



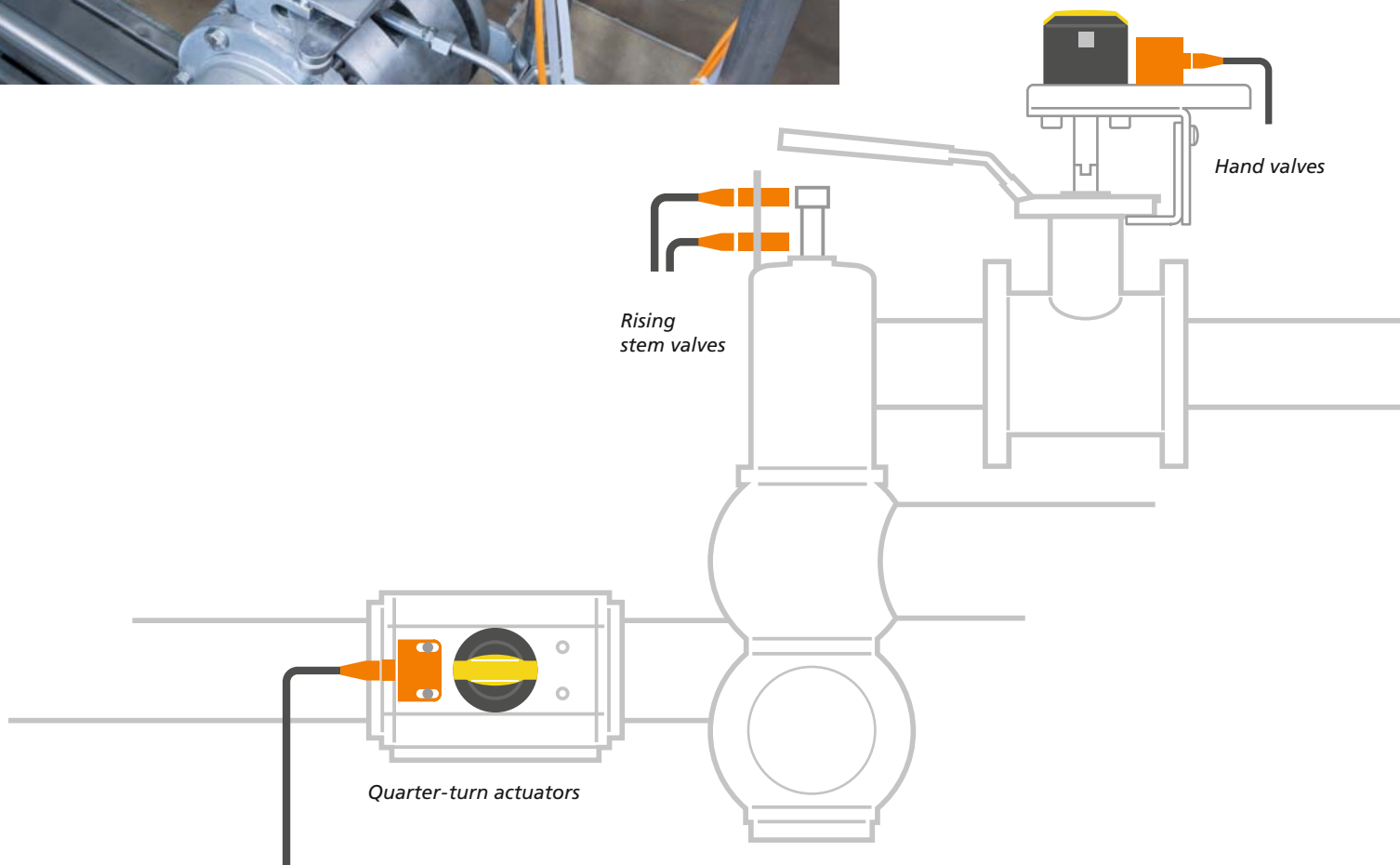
Valve Feedback

Position sensors



www.ifm.com/gb/valvesensors

Feedback systems for valves and valve actuators



Close to you!

After many years of intensive cooperation with our customers we have become established on the market as a service-oriented sensor specialist and today we are represented in more than 70 countries worldwide with more than 6,000 employees. Although we have grown, we have still kept the virtues of the founding years: the flexibility and individuality of a small company and the quality and professionalism of a group of companies. And our customers are still at the focus of what we do – simply close to you.

Quality and service

For us, quality refers to more than just the product. All our processes are designed with customer service and product quality in mind.

We support each customer in person – wherever in the world and in whatever language. And if it has to be really fast, our experts on the toll-free service hot-lines provide competent support.

