

Inductive Sensors. Compact, reliable and highly precise – Indispensable in all machines.



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Baumer inductive sensors are special units that track inductance changes to determine the position of metal objects.

The German company produces several types of equipment that works with an inductive principle of action:

- Proximity switchers
- Distance sensors AlphaProx
- Hard-wearing and heat-resistant
- With reduction factor 1
- Miniature



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Smart & Small – top performance in smallest designs

Inductive miniature sensors

«Top performances in smallest designs» is the maxim of Baumer which leads to very small sensors with all integrated evaluation electronics and large sensing distance.

Highlights proximity switches:

- Cylindrical sensors from Ø 3 mm
- Flat sensors with an installation depth of merely 4 mm onward
- Large sensing distances up to 2 mm

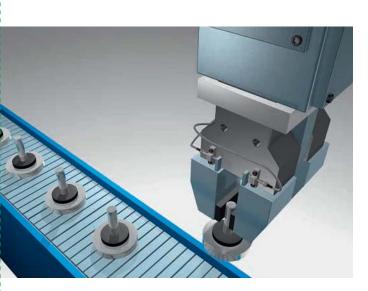
Highlights distance sensors:

- Worlds smallest inductive distance sensor
- Ø 4 mm to M8 in short designs
- Flat sensor designs starting with 4.7 mm in height
- Measuring ranges up to 3 mm



SMD placement machine

- Ideal for fast processes thanks to a high switching frequency up to 5 kHz and their light weight
- Position detection of gripper jaws
- Work piece presence/absence check



Pick & Place / Robotic

- Precise position detection
- Absolute distance measurement with high resolution

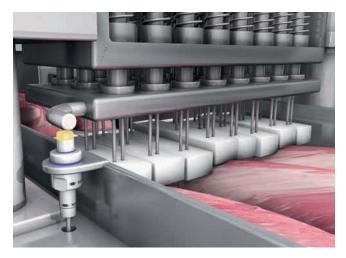


Machine tools

- Reliable condition detection during automatic tool change prevents machine downtime
- Minimum space requirement enables more compact motor spindles
- Detection of misalignment and incorrect tools with measuring sensors.

Hard-wearing and heat-resistant with longterm seal - Reliable in any environments

Sturdy inductive proximity switches and distance sensors



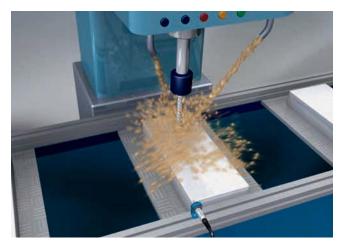
Hygienic sensors

- Highest chemical-resistant to cleaning agents and high-pressure cleaning
- Rugged, FDA compliant materials
- EHEDG certified design, 100% gap-free to prevent formation of bacterial residue
- Stainless steel housings V4h with protection class IP 69K and proTect+



Outdoor and Washdown

- Wide temperature range from -40 ... +80 °C
- Developed for onshore and offshore use
- Meets impermeability requirements up to protection class IP69K as well as the Baumer impermeability concept proTect+



Continuous operation in the metal cutting industry

- Closed housing made of stainless V4A steel (DuroProx)
- Resistant to mechanical loads, shocks and abrasive media
- Reliable use even under the influence of cutting, grinding and cooling lubricants

The extremely sturdy Baumer inductive proximity switches and distance sensors offer reliable object detection and measurement results even in the most demanding environments. Thanks to front surfaces made of stainless steel or carbon fiber reinforced polymers (LCP), the sensors are optimally protected against mechanical damage.

Other Highlights:

- DuroProx full metal sensors are resistant to abrasive and chemically aggressive media like acid, lye or salt water
- High pressure resistant sensors resistant up to 500 bar with IP 68
- High temperature sensors up to 180 °C
- Sensors immune to welding and magnetic fields up to 90 mT
- ATEX certified sensors

Same sensing distance on any metal

Inductive sensors with reduction factor 1

Inductive Factor 1 sensors offer the great benefit of maintaining the same sensing distance towards all metals. This uniform distance offers outstanding flexibility in system conception and sensor installation. However, the benefits of Baumer sensors go even further: They are the fastest in their class in relation to sensing distance and have exceptional sensing latitude.

Highlights proximity sensors:

- Comprehensive portfolio from Ø 6.5 to M18
- Large sensing distances on all metals
- High switching frequency up to 3 kHz
- Excellent EMC properties

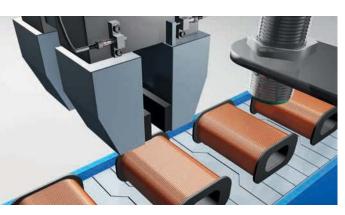
Highlights distance sensors:

- M18 with 8 mm measuring range for all metals
- Simple adjustment and installation thanks to teach method
- Linear characteristic curve for simple signal evaluation



The fastest in their class

 Factor 1 sensors from Baumer have a very high switching frequency (up to 3 kHz). Baumer Factor 1 sensors are therefore the first choice for feeding different small parts such as nuts or rivets.



Coil and transformer production

- Use in winding machines
- Copper wire coil detection
- Quality control during coil production



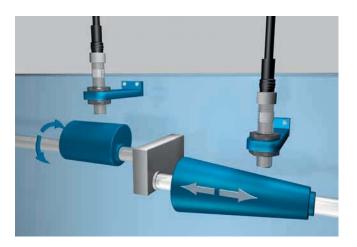
Distance measurement with factor 1

 Standard sensors face up to 70% reduction of the sensing distance towards aluminum or copper. Distance sensors with factor 1 offer a 2-3 times larger effective measuring range.

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Measure distances accurate to a micrometer

Inductive distance sensors – *AlphaProx*®



Absolute distance and angular measurement

- High reliability thanks to contact less measuring
- Dirt-resistant measuring system
- Measurement of linear and rotary movements possible
- Compact sensor sizes allow mounting even in limited spaces

With *AlphaProx*[®] Baumer offers the most comprehensive portfolio of standard and application-specific sensors with fully integrated signal processing and a very good price-performance ratio.

Highlights:

- Excellent measuring accuracy down to the nanometer range
- End-of-line calibration for minimized production lot variation
- Minimum deviation from sensor to sensor thanks to factory calibration
- Simple adjustment to the application thanks to its integrated powerful microcontroller



Tape tension control and monitoring

 AlphaProx[®] sensors enable high control quality when monitoring tape tensions. The sensor has two functions: displacement measurement (analog) and end position switch-off (digital). The measuring range of the sensor can be optimally adapted to different roll diameters by means of teach-in.



Vibration measurements on shafts and bearings

- Bearing play or true running measurements
- Detection of bearing damages
- AlphaProx[®] High Sensitivity for measurements in the micrometer range

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Sensing characteristics

Sensing distance

The international standard EN 60947-5-2 defines the sensing distance as follows: the sensing distance is the distance at which a standard target moving toward the sensing face of a proximity switch causes a signal change.

Standard target

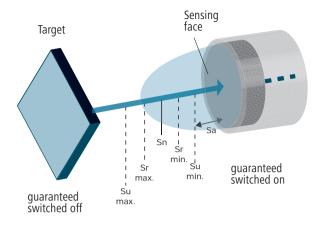
The standard target is defined as a square plate, 1 mm thick, made of Fe 360 (mild steel). The length of its side is defined as the larger of either the sensing face diameter or three times s_n (nominal sensing distance).

Nominal sensing distance S_n

Nominal sensing distance S_n is a type classification parameter and does not take into account tolerances during machining or changes due to external conditions such as voltage or temperature.

Assured sensing distance S_a

Distance from the sensing face at which the operation of the proximity switch is ensured under defined conditions. For inductive proximity switches the assured sensing distance is between 0% and 81% of the nominal switching distance.



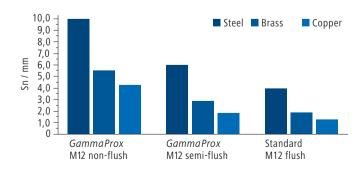
Effective sensing distance S.

Effective sensing distance of an individual proximity switch which is measured at a defined temperature, voltage and installation conditions. For inductive proximity switches it must be between 90% and 110% of the nominal sensing distance at 23 \pm 5 °C.

Usable sensing distance S.

Sensing distance of an individual proximity switch measured over the temperature range and at a supply voltage of 90% and 110% of the rated value. For inductive proximity switches it must be between 90% and 110% of the effective sensing distance.

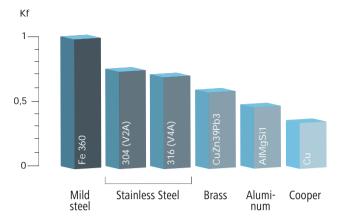
Especially large sensing distances GammaProx The sensing distances of the inductive *GammaProx* family are up to five times greater than the CENELEC standard value. This enables equally safe and reliable detection of steel and non-ferrous metals. Thanks to the increased sensing distance, it is possible to select generally greater distances to the moved objects, which permits greater installation tolerances, prevents damage, and increases plant reliability.



Due to the increased switching distance, *GammaProx* sensors react more sensitively to the surrounding material.For this reason, front-flush installation is not possible in all materials. The exact installation conditions and correction factors are specified in the data sheets.

Correction factor Cf

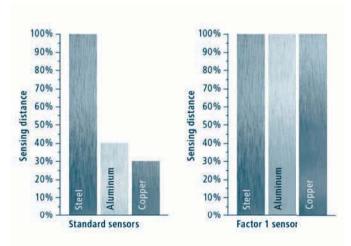
If metallic materials other than those of the standard measuring plate (Fe 360) are used for damping, the specified switching distances must be multiplied by the material correction factor specified in the data sheet. These results should be considered as guidelines. If no correction factors are specified in the data sheet, the standard values specified in this table can be used. Geometries deviating from the standard measuring plate also have an influence on the switching distance.



When sensing aluminum foil or non-metallic materials coated with a thin layer of aluminum or copper, the sensing distance achieved may be close to the value of mild steel. Actual S_n depends on the thickness of the layer as well as the alloy composition.

Factor 1

Standard sensors face up to 70% reduction of the sensing distance towards non-ferromagnetic metals. Factor 1 sensors integrate a micro-controller for compensation. As a result, factor 1 sensors do not have the drawback of material-dependent reduction of the sensing distance. They feature negligible temperature drift and also stand out by high switching speed which makes them ideal for measurements on aluminum, non-ferrous metals and for rotation speed acquired towards gear wheels or perforated discs.



The uniform distance offers outstanding flexibility in system conception and sensor installation. However, the benefits of Baumer sensors go even further: They are the fastest in their class in relation to sensing distance and have exceptional sensing latitude.

Sensing characteristics

Hysteresis

At approach and removal of the target, there is a difference between operating and release point which is defined as Hysteresis.

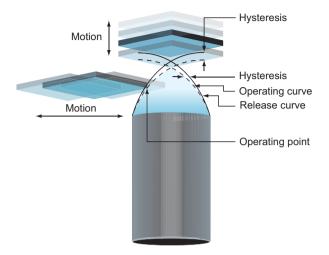
Hysteresis is designed into a sensor's characteristics to guard against possible incorrect pick-up due to vibration.

installations in areas where this range may be exceeded.

Meeting EN 60947-5-2 standards,

the switching frequency is the highest possible number of swit-

chings per second.



Repeat accuracy (digital sensors)

Repeat accuracy is described in the sensor standard EN 60947-5-2, which specifies that reproducibility amounts to 5% when two arbitrary measurements are taken within 8 hours, at a temperature of $+23^{\circ}C \pm 5^{\circ}C$, and with a voltage supply that varies less than $\pm 5^{\circ}$ %.

The normal temperature range is between -25 °C and +75 °C. Please call should your application require

Temperature range

Switching frequency

Sn 2 Target Disk

Protection classes

Protection class



1) Protection from ingress of dust and complete protection against electric shock.

2) Protection from water jets from any direction.



IP 67 includes the IP 65 specification. In addition this class offers protection against water when the housing is immersed in water under defined pressure and time conditions (30 minutes in 1 meter deep water).



Water must not enter in a quantity that will produce harmful effects if the housing is continuously immersed in water and if conditions which are specified between the manufacturer and user are fulfilled. The conditions must however be more difficult than in IP 67.



Protection from ingress of water during high-pressure cleaning with pure water at a water pressure of 8,000 to 10,000 kPa and a water temperature of +80 °C. The pressurization period is 30 seconds per position. Because this test procedure distinctly differs from the other IP tests, devices with the test seal IP 69K do not automatically have protection class IP 67 or IP 68. Solely devices with protection class IP 67 also have the underlying protection classes as well.

DuroProx all-metal sensors

Baumer *DuroProx* (IFRD) sensors are tough in the truest sense of the word. The entire housing, including the sensing face, is made of stainless steel V4A (1.4404). As a result, *DuroProx* sensors are resistant to abrasive and chemically aggressive media like acid, lye or salt water. This is ensured not only by the all-metal housing with a sensing face made of stainless steel but also by increased noise immunity in accordance with EN 61000-6-2.

Durability at high temperatures

The operating temperature range of DuroProx sensors runs from $-25 \dots +100^{\circ}$ C. As a result, they can also be operated continuously in the surroundings of generators, combustion engines or in cleaning processes.



The *proTect+* impermeability concept by Baumer ensures absolute dependability even under most adverse conditions. Thanks to the specifically conceived construction and the use of high-quality materials, sensors with *proTect+* provide IP 69K protection and ensure absolute stability even after countless temperature cycles. In order to achieve this, the sensors have been shock-tested over the entire temperature range. The *proTect+* concept ensures enhanced reliability and extended sensor service life.

What constitutes proTect+?

- Long-term seal: Temperature shock test in water and air over the entire temperature range
- Hose-proof and withstands high-pressure cleaning: Meets the highest IP requirements for the areas of application
- Excellent resistance: Selected materials with high resistance to materials such as cleaning agents and oils
- Impermeability properties by design: Optimized mechanical interfaces and manufacturing processes

Mounting instructions for

cylindrical forms

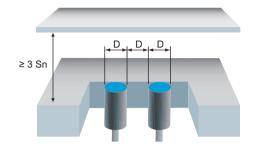
To rule out unintentional interference of the measuring field and to achieve maximum sensing distances, it is required to follow the mounting instructions and to maintain the specified minimum distances. If the minimum distances are undercut, a reduction of the sensing distances is expectable. A sensor test directly at the application is recommended.

Correction factors for different installation situations specified in the sensor data sheet have priority over the general guidelines below.

shielded (flush) mounting

Sensor may be mounted flush in a metal plate.

Choice of carrier material can have an influence on sensing distance.



unshielded (non-flush) mounting

There must be a space equal to the diameter of the sensing head, with no metal interference. Following this rule the electrical field strength is less attenuated, which enables a larger sensing distance.

quasi shielded mounting

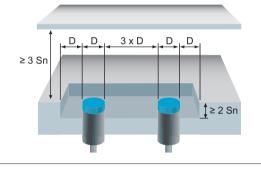
When mounted in ferromagnetic material these sensors require a space (x) behind the active area that is free of metal.

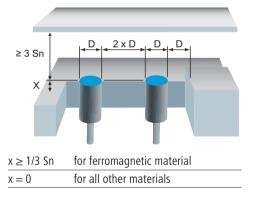
Sensors can be installed shielded (flush) when mounted in non ferrous materials (colored metals etc.).

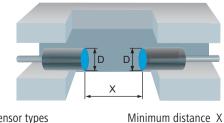
Always read and follow the installation instructions for distance measuring sensors.

opposite mounting

Minimum distances must be observed to prevent oppositely positioned sensors from affecting each other.







Sensor types	Minimum distance X
Standard sensors	2 x D
DuroProx sensors	3 x D
GammaProx sensors	5 x D

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Maximum installation torque

To avoid damage to the proximity switches during mounting, the default torque value should not be exceeded. Detailed information on the maximum tightening torque in the sensor data sheet has priority over the general guidelines below.

Reduce torque values by 30 % at the sensor's face.



Brass nickel plated thread: Die-cast zinc thread:	Polybutylenterephthalate thread:
M3 = 0,9 Nm	M12 = 1,5 Nm
M8 = 7 Nm	M18 = 3 Nm
M12 = 15 Nm	M30 = 15 Nm
M18 = 40 Nm	
M30 = 200 Nm	
	Die-cast zinc thread: M3 = 0,9 Nm M8 = 7 Nm M12 = 15 Nm M18 = 40 Nm

Mounting instructions for housings without threads

Strong, occasional housing loads, like those which occur e.g. during fixing with headless screws, must be avoided (IFRM 03, 04, 06). Incorrect installation can lead to irreversible damage to the proximity switch.

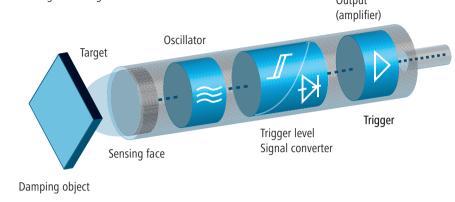
Sensors with a housing diameter of 6.5 mm can be installed optimally with the plastic support bracket 10109474.

Cable dimensions	Housing ø	Wire diameter	Cable material*	
	ø3	3 x 0,05 mm ²	PVC	
	ø4 /M5	3 x 0,08 mm ²	PUR	
	ø 6,5 / M8	3 x 0,14 mm ²	PVC	
	M12	3 x 0,25 mm ²	PVC	
	M18	3 x 0,25 / 3 x 0,50 mm ²	PVC	
	M30	3 x 0,50 mm ²	PVC	ł

where not otherwise stated

The sensor

Baumer inductive proximity switches are non-contact electronic sensors. Inductive sensors will recognize any conducting metal target.



Operation

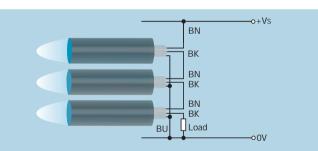
Output

Series switching

The oscillator creates a high frequency electromagnetic field, which radiates from the sensing face of the switch. When a conductive metal object enters this electromagnetic field, eddy currents are induced within the metal, causing a change in the amplitude of the oscillations.

The result is a voltage change at the output of the oscillator, which causes the trigger to change state and alter the output state.

Digitally switching sensors are available with a PNP, NPN or Namur output; measuring sensors come with voltage output (0 ... 10 V) or current output (e.g. 4 ... 20 mA or 0...10 mA).



BN BK BK BL Load

3-wire DC (PNP circuit shown)

The voltage drop across each conducting sensor reduces the voltage available to drive the load. The number of proximity switches which can be connected in series is therefore limited and may be worked out by summing the individual voltage drops plus the load requirement.

3-wire DC

3-wire DC sensors may be connected in parallel as shown. A parallel connection, however, must incorporate a decoupling diode.

Parallel switching

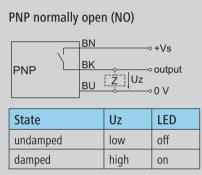
Explanatory notes on the connection diagrams

The specified diagrams indicate the undamped output. A sensor is in a damped state when an object is located in within its scanning range. In the diagrams Z denotes the typical load resistance position; Uz denotes the voltage applied to this load resistance. If $Uz = high (\approx +Vs)$, then current flows; if $Uz = low (\approx 0 V)$, then no current flows via the load resistance. Load resistance between output and +Vs is referred to as pull-up resistance, load resistance between output and 0 V as pull-down resistance.

PNP or NPN output

Sensors with a PNP or NPN output have a 3-wire design (+Vs, output and 0 V) and operate with direct current (DC). The load resistance of PNP sensors is between output and 0 V (pull-down resistance), while load resistance of NPN sensors is between +Vs and output (pull-up resistance). As a result, the PNP output is connected to the positive voltage supply during switching (positive switching output), whereas the NPN output is connected to the negative voltage supply during switching (negative switching output).

Normally open contacts and/or normally closed contacts define the switching function. Normally open contacts are referred to as normally open (NO), normally closed contacts as normally closed (NC). During damping with an object, sensors with normally open function establish contact connections (Uz = high), while sensors with normally closed function disconnect connections (Uz = low).



Uz

Uz

low

high

+Vs

0 V

output

LED

off

on

NPN normally open (NO)

NPN

State

undamped

damped

RK

BU



PNP

State	Uz	LED
undamped	high	on
damped	low	off

BU ZUZ

∘+Vs

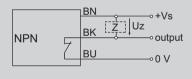
output

• 0 V

NPN normally closed (NC)

PNP normally closed (NC)

BK



State	Uz	LED
undamped	high	on
damped	low	off

General definitions

C

Connection cable

Most of our proximity switches are equipped with highly flexible PVC cable. If high resistance against oil and grease is required, the cable material can be changed to PUR. A FEP cable is used for high temperature resistance. The standard cable length is 2 meters.

D

Dimension

Normally the dimension refers to the width of the sensor, which for cylindrical body styles equals the diameter. Normally, the larger the body, the larger the coil and therefore the larger the sensing distance.

DNV-GL Guidelines and certifications

Amalgamation of the classification companies "Det Norske Veritas" (Norway) and "Germanischer Lloyd" (Germany). DNV-GL certifies equipment for the maritime sector, mainly for use on ships. Before a certificate can be issued, increased vibration resistance in particular must be demonstrated in laboratory tests.

• H -

Hysteresis

Hysteresis is the difference between the operating and switching-off point as an object approaches and moves away from the sensor.

■ M

Magnetic fields

Strong magnetic fields might push the ferrite cores of the proximity switch into saturation. Proper switching is no longer guaranteed. Protective shielding is recommended.

Maximum cable length

A large cable length is a capacitive load for the output circuit and increases the influence of interference. Length should therefore be kept as short as possible.

Max. switching current

The maximum permissible load current passed through the sensor.

■ N

NAMUR

NAMUR proximity switches change their current consumption as a metallic object approaches. The changed current consumption or the change in the internal resistance serves as the output signal. Together with suitable tested switching amplifiers, they can be used in an explosive environment.

Oil resistant

0

The standard PVC cables as well as the PBT sensing faces are not made to operate continuously in oily environments. PUR (polyurethane) cable options are available for both sensors and connectors.

Operating temperature range

The sensors are designed and tested for function in the specified temperature range.

Output protection

The sensors are protected against voltage peaks, short circuits and reverse polarity.

Output indicator

The LED indicates the current output.

R

Reverse polarity protection

These sensors are protected against temporary reversed polarity voltage connection.

Ripple

The voltage supplied to the sensor should always be within the specified range for proper operation. Within this range a 10 % ripple $(V_{\rm R})$ is allowed.

Sensor standard

S

The sensor standard is described in EN 60947-5-2.

Status display

Most of our proximity switches have an LED display. Most of our proximity switches have an LED display which indicates the output switching status.

Short circuit protection

The sensors are protected against voltage peaks, short circuits and reverse polarity.

Supply current

This is the maximum current consumed by the sensor, at nominal voltage, exclusive of output.

■ V

Voltage drop Vd

This value indicates the maximum voltage drop measured across the conducting output.

Voltage supply range +Vs

Maximum ripple 10 % of Vs. The supply voltage should not be higher or lower than the indicated maximum or minimum values.

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General definitions

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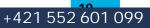




Inductive proximity switches

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Standard solutions for factory automation – cylindrical designs

product family	IFRM 03	IFRM 03	IFRM 04	IFRM 04	IFRM 04	IFRM 05	IFRM 05
			Ť			Ť	Ť
feature							
dimension	ø 3 mm	ø 3 mm	M4	ø 4 mm	ø 4 mm	M5	M5
nominal sensing distance Sn	0,8 mm	1 mm	0,8 mm	1 mm	1,6 mm	1 mm	1,6 mm
mounting type	flush	flush	flush	flush	flush	flush	flush
switching frequency max.	3 kHz	4 kHz	3 kHz	5 kHz	3 kHz	5 kHz	3 kHz
output current max.	100 mA	100 mA	100 mA	100 mA	100 mA	100 mA	100 mA
operating temperature	–25 +75 °C	−10 +70 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C
protection class	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67
housing material	stainless steel	stainless steel	stainless steel	stainless steel	stainless steel	stainless steel	stainless steel
housing length	12 22 mm	12 16 mm	22 mm	15 45 mm	20 45 mm	15 45 mm	20 45 mm
output circuit	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN
output function	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)
and a second	cable	cable wires	flylead connector	connector M5 connector M8	connector M5 connector M8	connector M5 connector M8	connector M8 connector M8 cable
connection types	flylead connector wires ext. electronic		wires	cable flylead connector wires	cable flylead connector	cable flylead connector wires	
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page product family feature dimension	connector wires ext. electronic 30 31 IR12.P10S IR12.P10S GammaProx M12	32 IFRM 18 J	33 IFRM 18 	flylead connector wires 34 37 IR18.P08S IR18.P08S	flylead connector 38 40 IR18.P12S IR18.P12S GammaProx M18	flylead connector wires 41 44 IR18.P15S	45 47 IFRM 30 IFRM 30 M30
page product family feature dimension nominal sensing distance Sn	 connector wires ext. electronic 30 31 IR12.P10S GammaProx M12 10 mm 	32 IFRM 18 	33 IFRM 18 	flylead connector wires 34 37 IR18.P08S IR18.P08S M18 8 mm	flylead connector 38 40 IR18.P12S IR18.P12S GammaProx M18 12 mm	flylead connector wires 41 44 IR18.P15S	45 47 IFRM 30 IFRM 30 II 0 mm
page product family feature dimension nominal sensing distance Sn mounting type	 connector wires ext. electronic 30 31 IR12.P10S GammaProx M12 10 mm non flush 	32 IFRM 18 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	33 IFRM 18 	flylead connector wires 34 37 IR18.P08S IR18.P08S M18 M18 8 mm flush	flylead connector 38 40 IR18.P12S IR18.P12S GammaProx M18 12 mm flush	flylead connector wires 41 44 IR18.P15S IR18.P15S M18 15 mm non flush	45 47 IFRM 30 W 30 10 mm flush
page product family feature dimension nominal sensing distance Sn mounting type switching frequency max.	connector wires ext. electronic 30 31 IR12.P10S IR12.P10S GammaProx M12 10 mm non flush 1,5 kHz	32 IFRM 18 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	33 IFRM 18 IFRM 18 II II M18 12 mm non flush 500 Hz	flylead connector wires 34 37 IR18.P08S IR	flylead connector 38 40 IR18.P12S IR18.P12S GammaProx M18 12 mm flush 400 Hz	flylead connector wires 41 44 IR18.P15S IR18.P15S M18 15 mm non flush 400 Hz	45 47 IFRM 30 IIRM 30 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
page product family feature dimension nominal sensing distance Sn mounting type switching frequency max. output current max.	connector wires ext. electronic 30 31 IR12.P10S GammaProx M12 10 mm non flush 1,5 kHz 100 mA	32 IFRM 18 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	33 IFRM 18	flylead connector wires 34 37 IR18.P08S IR	flylead connector 38 40 IR18.P12S IR18.P12S GammaProx M18 12 mm flush 400 Hz 100 mA	flylead connector wires 41 44 IR18.P15S IR18.P15S M18 15 mm non flush 400 Hz 100 mA	45 47 IFRM 30 IIRM 30 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
page product family feature dimension nominal sensing distance Sn mounting type switching frequency max. output current max. operating temperature	 connector wires ext. electronic 30 31 IR12.P10S GammaProx M12 GammaProx M12 10 mm non flush 1,5 kHz 100 mA -25 +75 °C 	32 IFRM 18 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	33 IFRM 18 IFRM 18 IIFRM 18 II II II II II II II II II II II II II	flylead connector wires 34 37 IR18.P08S IR	flylead connector 38 40 IR18.P12S IR18.P12S GammaProx M18 12 mm flush 400 Hz 100 mA -25 +75 °C	flylead connector wires 41 44 IR18.P15S IR18.P15S M18 15 mm non flush 400 Hz 100 mA 0 +65 °C	45 47 IFRM 30 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
page product family feature dimension nominal sensing distance Sn mounting type switching frequency max. output current max. operating temperature protection class	connector wires ext. electronic 30 31 IR12.P10S IR12.P10S IIR12.P10S III III III III III IIII	32 IFRM 18 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	33 IFRM 18 IFRM 18 IIFRM 18 IIFRM 18 IIF IIF IIF IIF IIF IIF IIF IIF IIF II	flylead connector wires 34 37 IR18.P08S IR	flylead connector 38 40 IR18.P12S IR18.P12S GammaProx M18 12 mm flush 400 Hz 100 mA -25 +75 °C IP 67	flylead connector wires 41 44 IR18.P15S IR18.P15S M18 15 mm non flush 400 Hz 100 mA 0 +65 °C IP 67	45 47 IFRM 30 IIRM 30 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
page product family feature dimension nominal sensing distance Sn mounting type switching frequency max. output current max. operating temperature protection class housing material	 connector wires ext. electronic 30 31 IR12.P10S GammaPros GammaPros GammaPros 10 mm 10 mm	32 IFRM 18 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	33 IFRM 18 IFRM 18 IIFRM 18 III III III III III III III III III I	flylead connector wires 34 37 IR18.P08S IR18.P08S I I I I I I I I I I	flylead connector 38 40 IR18.P12S IR18.P12S IIR18.P	flylead connector wires 41 44 IR18.P15S IR18.P15S M18 15 mm 15 mm 15 mm 15 mm 15 mm 100 Hz 100 mA 0 +65 °C IP 67 brass-nickel	45 47 IFRM 30 IFRM 30 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
page product family feature dimension nominal sensing distance Sn mounting type switching frequency max. output current max. operating temperature protection class housing material housing length	 connector wires ext. electronic 30 31 IR12.P10S IR12.P10S GammaProx GammaProx GammaProx 100 mM 105 kHz 100 mA 15 kHz 100 mA 25 +75 °C IP 67 brass-nickel 40 60 mm PNP 	32 IFRM 18 IFRM 18 IIFRM 18 II	33 IFRM 18 IFRM	flylead connector wires 34 37 IR18.P08S IR18.P08S IR18.P08S I IR18.P08S I I I I I I I I I I I I I I I I I I I	flylead connector 38 40 IR18.P12S IR18.P12S IIR18.P	flylead connector wires 41 44 IR18.P15S IR18.P15S M18 15 mm 15 mm 15 mm 15 mm 100 mA 400 Hz 100 mA 0 +65 °C IP 67 brass-nickel 35 60 mm	45 47 IFRM 30 IFRM 30 II 0 mm flush 500 Hz 200 mA -25 +75 °C IP 67 brass-nickel 60 65 mm
page product family feature dimension nominal sensing distance Sn mounting type switching frequency max. output current max. operating temperature protection class housing material housing length output circuit	 connector wires ext. electronic 3031 IR12.P10S IR12.P10S GammaProx M12 GammaProx M12 I0 mm non flush non flush 1,5 kHz 100 mA -25 +75 °C IP 67 brass-nickel 40 60 mm PNP NPN NPN break (NC) 	32 IFRM 18 IFRM 18	33 IFRM 18 IFRM	flylead connector wires 34 37 IR18.P08S IR1	flylead connector 38 40 IR18.P12S IR18.P12S GammaProx M18 12 mm flush 12 mm flush 12 mm flush 400 Hz 100 mA -25 +75 °C IP 67 brass-nickel 35 60 mm PNP NPN NPN break (NC)	flylead connector wires 41 44 IR18.P15S IR18.P15S I I I I I I I I I I I I I I I I I I I	45 47 IFRM 30 IFRM 30 IIFRM 30 II II II II II II II II II I

