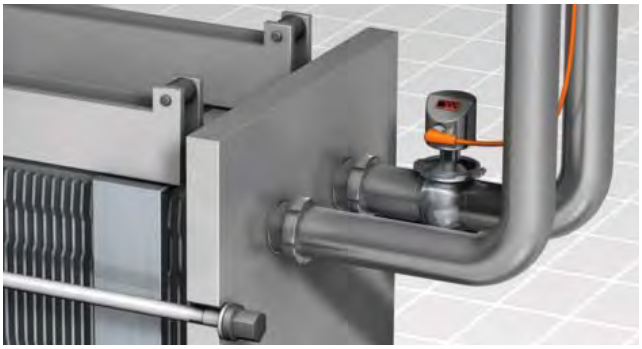
The integrated clamp and G1/2" process connections allow quick and easy installation. No complex set-up is required because the transmitters are supplied with a pre-scaled measuring range. For special applications the temperature range can be scaled via IO-Link 1.1.

Robust and durable

Protected to IP 69K standards and featuring a fully welded stainless steel housing, the transmitters are designed to operate in particularly harsh applications.

Verified

A 3-point factory certificate can be downloaded for free at www.factory-certificate.ifm.



Compact temperature sensors with display, IO-Link

Type	Factory setting [°C / °F]	Process connection	Installation length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Order no.
M12 connector · DC · Analogue output · 4...20 mA						
	0...100 / -	1.5" clamp (ISO 2852)	30	18...32	1 / 3	**TD2807**
	0...100 / -	1.5" clamp (ISO 2852)	50	18...32	1 / 3	**TD2817**
	0...100 / -	1.5" clamp (ISO 2852)	100	18...32	1 / 3	**TD2837**
	0...100 / -	1.5" clamp (ISO 2852)	150	18...32	1 / 3	**TD2847**
	0...100 / -	2" clamp (ISO 2852)	30	18...32	1 / 3	**TD2907**
	0...100 / -	2" clamp (ISO 2852)	50	18...32	1 / 3	**TD2917**
	0...100 / -	2" clamp (ISO 2852)	100	18...32	1 / 3	**TD2937**
	0...100 / -	2" clamp (ISO 2852)	150	18...32	1 / 3	**TD2947**
	0...100 / -	G½ with sealing cone	30	18...32	1 / 3	**TD2507**
	0...100 / -	G½ with sealing cone	50	18...32	1 / 3	**TD2517**
	0...100 / -	G½ with sealing cone	100	18...32	1 / 3	**TD2537**
	0...100 / -	G½ with sealing cone	150	18...32	1 / 3	**TD2547**
	0...100 / -	Ø 6 mm	50	18...32	1 / 3	**TD2217**
	0...100 / -	Ø 6 mm	100	18...32	1 / 3	**TD2237**
	0...100 / -	Ø 6 mm	150	18...32	1 / 3	**TD2247**
	0...100 / -	Ø 6 mm	250	18...32	1 / 3	**TD2267**
	0...100 / -	Ø 6 mm	300	18...32	1 / 3	**TD2277**
	0...100 / -	Ø 6 mm	350	18...32	1 / 3	**TD2297**

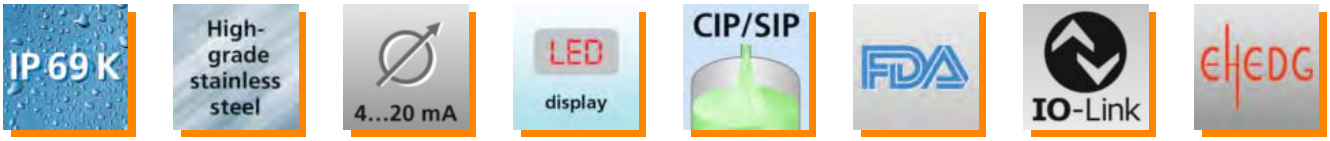
Adapters

Type	Description	Order no.
	USB IO-Link master · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4.8, 38.4 and 230 Kbits/s) · for operation with FDT framework software “ifm Container” or software “LR SENSOR”	**E30390**
	Memory plug · Parameter memory for IO-Link sensors · Storage capacity: 2 Kbytes · Housing materials: PA PACM 12 / PET / sealing: FPM / nut: stainless steel 316L / 1.4404 / connector: TPU	**E30398**

Further adapters from page 296

Temperature transmitter with display and IO-Link, preset to -10...150 °C

- **Bright 4-digit LED display for optimum readability**
- **Fast response time T05 / 09 = 1 / 3s**
- **Pre-scaled measuring ranges, IO-Link 1.1 programmable**
- **Available in various probe lengths from 30...350 mm**
- **Hygienic and robust design: high-grade stainless steel (1.4404 / 316L) and IP 69K**



TD temperature transmitters

The TD series temperature transmitters are distinguished by a compact, hygienic design with integrated process connections and a display for local indication of the temperature.

Easy installation and set-up

The integrated clamp and G1/2" process connections allow quick and easy installation. No complex set-up is required because the transmitters are supplied with a pre-scaled measuring range. For special applications the temperature range can be scaled via IO-Link 1.1.

Robust and durable

Protected to IP 69K standards and featuring a fully welded stainless steel housing, the transmitters are designed to operate in particularly harsh applications.

Verified

A 3-point factory certificate can be downloaded for free at www.factory-certificate.ifm.

Compact temperature sensors with display, IO-Link

Type	Factory setting [°C / °F]	Process connection	Installation length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Order no.
M12 connector · DC · Analogue output · 4...20 mA						
	-10...150 / -	1.5" clamp (ISO 2852)	30	18...32	1 / 3	**TD2801**
	-10...150 / -	1.5" clamp (ISO 2852)	50	18...32	1 / 3	**TD2811**
	-10...150 / -	1.5" clamp (ISO 2852)	100	18...32	1 / 3	**TD2831**
	-10...150 / -	1.5" clamp (ISO 2852)	150	18...32	1 / 3	**TD2841**
	-10...150 / -	2" clamp (ISO 2852)	30	18...32	1 / 3	**TD2901**
	-10...150 / -	2" clamp (ISO 2852)	50	18...32	1 / 3	**TD2911**
	-10...150 / -	2" clamp (ISO 2852)	100	18...32	1 / 3	**TD2931**
	-10...150 / -	2" clamp (ISO 2852)	150	18...32	1 / 3	**TD2941**
	-10...150 / -	G½ with sealing cone	30	18...32	1 / 3	**TD2501**
	-10...150 / -	G½ with sealing cone	50	18...32	1 / 3	**TD2511**
	-10...150 / -	G½ with sealing cone	100	18...32	1 / 3	**TD2531**
	-10...150 / -	G½ with sealing cone	150	18...32	1 / 3	**TD2541**
	-10...150 / -	Ø 6 mm	50	18...32	1 / 3	**TD2211**
	-10...150 / -	Ø 6 mm	100	18...32	1 / 3	**TD2231**
	-10...150 / -	Ø 6 mm	150	18...32	1 / 3	**TD2241**
	-10...150 / -	Ø 6 mm	250	18...32	1 / 3	**TD2261**
	-10...150 / -	Ø 6 mm	300	18...32	1 / 3	**TD2271**
	-10...150 / -	Ø 6 mm	350	18...32	1 / 3	**TD2291**

Adapters

Type	Description	Order no.
	USB IO-Link master · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4.8, 38.4 and 230 Kbits/s) · for operation with FDT framework software “ifm Container” or software “LR SENSOR”	**E30390**
	Memory plug · Parameter memory for IO-Link sensors · Storage capacity: 2 Kbytes · Housing materials: PA PACM 12 / PET / sealing: FPM / nut: stainless steel 316L / 1.4404 / connector: TPU	**E30398**

Further adapters from page 296

Hygienic temperature transmitter TA

- **Measuring range of -50...200 °C, scalable via IO-Link 1.1**
- **Very fast response time: T05 / T09 = < 0.5 s / < 2 s**
- **LED for visualisation of the operating status**
- **Versions with different hygienic process connections**
- **Different installation lengths from 25...250 mm**

CIP/SIP | High-grade stainless steel | 3A | FDA | EC 1935/2004

Analogue and IO-Link

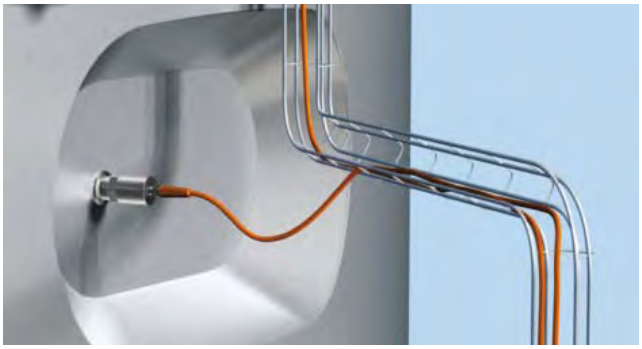
The temperature transmitter has an analogue output with 4...20 mA. The parameters are set via the integrated IO-Link interface.

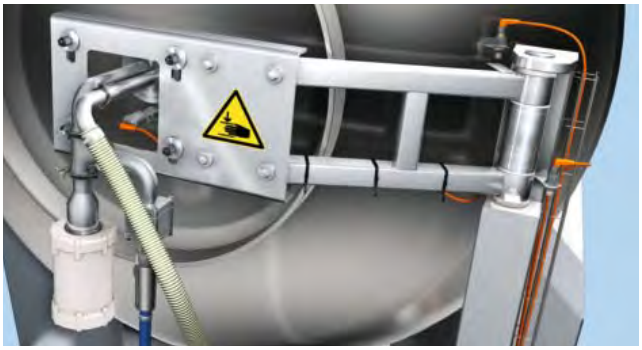
Fast and precise

The Pt1000 measuring element of class A achieves a high precision with the factory-internal calibration. The innovation besides the wide measuring range is the excellent response time. Therefore the sensor is suitable for all highly-precise and fast processes in hygienic environments.

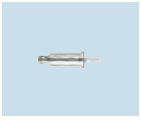
Transparent and flexible

An LED clearly signals the readiness for operation. Compact design, integrated process connections and different probe lengths enable easy and flexible installation.





Temperature transmitters for hygienic and wet areas

Type	Factory setting [°C / °F]	Process connection	Installation length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Order no.
M12 connector · DC · Analogue output · 4...20 mA						
	0...200 / -	Ø 6 mm	100	18...32	< 0.5 / < 2	**TA2232**
	0...200 / -	Ø 6 mm	150	18...32	< 0.5 / < 2	**TA2242**
	0...100 / -	Ø 6 mm	150	18...32	< 0.5 / < 2	**TA2247**
	0...200 / -	Ø 6 mm	250	18...32	< 0.5 / < 2	**TA2262**
	-10...150 / -	G½ with sealing cone	50	18...32	< 0.5 / < 2	**TA2511**
	0...200 / -	G½ with sealing cone	50	18...32	< 0.5 / < 2	**TA2512**
	-10...150 / -	G½ with sealing cone	100	18...32	< 0.5 / < 2	**TA2531**
	0...200 / -	G½ with sealing cone	100	18...32	< 0.5 / < 2	**TA2532**
	0...200 / -	G½ with sealing cone	150	18...32	< 0.5 / < 2	**TA2542**
	0...200 / -	3/4" clamp (ISO 2852)	25	18...32	< 0.5 / < 2.0	**TA2002**
	0...200 / -	1.5" clamp (ISO 2852)	30	18...32	< 0.5 / < 2	**TA2802**
	0...200 / -	1.5" clamp (ISO 2852)	50	18...32	< 0.5 / < 2	**TA2812**
	0...200 / -	1.5" clamp (ISO 2852)	100	18...32	< 0.5 / < 2	**TA2832**

Further adapters from page 296

Flush-front temperature sensors

- **Hygienic and robust: high-grade stainless steel (316L/1.4404) and IP 69K**
- **Space saving compact design**
- **Selectable: 4...20 mA transmitter or Pt100**
- **Quick and easy: G 1/2 process connection with sealing cone**
- **Flexible: adapter concept for all common process connections**

Flush mount

Flush-front temperature sensors from ifm are now available for applications such as agitators or pigging systems.

Quick and easy to use

Thanks to the integrated process connection with G 1/2 sealing cone, the compact design allows quick and easy installation. Versions with integrated transmitter (4...20 mA) or Pt100 output are available.

Hygienic and robust

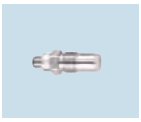
The one-piece full-metal housing has been specially developed for particularly harsh applications.

Electrical connection is made using M12 connectors.

Temperature transmitters for hygienic and wet areas

Type	Measuring range [°C / °F]	Process connection	Installation length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Order no.
M12 connector · DC · Analogue output · 4...20 mA						
	0...100 / -	G½ with sealing cone	–	18...32	10 / 40	**TA3597**

Temperature sensors for hygienic and wet areas

Type	Measuring range [°C]	Process connection	Installation length [mm]	Sensor element	Dynamic response T05 / T09 [s]	Order no.
M12 connector · high-grade stainless steel						
	-50...140	G½ with sealing cone	–	1 x Pt 100	10 / 40	**TM4599**

Adapters

Type	Description	Order no.
	Welding adapter · G ½ - Ø 35 mm · Housing materials: stainless steel 316L / 1.4404	**E30055**
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 / DIN 32676 · for units with G ½ adaptation · Housing materials: stainless steel 316L / 1.4404	**E33401**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF004**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF001**

Further adapters from page 296

Temperature transmitter with diagnostic function Aseptoflex Vario process connection

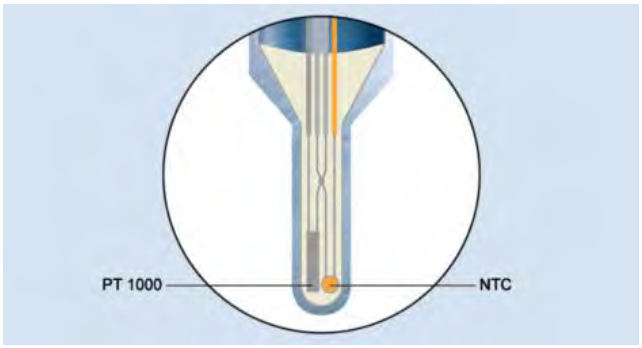
- **Condition-based maintenance through drift detection of the measuring elements**
- **Cost savings possible through reduced calibration intervals**
- **Permanent drift monitoring between the individual calibration intervals increases process reliability**
- **Analogue and diagnostic outputs for process temperature and drift warning / alarm**
- **A great variety of hygienic fittings and adapters is available**

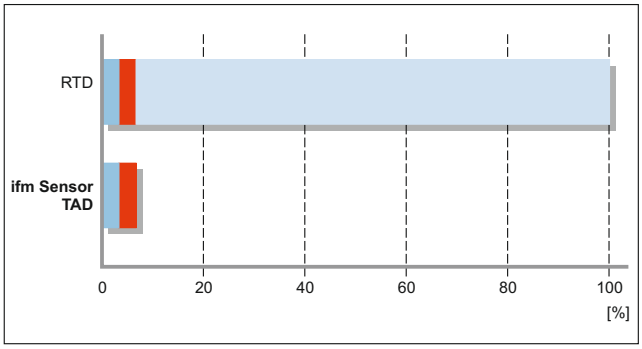
Increased process safety due to self-monitoring

The TAD temperature transmitter features two high-precision sensor elements that monitor the process and each other. This guarantees that any developing drift of the sensor elements is detected and reliably diagnosed.