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 to ensure that they keep our promise in the customers' processes. Moreover each product is subjected to a final inspection before it leaves the company. We take this promise serious and guarantee each catalogue product for 5-years.

More than just valve sensors

In industrial process technology valve sensors are only one of many pieces of the puzzle. Whether temperatures, pressure values, flows or levels: Numerous other process parameters have to be permanently monitored. ifm offers a wide range of fluid sensors for these applications. Comprehensive certificates and approvals allow use also in sensitive and demanding areas. Communication and control technology as well as the matching connectors are also available from a single source. We do not only offer products but also solutions for your application.

Industries in the focus

The valve sensors from ifm meet the requirements of different industries:

- **Food industry** – The sensors need to be ingress-resistant also during cleaning processes using steam jets. ifm offers IP 68 / IP 69K.
- **Water / wastewater** – Moisture and dirt do not affect operation.
- **Paper processing** – Even when they are covered with cellulose pulp beyond recognition, the valve sensors continue to function correctly.
- **Mobile machines** – Vibration and shock stress as well as temperature differences do not affect the sensors.
- **Chemicals** – ifm offers ATEX sensors for hazardous areas.



ifm sensors always function correctly, even in harsh environments.



Feedback systems for valves and valve actuators



**Position feedback
on pneumatic quarter-
turn actuators**



**Position feedback
on pneumatic quarter-
turn actuators with
AS-i connection**



**Continuous position
feedback on rising
stem valves**



**Position feedback
on rising stem valves**



**Position feedback
on hand valves and
ball valves**

		Sensor type	VDI/VDE 3845	Feedback of two valve positions	Feedback of three valve positions	AS-i connection	Control of solenoid valves
	IND, INE, NN	✓	✓			✓	6 - 7
	AC	✓	✓		✓	✓	8 - 9
	IX		✓	✓	✓		10 - 11
	IF, IS		✓	✓	✓		12 - 13
		✓	✓				14 - 15

Position feedback on pneumatic quarter-turn actuators



Permanently reliable:

Wear-free due to non-contact inductive switching principle.
Long service life since only corrosion-free materials are used.

Ready for operation in no time:

Coordinated fixing accessories
for quick mounting.

Valve position in view:

LEDs on the sensor indicate the valve position. The position indicator on the target puck ensures that the valve position can also be clearly seen at a distance.

NAMUR valve to standard:

Corresponds to the German standard VDI/VDE 3845 for uniform connection points on actuators.

Inductive valve sensors

ifm offers a suitable valve sensor for all requirements. Besides DC and AC/DC versions, designs for ATEX applications are also available.



Type	Operating voltage [V]	Connection	Order no.
NPN/PNP, 2 x normally open			
Valve sensor	10...36 DC	M12 connector, plastic	IN5224
PNP, 2 x normally open			
Valve sensor	10...36 DC	M12 connector, plastic	IN5225
Valve sensor	10...36 DC	M12 connector, metal	IN5327
Valve sensor with actuator interface connection	10...36 DC	M12 / Rd24	IN5334
Valve sensor with actuator interface connection	10...30 DC	terminals	IN5409
AC/DC, 2 x normally open			
Valve sensor	20...250 AC/DC	cables	IN0110
Valve sensor with actuator interface connection	25 AC / 50 DC	terminals	IN0131
2 x NC			
For ATEX applications group II, categories 1D, 1G, 2G			
Valve sensor with actuator interface connection	8.2 DC	terminals	NN504A
Valve sensor with actuator interface connection	8.2 DC	M12 connector, connection terminals	NN505A



