Automation Technology for the Packaging Industry

Catalogue 2019/2020

ifm.com

ifm – your partner for packaging machines

The name ifm stands for a large range of different sensors and systems for automation technology worldwide.

For more than forty years the family-run company has been researching, developing and producing with the aim of optimising technical processes and conserving resources.

An extremely wide product range provides sufficient flexibility to meet customer requirements in the most varied industries: from an individual sensor and matching accessories to a complete system solution. Of course all relevant approvals are available.

As one of the global players, ifm guarantees worldwide availability of the units. More than 70 branch offices worldwide ensure competent advice on-site.

ifm – close to you!

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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 880 patents and in 2018 about 100 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

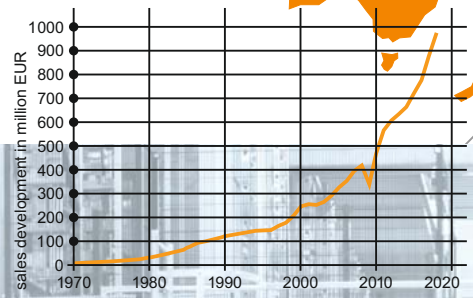
Quality is an inherent part of our philosophy.
We use our customers' feedback to continuously improve the quality of our products.
Our sensors are tested with values far beyond the indicated limits using special procedures.

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 7000 employees worldwide, and achieved a turnover of over EUR 975 million in 2018. 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:
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:

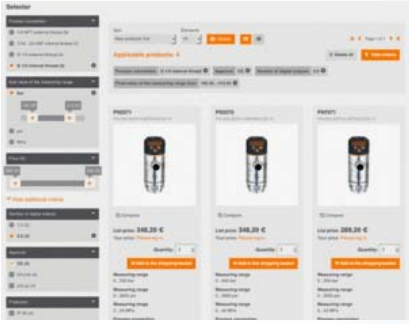
You can compare the technical data of up to 3 products. Differences are marked in colour.

Search and find:

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

Order:

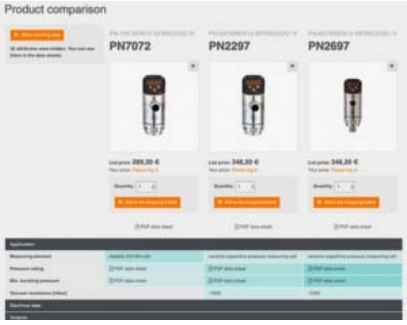
We provide a quick-order and csv import function for the shopping basket on the product pages.



More clarity

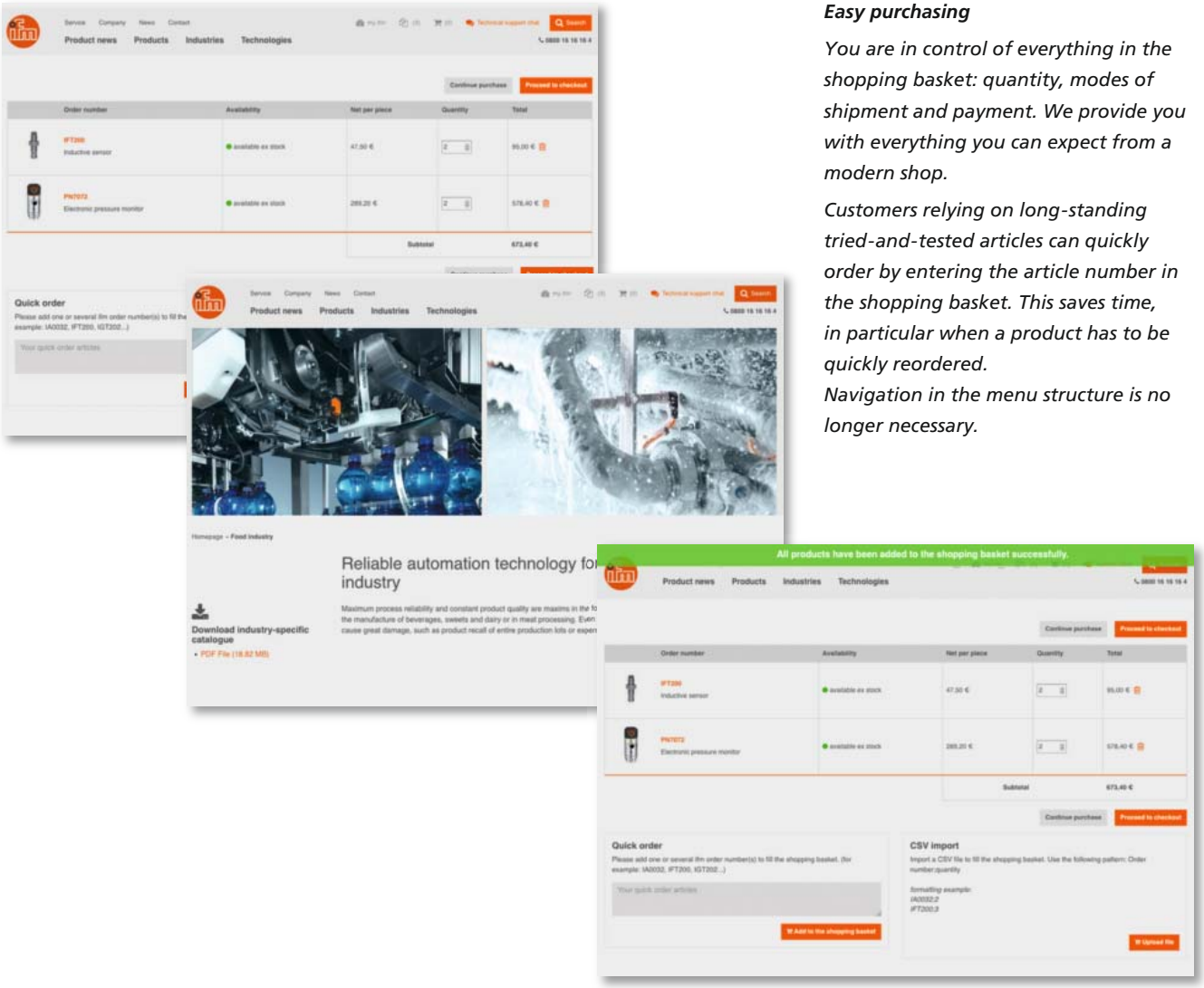
For each product group you can make a first selection via the platforms.

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 smart-phone – 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:
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.