IFRM 06	IR06.P03S	IR06.P06S	IFRM 08	IR08.P03S	IR08.P06S	IFRM 12	IR12.P04S	IR12.P06S
		6(1			ł			
	GammaProx	GammaProx		GammaProx	GammaProx			GammaProx
ø 6,5 mm	ø 6,5 mm	ø 6,5 mm	M8	M8	M8	M12	M12	M12
2 mm	3 mm	6 mm	2 mm	3 mm	6 mm	4 mm	4 mm	6 mm
flush	flush	non flush	flush	flush	non flush	flush	flush	flush
5 kHz	2 kHz	400 Hz	5 kHz	2 kHz	400 Hz	2 kHz	2 kHz	1 kHz
200 mA	100 mA	100 mA	200 mA	100 mA	100 mA	200 mA	200 mA	100 mA
–25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C
IP 67	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67
stainless steel	stainless steel	stainless steel	stainless steel	stainless steel	stainless steel	brass-nickel	brass-nickel	brass-nickel
22 56 mm	40 46 mm	40 46 mm	22 56 mm	40 46 mm	40 46 mm	30 60 mm	50 85 mm	40 60 mm
PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP	PNP NPN
break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)	complemen- tary	break (NC) make (NO)
connector M8 cable flylead connector	connector M8 cable	connector M8 cable	connector M8 connector M12 cable flylead connector	connector M8 cable	connector M8 cable	connector M8 connector M12 cable	connector M12	connector M12 cable
48 51	52	53	54 58	59	60	61 64	65 66	67 68

IFRM 30	IR30.P18S	IR30.P24S
Ŧ	Ŧ	
	GammaProx	GammaProx
M30	M30	M30
15 mm	18 mm	24 mm
non flush	flush	non flush
500 Hz	500 Hz	500 Hz
200 mA	200 mA	200 mA
−25 +75 °C	−25 +75 °C	–25 +75 °C
IP 67	IP 67	IP 67
brass-nickel	brass-nickel	brass-nickel
70 75 mm	35 60 mm	35 60 mm
PNP	PNP NPN	PNP NPN
break (NC) make (NO)	complemen- tary	complemen- tary
connector M12 cable	connector M12 cable	connector M12 cable
82	83 84	85 86

Overview

product family	IFFM 04	IFFM 06	IFFM 08	IFFM 08	IFFM 08	IFFM 12	IFFM 20
	Ţ	•	P	NF NF	0 , tul	ļ	
dimension	4 x 4 mm	6 x 6 mm	8 x 4,7 mm	8 x 8 mm	8 x 8 mm	12 x 8 mm	20 x 10 mm
nominal sensing distance Sn	0,8 mm	1 mm	2 mm	2 mm	2 mm	4 mm	5 mm
switching frequency max.	3 kHz	5 kHz	5 kHz	5 kHz	5 kHz	2 kHz	1 kHz
output current max.	100 mA	100 mA	100 mA	200 mA	200 mA	200 mA	200 mA
operating temperature	−25 +75 °C	−25 +75 °C	–25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C
protection class	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67
housing material	stainless steel	brass-nickel	die-cast zinc	brass-nickel die-cast zinc	brass-nickel	brass-nickel	brass-nickel
housing length	22 mm	20 30 mm	16 mm	20 60 mm	49 mm	24 mm	32 mm
output circuit	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN
output function	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)
connection types	cable	connector M5 cable	cable flylead connector	connector M8 cable	connector M8	connector M5	connector M8
page	87	88 89	90	91 93	94 95	96	97

Standard solutions for factory automation – cylindrical designs

Factor 1 sensors

product family	IR06.P02F	IR08.P02F	IR12.P04F	IR18.P06F	IR18.P08F
			ļ		
dimension	ø 6,5 mm	M8	M12	M18	M18
nominal sensing distance Sn	2 mm	2 mm	4 mm	6 mm	8 mm
mounting type	flush	flush	flush	flush	qausi-flush
switching frequency max.	3 kHz	3 kHz	2 kHz	500 Hz	500 Hz
output current max.	200 mA				
operating temperature	−25 +75 °C	−25 +75 °C	−10 +70 °C	−25 +75 °C	−25 +75 °C
protection class	IP 67				
housing material	stainless steel	stainless steel	brass-nickel	brass-nickel	brass-nickel
housing length	40 46 mm	40 46 mm	40 50 mm	50 60 mm	50 60 mm
output circuit	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN
output function	break (NC) make (NO)				
connection types	connector M8 cable	connector M8 cable	connector M12 cable	connector M12 cable	connector M12 cable
page	100	101	102	103	104

Overview



Overview

Hygienic design

product family	IFBR 06	IFBR 11	IFBR 11	IFBR 17	IFBR 17
			8	ž	
dimension	ø 6,5 mm	ø 11 mm	ø 11 mm	ø 17 mm	ø 17 mm
nominal sensing distance Sn	3 mm	4 mm	6 mm	8 mm	12 mm
mounting type	non flush	flush	non flush	quasi-flush	non flush
switching frequency max.	3 kHz	1 kHz	1 kHz	500 Hz	500 Hz
output current max.	200 mA				
operating temperature	–40 +80 °C	−40 +80 °C	-40 +80 °C	-40 +80 °C	−40 +80 °C
protection class	IP 68/69K & proTect+	IP 68/69K & proTect+	IP 68/69K & proTect+	IP 68/69K & proTect+	IP 68/69K & proTect+
housing material	stainless steel	stainless steel	stainless steel	stainless steel	stainless steel
housing length	55 mm	54 60 mm	54 60 mm	55 60 mm	55 60 mm
output circuit	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN
output function	break (NC) make (NO)				
connection types	connector M12	connector M12 cable	connector M12 cable	connector M12 cable	connector M12 cable
approvals / certificates	FDA conform EHEDG Ecolab				
page	105	106	107	108	109

Outdoor design

product family	IFRR 08	IR12.P04S	IFRR 12	IFRR 12	IFRM 12	IFRR 18	IFRM 18
		ļ			Ŧ		Ŧ
dimension	M8	M12	M12	M12	M12	M18	M18
nominal sensing distance Sn	3 mm	4 mm	4 mm	6 mm	6 mm	8 mm	10 mm
mounting type	non flush	flush	flush	non flush	non flush	quasi-flush	flush
switching frequency max.	3 kHz	1 kHz	1 kHz	1 kHz	2 kHz	500 Hz	400 Hz
output current max.	200 mA	100 mA	200 mA				
operating temperature	–40 +80 °C	–40 +75 °C	–40 +80 °C	–40 +80 °C	–40 +80 °C	−40 +80 °C	−40 +80 °C
protection class	IP 68/69K & proTect+	IP 67	IP 68/69K & proTect+	IP 68/69K & proTect+	IP 67	IP 68/69K & proTect+	IP 67
housing material	stainless steel	stainless steel	stainless steel	stainless steel	brass-nickel	stainless steel	brass-nickel
housing length	55 mm	50 mm	54 60 mm	54 60 mm	50 60 mm	55 60 mm	50 60 mm
output circuit	PNP NPN	PNP	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN
output function	break (NC) make (NO)						
connection types	connector M12	connector M12	connector M12 cable	connector M12 cable	connector M12	connector M12 cable	connector M12 cable
approvals / certificates		DNVGL					
page	115	116	117	118 119	120	121	122

Washdown design

product family	IFRR 08	IFRR 12	IFRR 12	IFRR 18	IFRR 18
dimension	M8	M12	M12	M18	M18
nominal sensing distance Sn	3 mm	4 mm	6 mm	8 mm	12 mm
mounting type	non flush	flush	non flush	quasi-flush	non flush
switching frequency max.	3 kHz	1 kHz	1 kHz	500 Hz	500 Hz
output current max.	200 mA				
operating temperature	–40 +80 °C	−40 +80 °C	-40 +80 °C	-40 +80 °C	−40 +80 °C
protection class	IP 68/69K & proTect+	IP 68/69K & proTect+	IP 68/69K & proTect+	IP 68/69K & proTect+	IP 68/69K & proTect+
housing material	stainless steel	stainless steel	stainless steel	stainless steel	stainless steel
housing length	55 mm	54 60 mm	54 60 mm	55 60 mm	55 60 mm
output circuit	PNP NPN	PNP NPN	PNP NPN	PNP NPN	PNP NPN
output function	break (NC) make (NO)				
connection types	connector M12	connector M12 cable	connector M12 cable	connector M12 cable	connector M12 cable
approvals / certificates	Ecolab	Ecolab	Ecolab	Ecolab	Ecolab
page	110	111	112	113	114

IR18.P10S	IFRR 18	IFRM 18
		ļ
M18	M18	M18
10 mm	12 mm	12 mm
flush	non flush	non flush
800 Hz	500 Hz	500 Hz
200 mA	200 mA	200 mA
–40 +75 °C	−40 +80 °C	–40 +80 °C
IP 67	IP 68/69K & proTect+	IP 67
brass-nickel	stainless steel	brass-nickel
60 mm	55 60 mm	50 60 mm
PNP	PNP NPN	PNP NPN
make (NO)	break (NC) make (NO)	break (NC) make (NO)
connector M12	connector M12 cable	connector M12 cable
DNVGL		
123	124 125	126

Overview

Full metal housings DuroProx

product family	IFRD 06	IFRD 08	IFRD 12	IFRD 18
dimension	ø 6,5 mm	M8	M12	M18
nominal sensing distance Sn	2 mm	2 mm	4 mm	6 mm
mounting type	qausi-flush	qausi-flush	qausi-flush	qausi-flush
switching frequency max.	150 Hz	150 Hz	100 Hz	100 Hz
operating temperature	−25 +100 °C	–25 +100 °C	−25 +100 °C	−25 +100 °C
protection class	IP 67/68 IP 69K	IP 67/68 IP 69K	IP 67/68 IP 69K	IP 67/68 IP 69K
housing material	stainless steel	stainless steel	stainless steel	stainless steel
housing length	46 mm	46 mm	50 mm	60 mm
output circuit	PNP NPN	PNP NPN	PNP NPN	PNP NPN
output function	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)
connection types	connector M8	connector M8	connector M12	connector M12
page	127	128	129	130

Immunity to welding and magnetic fields

product family	IFRW 12	IFRW 18
	l	
features	welding noise	welding noise
dimension	M12	M18
nominal sensing distance Sn	2 mm	5 mm
mounting type	flush	flush
switching frequency max.	1 kHz	500 Hz
Ausgangsstrom max.	250 mA	250 mA
operating temperature	–25 +75 °C	–25 +75 °C
protection class	IP 67	IP 67
housing material	brass	brass
housing length	50 mm	60 mm
output circuit	PNP	PNP
output function	break (NC)	break (NC)
connection types	connector M12	connector M12
page	137	137

product family	IFRM 06	IFRM 08	IFRM 12	IFRH 08	IFRH 12	IFRH 18
	Į	Ŧ	₩ 1		\mathbf{O}	\bigcup^{\dagger}
dimension	ø 6,5 mm	M8	M12	M8	M12	M18
nominal sensing distance Sn	2 mm	2 mm	4 mm	1,5 mm	2 mm	5 mm
mounting type	flush	flush	flush	flush	flush	flush
switching frequency max.	5 kHz	5 kHz	2 kHz	2 kHz	2 kHz	1 kHz
output current max.	100 mA	100 mA	100 mA	200 mA	200 mA	200 mA
operating temperature	–25 +100 °C	–25 +100 °C	–25 +100 °C	–25 +180 °C	–25 +180 °C	–25 +180 °C
protection class	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67
housing material	stainless steel	stainless steel	stainless steel	stainless steel	stainless steel	stainless steel
housing length	30 mm	30 mm	40 mm	30 mm	30 mm	71 mm
output circuit	PNP NPN	PNP NPN	PNP NPN	PNP	PNP	PNP
output function	break (NC)	break (NC) make (NO)	break (NC)	break (NC) make (NO)	break (NC) make (NO)	break (NC) make (NO)
connection types	cable	cable	cable	cable	cable	cable
features				inline amplifier	inline amplifier	inline amplifier
page	132	133 134	134	135	136	136

High temperature

High pressure

product family	IFRP 12	IFRP 16	IFRP 18
			0
features	high pressure	high pressure	high pressure
dimension	M12	M16	M18
nominal sensing distance Sn	2 mm	2 mm	2 mm
mounting type	flush	flush	flush
switching frequency max.	5 kHz	3 kHz	3 kHz
Ausgangsstrom max.	200 mA	200 mA	200 mA
operating temperature	−25 +80 °C	−25 +80 °C	−25 +80 °C
protection class	IP 68	IP 68	IP 68
housing material	stainless steel	stainless steel	stainless steel
housing length	50 70 mm	60 mm	60 mm
output circuit	PNP	PNP	PNP
output function	break (NC)	break (NC)	break (NC)
connection types	connector M12	connector M12	connector M12
page	138	139	139

Overview

ATEX / NAMUR

product family	IFR 04	IFR 05	IFRM 06X	IFRM 08X	IFRM 08X	IFRM 12X	IFRM 12X
		Ē	Ţ		ļ	÷.	ŧ
dimension	ø 4 mm	M5	ø 6,5 mm	M8	M8	M12	M12
nominal sensing distance Sn	0,8 mm	0,8 mm	1,5 mm	1,5 mm	2 mm	2 mm	4 mm
mounting type	flush	flush	flush	flush	non flush	flush	non flush
switching frequency max.	5 kHz	5 kHz	5 kHz	5 kHz	5 kHz	2 kHz	2 kHz
operating temperature	−25 +75 °C	−25 +75 °C	−25 +75 °C	–25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C
protection class	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67
housing material	stainless steel	stainless steel	brass	stainless steel	brass	brass	brass
housing length	25 mm	25 mm	25 mm	27 mm	27 mm	30 mm	40 mm
output circuit	NAMUR	NAMUR	NAMUR	NAMUR	NAMUR	NAMUR	NAMUR PNP NPN
connection types	cable	cable	cable	connector M8 cable	cable	cable	cable
features			ATEX 1G	ATEX 1G	ATEX 1G	ATEX 1G	ATEX 1G ATEX 3D
page	140	140	141	142	142	143	143 145

^	
Uve	rview

IFRM 18X	IFRM 18X	IFF 08	IFFK 10E	IFR 10	IFR 10
	-	ľ		•	•
M18	M18	8 x 8 mm	10 x 16 mm	Ø 10 mm	Ø 10 mm
5 mm	8 mm	1,5 mm	2 mm	2 mm	4 mm
flush	non flush	flush	non flush	flush	non flush
1 kHz	1 kHz	5 kHz	5 kHz	2 kHz	2 kHz
–25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C	–25 +75 °C
IP 67					
brass	brass	brass	PBT	PBT	PBT
30 mm	38 mm	25 mm	27,8 mm	6,6 mm	6,6 mm
NAMUR	NAMUR	NAMUR	NAMUR	NAMUR	NAMUR
cable	cable	cable	cable	pins	pins
ATEX 1G	ATEX 1G			ATEX 3G	
146	146	147	148	149	150

Overview

IFRM 03

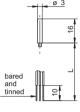


Sn = 0,8 mm

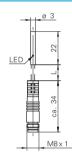
- smallest sensor housing size
- fully contained electronics
- 16 mm long version with individual strands

general data		dimension drawings
mounting type	flush	
nominal sensing distance Sn	0,8 mm	
hysteresis	2 20 % of Sr	ø 3
electrical data		
switching frequency	< 3 kHz	16
voltage supply range +Vs	10 30 VDC	
current consumption max. (no load)	12 mA	т
voltage drop Vd	< 2 VDC	
output current	< 100 mA	
short circuit protection	yes	
reverse polarity protection	yes	flylead connector vers
mechanical data		Ø 3
type	cylindrical smooth	1 4
material (sensing face)	POM	52
housing material	stainless steel	
dimension	3 mm	
cable, 2 m		35
housing length	22 mm	
flylead connector M8		
housing length	22 mm	M8×1
wires, 0,5 m		
housing length	16 mm	standard cable length 2
ambient conditions		connection diagrams
operating temperature	-25 +75 °C	BN (1)





d connector version



ard cable length 200 mm (L)

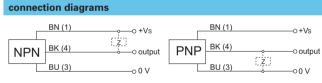
operating temperatur protection class

+/5 IP 67

connectors and mating connectors

	-			
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m			
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m			
additional cable connectors and field wireable connectors: see				
accessories				
Accessories				

Aucosonico			
10137021	Clamping nut for sensors Ø 3 mm		
11163236	Adapter for pulse stretching M8		
for details: see accessories section			



remarks

PUR cable

order reference	connection types	output circuit	output indicator
IFRM 03N1501/KS35L	flylead connector M8	NPN make function (NO)	LED red
IFRM 03N1501/L	cable, 2 m	NPN make function (NO)	LED red
IFRM 03N1503/Q	wires, 0,5 m	NPN make function (NO)	-
IFRM 03N3501/KS35L	flylead connector M8	NPN break function (NC)	LED red
IFRM 03N3501/L	cable, 2 m	NPN break function (NC)	LED red
IFRM 03N3503/Q	wires, 0,5 m	NPN break function (NC)	-
IFRM 03P1501/KS35L	flylead connector M8	PNP make function (NO)	LED red
IFRM 03P1501/L	cable, 2 m	PNP make function (NO)	LED red
IFRM 03P1503/Q	wires, 0,5 m	PNP make function (NO)	-
IFRM 03P3501/KS35L	flylead connector M8	PNP break function (NC)	LED red
IFRM 03P3501/L	cable, 2 m	PNP break function (NC)	LED red
IFRM 03P3503/Q	wires, 0,5 m	PNP break function (NC)	-

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IFRM 03



Sn = 0,8 mm

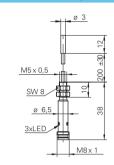
- sensing probe 12 mm long
- remote cable amplifier
- M8 x 1 quick disconnect

general data	
mounting type	flush
nominal sensing distance Sn	0,8 mm
hysteresis	2 20 % of Sr
output indicator	3 port LED red
electrical data	
switching frequency	< 3 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
material (sensing face)	POM
housing material	stainless steel
dimension	3 mm
housing length	12 mm
connection types	connector M8
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

connectors and mating connectors			
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m		
ESW 31SH0200	ESW 31SH0200 Connector M8, 3 pin, angular, 2 m		
additional cable connectors and field wireable connectors: see accessories			
Accessories			
10137021 Clamping nut for sensors Ø 3 mm			
for details: see accessories section			

order reference	output circuit
IFRM 03N1505/CS35L	NPN make function (NO)
IFRM 03N3505/CS35L	NPN break function (NC)
IFRM 03P1505/CS35L	PNP make function (NO)
IFRM 03P3505/CS35L	PNP break function (NC)

dimension drawing



connection diagrams

BN (1)	→ +Vs	BN (1)	0+Vs
	i_z_i →——o output	PNP BK (4)	
BU (3)	0 0 V	BU (3)	0 V

IFRIM 03 Sn = 0,8 mm

IFRM 03



Sn = 1 mm

- smallest sensor housing size
- fully contained electronics
- 12 mm long version with individual strands

general data	
mounting type	flush
nominal sensing distance Sn	1 mm
temperature drift	- 5 % / + 10 % (+10 +60 °C) - 5 % / + 15 % (-10 +70 °C)
hysteresis	2 20 % of Sr
output indicator	LED red
electrical data	
switching frequency	< 4 kHz
voltage supply range +Vs	6 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
material (sensing face)	POM
housing material	stainless steel
dimension	3 mm
cable, 2 m	
housing length	16 mm
wires, 0,5 m	
housing length	12 mm
ambient conditions	
operating temperature	-10 +70 °C
protection class	IP 67

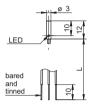
Accessories

10137021	Clamping nut for sensors Ø 3 mm	
for details: see accessories section		

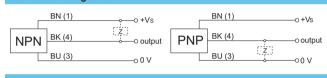
order reference	connection types	output circuit
IFRM 03N1713/L	cable, 2 m	NPN make function (NO)
IFRM 03N1713/QL	wires, 0,5 m	NPN make function (NO)
IFRM 03N3713/L	cable, 2 m	NPN break function (NC)
IFRM 03N3713/QL	wires, 0,5 m	NPN break function (NC)
IFRM 03P1713/L	cable, 2 m	PNP make function (NO)
IFRM 03P1713/QL	wires, 0,5 m	PNP make function (NO)
IFRM 03P3713/L	cable, 2 m	PNP break function (NC)
IFRM 03P3713/QL	wires, 0,5 m	PNP break function (NC)

dimension drawings





connection diagrams



remarks

PUR cable

IFRM 03 Sn = 1 mm

IFRM 04



Sn = 0,8 mm

• smallest diameter threaded housing sensor M4 x 0,5

general data	
mounting type	flush
nominal sensing distance Sn	0,8 mm
hysteresis	2 20 % of Sr
output indicator	LED red
electrical data	
switching frequency	< 3 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	POM
housing material	stainless steel
dimension	4 mm
housing length	22 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

Connector M8, 3 pin, straight, 2 m

Connector M8, 3 pin, angular, 2 m

Adapter for pulse stretching M8

additional cable connectors and field wireable connectors: see

connectors and mating connectors

for details: see accessories section

ESG 32SH0200

ESW 31SH0200

accessories

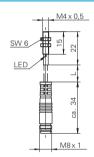
Accessories

11163236

dimension drawing

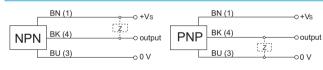


flylead connector version



standard cable length 200 mm (L)

connection diagrams



remarks

PUR cable

order reference	connection types	output circuit
IFRM 04N15B1/KS35PL	flylead connector M8	NPN make function (NO)
IFRM 04N15B1/L	cable, 2 m	NPN make function (NO)
IFRM 04N35B1/KS35PL	flylead connector M8	NPN break function (NC)
IFRM 04N35B1/L	cable, 2 m	NPN break function (NC)
IFRM 04P15B1/KS35PL	flylead connector M8	PNP make function (NO)
IFRM 04P15B1/L	cable, 2 m	PNP make function (NO)
IFRM 04P35B1/KS35PL	flylead connector M8	PNP break function (NC)
IFRM 04P35B1/L	cable, 2 m	PNP break function (NC)

IFRM 04



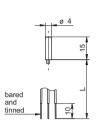
Sn = 1 mm

- fully contained electronics
- 3 individual strands
- 15 mm housing length

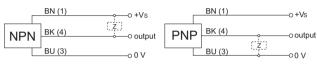
general data

3	
mounting type	flush
nominal sensing distance Sn	1 mm
hysteresis	2 20 % of Sr
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
material (sensing face)	LCP
housing material	stainless steel
dimension	4 mm
housing length	15 mm
connection types	wires, 0,5 m
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

dimension drawing



connection diagrams



Accessories

10119345Clamping nut for sensors Ø 4 mmfor details: see accessories section

order reference	output circuit
IFRM 04N15A5/Q	NPN make function (NO)
IFRM 04N35A5/Q	NPN break function (NC)
IFRM 04P15A5/Q	PNP make function (NO)
IFRM 04P35A5/Q	PNP break function (NC)

IFRM 04 Sn = 1 mm

IFRM 04



Sn = 1 mm

- fully contained electronics
- miniature connector M5 x 0,5
- high switching frequency