For industrial applications



For hazardous areas

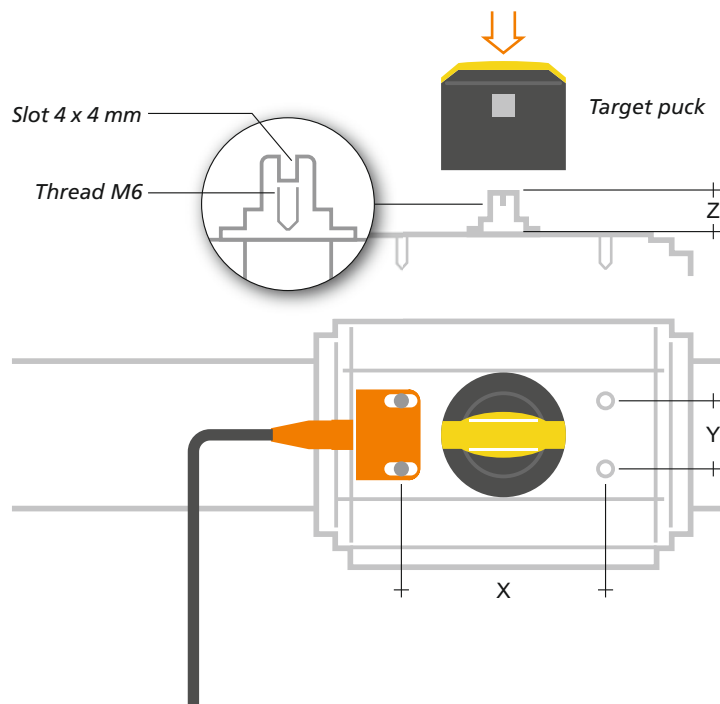


Detect two positions with one sensor

The valve sensor principally consists of two inductive sensors arranged on top of each other in one housing. Depending on the orientation of the target puck, the upper or the lower sensor switches. Advantage: The system operates without contact and is absolutely free of wear. This ensures maximum reliability and a long service life. The target pucks are available in two designs: either for standard applications with targets offset by 90 ° or with an adjustable switch angle. Premounted damping elements minimise installation. The orientation of the target puck can be seen from the outside. Thus it can be easily inserted and fixed at the end of the shaft without complex adjustment.

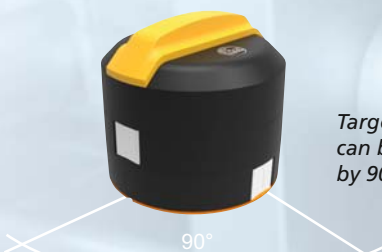
The target pucks are designed for a shaft height of 30 mm or 20 mm (with adapter).

Due to the standardised mechanical dimensions and hole centres the sensors and target pucks can be installed on all common actuators.



Accessories Target pucks

Target puck basic,
can be offset
by 90 °



Valve sensor
with 2 active
sensing areas

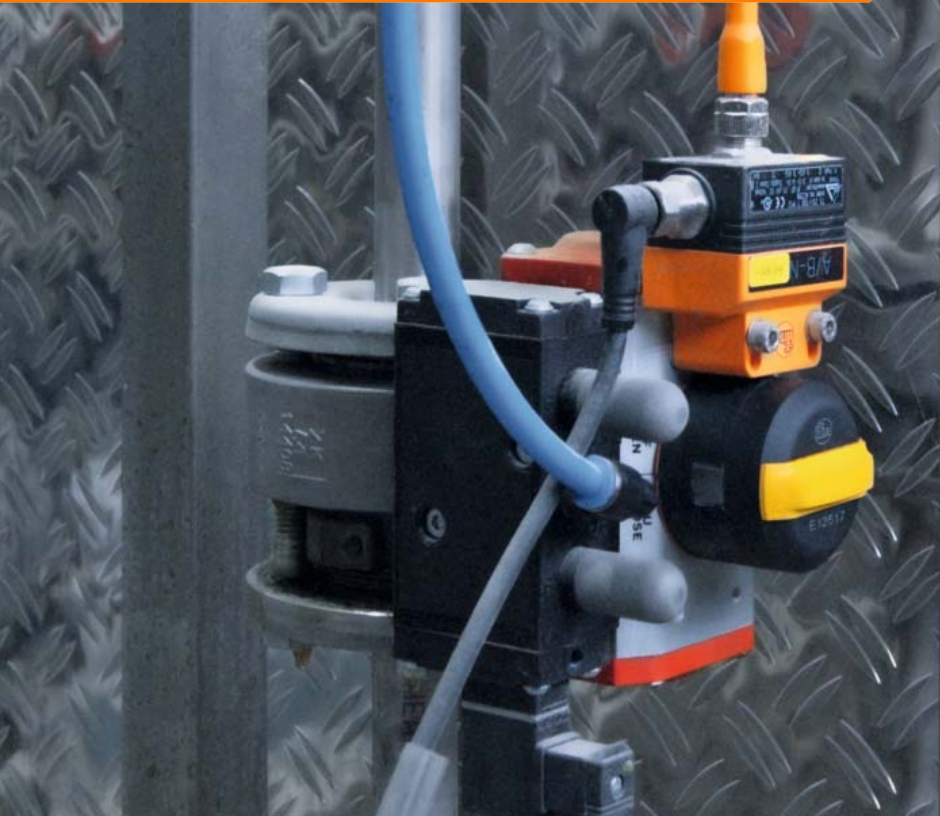
Target puck,
adjustable and
rotatable



Mounting dimensions X / Y [mm]	Height of the actuator shaft Z [mm]	Description	Order no.
80 / 30	30	Target puck basic	E12517
80 / 30	30	Target puck adjustable	E12516
80 / 30	20	Target puck basic + adapter	E12517 + E12526
80 / 30	20	Target puck adjustable + adapter	E12516 + E12526
130 / 30	30	Large target puck basic	E17328
130 / 30	30	Large target puck, adjustable	E17119

Even more choice?
More articles at
www.ifm.com

Position feedback on pneumatic quarter-turn actuators with AS-i connection



System solution:
AS-i is a manufacturer-independent standard for bus connections of actuators and sensors of the first field level. ifm offers AS-i as an all-in-one solution.