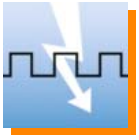
Leading manufacturers from the fields of sensors, actuators and control technology have developed IO-Link.
Together they developed a standardised and field-bus independent interface for automation providing the user with a point-to-point connection without complex addressing.

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:

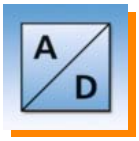


No external influence of the signal

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.

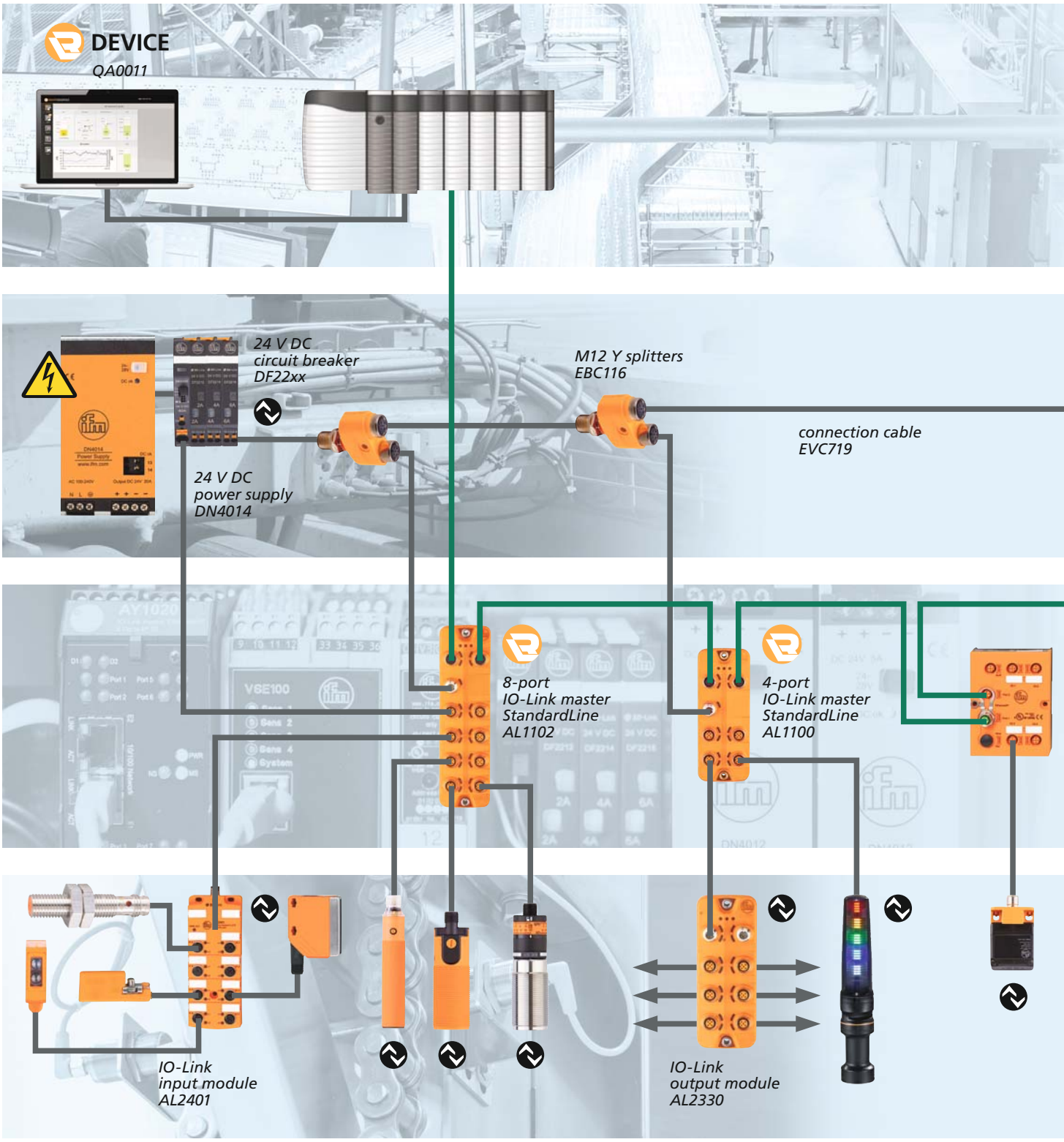
Wire-break detection / diagnostics

Wire-break or short-circuit is immediately detected.

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

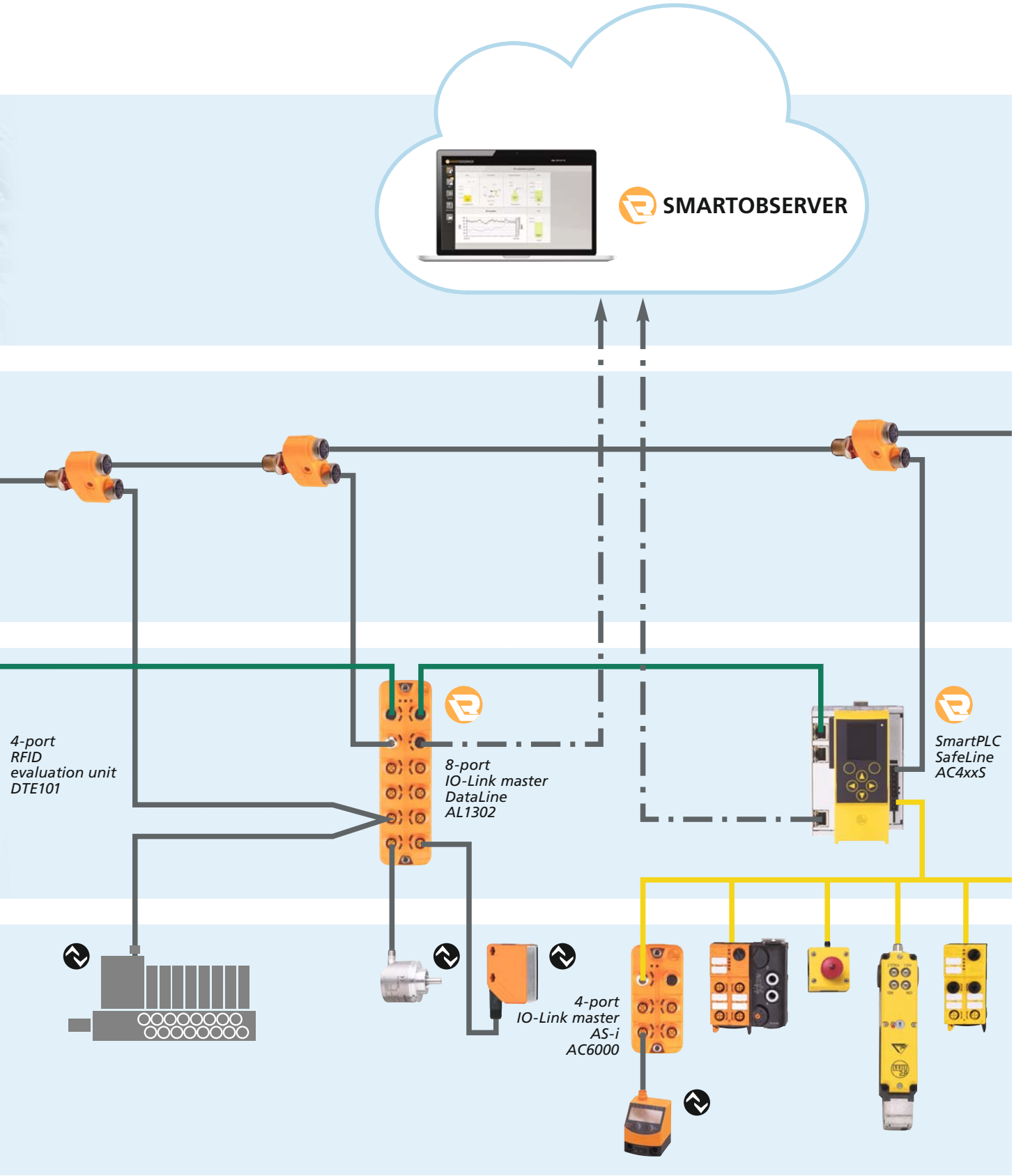
Future-oriented technology meets user-friendly concepts.