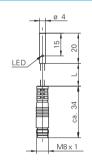
noneval data		
general data		flush
mounting type	iatanaa Sn	
nominal sensing d	Istance Sh	1 mm 2 20 % of Sr
hysteresis		2 20 % of Sr
electrical data	-	E 111-
switching frequen	-	< 5 kHz
voltage supply ran	0	10 30 VDC
current consumpti load)	on max. (no	12 mA
voltage drop Vd		< 2 VDC
output current		< 100 mA
short circuit protect	ction	yes
reverse polarity pr	otection	yes
mechanical data		
type		cylindrical smooth
material (sensing f	ace)	LCP
housing material		stainless steel
dimension		4 mm
cable, 2 m		
housing length		20 mm
flylead connector	· M8	
housing length		20 mm
connector M5		
housing length		24 mm
ambient conditio	ns	
operating tempera	ture	-25 +75 °C
protection class		IP 67
connectors and n	nating connect	tors
ESG 32SH0200	Connector M8	3, 3 pin, straight, 2 m
ESW 31SH0200	Connector M8	3, 3 pin, angular, 2 m
ESG 05SP0200	Connector M	5, 3 pin, straight, 2 m
ESW 05SP0200	Connector M5, 3 pin, angular, 2 m	
additional cable co accessories	nnectors and fi	eld wireable connectors: see
Accessories		
10119345		for sensors Ø 4 mm
11163236	Adapter for p	ulse stretching M8
for details: see acc	cessories sectio	n

dimension drawings



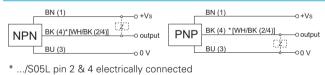


flylead connector version



standard cable length 200 mm (L)

connection diagrams



remarks

PUR cable

IFRM 04 Sn = 1 mm

order reference	connection types	output circuit	output indicator
IFRM 04N15A3/KS35PL	flylead connector M8	NPN make function (NO)	LED red
IFRM 04N15A3/L	cable, 2 m	NPN make function (NO)	LED red
IFRM 04N15A3/S05L	connector M5	NPN make function (NO)	2 port LED red
IFRM 04N35A3/KS35PL	flylead connector M8	NPN break function (NC)	LED red
IFRM 04N35A3/L	cable, 2 m	NPN break function (NC)	LED red
IFRM 04N35A3/S05L	connector M5	NPN break function (NC)	2 port LED red
IFRM 04P15A3/KS35PL	flylead connector M8	PNP make function (NO)	LED red
IFRM 04P15A3/L	cable, 2 m	PNP make function (NO)	LED red
IFRM 04P15A3/S05L	connector M5	PNP make function (NO)	2 port LED red
IFRM 04P35A3/KS35PL	flylead connector M8	PNP break function (NC)	LED red
IFRM 04P35A3/L	cable, 2 m	PNP break function (NC)	LED red
IFRM 04P35A3/S05L	connector M5	PNP break function (NC)	2 port LED red

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Sn = 1 mm

- fully contained electronics
- standard cable version
- high switching frequency

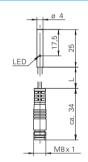
general data

•	
mounting type	flush
nominal sensing distance Sn	1 mm
hysteresis	2 20 % of Sr
output indicator	LED red
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
material (sensing face)	LCP
housing material	stainless steel
dimension	4 mm
housing length	25 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

dimension drawing



flylead connector version



standard cable length 200 mm (L)

connectors and mating connectors			
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m		
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m		
additional cable co accessories	additional cable connectors and field wireable connectors: see accessories		
Accessories			
10119345	Clamping nut for sensors Ø 4 mm		
11163236	Adapter for pulse stretching M8		
for details: see accessories section			

connection diagrams		
BN (1) 0 +Vs	BN (1)	—o+Vs
NPN BK (4)		o output
BU (3) 0 V	BU (3)	0 V
romarks		

PUR cable

order reference	connection types	output circuit
IFRM 04N15A1/KS35PL	flylead connector M8	NPN make function (NO)
IFRM 04N15A1/L	cable, 2 m	NPN make function (NO)
IFRM 04N35A1/KS35PL	flylead connector M8	NPN break function (NC)
IFRM 04N35A1/L	cable, 2 m	NPN break function (NC)
IFRM 04P15A1/KS35PL	flylead connector M8	PNP make function (NO)
IFRM 04P15A1/L	cable, 2 m	PNP make function (NO)
IFRM 04P35A1/KS35PL	flylead connector M8	PNP break function (NC)
IFRM 04P35A1/L	cable, 2 m	PNP break function (NC)

IFRM 04



Sn = 1 mm

- robust steel housing
- M8 x 1 quick disconnect
- high switching frequency

general data mounting type

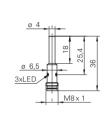
mounting type	flush
nominal sensing distance Sn	1 mm
hysteresis	2 20 % of Sr
output indicator	3 port LED red
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
material (sensing face)	LCP
housing material	stainless steel
dimension	4 mm
connection types	connector M8
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

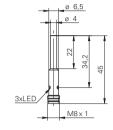
connectors and mating connectorsESG 32SH0200Connector M8, 3 pin, straight, 2 mESW 31SH0200Connector M8, 3 pin, angular, 2 madditional cable connectors and field wireable connectors: see
accessoriesAccessories10119345Clamping nut for sensors Ø 4 mm11163236Adapter for pulse stretching M8

for details: see accessories section

order reference	output circuit	housing length
IFRM 04N15A3/S35L	NPN make function (NO)	36 mm
IFRM 04N35A3/S35L	NPN break function (NC)	36 mm
IFRM 04P15A1/S35L	PNP make function (NO)	45 mm
IFRM 04P15A3/S35L	PNP make function (NO)	36 mm
IFRM 04P35A1/S35L	PNP break function (NC)	45 mm
IFRM 04P35A3/S35L	PNP break function (NC)	36 mm

dimension drawings





connection diagrams

BN (1)		BN (1)	0+Vs
	o output		o output
BU (3)		BU (3)	

IFRM 04 Sn = 1 mm

flush

1,6 mm

< 3 kHz 10 ... 30 VDC

12 mA

< 2 VDC < 100 mA

cylindrical smooth

stainless steel

ves

yes

LCP

4 mm

20 mm

20 mm

24 mm

IP 67

Connector M8, 3 pin, straight, 2 m

Connector M8, 3 pin, angular, 2 m

Connector M5, 3 pin, straight, 2 m

Connector M5, 3 pin, angular, 2 m

Clamping nut for sensors Ø 4 mm

Adapter for pulse stretching M8

additional cable connectors and field wireable connectors: see

-25 ... +75 °C

2 ... 20 % of Sr

IFRM 04



general data

mounting type

electrical data switching frequency

voltage drop Vd

output current short circuit protection

mechanical data

housing material

dimension

cable, 2 m

housing length

connector M5 housing length

protection class

ESG 32SH0200

ESW 31SH0200

ESG 05SP0200

ESW 05SP0200

accessories Accessories

10119345 11163236

material (sensing face)

flylead connector M8 housing length

ambient conditions

operating temperature

connectors and mating connectors

hysteresis

load)

type

Sn = 1,6 mm

- fully contained electronics
- miniature connector M5 x 0,5
- increased sensing distance

nominal sensing distance Sn

voltage supply range +Vs

reverse polarity protection

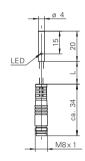
current consumption max. (no

dimension drawings

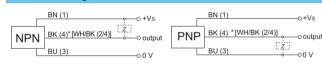




flylead connector version



connection diagrams



* .../S05L pin 2 & 4 electrically connected

remarks

PUR cable

for details: see accessories sect	ion		
order reference	connection types	output circuit	output indicator
IFRM 04N17A3/KS35PL	flylead connector M8	NPN make function (NO)	LED red
IFRM 04N17A3/PL	cable, 2 m	NPN make function (NO)	LED red
IFRM 04N17A3/S05L	connector M5	NPN make function (NO)	2 port LED red
IFRM 04N37A3/KS35PL	flylead connector M8	NPN break function (NC)	LED red
IFRM 04N37A3/PL	cable, 2 m	NPN break function (NC)	LED red
IFRM 04N37A3/S05L	connector M5	NPN break function (NC)	2 port LED red
IFRM 04P17A3/KS35PL	flylead connector M8	PNP make function (NO)	LED red
IFRM 04P17A3/PL	cable, 2 m	PNP make function (NO)	LED red
IFRM 04P17A3/S05L	connector M5	PNP make function (NO)	2 port LED red
IFRM 04P37A3/KS35PL	flylead connector M8	PNP break function (NC)	LED red
IFRM 04P37A3/PL	cable, 2 m	PNP break function (NC)	LED red
IFRM 04P37A3/S05L	connector M5	PNP break function (NC)	2 port LED red

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IFRM 04



Sn = 1,6 mm

- fully contained electronics
- standard cable version
- increased sensing distance

connectors and mating connectors

for details: see accessories section

ESG 32SH0200

ESW 31SH0200

accessories

Accessories

10119345

11163236

general data	
mounting type	flush
nominal sensing distance Sn	1,6 mm
hysteresis	2 20 % of Sr
output indicator	LED red
electrical data	
switching frequency	< 3 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
material (sensing face)	LCP
housing material	stainless steel
dimension	4 mm
housing length	25 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

Connector M8, 3 pin, straight, 2 m

Connector M8, 3 pin, angular, 2 m

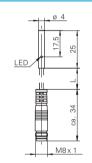
Clamping nut for sensors Ø 4 mm

additional cable connectors and field wireable connectors: see

dimension drawing

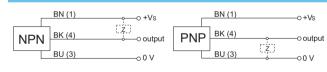


flylead connector version



standard cable length 200 mm (L)

connection diagrams



remarks PUR cable

Adapter for pulse stretching M8

order reference	connection types	output circuit
IFRM 04N17A1/KS35PL	flylead connector M8	NPN make function (NO)
IFRM 04N17A1/PL	cable, 2 m	NPN make function (NO)
IFRM 04N37A1/KS35PL	flylead connector M8	NPN break function (NC)
IFRM 04N37A1/PL	cable, 2 m	NPN break function (NC)
IFRM 04P17A1/KS35PL	flylead connector M8	PNP make function (NO)
IFRM 04P17A1/PL	cable, 2 m	PNP make function (NO)
IFRM 04P37A1/KS35PL	flylead connector M8	PNP break function (NC)
IFRM 04P37A1/PL	cable, 2 m	PNP break function (NC)

IFRM 04

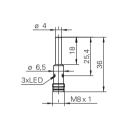


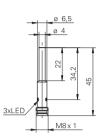
Sn = 1,6 mm

- robust steel housing
- M8 x 1 guick disconnect
- increased sensing distance

general data

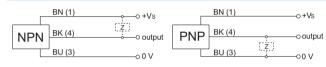
mounting type flush nominal sensing distance Sn 1,6 mm hysteresis 2 ... 20 % of Sr 3 port LED red output indicator electrical data < 3 kHz switching frequency voltage supply range +Vs 10 ... 30 VDC current consumption max. (no 12 mA load) < 2 VDC voltage drop Vd < 100 mA output current short circuit protection yes reverse polarity protection yes mechanical data cylindrical smooth type material (sensing face) LCP housing material stainless steel 4 mm dimension connector M8 connection types ambient conditions -25 ... +75 °C operating temperature IP 67





connection diagrams

dimension drawings



Sn = 1,6 mm

FRM 04

protection class

ESG 32SH0200

ESW 31SH0200

accessories Accessories

10119345 11163236

connectors and mating connectors

for details: see accessories section

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order reference	output circuit	nousing length
IFRM 04N17A1/S35L	NPN make function (NO)	45 mm
IFRM 04N17A3/S35L	NPN make function (NO)	36 mm
IFRM 04N37A1/S35L	NPN break function (NC)	45 mm
IFRM 04N37A3/S35L	NPN break function (NC)	36 mm
IFRM 04P17A1/S35L	PNP make function (NO)	45 mm
IFRM 04P17A3/S35L	PNP make function (NO)	36 mm
IFRM 04P37A1/S35L	PNP break function (NC)	45 mm
IFRM 04P37A3/S35L	PNP break function (NC)	36 mm

Connector M8, 3 pin, straight, 2 m

Connector M8, 3 pin, angular, 2 m

Clamping nut for sensors Ø 4 mm

Adapter for pulse stretching M8

additional cable connectors and field wireable connectors: see

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IFRM 05



Sn = 1 mm

- fully contained electronics
- 3 individual strands
- 15 mm housing length

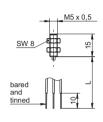
general data

mounting type	flush
nominal sensing distance Sn	1 mm
hysteresis	2 20 % of Sr
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	LCP
housing material	stainless steel
dimension	5 mm
housing length	15 mm
connection types	wires, 0,5 m
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

order reference	output circuit
IFRM 05N15A5/Q	NPN make function (NO)
IFRM 05N35A5/Q	NPN break function (NC)
IFRM 05P15A5/Q	PNP make function (NO)
IFRM 05P35A5/Q	PNP break function (NC)



dimension drawing



connection diagrams



IFRM 05 Sn = 1 mm

flush

1 mm

< 5 kHz

12 mA

< 2 VDC < 100 mA

yes

yes

LCP

5 mm

20 mm

20 mm

24 mm

IP 67

Connector M8, 3 pin, straight, 2 m

Connector M8, 3 pin, angular, 2 m

Connector M5, 3 pin, straight, 2 m

Connector M5, 3 pin, angular, 2 m

Adapter for pulse stretching M8

additional cable connectors and field wireable connectors: see

-25 ... +75 °C

2 ... 20 % of Sr

10 ... 30 VDC

cylindrical threaded

stainless steel

IFRM 05



general data mounting type

hysteresis

load)

type

electrical data

voltage drop Vd

output current short circuit protection

mechanical data

housing material

dimension

cable, 2 m

housing length

connector M5

housing length

protection class

ESG 32SH0200

ESW 31SH0200

ESG 05SP0200

ESW 05SP0200

accessories Accessories

11163236

ambient conditions

operating temperature

connectors and mating connectors

for details: see accessories section

switching frequency

voltage supply range +Vs

reverse polarity protection

material (sensing face)

flylead connector M8 housing length

current consumption max. (no

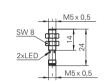
Sn = 1 mm

• fully contained electronics

nominal sensing distance Sn

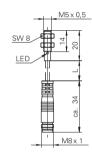
- miniature connector M5 x 0,5
- integrated LED-status display

dim	ension	drawings



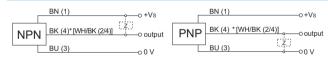


flylead connector version



standard cable length 200 mm (L)

connection diagrams



* .../S05L pin 2 & 4 electrically connected

remarks

PUR cable

order reference	connection types	output circuit	output indicator
IFRM 05N15A3/KS35PL	flylead connector M8	NPN make function (NO)	LED red
IFRM 05N15A3/L	cable, 2 m	NPN make function (NO)	LED red
IFRM 05N15A3/S05L	connector M5	NPN make function (NO)	2 port LED red
IFRM 05N35A3/KS35PL	flylead connector M8	NPN break function (NC)	LED red
IFRM 05N35A3/L	cable, 2 m	NPN break function (NC)	LED red
IFRM 05N35A3/S05L	connector M5	NPN break function (NC)	2 port LED red
IFRM 05P15A3/KS35PL	flylead connector M8	PNP make function (NO)	LED red
IFRM 05P15A3/L	cable, 2 m	PNP make function (NO)	LED red
IFRM 05P15A3/S05L	connector M5	PNP make function (NO)	2 port LED red
IFRM 05P35A3/KS35PL	flylead connector M8	PNP break function (NC)	LED red
IFRM 05P35A3/L	cable, 2 m	PNP break function (NC)	LED red
IFRM 05P35A3/S05L	connector M5	PNP break function (NC)	2 port LED red

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IFRM 05



Sn = 1 mm

- fully contained electronics
- standard cable version
- integrated LED-status display

connectors and mating connectors

for details: see accessories section

ESG 32SH0200

ESW 31SH0200

accessories

Accessories

11163236

general data	
mounting type	flush
nominal sensing distance Sn	1 mm
hysteresis	2 20 % of Sr
output indicator	LED red
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	LCP
housing material	stainless steel
dimension	5 mm
housing length	25 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

Connector M8, 3 pin, straight, 2 m

Connector M8, 3 pin, angular, 2 m

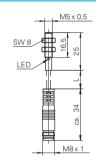
Adapter for pulse stretching M8

additional cable connectors and field wireable connectors: see

dimension drawing

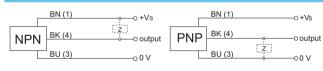


flylead connector version



standard cable length 200 mm (L)

connection diagrams



remarks

PUR cable

order reference	connection types	output circuit
IFRM 05N15A1/KS35PL	flylead connector M8	NPN make function (NO)
IFRM 05N15A1/L	cable, 2 m	NPN make function (NO)
IFRM 05N35A1/KS35PL	flylead connector M8	NPN break function (NC)
IFRM 05N35A1/L	cable, 2 m	NPN break function (NC)
IFRM 05P15A1/KS35PL	flylead connector M8	PNP make function (NO)
IFRM 05P15A1/L	cable, 2 m	PNP make function (NO)
IFRM 05P35A1/KS35PL	flylead connector M8	PNP break function (NC)
IFRM 05P35A1/L	cable, 2 m	PNP break function (NC)

IFRM 05



Sn = 1 mm

- robust steel housing
- M8 x 1 guick disconnect

connectors and mating connectors

for details: see accessories section

ESG 32SH0200

ESW 31SH0200

order reference

IFRM 05N15A3/S35L

IFRM 05N35A3/S35L

IFRM 05P15A1/S35L

IFRM 05P15A3/S35L

IFRM 05P35A1/S35L

IFRM 05P35A3/S35L

accessories Accessories 11163236

3 port LED

general data

mounting type flush nominal sensing distance Sn 1 mm hysteresis 2 ... 20 % of Sr 3 port LED red output indicator electrical data < 5 kHz switching frequency 10 ... 30 VDC voltage supply range +Vs current consumption max. (no 12 mA load) < 2 VDC voltage drop Vd < 100 mA output current short circuit protection yes reverse polarity protection ves mechanical data cylindrical threaded type material (sensing face) LCP housing material stainless steel 5 mm dimension connector M8 connection types ambient conditions operating temperature -25 ... +75 °C protection class IP 67

Connector M8, 3 pin, straight, 2 m Connector M8, 3 pin, angular, 2 m

Adapter for pulse stretching M8

NPN make function (NO)

NPN break function (NC)

PNP make function (NO)

PNP make function (NO)

PNP break function (NC)

PNP break function (NC)

housing length

36 mm

36 mm

45 mm

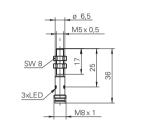
36 mm

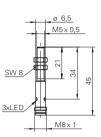
45 mm

36 mm

additional cable connectors and field wireable connectors: see

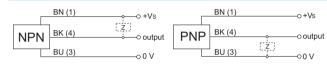
output circuit





connection diagrams

dimension drawings



Sn = 1 mm

FRM 05

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IFRM 05



Sn = 1,6 mm

- fully contained electronics
- miniature connector M5 x 0,5
- increased sensing distance

connectors and mating connectors

ESG 05SP0200

ESW 05SP0200

accessories

general data	
-	fluch
mounting type	flush
nominal sensing distance Sn	1,6 mm
hysteresis	2 20 % of Sr
electrical data	
switching frequency	< 3 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	LCP
housing material	stainless steel
dimension	5 mm
cable, 2 m	
housing length	20 mm
connector M5	
housing length	24 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

Connector M5, 3 pin, straight, 2 m

Connector M5, 3 pin, angular, 2 m

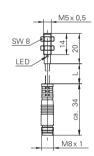
additional cable connectors and field wireable connectors: see

dimension drawings





flylead connector version



connection diagrams



* .../S05L pin 2 & 4 electrically connected

remarks PUR cable

order reference	connection types	output circuit	output indicator
IFRM 05N17A3/PL	cable, 2 m	NPN make function (NO)	LED red
IFRM 05N17A3/S05L	connector M5	NPN make function (NO)	2 port LED red
IFRM 05N37A3/PL	cable, 2 m	NPN break function (NC)	LED red
IFRM 05N37A3/S05L	connector M5	NPN break function (NC)	2 port LED red
IFRM 05P17A3/PL	cable, 2 m	PNP make function (NO)	LED red
IFRM 05P17A3/S05L	connector M5	PNP make function (NO)	2 port LED red
IFRM 05P37A3/PL	cable, 2 m	PNP break function (NC)	LED red
IFRM 05P37A3/S05L	connector M5	PNP break function (NC)	2 port LED red

IFRM 05 Sn = 1,6 mm

IFRM 05



Sn = 1,6 mm

- fully contained electronics
- standard cable version
- increased sensing distance

general data

mounting type	flush
nominal sensing distance Sn	1,6 mm
hysteresis	2 20 % of Sr
output indicator	LED red
electrical data	
switching frequency	< 3 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	LCP
housing material	stainless steel
dimension	5 mm
housing length	25 mm
connection types	cable, 2 m
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

output circuit

NPN make function (NO)

NPN break function (NC)

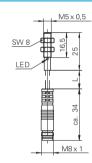
PNP make function (NO)

PNP break function (NC)

dimension drawing



flylead connector version



standard cable length 200 mm (L)

connection diagrams

BN (1) BK (4) BU (3)	 BN (1) BK (4) BU (3)	 —o+Vs —ooutput —oo∨
remarks		

PUR cable

order reference

IFRM 05N17A1/PL

IFRM 05N37A1/PL

IFRM 05P17A1/PL

IFRM 05P37A1/PL

flush

1,6 mm

< 3 kHz

12 mA

< 2 VDC < 100 mA

yes

yes

LCP

IP 67

10 ... 30 VDC

cylindrical threaded

stainless steel 5 mm

connector M8

-25 ... +75 °C

2 ... 20 % of Sr 3 port LED red

IFRM 05



general data

mounting type

output indicator electrical data

voltage drop Vd

mechanical data

housing material

connection types ambient conditions

ESG 32SH0200

ESW 31SH0200

accessories Accessories 11163236

dimension

short circuit protection

material (sensing face)

operating temperature protection class

reverse polarity protection

output current

switching frequency

voltage supply range +Vs

current consumption max. (no

hysteresis

load)

type

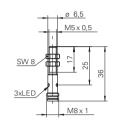
Sn = 1,6 mm

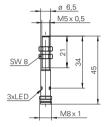
- robust steel housing
- M8 x 1 guick disconnect

nominal sensing distance Sn

increased sensing distance

dimension drawings





connection diagrams

BN (1)	o +Vs	BN (1)	0+Vs
	o output		o output
BU (3)	0 0 V	BU (3)	

Connector M8, 3 pin, straight, 2 m Connector M8, 3 pin, angular, 2 m additional cable connectors and field wireable connectors: see Adapter for pulse stretching M8

for details: see accessories section

connectors and mating connectors

order reference	output circuit	housing length
IFRM 05N17A1/S35L	NPN make function (NO)	45 mm
IFRM 05N17A3/S35L	NPN make function (NO)	36 mm
IFRM 05N37A1/S35L	NPN break function (NC)	45 mm
IFRM 05N37A3/S35L	NPN break function (NC)	36 mm
IFRM 05P17A1/S35L	PNP make function (NO)	45 mm
IFRM 05P17A3/S35L	PNP make function (NO)	36 mm
IFRM 05P37A1/S35L	PNP break function (NC)	45 mm
IFRM 05P37A3/S35L	PNP break function (NC)	36 mm

IFRM 06



Sn = 2 mm

- robust steel housing
- shortest version with M8 x 1 connector
- high switching frequency

9	ge	en	e	ra	l	d	a	ta	

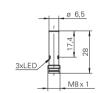
-	
mounting type	flush
nominal sensing distance Sn	2 mm
hysteresis	3 20 % of Sr
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
material (sensing face)	PBT
housing material	stainless steel
dimension	6,5 mm
cable, 2 m	
housing length	22 mm
flylead connector M8	
housing length	22 mm
connector M8	
housing length	28 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67
connectors and mating conne	ctors
ESG 32SH0200 Connector M	Vl8, 3 pin, straight, 2 m
ESW 31SH0200 Connector M	VI8, 3 pin, angular, 2 m
additional cable connectors and accessories	field wireable connectors: see

Mounting bracket for sensors Ø 6,5 mm

Clamping nut for sensors Ø 6,5 mm

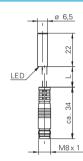
Adapter for pulse stretching M8

dimension drawings





flylead connector version



standard cable length 200 mm (L)

connection diagrams



order reference	connection types	output circuit	output indicator
IFRM 06N1713/KS35L	flylead connector M8	NPN make function (NO)	LED red
IFRM 06N1713/L	cable, 2 m	NPN make function (NO)	LED red
IFRM 06N17A5/S35L	connector M8	NPN make function (NO)	3 port LED red
IFRM 06N3713/KS35L	flylead connector M8	NPN break function (NC)	LED red
IFRM 06N3713/L	cable, 2 m	NPN break function (NC)	LED red
IFRM 06N37A5/S35L	connector M8	NPN break function (NC)	3 port LED red
IFRM 06P1713/KS35L	flylead connector M8	PNP make function (NO)	LED red
IFRM 06P1713/L	cable, 2 m	PNP make function (NO)	LED red
IFRM 06P17A5/S35L	connector M8	PNP make function (NO)	3 port LED red
IFRM 06P3713/KS35L	flylead connector M8	PNP break function (NC)	LED red
IFRM 06P3713/L	cable, 2 m	PNP break function (NC)	LED red
IFRM 06P37A5/S35L	connector M8	PNP break function (NC)	3 port LED red

Accessories

10109474 10117742

11163236

for details: see accessories section

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IFRM 06



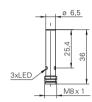
Sn = 2 mm

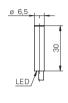
- robust steel housing
- high switching frequency
- mounting with special support

general data			
mounting type		flush	
nominal sensing d	istance Sn	2 mm	
hysteresis		3 20 % of Sr	
electrical data			
switching frequen	су	< 5 kHz	
voltage supply ran	ge +Vs	10 30 VDC	
current consumpti load)	on max. (no	12 mA	
voltage drop Vd		< 2 VDC	
output current		< 200 mA	
short circuit protect	ction	yes	
reverse polarity pr	otection	yes	
mechanical data			
type		cylindrical smooth	
material (sensing f	ace)	PBT	
housing material		stainless steel	
dimension		6,5 mm	
cable, 2 m			
housing length		30 mm	
flylead connector	· M8		
housing length		30 mm	
connector M8			
housing length		36 mm	
ambient conditions operating temperature -25 +75 °C protection class IP 67 connectors and mating connectors ESG 32SH0200 Connector M8, 3 pin, straight, 2 m			
		-25 +75 °C	
		IP 67	
		tors	
		3, 3 pin, straight, 2 m	
ESW 31SH0200	Connector Ma	8, 3 pin, angular, 2 m	
additional cable connectors and field wireable connectors: see accessories Accessories		eld wireable connectors: see	
10100474	N.4		

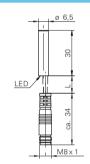
	10109474 Mounting bracket for sensors Ø 6,5 mm		
10117742 Clamping nut for sensors Ø 6,5 mm		Clamping nut for sensors Ø 6,5 mm	
	11163236	Adapter for pulse stretching M8	
	for details: see accessories section		

dimension drawings





flylead connector version



standard cable length 200 mm (L)

connection diagrams



IFRM 06 Sn = 2 mm

order reference	connection types	output circuit	output indicator
IFRM 06N1701/KS35L	flylead connector M8	NPN make function (NO)	LED red
IFRM 06N1701/L	cable, 2 m	NPN make function (NO)	LED red
IFRM 06N17A3/S35L	connector M8	NPN make function (NO)	3 port LED red
IFRM 06N3701/KS35L	flylead connector M8	NPN break function (NC)	LED red
IFRM 06N3701/L	cable, 2 m	NPN break function (NC)	LED red
IFRM 06N37A3/S35L	connector M8	NPN break function (NC)	3 port LED red
IFRM 06P1701/KS35L	flylead connector M8	PNP make function (NO)	LED red
IFRM 06P1701/L	cable, 2 m	PNP make function (NO)	LED red
IFRM 06P17A3/S35L	connector M8	PNP make function (NO)	3 port LED red
IFRM 06P3701/KS35L	flylead connector M8	PNP break function (NC)	LED red
IFRM 06P3701/L	cable, 2 m	PNP break function (NC)	LED red
IFRM 06P37A3/S35L	connector M8	PNP break function (NC)	3 port LED red