Reliable:
The sophisticated AS-i technology provides high reliability and machine uptime.

Simple:
Modular structure and flexible connection technology ensure easy integration into the AS-i system.

Cost-optimised:
A two-wire flat cable transmits data and energy, eliminating complex parallel wiring.

Inductive valve sensors with AS-i connection
The bus cabling with AS-Interface reduces wiring complexity and facilitates subsequent extensions.



Automation set for valve actuators
AS-i sensor, solenoid valve, target pucks, connection cable and mounting accessories in one box.



Type	Operating voltage [V]	Connection	Order no.
AS-i, 2 inputs			
Valve sensor	26.5...31.6 DC AS-i	M12 connector	AC2315
AS-i, 2 inputs / 1 output			
Valve sensor with actuator interface connection	26.5...31.6 DC AS-i	M12 plug / socket	AC2316
AS-i, 2 inputs / 2 outputs			
Valve sensor with actuator interface connection	26.5...31.6 DC AS-i	M12 plug / socket	AC2317
Type	Mounting dimensions X / Y* [mm]	Height of the actuator shaft Z* [mm]	Order no.
Automation set for valve actuators	80 / 30	20	AC0021
	80 / 30	30	AC0022
	130 / 30	30	AC0023

* See table and drawing page 7



For industrial applications



For hazardous areas

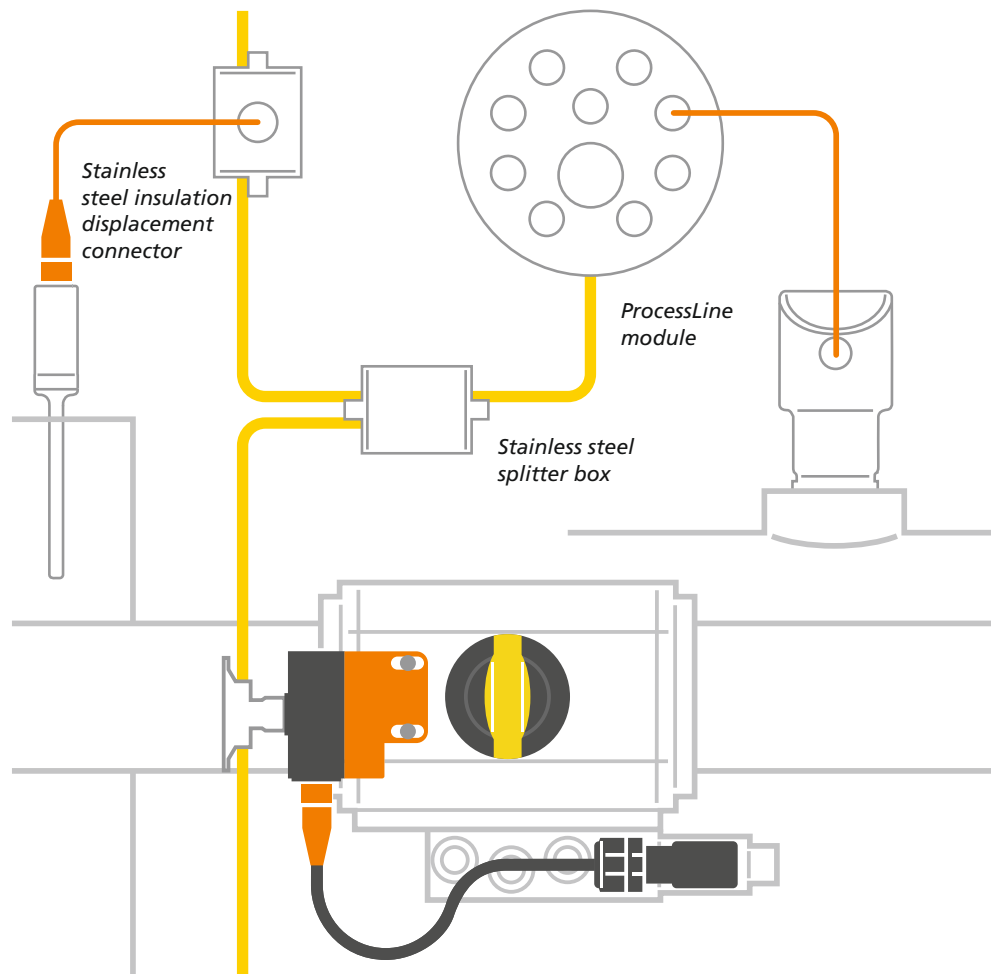


Position feedback and valve control

The ifm valve sensors of the T family are used for position monitoring and for controlling pneumatic valve actuators via solenoid valves.

Up to two input and output signals are transmitted via a 2-wire bus cable to the AS-i master using AS-i at a lower cost than conventional wiring. With only one AS-i master up to 62 actuators and solenoids can be monitored and switched.

For diagnostic purposes, wire break and short-circuit at the valve are monitored. This provides additional safety.



AS-Interface system components and accessories



Type	Order no.
AS-i Profinet gateway with integrated fieldbus interface	AC1402
Flat cable splitter for the transition of AS-i flat cable to M12 connector	E70454