IO-Link in the packaging industry



In the following countries we additionally offer application solutions consisting of hardware, software and services:

ifm offers the widest and most consistent product portfolio of IO-Link sensors, masters and software.



A AUS B BR CDN D E F GB I IRL J L MAL MEX NL PL RC S SGP USA

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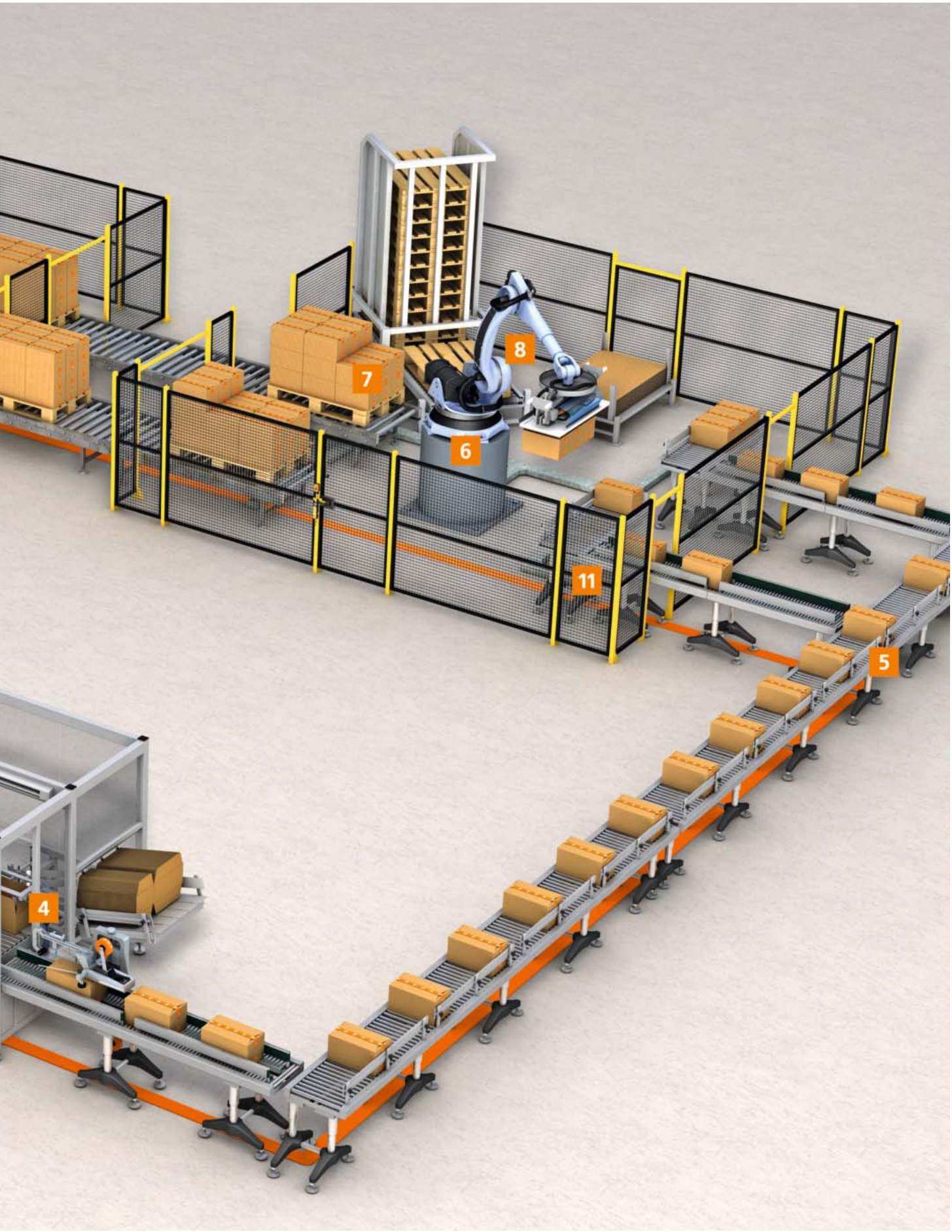
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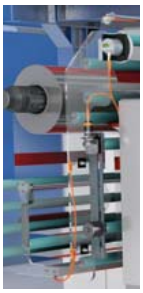
Machine	Application	Product group	From page
1	**Flow wrapping machine**		
	Detection of packing material	Ultrasonic sensors	**17**
	Detection of print marks	Photoelectric sensors for specific applications	**17**
	Cycle and speed monitoring	Encoders	**18**
	Loop control	Laser sensors / distance measurement sensors	**18**
	Overfilling at the flow wrapping machine	Capacitive sensors	**19**
2	**Flow wrapping machine sealing bar**		
	Sealing bar end positions	Cylinder sensors	**19**
	Position detection	Photoelectric sensors for general applications	**20**
3	**Cartoning machines**		
	Non-contact switching without mechanical pressure	Capacitive sensors	**20**
	Visual indication	Signalling and display systems	**21**
	Positioning for handling application	Photoelectric sensors for general applications	**21**
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Machine	Application	Product group	From page
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8	**Sensors on the palletiser robot**		
	IO-Link field masters	IO-Link components	**28**
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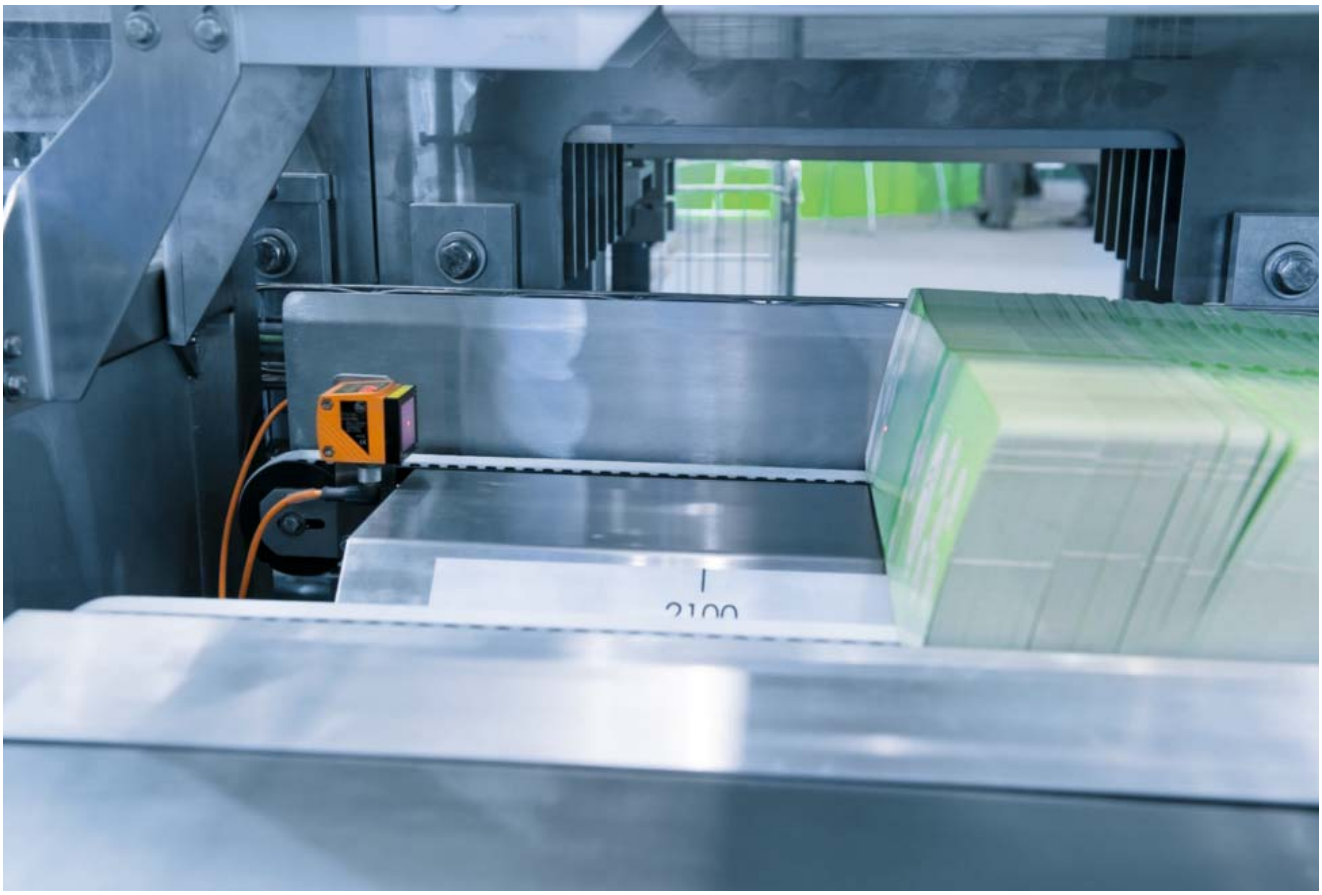
Sensors and systems for packaging machines