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IFRM 06



Sn = 2 mm

- robust steel housing
- high switching frequency
- mounting with special support

general data

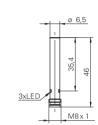
3		
mounting type	flush	
nominal sensing distance Sn	2 mm	
hysteresis	3 20 % of Sr	
electrical data		
switching frequency	< 5 kHz	
voltage supply range +Vs	10 30 VDC	
current consumption max. (no load)	12 mA	
voltage drop Vd	< 2 VDC	
output current	< 200 mA	
short circuit protection	yes	
reverse polarity protection	yes	
mechanical data		
type	cylindrical smooth	
material (sensing face)	PBT	
housing material	stainless steel	
dimension	6,5 mm	
cable, 2 m		
housing length	40 mm	
flylead connector M8		
housing length	40 mm	
connector M8		
housing length	46 mm	
ambient conditions		
operating temperature	-25 +75 °C	
protection class	IP 67	
connectors and mating connec	tors	
ESG 32SH0200 Connector N	18, 3 pin, straight, 2 m	
ESW 31SH0200 Connector M8, 3 pin, angular, 2 m		
additional cable connectors and field wireable connectors: see		

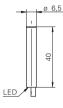
Mounting bracket for sensors Ø 6,5 mm

Clamping nut for sensors Ø 6,5 mm

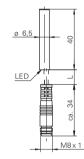
Adapter for pulse stretching M8

dimension drawings





flylead connector version



standard cable length 200 mm (L)

connection diagrams



order reference	connection types	output circuit	output indicator
IFRM 06N17A1/KS35L	flylead connector M8	NPN make function (NO)	LED red
IFRM 06N17A1/L	cable, 2 m	NPN make function (NO)	LED red
IFRM 06N17A1/S35L	connector M8	NPN make function (NO)	3 port LED red
IFRM 06N37A1/KS35L	flylead connector M8	NPN break function (NC)	LED red
IFRM 06N37A1/L	cable, 2 m	NPN break function (NC)	LED red
IFRM 06N37A1/S35L	connector M8	NPN break function (NC)	3 port LED red
IFRM 06P17A1/KS35L	flylead connector M8	PNP make function (NO)	LED red
IFRM 06P17A1/L	cable, 2 m	PNP make function (NO)	LED red
IFRM 06P17A1/S35L	connector M8	PNP make function (NO)	3 port LED red
IFRM 06P37A1/KS35L	flylead connector M8	PNP break function (NC)	LED red
IFRM 06P37A1/L	cable, 2 m	PNP break function (NC)	LED red
IFRM 06P37A1/S35L	connector M8	PNP break function (NC)	3 port LED red

accessories Accessories

10109474 10117742

11163236

for details: see accessories section

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IFRM 06



Sn = 2 mm

- long, robust steel housings
- cable and connector versions

connectors and mating connectors

for details: see accessories section

ESG 32SH0200

ESW 31SH0200

accessories Accessories 10109474

10117742

11163236

mounting with special support

general data	
mounting type	flush
nominal sensing distance Sn	2 mm
hysteresis	3 20 % of Sr
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
material (sensing face)	PBT
housing material	stainless steel
dimension	6,5 mm
cable, 2 m	
housing length	50 mm
flylead connector M8	
housing length	50 mm
connector M8	
housing length	56 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

Connector M8, 3 pin, straight, 2 m

Connector M8, 3 pin, angular, 2 m

Mounting bracket for sensors Ø 6,5 mm

cable, 2 m

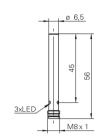
connector M8

Clamping nut for sensors Ø 6,5 mm

Adapter for pulse stretching M8

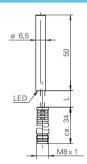
additional cable connectors and field wireable connectors: see

dimension drawings



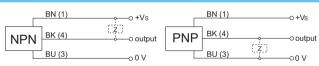


flylead connector version



standard	cable	length	200	mm	(L)

connection diagrams



connection types	output circuit	output indicator	
cable, 2 m	NPN make function (NO)	LED red	
connector M8	NPN make function (NO)	3 port LED red	
cable, 2 m	NPN break function (NC)	LED red	
connector M8	NPN break function (NC)	3 port LED red	
flylead connector M8	PNP make function (NO)	LED red	
cable, 2 m	PNP make function (NO)	LED red	
connector M8	PNP make function (NO)	3 port LED red	
flylead connector M8	PNP break function (NC)	LED red	
	connection types cable, 2 m connector M8 cable, 2 m connector M8 flylead connector M8 cable, 2 m cable, 2 m connector M8 connector M8 connector M8 connector M8	connection typesoutput circuitcable, 2 mNPN make function (NO)connector M8NPN make function (NO)cable, 2 mNPN break function (NC)connector M8NPN break function (NC)flylead connector M8PNP make function (NO)cable, 2 mPNP make function (NO)connector M8PNP make function (NO)connector M8PNP make function (NO)connector M8PNP make function (NO)	

PNP break function (NC)

PNP break function (NC)

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IFRM 06P37A4/L

IFRM 06P37A4/S35L

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+421 552 601 099

LED red

3 port LED red

GammaProx

IR06.P03S



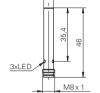
Sn = 3 mm

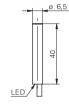
- version with extended Sn GammaProx
- shielded mounting
- robust steel housing

general data

•			
mounting type	flush		
special type	enhanced distance (GammaProx)		
nominal sensing distance Sn	3 mm		
temperature drift	± 10 %		
hysteresis	3 20 % of Sr		
correction factor typ.	mild steel 100 %, stainless steel 65 %, aluminum 30 %		
electrical data			
switching frequency	< 2 kHz		
voltage supply range +Vs	6 36 VDC		
current consumption max. (no load)	10 mA		
voltage drop Vd	< 2 VDC		
output current	< 100 mA		
short circuit protection	yes		
reverse polarity protection	yes		
mechanical data			
type	cylindrical smooth		
material (sensing face)	PBT		
housing material	stainless steel		
dimension	6,5 mm		
cable, 2 m			
housing length	40 mm		
connector M8			
housing length	46 mm		
ambient conditions			
operating temperature	-25 +75 °C		

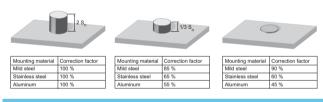
dimension drawings





connection diagrams BN (1) BN (1) –o +Vs -o+Vs Z BK (4) BK (4) PNP NPN -o output -o output z BU (3) BU (3) -0 O V -00 V

correction factors for different mounting situations (approx.)



remarks

for correct installation refer to "mounting instructions"

	connectors and mating connectors		
	ESG 32SH0200	Connector M8, 3 pin, straight, 2 m	
	ESW 31SH0200	Connector M8, 3 pin, angular, 2 m	
additional cable connectors and field wireable connectors: see accessories Accessories		nnectors and field wireable connectors: see	
	10109474	Mounting bracket for sensors Ø 6,5 mm	
	10117742	Clamping nut for sensors Ø 6,5 mm	
	11163236	Adapter for pulse stretching M8	

IP 67

for details: see accessories section

order reference	connection types	output circuit	output indicator
IR06.P03S-11148708	cable, 2 m	NPN break function (NC)	LED red
IR06.P03S-11148685	cable, 2 m	NPN make function (NO)	LED red
IR06.P03S-11148739	cable, 2 m	PNP break function (NC)	LED red
IR06.P03S-11148719	cable, 2 m	PNP make function (NO)	LED red
IR06.P03S-11148711	connector M8	NPN break function (NC)	3 port LED red
IR06.P03S-11148689	connector M8	NPN make function (NO)	3 port LED red
IR06.P03S-11148740	connector M8	PNP break function (NC)	3 port LED red
IR06.P03S-11148736	connector M8	PNP make function (NO)	3 port LED red

protection class

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GammaProx

IR06.P06S



Sn = 6 mm

- version with extended Sn GammaProx
- non shielded mounting
- robust steel housing

general data

material (sensing face) housing material

dimension cable, 2 m

housing length

connector M8 housing length

protection class

ESG 32SH0200

ESW 31SH0200

accessories Accessories 10109474

10117742

11163236

ambient conditions

operating temperature

connectors and mating connectors

for details: see accessories section

mounting type	non-flush
special type	enhanced distance (GammaProx)
nominal sensing distance Sn	6 mm
temperature drift	± 10 % (0 +60 °C) ± 15 % (-25 +75 °C)
hysteresis	3 20 % of Sr
correction factor typ.	mild steel 100 %, stainless steel 80 %, aluminum 50 %
alactrical data	

< 400 Hz
6 36 VDC
12 mA
< 2 VDC
< 100 mA
yes
yes
cylindrical smooth

PBT

40 mm

46 mm

IP 67

Connector M8, 3 pin, straight, 2 m

Connector M8, 3 pin, angular, 2 m

Mounting bracket for sensors Ø 6,5 mm

connector M8

Clamping nut for sensors Ø 6,5 mm

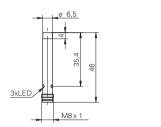
Adapter for pulse stretching M8

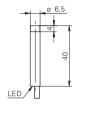
additional cable connectors and field wireable connectors: see

-25 ... +75 °C

stainless steel 6,5 mm

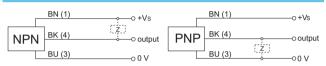
dimension drawings







connection diagrams



correction factors for different mounting situations (approx.)



order reference	connection types	output circuit	output indicator
IR06.P06S-11148702	cable, 2 m	NPN break function (NC)	LED red
IR06.P06S-11148683	cable, 2 m	NPN make function (NO)	LED red
IR06.P06S-11148737	cable, 2 m	PNP break function (NC)	LED red
IR06.P06S-11148714	cable, 2 m	PNP make function (NO)	LED red
IR06.P06S-11148705	connector M8	NPN break function (NC)	3 port LED red
IR06.P06S-11148684	connector M8	NPN make function (NO)	3 port LED red
IR06.P06S-11148738	connector M8	PNP break function (NC)	3 port LED red

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IR06.P06S-11148717

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PNP make function (NO)

+421 552 601 099

3 port LED red

flush

IFRM 08



Sn = 2 mm

- shortest version with M8 x 1 connector
- high switching frequency
- robust steel housing

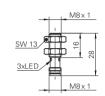
general data

mounting type nominal sensing distance Sn 2 mm hysteresis 3 ... 20 % of Sr electrical data switching frequency < 5 kHz 10 ... 30 VDC voltage supply range +Vs current consumption max. (no 12 mA load) voltage drop Vd < 2 VDC < 200 mA output current short circuit protection ves reverse polarity protection yes mechanical data cylindrical threaded type material (sensing face) PBT housing material stainless steel dimension 8 mm cable, 2 m housing length 22 mm flylead connector M8 housing length 22 mm connector M8 housing length 28 mm



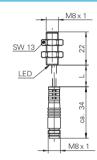


dimension drawings

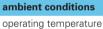




flylead connector version



standard cable length 200 mm (L)



protection class

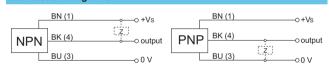
-25 ... +75 °C IP 67

connectors and mating connectors

Connector M8, 3 pin, straight, 2 m ESG 32SH0200 ESW 31SH0200 Connector M8, 3 pin, angular, 2 m additional cable connectors and field wireable connectors: see accessories Λ

Accessories		
10151719	Sensofix series 08 round	
11163236	Adapter for pulse stretching M8	
for details: see a	ccessories section	

connection diagrams



order reference	connection types	output circuit	output indicator
IFRM 08N1713/KS35L	flylead connector M8	NPN make function (NO)	LED red
IFRM 08N1713/L	cable, 2 m	NPN make function (NO)	LED red
IFRM 08N17A5/S35L	connector M8	NPN make function (NO)	3 port LED red
IFRM 08N3713/KS35L	flylead connector M8	NPN break function (NC)	LED red
IFRM 08N3713/L	cable, 2 m	NPN break function (NC)	LED red
IFRM 08N37A5/S35L	connector M8	NPN break function (NC)	3 port LED red
IFRM 08P1713/KS35L	flylead connector M8	PNP make function (NO)	LED red
IFRM 08P1713/L	cable, 2 m	PNP make function (NO)	LED red
IFRM 08P17A5/S35L	connector M8	PNP make function (NO)	3 port LED red
IFRM 08P3713/KS35L	flylead connector M8	PNP break function (NC)	LED red
IFRM 08P3713/L	cable, 2 m	PNP break function (NC)	LED red
IFRM 08P37A5/S35L	connector M8	PNP break function (NC)	3 port LED red

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IFRM 08



Sn = 2 mm

- robust steel housing
- high switching frequency

connectors and mating connectors

for details: see accessories section

ESG 32SH0200

ESW 31SH0200

accessories Accessories 10151719

11163236

general data

general uata	
mounting type	flush
nominal sensing distance Sn	2 mm
hysteresis	3 20 % of Sr
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	stainless steel
dimension	8 mm
cable, 2 m	
housing length	30 mm
flylead connector M8	
housing length	30 mm
connector M8	
housing length	36 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

Connector M8, 3 pin, straight, 2 m

Connector M8, 3 pin, angular, 2 m

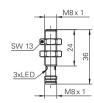
additional cable connectors and field wireable connectors: see

Sensofix series 08 round

Adapter for pulse stretching M8

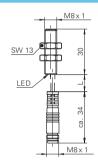


dimension drawings





flylead connector version



standard cable length 200 mm (L)

connection diagrams



Inductive proximity switches factory automation

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ator	

order reference	connection types	output circuit	output indicator
IFRM 08N1701/KS35L	flylead connector M8	NPN make function (NO)	LED red
IFRM 08N1701/L	cable, 2 m	NPN make function (NO)	LED red
IFRM 08N17A3/S35L	connector M8	NPN make function (NO)	3 port LED red
IFRM 08N3701/KS35L	flylead connector M8	NPN break function (NC)	LED red
IFRM 08N3701/L	cable, 2 m	NPN break function (NC)	LED red
IFRM 08N37A3/S35L	connector M8	NPN break function (NC)	3 port LED red
IFRM 08P1701/KS35L	flylead connector M8	PNP make function (NO)	LED red
IFRM 08P1701/L	cable, 2 m	PNP make function (NO)	LED red
IFRM 08P17A3/S35L	connector M8	PNP make function (NO)	3 port LED red
IFRM 08P3701/KS35L	flylead connector M8	PNP break function (NC)	LED red
IFRM 08P3701/L	cable, 2 m	PNP break function (NC)	LED red
IFRM 08P37A3/S35L	connector M8	PNP break function (NC)	3 port LED red

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IFRM 08



general data

Sn = 2 mm

- robust steel housing
- high switching frequency



operating temperature

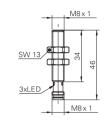
protection class

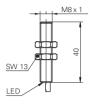
mounting type	flush	
nominal sensing distance Sn	2 mm	
hysteresis	3 20 % of Sr	
electrical data		
switching frequency	< 5 kHz	
voltage supply range +Vs	10 30 VDC	
current consumption max. (no load)	12 mA	
voltage drop Vd	< 2 VDC	
output current	< 200 mA	
short circuit protection	yes	-
reverse polarity protection	yes	fl
mechanical data		
type	cylindrical threaded	
material (sensing face)	PBT	
housing material	stainless steel	
dimension	8 mm	
cable, 2 m		
housing length	40 mm	
flylead connector M8		
housing length	40 mm	
connector M8		
housing length	46 mm	S
ambient conditions		С

-25 ... +75 °C

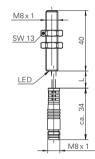
IP 67

dimension drawings



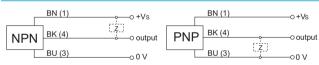


flylead connector version



standard cable length 200 mm (L)

onnection diagrams



connectors and m	ating connectors
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m
additional cable cor	postors and field wireable connecte

ar, 2 m additional cable onnectors and field wireable connectors: see accessories

Accessories	
10151719	Sensofix series 08 round
11163236	Adapter for pulse stretching M8
for details: see acc	essories section

order reference	connection types	output circuit	output indicator
IFRM 08N17A1/KS35L	flylead connector M8	NPN make function (NO)	LED red
IFRM 08N17A1/L	cable, 2 m	NPN make function (NO)	LED red
IFRM 08N17A1/S35L	connector M8	NPN make function (NO)	3 port LED red
IFRM 08N37A1/KS35L	flylead connector M8	NPN break function (NC)	LED red
IFRM 08N37A1/L	cable, 2 m	NPN break function (NC)	LED red
IFRM 08N37A1/S35L	connector M8	NPN break function (NC)	3 port LED red
IFRM 08P17A1/KS35L	flylead connector M8	PNP make function (NO)	LED red
IFRM 08P17A1/L	cable, 2 m	PNP make function (NO)	LED red
IFRM 08P17A1/S35L	connector M8	PNP make function (NO)	3 port LED red
IFRM 08P37A1/KS35L	flylead connector M8	PNP break function (NC)	LED red
IFRM 08P37A1/L	cable, 2 m	PNP break function (NC)	LED red
IFRM 08P37A1/S35L	connector M8	PNP break function (NC)	3 port LED red

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IFRM 08



Sn = 2 mm

- robust steel housing
- high switching frequency

connectors and mating connectors

for details: see accessories section

ESG 32SH0200

ESW 31SH0200

accessories Accessories 10151719

11163236

general data

general data	
mounting type	flush
nominal sensing distance Sn	2 mm
hysteresis	3 20 % of Sr
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	stainless steel
dimension	8 mm
	0 11111
cable, 2 m	6 11111
cable, 2 m housing length	50 mm
housing length	
housing length flylead connector M8	50 mm
housing length flylead connector M8 housing length	50 mm
housing length flylead connector M8 housing length connector M8	50 mm 50 mm
housing length flylead connector M8 housing length connector M8 housing length	50 mm 50 mm
housing length flylead connector M8 housing length connector M8 housing length ambient conditions	50 mm 50 mm 56 mm

Connector M8, 3 pin, straight, 2 m

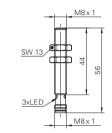
Connector M8, 3 pin, angular, 2 m

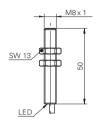
additional cable connectors and field wireable connectors: see

Sensofix series 08 round

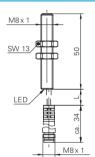
Adapter for pulse stretching M8

dimension drawings





flylead connector version



standard cable length 200 mm (L)

connection diagrams



Inductive proximity switches factory automation

0 0 V	BU (3)	

order reference	connection types	output circuit	output indicator
IFRM 08N17A4/KS35L	flylead connector M8	NPN make function (NO)	LED red
IFRM 08N17A4/L	cable, 2 m	NPN make function (NO)	LED red
IFRM 08N17A4/S35L	connector M8	NPN make function (NO)	3 port LED red
IFRM 08N37A4/KS35L	flylead connector M8	NPN break function (NC)	LED red
IFRM 08N37A4/L	cable, 2 m	NPN break function (NC)	LED red
IFRM 08N37A4/S35L	connector M8	NPN break function (NC)	3 port LED red
IFRM 08P17A4/KS35L	flylead connector M8	PNP make function (NO)	LED red
IFRM 08P17A4/L	cable, 2 m	PNP make function (NO)	LED red
IFRM 08P17A4/S35L	connector M8	PNP make function (NO)	3 port LED red
IFRM 08P37A4/KS35L	flylead connector M8	PNP break function (NC)	LED red
IFRM 08P37A4/L	cable, 2 m	PNP break function (NC)	LED red
IFRM 08P37A4/S35L	connector M8	PNP break function (NC)	3 port LED red

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IFRM 08



Sn = 2 mm

- robust steel housing
- high switching frequency
- M12 x 1 quick disconnect

connectors and mating connectors

for details: see accessories section

ESG 34SH0200

ESW 33SH0200

accessories Accessories 10151719

11163237

order reference IFRM 08N1703/S14L

IFRM 08N3703/S14L

IFRM 08P1703/S14L

IFRM 08P3703/S14L

general data

mounting type	flush
nominal sensing distance Sn	2 mm
hysteresis	3 20 % of Sr
output indicator	3 port LED red
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	stainless steel
dimension	8 mm
housing length	50 mm
connection types	connector M12
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

Connector M12, 3 pin, straight, 2 m

Connector M12, 3 pin, angular, 2 m

Adapter for pulse stretching M12

output circuit

NPN make function (NO)

NPN break function (NC)

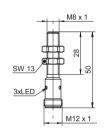
PNP make function (NO)

PNP break function (NC)

additional cable connectors and field wireable connectors: see

Sensofix series 08 round

dimension drawing



connection diagrams

BN (1) 0 +Vs	BN (1)	—o+Vs
NPN BK (4)* [WH/BK (2/4)]	PNP BK (4) * [WH/BK (2/4)]	output
BU (3) 0 V	BU (3)	

* .../S14L pin 2 & 4 electrically connected

FRM 08 Sn = 2 mm

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GammaProx

IR08.P03S



Sn = 3 mm

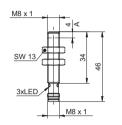
- version with extended Sn GammaProx
- shielded mounting
- · robust steel housing

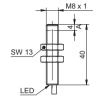
general data

gonoral anta	
mounting type	flush
special type	enhanced distance (GammaProx)
nominal sensing distance Sn	3 mm
temperature drift	± 10 %
hysteresis	3 20 % of Sr
correction factor typ.	mild steel 100 %, stainless steel 65 %, aluminum 30 %
electrical data	
switching frequency	< 2 kHz
voltage supply range +Vs	6 36 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	stainless steel
dimension	8 mm
tightening torque max.	10 Nm (A: 7 Nm)
cable, 2 m	
housing length	40 mm
connector M8	
housing length	46 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

connectors and	mating connectors
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m
additional cable c accessories	onnectors and field wireable connectors: see
Accessories	
10151719	Sensofix series 08 round
11163236	Adapter for pulse stretching M8
for details: see a	cessories section

dimension drawings



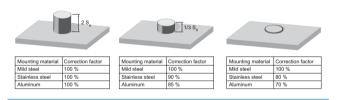




connection diagrams



correction factors for different mounting situations (approx.)



remarks

for correct installation refer to "mounting instructions"

IR08.P03S Sn = 3 mm

order reference	connection types	output circuit	output indicator
IR08.P03S-11148764	cable, 2 m	NPN break function (NC)	LED red
IR08.P03S-11148749	cable, 2 m	NPN make function (NO)	LED red
IR08.P03S-11148790	cable, 2 m	PNP break function (NC)	LED red
IR08.P03S-11148775	cable, 2 m	PNP make function (NO)	LED red
IR08.P03S-11148766	connector M8	NPN break function (NC)	3 port LED red
IR08.P03S-11148760	connector M8	NPN make function (NO)	3 port LED red
IR08.P03S-11148791	connector M8	PNP break function (NC)	3 port LED red
IR08.P03S-11148757	connector M8	PNP make function (NO)	3 port LED red

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GammaProx

IR08.P06S



Sn = 6 mm

- version with extended Sn GammaProx
- shielded mounting
- robust steel housing

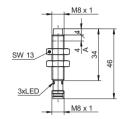
general data

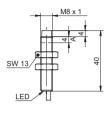
gonoral anta	
mounting type	non-flush
special type	enhanced distance (GammaProx)
nominal sensing distance Sn	6 mm
temperature drift	± 10 % (0 +60 °C) ± 15 % (-25 +75 °C)
hysteresis	3 20 % of Sr
correction factor typ.	mild steel 100 %, stainless steel 80 %, aluminum 50 %
electrical data	
switching frequency	< 400 Hz
voltage supply range +Vs	6 36 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	stainless steel
dimension	8 mm
tightening torque max.	10 Nm (A: 7 Nm)
cable, 2 m	
housing length	40 mm
connector M8	
housing length	46 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

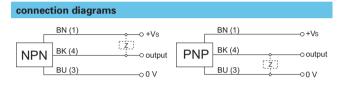
connectors and mating connectorsESG 32SH0200Connector M8, 3 pin, straight, 2 mESW 31SH0200Connector M8, 3 pin, angular, 2 madditional cable connectors and field wireable connectors: see
accessoriesAccessories10151719Sensofix series 08 round11163236Adapter for pulse stretching M8

for details: see accessories section

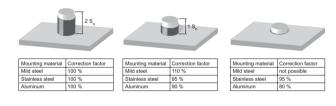
dimension	drawings







correction factors for different mounting situations (approx.)



order reference	connection types	output circuit	output indicator
IR08.P06S-11148761	cable, 2 m	NPN break function (NC)	LED red
IR08.P06S-11148741	cable, 2 m	NPN make function (NO)	LED red
IR08.P06S-11148758	cable, 2 m	PNP break function (NC)	LED red
IR08.P06S-11148768	cable, 2 m	PNP make function (NO)	LED red
IR08.P06S-11148763	connector M8	NPN break function (NC)	3 port LED red
IR08.P06S-11148744	connector M8	NPN make function (NO)	3 port LED red
IR08.P06S-11148759	connector M8	PNP break function (NC)	3 port LED red
IR08.P06S-11148770	connector M8	PNP make function (NO)	3 port LED red

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IFRM 12



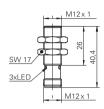
Sn = 4 mm

- shortest version with M12 x 1 connector
- high stability across entire temperature range

general data	
mounting type	flush
nominal sensing distance Sn	4 mm
hysteresis	3 20 % of Sr
electrical data	
switching frequency	< 2 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	12 mm
cable, 2 m	
housing length	30,4 mm
connector M12	
housing length	40,4 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

imonsion	drawings	
mension	urawings	

d

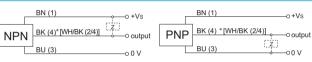






IFRM 12 Sn = 4 mm

connection diagrams



* .../S14L pin 2 & 4 electrically connected

connectors and mating connectors		
ESG 34SH0200	Connector M12, 3 pin, straight, 2 m	
ESW 33SH0200	Connector M12, 3 pin, angular, 2 m	
additional cable connectors and field wireable connectors: see accessories		
Accessories		
10151720	Sensofix series 12 round	
11163237 Adapter for pulse stretching M12		

for details: see accessories section

order reference	connection types	output circuit	output indicator
IFRM 12N1701/L	cable, 2 m	NPN make function (NO)	LED red
IFRM 12N1703/S14L	connector M12	NPN make function (NO)	3 port LED red
IFRM 12N3701/L	cable, 2 m	NPN break function (NC)	LED red
IFRM 12N3703/S14L	connector M12	NPN break function (NC)	3 port LED red
IFRM 12P1701/L	cable, 2 m	PNP make function (NO)	LED red
IFRM 12P1703/S14L	connector M12	PNP make function (NO)	3 port LED red
IFRM 12P3701/L	cable, 2 m	PNP break function (NC)	LED red
IFRM 12P3703/S14L	connector M12	PNP break function (NC)	3 port LED red

IFRM 12



Sn = 4 mm

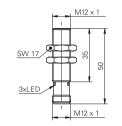
• high stability across entire temperature range

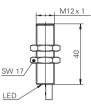




general data	
mounting type	flush
nominal sensing distance Sn	4 mm
hysteresis	3 20 % of Sr
electrical data	
switching frequency	< 2 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no oad)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
everse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
nousing material	brass nickel plated
dimension	12 mm
cable, 2 m	
housing length	40 mm
connector M12	
housing length	50 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

dimension	drawings





BN (1) 0+Vs	BN (1)
NPN BK (4)* [WH/BK (2/4)]	PNP BK (4) * [WH/BK (2/4)] output
O 0 V	BU (3)