If one element fails, the process continues with the second measuring element (back-up function). With this technology, the TAD provides long-term, highly accurate temperature measurements in hygienic applications in food, beverage and pasteurization processes.

Drift thresholds and parameters are easy to set via software, e.g. IO-Link. After the switch points are set, the TAD continuously and independently monitors temperature drift. By providing immediate temperature drift detection, cyclical monitoring of the calibration is no longer necessary.

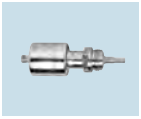
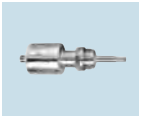




Cost comparison: In contrast to the TAD sensor, conventional sensors have to be calibrated twice a year.
Dark blue: Sensor cost
Red: Installation cost
Light blue: Calibration cost

Product selectors and further information can be found at: www.ifm.com

Temperature transmitters with diagnostic output, IO-Link

Type	Factory setting [°C / °F]	Process connection	Installation length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Order no.
M12 connector · Output function normally open / normally closed / heartbeat programmable, 4...20 mA analogue · DC PNP/NPN						
	0...150 / 32...302	Aseptoflex Vario	87.5	18...32	3 / 6	**TAD181**
	0...150 / 32...302	Aseptoflex Vario	33	18...32	3 / 6	**TAD981**
	0...150 / 32...302	Aseptoflex Vario	50	18...32	3 / 6	**TAD081**

Adapters

Type	Description	Order no.
	Clamp adapter · with leakage port · Clamp · 1-1.5" · with sealing ring · ISO 2852 · for units with Aseptoflex Vario adapter · Housing materials: stainless steel 316L / 1.4435	**E33208**
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	**E33201**
	Aseptoflex Vario adapter · with leakage port · Clamp · 2" · with sealing ring · ISO 2852 · for units with Aseptoflex Vario adapter · Housing materials: stainless steel 316L / 1.4435	**E33209**
	Welding adapter · Ø 50 mm · with leakage port · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	**E30130**
	Welding adapter · Ø 50 mm · for units with Aseptoflex Vario adapter · Sealing by sealing ring · Housing materials: stainless steel 316L / 1.4435	**E30122**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF004**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF001**

Further adapters from page 296

Temperature transmitter with diagnostic function G1/2 process connection

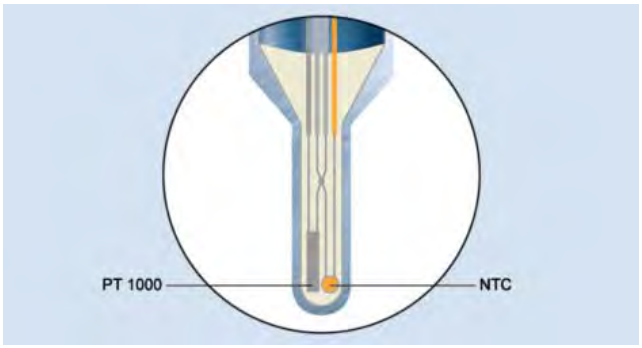
- **Condition-based maintenance through drift detection of the measuring elements**
- **Cost savings possible through reduced calibration intervals**
- **Permanent drift monitoring between the individual calibration intervals increases process reliability**
- **Analogue and diagnostic outputs for process temperature and drift warning / alarm**
- **A great variety of hygienic fittings and adapters is available**

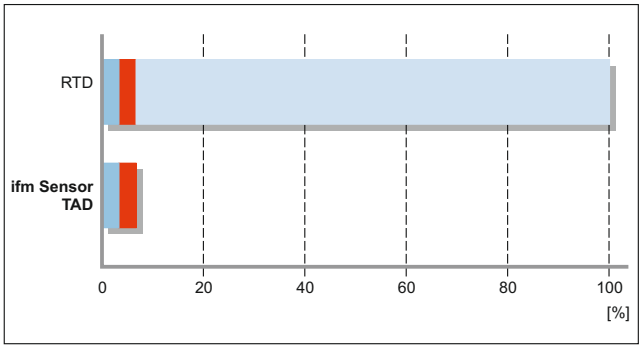
Increased process safety due to self-monitoring

The TAD temperature transmitter has two highly precise sensor elements that monitor the process and each other. This guarantees that any developing drift of the sensor elements is detected and reliably diagnosed.

If one element fails, the process continues with the second measuring element (back-up function). With this technology, the TAD provides long-term, highly accurate temperature measurements in hygienic applications in food, beverage and pasteurization processes.

Drift thresholds and parameters are easy to set via software, e.g. IO-Link. After the switch points are set, the TAD continuously and independently monitors temperature drift. By providing immediate temperature drift detection, cyclical monitoring of the calibration is no longer necessary.





Cost comparison: In contrast to the TAD sensor, conventional sensors have to be calibrated twice a year.
Dark blue: Sensor cost
Red: Installation cost
Light blue: Calibration cost

Product selectors and further information can be found at: www.ifm.com

Temperature transmitters with diagnostic output, IO-Link

Type	Factory setting [°C / °F]	Process connection	Installation length [mm]	U_b [V]	Dynamic response T05 / T09 [s]	Order no.
M12 connector · Output function normally open / normally closed / heartbeat programmable, 4...20 mA analogue · DC PNP/NPN						
	0...150 / 32...302	G ½ male	87.5	18...32	3 / 6	**TAD191**
	0...150 / 32...302	G ½ male	33	18...32	3 / 6	**TAD991**
	0...150 / 32...302	G ½ male	50	18...32	3 / 6	**TAD091**

Adapters

Type	Description	Order no.
	Clamp adapter · Clamp · 1-1.5" · ISO 2852 / DIN 32676 · for units with G ½ adaptation · Housing materials: stainless steel 316L / 1.4404	**E33401**
	Clamp adapter · Clamp · 2" · ISO 2852 / DIN 32676 · for units with G ½ adaptation · Housing materials: stainless steel 316L / 1.4404	**E33402**
	Clamp adapter · G ½ · with leakage port · Clamp · 1-1.5" · ISO 2852 / DIN 32676 · with leakage port · Housing materials: stainless steel 316L / 1.4435	**E43311**
	Clamp adapter · G ½ · with leakage port · Clamp · 2" · ISO 2852 / DIN 32676 · with leakage port · Housing materials: stainless steel 316L / 1.4435	**E43312**
	Welding adapter · G ½ - Ø 35 mm · Housing materials: stainless steel 316L / 1.4404	**E30055**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF004**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF001**

Further adapters from page 296

AS-i
controller and gateways

- **AS-i controller and gateways for DeviceNet, EtherNet/IP, PROFINET and PROFIBUS**
- **User-friendly graphic display for setup and diagnostics**
- **Single and dual master**
- **CODESYS programmable PLC to IEC 61131-3**
- **Extensive range of system components for AS-i available**

AS-i controller

The controller assumes the most important function in each AS-Interface network and is responsible for the control of the complete communication. The controller, often also called master, controls the cyclic data exchange with the connected slaves, monitors the replies and transmits data to the higher-level controller.

Gateways

AS-i gateways make a connection from AS-Interface to a higher-level bus system. Thus the advantages of both systems can be combined. The advantages of AS-i as the bus of the first automation level are its easy handling, fast data transmission, low costs and quick mounting technology. Several AS-i installation islands can be connected with a control room over long distances via fieldbus gateways. As the fieldbus is most of the time considerably slower, decentralised data preprocessing in the gateway is often required. Here ifm offers the AS-i controller family as gateways with integrated plc.

Controllers / Gateways

Type	Number of AS-i masters	Description	Order no.
	1	SmartLink DP · AS-i gateway / Profibus DP · Full master functions · Graphic display · Housing materials: aluminium / steel sheet galvanised	**AC1375**
	2	AS-i DP gateway · Full master functions · Graphic display · Profibus DP interface · Housing materials: aluminium / steel sheet galvanised	**AC1376**
	1	AS-i Profibus gateway · AS-i master · Ethernet configuration interface with dynamic web interface for configuration and diagnosis including remote maintenance · Profibus DP (DPV0 + DPV1) · LCD colour display · Device supply either via 24 V or AS-i (AS-i bus 1) · Housing materials: aluminium powder-coated / steel sheet galvanised / Makrolon	**AC1411**
	2	AS-i Profibus gateway · AS-i master · Ethernet configuration interface with dynamic web interface for configuration and diagnosis including remote maintenance · Profibus DP (DPV0 + DPV1) · LCD colour display · Device supply either via 24 V or AS-i (AS-i bus 1) · Housing materials: aluminium powder-coated / steel sheet galvanised / Makrolon	**AC1412**
	1	AS-i EtherNet/IP gateway · AS-i master · Ethernet configuration interface with dynamic web interface for configuration and diagnosis including remote maintenance · LCD colour display · Device supply either via 24 V or AS-i (AS-i bus 1) · Housing materials: aluminium powder-coated / steel sheet galvanised / Makrolon	**AC1421**
	2	AS-i EtherNet/IP gateway · AS-i master · Ethernet configuration interface with dynamic web interface for configuration and diagnosis including remote maintenance · LCD colour display · Device supply either via 24 V or AS-i (AS-i bus 1) · Housing materials: aluminium powder-coated / steel sheet galvanised / Makrolon	**AC1422**
	1	AS-i Profinet gateway · AS-i master · Ethernet configuration interface with dynamic web interface for configuration and diagnosis including remote maintenance · Profinet RT device class B · LCD colour display · Device supply either via 24 V or AS-i (AS-i bus 1) · Housing materials: aluminium powder-coated / steel sheet galvanised / Makrolon	**AC1401**
	2	AS-i Profinet gateway · AS-i master · Ethernet configuration interface with dynamic web interface for configuration and diagnosis including remote maintenance · Profinet RT device class B · LCD colour display · Device supply either via 24 V or AS-i (AS-i bus 1) · Housing materials: aluminium powder-coated / steel sheet galvanised / Makrolon	**AC1402**

AS-i flat cable

Type	Description	Order no.
	AS-i flat cable · Reverse polarity protection due to special shape · for use of insulation displacement technology · 100 m · EPDM, halogen-free · yellow	**E74000**
	AS-i flat cable · Reverse polarity protection due to special shape · for use of insulation displacement technology · 100 m · EPDM, halogen-free · black	**E74010**
	AS-i flat cable · Reverse polarity protection due to special shape · for the food industry · for use of insulation displacement technology · 100 m · TPE-PVC compound · yellow	**E74300**
	AS-i flat cable · Reverse polarity protection due to special shape · for the food industry · for use of insulation displacement technology · 100 m · TPE-PVC compound · black	**E74310**

Power supplies

- **Particularly space-saving design**
- **High efficiency, low heating of the control cabinet**
- **High power reserves**
- **Safe switch-off by circuit breakers in case of short circuit**
- **Low inrush current**

Energy-efficient

c UL us LISTED

Vibration and shock resistant

AS-i

Efficient and reliable

Due to innovative technology the new ifm power supplies require considerably less space in the control cabinet, as compared to common cabinet power supplies. Another advantage of the efficient design is the above average degree of efficiency of up to 94 per cent. This saves energy costs and reduces waste heat in the control cabinet.

In the development of the power supplies, particular importance was attached to a sufficient dimensioning of the components, so that operation is permanently ensured even in the limit areas of the specification. This results in an excellent MTBF value of about 1.4 million hours.

Moreover, all ifm power supplies feature sufficient power reserves to reliably handle even short current spikes.

AS-i switch power supplies

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Order no.
	2.8	30.5 DC	115 / 230 AC	98 (120 V AC; 60 Hz) / 96 (230 V AC; 50 Hz)	86.9	**AC1256**
	4	30.5 DC	115 / 230 AC	70 (120 V AC; 60 Hz) / 70 (230 V AC; 50 Hz)	88	**AC1254**
	8	30.5 DC	115 / 230 AC	44 (120 V AC; 60 Hz) / 42 (230 V AC; 50 Hz)	89.4	**AC1258**
	4	30.5 DC	24 DC	6 (24 V DC)	90.5	**AC1257**
	8	30.5 DC	3 x 400 AC	34 (400 V AC; 50 Hz) / 53 (480 V AC; 60 Hz)	92	**AC1253**

24 V DC power supplies

Type	Current [A]	Output voltage [V]	Nominal voltage [V]	Mains buffering time [ms]	Efficiency typ. [%]	Order no.
	3.3	24...28 DC	115 / 230 AC	30 (120 V AC; 60 Hz) / 128 (230 V AC; 50 Hz)	88	**DN4011**
	5	24...28 DC	115 / 230 AC	80 (120 V AC; 60 Hz) / 78 (230 V AC; 50 Hz)	89.4	**DN4012**
	10	24...28 DC	115 / 230 AC	46 (120 V AC; 60 Hz) / 47 (230 V AC; 50 Hz)	91	**DN4013**
	20	24...28 DC	115 / 230 AC	26 (120 V AC; 60 Hz) / 26 (230 V AC; 50 Hz)	92.7	**DN4014**
	5	24...28 DC	2 x 400 AC	27 (400 V AC; 50 Hz) / 48 (480 V AC; 60 Hz)	90.4	**DN4032**
	10	24...28 DC	3 x 400 AC	34 (400 V AC; 50 Hz) / 54 (480 V AC; 60 Hz)	92.8	**DN4033**
	20	24...28 DC	3 x 400 AC	22 (400 V AC; 50 Hz) / 22 (480 V AC; 60 Hz)	95	**DN4034**

SmartLine modules for control cabinets

- **Powerful relay switches up to 6 A**
- **4 relays in slim design of only 25 mm**
- **Low-profile transistor module**
- **Plug supplied with the unit**
- **Double terminals for the supply**

Even for small local control cabinets

The new SmartLine modules feature a housing that is only 25 mm wide, so they will easily fit into a small panel.

The transistor module is only 52 mm deep, so requires very little space, making it ideal for local control panels. At just 108 mm deep and 25 mm wide the relay module also won't take up much space in a classic control cabinet.

Powerful and flexible

The supplied cage clamps allow easy and efficient universal wiring. Double terminals help the user to loop through the power supply.

Sensor supply and the outputs of the transistor version are rated with 1 A, the relay modules switch up to 6 A.