Modern sensors for packaging machines are quick, reliable and precise – from simple position monitoring to optical quality control.

Today packaging machines are as varied as their applications. Besides primary and secondary packaging, there's a difference between solid and liquid goods.

ifm offers different sensor types, for example for dry or hygienic areas to detect position, volume and level. 2D and 3D vision systems check contours, volume or labelling. 1D/2D code readers and RFID systems for product identification complete ifm's product portfolio in this field.

Flow wrapping machine

Detection of packing material

Ultrasonic sensors are used to reliably check transparent films. Irrespective of material and colour, they can detect how much packing material is still in the magazine.

Ultrasonic sensors for the detection of transparent film — IO-Link

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
	M18 / L = 97.5	1600	PBT	10...30	IP 67	3	100	**UGT204**
	53 x 20 x 37.7	1200	stainless steel (17-4 PH/1.4542)	10...30	IP 67	5	100	**UGT594**

Detection of print marks

The print marks on the film determine the machine cycle. The reliability and switching frequency of the print mark or contrast sensors are decisive for precise cutting and closing the bags.

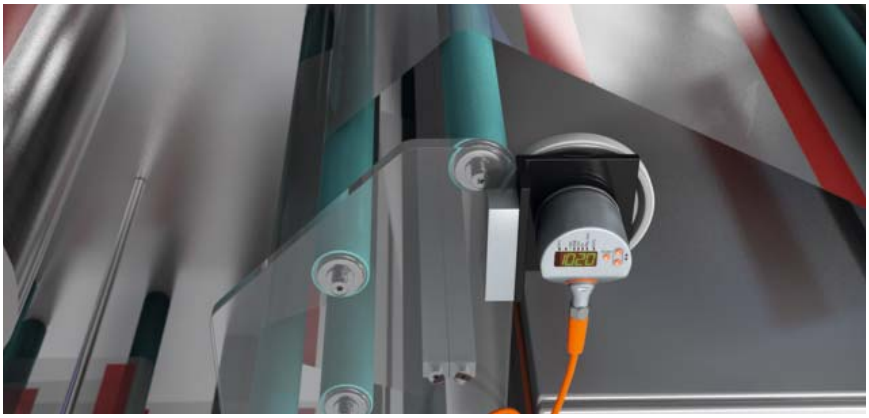
Sensors for colour detection

Type	Operating principle	Measuring range	Light spot diameter [mm]	U_b [V]	Current consumption [mA]	Sampling rate / switching frequency [Hz]	Order no.
	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.
	Diffuse contrast sensor	18...22 mm	RGB	1.5 x 5	H/D PNP/NPN	**O5K500**

Flow wrapping machine



Cycle and speed monitoring

Machine cycle and speed are monitored using encoders. Besides the TTL and HTL signals the encoder can transmit the information as counter or RPM to the PLC. Parameters are set via IO-Link.