* .../S14L pin 2 & 4 electrically connected

connectors and mating connectors		
ESG 34SH0200	Connector M12, 3 pin, straight, 2 m	
ESW 33SH0200	Connector M12, 3 pin, angular, 2 m	
additional cable connectors and field wireable connectors: see accessories		
Accessories		
10151720	Sensofix series 12 round	
11163237Adapter for pulse stretching M12		
for details: see accessories section		

connection types order reference output circuit output indicator IFRM 12N1701/S14L connector M12 NPN make function (NO) 3 port LED red IFRM 12N1702/L LED red cable, 2 m NPN make function (NO) IFRM 12N3701/S14L 3 port LED red connector M12 NPN break function (NC) IFRM 12N3702/L LED red cable, 2 m NPN break function (NC) IFRM 12P1701/S14L connector M12 PNP make function (NO) 3 port LED red IFRM 12P1702/L LED red cable, 2 m PNP make function (NO)

connector M12

cable, 2 m

IFRM 12P3701/S14L

IFRM 12P3702/L

PNP break function (NC)

PNP break function (NC)

3 port LED red

LED red

IFRM 12



general data mounting type

hysteresis electrical data switching frequency

load)

type

voltage drop Vd

mechanical data

housing material

dimension

cable, 2 m

housing length connector M12

housing length ambient conditions

operating temperature

material (sensing face)

output current short circuit protection

Sn = 4 mm

• extra long housings

nominal sensing distance Sn

voltage supply range +Vs

reverse polarity protection

current consumption max. (no

• high stability across entire temperature range

flush

4 mm

< 2 kHz

10 mA

< 2 VDC

yes

yes

PBT

12 mm

50 mm

60 mm

-25 ... +75 °C

< 200 mA

cylindrical threaded

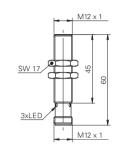
brass nickel plated

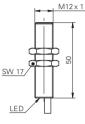
3 ... 20 % of Sr

10 ... 30 VDC



dimension drawings







connection diagrams

BN (1) 0 +Vs	BN (1)	–o+Vs
NPN BK (4)* [WH/BK (2/4)]	PNP BK (4) * [WH/BK (2/4)]	output
BU (3) 0 V	BU (3)	00 V

* .../S14L pin 2 & 4 electrically connected

protection class	IP 67
connectors and n	nating connectors
ESG 34SH0200	Connector M12, 3 pin, straight, 2 m
ESW 33SH0200	Connector M12, 3 pin, angular, 2 m
additional cable co accessories	onnectors and field wireable connectors: see
Accessories	
10151720	Sensofix series 12 round

	10151720	31720 Sensonx series 12 Touriu	
11163237 Adapter for pulse stretching N		Adapter for pulse stretching M12	
for details: see accessories section			

order reference	connection types	output circuit	output indicator
IFRM 12N1704/L	cable, 2 m	NPN make function (NO)	LED red
IFRM 12N1704/S14L	connector M12	NPN make function (NO)	3 port LED red
IFRM 12N3704/L	cable, 2 m	NPN break function (NC)	LED red
IFRM 12N3704/S14L	connector M12	NPN break function (NC)	3 port LED red
IFRM 12P1704/L	cable, 2 m	PNP make function (NO)	LED red
IFRM 12P1704/S14L	connector M12	PNP make function (NO)	3 port LED red
IFRM 12P3704/L	cable, 2 m	PNP break function (NC)	LED red
IFRM 12P3704/S14L	connector M12	PNP break function (NC)	3 port LED red

IFRM 12



Sn = 4 mm

- M8 x 1 quick disconnect
- high stability across entire temperature range

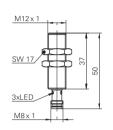
general data

mounting type	flush
nominal sensing distance Sn	4 mm
hysteresis	3 25 % of Sr
output indicator	3 port LED red
electrical data	
switching frequency	< 2 kHz
voltage supply range +Vs	12 30 VDC
current consumption max. (no load)	18 mA
voltage drop Vd	< 3 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	12 mm
housing length	50 mm
connection types	connector M8
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

connectors and mating connectors			
ESG 32SH0200 Connector M8, 3 pin, straight, 2 m			
ESW 31SH0200 Connector M8, 3 pin, angular, 2 m			
additional cable connectors and field wireable connectors: see accessories			
Accessories			
10151720	Sensofix series 12 round		
11163236 Adapter for pulse stretching M8			
for details: see accessories section			

order reference	output circuit
IFRM 12N1701/S35L	NPN make function (NO)
IFRM 12N3701/S35L	NPN break function (NC)
IFRM 12P1701/S35L	PNP make function (NO)
IFRM 12P3701/S35L	PNP break function (NC)

dimension drawing



connection diagrams



Sn = 4 mm

IFRM 12

IR12.P04S

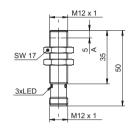


Sn = 4 mm

- antivalent output
- short housing (50 mm length)

general data			
mounting type	flush 4 mm ± 10 % 3 20 % of Sr 3 port LED red		
nominal sensing distance Sn			
temperature drift			
hysteresis output indicator			
electrical data			
switching frequency	< 2 kHz		
voltage supply range +Vs	6 36 VDC		
current consumption max. (no load)	10 mA		
output circuit	PNP complementary (NO / NC)		
voltage drop Vd	< 2 VDC		
output current	< 200 mA		
short circuit protection	yes		
reverse polarity protection	yes		
mechanical data			
type	cylindrical threaded		
material (sensing face)	PBT		
housing material	brass nickel plated		
dimension	12 mm		
housing length	50 mm		
connection types	connector M12		
tightening torque max.	15 Nm (A: 10 Nm)		
ambient conditions			
operating temperature	-25 +75 °C		
protection class	IP 67		

dimension drawing



connection diagram

	BN (1) _GY (5)	o+Vs
PNP Antivalent	WH (2) BK (4)	o n.c. o output NC
	BU (3)	Ž: 00 V

correction factors for different mounting situations (approx.)

	2 S _n		1/3 S _n		
Mounting material	Correction factor	Mounting material	Correction factor	Mounting material	Correction factor
Mounting material Mild steel	Correction factor 100 %	Mounting material Mild steel	Correction factor 100 %	Mounting material Mild steel	Correction factor 115 %

remarks

for correct installation refer to "mounting instructions"

IR12.P04S Sn = 4 mm

connectors and mating connectors ESG 34AH0200 Connector M12, 4 pin, straight, 2 m ESW 33AH0200 Connector M12, 4 pin, angular, 2 m additional cable connectors and field wireable connectors: see accessories Accessories 10151720 Sensofix series 12 round

for details: see accessories section

order reference

IR12.P04S-11159797

IR12.P04S



Sn = 4 mm

- antivalent output
- long housing (85 mm length)

general data	
mounting type	flush
nominal sensing distance Sn	4 mm
temperature drift	± 10 %
hysteresis	3 20 % of Sr
output indicator	3 port LED red
correction factor typ.	mild steel 100 %, stainless stee 80 %, aluminum 50 %
electrical data	
switching frequency	< 2 kHz
voltage supply range +Vs	6 36 VDC
current consumption max. (no load)	10 mA
output circuit	PNP complementary (NO / NC)
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	12 mm
housing length	85 mm
connection types	connector M12
tightening torque max.	15 Nm (A: 10 Nm)
ambient conditions	
operating temperature	-25 +75 °C
	10.1-

connectors and mating connectors			
ESG 34AH0200	Connector M12, 4 pin, straight, 2 m		
ESW 33AH0200	Connector M12, 4 pin, angular, 2 m		
additional cable connectors and field wireable connectors: see accessories			
Accessories			
10151720	Sensofix series 12 round		
for a destable service of			

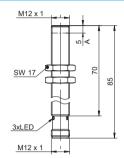
IP 67

for details: see accessories section

order reference

IR12.P04S-11159790

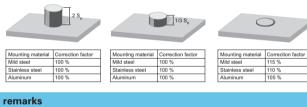
dimension drawing



connection diagram

1	BN (1) _GY (5)	—o+Vs
PNP Antivalent	WH (2) BK (4)	—o n.c. —o output NC —o output NO
	BU (3)	-00 V

correction factors for different mounting situations (approx.)



 \bigcirc

for correct installation refer to "mounting instructions"

protection class



flush

6 mm ± 10 %

< 1 kHz 6 ... 36 VDC

10 mA

< 2 VDC

< 100 mA

cylindrical threaded

brass nickel plated

15 Nm (A: 10 Nm)

yes

yes

PBT

12 mm

40 mm

50 mm

IP 67

Connector M12, 3 pin, straight, 2 m

Connector M12, 3 pin, angular, 2 m

Adapter for pulse stretching M12

additional cable connectors and field wireable connectors: see

Sensofix series 12 round

-25 ... +75 °C

3 ... 20 % of Sr

75 %, aluminum 45 %

enhanced distance (GammaProx)

mild steel 100 %, stainless steel

GammaProx

IR12.P06S



general data

mounting type

temperature drift

electrical data

voltage drop Vd

mechanical data

output current

correction factor typ.

switching frequency

voltage supply range +Vs current consumption max. (no

short circuit protection

material (sensing face) housing material

tightening torque max.

ambient conditions

ESG 34SH0200

ESW 33SH0200

accessories Accessories 10151720

11163237

operating temperature protection class

connectors and mating connectors

for details: see accessories section

reverse polarity protection

special type

hysteresis

load)

type

dimension

cable, 2 m

housing length connector M12 housing length

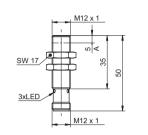
Sn = 6 mm

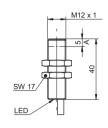
- version with extended Sn GammaProx
- quasi shielded mounting

nominal sensing distance Sn

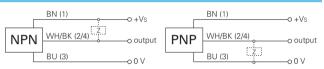


dimension drawings

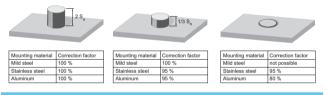




connection diagrams



correction factors for different mounting situations (approx.)



remarks

for correct installation refer to "mounting instructions"

order reference	connection types	output circuit	output indicator
			•
IR12.P06S-11148447	cable, 2 m	NPN break function (NC)	LED red
IR12.P06S-11148363	cable, 2 m	NPN make function (NO)	LED red
IR12.P06S-11148657	cable, 2 m	PNP break function (NC)	LED red
IR12.P06S-11148580	cable, 2 m	PNP make function (NO)	LED red
IR12.P06S-11148466	connector M12	NPN break function (NC)	3 port LED red
IR12.P06S-11148364	connector M12	NPN make function (NO)	3 port LED red
IR12.P06S-11148659	connector M12	PNP break function (NC)	3 port LED red
IR12.P06S-11148587	connector M12	PNP make function (NO)	3 port LED red

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GammaProx

IR12.P06S



Sn = 6 mm

- version with extended Sn GammaProx
- shielded mounting

general data

mounting type flush			
special type	enhanced distance (GammaProx)		
nominal sensing distance Sn	6 mm ± 10 % 3 20 % of Sr		
temperature drift			
hysteresis			
correction factor typ.	mild steel 100 %, stainless steel 75 %, aluminum 45 %		
electrical data			
switching frequency	< 1 kHz		
voltage supply range +Vs	6 36 VDC		
current consumption max. (no load)	10 mA		
voltage drop Vd	< 2 VDC		
output current	< 100 mA		
short circuit protection	yes		
reverse polarity protection	yes		
mechanical data			
type	cylindrical threaded		
material (sensing face)	PBT		
housing material	brass nickel plated		
dimension	12 mm		
tightening torque max.	15 Nm (A: 10 Nm)		
cable, 2 m			
housing length	50 mm		
connector M12			
housing length	60 mm		
ambient conditions			
operating temperature	-25 +75 °C		
protection class	IP 67		

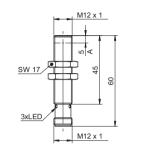
connectors and mating connectors			
ESG 34SH0200 Connector M12, 3 pin, straight, 2 m			
ESW 33SH0200 Connector M12, 3 pin, angular, 2 m			
additional cable connectors and field wireable connectors: see accessories			
Accessories			
10151720	Sensofix series 12 round		
11163237 Adapter for pulse stretching M12			

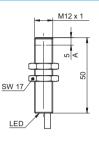
for details: see accessories section

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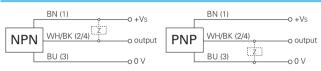


dimension drawings

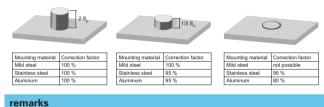




connection diagrams



correction factors for different mounting situations (approx.)



for correct installation refer to "mounting instructions"

order reference	connection types	output circuit	output indicator
IR12.P06S-11148441	cable, 2 m	NPN break function (NC)	LED red
IR12.P06S-11148360	cable, 2 m	NPN make function (NO)	LED red
IR12.P06S-11148655	cable, 2 m	PNP break function (NC)	LED red
IR12.P06S-11148575	cable, 2 m	PNP make function (NO)	LED red
IR12.P06S-11148446	connector M12	NPN break function (NC)	3 port LED red
IR12.P06S-11148362	connector M12	NPN make function (NO)	3 port LED red
IR12.P06S-11148656	connector M12	PNP break function (NC)	3 port LED red
IR12.P06S-11148578	connector M12	PNP make function (NO)	3 port LED red

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non-flush

10 mm

enhanced distance (GammaProx)

mild steel 100 %, stainless steel

± 10 % (0 ... +60 °C)

3 ... 20 % of Sr

< 1,5 kHz

< 2 VDC

ves

yes

PBT

12 mm

40 mm

50 mm

IP 67

-25 ... +75 °C

< 100 mA

cylindrical threaded

brass nickel plated

15 Nm (A: 10 Nm)

6 ... 36 VDC 10 mA

± 15 % (-25 ... +75 °C)

75 %, aluminum 50 %

GammaProx

IR12.P10S



general data

mounting type

temperature drift

correction factor typ.

switching frequency voltage supply range +Vs

current consumption max. (no

electrical data

voltage drop Vd

output current

short circuit protection

material (sensing face) housing material

tightening torque max.

operating temperature

connectors and mating connectors

mechanical data

reverse polarity protection

special type

hysteresis

load)

type

dimension

cable, 2 m

housing length connector M12

housing length ambient conditions

protection class

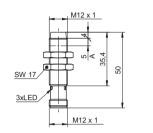
Sn = 10 mm

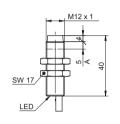
- version with extended Sn GammaProx
- non shielded mounting

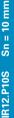
nominal sensing distance Sn



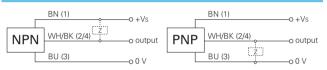
dimension drawings







connection diagrams



correction factors for different mounting situations (approx.)

Mounting material Correction factor Mild steel Mild steel not possible Stainless steel 100 % Stainless steel 100 % Stainless steel Not possible

ESG 34SH0200	Connector M12, 3 pin, straight, 2 m
ESW 33SH0200	Connector M12, 3 pin, angular, 2 m
additional cable con accessories	nnectors and field wireable connectors: see
Accessories	
10151720	Sensofix series 12 round
11163237	Adapter for pulse stretching M12
for details: see acc	essories section

order reference	connection types	output circuit	output indicator
IR12.P10S-11148436	cable, 2 m	NPN break function (NC)	LED red
IR12.P10S-11148327	cable, 2 m	NPN make function (NO)	LED red
IR12.P10S-11148590	cable, 2 m	PNP break function (NC)	LED red
IR12.P10S-11148573	cable, 2 m	PNP make function (NO)	LED red
IR12.P10S-11148439	connector M12	NPN break function (NC)	3 port LED red
IR12.P10S-11148328	connector M12	NPN make function (NO)	3 port LED red
IR12.P10S-11148654	connector M12	PNP break function (NC)	3 port LED red
IR12.P10S-11148574	connector M12	PNP make function (NO)	3 port LED red

GammaProx

IR12.P10S



general data

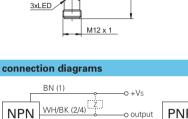
Sn = 10 mm

- version with extended Sn GammaProx
- non shielded mounting

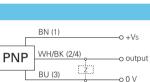
dimension	drawing

SW 17

mounting type	non-flush
special type	enhanced distance (GammaProx)
nominal sensing distance Sn	10 mm
temperature drift	± 10 % (0 +60 °C) ± 15 % (-25 +75 °C)
hysteresis	3 20 % of Sr
correction factor typ.	mild steel 100 %, stainless steel 75 %, aluminum 50 %
electrical data	
switching frequency	< 1,5 kHz
voltage supply range +Vs	6 36 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	12 mm
tightening torque max.	15 Nm (A: 10 Nm)
cable, 2 m	
housing length	50 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67



M12 x 1



<u>SW 17,</u>

LED

M12 x 1

correction factors for different mounting situations (approx.)

-0 0 V

Mounting mat Mild steel



BU (3)



ting material	Correction factor	
teel	100 %	
ess steel	100 %	
num	100 %	

Mi St Al 105 %

ounting material	Correction factor	
ild steel	not possible	
tainless steel	not possible	
luminum	90 %	

	, , , , , , , , , , , , , , , , , , , ,	
additional cable connectors and field wireable connectors: see accessories		
Accessories		
10151720	Sensofix series 12 round	
11163237 Adapter for pulse stretching M12		
for dotaile: coo	accessories section	

Connector M12, 3 pin, straight, 2 m

Connector M12, 3 pin, angular, 2 m

for details: see accessories section

connectors and mating connectors

ESG 34SH0200

ESW 33SH0200

order reference	connection types	output circuit	output indicator
IR12.P10S-11148366	cable, 2 m	NPN break function (NC)	LED red
IR12.P10S-11148324	cable, 2 m	NPN make function (NO)	LED red
IR12.P10S-11148588	cable, 2 m	PNP break function (NC)	LED red
IR12.P10S-11148566	cable, 2 m	PNP make function (NO)	LED red
IR12.P10S-11148367	connector M12	NPN break function (NC)	3 port LED red
IR12.P10S-11148325	connector M12	NPN make function (NO)	3 port LED red
IR12.P10S-11148589	connector M12	PNP break function (NC)	3 port LED red
IR12.P10S-11148572	connector M12	PNP make function (NO)	3 port LED red

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IFRM 18



Sn = 8 mm

- quasi shielded mounting
- improved EMC compatibility

general data		
mounting type	quasi-flush	
nominal sensing distance Sn	8 mm	
hysteresis	3 20 % of Sr	
output indicator	LED red	
electrical data		
switching frequency	< 500 Hz	
voltage supply range +Vs	10 30 VDC	
current consumption max. (no load)	10 mA	
voltage drop Vd	< 2 VDC	
output current	< 200 mA	
short circuit protection	yes	
reverse polarity protection	yes	
mechanical data		
type	cylindrical threaded	
material (sensing face)	PBT	
housing material	brass nickel plated	
dimension	18 mm	
tightening torque max.	40 Nm	
cable, 2 m		
housing length	35 mm	
connector M12		
housing length	45 mm	
ambient conditions		
operating temperature	-25 +75 °C	
protection class	IP 67	

and meather as

connectors and mating connectors			
ESG 34SH0200 Conne	SH0200 Connector M12, 3 pin, straight, 2 m		
ESW 33SH0200 Conne	ector M12, 3 pin, angular, 2 m		
additional cable connector accessories	rs and field wireable connectors: see		
Accessories			
10151658	Sensofix series 18		
ZADAP-M18.STANDARD	Mounting bracket series 18		
ZADAP-M18.SHORT	Mounting bracket short series 18 (L design)		
ZADAP-M18.LONG	Mounting bracket long series 18 (L design)		
11163237	Adapter for pulse stretching M12		

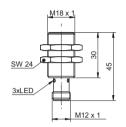
for details: see accessories section

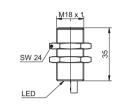
order reference	connection types	output circuit
IFRM 18N17A5/L	cable, 2 m	NPN make function (NO)
IFRM 18N17A5/S14L	connector M12	NPN make function (NO)
IFRM 18N37A5/L	cable, 2 m	NPN break function (NC)
IFRM 18N37A5/S14L	connector M12	NPN break function (NC)
IFRM 18P17A5/L	cable, 2 m	PNP make function (NO)
IFRM 18P17A5/S14L	connector M12	PNP make function (NO)
IFRM 18P37A5/L	cable, 2 m	PNP break function (NC)
IFRM 18P37A5/S14L	connector M12	PNP break function (NC)





dimension drawings





connection diagrams



* .../S14L pin 2 & 4 electrically connected

remarks

for correct installation refer to "mounting instructions"

IFRM 18 Sn = 8 mm

+421 552 601 099

www.eltra-trade.com

IFRM 18

o+Vs

-00 V



Sn = 8 mm

- quasi shielded mounting
- improved EMC compatibility

connectors and mating connectors

ESG 34SH0200

ESW 33SH0200

ZADAP-M18.STANDARD

for details: see accessories section

ZADAP-M18.SHORT

ZADAP-M18.LONG

11163237

accessories Accessories 10151658

general data

mounting type	quasi-flush
nominal sensing distance Sn	8 mm
hysteresis	3 20 % of Sr
electrical data	
switching frequency	< 500 Hz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	18 mm
tightening torque max.	40 Nm
cable, 2 m	
housing length	50 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

Connector M12, 3 pin, straight, 2 m Connector M12, 3 pin, angular, 2 m

Sensofix series 18

Mounting bracket series 18

Mounting bracket short series 18 (L

Adapter for pulse stretching M12

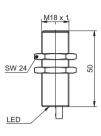
connector M12

Mounting bracket long series 18 (L design)

additional cable connectors and field wireable connectors: see

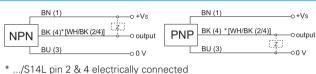
design)

mension drawings						
	<u>M18 x</u>	1				



SW 24

3xLED



ç

M12 x 1

remarks

di

for correct installation refer to "mounting instructions"

order reference	connection types	output circuit	output indicator
IFRM 18N17A3/L	cable, 2 m	NPN make function (NO)	LED red
IFRM 18N17A3/S14L	connector M12	NPN make function (NO)	3 port LED red
IFRM 18N37A3/L	cable, 2 m	NPN break function (NC)	LED red
IFRM 18N37A3/S14L	connector M12	NPN break function (NC)	3 port LED red
IFRM 18P17A3/L	cable, 2 m	PNP make function (NO)	LED red
IFRM 18P17A3/S14L	connector M12	PNP make function (NO)	3 port LED red
IFRM 18P37A3/L	cable, 2 m	PNP break function (NC)	LED red

Sn = 8 mm

IFRM 18

www.eltra-trade.com

IFRM 18P37A3/S14L

PNP break function (NC)

3 port LED red

IFRM 18



Sn = 8 mm

- quasi shielded mounting
- improved EMC compatibility

connectors and mating connectors

ESG 34SH0200

ESW 33SH0200

ZADAP-M18.STANDARD

for details: see accessories section

ZADAP-M18.SHORT

ZADAP-M18.LONG

11163237

accessories Accessories 10151658

mounting typequasi-flushnominal sensing distance Sn8 mmhysteresis3 20 % of Srelectrical dataswitching frequency< 500 Hzvoltage supply range +Vs10 30 VDCcurrent consumption max. (no load)10 mAvoltage drop Vd< 2 VDCoutput current< 200 mAshort circuit protectionyesreverse polarity protectionyesmechanical datatypecylindrical threadedmaterial (sensing face)PBThousing materialbrass nickel plateddimension18 mmtightening torque max.40 Nmcable, 2 mhousing length65 mmconnector M12housing length75 mmambient conditionsoperating temperature-25 +75 °Cprotection classIP 67	general data	
nominal sensing distance Sn8 mmhysteresis3 20 % of Srelectrical dataswitching frequency< 500 Hz	•	guasi-flush
hysteresis3 20 % of Srelectrical dataswitching frequency< 500 Hz		
electrical dataswitching frequency< 500 Hz		3 20 % of Sr
voltage supply range +Vs10 30 VDCcurrent consumption max. (no10 mAload)10 mAvoltage drop Vd< 2 VDC	electrical data	
current consumption max. (no load)10 mAload)< 2 VDC	switching frequency	< 500 Hz
load)voltage drop Vd< 2 VDC	voltage supply range +Vs	10 30 VDC
output current < 200 mA		10 mA
short circuit protection yes reverse polarity protection yes mechanical data	voltage drop Vd	< 2 VDC
reverse polarity protectionyesmechanical datayestypecylindrical threadedmaterial (sensing face)PBThousing materialbrass nickel plateddimension18 mmtightening torque max.40 Nmcable, 2 m65 mmhousing length65 mmconnector M1215 mmhousing length75 mmambient conditions-25 +75 °C	output current	< 200 mA
mechanical datatypecylindrical threadedmaterial (sensing face)PBThousing materialbrass nickel plateddimension18 mmtightening torque max.40 Nmcable, 2 mhousing length65 mmconnector M12housing length75 mmambient conditions-25 +75 °C	short circuit protection	yes
typecylindrical threadedmaterial (sensing face)PBThousing materialbrass nickel plateddimension18 mmtightening torque max.40 Nmcable, 2 mhousing length65 mmconnector M12housing length75 mmambient conditionsoperating temperature-25 +75 °C	reverse polarity protection	yes
material (sensing face) PBT housing material brass nickel plated dimension 18 mm tightening torque max. 40 Nm cable, 2 m 65 mm housing length 65 mm connector M12 10 mm housing length 75 mm ambient conditions -25 +75 °C	mechanical data	
housing materialbrass nickel plateddimension18 mmtightening torque max.40 Nmcable, 2 m	type	cylindrical threaded
dimension 18 mm tightening torque max. 40 Nm cable, 2 m	material (sensing face)	PBT
tightening torque max. 40 Nm cable, 2 m housing length 65 mm connector M12 housing length 75 mm ambient conditions operating temperature -25 +75 °C	housing material	brass nickel plated
cable, 2 m housing length 65 mm connector M12 housing length 75 mm ambient conditions operating temperature -25 +75 °C	dimension	18 mm
housing length65 mmconnector M12housing length75 mmambient conditionsoperating temperature-25 +75 °C	tightening torque max.	40 Nm
connector M12 housing length 75 mm ambient conditions operating temperature -25 +75 °C	cable, 2 m	
housing length 75 mm ambient conditions operating temperature -25 +75 °C	housing length	65 mm
ambient conditions operating temperature -25 +75 °C	connector M12	
operating temperature -25 +75 °C	housing length	75 mm
	ambient conditions	
protection class IP 67	operating temperature	-25 +75 °C
	protection class	IP 67

Connector M12, 3 pin, straight, 2 m

Connector M12, 3 pin, angular, 2 m

Sensofix series 18

Mounting bracket series 18

Mounting bracket short series 18 (L

Adapter for pulse stretching M12

Mounting bracket long series 18 (L design)

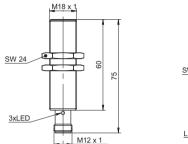
additional cable connectors and field wireable connectors: see

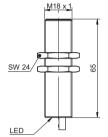
design)





dimension drawings





connection diagrams



* .../S14L pin 2 & 4 electrically connected

remarks

for correct installation refer to "mounting instructions"

Sn = 8 mm

IFRM 18

order reference	connection types	output circuit	output indicator
IFRM 18N17A4/L	cable, 2 m	NPN make function (NO)	LED red
IFRM 18N17A4/S14L	connector M12	NPN make function (NO)	3 port LED red
IFRM 18N37A4/L	cable, 2 m	NPN break function (NC)	LED red
IFRM 18N37A4/S14L	connector M12	NPN break function (NC)	3 port LED red
IFRM 18P17A4/L	cable, 2 m	PNP make function (NO)	LED red
IFRM 18P17A4/S14L	connector M12	PNP make function (NO)	3 port LED red
IFRM 18P37A4/L	cable, 2 m	PNP break function (NC)	LED red
IFRM 18P37A4/S14L	connector M12	PNP break function (NC)	3 port LED red