Flat cable splitter for the transition of AS-i flat cable to M12 connector	E70354
Active ProcessLine module IP 69K	AC2910



Accessories for target pucks see page 7



**Even more choice?
Further articles at
www.ifm.com**

Continuous position feedback on rising stem valves



AS-i integrated:

The AS-i communication system is ideally suited for feedback from several valves. *efector valvis* is therefore also available with integrated AS-i interface.

Freely programmable:

efector valvis signals the valve piston position via three switching outputs: valve open, valve closed and any interim position, e.g. for the detection of seat lift or seal wear.

Easy set-up:

Uncomplicated programming by pushing a button replaces mechanical adjustment to the respective valve positions.

Different adapters:

ifm offers adapters for valve types such as APV/SPC, Bardianni and GEA for the connection of different rising stem valves.

Rising stem valve sensor *efector valvis* type IX

Position feedback for single seat, double seat and diaphragm valves.



Type	Operating voltage [V]	Connection	Order no.
DC PNP 3 x normally open			
Rising stem valve sensor	18...36 DC	PVC cable 0.3 m M12 connector	IX5010
DC, analogue output 1...5 V			
Rising stem valve sensor	18...36 DC	PVC cable 2 m	IX5002
AS-i			
Rising stem valve sensor	26.5...31.6 DC	PVC cable 0.3 m M12 connector	IX5030



For industrial applications



Precise monitoring of rising stem valves

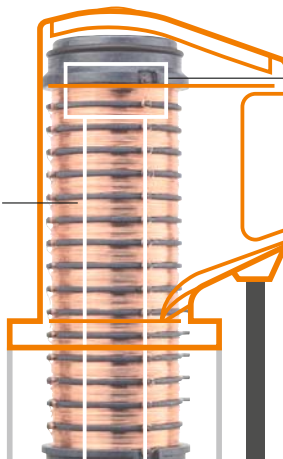
efector valvis resolves the stem travel down to 0.2 mm. Within the measuring distance three valve positions (e.g. up, closed, seat lift position) can be set via a pushbutton.

In the analogue version efector valvis transmits the whole measuring distance to the PLC via a standard analogue signal.

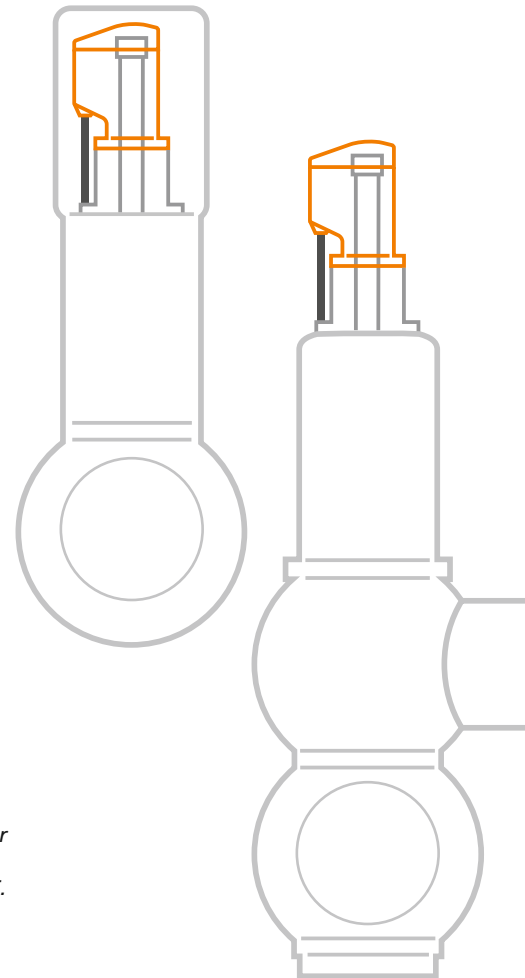
Thanks to the high resolution the sensor detects beginning of seal wear, for example. This means that it can be used for condition-based maintenance.