Extended addressing mode

Up to 62 units can be connected to a master of specification 3.0 with M4 profile as A or B slaves. The modules can be addressed either prior to installation without voltage or when connected and wired via the addressing socket.

I/O modules for control cabinets

Type	Inputs / outputs	Description	Order no.
	4 inputs / 4 outputs	Active AS-i module · String mounting possible · Version 3.0 with extended addressing mode · Only for operation with AS-i masters with the profile M4 · plastics / PC GF20	**AC3200**
	4 inputs / 4 outputs	Active AS-i module · String mounting possible · Version 3.0 with extended addressing mode · Only for operation with AS-i masters with the profile M4 · plastics / PC GF20	**AC3201**
	4 inputs / 4 outputs	Active AS-i module · String mounting possible · Addressing socket · Version 3.0 with extended addressing mode · Only for operation with AS-i masters with the profile M4 · plastics / PC GF20	**AC3220**
	4 inputs / 4 outputs	Active AS-i module · String mounting possible · Addressing socket · Version 3.0 with extended addressing mode · Only for operation with AS-i masters with the profile M4 · plastics / PC GF20	**AC3221**
	4 analogue inputs 4...20 mA	Active AS-i module · Supply either from AS-i or an external 24 V source · Combicon connector for sensor connection · PC GF20	**AC3216**
	4 analogue inputs 0...10 V	Active AS-i module · Supply either from AS-i or an external 24 V source · Combicon connector for sensor connection · PC GF20	**AC3217**
	4 analogue outputs 0...20 mA	Active AS-i module · Supply either from AS-i or an external 24 V source · Combicon connector for actuator connection · PC GF20	**AC3218**
	4 analogue outputs 0...10 V	Active AS-i module · Supply either from AS-i or an external 24 V source · Combicon connector for actuator connection · PC GF20	**AC3219**
	4 inputs Pt100	Active AS-i module · Combicon connection · PC GF20	**AC3222**

Accessories

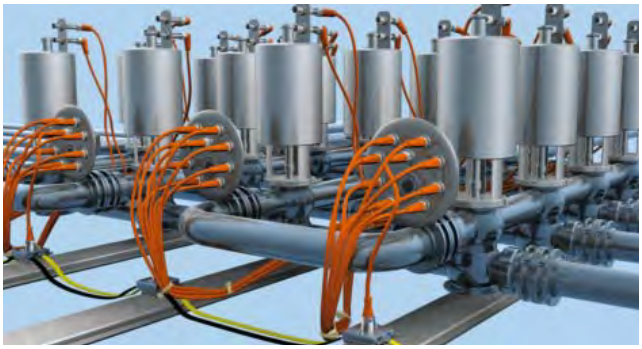
Type	Description	Order no.
	AS-i addressing unit · AS-i version 3.0 with extended addressing mode	**AC1154**
	Addressing cable · for AS-i slaves · 1.6 m	**E70213**

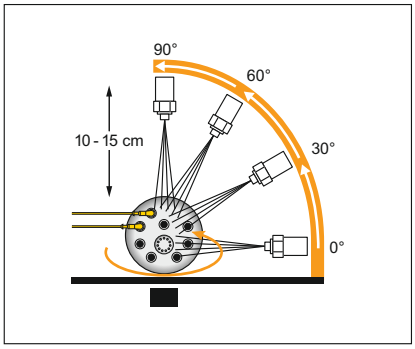
Input / output field modules from stainless steel

- ProcessLine AS-i stainless steel modules for use in hygienic applications
- Resistant to standard cleaning agents (Ecolab tested)
- AS-i and 24 V supply via common M12 connector
- For direct use in wet areas (protection rating IP 68 / IP 69K)
- Connection via high-grade stainless steel splitters

For extreme environments

The ProcessLine I/O module housing consists of high-grade stainless steel and can withstand both chemical and mechanical abuse. Its round housing does not have seams or edges, which reduces deposit build-up. It is corrosion resistant against most chemicals and is rated IP 69K to withstand high-pressure water sprays.





Product selectors and further information can be found at: www.ifm.com

Field modules IP 69K

Type	Inputs / outputs	Description	Order no.
	4 inputs / 3 outputs	Active ProcessLine module · Version 2.1 with extended addressing mode · Protection rating IP 69K · high-grade stainless steel · Digital inputs and outputs · Sockets M12 x 1 · high-grade stainless steel / Makrolon / O-ring: EPDM	**AC2904**
	8 digital inputs (2 slaves)	Active ProcessLine module · Version 2.1 with extended addressing mode · Protection rating IP 69K · high-grade stainless steel · Digital inputs · Sockets M12 x 1 · high-grade stainless steel / Makrolon / O-ring: EPDM	**AC2910**
	8-way splitter box	Passive splitter box AS-i ProcessLine · Protection rating IP 69K · high-grade stainless steel · AS-i and AUX splitter box for the connection of intelligent sensors/actuators · Sockets M12 x 1 · high-grade stainless steel / Makrolon	**AC2900**
	4 inputs 4...20 mA	Active AS-i module · 4 analogue inputs 4...20 mA · For the connection of 2-wire and 3-wire sensors · Threaded bush: stainless steel 316L / 1.4404 / Makrolon / O-ring: EPDM	**AC2916**

Accessories

Type	Description	Order no.
	FC splitter · AS-i voltage and external auxiliary voltage via the M12 socket · Housing materials: Metal parts: stainless steel 316L / 1.4404 / Blanks: FPM / O-ring: EPDM	**E70354**
	FC splitter · AS-i voltage via M12 socket · Housing materials: Metal parts: stainless steel 316L / 1.4404 / O-ring: EPDM / socket: PP GF30 / blade seal: TPE	**E70454**
	FC splitter · Housing materials: Metal parts: stainless steel 316L / 1.4404 / Blanks: FPM / O-ring: EPDM	**E70377**
	Protective cap · M12 · for M12 socket to cover the unused inputs and outputs on the module; for unused inputs of splitter boxes · for ProcessLine modules · Housing materials: PP	**E70297**
	AS-i flat cable · Reverse polarity protection due to special shape · for the food industry · for use of insulation displacement technology · 100 m	**E74300**
	AS-i flat cable · Reverse polarity protection due to special shape · for the food industry · for use of insulation displacement technology · 100 m	**E74310**

Jumpers for hygienic and wet areas

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Jumper M12 plug / M12 socket, 5-pole, 5-wire								
	5 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT062**

ClassicLine modules

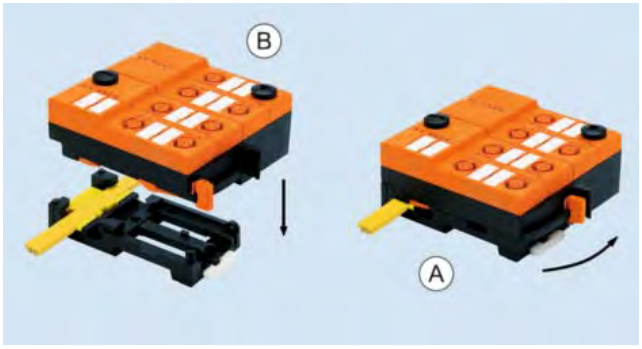
- **Field modules with digital and analogue inputs / outputs, optional with IO-Link**
- **AirBoxes: AS-i pneumatic valves with quick mounting technology**
- **Flexible orientation of the flat cable in three directions.**
- **Innovative insulation displacement technology means no tools needed for connection**
- **Integrated addressing socket allows setup while connected**

Easy connection due to toolless mounting.

ClassicLine modules can be connected to the yellow AS-i flat cable without tools using insulation displacement technology. The integrated DIN rail mounting allows easy installation in the control cabinet.

The ClassicLine module can accept an AS-i flat cable in three different directions to provide flexible cable routing. The integrated addressing socket allows addressing while connected to the system. All connections are located on the front display. LEDs indicate signal status, operating voltage and possible periphery faults.

ClassicLine modules include the so-called "AirBoxes". These are pneumatic valves triggered via AS-i. In addition to pneumatic connections they also feature digital inputs and outputs for the connection of sensors and actuators.



Quick mounting thanks to insulation displacement technology: A sliding mechanism (A) quickly connects the module's upper and lower parts (B).

ClassicLine modules

Type	Inputs / outputs	Description	Order no.
	4 inputs	Active ClassicLine module · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · Three orientations of the flat cable are possible · Digital inputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5215**
	2 outputs / 2 inputs	Active ClassicLine module · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · Three orientations of the flat cable are possible · Digital outputs and inputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5214**
	4 inputs / 3 outputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · Version 2.11 and 3.0 with extended addressing mode · Digital inputs and outputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5204**
	4 inputs / 4 outputs	Active ClassicLine module · Only for operation with AS-i masters with the profile M4 · Addressing socket · Three orientations of the flat cable are possible · Version 3.0 with extended addressing mode · Digital inputs and outputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5235**
	2 inputs 4...20 mA	Active ClassicLine module · 2 analogue inputs 4...20 mA · For the connection of 2-wire and 3-wire sensors · Addressing socket · Three orientations of the flat cable are possible · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5222**
	2 IO-Link ports	Active ClassicLine module · 2 IO-Link ports · For the connection of IO-Link sensors and actuators, binary sensors and binary actuators · Addressing socket · Three orientations of the flat cable are possible · Only for operation with AS-i masters with the profile M4 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5225**
	4 inputs / 4 outputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · Digital inputs and outputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5209**
	4 inputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable a re possible · Digital inputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5205**
	4 outputs	Active ClassicLine module · Addressing socket · Three orientations of the flat cable are possible · Digital outputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5208**
	8 digital inputs (2 slaves)	Active ClassicLine module · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · Three orientations of the flat cable are possible · Digital inputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5210**
	4 inputs	Active ClassicLine module · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · Three orientations of the flat cable are possible · Digital inputs · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5245**

Accessories

Type	Description	Order no.
	AS-i addressing unit · AS-i version 3.0 with extended addressing mode	**AC1154**
	Addressing cable · for AS-i slaves · 1.6 m	**E70213**

CompactLine modules

- **Module and connection technology: especially shock and vibration-resistant**
- **Full potting for use in harsh environments, protection IP 67**
- **ecolink technology in each port ensures secure connection**
- **Bus connection of the module via AS-i flat cable**
- **Up to 2 A current rating on the output (AC2452)**

For limited space

CompactLine modules feature particularly high ingress protection, shock and vibration resistance. This is achieved by fully potting the unit.

The flat compact design is particularly suited where space is at a premium. The M12 sockets are made of stainless steel.

Addressing is done either via the AS-i interface or infrared adapter. The yellow AS-i communication cable and the black 24 V flat cable (for auxiliary energy) are simply inserted in the supplied lower part. Insulation displacement technology ensures safe contacting.

Bore holes on the top and on the side allow horizontal or vertical mounting of the module.

CompactLine modules

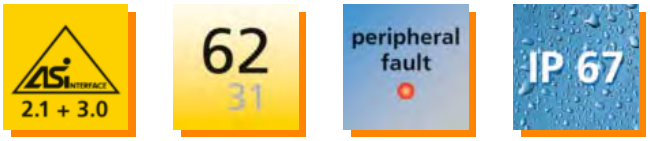
Type	Inputs / outputs	Description	Order no.
	4 inputs	Active CompactLine module · fully potted housing · IR addressing possible · Digital inputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : Viton / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC2410**
	4 inputs	Active CompactLine module · IR addressing possible · Metal parts from stainless steel · Digital inputs · Sockets M12 x 1 · PA / socket: stainless steel 316L / 1.4404 / threaded inserts in the lower part: stainless steel 316L / 1.4404 / screws: stainless steel / Piercing contacts: CuSn6 surface nickel and tin-plated / O-Ring : EPDM	**AC2451**
	4 inputs	Active CompactLine module · IR addressing possible · Version 2.11 and 3.0 with extended addressing mode · Digital inputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : Viton / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC2457**
	4 outputs	Active CompactLine module · IR addressing possible · Digital outputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : Viton / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC2417**
	4 inputs / 4 outputs	Active CompactLine module · IR addressing possible · Metal parts from stainless steel · Digital inputs and outputs · Sockets M12 x 1 · PA / socket: stainless steel 316L / 1.4404 / threaded inserts in the lower part: stainless steel 316L / 1.4404 / screws: stainless steel / Piercing contacts: CuSn6 surface nickel and tin-plated / O-Ring : EPDM	**AC2452**
	4 inputs / 4 outputs	Active CompactLine module · 60 x 152 x 27 · IR addressing possible · Digital inputs and outputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : Viton / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC2412**
	4 inputs / 4 outputs	Active CompactLine module · IR addressing possible · Digital inputs and outputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / threaded inserts in the lower part: Brass nickel-plated / O-Ring : Viton / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC2459**
	4 inputs / 4 outputs; bidirectional	Active CompactLine module · IR addressing possible · Version 3.0 with extended addressing mode · Only for operation with AS-i masters with the profile M4 · Metal parts from stainless steel · Sockets M12 x 1 · PA 6.6 / socket: stainless steel 316L / 1.4404 / threaded inserts in the lower part: stainless steel 316L / 1.4404 / O-Ring : EPDM / Piercing contacts: CuSn6 surface nickel and tin-plated / screws: stainless steel	**AC2455**

Accessories

Type	Description	Order no.
	AS-i addressing unit · AS-i version 3.0 with extended addressing mode	**AC1154**
	Addressing cable	**E70423**

AirBoxes:
AS-i pneumatics with quick mounting technology

- **Slide valves free from overlapping**
- **Pressure peak resistance up to 12 bar**
- **3 freely selectable directions of rotation of the flat cable**
- **Extended addressing mode**



Introduction

After successfully launching the ClassicLine modules for field applications we are now introducing the AirBoxes with various new features.
The AirBoxes are now easier to use with their novel assembly technology, additional valve functions and many
other new features.