IFRM 18



Sn = 8 mm

- voltage supply range +Vs 10 ... 50 VDC
- guasi shielded mounting
- M8 x 1 quick disconnect

connectors and mating connectors

ESG 32SH0200

ESW 31SH0200

ZADAP-M18.STANDARD

for details: see accessories section

ZADAP-M18.SHORT

ZADAP-M18.LONG

order reference

IFRM 18N1701/S35L

IFRM 18N3701/S35L

IFRM 18P1701/S35L

IFRM 18P3701/S35L

11163236

accessories Accessories 10151658

general data

-	
mounting type	quasi-flush
nominal sensing distance Sn	8 mm
hysteresis	3 25 % of Sr
output indicator	4 port LED red
electrical data	
switching frequency	< 500 Hz
voltage supply range +Vs	10 50 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 3 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	18 mm
housing length	50 mm
connection types	connector M8
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

Connector M8, 3 pin, straight, 2 m

Connector M8, 3 pin, angular, 2 m

Sensofix series 18

Mounting bracket series 18

Mounting bracket short series 18 (L

Adapter for pulse stretching M8

output circuit

Mounting bracket long series 18 (L design)

NPN make function (NO)

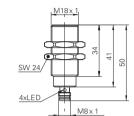
NPN break function (NC)

PNP make function (NO)

PNP break function (NC)

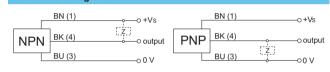
additional cable connectors and field wireable connectors: see

design)



connection diagrams

dimension drawing



remarks

for correct installation refer to "mounting instructions"

FRM 18 Sn = 8 mm

non-flush

< 500 Hz

15 mA

< 3 VDC

< 200 mA

yes

yes

PBT

18 mm

39 mm

52,5 mm

IP 67

-25 ... +75 °C

3 ... 25 % of Sr

10 ... 30 VDC

PNP make function (NO)

cylindrical threaded

brass nickel plated

12 mm

IFRM 18



general data

mounting type

hysteresis electrical data switching frequency

load) output circuit

type

dimension

cable, 2 m

housing length connector M12 housing length

ambient conditions

operating temperature protection class

voltage drop Vd

short circuit protection

material (sensing face) housing material

mechanical data

reverse polarity protection

output current

Sn = 12 mm

non shielded mounting

nominal sensing distance Sn

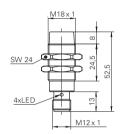
voltage supply range +Vs

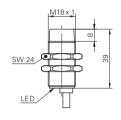
current consumption max. (no

1	
	10.0
	Raimer
	1111



dimension drawings





connection diagram

	BN (1)	—o+Vs
PNP	BK (4)	 —o output
	BU (3)	 0 V

IFRM 18 Sn = 12 mm

connectors and mating connectors		
ESG 34SH0200 Conn	Connector M12, 3 pin, straight, 2 m	
ESW 33SH0200 Conn	ector M12, 3 pin, angular, 2 m	
additional cable connectors and field wireable connectors: see accessories		
Accessories		
10151658	Sensofix series 18	
ZADAP-M18.STANDARD	Mounting bracket series 18	
ZADAP-M18.SHORT	Mounting bracket short series 18 (L design)	
ZADAP-M18.LONG	Mounting bracket long series 18 (L design)	
11163237	Adapter for pulse stretching M12	
for details: see accessories section		

order reference	connection types	output indicator
IFRM 18P1301/L	cable, 2 m	LED red
IFRM 18P1301/S14L	connector M12	4 port LED red

IR18.P08S



Sn = 8 mm

- shielded mounting
- antivalent output





general data	
mounting type	flush
nominal sensing distance Sn	8 mm
temperature drift	± 10 %
hysteresis	3 20 % of Sr
correction factor typ.	mild steel 100 %, stainless steel 70 %, aluminum 40 %
electrical data	
switching frequency	< 500 Hz
voltage supply range +Vs	6 36 VDC
current consumption max. (no load)	10 mA
output circuit	PNP complementary (NO / NC)
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	18 mm
tightening torque max.	40 Nm
cable, 2 m	
housing length	50 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-25 +75 °C

IP 67

Connector M12, 4 pin, straight, 2 m

Connector M12, 4 pin, angular, 2 m

Sensofix series 18

connection types

connector M12

cable, 2 m

Mounting bracket series 18

Mounting bracket short series 18 (L

Mounting bracket long series 18 (L design)

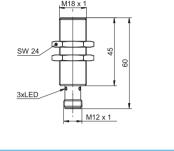
output indicator

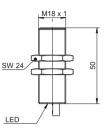
3 port LED red

LED red

additional cable connectors and field wireable connectors: see

design)





connection diagrams

dimension drawings

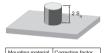
BN (1) -o+Vs GY (5) -o n.c. PNP WH (2) -o output NC Antivalent BK (4) output NO BU (3)

PNP Antivalent	BN (1) WH (2) BK (4) BU (3)	
L	- БО (3) ;	<u>∻</u> `o0V

correction factors for different mounting situations (approx.)

Co 10

Mild s



```
1/3 S
```



erial Cons. on factor

Mounting materia
Mild steel
Stainless steel
Aluminum

Mounting material	Correction factor
Aild steel	not possible
Stainless steel	100 %
Aluminum	80 %

IR18.P08S Sn = 8 mm

protection class

ESG 34AH0200

ESW 33AH0200

ZADAP-M18.STANDARD

for details: see accessories section

ZADAP-M18.SHORT

ZADAP-M18.LONG

order reference

IR18.P08S-11184279

IR18.P08S-11184278

accessories Accessories 10151658

connectors and mating connectors

GammaProx

IR18.P12S



Sn = 12 mm

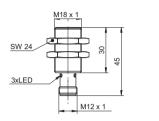
- version with extended Sn GammaProx
- quasi shielded mounting

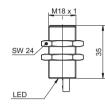


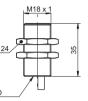


general data	
mounting type	flush
special type	enhanced distance (GammaProx)
nominal sensing distance Sn	12 mm
temperature drift	± 10 %
hysteresis	3 20 % of Sr
correction factor typ.	mild steel 100 %, stainless steel 70 %, aluminum 40 %
electrical data	
switching frequency	< 400 Hz
voltage supply range +Vs	6 36 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	18 mm
tightening torque max.	40 Nm
cable, 2 m	
housing length	35 mm
connector M12	
housing length	45 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67
connectors and mating connecto	ors
ESG 34SH0200 Connector M12	2, 3 pin, straight, 2 m
ESW 33SH0200 Connector M12, 3 pin, angular, 2 m	
additional cable connectors and fiel accessories	d wireable connectors: see
Accessories	
10151658 Sensofix	k series 18
ZADAP-M18.STANDARD Mountin	ig bracket series 18
ZADAP-M18.SHORT Mountin	g bracket short series 18 (L design)
ZADAP-M18.LONG Mountin	g bracket long series 18 (L design)
11163237 Adapter	for pulse stretching M12

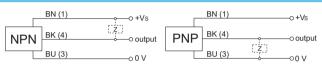
dimension drawings



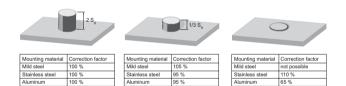




connection diagrams



correction factors for different mounting situations (approx.)



IR18.P12S Sn = 12 mm

11103237	Adapter for pulse stretching WITZ		
for details: see accessories section			
order reference	connection types	output circuit	output indicator
IR18.P12S-11149099	cable, 2 m	NPN break function (NC)	LED red
IR18.P12S-11148846	cable, 2 m	NPN make function (NO)	LED red
IR18.P12S-11149168	cable, 2 m	PNP break function (NC)	LED red
IR18.P12S-11149146	cable, 2 m	PNP make function (NO)	LED red
IR18.P12S-11149112	connector M12	NPN break function (NC)	3 port LED red
IR18.P12S-11148847	connector M12	NPN make function (NO)	3 port LED red
IR18.P12S-11149169	connector M12	PNP break function (NC)	3 port LED red
IR18.P12S-11149149	connector M12	PNP make function (NO)	3 port LED red

+421 552 601 099

GammaProx

IR18.P12S



Sn = 12 mm

- version with extended Sn GammaProx
- shielded mounting

general data

and the sector of the sector o	fluel	
mounting type	flush	
special type	enhanced distance (<i>GammaProx</i>)	
nominal sensing distance Sn	12 mm	
temperature drift	± 10 %	
hysteresis	3 20 % of Sr	
correction factor typ.	mild steel 100 %, stainless steel 70 %, aluminum 40 %	
electrical data		
switching frequency	< 400 Hz	
voltage supply range +Vs	6 36 VDC	
current consumption max. (no load)	10 mA	
voltage drop Vd	< 2 VDC	
output current	< 100 mA	
short circuit protection	yes	
reverse polarity protection	yes	
mechanical data		
type	cylindrical threaded	
material (sensing face)	PBT	
housing material	brass nickel plated 18 mm 40 Nm	
dimension		
tightening torque max.		
cable, 2 m		
housing length	50 mm	
connector M12		
housing length	60 mm	
ambient conditions		
operating temperature	-25 +75 °C	
protection class	IP 67	
connectors and mating connectors		
ESG 34SH0200 Connector M1	2, 3 pin, straight, 2 m	
ESW 33SH0200 Connector M1	2, 3 pin, angular, 2 m	
additional cable connectors and field wireable connectors: see accessories		

Sensofix series 18

Mounting bracket series 18

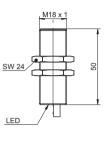
Adapter for pulse stretching M12

Mounting bracket short series 18 (L design)

Mounting bracket long series 18 (L design)

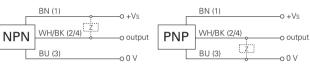
<u>SW 24</u>	
<u>3xLED</u>	
	M12 x 1
onnection o	liagrams

M18 x 1

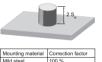




dimension drawings



correction factors for different mounting situations (approx.)





Mounting material	Correction factor	
Mild steel	not possible	
Stainless steel	110 %	
Aluminum	65 %	

100 %

Mounting material Correction factor Mild steel 105 %

.

order reference	connection types	output circuit	output indicator
IR18.P12S-11148902	cable, 2 m	NPN break function (NC)	LED red
IR18.P12S-11148844	cable, 2 m	NPN make function (NO)	LED red
IR18.P12S-11149166	cable, 2 m	PNP break function (NC)	LED red
IR18.P12S-11149142	cable, 2 m	PNP make function (NO)	LED red
IR18.P12S-11149098	connector M12	NPN break function (NC)	3 port LED red
IR18.P12S-11148845	connector M12	NPN make function (NO)	3 port LED red
IR18.P12S-11149167	connector M12	PNP break function (NC)	3 port LED red
IR18.P12S-11148329	connector M12	PNP make function (NO)	3 port LED red

Accessories 10151658

11163237

ZADAP-M18.STANDARD

for details: see accessories section

ZADAP-M18.SHORT

ZADAP-M18.LONG

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GammaProx IR18.





Sn = 15 mm

- version with extended Sn GammaProx
- non shielded mounting

connectors and mating connectors

ESG 34SH0200

ESW 33SH0200

ZADAP-M18.STANDARD

ZADAP-M18.SHORT

ZADAP-M18.LONG

accessories Accessories 10151658

11160007





 non shielded mounting 				
general data				
mounting type	non-flush			
special type	enhanced distance (<i>GammaProx</i>)			
nominal sensing distance Sn	15 mm			
temperature drift	- 5 % / + 10 % (+10 +60 °C) - 5 % / + 15 % (0 +65 °C)			
hysteresis	3 20 % of Sr			
correction factor typ.	mild steel 100 %, stainless steel 85 %, aluminum 55 %			
electrical data				
switching frequency	< 400 Hz			
voltage supply range +Vs	6 36 VDC			
current consumption max. (no load)	10 mA			
voltage drop Vd	< 2 VDC			
output current	< 100 mA			
short circuit protection	yes			
reverse polarity protection	yes			
mechanical data				
type	cylindrical threaded			
material (sensing face)	PBT			
housing material	brass nickel plated			
dimension	18 mm			
tightening torque max.	40 Nm			
cable, 2 m				
housing length	35 mm			
connector M12				
housing length	45 mm			
ambient conditions				
operating temperature	0 +65 °C			
protection class	IP 67			

Connector M12, 3 pin, straight, 2 m Connector M12, 3 pin, angular, 2 m

Sensofix series 18

Mounting bracket series 18

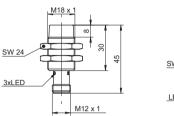
Adapter for pulse stratebing M12

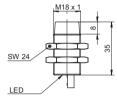
Mounting bracket short series 18 (L design)

Mounting bracket long series 18 (L design)

additional cable connectors and field wireable connectors: see

dimension drawings







connection diagrams



correction factors for different mounting situations (approx.)



11163237	Adapter for pulse stretching M12		
for details: see accessories section			
order reference	connection types	output circuit	output indicator
IR18.P15S-11148900	cable, 2 m	NPN break function (NC)	LED red
IR18.P15S-11148809	cable, 2 m	NPN make function (NO)	LED red
IR18.P15S-11149164	cable, 2 m	PNP break function (NC)	LED red
IR18.P15S-11149138	cable, 2 m	PNP make function (NO)	LED red
IR18.P15S-11148901	connector M12	NPN break function (NC)	3 port LED red
IR18.P15S-11148820	connector M12	NPN make function (NO)	3 port LED red
IR18.P15S-11149165	connector M12	PNP break function (NC)	3 port LED red
IR18.P15S-11149140	connector M12	PNP make function (NO)	3 port LED red

GammaProx

IR18.P15S



general data

Sn = 15 mm

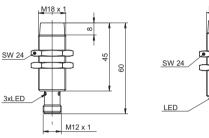
- version with extended Sn GammaProx
- non shielded mounting

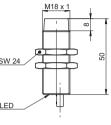




dimension drawings

general data		
mounting type	non-flush	
special type	enhanced distance (GammaProx)	
nominal sensing distance	Sn 15 mm	
temperature drift	- 5 % / + 10 % (+10 +60 °C) - 5 % / + 15 % (0 +65 °C)	
hysteresis	3 20 % of Sr	
correction factor typ.	mild steel 100 %, stainless steel 85 %, aluminum 55 %	
electrical data		
switching frequency	< 400 Hz	
voltage supply range +Vs	6 36 VDC	
current consumption max load)	. (no 10 mA	
voltage drop Vd	< 2 VDC	
output current	< 100 mA	
short circuit protection	yes	
reverse polarity protectior	n yes	
mechanical data		
type	cylindrical threaded	
material (sensing face)	PBT	
housing material	brass nickel plated	
dimension	18 mm	
tightening torque max.	40 Nm	
cable, 2 m		
housing length	50 mm	
connector M12		
housing length	60 mm	
ambient conditions		
operating temperature	0 +65 °C	
protection class	IP 67	
connectors and mating	connectors	
ESG 34SH0200 Conne	ector M12, 3 pin, straight, 2 m	
ESW 33SH0200 Conne	ector M12, 3 pin, angular, 2 m	
additional cable connector accessories	rs and field wireable connectors: see	
Accessories		
10151658	Sensofix series 18	
ZADAP-M18.STANDARD	Mounting bracket series 18	
ZADAP-M18.SHORT	Mounting bracket short series 18 (L design)	
ZADAP-M18.LONG	Mounting bracket long series 18 (L design)	
11163237	Adapter for pulse stretching M12	
for details: see accessories section		
order reference	connection types	
ID40 D450 44440040		





connection diagrams

BN (1)	o+Vs	BN (1)	0+Vs
	o output		o output
BU (3)	0 0 V	BU (3)	

correction factors for different mounting situations (approx.)

Mounting material Correction factor Multi steel 100 % Stainless steel 100 % Aluminum 100 %

	Bection		
order reference	connection types	output circuit	output indicator
IR18.P15S-11148848	cable, 2 m	NPN break function (NC)	LED red
IR18.P15S-11148796	cable, 2 m	NPN make function (NO)	LED red
IR18.P15S-11149161	cable, 2 m	PNP break function (NC)	LED red
IR18.P15S-11149115	cable, 2 m	PNP make function (NO)	LED red
IR18.P15S-11148849	connector M12	NPN break function (NC)	3 port LED red
IR18.P15S-11148813	connector M12	NPN make function (NO)	3 port LED red
IR18.P15S-11149163	connector M12	PNP break function (NC)	3 port LED red
IR18.P15S-11149133	connector M12	PNP make function (NO)	3 port LED red

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IFRM 30



Sn = 10 mm

- voltage supply range +Vs 10 ... 50 VDC
- shielded mounting
- M12 x 1 quick disconnect

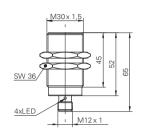
general data mounting type flush nominal sensing distance Sn 10 mm hysteresis 3 ... 20 % of Sr electrical data switching frequency < 500 Hz 10 ... 50 VDC voltage supply range +Vs current consumption max. (no 10 mA load) voltage drop Vd < 3 VDC < 200 mA output current short circuit protection yes reverse polarity protection yes mechanical data cylindrical threaded type material (sensing face) PBT housing material brass nickel plated dimension 30 mm cable, 2 m 60 mm housing length connector M12 housing length 65 mm ambient conditions -25 ... +75 °C operating temperature protection class IP 67

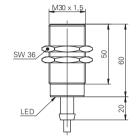
connectors and mating connectors			
ESG 34SH0200	Connector M12, 3 pin, straight, 2 m		
ESW 33SH0200	Connector M12, 3 pin, angular, 2 m		
additional cable connectors and field wireable connectors: see accessories			
Accessories			
11163237	Adapter for pulse stretching M12		
for details: see accessories section			



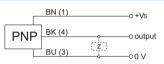


dimension drawings





connection diagram



Sn = 10 mm

FRM 30

order reference	connection types	output circuit	output indicator
IFRM 30P1501/S14L	connector M12	PNP make function (NO)	4 port LED red
IFRM 30P1601/L	cable, 2 m	PNP make function (NO)	LED red
IFRM 30P3501/S14L	connector M12	PNP break function (NC)	4 port LED red
IFRM 30P3601/L	cable, 2 m	PNP break function (NC)	LED red

IFRM 30

49

20

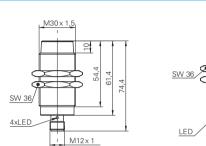


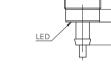
Sn = 15 mm

- voltage supply range +Vs 10 ... 50 VDC
- non shielded mounting
- M12 x 1 quick disconnect

general data

general uata	
mounting type	non-flush
nominal sensing distance Sn	15 mm
hysteresis	3 20 % of Sr
electrical data	
switching frequency	< 500 Hz
voltage supply range +Vs	10 50 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 3 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	30 mm
cable, 2 m	
housing length	69,5 mm
connector M12	
housing length	74,4 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

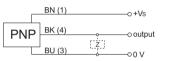




M30 x 1,5

connection diagram

dimension drawings



IFRM 30 Sn = 15 mm

connectors and n	connectors and mating connectors		
ESG 34SH0200	Connector M12, 3 pin, straight, 2 m		
ESW 33SH0200	Connector M12, 3 pin, angular, 2 m		
additional cable connectors and field wireable connectors: see accessories			
Accessories			
11163237	Adapter for pulse stretching M12		
for details: see accessories section			

order reference	connection types	output circuit	output indicator
IFRM 30P1101/S14L	connector M12	PNP make function (NO)	4 port LED red
IFRM 30P1201/L	cable, 2 m	PNP make function (NO)	LED red
IFRM 30P3101/S14L	connector M12	PNP break function (NC)	4 port LED red
IFRM 30P3201/L	cable, 2 m	PNP break function (NC)	LED red

IR30.P18S



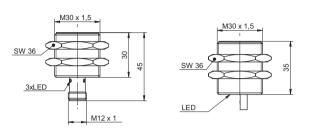
Sn = 18 mm

- version with extended Sn GammaProx
- shielded mounting

mounting type	flush
special type	enhanced distance (GammaProx)
nominal sensing distance Sn	18 mm
temperature drift	± 10 %
hysteresis	3 20 % of Sr
correction factor typ.	mild steel 100 %, stainless steel 70 %, aluminum 40 %
electrical data	
switching frequency	< 500 Hz
voltage supply range +Vs	6 36 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	30 mm
tightening torque max.	140 Nm
cable, 2 m	
housing length	35 mm
connector M12	
housing length	45 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

connectors and n	
ESG 34AH0200	Connector M12, 4 pin, straight, 2 m
ESW 33AH0200	Connector M12, 4 pin, angular, 2 m
additional cable co accessories	nnectors and field wireable connectors: see
Accessories	
11163237	Adapter for pulse stretching M12
for details: see acc	essories section

dimension drawings



connection diagrams

	BN (1)	o+Vs
NPN Antivalent	WH (2) BK (4) BU (3)	on.c. →o output NC →o output NO →o output NO

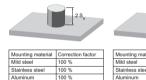
BN (1) GY (5) --o+Vs --on.c. PNP WH (2) -o output NC Antivalent BK (4) BK (4) BU (3) <u>2</u> 0 0 V

Mounting m Mild steel

Stainless st

Aluminur

correction factors for different mounting situations (approx.)



1/3 S_n

05 %

Aluminu

\bigcirc	

IR30.P18S Sn = 18 mm

order reference	connection types	output circuit	output indicator
IR30.P18S-11174004	cable, 2 m	NPN complementary (NO / NC)	LED red
IR30.P18S-11174005	cable, 2 m	PNP complementary (NO / NC)	LED red
IR30.P18S-11174008	connector M12	NPN complementary (NO / NC)	3 port LED red
IR30.P18S-11174009	connector M12	PNP complementary (NO / NC)	3 port LED red

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IR30.P18S



Sn = 18 mm

- version with extended Sn GammaProx
- shielded mounting

general data	
mounting type	

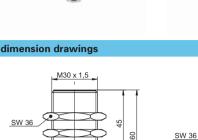
flush enhanced distance (GammaProx) special type nominal sensing distance Sn 18 mm ± 10 % temperature drift hysteresis 3 ... 20 % of Sr correction factor typ. mild steel 100 %, stainless steel 70 %, aluminum 40 % electrical data switching frequency < 500 Hz 6 ... 36 VDC voltage supply range +Vs current consumption max. (no 10 mA load) voltage drop Vd < 2 VDC < 200 mA output current short circuit protection yes reverse polarity protection yes mechanical data cylindrical threaded type PBT material (sensing face) housing material brass nickel plated dimension 30 mm 140 Nm tightening torque max. cable, 2 m 50 mm housing length connector M12 housing length 60 mm ambient conditions -25 ... +75 °C operating temperature protection class IP 67

Connector M12, 4 pin, straight, 2 m

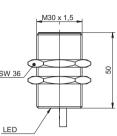
Connector M12, 4 pin, angular, 2 m

Adapter for pulse stretching M12

additional cable connectors and field wireable connectors: see



M12 x 1



connection diagrams

3xLED

BN (1) -o+Vs GY (5) Z : o n.c. NPN WH (2) -o output NC Antivalent BK (4) - output NO BU (3) -0 O V

	BN (1) GY (5)	0 +Vs
PNP Antivalent	WH (2) BK (4)	on.c.
	BU (3)	2. 00 V

correction factors for different mounting situations (approx.)

1/3 S

factor	Mounting material	Correct
	Mild steel	not pos
	Stainless steel	not pos
	Aluminum	75 %

order reference	connection types	output circuit	output indicator
IR30.P18S-11174003	cable, 2 m	NPN complementary (NO / NC)	LED red
IR30.P18S-11171575	cable, 2 m	PNP complementary (NO / NC)	LED red
IR30.P18S-11174006	connector M12	NPN complementary (NO / NC)	3 port LED red
IR30.P18S-11174007	connector M12	PNP complementary (NO / NC)	3 port LED red

Sn = 18 mm

R30.P18S

connectors and mating connectors

for details: see accessories section

ESG 34AH0200

ESW 33AH0200

accessories Accessories 11163237

non-flush

24 mm ± 10 %

< 500 Hz

10 mA

< 2 VDC < 200 mA

cylindrical threaded

brass nickel plated

yes

yes

PBT

30 mm

140 Nm

35 mm

45 mm

IP 67

Connector M12, 4 pin, straight, 2 m

Connector M12, 4 pin, angular, 2 m

Adapter for pulse stretching M12

additional cable connectors and field wireable connectors: see

-25 ... +75 °C

6 ... 36 VDC

3 ... 20 % of Sr

enhanced distance (GammaProx)

mild steel 100 %, stainless steel 70 %, aluminum 50 %

IR30.P24S



general data

mounting type

temperature drift

electrical data switching frequency

voltage drop Vd

mechanical data

housing material

dimension

cable, 2 m

housing length connector M12 housing length

material (sensing face)

tightening torque max.

ambient conditions

ESG 34AH0200

ESW 33AH0200

accessories Accessories 11163237

operating temperature protection class

connectors and mating connectors

for details: see accessories section

output current short circuit protection

correction factor typ.

voltage supply range +Vs current consumption max. (no

reverse polarity protection

special type

hysteresis

load)

type

Sn = 24 mm

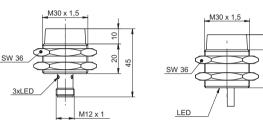
- version with extended Sn GammaProx
- non shielded mounting

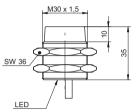
nominal sensing distance Sn





dimension drawings





connection diagrams

	BN (1) GY (5) 2 2 2	o +Vs
NPN Antivalent	WH (2) BK (4)	o n.c. o output NC o output NO
	BU (3)	-00V

	BN (1) _GY (5)	—o +Vs
PNP Antivalent	WH (2) BK (4)	o n.c. ←-o output NC
	BU (3)	Z : 0 V

correction factors for different mounting situations (approx.)