16 inductive air-core inductors triggered by an analogue multiplexer.



The valve position is continuously measured and converted into a highly linear analogue signal. Depending on the version, three switch points can be programmed or the signal can be processed in a PLC.



Mounting accessories

Thanks to the various adapters efector valvis can be installed on different valve types.



Mounting adapters for valve type

Mounting adapters for valve type	Order no.
Alfa Laval type SSV (single seat valves)	E12470
Alfa Laval type LKLA-T (butterfly valves)	E12476
APV/SPX valves (butterfly valves)	E12515
APV/SPX valves (single seat valves)	E12501
GEA single seat valves	E12478
Bardiani	E12170

Stroke monitoring

efector valvis was designed for feedback of the valve positions on rising stem valves with a stroke of up to 80 mm. The sensor is fitted over the valve spindle and continuously measures the stroke.



Position feedback on rising stem valves



Robust:

Tried-and-tested for the extreme requirements in hygienic and wet areas. Designed to permanently withstand high temperatures, temperature shocks and aggressive cleaning agents.

Food-grade:

Housing completely made of stainless steel or in combination with PEEK.

Flexible:

Common housing types and lengths for installation in different applications. Increased sensing ranges ensure flexible installation for mechanical tolerances.

Ingress-resistant:

The ingress resistance to protection IP 69K prevents penetration of moisture.

Safe connection:

ecolink EVF – the optimum connector for hygienic and wet areas.

Inductive sensor of types IF, IG, II

Robust stainless steel housing (high-grade stainless steel).

The sensors meet the special requirements of the food industry.



Inductive sensors types IS, NS

Compact designs, suitable for installation in the smallest of spaces.

Type NS was particularly designed for ATEX applications.



f: flush installation nf: non-flush installation

Type	Sensing range [mm]	Connection	Order no.
PNP normally open			
Stainless steel housing			
Smooth sleeve Ø 11 mm	4 mm nf	M12	IF5807
M12, L 45 mm	4 mm f	M12	IFT203
M12, L 60 mm	3 mm f	M12	IFT240
M18, L 70 mm	5 mm f	M12	IGT247
M30, L 70 mm	10 mm f	M12	IIT228
Housing, plastic			
Smooth sleeve Ø 11 mm	5 mm nf	PVC cable 5 m	IF5822
Rectangular	2 mm f	PVC cable 2 m	IS5001
PNP NC			
Rectangular	2 mm f	PVC cable 2 m	IS5002
NC/NO programmable			
Rectangular	2 mm f	PUR cable 2 m	IS5026
Normally open, combined AC/DC output stage			
Rectangular	2 mm f	PUR cable 2 m	IS0003
For ATEX applications group II, category 1D, categories 1G, 2G			
Rectangular	2 mm f	PVC cable 2 m	NS5002