Special features

- slide valves free from overlapping
- 2 x 3/2-way valves, 1 x 5/2-way valve (monostable / bistable)
- 1 x 5/3-way valve with blocked middle position
- quick mounting of upper and lower parts
- flat cable can be inserted from 3 different directions
- extended addressing mode

AS-i AirBoxes

Type	Inputs / outputs	Description	Order no.
	4 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 2 x 3/2-way slide valves free from overlapping · monostable · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5228**
	4 inputs / 1 output ; AirBox supply via AS-i	AS-i AirBox · 5/2-way slide valve free from overlapping · monostable · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5246**
	4 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 5/2-way bistable slide valve free from overlapping · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5251**
	2 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 2 x 3/2-way slide valves free from overlapping · monostable · Three orientations of the flat cable are possible · AS-i flat cable connection · Addressing socket · AS-i profile S-3.F.F · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5227**
	4 inputs / 2 outputs; AirBox supply via external 24 V DC	AS-i AirBox · 2 x 3/2-way slide valves free from overlapping · monostable · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5243**
	4 inputs / 2 outputs; AirBox supply via external 24 V DC	AS-i AirBox · 5/2-way bistable slide valve free from overlapping · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5253**
	4 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 5/3-way slide valve free from overlapping · closed · Three orientations of the flat cable are possible · AS-i flat cable connection · Version 2.11 and 3.0 with extended addressing mode · Addressing socket · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5270**
	4 inputs / 2 outputs; AirBox supply via AS-i	AS-i AirBox · 2 x 3/2-way slide valves free from overlapping · monostable · Three orientations of the flat cable are possible · AS-i flat cable connection · Addressing socket · AS-i profile S-7.F.F · PA / POM / Piercing contacts: CuSn6 surface nickel and tin-plated	**AC5285**

Accessories

Type	Description	Order no.
	Silencer · Housing materials: connection piece: PP / filter: PE	**E75232**
	Push-in T-fitting · Housing materials: housing: Nickel-plated brass / PA66 / tooth lock washer: stainless steel	**E75227**
	Push-in L-fitting · Diameter reduction from Ø8 mm to Ø6 mm · Housing materials: housing: Nickel-plated brass / PA66 / tooth lock washer: stainless steel	**E75229**
	Sealing plug for AirBox · Housing materials: housing: PA66	**E75231**

Dual sensors for quarter-turn actuators with AS-i connection

- **Non-contact detection of valve positions of quarter-turn actuators**
- **Up to 62 actuators can be connected to an AS-i master / controller**
- **50 % cost reduction compared to parallel wiring**
- **Quick and safe installation due to “plug & play”**
- **Monitoring of the solenoid valve for wire break / short circuit**

IP 67

Integrated AS-i connection for pneumatic valves.

Precise detection of the valve position is important for process control. One typical application is a large tank farm. Here, ifm offers a low-profile, non-contact solution that accurately detects if a valve is open or closed.

With the growing number of valves being used and minimal plant floor space available, wiring has become time-consuming and difficult to troubleshoot. To reduce wiring, the AS-i system is a simple and cost-saving solution for valve position monitoring.

AS-i connects a complete valve system with only one 2-wire cable. Wire bundles are eliminated. Valve position sensors with AS-i connectivity provide an integrated connection for the solenoid valve. The control unit is connected via the 2-wire AS-i cable.

This solution provides remote indication of valve status and can connect to higher level bus systems via DeviceNet, Profibus, and Ethernet.

Dual sensors for quarter-turn actuators

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f AC / DC [Hz]	I_{load} AC / DC [mA]	Order no.
M12 connector · AS-i								
	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	–	–	**AC2315**
M12 connector · Output function transistor PNP · AS-i								
	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	–	100	**AC2316**
	55 x 60 x 35	4 nf	PBT (Pocan)	26.5...31.6	IP 67	–	100	**AC2310**

f = flush / nf = non flush / qf = quasi-flush

Target pucks for dual sensors

Type	Description	Order no.
	Target puck · Ø 53 mm · 3 possible switching flag positions · Housing colour: black · Housing materials: Target puck: PA 6 black / screws: V2A	**E17320**
	Target puck · Ø 65 mm · 3 possible switching flag positions · Housing colour: black · Housing materials: Target puck: PA 6 / screws: V2A	**E17327**

Added value packages with Bürkert solenoid valve

Type	Description	Order no.
	Added value package AS-i for pneumatic quarter-turn actuators · A/B slave · Shaft height 20 mm · Hole spacing 80 mm · Connector	**AC0017**
	Added value package AS-i for pneumatic quarter-turn actuators · A/B slave · Shaft height 30 mm · Hole spacing 130 mm · Connector	**AC0020**

Added value packages with Norgren Herion solenoid valve

Type	Description	Order no.
	Added value package AS-i for pneumatic quarter-turn actuators · A/B slave · Shaft height 20 mm · Hole spacing 80 mm · Connector	**AC0021**
	Added value package AS-i for pneumatic quarter-turn actuators · A/B slave · Shaft height 30 mm · Hole spacing 80 mm · Connector	**AC0022**

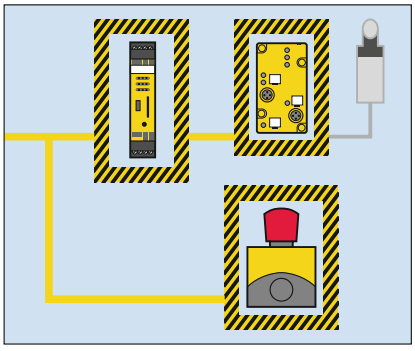
Safety at Work

- **AS-i safety monitor, 1 or 2 channels**
- **Safety function freely configurable**
- **Positively driven relay contacts for the enabling of drives, etc.**
- **Replaces traditional safety relays**
- **Toolless DIN rail mounting**

Safety on the AS-i bus

The AS-i safety monitor functions according to the Safety at Work specification. It monitors the data exchange between safe modules and the AS-i controllers. Should data transmission be disrupted, the module fail or a wire break occur, the monitor ensures the safe state. The same happens when the safety system is activated. The safety monitor receives a module address to enable direct diagnosis via the AS-i master. It can be mounted anywhere on the network.

The safety monitor features one or two independent OSSDs which can be configured via PC software. The parameter setting includes functions like emergency stop, start button, stop category 0 or 1, two-hand operation and muting. It can thus replace many different units. In addition, ifm offers a variety of safety AS-i modules, illuminated e-stop buttons and wiring solutions.



Safety at Work

Type	Description	Order no.
	Safe active AS-i module · Connection via M12x1 sockets or cage clamps · For connection of an electro-sensitive protective equipment (ESPE) type 4 to EN 61496-1 · PA 6 · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	**AC007S**
	AS-i Safety at Work · Addressing socket · Three orientations of the flat cable are possible · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3 · IEC 62061: SILcl 3	**AC507S**
	Illuminated E-STOP with integrated AS-i connection · fool-proof E-STOP to EN ISO 13850 · Pull to reset · AS-i interface via AS-i flat cable IP 67 · PC GF20 · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	**AC010S**
	AS-i Safety at Work · Safe AS-i input module 2SI - 2LO · Addressing socket · Three orientations of the flat cable are possible · Sockets M12 x 1 · PA / Piercing contacts: CuSn6 surface nickel and tin-plated · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 62061: SILcl 3	**AC505S**
	Safe active AS-i output module · SIL 3 to EN 62061, IEC 61508 / SIL 3 and EN ISO 13849 - 1 / PL e · for the safe triggering of actuators · Combicon connection · PA · Complies with the requirements: ISO 13849-1: PL e · IEC 61508: SIL 3	**AC030S**
	Safe active AS-i module · Performance Level e to EN ISO 13849-1 et IEC 61508 / SIL 3 for the connection of mechanical contacts · Combicon connection · PA · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	**AC009S**
	AS-i safety monitor · 2 safe semi-conductor outputs · SIL 3 to EN 62061, IEC 61508 / SIL 3 and EN ISO 13849 - 1 / PL e · Chip card to save the configuration data · Configuration and setup by configuration software ASIMON V3 G2 · USB 2.0 interface · Chip card and Combicon screw terminals supplied with the device · Screw terminal	**AC041S**
	AS-i safety PCB · Connection of mechanical contact and LED components · Certification to ISO 13849-1: PL e and IEC 61508 / SIL 3 · Complies with the requirements: · IEC 61508: SIL 3	**AC015S**
	AS-i safety monitor · Extended functionality · 2-channel · Configuration and setup by configuration software ASIMON · Screw terminal · polyamide black · Complies with the requirements: ISO 13849-1: PL e · IEC 61508: SIL 3	**AC004S**

SafeLine SmartPLC: fail-safe automation system

- **Quick and easy set-up**
- **Flexible and future-proof thanks to connective hardware and CODESYS V3**
- **High machine uptime due to sophisticated diagnostics**
- **Safe up to SIL 3, PL e**
- **Unbeatable price / performance ratio**

All-in-one: more than just a PLC

Just as a smartphone is more than just a phone, the new SmartPLC is more than just a simple PLC. It has the flexibility for different tasks, even in safety-related applications up to SIL 3, PL e.

For example as:

- fail-safe PLC
- standard PLC
- AS-i gateway
- visualisation system
- protocol converter
- data logger
- intelligent evaluation unit (ifm system solutions)

Two integrated PLCs (1 x fail-safe, 1 x standard), powerful processors, a large memory and a multitude of supported protocols allow the control of sophisticated systems – and this at an unbeatable price!

SmartPLCs

Type	Description	Order no.
	AS-i Profinet gateway with safe preprocessing · Ethernet configuration interface with dynamic web interface for configuration and diagnosis including remote maintenance · Profinet RT device class B · LCD colour display · Integrated safety and non safety PLC · Configuration and setup by CODESYS V3 configuration software · aluminium powder-coated / steel sheet galvanised / Makrolon · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	**AC402S**
	AS-i Profibus gateway · Ethernet configuration interface with dynamic web interface for configuration and diagnosis including remote maintenance · Profibus DP (DPV0 + DPV1) · LCD colour display · Configuration and setup by CODESYS V3 configuration software · aluminium powder-coated / steel sheet galvanised / Makrolon · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	**AC412S**
	AS-i EtherNet/IP gateway with safe preprocessing · Ethernet configuration interface with dynamic web interface for configuration and diagnosis including remote maintenance · LCD colour display · Integrated safety and non safety PLC · Configuration and setup by CODESYS V3 configuration software · aluminium powder-coated / steel sheet galvanised / Makrolon · Complies with the requirements: ISO 13849-1: category 4 · ISO 13849-1: PL e · IEC 61508: SIL 3	**AC422S**

Accessories

Type	Description	Order no.
	AS-i data decoupling module · Combicon connection · Housing materials: Makrolon	**AC1250**

IO-Link master for intelligent sensors in hygienic areas

- **4 or 8 IO-Link ports with full V1.1 functionality**
- **IP 69K field module for the food industry**
- **Master and devices configurable via the LR DEVICE software**
- **Industry 4.0 ready via LR AGENT EMBEDDED**
- **Voltage supply via standard M12 sensor cable, A-coded**

Robust field bus modules for demanding applications

The decentralised IO-Link masters are used as gateways between intelligent IO-Link sensors and the fieldbus. Thanks to their special housing materials and high ingress resistance (IP 69K), they can be used directly in wet areas in the food industry. The materials and production methods are identical to the ifm jumper cables of the tried-and-tested EVF product series.

The ecolink technology guarantees reliable, permanently ingress-resistant M12 connections of the connection cables.

High-quality materials especially suited to the application and intensive monitoring during and after production guarantee maximum quality standards.

IO-Link masters

Type	Inputs / outputs	Description	Order no.
	max. 4 IO-Link ports / max. 8 digital inputs / max. 4 digital outputs	IO-Link master with Profinet interface · I/O modules for field applications · Suited for use in the food and beverage industry (use of cleaning agents under high pressure and at high temperatures) · M12 connector · housing: polyamide grey / socket: Stainless steel 303	**AL1101**
	max. 4 IO-Link ports / max. 8 digital inputs / max. 4 digital outputs	IO-Link master with EtherNet/IP interface · I/O modules for field applications · Suited for use in the food and beverage industry (use of cleaning agents under high pressure and at high temperatures) · M12 connector · housing: polyamide grey / socket: Stainless steel 303	**AL1121**
	max. 8 IO-Link ports / max. 16 digital inputs / max. 8 digital outputs	IO-Link master with Profinet interface · I/O modules for field applications · Suited for use in the food and beverage industry (use of cleaning agents under high pressure and at high temperatures) · M12 connector · housing: polyamide grey / socket: Stainless steel 303	**AL1103**
	max. 8 IO-Link ports / max. 16 digital inputs / max. 8 digital outputs	IO-Link master with EtherNet/IP interface · I/O modules for field applications · Suited for use in the food and beverage industry (use of cleaning agents under high pressure and at high temperatures) · M12 connector · housing: polyamide grey / socket: Stainless steel 303	**AL1123**
	6 x 2 outputs	Active CompactLine module (IO-Link device) · I/O modules for field applications · Suited for use in the food and beverage industry (use of cleaning agents under high pressure and at high temperatures) · Sockets M12 x 1 · housing: polyamide grey / socket: Stainless steel 303	**AL2230**
	10 x 2 inputs	Active CompactLine module (IO-Link device) · I/O modules for field applications · Suited for use in the food and beverage industry (use of cleaning agents under high pressure and at high temperatures) · Sockets M12 x 1 · housing: polyamide grey / socket: Stainless steel 303	**AL2241**

Software

Type	Description	Order no.
	LR DEVICE (USB stick) · Parameter setting of the units via the network · Software for clear online and offline parameter setting of IO-Link sensors via USB adapter · Use via USB connection cable (drivers are supplied): E30396 IO-Link interface or E30390 IO-Link master (note the respective data sheet) · IODD import and update from ifm's homepage · Reading of IODDs via storage media · Automatic sensor identification · Graphic representation of the process values and history incl. export function · Documentation and archiving · Transferable parameter sets · Full memory plug support for IO-Link 1.1	**QA0011**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Y splitter M12-plug / 2 x M12-socket, 4/5-pole								
	–	–	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EBF006**

IO-Link master for the control cabinet

- **Separation between automation and IT network**
- **Industry 4.0 ready via new IoT core**
- **8 IO-Link ports with full V1.1 functionality**
- **PROFINET, EtherNet/IP, EtherCAT or TCP/IP JSON**
- **Master and device configurable via the LR DEVICE software**

IO-Link master for the automation and IT world

The IO-Link master modules for the control cabinet serve as a gateway between intelligent IO-Link sensors and the field bus. Besides, important information of the intelligent sensors can simultaneously be sent into the IT world.

With a separate IoT Ethernet socket the IT network can be set up completely separated from the automation network. Sensor information is transferred into the IT world via the established TCP/IP JSON interface.