T.) 1 s	n	

9	

Sn = 24 mm

IR30.P24S

	23,	
Nounting material	Correction factor	
Aild steel	100 %	1

	0	<u> </u>
Mounting ma	aterial	Correction

Correction factor	1	Mounti
100 %	1	Mild st
95 %		Stainle
25.0/	1 1	Abusela

Mounting material	Correction factor
Vild steel	not possible
Stainless steel	115 %
Aluminum	90 %

order reference	connection types	output circuit	output indicator
IR30.P24S-11174032	cable, 2 m	NPN complementary (NO / NC)	LED red
IR30.P24S-11174033	cable, 2 m	PNP complementary (NO / NC)	LED red
IR30.P24S-11174036	connector M12	NPN complementary (NO / NC)	3 port LED red
IR30.P24S-11174037	connector M12	PNP complementary (NO / NC)	3 port LED red

IR30.P24S



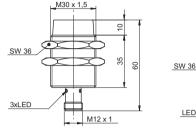
Sn = 24 mm

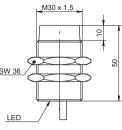
- version with extended Sn GammaProx
- non shielded mounting





general data	
mounting type	non-flush
special type	enhanced distance (GammaProx)
nominal sensing distance Sn	24 mm
temperature drift	± 10 %
hysteresis	3 20 % of Sr
correction factor typ.	mild steel 100 %, stainless steel 70 %, aluminum 50 %
electrical data	
switching frequency	< 500 Hz
voltage supply range +Vs	6 36 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	30 mm
tightening torque max.	140 Nm
cable, 2 m	
housing length	50 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67





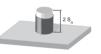
connection diagrams

dimension drawings

BN (1) GY (5) 2 o+Vs Z.: on.c. NPN WH (2) ---o output NC Antivalent BK (4) - output NO BU (3) -00V

	BN (1) _GY (5)	o+Vs
PNP Antivalent	WH (2) BK (4)	o n.c. o output NC
	BU (3) Ž	Z:00V

correction factors for different mounting situations (approx.)





indicator

3 port LED red



Mounting material Correction factor Mild steel 100 %

Mounting material Correction factor Mild steel 100 % N S A

founting material	Correction factor
fild steel	not possible
stainless steel	115 %
luminum	90 %

additional cable accessories	connectors and field wireable connectors: see		
Accessories			
11163237	Adapter for pulse stretching M12		
for details: see accessories section			

connector M12

Connector M12, 4 pin, straight, 2 m

Connector M12, 4 pin, angular, 2 m

order reference	connection types	output circuit	output indicato
IR30.P24S-11174030	cable, 2 m	NPN complementary (NO / NC)	LED red
IR30.P24S-11174031	cable, 2 m	PNP complementary (NO / NC)	LED red
IR30.P24S-11174034	connector M12	NPN complementary (NO / NC)	3 port LED red

IR30.P24S-11174035

connectors and mating connectors

ESG 34AH0200

ESW 33AH0200

PNP complementary (NO / NC)

IFFM 04



Sn = 0,8 mm

- smallest rectangular housing
- stainless steel housing

general data	
mounting type	flush
nominal sensing distance Sn	0,8 mm
hysteresis	2 20 % of Sr
output indicator	LED red (backside)
electrical data	
switching frequency	< 3 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	rectangular
material (sensing face)	EP
housing material	stainless steel
dimension	4 mm
housing length	22 mm
connection types	cable, 2 m
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

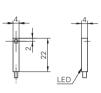
dimension drawing

connection diagrams BN (1)

BK (4)

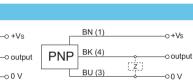
BU (3)

NPN



Z

-0 O V



order reference output circuit IFFM 04N1501/O1L NPN make function (NO) IFFM 04N3501/O1L NPN break function (NC) IFFM 04P1501/O1L PNP make function (NO) IFFM 04P3501/O1L PNP break function (NC)

IFFM 06



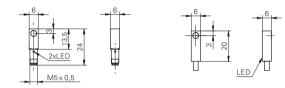
Sn = 1 mm

- miniature connector M5 x 0,5
- smallest rectangular housing with connector

general data	
mounting type	flush
nominal sensing distance Sn	1 mm
hysteresis	2 20 % of Sr
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	rectangular
material (sensing face)	LCP
housing material	brass nickel plated
dimension	6 mm
cable, 2 m	
housing length	20 mm
connector M5	
housing length	24 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

1		

dimension drawings



connection diagrams

BN (1) 0 +Vs	BN (1)	—o+Vs
NPN BK (4)* [WH/BK (2/4)]	PNP BK (4) * [WH/BK (2/4)]	o output
BU (3) 0 V	BU (3)	; —00 V

* .../S05L pin 2 & 4 electrically connected

connectors and mating connectors			
ESG 05SP0200	Connector M5, 3 pin, straight, 2 m		
ESW 05SP0200	Connector M5, 3 pin, angular, 2 m		
additional cable connectors and field wireable connectors: see accessories			

order reference	connection types	output circuit	output indicator
IFFM 06N15A3/O1L	cable, 2 m	NPN make function (NO)	LED red (backside)
IFFM 06N15A3/O1S05L	connector M5	NPN make function (NO)	2 port LED red
IFFM 06N35A3/O1L	cable, 2 m	NPN break function (NC)	LED red (backside)
IFFM 06N35A3/O1S05L	connector M5	NPN break function (NC)	2 port LED red
IFFM 06P15A3/O1L	cable, 2 m	PNP make function (NO)	LED red (backside)
IFFM 06P15A3/O1S05L	connector M5	PNP make function (NO)	2 port LED red
IFFM 06P35A3/O1L	cable, 2 m	PNP break function (NC)	LED red (backside)
IFFM 06P35A3/O1S05L	connector M5	PNP break function (NC)	2 port LED red

IFFM 06



Sn = 1 mm

- standard cable version
- high switching frequency

general data	
mounting type	flush
nominal sensing distance Sn	1 mm
hysteresis	2 20 % of Sr
output indicator	LED red (backside)
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	rectangular
material (sensing face)	LCP
housing material	brass nickel plated
dimension	6 mm
housing length	30 mm
connection types	cable, 2 m
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

order referenceoutput circuitIFFM 06N15A1/01LNPN make function (NO)IFFM 06N35A1/01LNPN break function (NC)IFFM 06P15A1/01LPNP make function (NO)IFFM 06P35A1/01LPNP break function (NC)

•

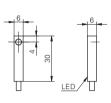
dimension drawing

connection diagrams BN (1)

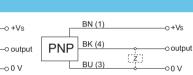
BK (4)

BU (3)

NPN



Z



IFFM 06 Sn = 1 mm



Sn = 2 mm

- extra flat version
- through bore for M3 screw
- robust metal housing

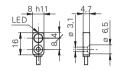
general data

Sn = 2 mm

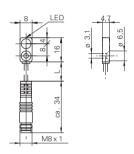
IFFM 08

mounting type	flush
nominal sensing distance Sn	2 mm
hysteresis	2 20 % of Sr
output indicator	LED red
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	rectangular
material (sensing face)	PBT
housing material	die-cast zinc nickel plated
dimension	8 mm
housing length	16 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

im	ension	drawing



flylead connector version



standard cable length 200 mm (L)

BN (1)

BK (4)

BU (3)

PNP break function (NC)

PNP break function (NC)

-o+Vs

Z

-o output

connectors and mating connectors		connection diagrams			
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m		BN (1)		
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m]	Z	
additional cable c	onnectors and field wireable connectors: see	NPN	BK (4)		PNP
accessories			BU (3)	0 0 V	
Accessories					

accessories Accessories

11163236	Adapter for pulse stretching M8	
for details: see accessories section		

Inductive proximity switches factory automation

order reference	connection types	output circuit
IFFM 08N17A6/KS35L	flylead connector M8	NPN make function (NO)
IFFM 08N17A6/L	cable, 2 m	NPN make function (NO)
IFFM 08N37A6/KS35L	flylead connector M8	NPN break function (NC)
IFFM 08N37A6/L	cable, 2 m	NPN break function (NC)
IFFM 08P17A6/KS35L	flylead connector M8	PNP make function (NO)
IFFM 08P17A6/L	cable, 2 m	PNP make function (NO)

flylead connector M8

cable, 2 m

IFFM 08P37A6/KS35L

IFFM 08P37A6/L

IFFM 08



Sn = 2 mm

- shortest rectangular design with M8 x 1 connector
- cable and connector versions
- high switching frequency

general data

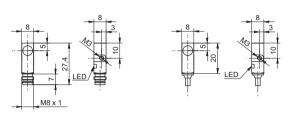
-	
mounting type	flush
nominal sensing distance Sn	2 mm
hysteresis	3 20 % of Sr
output indicator	LED red
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	rectangular
material (sensing face)	PBT
housing material	die-cast zinc nickel plated
dimension	8 mm
cable, 2 m	
housing length	20 mm
connector M8	
housing length	27,4 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

connectors and mating connectors		
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m	
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m	
additional cable connectors and field wireable connectors: see accessories		
Accessories		
11163236	Adapter for pulse stretching M8	

for details: see accessories section

order reference	connection types	output circuit
IFFM 08N1703/O1L	cable, 2 m	NPN make function (NO)
IFFM 08N17A5/O1S35L	connector M8	NPN make function (NO)
IFFM 08N3703/O1L	cable, 2 m	NPN break function (NC)
IFFM 08N37A5/O1S35L	connector M8	NPN break function (NC)
IFFM 08P1703/O1L	cable, 2 m	PNP make function (NO)
IFFM 08P17A5/O1S35L	connector M8	PNP make function (NO)
IFFM 08P3703/O1L	cable, 2 m	PNP break function (NC)
IFFM 08P37A5/O1S35L	connector M8	PNP break function (NC)

dimension drawings



connection diagrams

BN (1)		BN (1)	o+Vs
	ooutput		ooutput
BU (3)	0 V	BU (3)	(_z_) → 0 V

IFFM 08 Sn = 2 mm

IFFM 08



general data

mounting type

output indicator electrical data

switching frequency

voltage supply range +Vs

current consumption max. (no

hysteresis

load)

protection class

Sn = 2 mm

• high switching frequency

nominal sensing distance Sn

• cable and connector versions

flush

2 mm

LED red

< 5 kHz

12 mA

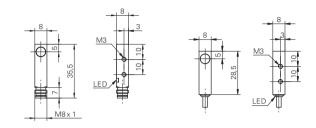
10 ... 30 VDC

3 ... 20 % of Sr





dimension drawings



1000)		
voltage drop Vd	< 2 VDC	
output current	< 200 mA	
short circuit protection	yes	conne
reverse polarity protection	yes	
mechanical data		
type	rectangular	NPN
material (sensing face)	PBT	
housing material	brass nickel plated	*/SC
dimension	8 mm	
cable, 2 m		
housing length	28,5 mm	
connector M8		
housing length	35,5 mm	
ambient conditions		
operating temperature	-25 +75 °C	

connection diagrams		
BN (1) 0 +Vs	BN (1)o+Vs	3
NPN BK (4)	PNP BK (4) o out	put
BU (3) 0 V	BU (3)	

05L pin 2 & 4 electrically connected

connectors and mating connectors		
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m	
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m	
additional cable connectors and field wireable connectors: see accessories		
Accessories		
11163236	Adapter for pulse stretching M8	
for detaile: and appendice solution		

IP 67

for details: see accessories section

order reference	connection types	output circuit
IFFM 08N1702/O1L	cable, 2 m	NPN make function (NO)
IFFM 08N17A3/O1S35L	connector M8	NPN make function (NO)
IFFM 08N3702/O1L	cable, 2 m	NPN break function (NC)
IFFM 08N37A3/O1S35L	connector M8	NPN break function (NC)
IFFM 08P1702/O1L	cable, 2 m	PNP make function (NO)
IFFM 08P17A3/O1S35L	connector M8	PNP make function (NO)
IFFM 08P3702/O1L	cable, 2 m	PNP break function (NC)
IFFM 08P37A3/O1S35L	connector M8	PNP break function (NC)

IFFM 08



Sn = 2 mm

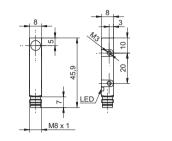
- high switching frequency
- cable and connector versions

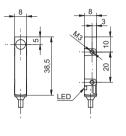
general data	
mounting type	flush
0 //	2 mm
nominal sensing distance Sn	2
hysteresis	3 20 % of Sr
output indicator	LED red
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
nechanical data	
type	rectangular
material (sensing face)	PBT
housing material	die-cast zinc nickel plated
dimension	8 mm
cable, 2 m	
housing length	38,5 mm
connector M8	
housing length	45,9 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

connectors and mating connectors ESG 32SH0200 Connector M8, 3 pin, straight, 2 m ESW 31SH0200 Connector M8, 3 pin, angular, 2 m additional cable connectors and field wireable connectors: see accessories Accessories 11163236 Adapter for pulse stretching M8 for details: see accessories section

order reference	connection types	output circuit
IFFM 08N1701/O1L	cable, 2 m	NPN make function (NO)
IFFM 08N17A1/O1S35L	connector M8	NPN make function (NO)
IFFM 08N3701/O1L	cable, 2 m	NPN break function (NC)
IFFM 08N37A1/O1S35L	connector M8	NPN break function (NC)
IFFM 08P1701/O1L	cable, 2 m	PNP make function (NO)
IFFM 08P17A1/O1S35L	connector M8	PNP make function (NO)
IFFM 08P3701/O1L	cable, 2 m	PNP break function (NC)
IFFM 08P37A1/O1S35L	connector M8	PNP break function (NC)

dimension drawings





connection diagrams



IFFM 08 Sn = 2 mm

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IFFM 08



Sn = 2 mm

- active area at mid position
- high switching frequency
- cable and connector versions

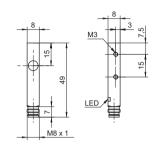
general data

gonorar data	
mounting type	flush
nominal sensing distance Sn	2 mm
hysteresis	3 20 % of Sr
output indicator	LED red
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	rectangular
material (sensing face)	PBT
housing material	brass nickel plated
dimension	8 mm
housing length	49 mm
connection types	connector M8
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

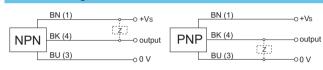
connectors and r	connectors and mating connectors		
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m		
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m		
additional cable connectors and field wireable connectors: see accessories			
Accessories			
11163236 Adapter for pulse stretching M8			
for details: see accessories section			

order reference	output circuit
IFFM 08N1703/O2S35L	NPN make function (NO)
IFFM 08N3703/O2S35L	NPN break function (NC)
IFFM 08P1703/O2S35L	PNP make function (NO)
IFFM 08P3703/O2S35L	PNP break function (NC)

dimension drawing



connection diagrams



IFFM 08 Sn = 2 mm

IFFM 08



Sn = 2 mm

- high switching frequency
- cable and connector versions
- very long housing

general data

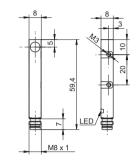
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mounting type	flush
nominal sensing distance Sn	2 mm
hysteresis	3 20 % of Sr
output indicator	LED red
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	rectangular
material (sensing face)	PBT
housing material	die-cast zinc nickel plated
dimension	8 mm
housing length	59,4 mm
connection types	connector M8
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

connectors and mating connectors		
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m	
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m	
additional cable connectors and field wireable connectors: see accessories		
Accessories		
11163236	Adapter for pulse stretching M8	
for details: see accessories section		

order reference	output circuit
IFFM 08N1701/O1S35L	NPN make function (NO)
IFFM 08N3701/O1S35L	NPN break function (NC)
IFFM 08P1701/O1S35L	PNP make function (NO)
IFFM 08P3701/O1S35L	PNP break function (NC)

dimension drawing



connection diagrams

BN (1) 0 +Vs	BN (1)	—o+Vs
NPN BK (4) (2) outp		—o output
BU (3) 0 V	BU (3)	—00 V

+421 552 601 099



Sn = 4 mm

- extra flat version
- miniature connector M5 x 0,5

general data mounting type

mounting type	flush
nominal sensing distance Sn	4 mm
hysteresis	3 20 % of Sr
output indicator	LED red
electrical data	
switching frequency	< 2 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	rectangular
material (sensing face)	PBT
housing material	brass nickel plated
dimension	12 mm
housing length	23,5 mm
connection types	connector M5
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

12 LED	
23,5	5,6

connection diagrams

dimension drawing

BN (1) 0+Vs	BN (1)
NPN BK (4)* [WH/BK (2/4)]	PNP BK (4) * [WH/BK (2/4)] output
BU (3) 0 V	BU (3)

* .../S05L pin 2 & 4 electrically connected

connectors and mating connectors		
	ESG 05SP0200	Connector M5, 3 pin, straight, 2 m
	ESW 05SP0200	Connector M5, 3 pin, angular, 2 m
additional cable connectors and field wireable connectors: see accessories		

order reference	output circuit
IFFM 12N17A3/S05L	NPN make function (NO)
IFFM 12N37A3/S05L	NPN break function (NC)
IFFM 12P17A3/S05L	PNP make function (NO)
IFFM 12P37A3/S05L	PNP break function (NC)

IFFM 12 Sn = 4 mm



Sn = 5 mm

- voltage supply range +Vs 10 ... 50 VDC
- extra flat version
- 4 port LED

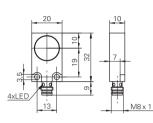
general data

-	
mounting type	flush
nominal sensing distance Sn	5 mm
hysteresis	3 20 % of Sr
output indicator	4 port LED red
electrical data	
switching frequency	< 1 kHz
voltage supply range +Vs	10 50 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 3 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	rectangular
material (sensing face)	PBT
housing material	brass nickel plated
dimension	20 mm
housing length	32 mm
connection types	connector M8
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

connectors and r	nating connectors		
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m		
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m		
additional cable connectors and field wireable connectors: see accessories			
Accessories			
10152385	Sensofix series 18/20 inductive rectangular		
11163236	Adapter for pulse stretching M8		
for details: see ac	cessories section		

order reference	output circuit
IFFM 20N1501/S35L	NPN make function (NO)
IFFM 20N3501/S35L	NPN break function (NC)
IFFM 20P1501/S35L	PNP make function (NO)
IFFM 20P3501/S35L	PNP break function (NC)

dimension drawing



connection diagrams

BN (1)	o +Vs	BN (1)	0+Vs
	(Ž) →→ o output		o output
BU (3)	0 0 V	BU (3)	

IFFM 20 Sn = 5 mm

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IFFM 20



Sn = 8 mm

- increased sensing distance
- extra flat version

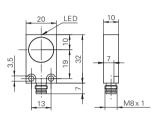
general data

mounting type	flush
nominal sensing distance Sn	8 mm
hysteresis	3 20 % of Sr
output indicator	LED red
electrical data	
switching frequency	< 500 Hz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	rectangular
material (sensing face)	PBT
housing material	brass nickel plated
dimension	20 mm
housing length	32 mm
connection types	connector M8
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

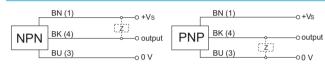
connectors and mating connectors		
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m	
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m	
additional cable connectors and field wireable connectors: see accessories		
Accessories		
10152385	Sensofix series 18/20 inductive rectangular	
11163236	Adapter for pulse stretching M8	
for details: see accessories section		

order reference	output circuit
IFFM 20N17A3/S35L	NPN make function (NO)
IFFM 20N37A3/S35L	NPN break function (NC)
IFFM 20P17A3/S35L	PNP make function (NO)
IFFM 20P37A3/S35L	PNP break function (NC)

dimension drawing



connection diagrams



IFFM 20 Sn = 8 mm

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IR06.P02F



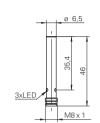
Sn = 2 mm

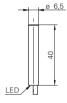
- robust steel housing
- high switching frequency
- mounting with special support

general data

-	
mounting type	flush
special type	factor 1
nominal sensing distance Sn	2 mm
hysteresis	3 20 % of Sr
electrical data	
switching frequency	< 3 kHz
voltage supply range +Vs	5 36 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
	cylindrical smooth PBT
type	
type material (sensing face)	PBT
type material (sensing face) housing material	PBT stainless steel
type material (sensing face) housing material dimension	PBT stainless steel
type material (sensing face) housing material dimension cable, 2 m	PBT stainless steel 6,5 mm
type material (sensing face) housing material dimension cable, 2 m housing length	PBT stainless steel 6,5 mm
type material (sensing face) housing material dimension cable, 2 m housing length connector M8	PBT stainless steel 6,5 mm 40 mm
type material (sensing face) housing material dimension cable, 2 m housing length connector M8 housing length	PBT stainless steel 6,5 mm 40 mm
type material (sensing face) housing material dimension cable, 2 m housing length connector M8 housing length ambient conditions	PBT stainless steel 6,5 mm 40 mm 46 mm
type material (sensing face) housing material dimension cable, 2 m housing length connector M8 housing length ambient conditions operating temperature	PBT stainless steel 6,5 mm 40 mm 46 mm -25 +75 °C

dimension drawings





connection diagrams			
	-o +Vs -o output -o 0 V	BN (1) BN (4) BU (3)	o +Vs o output [[Ž:] o 0 V
compositors and moting ag			

connectors and n	nating connectors
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m
additional cable co accessories	nnectors and field wireable connectors: see
Accessories	
10109474	Mounting bracket for sensors Ø 6,5 mm
10117742	Clamping nut for sensors Ø 6,5 mm
11163236	Adapter for pulse stretching M8
for details: see acc	essories section

order reference	connection types	output circuit	voltage supply range +Vs	output indicator
IR06.P02F-11119425	cable, 2 m	NPN break function (NC)	5 36 VDC	LED red
IR06.P02F-11119423	cable, 2 m	NPN make function (NO)	5 36 V AC/DC	LED red
IR06.P02F-11119424	cable, 2 m	PNP break function (NC)	5 36 V AC/DC	LED red
IR06.P02F-11119422	cable, 2 m	PNP make function (NO)	5 36 V AC/DC	LED red
IR06.P02F-11119421	connector M8	NPN break function (NC)	5 36 V AC/DC	3 port LED red
IR06.P02F-11117732	connector M8	NPN make function (NO)	5 36 V AC/DC	3 port LED red
IR06.P02F-11119408	connector M8	PNP break function (NC)	5 36 V AC/DC	3 port LED red
IR06.P02F-11117730	connector M8	PNP make function (NO)	5 36 V AC/DC	3 port LED red

IR08.P02F

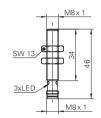


Sn = 2 mm

- robust steel housing
- high switching frequency

general data mounting type flush special type factor 1 nominal sensing distance Sn 2 mm 3 ... 20 % of Sr hysteresis electrical data < 3 kHz switching frequency voltage supply range +Vs 5 ... 36 VDC current consumption max. (no 12 mA load) < 2 VDC voltage drop Vd < 200 mA output current short circuit protection yes reverse polarity protection yes mechanical data cylindrical threaded type material (sensing face) PBT housing material stainless steel dimension 8 mm 10 Nm tightening torque max. cable, 2 m housing length 40 mm connector M8 housing length 46 mm ambient conditions -25 ... +75 °C operating temperature -40 ... +85 °C storage temperature protection class IP 67

dimension drawings











connection diagrams

BN (1)		BN (1)	0+Vs
	o output	PNP BK (4)	ooutput
BU (3)	0 0 V	BU (3)	

connectors and mating connectors

	ESG 32SH0200	Connector M8, 3 pin, straight, 2 m	
	ESW 31SH0200	Connector M8, 3 pin, angular, 2 m	
	additional cable con accessories	nnectors and field wireable connectors: see	
Accessories			

Accessories	
10151719	Sensofix series 08 round
11163236	Adapter for pulse stretching M8
for details: see	accessories section

order reference	connection types	output circuit	output indicator
IR08.P02F-11119431	cable, 2 m	NPN break function (NC)	LED red
IR08.P02F-11119429	cable, 2 m	NPN make function (NO)	LED red
IR08.P02F-11119430	cable, 2 m	PNP break function (NC)	LED red
IR08.P02F-11119428	cable, 2 m	PNP make function (NO)	LED red
IR08.P02F-11119427	connector M8	NPN break function (NC)	3 port LED red
IR08.P02F-11116607	connector M8	NPN make function (NO)	3 port LED red
IR08.P02F-11119426	connector M8	PNP break function (NC)	3 port LED red
IR08.P02F-11111235	connector M8	PNP make function (NO)	3 port LED red

IR12.P04F



Sn = 4 mm

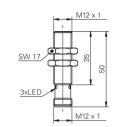
• high stability across entire temperature range

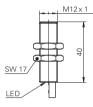
general data	
mounting type	flush
special type	factor 1
nominal sensing distance Sn	4 mm
hysteresis	3 20 % of Sr
electrical data	
switching frequency	< 2 kHz
voltage supply range +Vs	5 36 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	12 mm
tightening torque max.	15 Nm
cable, 2 m	
housing length	40 mm
connector M12	
housing length	50 mm
ambient conditions	
an avatin a tanan avatura	-25 +75 °C
operating temperature	20 170 0
storage temperature	-40 +85 °C





dimension drawings





connection diagrams	
BN (1) (2) (2) (2) (2) (2) (2) (2) (2	BN (1) O+Vs PNP BK (4) * [WH/BK (2/4)] (2/2) BU (3) C - 0 0 V
connectors and mating connector	rs

connectors and mating connectors			
ESG 34SH0200	Connector M12, 3 pin, straight, 2 m		
ESW 33SH0200	Connector M12, 3 pin, angular, 2 m		
additional cable connectors and field wireable connectors: see accessories			
Accessories			
10151720	Sensofix series 12 round		
11163237	Adapter for pulse stretching M12		
for details: see accessories section			

order reference	connection types	output circuit	output indicator
IR12.P04F-11119439	cable, 2 m	NPN break function (NC)	LED red
IR12.P04F-11119438	cable, 2 m	NPN make function (NO)	LED red
IR12.P04F-11119496	cable, 2 m	PNP break function (NC)	LED red
IR12.P04F-11119436	cable, 2 m	PNP make function (NO)	LED red
IR12.P04F-11119435	connector M12	NPN break function (NC)	3 port LED red
IR12.P04F-11116610	connector M12	NPN make function (NO)	3 port LED red
IR12.P04F-11119433	connector M12	PNP break function (NC)	3 port LED red
IR12.P04F-11111236	connector M12	PNP make function (NO)	3 port LED red

IR18.P06F



Sn = 6 mm

- robust steel housing
- high switching frequency

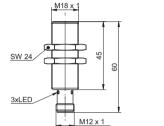
general data

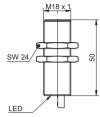
general data	
mounting type	flush
special type	factor 1
nominal sensing distance Sn	6 mm
hysteresis	3 20 % of Sr
electrical data	
switching frequency	< 500 Hz
voltage supply range +Vs	5 36 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	18 mm
tightening torque max.	40 Nm
cable, 2 m	
housing length	50 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-25 +75 °C
storage temperature	-40 +85 °C
protection class	IP 67





dimension drawings





connection diagrams

BN (1)	→→→ o +Vs	BN (1)	0+Vs
	 →o output	PNP BK (4)	o output
BU (3)	0 0 V	BU (3)	

connectors and mating connectors

ESG 34SH0200	Connector M12, 3 pin, straight, 2 m
ESW 33SH0200	Connector M12, 3 pin, angular, 2 m
additional cable con accessories	nnectors and field wireable connectors: see
Accessories	

10151658	Sensofix series 18
ZADAP-M18.STANDARD	Mounting bracket series 18
ZADAP-M18.SHORT	Mounting bracket short series 18 (L design)
ZADAP-M18.LONG	Mounting bracket long series 18 (L design)
11163237	Adapter for pulse stretching M12
for details: see accessorie	es section

order reference	connection types	output circuit	output indicator
IR18.P06F-11119473	cable, 2 m	NPN break function (NC)	LED red
IR18.P06F-11119459	cable, 2 m	NPN make function (NO)	LED red
IR18.P06F-11119472	cable, 2 m	PNP break function (NC)	LED red
IR18.P06F-11119458	cable, 2 m	PNP make function (NO)	LED red
IR18.P06F-11119457	connector M12	NPN break function (NC)	3 port LED red
IR18.P06F-11117735	connector M12	NPN make function (NO)	3 port LED red
IR18.P06F-11119456	connector M12	PNP break function (NC)	3 port LED red
IR18.P06F-11117733	connector M12	PNP make function (NO)	3 port LED red

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IR18.P08F



Sn = 8 mm

- robust steel housing
- high switching frequency

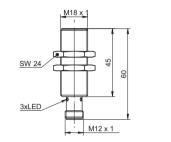
general data

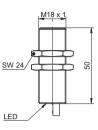
mounting type	quasi-flush
special type	factor 1
nominal sensing distance Sn	8 mm
hysteresis	3 20 % of Sr
electrical data	
switching frequency	< 500 Hz
voltage supply range +Vs	5 36 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	18 mm
tightening torque max.	40 Nm
cable, 2 m	
housing length	50 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-25 +75 °C
storage temperature	-40 +85 °C
protection class	IP 67