**For hygienic
and wet areas**



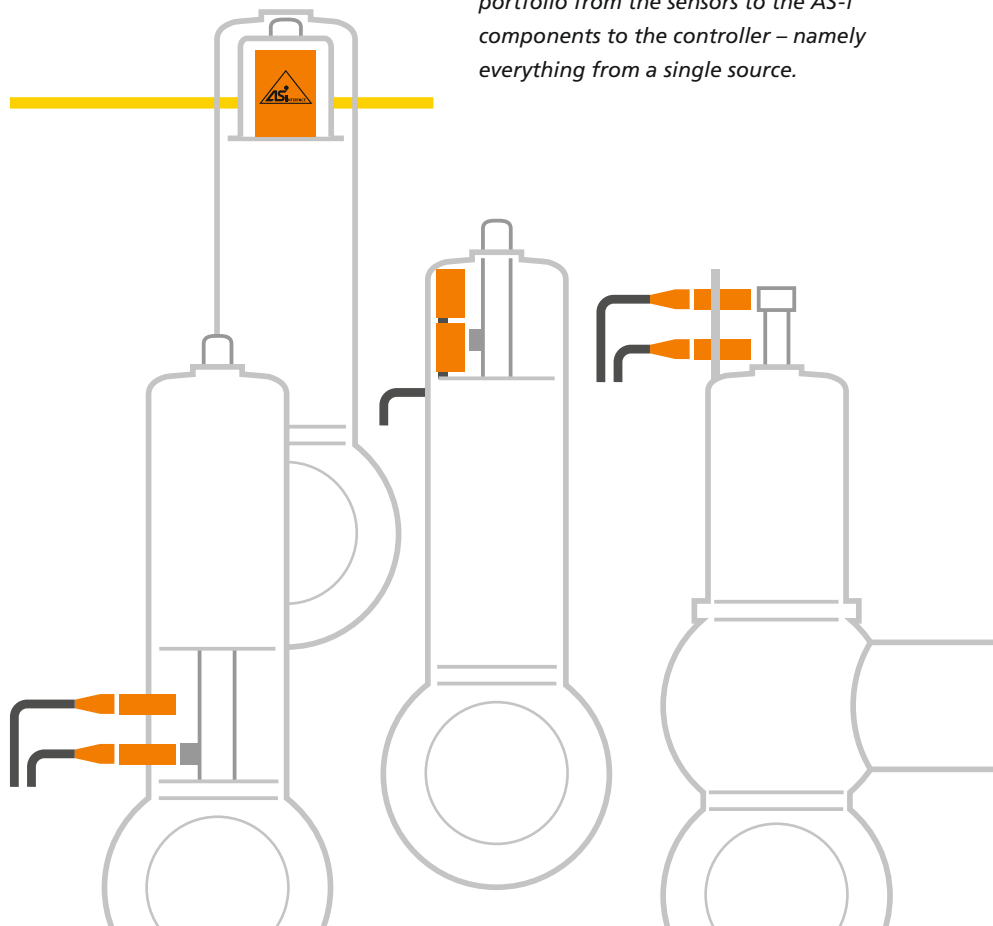
**For hazardous
areas**



End position monitoring on rising stem valves

The end positions of rising stem valves are often monitored by inductive sensors. They provide a high protection rating (up to IP 68 / 69K) and are designed for a wide temperature range so that they also withstand high-pressure steam cleaning processes without any problems, for example. Small sensor tolerances allow precise position detection.

Installation is possible above or underneath the actuator, open or in the housing. To minimise wiring, the use of the AS-i bus system is a good choice. Several sensors are connected to the decentralised AS-i modules. From there a two-wire AS-i bus cable transfers the signals to the master or the controller.



ifm offers a comprehensive product portfolio from the sensors to the AS-i components to the controller – namely everything from a single source.

Accessories and connection technology

Type	Order no.
Active AS-i module	AC2752
AS-i flat cable insulation displacement connector	E70471
Angle brackets for sensors in cylindrical housing	E10735
M12 socket, angled; 5 m MPPE cable	EVF007



Switchboxes

The type IS rectangular sensors are the same size as V3 microswitches, so can be fitted to common switchboxes. Customer-specific versions, e.g. with PCB connector, facilitate mounting.



Even more choice?
More articles at
www.ifm.com

Position feedback on hand valves and ball valves

Suitable:

Suitable for ISO top flange valves from F04 to F10.

Easy installation:

Easy fixing on hand valves and ball valves.

Flexible:

Height-adjustable for flexibility.

Long service life:

Almost indestructible stainless steel components resistant to chemicals.

Protected:

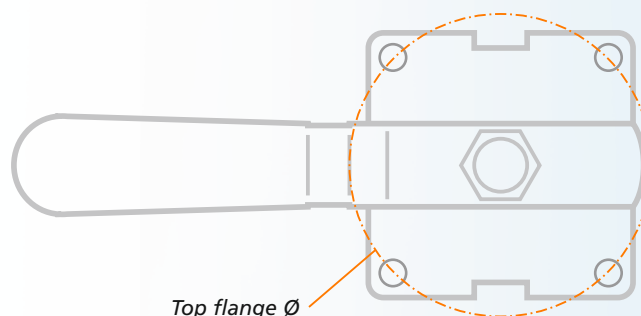
Suitable for hazardous areas.