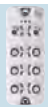
IO-Link masters

Type	Inputs / outputs	Description	Order no.
	max. 8 IO-Link ports / max. 16 digital inputs / max. 8 digital outputs	IO-Link master with Profinet interface · I/O modules for use in the control cabinet · Screw terminal · housing: polyamide	**AL1900**
	max. 8 IO-Link ports / max. 16 digital inputs / max. 8 digital outputs	IO-Link master with EtherNet/IP interface · I/O modules for use in the control cabinet · Screw terminal · housing: polyamide	**AL1920**
	max. 8 IO-Link ports / max. 16 digital inputs / max. 8 digital outputs	IO-Link master with EtherCat interface · I/O modules for use in the control cabinet · Screw terminal · housing: polyamide	**AL1930**

Software

Type	Description	Order no.
	LR DEVICE (USB stick) · Parameter setting of the units via the network · Software for clear online and offline parameter setting of IO-Link sensors via USB adapter · Use via USB connection cable (drivers are supplied): E30396 IO-Link interface or E30390 IO-Link master (note the respective data sheet) · IODD import and update from ifm's homepage · Reading of IODDs via storage media · Automatic sensor identification · Graphic representation of the process values and history incl. export function · Documentation and archiving · Transferable parameter sets · Full memory plug support for IO-Link 1.1	**QA0011**

Accessories

Type	Description	Order no.
	Active CompactLine module (IO-Link device) · I/O modules for field applications · Suited for use in the food and beverage industry (use of cleaning agents under high pressure and at high temperatures) · Sockets M12 x 1 · Housing materials: housing: polyamide grey / socket: Stainless steel 303	**AL2230**
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 0.5 m · Housing materials: TPU / PA	**E12490**
	Adapter · angled · Connector	**E21140**

LR DEVICE Parameter setting software via IO-Link master

- **Easy and fast IO-Link master parameter setting**
- **Clear representation**
- **Easy and fast device parameter setting (point-to-multipoint connection)**
- **Transferable parameter sets**

Features

- Online and offline parameter setting
- Supports all IO-Link devices
- Software and parameter description in all supported languages
- Detailed description texts of all parameter contents
- Parameter sets grouped according to topics
- Parameter setting of IO-Link master (AL11XX-series)
- Supports the latest ifm IO-Link devices
- Supports IO-Link actuators
- Parameter setting of devices via network

Customer benefits

- Optimised by means of graphic visualisation of the process values
- Shortened set-up time
- Optimised device replacement process
- Paperless recording of parameter sets

Software

Type	Description	Order no.
	LR DEVICE (USB stick) · Parameter setting of the units via the network · Software for clear online and offline parameter setting of IO-Link sensors via USB adapter · Use via USB connection cable (drivers are supplied): E30396 IO-Link interface or E30390 IO-Link master (note the respective data sheet) · IODD import and update from ifm's homepage · Reading of IODDs via storage media · Automatic sensor identification · Graphic representation of the process values and history incl. export function · Documentation and archiving · Transferable parameter sets · Full memory plug support for IO-Link 1.1	**QA0011**
	LR DEVICE (download) · Parameter setting of the units via the network · Software for clear online and offline parameter setting of IO-Link sensors via USB adapter · Use via USB connection cable (drivers are supplied): E30396 IO-Link interface or E30390 IO-Link master (note the respective data sheet) · IODD import and update from ifm's homepage · Reading of IODDs via storage media · Automatic sensor identification · Graphic representation of the process values and history incl. export function · Documentation and archiving · Transferable parameter sets · Full memory plug support for IO-Link 1.1	**QA0012**

RFID for production and conveying

- **RFID evaluation unit with PROFIBUS, PROFINET, Ethernet or TCP/IP**
- **Evaluation unit with 4 antenna connections or digital I/Os**
- **Read / write antennas in industrially compatible housing**
- **Transponder with memory sizes from a few bits up to several Kbytes**
- **Protection rating IP 67 meets the requirements for harsh environments**

Flexible RFID system with evaluation unit, antennas and transponders.

The DTE100 RFID system was designed especially for identification tasks in production and conveying. It is often used for quality assurance and serves as "electronic route card".

Parameters can be easily set via a laptop. Due to the high protection rating IP 67 and a large temperature range, the unit also meets the requirements of harsh industrial environments.

The new evaluation unit features four antenna connections or digital I/Os. The antenna concept guarantees easy and quick connection of the LF and HF RFID antennas to the evaluation unit by means of M12 connectors. Besides the LF transponder with a memory size of up to 2 Kbits, the product portfolio from ifm electronic also offers HF transponders with 16 Kbits as a FRAM variant which can be rewritten an unlimited number of times.

RFID system 13.56 MHz

Type	Description	Process interface	Order no.
M12 connector			
	RFID evaluation unit · for up to 4 read/write heads type ANT41x/ANT51x · Housing materials: Upper part: PA Grivory GV-5H orange / Upper part: TPE / lower part: GD-AlSi12	Profibus-DP	**DTE100**
	RFID evaluation unit · for up to 4 read/write heads type ANT41x/ANT51x · Housing materials: Upper part: PA Grivory GV-5H orange / Upper part: TPE / lower part: GD-AlSi12	PROFINET IO	**DTE101**
	RFID evaluation unit · for up to 4 read/write heads type ANT41x/ANT51x · Housing materials: Upper part: PA Grivory GV-5H orange / Upper part: TPE / lower part: GD-AlSi12	EtherNet/IP	**DTE102**
	RFID evaluation unit · for up to 4 read/write heads type ANT41x/ANT51x · Housing materials: Upper part: PA Grivory GV-5H orange / Upper part: TPE / lower part: GD-AlSi12	Ethernet TCP/IP	**DTE104**

RFID antennas 125 kHz / 13.56 MHz

Type	Description	Order no.
M12 connector		
	Read/write head · M12 connector · 5 positions of the sensing face selectable · Housing materials: housing: PA / Metal parts: stainless steel	**ANT512**
	Read/write head · M12 connector · 5 positions of the sensing face selectable · Housing materials: housing: PA / Metal parts: stainless steel	**ANT513**
	Read / write head · M12 connector · Housing materials: housing: stainless steel / Top: PPS	**ANT410**
	Read / write head · M12 connector · Housing materials: housing: stainless steel / Top: PPS	**ANT411**
	Read / write head · M12 connector · Housing materials: housing: stainless steel / Top: PPS	**ANT430**
	Read / write head · M12 connector · Housing materials: housing: stainless steel / Top: PPS	**ANT431**

Jumpers for hygienic and wet areas

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Jumper M12 plug / M12 socket, 5-pole, 5-wire								
	5 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT062**

Multicode reader

- **Orientation-independent reading of data matrix codes and other 1D/2D codes**
- **Illumination, optics, evaluation and interfaces in an industrially compatible housing**
- **Code comparator system in the sensor**
- **Setting aid due to laser pointer**
- **Integrated Ethernet TCP/IP and EtherNet/IP**

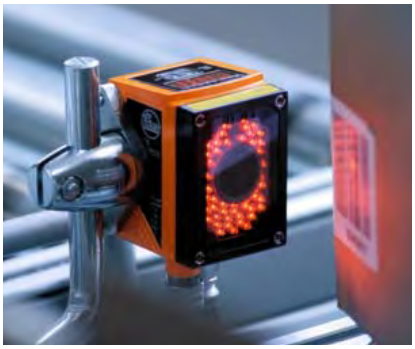
Reliable identification of data matrix and 1D codes

The multicode reader is designed to read 2D data matrix codes and 1D bar-codes in high speed industrial automation applications.

It reads most marking methods including dot-peened, laser-etched and printed data matrix codes as well as printed barcodes – and that even independent of its orientation.

Complex application programming is no longer necessary due to adjustable, selective identification and code comparison in the sensor. This allows a defined number of characters within a code to be checked and signalled via the switching output if they match.

The sensor can even reliably read codes which are difficult to read, e.g. on glass. Printed codes on plastic parts can wear or disintegrate over time. Here the multicode reader also allows reliable detection even if up to 28 % of the information is damaged.



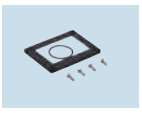
Multicode reader

Type	Dimensions [mm]	Max. field of view size [mm]	Type of light LED	Motion speed int. / ext. lighting [m/s]	Process interface	Order no.
Multicode Reader · M12 plug, 8 poles · M12 socket, 4 poles						
	60 x 42 x 53.5	64 x 48	red light	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	**O2I300**
	60 x 42 x 53.5	64 x 48	infrared	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	**O2I301**
	60 x 42 x 53.5	132 x 94	red light	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	**O2I302**
	60 x 42 x 53.5	132 x 94	infrared	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	**O2I303**
	60 x 42 x 59	400 x 300	red light	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	**O2I304**
	60 x 42 x 59	400 x 300	infrared	3 / 5	Ethernet TCP/IP, EtherNet/IP, RS-232	**O2I305**

Jumpers for the multi-code reader

Type	Description	Order no.
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR / PC	**E11898**
	Socket · angled · Free from silicone · Free from halogen · Gold-plated contacts · M12 connector · 2 m · Housing materials: PUR	**E11231**
	Socket · straight · Free from halogen · M12 connector · 2 m · Housing materials: PUR	**E11950**

Accessories

Type	Description	Order no.
	Operating software · O2I · for multicode reader · Create and manage application-specific configurations Monitor mode for set-up and service Service reports for statistical evaluations	**E2I200**
	Mounting set · O2D, O2M, O2I, O2V · Clamp mounting · rod mounting Ø 12 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	**E2D110**
	Plastic protective pane for the food industry · O2D / O2I · Housing materials: housing: diecast zinc black / lens: PMMA	**E21166**

Vibration monitoring systems

- Continuous vibration diagnosis for rotating plant parts
- Higher plant uptime thanks to condition-based maintenance
- Up to four vibration sensors can be connected to one evaluation unit
- Integrated history memory for trend analysis and documentation
- Ethernet interface for integration into operational data logging systems

Predictive maintenance solutions

Vibration diagnostic systems from ifm allow continuous vibration monitoring on machines and machine parts in food processing such as the detection of unbalance on rolling element bearings and gears.

The diagnostic electronics analyses the vibration characteristics of the machine and compares this to the permissible limit values. If these values are exceeded, the system automatically sets alarm outputs and transfers these data to the controller or the control system via Ethernet.

Innovative software

The analysis software allows the user to evaluate the state of the machine remotely. A bar graph display provides a quick overview of all operating states of the machine and the trend history shows machine condition changes over the time. All this allows condition-based maintenance of the machines. This increases plant uptime and at the same time reduces the operating costs.

Product selectors and further information can be found at: www.ifm.com

Diagnostic electronics – control cabinet modules for vibration diagnosis type VSE

Type	Description	Order no.
	Diagnostic electronics for vibration sensors · Mounting on DIN rail · Integrated history memory with real-time clock · Counter function · TCP/IP Ethernet interface · Active wire break detection and self-test (only MEMS) of the connected acceleration sensors · Parameter setting via PC software VES004 · 8 Inputs / outputs total, configurable · Frequency range 0 / 2 /10...12000 Hz · Ambient temperature 0...70 °C · Operating voltage 24 V DC ± 20 % · IP 20	**VSE002**
	Diagnostic electronics for vibration sensors · Mounting on DIN rail · Integrated history memory with real-time clock · Counter function · TCP/IP Ethernet interface · Active wire break detection and self-test (only MEMS) of the connected acceleration sensors · Parameter setting via PC software VES004 · 16 Inputs / outputs total, configurable · Frequency range 0...12000 Hz · Ambient temperature 0...70 °C · Operating voltage 24 V DC ± 20 % · IP 20	**VSE100**

Vibration sensors for connection to external diagnostic electronics VSE – type VSA / VSP

Type	Description	Order no.
	Accelerometer · for connection to external diagnostic electronics type VSE · M8 x 1.25 · Connector · Housing materials: housing: stainless steel 316L / 1.4404	**VSA001**
	Accelerometer · for connection to external diagnostic electronics type VSE · set screw · Housing materials: housing: stainless steel	**VSP001**

Accessories VSE

Type	Description	Order no.
	Parameter setting software VSExxx and VNBxxx · Version 1.21	**VES004**
	octavis OPC server · Software · German/English	**VOS001**

Connection cables VSE

Type	Description	Order no.
	Jumper · straight / straight · Ethernet · Cross-over patch cable · 2 m · Housing materials: PUR	**EC2080**

Connectors

Type	Description	Order no.
	Socket · straight · Free from silicone · Gold-plated contacts · M12 connector · 25 m · Housing materials: housing: PVC orange / sealing: EPDM	**EVT392**

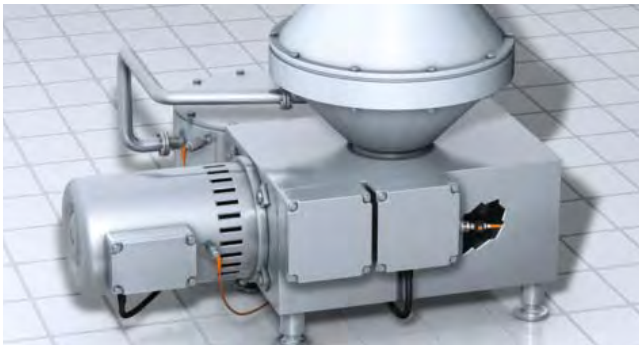
Vibration sensors and transmitters

- **Easy-to-use vibration monitoring for rotating machine parts**
- **Condition-based maintenance results in higher plant uptime**
- **Analogue output signal for trend recording of vibration values**
- **VK sensors combine both switching function and transmitter in one unit**
- **VT transmitter with stainless steel housing (316) and protection rating IP 69K**

Monitoring of overall machine health

Overall vibration velocity is used in industry standards to evaluate the overall machine condition. Recommendations for switching thresholds are given in ISO 10816. All ifm vibration sensors conform to the ISO 10816 standard.

efector octavis detects the occurrence of potential damage at an early stage.



The vibration switch VK monitors online the overall condition of machines and equipment according to ISO 10816.

Vibration sensors for vibration monitoring of machines and plants to ISO 10816 type VK

Type	Description	Order no.
	Vibration monitor · Connection via M12 connector · Vibration monitor to DIN ISO 10816 · Measuring range RMS: 0...25 mm/s · Switching output NC DC PNP and analogue output 4...20 mA · M8 x 1.25 · Housing materials: PBT / PC / FPM / stainless steel 316L / 1.4404	**VKV021**
	Vibration sensor · Connection via M12 connector · Vibration monitor to DIN ISO 10816 · Measuring range RMS: 0...50 mm/s · Switching output NC DC PNP and analogue output 4...20 mA · M8 x 1.25 · Housing materials: PBT / PC / FPM / stainless steel 316L / 1.4404	**VKV022**

Vibration transmitters for vibration monitoring of machines and plants to ISO 10816 type VT

Type	Description	Order no.
	Vibration transmitter · Connection via M12 connector · Vibration transmitter to ISO 10816 · Measuring range RMS: 0...50 mm/s · Analogue output 4...20 mA · 2-wire connection technology · set screw · Housing materials: stainless steel 316L / 1.4404	**VTV121**
	Vibration transmitter · Connection via M12 connector · Vibration transmitter to ISO 10816 · Measuring range RMS: 0...25 mm/s · Analogue output 4...20 mA · 2-wire connection technology · set screw · Housing materials: stainless steel 316L / 1.4404	**VTV122**
	Vibration transmitter · Connection via M12 connector · Vibration transmitter to ISO 10816 · Measuring range RMS: 0...25 mm/s · Analogue output 4...20 mA · 2-wire connection technology · ATEX approval · Group II, category 3D/3G · set screw · Housing materials: stainless steel 316L / 1.4404	**VTV12A**

Accessories

Type	Description	Order no.
	Protective cover · with lead seal option · for pressure sensors type PK · for temperature sensors type TK · for vibration sensors type VK · Housing materials: PP transparent	**E30094**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**

Configurable signal lamps

- **Perfect visibility**
- **Modern LED RGB technology – long life, reduced stock-keeping**
- **Different modes configurable via IO-Link or setting menu**
- **Also as standard version with digital inputs**
- **Easy installation**

High performance

Signal lamps are used for status indication or as warning device everywhere in factories on machines, conveyors and installations. ifm's innovative

signal lamps offer several advantages over conventional signal lamps and are therefore suitable for demanding applications.