Encoders with display, programmable via IO-Link or pushbuttons — IO-Link

Type	Resolution	U_b [V]	f [kHz]	I_{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Order no.
	1...10000	4.75...30	1000	50	6	-40...85	radial / axially	**RUP500**

Loop control

The bag film is fed to the filling station with a loop control. The film tension is checked using a roller system. The laser distance sensor transmits the value to the PLC. Two full-metal inductive sensors detect the end positions.

Distance monitoring — IO-Link

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output	Order no.
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	**OID250**

End point detection

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
	M12 / L = 45	4 f	High-grade st. steel	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	100	100	**IFC275**

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

Flow wrapping machine

Overfilling at the flow wrapping machine

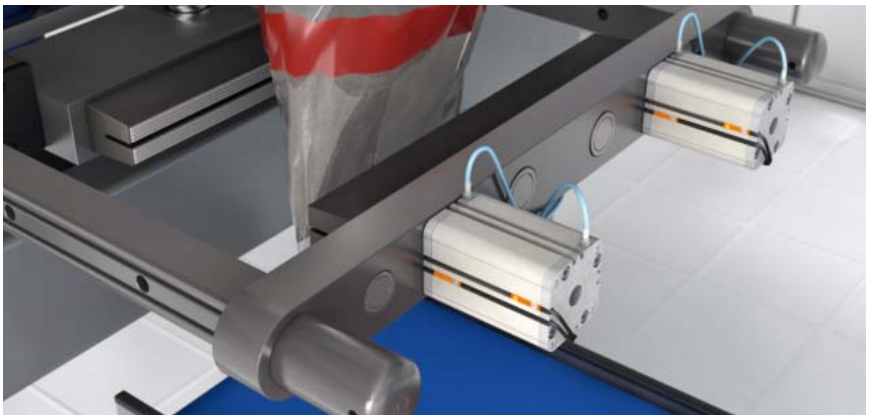
The LED indicates switch point reliability. Deposits, change of material, etc. are therefore directly displayed at the sensor. So the user can perfectly (re)adjust the switch point, if needed.

Non-contact level detection — IO-Link

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
	M30 / L = 92	25 nf	PBT	10...30	IP 65 / IP 67 / IP 69K	40	200	**KI6000**

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

Flow wrapping machine sealing bar



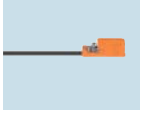
Sealing bar end positions

Type MK electronic cylinder sensors or type MR cylinder sensors with reed contact detect the end positions of the pneumatic cylinder at the sealing bar. These signals are then further processed in the PLC.

Zylindersensoren T-Nut zur Endlageerkennung

Type	Dimensions [mm]	Material	U_b [V]	f [Hz]	Protection	I_{load} [mA]	T_a [°C]	Order no.
	25.3 x 5 x 6.5	PA (polyamide)	10...30	10000	IP 65 / IP 67	100	-25...85	**MK5100**

Zylindersensoren C-Nut zur Endlageerkennung

Type	Dimensions [mm]	Material	U_b [V]	f [Hz]	Protection	I_{load} [mA]	T_a [°C]	Order no.
	17.5 x 2.8 x 7.7	PA (polyamide)	10...30	5000	IP 65 / IP 67	100	-25...85	**MK5329**

Flow wrapping machine sealing bar

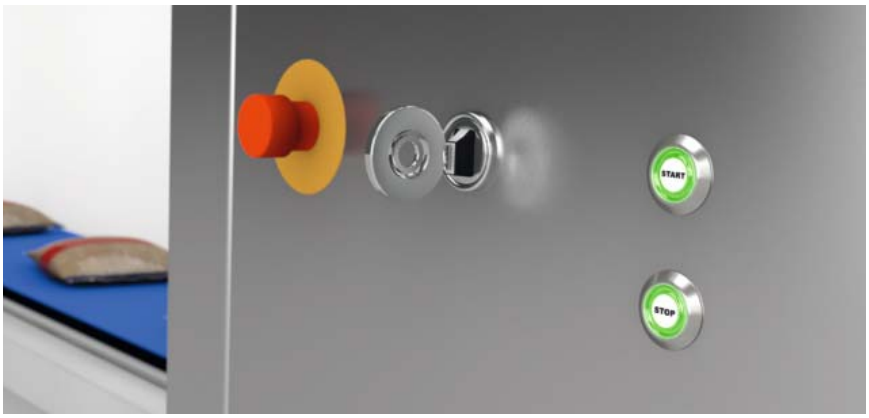
Position detection

The photoelectric sensors of the O6 family reliably detect the packed goods. Depending on packaging and size photoelectric sensors can be used with polarisation filter, as through-beam sensor or as diffuse reflection sensor with background suppression.

Photoelectric sensors for determining position — IO-Link

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	**O6H309**

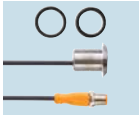
Cartoning machines



Non-contact switching without mechanical pressure

Dynamic touch sensors detect an approaching human hand and suppress interference such as water, layers of ice or foreign bodies to a large extent. The green LEDs can be controlled separately and, for example, be used to indicate the status of machines.