*Mounting set for
hand valves and
ball valves*



Top flange Ø [mm]	ISO top flange type	Shaft extension	Order no.
42	F04	M5	E12519
50	F05	M5	E12520
50	F05	M6	E12521
70	F07	M6	E12522
70	F07	M8	E12523
102	F10	M8	E12524





For industrial applications



For hazardous areas

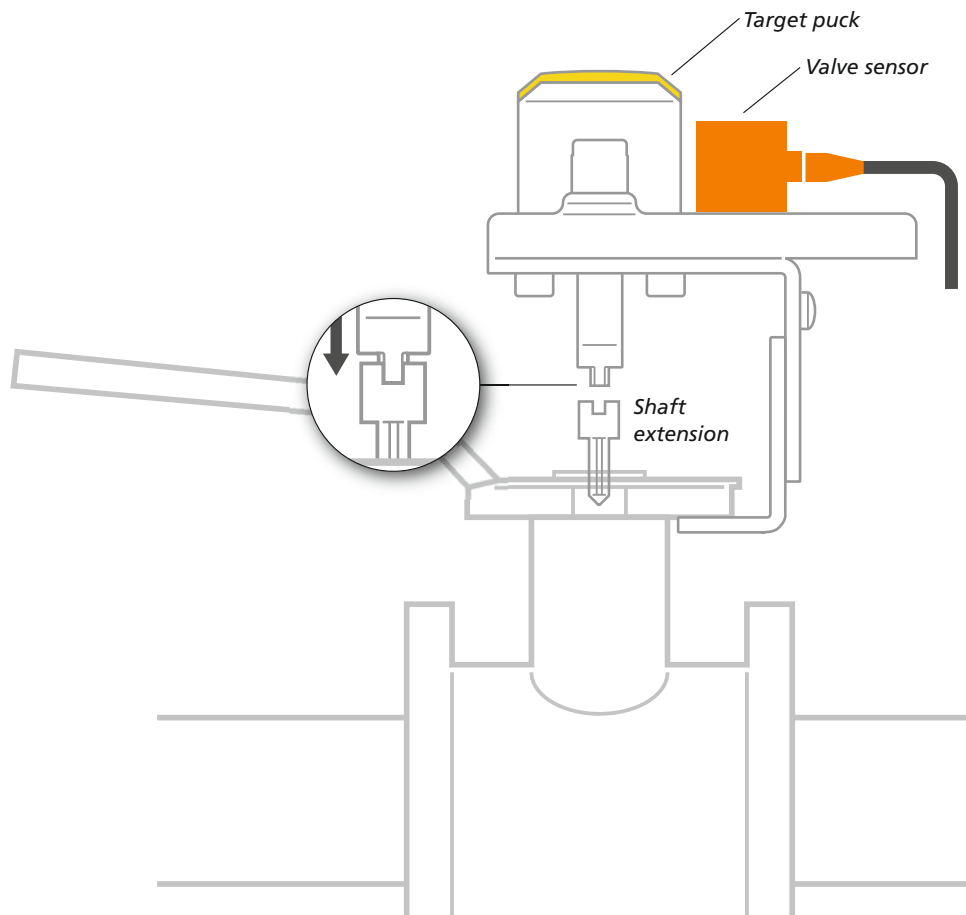


End position feedback for hand valves and ball valves

This mounting set makes it easy to fit feedback sensors to manually activated valves. 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 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 longer service life.



Valve sensors for mounting set (choice)



Type	Operating voltage [V]	Connection	Order no.
DC PNP, 2 x normally open			
Valve sensor	10...36 DC	M12	IN5327
2 x NC			
For ATEX applications group II, categories 1D, 1G, 2G			
Valve sensor	8.2 DC	M12	NN5008
AS-i			
Valve sensor	26.5...31.6 DC	M12	AC2315

Accessories and connection technology



Type	Order no.
Switching amplifiers for Namur sensors, 2 channels	N0532A
Target puck basic + adapter	E12517
M12 socket, 5 m orange, PVC cable	E12526
M12 socket, ATEX approval, 5 m black, PUR cable	EVT001
	ENC02A





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Position sensors



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Industrial imaging



Safety technology



Process sensors



Industrial communication



IO-Link



Identification systems



Condition monitoring systems



Systems for mobile machines



Connection technology



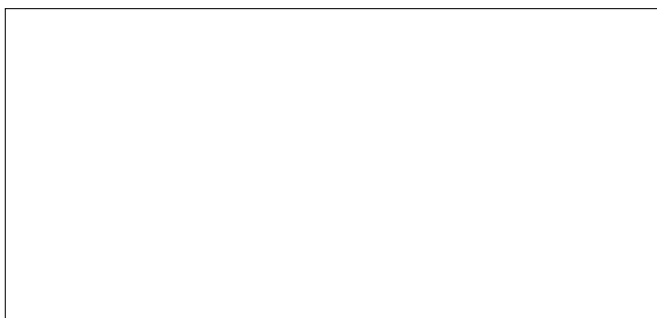
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Power supplies



Accessories



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