Flexible configuration

In general signal lamps must be adapted to the application. Instead of spending time and effort on screwing modules of different colours together,

the new LED RGB technology makes it possible to adjust the signal lamp

as needed via IO-Link or setting button (e.g. permanently on, low flash rate, high flash rate, different colours, siren). This reduces type variety and stock-keeping.

Signal lamps

Type	Dimensions [Ø x H]	Communication	Items supplied	Protection rating	Order no.
	70 x 344	Digital inputs / IO-Link	Mounting base	IP 65	**DV1500**
	70 x 384	Digital inputs / IO-Link	Mounting base / buzzer	IP 54	**DV1510**
	70 x 244	Digital inputs / IO-Link	–	IP 65	**DV1520**
	70 x 284	Digital inputs / IO-Link	buzzer	IP 54	**DV1530**
	70 x 344	IO-Link	Mounting base	IP 65	**DV2500**
	70 x 384	IO-Link	Mounting base / buzzer	IP 54	**DV2510**
	70 x 244	IO-Link	–	IP 65	**DV2520**
	70 x 284	IO-Link	buzzer	IP 54	**DV2530**

Accessories

Type	Description	Order no.
	Base · Housing materials: aluminium black	**E89060**
	Wall bracket · Housing materials: aluminium black	**E89061**
	Mounting tube · Length: 100 mm · Housing materials: aluminium black	**E89065**
	Mounting tube · Length: 300 mm · Housing materials: aluminium black	**E89066**
	Mounting tube · Length: 800 mm · Housing materials: aluminium black	**E89067**

M12 and M8 connectors for hygienic and wet areas

- **Connection technology meets the M12 standard (EN 61076)**
- **Optimum sealing even when fastened by hand**
- **The mechanical end stops the O-ring being destroyed**
- **Nut secured against shock and vibration due to saw tooth vibration protection**
- **LEDs clearly visible even under bright lighting**

ecolink for demanding applications

Jumper cables feature a plug and a socket. They are used for the connection of sensors to splitter boxes and modules.

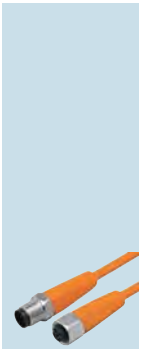
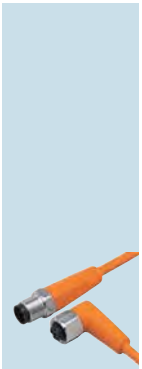
They ensure reliable and permanent sealing of the sensor and splitter connections even when mounted without tools. The integrated end stop protects the O-ring against destruction caused by an over-tightened coupling nut. Even in harsh industrial environments, the connectors are protected against unintended loosening by a special vibration protection. Some types are fitted with highly visible LEDs for operation and switching status indication.

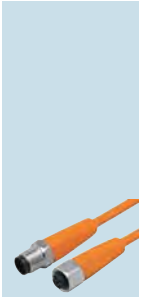
Their high-grade stainless steel nuts and food-grade sealing materials qualify the ecolink jumper cables for use in hygienic and wet areas. The jumper cables are resistant to frequent high-pressure cleaning with aggressive cleaning agents. Thanks to their wide temperature range and their insensitivity to fast temperature changes they are particularly suited for use in the food and beverage industry.

ecolink M8:
For the first time the innovative profiled sealing ring also provides the high protection ratings IP 67 / IP 68 / IP 69K for M8 connectors.

Product selectors and further information can be found at: www.ifm.com

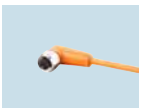
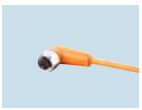
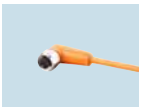
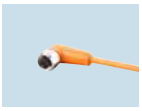
Jumper cables

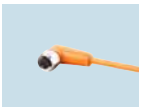
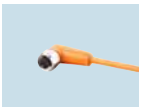
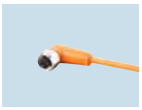
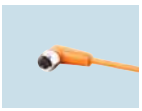
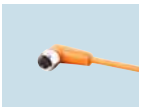
Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Jumper M8-plug / M8-socket, 3-pole, 3-wire								
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT145**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT146**
Jumper M12 plug / M12 socket, 3/5/4-pole, 3-wire								
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT022**
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT023**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT024**
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT025**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT026**
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT027**
	0.3 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT028**
	0.6 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT029**
	1 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT030**
	2 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT031**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT032**
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT033**
Jumper M12 plug / M12 socket, 4/5-pole, 4-wire								
	0.3 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT040**

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Jumper M12 plug / M12 socket, 4/5-pole, 4-wire								
	0.6 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT041**
	1 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT042**
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT043**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT044**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT045**
	0.3 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT046**
	0.6 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT047**
	1 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT048**
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT049**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT050**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT051**
Jumper M12 plug / M12 socket, 5-pole, 5-wire								
	0.3 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT058**
	0.6 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT059**
	1 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT060**
	2 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT061**
	5 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT062**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M8, 3-pole, 3-wire								
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT123**
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT124**
	25 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT125**
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT127**
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT128**
	25 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT129**
Socket M8, 3-pole, 3-wire, LED, PNP								
	5 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	**EVT131**
	10 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	**EVT132**
	25 m orange PVC cable	3 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	green / yellow	**EVT133**
Socket M8, 4-pole, 4-wire								
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT134**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT135**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT136**
	25 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT137**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT139**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT140**

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M8, 4-pole, 4-wire								
	25 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT141**
Socket M12, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT001**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT002**
	25 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT003**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT004**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT005**
	25 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT006**
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT064**
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT067**
	40 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT066**
	60 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT068**
	20 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT095**
Socket M12, 5/4-pole, 4-wire, LED, PNP								
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	**EVT007**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	**EVT008**
	25 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	**EVT009**

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5-pole, 5-wire								
	5 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT010**
	10 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT011**
	25 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT012**
	5 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT013**
	10 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT014**
	25 m orange PVC cable	5 x 0.34 mm², Ø 5.1 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT015**
Socket M12, screened, screen not connected to the socket, 5/4-pole, 4-wire								
	5 m orange PVC cable	4 x 0.34 mm², Ø 5.2 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT382**
	10 m orange PVC cable	4 x 0.34 mm², Ø 5.2 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT383**
	25 m orange PVC cable	4 x 0.34 mm², Ø 5.2 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT384**
	5 m orange PVC cable	4 x 0.34 mm², Ø 5.2 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT386**
	10 m orange PVC cable	4 x 0.34 mm², Ø 5.2 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT387**
	25 m orange PVC cable	4 x 0.34 mm², Ø 5.2 mm	PVC / stainless steel 316L / 1.4404	50 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT388**
Cable plug M12, 4-pole, 4-wire								
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT071**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT072**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT073**

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Cable plug M12, 4-pole, 4-wire								
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT088**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT090**
	10 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT327**
Y connection cable M12-plug / 2 x M12-socket, 5-pole, 5-wire								
	1 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT329**
	2 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT330**
	5 m orange PVC cable	4 x 0.34 mm², Ø 4.9 mm	PVC / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVT331**

8-pole M12 connectors for industrial applications

- 8-pole versions
- Withstands harsh conditions and oils and coolants
- Wide temperature range
- TPU and PUR jacket rated for over 5 million flex cycles

IP 67
IP 68

Robust standard connection technology

8-pole jumper cables are mostly used for the reliable connection of vision sensors, 3D cameras and safety light curtains.

They are designed for use under harsh conditions in industrial automation as well as oil and coolant applications and meet the requirements of the cRLus approval as well as the RoHS standards. They are also free from silicone and halogen.

Jumper cables

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Jumper M12 plug / M12 socket, 8-pole, 8-wire								
	5 m black PUR cable	8 x 0.25 mm², Ø 6.8 mm	PUR / Brass	30 AC 36 DC	-25...80	IP 68	–	**E11230**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 8/7-pole, 8-wire								
	2 m black PUR cable	8 x 0.25 mm², Ø 6.2 mm	PUR / Brass	30 AC 36 DC	-25...80	IP 67	–	**E11231**
	5 m black PUR cable	8 x 0.25 mm², Ø 6.2 mm	PUR / Brass	30 AC 36 DC	-25...80	IP 67	–	**E11232**
	5 m black PUR cable	8 x 0.25 mm²	TPU / Brass	30 AC 36 DC	-40...80	IP 67	–	**E12166**
	10 m black PUR cable	8 x 0.25 mm²	TPU / Brass	30 AC 36 DC	-40...80	IP 67	–	**E12167**
	5 m black PUR cable	8 x 0.25 mm², Ø 6.2 mm	PUR / Brass	30 AC 36 DC	-25...80	IP 68	–	**E11807**
	10 m black PUR cable	8 x 0.25 mm², Ø 6.2 mm	PUR / Brass	30 AC 36 DC	-25...80	IP 68	–	**E11311**
Socket M12, 8-pole, 8-wire								
	5 m orange PVC cable	8 x 0.25 mm², Ø 6.6 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 68 / IP 69K	–	**E12295**
	10 m orange PVC cable	8 x 0.25 mm², Ø 6.6 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 68 / IP 69K	–	**E12296**
	25 m orange PVC cable	8 x 0.25 mm², Ø 5.9 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 68 / IP 69K	–	**E12343**
	15 m orange PVC cable	8 x 0.25 mm², Ø 5.9 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 68 / IP 69K	–	**E12400**
	25 m orange PVC cable	8 x 0.25 mm², Ø 5.9 mm	PVC / stainless steel 316L / 1.4404	30 AC 36 DC	-25...100	IP 68 / IP 69K	–	**E12387**

ecolink M12
in difficult applications

- **Halogen-free and silicone-free**
- **Contoured nut with enhanced grip makes for optimum sealing even when hand tightened**
- **The mechanical end stop protects the O-ring against destruction**
- **Permanent vibration protection with saw tooth contour**
- **LEDs clearly visible even under bright lighting**

ecolink M12 for hygienic and wet areas in the food industry

Most applications require special solutions. Only high-quality materials, safe production processes and faultless mounting lead to success in the long run.

They ensure reliable and permanent sealing of the sensor and splitter connections even when mounted without tools. The integrated end stop protects the O-ring against destruction caused by over-tightening the nut.

Even in harsh industrial environments, the connectors are protected against unintended loosening by a special vibration protection. Some types are fitted with highly visible LEDs for operation and switching status indication.

Their high-grade stainless steel nut and food-grade sealing materials qualify the ecolink EVF connectors for use in hygienic and wet areas.

ifm products are resistant to frequent high-pressure cleaning with aggressive cleaning agents. Thanks to their wide temperature range and their insensitivity to fast temperature changes they are particularly suited for use in the food and beverage industry.

The cable sheath of the EVF series consists of halogen-free, flame-retardant material. In the event of a fire, smoke development is reduced to a minimum as compared to standard cables.

Jumper cables

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Jumper M12 plug / M12 socket, 4/5-pole, 4-wire								
	0.3 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF040**
	0.6 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF041**
	1 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF042**
	2 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF043**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF044**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF045**
	10 m grey MPPE cable	4 x 1.00 mm², Ø 6.2 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF495**
	20 m grey MPPE cable	4 x 1.00 mm², Ø 6.2 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF496**
	0.3 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF046**
	0.6 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF047**
	1 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF048**
	2 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF049**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF050**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF051**
	10 m grey MPPE cable	4 x 1.00 mm², Ø 6.2 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF502**

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Jumper M12 plug / M12 socket, 4/5-pole, 4-wire								
	20 m grey MPPE cable	4 x 1.00 mm², Ø 6.2 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF503**
Jumper M12 plug / M12 socket, 4/5-pole, 4-wire, LED, PNP								
	0.3 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	**EVF052**
	0.6 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	**EVF053**
	1 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	**EVF054**
	2 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	**EVF055**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	**EVF056**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	**EVF057**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire								
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF001**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF002**
	25 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF003**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF004**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF005**
	25 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF006**

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Socket M12, 5/4-pole, 4-wire, LED, PNP								
	5 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	**EVF007**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	**EVF008**
	25 m grey MPPE cable	4 x 0.34 mm², Ø 4.9 mm	PP / stainless steel 316L / 1.4404	10...36 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	green / 2 x yellow	**EVF009**
Socket M12, 5-pole, 4-wire								
	10 m grey MPPE cable	4 x 1.00 mm², Ø 6.2 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF482**
	20 m grey MPPE cable	4 x 1.00 mm², Ø 6.2 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF483**
	50 m grey MPPE cable	4 x 1.00 mm², Ø 6.2 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF484**
	10 m grey MPPE cable	4 x 1.00 mm², Ø 6.2 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF487**
	20 m grey MPPE cable	4 x 1.00 mm², Ø 6.2 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF488**
	50 m grey MPPE cable	4 x 1.00 mm², Ø 6.2 mm	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF489**
Socket M12, 5-pole, 5-wire								
	5 m grey MPPE cable	5 x 0.34 mm², Ø 5.1 mm	PP / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF010**
	25 m grey MPPE cable	5 x 0.34 mm², Ø 5.1 mm	PP / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF012**
	5 m grey MPPE cable	5 x 0.34 mm², Ø 5.1 mm	PP / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF013**
	10 m grey MPPE cable	5 x 0.34 mm², Ø 5.1 mm	PP / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF014**
	25 m grey MPPE cable	5 x 0.34 mm², Ø 5.1 mm	PP / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF015**

ecolink M12,
Ethernet D-Code

- **Halogen-free and silicone-free**
- **Contoured nut with enhanced grip makes for optimum sealing even when hand tightened**
- **The mechanical end stop protects the O-ring against destruction**
- **Permanent vibration protection with saw tooth contour**
- **Ethernet CAT 5 / CAT 5e (star quad)**

ecolink M12 for hygienic and wet areas in the food industry

Most applications require special solutions. Only high-quality materials, safe production processes and faultless mounting lead to success in the long run.

They ensure reliable and permanent sealing of the sensor and splitter connections even when mounted without tools. The integrated end stop protects the O-ring against destruction caused by over-tightening the nut.

Even in harsh industrial environments, the connectors are protected against unintended loosening by a special vibration protection.