Non-contact sensors with LED ring

Type	U_b [V]	I_{load} [mA]	Current consumption [mA]	Ambient temperature [°C]	Protection	Order no.
	24	200	30	-40...85	IP 65 / IP 67 / IP 69K	**KT5351**
	24	200	30	-40...85	IP 65 / IP 67 / IP 69K	**KT5111**

Cartoning machines

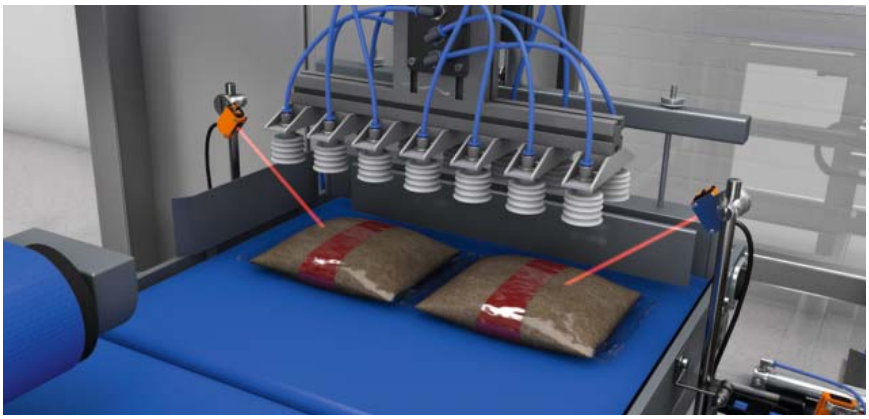
Visual indication

Light towers are used for status indication or as warning devices everywhere in factories on machines, conveyors and installations.

The RGB LED light tower from ifm can be adapted as needed by means of IO-Link or a setting button.

Configurable RGB LED light towers — IO-Link

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**



Positioning for handling application

Diffuse reflection sensors with background suppression detect if the goods are correctly positioned for the handling robot or gripper.

Photoelectric sensors for product detection — IO-Link

Type	Operating principle	Range	Type of light	Protection	Output H = light-on D = dark-on	Order no.
	Background suppression	2...200 mm	Red	IP 65 / IP 67 / IP 68 / IP 69K	H/D PNP	**O6H309**
	Diffuse reflection sensor	5...500 mm	Red	IP 65 / IP 67 / IP 68 / IP 69K	H/D PNP	**O6T309**

Cartoning machines

Pressure monitoring at suction grippers

Pressure measurement at the suction grippers by the type PQ vacuum sensors detect whether there is sufficient vacuum for a safe gripping operation.
The values can be provided as switch point or transferred to the PLC via IO-Link.

Vacuum pressure sensor for measuring the vacuum on a suction gripper — IO-Link

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	G 1/8 female / M5 female	Display unit	-1...1	20	30	18...32	**PQ3809**

Level detection in the carton magazine

Type O7 photoelectric sensors are used to detect the level in the carton magazine. They reliably detect when the carton magazine needs to be refilled.

Min. / max. carton magazine monitoring

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
	Polarisation filter	0.03...1 m	Red	55	D PNP	**O7P200**

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**

Vision systems

Completeness monitoring

The 3D sensor detects overfill or underfill of goods. The time of flight technology used allows evaluation of volume, distance or level and provides the data as switch point or via the Ethernet interface.

3D vision sensors for underfill / overfill

Type	Operating principle	Resolution (pixels)	Angle of aperture (horizontal x vertical) [°]	Lighting	Max. sampling rate [Hz]	Ambient temperature [°C]	Order no.
	3D sensor	176 x 132	40 x 30 ****	Infrared LED	25	-10...50	**O3D300**

Operating software ifm Vision Assistant for completeness monitoring

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

Detection of packing material

The photoelectric sensors of the O8 family reliably detect the packed goods. Thanks to their compact design they can be mounted almost everywhere. The sensor parameters and diagnostic data are transmitted via the IO-Link interface.

Small photoelectric sensors for the detection of goods — IO-Link

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
	Background suppression	1...80 mm	Red	4.5	H PNP	**O8H220**
	Polarisation filter	0.02...1.8 m	Red	120	D PNP	**O8P200**

Vision systems

Detection of QR codes

Photoelectric multicode readers are ideal for identification tasks in conveying. They ensure that the right product is in the right place at the right time.

Product identification via multicode reader

Type	Dimensions [mm]	Max. field of view size [mm]	Type of light LED	Motion speed [m/s]	Process interface	Order no.
	60 x 42 x 53.5	64 x 48	red light	≤ 7	Ethernet TCP/IP, EtherNet/IP, RS-232	**O2I300**

Operating software

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**

Roller conveyors

Monitoring of roller conveyors

ifm encoders monitor the speed of the roller conveyor. They are extremely robust and can be adjusted to almost every application by means of the integrated IO-Link interface.

IO-Link encoders IO-Link

Type	Resolution	U_b [V]	f [kHz]	I_{load} [mA]	Shaft [mm]	Ambient temperature [°C]	Cable entry	Order no.
	1...10000	4.75...30	1000	50	10	-40...85	radial / axially	**RV3100**

Roller conveyors

IO-Link field masters

Everywhere on the machine IO-Link masters can be integrated into the existing bus system. They enable communication down to the IO-Link sensor. Moreover IO-Link actuators and conventional sensors can be connected.

IO-Link master field modules — IO-Link

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 · M12 connector · housing: polyamide / socket: Brass nickel-plated	**AL1300**
	max. 8 IO-Link ports / max. 12 digital inputs / max. 8 digital outputs	IO-Link master with EtherNet/IP interface · I/O modules for field applications · M12 connector · housing: polyamide / socket: Brass nickel-plated	**AL1222**

Safety technology

Monitoring of safety doors

Fail-safe sensors are used for tamper-free monitoring of safety doors and dampers. When these are opened, the controller switches off this area.

Safety door contact sensor with coded target

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
	36 x 13 x 26	5 nf	PA	24	IP 67 / IP 69K	150	50	**MN202S**

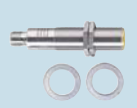
f = flush / nf = non flush / qf = quasi-flush

Safety technology

Axis range scanning with limit fields

For range detection of the main axis of rotation on robots fail-safe inductive sensors of category SIL2 safely detect the presence of metal targets without contact and without any special counter-part.

Fail-safe inductive sensors

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.
	M18 / L = 86.5	> 10 f	Brass	24	IP 65 / IP 67	≤ 5 / ≤ 5	**GG851S**

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

Evaluation relay for safety technology

Type	U_b [V]	Electrical design	ISO 13849-1: Category / performance level	IEC 61508: SIL	Order no.
	24	Relay	4 / e	3	**G1501S**

Palletisers

Monitoring of pallet magazines

Ultrasonic sensors detect the level of the pallet magazine. Depending on the type the level is provided via the IO-Link or analogue output. The advantage with ultrasonic sensors is their colour-independent detection.

Ultrasonic sensors for easy detection of pallets IO-Link

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
	M18 / L = 97.5	2200	stainless steel 316L / 1.4404	10...30	IP 67	2	100	**UGT513**

Palletisers

Positioning of pallets

The photoelectric sensors signal to the PLC when the pallets are at the right position for the robot. Depending on the width, this is done by means of a through-beam sensor or retro-reflective sensor with polarisation filter.

Photoelectric sensors with increased range

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output H = light-on D = dark-on	Order no.
	Polarisation filter	0.1...7 m	Red	175	H+D PNP	**O5P202**

Prismatic reflector

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

Monitoring of magazines

The distance sensors of the O5 family measure the level in the magazine on the time of flight principle (PMD technology). The values can be transmitted as switching signals or as continuous value via IO-Link.

Distance / level monitoring of magazines IO-Link

Type	Operating principle	Range	Type of light	Spot Ø at max. range [mm]	Output	Order no.
	Background suppression	0.03...2 m	Red	< 5	2 switching outputs normally open / closed complementary PNP	**O5D150**

Palletisers

(De)palletisers

Robots help with palletising and de-palletising. The 3D sensor detects the exact position and orientation of the packages. The sensor is set up by the user in a few steps via an app.

3D vision sensor for monitoring of the palletising process

Type	Operating principle	Resolution (pixels)	Angle of aperture (horizontal x vertical) [°]	Lighting	Max. sampling rate [Hz]	Ambient temperature [°C]	Order no.
	3D sensor	176 x 132	60 x 45	Infrared LED	25	-10...50	**O3D302**

Fixing components for 3D sensors

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**

Sensors on the palletiser robot

IO-Link field masters

The decentralised IO-Link master modules serve as a gateway between intelligent IO-Link sensors and the field bus. The IO-Link modules allow access down to the IO-Link sensor or actuator.

IO-Link master field modules IO-Link

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 · M12 connector · housing: polyamide / socket: Brass nickel-plated	**AL1100**

Sensors on the palletiser robot

Field modules with IO-Link connection

Up to 8 or 16 conventional sensors can be connected to these modules. IO-Link transfers the signals to any IO-Link master / PLC via one unscreened M12 connection cable. This reduces wiring complexity.

IO-Link modules CompactLine for the connection of binary sensors to the IO-Link master — IO-Link

Type	Inputs / outputs	Description	Order no.
	8 x 2 inputs	Active CompactLine module (IO-Link device) · 8 way · Supply via IO-Link M12 connector · Digital inputs · Sockets M12 x 1 · PA / socket: Brass nickel-plated / O-Ring : Viton	**AL2401**

Photoelectric sensors with background suppression

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	**O6H201**

Accessories

Type	Description	Order no.
	Protective cap · M12 · for M12 sockets of ClassicLine modules, CompactLine modules and AirBoxes · Housing materials: PA black	**E73004**

Connectors

Type	Cable	Wire specification	Material housing / nut	U [V]	T_a [°C]	Pro-tection	LEDs	Order no.
	0.3 m black PUR cable	4 x 0.34 mm², Ø 4.9 mm	TPU / Brass	250 AC 300 DC	-25...90	IP 65 / IP 67 / IP 68 / IP 69K	–	**EVC010**

Sensors on the palletiser robot

Pressure monitoring

Depending on the task and equipment of the robot compressed air for valve control or vacuum for suction grippers are monitored at the robot head using pressure sensors. In addition to the two-colour display the PQ series has switching and IO-Link outputs.

Pressure monitoring at the robot head via IO-Link — IO-Link

Type	Process connection	Display	Measuring range [bar]	$P_{overload}$ max. [bar]	$P_{bursting}$ min. [bar]	U_b DC [V]	Order no.
	G 1/8 female / M5 female	Display unit	-1...10	20	30	18...32	**PQ3834**

Connectors

Type	Description	Order no.
	Socket · angled · Free from silicone · Free from halogen · Gold-plated contacts · M8 connector · 2 m · Housing materials: housing: TPU orange / sealing: FKM	**EVC153**

Monitoring of pallet grippers

Modern robot heads must perform several different tasks. To avoid collision and damage to the goods inductive sensors detect where exactly the pallet gripper is positioned.

End position detection with inductive sensors

Type	Dimensions [mm]	Sensing range [mm]	Material	U_b [V]	Protection	f [Hz]	I_{load} [mA]	Order no.
	M12 / L = 45	4 f	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	**IFS244**
	M12 / L = 45	7 nf	Brass	10...30	IP 65 / IP 66 / IP 67 / IP 68 / IP 69K	700	100	**IFS245**

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

AS-Interface

Safety control system SmartPLC

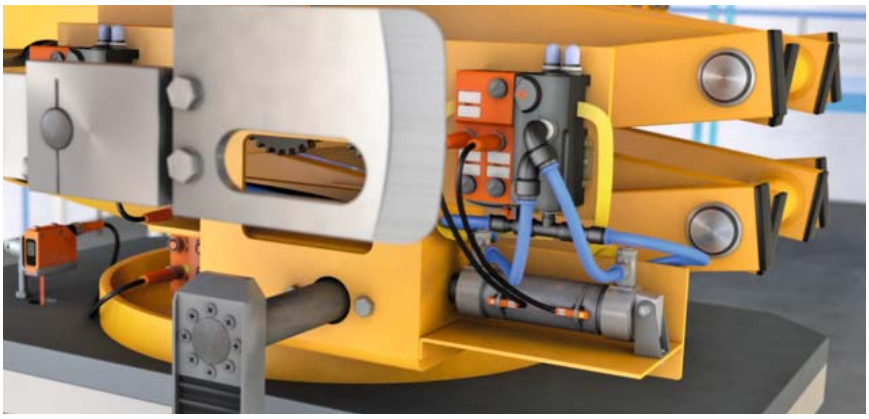
The SmartPLC combines two separate PLCs in one compact housing.
The advantage of the AS-i bus is that signals of safe and non-safe sensors / actuators can be transmitted on the same cable.