Their high-grade stainless steel nut and food-grade sealing materials qualify the ecolink EVF connectors for use in hygienic and wet areas.

ifm products are resistant to frequent high-pressure cleaning with aggressive cleaning agents. Thanks to their wide temperature range and their insensitivity to fast temperature changes they are particularly suited for use in the food and beverage industry.

The cable sheath of the EVF series consists of halogen-free, flame-retardant material. In the event of a fire, smoke development is reduced to a minimum as compared to standard cables.

Jumper cables

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Jumper M12 plug / M12 plug, 4-pole, 4-wire								
	0.25 m grey MPPE cable	4 x 0.34 mm², Ø 6.5 mm	PP / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF528**
	0.5 m grey MPPE cable	4 x 0.34 mm², Ø 6.5 mm	PP / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF529**
	1 m grey MPPE cable	4 x 0.34 mm², Ø 6.5 mm	PP / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF530**
	2 m grey MPPE cable	4 x 0.34 mm², Ø 6.5 mm	PP / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF531**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 6.5 mm	PP / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF532**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 6.5 mm	PP / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF533**
	20 m grey MPPE cable	4 x 0.34 mm², Ø 6.5 mm	PP / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF534**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Cable plug M12, 4-pole, 4-wire								
	2 m grey MPPE cable	4 x 0.34 mm², Ø 6.5 mm	PP / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF518**
	5 m grey MPPE cable	4 x 0.34 mm², Ø 6.5 mm	PP / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF519**
	10 m grey MPPE cable	4 x 0.34 mm², Ø 6.5 mm	PP / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF520**
	20 m grey MPPE cable	4 x 0.34 mm², Ø 6.5 mm	PP / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF521**
	50 m grey MPPE cable	4 x 0.34 mm², Ø 6.5 mm	PP / stainless steel 316L / 1.4404	50 AC 60 DC	-25...80	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVF522**

ecolink M12,
Y splitters

- Halogen and silicone-free
- Connection technology meets the M12 standard (EN 61076)
- Optimum sealing even when mounted without tools
- The mechanical end stop protects the O-ring against destruction
- Visible and tactile marking of the ports

ecolink M12 for hygienic and wet areas in the food industry

Y splitters feature a plug and two sockets. They are each used to connect two sensors or actuators to splitter boxes and modules.The connections of sensors and Y distributors guarantee a perfect lasting seal even when fastened by hand. The integrated end stop protects the O-ring against destruction caused by an over-tightened coupling nut. Even in harsh industrial environments, the connectors are protected against unintended loosening by a special vibration protection.

Their high-grade stainless steel nut and food-grade sealing materials qualify the ecolink Y splitters for use in hygienic and wet areas.

The Y splitters are resistant to frequent high-pressure cleaning with aggressive cleaning agents. Thanks to their wide temperature range and their insensitivity to fast temperature changes they are particularly suited for use in the food and beverage industry.

Y splitters

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Y splitter M12-plug / 2 x M12-socket, 4/5-pole								
	–	–	PP / stainless steel 316L / 1.4404	250 AC 300 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EBF006**
Y splitter M12-plug / 2 x M12-socket, 5-pole								
	–	–	PP / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EBF007**
	–	–	PP / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EBF008**
	–	–	PP / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EBF009**
	–	–	PP / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EBF010**
	–	–	PP / stainless steel 316L / 1.4404	60 AC 60 DC	-25...100	IP 65 / IP 67 / IP 68 / IP 69K	–	**EBF011**

Wirable sockets and plugs

- Straight or angled design
- Gold-plated contacts for reliable electrical connections
- High protection rating for the requirements of harsh industrial environments
- Versions with LED for switching status indication and operation
- Stainless steel lock nut

Wirable sockets and plugs

Wirable sockets and plugs are used for the connection of sensors or actuators with connectors. They are used if a specific cable length or cable is required. The units have convenient screw terminals for connection.

High-grade stainless steel nuts make the wirable sockets suitable for use in hygienic and wet areas.

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
Wirable socket M12, 4-pole								
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / high-grade st. steel	250 AC/DC	-25...85	IP 67	–	**E11862**
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / high-grade st. steel	250 AC/DC	-25...90	IP 67	–	**E11861**
Wirable socket M12, 5/4-pole, LED, PNP								
	wirable	...0.75 mm² (Ø 4...6 mm)	PBT / high-grade st. steel	10...30 DC	-25...85	IP 67 / IP 69K	green / yellow	**E11863**
Wirable socket M12, 5-pole								
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / high-grade st. steel	60 AC/DC	-25...85	IP 67	–	**E11865**
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / high-grade st. steel	60 AC 60 DC	-25...90	IP 67	–	**E11864**
Wirable plug M12, 4-pole								
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / high-grade st. steel	250 AC/DC	-25...85	IP 67	–	**E11858**
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / high-grade st. steel	250 AC/DC	-25...85	IP 67	–	**E11857**
Wirable plug M12, 5-pole								
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / high-grade st. steel	60 AC/DC	-25...85	IP 67	–	**E11860**
	wirable	...0.75 mm² (Ø 4...6 mm)	PA / high-grade st. steel	125 AC/DC	-25...85	IP 67	–	**E11859**

Accessories for ifm sensors

- **Mounting bracket**
- **Mounting clamps**
- **Prismatic reflectors for retro-reflective sensors**
- **IO link accessories**
- **Installation and process adapter**

High-grade stainless steel

Hygienic mounting accessories

One-piece angle brackets in stainless steel are used to mount cylindrical inductive, capacitive and photoelectric M12, M18 and M30 sensors.

Moreover, ifm also provides adjustable installation systems allowing easy and flexible orientation. Once put into position, it is sufficient to tighten a screw to keep the sensor in position permanently and safely. These mounting systems are available in various configurations and are also suitable for mounting prismatic reflectors.

Round prismatic reflectors are available in 50 and 80 mm diameters for retro-reflective sensor applications.

ifm also offers accessories for process sensors, camera systems and valve sensors and their mounting on quarter-turn actuators.

Accessories for inductive and photoelectric sensors

Type	Description	Order no.
	Angle bracket · for type M12 · Housing materials: stainless steel	**E10735**
	Angle bracket · for type M18 · Housing materials: stainless steel	**E10736**
	Angle bracket · for type M30 · Housing materials: stainless steel	**E10737**
	Mounting clip · O-shaped · for type M12 · Housing materials: stainless steel	**E11533**
	Mounting clip · O-shaped · for type M18 · Housing materials: stainless steel	**E11534**
	Mounting clip · Ø 18 mm · for smooth body switches - Ø 18 mm · Form V · Housing materials: stainless steel	**E11531**

System components

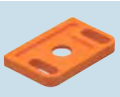
Type	Description	Order no.
	Mounting set · Ø 18.5 mm · Clamp mounting · Free-standing M10 · for type OG, IG, KG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	**E20869**
	Mounting set · Ø 18.5 mm · Clamp mounting · Free-standing M10 · for type OG, IG, KG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	**E20870**
	Mounting set · Ø 18.5 mm · Clamp mounting · rod mounting Ø 12 mm · for type OG, IG, KG · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: stainless steel	**E20872**
	Mounting set · Clamp mounting · Free-standing M10 · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	**E21083**
	Mounting set · Clamp mounting · With protective cover · Free-standing M10 · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	**E21084**
	Mounting set · Clamp mounting · With protective cover · rod mounting Ø 12 mm · for type O5 · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: high-grade stainless steel	**E21223**
	Mounting set · Clamp mounting · rod mounting Ø 12 mm · for type O5, O5D · Housing materials: stainless steel 316Ti / 1.4571 / clamp: high-grade stainless steel	**E21212**
	Angle bracket · for reflector · 50 x 50 mm · Housing materials: fixture: stainless steel 316Ti / 1.4571	**E20724**

Type	Description	Order no.
	Angle bracket · for type O5 · Housing materials: stainless steel 316Ti / 1.4571	E21087

Prismatic reflector

Type	Description	Order no.
	Prismatic reflector · Ø 50 mm · round · fixing by screw · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E20956
	Prismatic reflector · Ø 80 mm · round · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E20005
	Prismatic reflector · 45 x 28 mm · rectangular · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E20452
	Prismatic reflector · 48 x 48 mm · rectangular · For red light and infrared light retro-reflective sensors · Housing materials: front plate: PMMA / base: ABS	E20744
	Prismatic reflector · Ø 25 mm · round · fixing by screw · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E20953
	Prismatic reflector · Ø 40 mm · round · fixing by screw · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E20850
	Prismatic reflector · Ø 35 mm · round · fixing by screw · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E20954
	Prismatic reflector · 80 x 80 mm · rectangular · For red light and infrared light retro-reflective sensors · Housing materials: plastics	E20739
	Reflective tape · TS-02 · 50 x 1000 mm · For red light and infrared light retro-reflective sensors · Housing materials: plastics / acrylic	E21015

Accessories for quarter-turn actuator sensors

Type	Description	Order no.
	Spacer · 10 mm · for compensation between target pucks and dual sensor IND · Housing materials: PBT	E10579
	Spacer · 5 mm · for compensation between target pucks and dual sensor IND · Housing materials: PBT	E10585
	Spacer · Housing materials: PA 6 black / screw: stainless steel	E12526

Type	Description	Order no.
	reinforcement bracket · for type IND · Housing materials: stainless steel 316Ti / 1.4571	**E11310**
	Head cap screw · M5 x 30 mm · Housing materials: screw: stainless steel 316L / 1.4404	**E17011**

Switching cams for sensors with quarter-turn actuators

Type	Description	Order no.
	Target puck · Ø 45 mm · for butterfly valve · Housing materials: Delrin	**E17002**
	Target puck · Ø 53 mm · Housing materials: Target puck: PA 6 black / Metal parts: stainless steel	**E12517**
	Target puck · Ø 53 mm · adjustable · Housing materials: Target puck: PA 6 black / Metal parts: stainless steel	**E12516**
	Target puck · Ø 102 mm · 3 possible switching flag positions · Housing colour: black · Housing materials: Target puck: PA 6 / screws: V2A	**E17328**
	Spacer · Housing materials: PA 6 black / screw: stainless steel	**E12526**

Accessories for IO-Link

Type	Description	Order no.
	Memory plug · Parameter memory for IO-Link sensors · Storage capacity: 2 Kbytes · Housing materials: PA PACM 12 / PET / sealing: FPM / nut: stainless steel 316L / 1.4404 / connector: TPU	**E30398**
	IO-Link interface · for parameter setting and analysis of units with max. 65 mA current consumption · Supported communication protocols: IO-Link (4800 and 38400 bits/s) EPS protocol (19200 bits/s) · for operation with FDT framework software “ifm Container” or software “LR SENSOR”	**E30396**
	USB IO-Link master · for parameter setting and analysis of units · Supported communication protocols: IO-Link (4.8, 38.4 and 230 Kbits/s) · for operation with FDT framework software “ifm Container” or software “LR SENSOR”	**E30390**
	IO-Link display unit · Connector · Housing materials: stainless steel / PC / PBT-GF 30 / PPS / FKM / PA66 GF30	**E30391**
	LR DEVICE (USB stick) · Parameter setting of the units via the network · Software for clear online and offline parameter setting of IO-Link sensors via USB adapter · Use via USB connection cable (drivers are supplied): E30396 IO-Link interface or E30390 IO-Link master (note the respective data sheet) · IODD import and update from ifm's homepage · Reading of IODDs via storage media · Automatic sensor identification · Graphic representation of the process values and history incl. export function · Documentation and archiving · Transferable parameter sets · Full memory plug support for IO-Link 1.1	**QA0011**

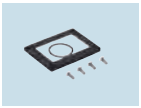
Accessories O5 housing

Type	Description	Order no.
	Mounting set · Clamp mounting · Free-standing M10 · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21083
	Mounting set · Clamp mounting · With protective cover · Free-standing M10 · for type O5 · Housing materials: stainless steel 316Ti / 1.4571 / clamp: diecast zinc	E21084
	Mounting set · Clamp mounting · With protective cover · rod mounting Ø 12 mm · for type O5 · Housing materials: fixture: stainless steel 316Ti / 1.4571 / clamp: high-grade stainless steel	E21223
	Mounting set · Clamp mounting · rod mounting Ø 12 mm · for type O5, O5D · Housing materials: stainless steel 316Ti / 1.4571 / clamp: high-grade stainless steel	E21212
	Angle bracket · for type O5 · Housing materials: stainless steel 316Ti / 1.4571	E21087

Accessories for O6 design

Type	Description	Order no.
	Angle bracket · O6 · for type O6 · Housing materials: stainless steel 316Ti / 1.4571	E21271
	Mounting set · O6 · Clamp mounting · rod mounting Ø 12 mm · for type O6 · Housing materials: stainless steel 316Ti / 1.4571	E21275
	Mounting set · O6 · Clamp mounting · rod mounting Ø 10 mm · for type O6 · Housing materials: stainless steel 316Ti / 1.4571	E21272
	Protective cover · O6 · for type O6 · Housing materials: stainless steel 316Ti / 1.4571	E21273

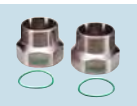
Accessory type O2I / O2D

Type	Description	Order no.
	Plastic protective pane for the food industry · O2D / O2I · Housing materials: housing: diecast zinc black / lens: PMMA	E21166
	Mounting set · O2D, O2M, O2I, O2V · Clamp mounting · rod mounting Ø 12 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	E2D110

Fixing components for 3D sensors

Type	Description	Order no.
	Mounting set · O3D · Clamp mounting · Type O3D · rod mounting Ø 14 mm · Housing materials: fixture: stainless steel / clamp: stainless steel	**E3D103**

Mounting adapters for magnetic-inductive volumetric flow sensors

Type	Description	Order no.
	Adapter · G 2 - 2" TRICLAMP · for flow sensors type SM2, SM9 · Housing materials: stainless steel 316L / 1.4404	**E40254**
	Adapter · 2" NPT · for flow sensors type SM2, SM9 · Housing materials: stainless steel 316Ti / 1.4571	**E40228**
	Adapter · G ½ - R ½ · for flow monitor type SM6 · flat seal · Housing materials: stainless steel 316Ti / 1.4571	**E40199**
	Adapter · G ½ - ½" NPT · for flow monitor type SM6 · flat seal · Housing materials: stainless steel 316Ti / 1.4571	**E40200**
	Adapter · G ½ - G ½ · for flow monitor type SM6 · Housing materials: stainless steel 316L / 1.4404	**E40213**
	Adapter · G ¾ - G ¾ · for flow monitor type SM7 / SU7 · Housing materials: stainless steel 316L / 1.4404	**E40216**
	Adapter · G ¾ - ½" NPT · for flow monitor type SM7 / SU7 · Housing materials: stainless steel 316L / 1.4404	**E40191**
	Adapter · G ¾ - R ½ · for flow monitor type SM7 / SU7 · Housing materials: stainless steel 316L / 1.4404	**E40178**
	Adapter · G 1 - R ¾ · for flow monitor type SM8 / SU8 · Housing materials: stainless steel 316L / 1.4404	**E40180**
	Adapter · G 1 - G 1 · for flow monitor type SM8 / SU8 · Housing materials: stainless steel 316L / 1.4404	**E40217**
	Adapter · G 1 - ¾" NPT · for flow monitor type SM8 / SU8 · Housing materials: stainless steel 316L / 1.4404	**E40193**

Mounting adapters for flow sensors

Type	Description	Order no.
	Adapter · M18 x 1.5 - G ½ · Insertion depth of the probe of SID, SFD, TN: · 21 mm · Housing materials: stainless steel 316L / 1.4404	E40096
	Adapter · M18 x 1.5 - G ¼ · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: stainless steel 316L / 1.4404	E40099
	Adapter · M18 x 1.5 - M12 x 1 · Insertion depth of the probe of SID, SFD, TN: · 13.5 mm · Housing materials: stainless steel 316L / 1.4404	E40101
	Adapter · M18 x 1.5 - ½" NPT · Insertion depth of the probe of SID, SFD, TN: · 23 mm · Housing materials: stainless steel 316L / 1.4404	E40107
	Flow adapter (for low flow rates) · M12 x 1 - G 1/8 · for flow sensors and compact flow monitors with adapter · Housing materials: stainless steel 316L / 1.4404	E40129
	Adapter block · D10 / G ¼ · for flow sensors type SID, SF5 · Optimised for the following volumetric flow quantities (factory setting with water): · 0.2...2 l/min (SI1xxx) 0.2...3 l/min (SI5xxx) · Housing materials: stainless steel 316L / 1.4404	E40161
	Welding adapter · M18 x 1.5 - Ø 24 mm · Insertion depth of the probe of SID, SFD, TN: · 15 mm · Housing materials: stainless steel 316L / 1.4404	E40124

Accessories for pressure sensors

Type	Description	Order no.
	Protective cover · for fluid sensors with M12 connector · Housing materials: Polypropylene homopolymer	E30420
	Angle bracket · Housing materials: PA66-	E30421

Accessories for temperature sensors

Type	Description	Order no.
	Welding adapter · Ø 25 mm · for temperature sensors Ø 6 mm · Clamp fitting · Housing materials: stainless steel 316L / 1.4404 / rubber ring: PEEK	E30407
	Welding thermowell · Ø 35 mm · Probe length: 126.5 mm · for type TA343x, TAA431, TAD191 · Housing materials: stainless steel 316L / 1.4404	E30403

Thermowells for temperature sensors

Type	Description	Order no.
	Thermowell for temperature sensors · G ½ · Probe length: 53 mm · for type TA34xx, TAA431, TAD191 · Housing materials: stainless steel 316L / 1.4404	**E30393**
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 74 mm · for temperature sensors with installation length EL = 100 mm · Housing materials: stainless steel 316L / 1.4404	**E37210**
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 125 mm · for temperature sensors with installation length EL = 150 mm · Housing materials: stainless steel 316L / 1.4404	**E37220**
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 68 mm · for temperature sensors with installation length EL = 100 mm · Housing materials: stainless steel 316L / 1.4404	**E37511**
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 68 mm · for temperature sensors with installation length EL = 100 mm · Housing materials: stainless steel 316L / 1.4404	**E37511**
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 118 mm · for temperature sensors with installation length EL = 150 mm · Housing materials: stainless steel 316L / 1.4404	**E37521**
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 33 mm · for temperature sensors with installation length EL = 50 mm · Housing materials: stainless steel 316Ti / 1.4571	**E37603**
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 83 mm · for temperature sensors with installation length EL = 100 mm · Housing materials: stainless steel 316Ti / 1.4571	**E37613**
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 128 mm · for temperature sensors with installation length EL = 150 mm · Housing materials: stainless steel 316Ti / 1.4571	**E37623**
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 27 mm · for temperature sensors with installation length EL = 50 mm · Housing materials: stainless steel 316Ti / 1.4571	**E37600**
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 74 mm · for temperature sensors with installation length EL = 100 mm · Housing materials: stainless steel 316Ti / 1.4571	**E37610**
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 124 mm · for temperature sensors with installation length EL = 150 mm · Housing materials: stainless steel 316Ti / 1.4571	**E37620**
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 64 mm · for temperature sensors with installation length EL = 100 mm · Housing materials: stainless steel 316L / 1.4404	**E37810**
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 115 mm · for temperature sensors with installation length EL = 150 mm · Housing materials: stainless steel 316L / 1.4404	**E37820**
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 64 mm · for temperature sensors with installation length EL = 100 mm · Housing materials: stainless steel 316L / 1.4404	**E37910**
	Thermowell for temperature sensors · Ø 6 mm · Installation length EL: 115 mm · for temperature sensors with installation length EL = 150 mm · Housing materials: stainless steel 316L / 1.4404	**E37920**

Type	Description	Order no.
	Welding thermowell for temperature sensors · Ø 6 mm · Installation length EL: 49 mm · for temperature sensors with installation length EL = 50 mm · Housing materials: stainless steel 316L / 1.4404	E37411
	Welding thermowell for temperature sensors · Ø 6 mm · Installation length EL: 99 mm · for temperature sensors with installation length EL = 100 mm · Housing materials: stainless steel 316L / 1.4404	E37421
	Welding thermowell for temperature sensors · Ø 6 mm · Installation length EL: 149 mm · for temperature sensors with installation length EL = 150 mm · Housing materials: stainless steel 316L / 1.4404	E37431

Accessories for capacitive sensors

Type	Description	Order no.
	Mounting adapter · M30 x 1.5 - G 1½ · Housing materials: POM / EPDM	E11033
	Locknut · G 1½ · for mounting adapter · Housing materials: POM	E11031

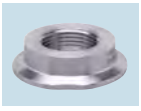
Accessories for capacitive touch sensors and illuminated pushbuttons

Type	Description	Order no.
	Cover ring 100 mm · for type KT50 · Housing materials: polycarbonate-ABS yellow	E80372
	Symbol disc (plastic) · Ø 20.4 mm · for type KT51 / KT53 · Start symbol · Housing materials: Polyamide	E12377
	Symbol disc (plastic) · Ø 20.4 mm · for type KT51 / KT53 · Symbol ON · Housing materials: Polyamide	E12379
	Symbol disc (plastic) · Ø 20.4 mm · for type KT51 / KT53 · Without symbol, transparent · Housing materials: Polyamide	E12386

Aseptoflex Vario O-ring / PEEK ring

The following Aseptoflex Vario adapters seal by means of an O-ring or a PEEK sealing ring.

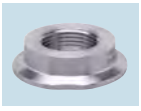
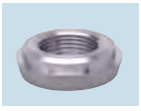
ifm offers water and cleaning-agent resistant EPDM and oil-resistant FKM (FPM) as O-ring materials. As an alternative, the maintenance and wear-free PEEK ring can be integrated. The EPDM sealing is supplied with the adapter; the FKM (FPM) and PEEK ring have to be ordered optionally.

Type	Description	Order no.
Clamp adapter		
	Clamp adapter 1-1.5" · ISO 2852 · with sealing ring · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33201**
	Clamp adapter 2" · ISO 2852 · with sealing ring · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33202**
	Clamp adapter 1-1.5" · ISO 2852 · with leakage port · with sealing ring · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33208**
Aseptoflex Vario adapter		
	Clamp adapter 2" · ISO 2852 · with leakage port · with sealing ring · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33209**
Clamp adapter		
	Varivent Adapter Type F, DN25 (1"), D = 50 · with sealing ring · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33221**
	Varivent Adapter Type N, DN40...DN150 (1.5...6"), D = 68 · with sealing ring · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33222**
	Varivent Adapter Type F, DN25 (1"), D = 50 · with leakage port · with sealing ring · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33228**
	Varivent Adapter Type N, DN40...DN150 (1.5...6"), D = 68 · with leakage port · with sealing ring · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33229**
Welding adapter		
	Welding adapter D50 · with sealing ring · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E30122**

Type	Description	Order no.
Welding adapter		
	Welding adapter D50 · with leakage port · with sealing ring · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E30130**
Pipe fitting		
	Hygienic pipe fitting DN32 (1.25") · DIN 11851 · with sealing ring · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33211**
	Hygienic pipe fitting DN40 (1.5") · DIN 11851 · with sealing ring · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33212**
	Hygienic pipe fitting DN50 (2") · DIN 11851 · with sealing ring · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33213**
	Pipe fitting DN/OD33.7 · DIN 11864-1-A-BS · with sealing ring · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33304**
Flange adapter		
	DRD adapter D65 · with sealing ring · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33242**
Pipe fitting		
	universal process adapter Rd52 · with sealing ring · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33340**
sealing plug		
	Aseptoflex Vario · with sealing ring · for units with process connection Aseptoflex Vario · adapter: stainless steel 316L / 1.4435 / sealing ring: FKM	**E30128**
O-ring		
	O-ring · FKM FDA compliant	**E30123**
Sealing ring		
	Sealing ring · for Aseptoflex Vario adapter · PEEK FDA compliant	**E30124**

Aseptoflex Vario metal / metal

The following Aseptoflex Vario adapters form the seal via a maintenance-free, metal edge.

Type	Description	Order no.
Clamp adapter		
	Clamp adapter 1-1.5" · ISO 2852 · Metal to metal seal · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33701**
	Clamp adapter 2" · ISO 2852 · Metal to metal seal · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33702**
	Varivent Adapter Type F, DN25 (1"), D = 50 · Metal to metal seal · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33721**
	Varivent Adapter Type N, DN40...DN150 (1.5...6"), D = 68 · Metal to metal seal · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33722**
Pipe fitting		
	Hygienic pipe fitting DN32 (1.25") · DIN 11851 · Metal to metal seal · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33711**
	Hygienic pipe fitting DN40 (1.5") · DIN 11851 · Metal to metal seal · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33712**
	Hygienic pipe fitting DN50 (2") · DIN 11851 · Metal to metal seal · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33713**
	SMS pipe fitting DN40 (1.5") · Metal to metal seal · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33731**
	SMS pipe fitting DN50 (2") · Metal to metal seal · for units with process connection Aseptoflex Vario · stainless steel 316L / 1.4435	**E33732**

G½

The following adapters are suited for G1/2 process connections with conical sealing edge.

The metal / metal - or for the LMT level sensor the PEEK / metal - edge form the sealing.

Type	Description	Order no.
Clamp adapter		
	Clamp adapter 1-1.5" · DIN 32676 · for units with process connection G ½ · stainless steel 316L / 1.4404	**E33401**
	Clamp adapter 2" · DIN 32676 · for units with process connection G ½ · stainless steel 316L / 1.4404	**E33402**
	Clamp adapter 1-1.5" · ISO 2852 / DIN 32676 · with leakage port · for units with process connection G ½ · stainless steel 316L / 1.4435	**E43311**
	Clamp adapter 2" · ISO 2852 / DIN 32676 · with leakage port · for units with process connection G ½ · stainless steel 316L / 1.4435	**E43312**
	Varivent Adapter Type F, DN25 (1"), D = 50 · for units with process connection G ½ · stainless steel 316L / 1.4435	**E43306**
	Varivent Adapter Type N, DN40...DN150 (1.5...6"), D = 68 · for units with process connection G ½ · stainless steel 316L / 1.4435	**E43307**
Welding adapter		
	Welding adapter ball D35 · for units with process connection G ½ · stainless steel 316L / 1.4404	**E30055**
	Welding adapter collar D45 · for units with process connection G ½ · stainless steel 316L / 1.4404	**E30056**
	Welding adapter D30 · for tanks · for units with process connection G ½ · stainless steel 316L / 1.4435	**E43300**
	Welding adapter D29 · for pipes · for units with process connection G ½ · stainless steel 316L / 1.4435	**E43301**

Type	Description	Order no.
Welding adapter		
	Welding adapter D30 · for tanks · with leakage port · for units with process connection G ½ · stainless steel 316L / 1.4435	**E43309**
	Welding adapter D29 · for pipes · with leakage port · for units with process connection G ½ · stainless steel 316L / 1.4435	**E43310**
	Welding adapter collar D45 · with leakage port · for units with process connection G ½ · stainless steel 316L / 1.4404	**E43315**
Pipe fitting		
	Hygienic pipe fitting DN25 (1") · DIN 11851 · for units with process connection G ½ · stainless steel 316L / 1.4435	**E43304**
	Hygienic pipe fitting DN40 (1.5") · DIN 11851 · for units with process connection G ½ · stainless steel 316L / 1.4435	**E43305**
	SMS pipe fitting DN25 · for units with process connection G ½ · stainless steel 316L / 1.4404	**E33430**
sealing plug		
	sealing plug · for units with process connection G ½ · stainless steel 316L / 1.4435	**E43308**
Adapter		
	Adapter G ¾ · for units with process connection G ½ · stainless steel 316L / 1.4435	**E43302**
	Adapter G 1 · for units with process connection G ½ · stainless steel 316L / 1.4435	**E43303**
	Adapter ¾" NPT · for units with process connection G ½ · stainless steel 316L / 1.4404	**E43313**
	Adapter Aseptoflex · for units with process connection G ½ · stainless steel 316L / 1.4435	**E33403**
Welding mandrel		
	Welding mandrel G ½ · carries away heat during welding · Brass	**E43314**

G1

The following adapters are suited for metal sealing of a G1 process connection with conical edge.

Type	Description	Order no.
Clamp adapter		
	Clamp adapter 1-1.5" · ISO 2852 · Metal to metal seal · for units with process connection G 1 · stainless steel 316L / 1.4435	**E33601**
	Varivent Adapter Type N, DN40...DN150 (1.5...6"), D = 68 · Metal to metal seal · for units with process connection G 1 · stainless steel 316L / 1.4435	**E33622**
Welding adapter		
	Welding adapter D50 · Metal to metal seal · for units with process connection G 1 · stainless steel 316L / 1.4404	**E30013**
	Welding adapter D50 · with sealing ring · for units with process connection G 1 · stainless steel 316L / 1.4404 / O-ring: Viton / O-ring: EPDM	**E30072**
Pipe fitting		
	Hygienic pipe fitting DN40 (1.5") · DIN 11851 · Metal to metal seal · for units with process connection G 1 · stainless steel 316L / 1.4435	**E33612**
sealing plug		
	G 1 · high-grade stainless steel	**E30070**

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ifm article no. 78002647 · We reserve the right to make technical alterations without prior notice. · Printed in Germany on non-chlorine bleached paper. 03/18