Safe SmartPLC with integrated gateway

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-Interface power supply

Type	Output current AS-i [A]	Description	Order no.
	8	Power supply · AS-i power supply 115/230 V AC · Integrated data decoupling · steel sheet	**AC1258**



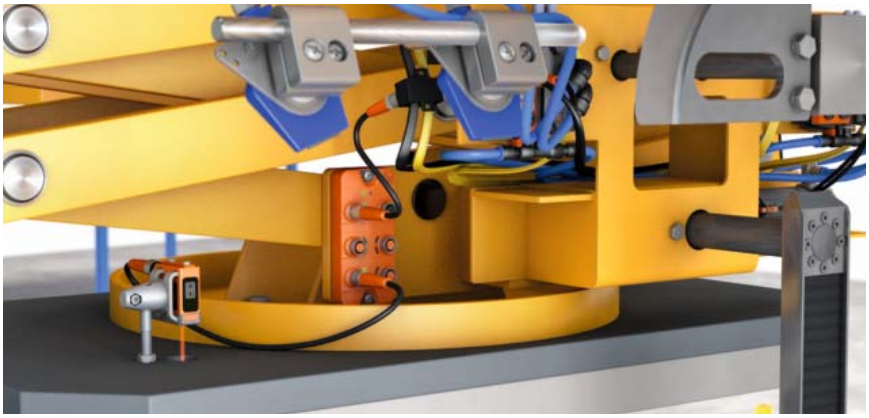
Control of pneumatic cylinders

The AirBox allows direct and decentralised control of cylinders via the AS-i bus. The modules have inputs / outputs for the connection of cylinder and pressure sensors. This simplifies installation.

AS-Interface AirBox for decentralised control of pneumatic cylinders

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**

AS-Interface



Connect IO-Link and AS-i

The IO-Link master is used as a gateway between IO-Link and AS-Interface.

It allows bidirectional access via AS-i down to the IO-Link capable sensor or actuator.

IO-Link master with AS-i interface — IO-Link

Type	Inputs / outputs	Description	Order no.
	max. 4 IO-Link ports / max. 8 digital inputs / max. 8 digital outputs	IO-Link master with AS-i interface · I/O modules for field applications · Sockets M12 x 1 · housing: PA / socket: Brass nickel-plated	**AC6000**

Exchange data via RFID

Wherever long writing and reading distances are important the RFID antenna is used. Production data and quality parameters can be saved on an ID tag using the type ANT.

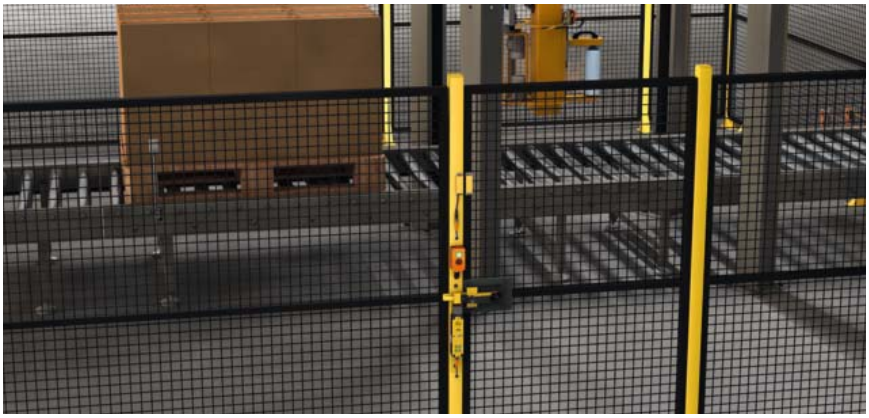
RFID systems with AS interface

Type	Description	Order no.
	RFID evaluation unit with PROFINET IO data interface · outputs: 4 outputs 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	**DTE101**

RFID 13.56 MHz antenna

Type	Description	Order no.
	Read/write head · read distance up to 200 mm · RFID standard ISO 15693 · Housing materials: PBT / PC / stainless steel	**ANT600**

Safety at Work technology



Access protection Safety at Work

To prevent access to a safety area while the machine is in operation, the safety sensors with guard locking protect the area. They are quickly and easily connected to an AS-i safety control system (SmartPLC).

Safety-related access protection with positive guard locking

Type	Description	Order no.
	Safety switch with guard locking · Normally closed principle · Rotatable actuating head made of metal · Mechanical release on the front · Supply via AS-i / solenoid supply ext. from 24 V DC · M12 connector · thermoplastic reinforced glass-fibre	**AC901S**
	Safety switch with guard locking · Normally open principle · Rotatable actuating head made of metal · Mechanical release on the front · Supply via AS-i / solenoid supply ext. from 24 V DC · M12 connector · thermoplastic reinforced glass-fibre	**AC902S**

Protection of operators and machines

To protect operators type OY safety light curtains protect accessible areas at the inlet and outlet. Using a safety AS-i module they can be quickly and easily connected to an AS-i safety control system (SmartPLC).

Photoelectric safety light grids / curtains

Type	Sensor length [mm]	Resolution / detection capacity [mm]	Protected area height [mm]	Protected area width [m]	Response time [ms]	U_b [V]	Order no.
	1863	14	1810	0...3 / 1...6	20	24	**OY011S**

Safe AS-Interface modules

Type	Description	Order no.
	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**

Voltage supply

Electronic 24 V circuit breakers

Electronic 24 V circuit breakers permanently monitor the secondary circuit and reliably switch it off in the event of a failure. The system has a modular design. All data is directly transferred to the connected IO-Link master.

Intelligent circuit breakers with IO-Link — IO-Link

Type	Description	Order no.
	Supply module, IO-Link · rail TH35 (to EN 60715) · Input current (max. total current) 40 A · for circuit protection modules DF22xx · Ambient temperature -25...60 °C · push-in terminals · contact lever/strip · Operating voltage 19.2...30 V DC · IP 20	**DF2101**
	Circuit protection module, IO-Link · rail TH35 (to EN 60715) · Nominal current (Fail-safe element) 2 x 2 A · for supply module DF2100 · Ambient temperature -25...60 °C · push-in terminals · contact lever/strip · Operating voltage 19.2...30 V DC · IP 20	**DF2212**

Connection cable for every application

In dry or wet applications connection cables must reliably withstand any movement and vibration of the machine. Connection cables from ifm are ideal thanks to their vibration protection and high IP class.

Connectors

Type	Description	Order no.
	Socket · angled · Free from silicone · Free from halogen · Gold-plated contacts · M12 connector · 5 m · Housing materials: housing: TPU orange / sealing: FKM	**EVC005**
	Socket · angled · Free from silicone · Free from halogen · oil resistant · UV resistant · hydrolyse-proof · microbe-resistant · flame-retardant · acc. to IEC 60332-2 and FT2 · Gold-plated contacts · M12 connector · 5 m · Housing materials: housing: TPU black transparent / sealing: FKM	**EVC664**

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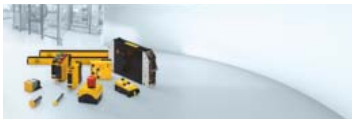

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