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dimension drawings





connection diagrams	
BN (1) 0 +Vs	BN (1)
NPN BK (4)	PNP BK (4) o outpu
BU (3) 0 V	BU (3) :_∠.: BU (3) → 0 V

connectors and mating connectors			
ESG 34SH0200 Conn	Connector M12, 3 pin, straight, 2 m		
ESW 33SH0200 Conn	Connector M12, 3 pin, angular, 2 m		
additional cable connectors and field wireable connectors: see accessories			
Accessories			
10151658 Sensofix series 18			
ZADAP-M18.STANDARD Mounting bracket series 18			
ZADAP-M18.SHORT Mounting bracket short series 18 (L design)			
ZADAP-M18.LONG Mounting bracket long series 18 (L design			
11163237 Adapter for pulse stretching M12			
for details: see accessories section			

order reference	connection types	output circuit	output indicator
IR18.P08F-11119479	cable, 2 m	NPN break function (NC)	LED red
IR18.P08F-11119477	cable, 2 m	NPN make function (NO)	LED red
IR18.P08F-11119478	cable, 2 m	PNP break function (NC)	LED red
IR18.P08F-11119476	cable, 2 m	PNP make function (NO)	LED red
IR18.P08F-11119475	connector M12	NPN break function (NC)	3 port LED red
IR18.P08F-11116612	connector M12	NPN make function (NO)	3 port LED red
IR18.P08F-11119474	connector M12	PNP break function (NC)	3 port LED red
IR18.P08F-11111237	connector M12	PNP make function (NO)	3 port LED red

IFBR 06



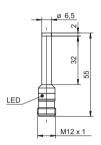
Sn = 3 mm

- robust steel housing
- protection class IP 69K & proTect+
- operating temperature -40 ... +80°C

general data	
mounting type	non-flush
special type	hygienic design
nominal sensing distance Sn	3 mm
hysteresis	2 15 % of Sr
output indicator	LED red
approvals/certificates	Ecolab EHEDG REGULATION (EC) 1935/2004 REGULATION (EC) 2023/2006 REGULATION (EU) 1282/2011 FDA 21 CFR § 175.300 FDA 21 CFR § 177.2600 FCN 742
electrical data	
switching frequency	< 3 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
output current (at cleaning temperature)	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
material (sensing face)	LCP
housing material	stainless steel 1.4404 (V4A); LSR
dimension	6,5 mm
housing length	55 mm
connection types	connector M12
ambient conditions	
operating temperature	-40 +80 °C
cleaning temperature	80 +100 °C (30 min/day)
protection class	IP 68/69K & proTect+

order reference	output circuit
IFBR 06N13T1/S14L-9	NPN make function (NO)
IFBR 06N33T1/S14L-9	NPN break function (NC)
IFBR 06P13T1/S14L-9	PNP make function (NO)
IFBR 06P33T1/S14L-9	PNP break function (NC)

dimension drawing



connection diagrams



* .../S14L pin 2 & 4 electrically connected

connectors and mating connectors

ESG 34AY0200	Connector M12, 4 pin, straight, 2 m, V4A-PP
E014/0041/0000	

ESW 33AY0200 Connector M12, 4 pin, angular, 2 m, V4A-PP additional cable connectors and field wireable connectors: see accessories

Accessories

HI06-1H	Mounting for sensors in hygienic design Ø 6,5 mm
6 1 1 1	1

for details: see accessories section

IFBR 11



Sn = 4 mm

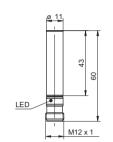
- robust steel housing
- protection class IP 69K & proTect+
- operating temperature -40 ... +80°C

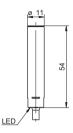
mounting type	flush
special type	hygienic design
nominal sensing distance Sn	4 mm
hysteresis	2 15 % of Sr
output indicator	LED red
approvals/certificates	Ecolab EHEDG REGULATION (EC) 1935/2004 REGULATION (EC) 2023/2006 REGULATION (EU) 1282/2011 FDA 21 CFR § 175.300 FDA 21 CFR § 177.2600 FCN 742
electrical data	
switching frequency	< 1 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
output current (at cleaning temperature)	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
material (sensing face)	LCP
housing material	stainless steel 1.4404 (V4A); LSR
dimension	11 mm
cable PVC, 2 m	
housing length	54 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-40 +80 °C
cleaning temperature	80 +100 °C (30 min/day)

IP 68/69K & proTect+



dimension drawings





-o+Vs

-o output -00 V

BN (1)

connection diagrams BN (1) -o +Vs

	-				
NPN	BK (4)	· · · · · · · output	PNP	BK (4)	
					1
	² BU (3)	0 0 V		BU (3)	'
*/S14	L pin 2 & 4	electrically conn	ected		

connectors and mating connectors

ESG 34AY0200	Connector M12, 4 pin, straight, 2 m, V4A-PP
ESW 33AY0200	Connector M12, 4 pin, angular, 2 m, V4A-PP
additional cable co accessories	onnectors and field wireable connectors: see
Accessories	
HI11-1H	Mounting for sensors in hygienic design \emptyset 11 mm
for details: see ac	cessories section

order reference output circuit connection types IFBR 11N17T1/L-9 cable PVC, 2 m NPN make function (NO) IFBR 11N17T1/S14L-9 connector M12 NPN make function (NO) IFBR 11N37T1/L-9 cable PVC, 2 m NPN break function (NC) IFBR 11N37T1/S14L-9 connector M12 NPN break function (NC) IFBR 11P17T1/L-9 cable PVC, 2 m PNP make function (NO) IFBR 11P17T1/S14L-9 connector M12 PNP make function (NO) IFBR 11P37T1/L-9 cable PVC, 2 m PNP break function (NC) IFBR 11P37T1/S14L-9 PNP break function (NC) connector M12

protection class

IFBR 11

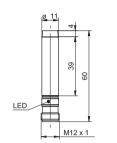


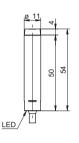
Sn = 6 mm

- robust steel housing
- protection class IP 69K & proTect+
- operating temperature -40 ... +80°C

general data	
mounting type	non-flush
special type	hygienic design
nominal sensing distance Sn	6 mm
hysteresis	2 15 % of Sr
output indicator	LED red
approvals/certificates	Ecolab EHEDG REGULATION (EC) 1935/2004 REGULATION (EC) 2023/2006 REGULATION (EU) 1282/2011 FDA 21 CFR § 175.300 FDA 21 CFR § 177.2600 FCN 742
electrical data	
switching frequency	< 1 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
output current (at cleaning temperature)	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
material (sensing face)	LCP
housing material	stainless steel 1.4404 (V4A); LSR
dimension	11 mm
cable PVC, 2 m	
housing length	54 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-40 +80 °C
cleaning temperature	80 +100 °C (30 min/day)
protection class	IP 68/69K & proTect+

dimension drawings





connection diagrams

BN (1)	o+Vs	BN (1)		—o+Vs
	i <u>z</u> .i →→o output	PNP BK (4)		o output
BU (3)	0 0 V	BU (3)	Z	0 V

* .../S14L pin 2 & 4 electrically connected

connectors and mating connectors

ESG 34AY0200	Connector M12, 4 pin, straight, 2 m, V4A-PP
ESW 33AY0200	Connector M12, 4 pin, angular, 2 m, V4A-PP

additional cable connectors and field wireable connectors: see	
accessories	

Accessories

HI11-1H	Mounting for sensors in hygienic design Ø 11 mm	
for details: see accessories section		

order reference	connection types	output circuit
IFBR 11N13T1/L-9	cable PVC, 2 m	NPN make function (NO)
IFBR 11N13T1/S14L-9	connector M12	NPN make function (NO)
IFBR 11N33T1/L-9	cable PVC, 2 m	NPN break function (NC)
IFBR 11N33T1/S14L-9	connector M12	NPN break function (NC)
IFBR 11P13T1/L-9	cable PVC, 2 m	PNP make function (NO)
IFBR 11P13T1/S14L-9	connector M12	PNP make function (NO)
IFBR 11P33T1/L-9	cable PVC, 2 m	PNP break function (NC)
IFBR 11P33T1/S14L-9	connector M12	PNP break function (NC)

IFBR 17



general data

voltage drop Vd output current

temperature)

output current (at cleaning

Sn = 8 mm

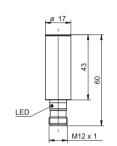
- robust steel housing
- protection class IP 69K & proTect+
- operating temperature -40 ... +80°C

general data		
mounting type	quasi-flush	
special type	hygienic design	
nominal sensing distance Sn	8 mm	
hysteresis	2 15 % of Sr	
output indicator	LED red	
approvals/certificates	Ecolab EHEDG REGULATION (EC) 1935/2004 REGULATION (EC) 2023/2006 REGULATION (EU) 1282/2011 FDA 21 CFR § 175.300 FDA 21 CFR § 177.2600 FCN 742	
electrical data		
switching frequency	< 500 Hz	
voltage supply range +Vs	10 30 VDC	
current consumption max. (no load)	10 mA	





dimension drawings





onnection diagrams

BN (1) BK (4) BU (3) * (\$141 pip 2.8;	• +Vs (Z) • o output • o o V 4 clootrically coopp	BN (1) BN (1) BK (4) BU (3)	
*/S14L pin 2 & 4 electrically connected			
connectors and r	nating connector	rs	
ESG 34AY0200	Connector M12	. 4 pin. straight. 2	m, V4A-PP

ESG 34AY0200	Connector M12, 4 pin, straight, 2 m, V4A-PP
ESW 33AY0200	Connector M12, 4 pin, angular, 2 m, V4A-PP

additional cable connectors and field wireable connectors: s	ee
accessories	

Accessories

HI17-1H	Mounting for sensors in hygienic design Ø 17 mm
for details: see accessories section	

short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
material (sensing face)	LCP
housing material	stainless steel 1.4404 (V4A); LSR
dimension	17 mm
cable PVC, 2 m	
housing length	55 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-40 +80 °C
cleaning temperature	80 +100 °C (30 min/day)
protection class	IP 68/69K & proTect+

< 2 VDC

< 200 mA

< 100 mA

order reference	connection types	output circuit
IFBR 17N17T1/L-9	cable PVC, 2 m	NPN make function (NO)
IFBR 17N17T1/S14L-9	connector M12	NPN make function (NO)
IFBR 17N37T1/L-9	cable PVC, 2 m	NPN break function (NC)
IFBR 17N37T1/S14L-9	connector M12	NPN break function (NC)
IFBR 17P17T1/L-9	cable PVC, 2 m	PNP make function (NO)
IFBR 17P17T1/S14L-9	connector M12	PNP make function (NO)
IFBR 17P37T1/L-9	cable PVC, 2 m	PNP break function (NC)
IFBR 17P37T1/S14L-9	connector M12	PNP break function (NC)

Inductive sensors in hygienic design

IFBR 17

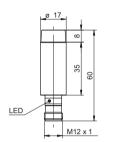


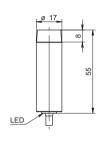
Sn = 12 mm

- robust steel housing
- protection class IP 69K & proTect+
- operating temperature -40 ... +80°C

general data	
mounting type	non-flush
special type	hygienic design
nominal sensing distance Sn	12 mm
hysteresis	2 15 % of Sr
output indicator	LED red
approvals/certificates	Ecolab EHEDG REGULATION (EC) 1935/2004 REGULATION (EC) 2023/2006 REGULATION (EU) 1282/2011 FDA 21 CFR § 175.300 FDA 21 CFR § 177.2600 FCN 742
electrical data	
switching frequency	< 500 Hz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
output current (at cleaning temperature)	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
material (sensing face)	LCP
housing material	stainless steel 1.4404 (V4A); LSR
dimension	17 mm
cable PVC, 2 m	
housing length	55 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-40 +80 °C
cleaning temperature	80 +100 °C (30 min/day)
protection class	IP 68/69K & proTect+

dimension drawings





connection diagrams

BN (1)		BN (1)	0+Vs	
	i_Z_i —⊸—o output		o outpu	ut
BU (3)	0 0 V	BU (3)		

* .../S14L pin 2 & 4 electrically connected

connectors and mating connectors

ESG 34AY0200	Connector M12, 4 pin, straight, 2 m, V4A-PP
ESW 33AY0200	Connector M12, 4 pin, angular, 2 m, V4A-PP

ESW 33AY0200 Connector M12, 4 pin, angular, 2 m, V4A-PP additional cable connectors and field wireable connectors: see accessories

Accessories

HI17-1H	Mounting for sensors in hygienic design \emptyset 17 mm
for details: see	accessories section

order reference	connection types	output circuit
IFBR 17N13T1/L-9	cable PVC, 2 m	NPN make function (NO)
IFBR 17N13T1/S14L-9	connector M12	NPN make function (NO)
IFBR 17N33T1/L-9	cable PVC, 2 m	NPN break function (NC)
IFBR 17N33T1/S14L-9	connector M12	NPN break function (NC)
IFBR 17P13T1/L-9	cable PVC, 2 m	PNP make function (NO)
IFBR 17P13T1/S14L-9	connector M12	PNP make function (NO)
IFBR 17P33T1/L-9	cable PVC, 2 m	PNP break function (NC)
IFBR 17P33T1/S14L-9	connector M12	PNP break function (NC)

IFRR 08



Sn = 3 mm

- robust steel housing
- protection class IP 69K & proTect+
- operating temperature -40 ... +80°C

general data

general data	
mounting type	non-flush
special type	Outdoor design Washdown design
nominal sensing distance Sn	3 mm
hysteresis	2 15 % of Sr
output indicator	LED red
approvals/certificates	Ecolab
electrical data	
switching frequency	< 3 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
output current (at cleaning temperature)	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	LCP
housing material	stainless steel 1.4404 (V4A); LSR
dimension	8 mm
housing length	55 mm
connection types	connector M12
ambient conditions	
operating temperature	-40 +80 °C
cleaning temperature	80 +100 °C (30 min/day)
protection class	IP 68/69K & proTect+
vibration resistance	EN 61373: 2010 (category 3), 5h per axis (14.4 gRMS, 10-500 Hz, EN 60068-2-64)
shock resistance	EN 61373: 2010 (category 3), 10 bumps per axis (100 g, 6 ms, EN 60068-2-27)

dimension	drawing	
	M8 x	1
<u>SW 13</u>		

M12 x 1	_		
connection diagrams			
BN (1) WH/BK (2/4)	o +Vs Z o output	BN (1) WH/BK (2/4) BU (3)	•••Vs

* .../S14L pin 2 & 4 electrically connected

-0 0 V

connectors and mating connectors		
ESG 34AY0200	Connector M12, 4 pin, straight, 2 m, V4A-PP	
ESW 33AY0200	Connector M12, 4 pin, angular, 2 m, V4A-PP	
ESG 34AE0500	Connector M12, 4 pin, straight, 5 m	
ESG 34AE0500G	Connector M12, 4 pin, straight, 5 m, shielded	
ESG 34AB0200G	Connector M12, 4 pin, straight, 2 m, shielded	
ESW 33AB0200G	Connector M12, 4 pin, angular, 2 m, shielded	
additional cable connectors and field wireable connectors: see		
accessories		

FRR 08 Sn = 3 mm

order reference	output circuit
IFRR 08N13T1/S14L-9	NPN make function (NO)
IFRR 08N33T1/S14L-9	NPN break function (NC)
IFRR 08P13T1/S14L-9	PNP make function (NO)
IFRR 08P33T1/S14L-9	PNP break function (NC)

IFRR 12



Sn = 4 mm

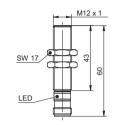
- robust steel housing
- protection class IP 69K & proTect+
- operating temperature -40 ... +80°C

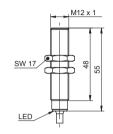
general data	
mounting type	flush
nominal sensing distance Sn	4 mm
hysteresis	2 15 % of Sr
output indicator	LED red
approvals/certificates	Ecolab
electrical data	
switching frequency	< 1 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
output current (at cleaning temperature)	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	LCP
housing material	stainless steel 1.4404 (V4A); LSR
dimension	12 mm
cable PVC, 2 m	
housing length	55 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-40 +80 °C
cleaning temperature	80 +100 °C (30 min/day)
protection class	IP 68/69K & proTect+
vibration resistance	EN 61373: 2010 (category 3), 5h per axis (14.4 gRMS, 10-500 Hz, EN 60068-2-64)
shock resistance	EN 61373: 2010 (category 3), 10 bumps per axis (100 g, 6 ms, EN 60068-2-27)





dimension drawings





connection diagrams

BN (1)		BN (1)		–o+Vs
	i <u>. z.</u> i —⊸⊸o output		Z	-o output
BU (3)	0 0 V	BU (3)		-00 V

* .../S14L pin 2 & 4 electrically connected

connectors and mating connectors

connoctoro ana m				
ESG 34AY0200	Connector M12, 4 pin, straight, 2 m, V4A-PP			
ESW 33AY0200	Connector M12, 4 pin, angular, 2 m, V4A-PP			
ESG 34AE0500	Connector M12, 4 pin, straight, 5 m			
ESG 34AE0500G	Connector M12, 4 pin, straight, 5 m, shielded			
ESG 34AB0200G	Connector M12, 4 pin, straight, 2 m, shielded			
ESW 33AB0200G	Connector M12, 4 pin, angular, 2 m, shielded			
additional cable connectors and field wireable connectors: see accessories				

order reference	special type	connection types	output circuit
IFRR 12N17T1/L-9	Washdown design	cable PVC, 2 m	NPN make function (NO)
IFRR 12N17T1/S14L-9	Outdoor design Washdown design	connector M12	NPN make function (NO)
IFRR 12N37T1/L-9	Washdown design	cable PVC, 2 m	NPN break function (NC)
IFRR 12N37T1/S14L-9	Outdoor design Washdown design	connector M12	NPN break function (NC)
IFRR 12P17T1/L-9	Washdown design	cable PVC, 2 m	PNP make function (NO)
IFRR 12P17T1/S14L-9	Outdoor design Washdown design	connector M12	PNP make function (NO)
IFRR 12P37T1/L-9	Washdown design	cable PVC, 2 m	PNP break function (NC)
IFRR 12P37T1/S14L-9	Outdoor design Washdown design	connector M12	PNP break function (NC)

IFRR 12



Sn = 6 mm

- robust steel housing
- high switching frequency
- M12 x 1 quick disconnect

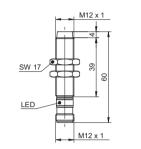
general data

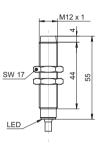
general data	
mounting type	non-flush
nominal sensing distance Sn	6 mm
hysteresis	2 15 % of Sr
output indicator	LED red
approvals/certificates	Ecolab
electrical data	
switching frequency	< 1 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
output current (at cleaning temperature)	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	LCP
housing material	stainless steel 1.4404 (V4A); LSR
dimension	12 mm
cable PVC, 2 m	
housing length	55 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-40 +80 °C
cleaning temperature	80 +100 °C (30 min/day)
protection class	IP 68/69K & proTect+
vibration resistance	EN 61373: 2010 (category 3), 5h
	per axis (14.4 gRMS, 10-500 Hz, EN 60068-2-64)





dimension drawings





----o output

connection diagrams

BN (1)	→ +Vs	BN (1)		—o+Vs
	i <u>z</u> ; → output			o outpi
BU (3)	0 0 V	BU (3)	·	0 V
* (014)			0	

* .../S14L pin 2 & 4 electrically connected

connectors and mating connectors				
ESG 34AY0200	Connector M12, 4 pin, straight, 2 m, V4A-PP			
ESW 33AY0200	Connector M12, 4 pin, angular, 2 m, V4A-PP			
ESG 34AE0500	Connector M12, 4 pin, straight, 5 m			
ESG 34AE0500G	Connector M12, 4 pin, straight, 5 m, shielded			
ESG 34AH0200	Connector M12, 4 pin, straight, 2 m			
ESW 33AH0200	Connector M12, 4 pin, angular, 2 m			
ESG 34AB0200G	Connector M12, 4 pin, straight, 2 m, shielded			
ESW 33AB0200G	Connector M12, 4 pin, angular, 2 m, shielded			
additional cable connectors and field wireable connectors: see accessories				

order reference	special type	connection types	output circuit
IFRR 12N13T1/L-9	Washdown design	cable PVC, 2 m	NPN make function (NO)
IFRR 12N13T1/S14L-9	Outdoor design Washdown design	connector M12	NPN make function (NO)
IFRR 12N33T1/L-9	Washdown design	cable PVC, 2 m	NPN break function (NC)
IFRR 12N33T1/S14L-9	Outdoor design Washdown design	connector M12	NPN break function (NC)
IFRR 12P13T1/L-9	Washdown design	cable PVC, 2 m	PNP make function (NO)
IFRR 12P13T1/S14L-9	Outdoor design Washdown design	connector M12	PNP make function (NO)
IFRR 12P33T1/L-9	Washdown design	cable PVC, 2 m	PNP break function (NC)
IFRR 12P33T1/S14L-9	Outdoor design Washdown design	connector M12	PNP break function (NC)

IFRR 18



Sn = 8 mm

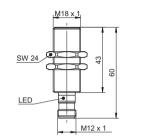
- robust steel housing
- protection class IP 69K & proTect+
- operating temperature -40 ... +80°C

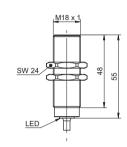
general data	
- mounting type	quasi-flush
nominal sensing distance Sn	8 mm
hysteresis	2 15 % of Sr
output indicator	LED red
approvals/certificates	Ecolab
electrical data	
switching frequency	< 500 Hz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
output current (at cleaning temperature)	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	LCP
housing material	stainless steel 1.4404 (V4A); LSR
dimension	18 mm
cable PVC, 2 m	
housing length	55 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-40 +80 °C
cleaning temperature	80 +100 °C (30 min/day)
protection class	IP 68/69K & proTect+
vibration resistance	EN 61373: 2010 (category 3), 5h per axis (14.4 gRMS, 10-500 Hz, EN 60068-2-64)
shock resistance	EN 61373: 2010 (category 3), 10 bumps per axis (100 g, 6 ms, EN 60068-2-27)





dimension drawings





connection diagrams

BN (1)	→ +Vs	BN (1)	0+Vs
	i_ <u>z_</u> → output		o output
BU (3)	0 0 V	BU (3)	

* .../S14L pin 2 & 4 electrically connected

connectors and mating connectors

	connectors and m	ating	connectors
	ESG 34AY0200	Conn	ector M12, 4 pin, straight, 2 m, V4A-PP
	ESW 33AY0200	Conn	ector M12, 4 pin, angular, 2 m, V4A-PP
	ESG 34AE0500	Conn	ector M12, 4 pin, straight, 5 m
	ESG 34AE0500G	Conn	ector M12, 4 pin, straight, 5 m, shielded
	ESG 34AB0200G	Conn	ector M12, 4 pin, straight, 2 m, shielded
	ESW 33AB0200G	Conn	ector M12, 4 pin, angular, 2 m, shielded
	additional cable cor accessories	nector	rs and field wireable connectors: see
	Accessories		
	ZADAP-M18.STANDA		Mounting bracket series 18
	ZADAP-M18.SHOR	Т	Mounting bracket short series 18 (L design)
	ZADAP-M18.LONG		Mounting bracket long series 18 (L design)
for details: see accessor			es section

IFRR 18 Sn = 8 mm

order reference	special type	connection types	output circuit
IFRR 18N17T1/L-9	Washdown design	cable PVC, 2 m	NPN make function (NO)
IFRR 18N17T1/S14L-9	Outdoor design Washdown design	connector M12	NPN make function (NO)
IFRR 18N37T1/L-9	Washdown design	cable PVC, 2 m	NPN break function (NC)
IFRR 18N37T1/S14L-9	Outdoor design Washdown design	connector M12	NPN break function (NC)
IFRR 18P17T1/L-9	Washdown design	cable PVC, 2 m	PNP make function (NO)
IFRR 18P17T1/S14L-9	Outdoor design Washdown design	connector M12	PNP make function (NO)
IFRR 18P37T1/L-9	Washdown design	cable PVC, 2 m	PNP break function (NC)
IFRR 18P37T1/S14L-9	Outdoor design Washdown design	connector M12	PNP break function (NC)

IFRR 18



Sn = 12 mm

- robust steel housing
- high switching frequency
- M12 x 1 quick disconnect

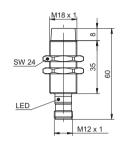
general data

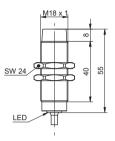
general data	
mounting type	non-flush
nominal sensing distance Sn	12 mm
hysteresis	2 15 % of Sr
output indicator	LED red
approvals/certificates	Ecolab
electrical data	
switching frequency	< 500 Hz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
output current (at cleaning temperature)	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	LCP
housing material	stainless steel 1.4404 (V4A); LSR
dimension	18 mm
cable PVC, 2 m	
housing length	55 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-40 +80 °C
cleaning temperature	80 +100 °C (30 min/day)
protection class	IP 68/69K & proTect+
vibration resistance	EN 61373: 2010 (category 3), 5h per axis (14.4 gRMS, 10-500 Hz, EN 60068-2-64)
shock resistance	EN 61373: 2010 (category 3), 10 bumps per axis (100 g, 6 ms, EN 60068-2-27)





dimension drawings





connection diagrams		
BN (1) 0 +Vs	BN (1)	0+Vs
NPN BK (4) o output	PNP BK (4)	o output
BU (3) 0 V	BU (3)	0 V
* /0141		

* .../S14L pin 2 & 4 electrically connected

connectors and mating connectors			
ESG 34AY0200	Conn	ector M12, 4 pin, straight, 2 m, V4A-PP	
ESW 33AY0200	Conn	ector M12, 4 pin, angular, 2 m, V4A-PP	
ESG 34AE0500	Conn	ector M12, 4 pin, straight, 5 m	
ESG 34AE0500G	Conn	ector M12, 4 pin, straight, 5 m, shielded	
ESG 34AH0200	Conn	ector M12, 4 pin, straight, 2 m	
ESW 33AH0200	Conn	ector M12, 4 pin, angular, 2 m	
ESG 34AB0200G	Conn	ector M12, 4 pin, straight, 2 m, shielded	
ESW 33AB0200G	Conn	ector M12, 4 pin, angular, 2 m, shielded	
additional cable connectors and field wireable connectors: see accessories			
Accessories			
ZADAP-M18.STANE	DARD	Mounting bracket series 18	
ZADAP-M18.SHOR	Т	Mounting bracket short series 18 (L design)	
ZADAP-M18.LONG		Mounting bracket long series 18 (L design)	
for details: see accessories section			

order reference connection types output circuit special type IFRR 18N13T1/L-9 Washdown design cable PVC, 2 m NPN make function (NO) IFRR 18N13T1/S14L-9 Outdoor design connector M12 NPN make function (NO) Washdown design IFRR 18N33T1/L-9 cable PVC, 2 m NPN break function (NC) Washdown design IFRR 18N33T1/S14L-9 connector M12 NPN break function (NC) Outdoor design Washdown design IFRR 18P13T1/L-9 cable PVC, 2 m PNP make function (NO) Washdown design IFRR 18P13T1/S14L-9 connector M12 Outdoor design PNP make function (NO) Washdown design IFRR 18P33T1/L-9 Washdown design cable PVC, 2 m PNP break function (NC) IFRR 18P33T1/S14L-9 Outdoor design connector M12 PNP break function (NC) Washdown design

IFRR 08



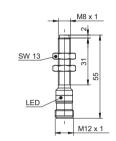
Sn = 3 mm

- robust steel housing
- protection class IP 69K & proTect+
- operating temperature -40 ... +80°C

general data		
mounting type	non-flush	
special type	Outdoor design Washdown design	
nominal sensing distance Sn	3 mm	
hysteresis	2 15 % of Sr	
output indicator	LED red	
approvals/certificates	Ecolab	
electrical data		
switching frequency	< 3 kHz	
voltage supply range +Vs	10 30 VDC	
current consumption max. (no load)	10 mA	
voltage drop Vd	< 2 VDC	
output current	< 200 mA	
output current (at cleaning temperature)	< 100 mA	
short circuit protection	yes	
reverse polarity protection	yes	
mechanical data		
type	cylindrical threaded	
material (sensing face)	LCP	
housing material	stainless steel 1.4404 (V4A); LSR	
dimension	8 mm	
housing length	55 mm	
connection types	connector M12	
ambient conditions		
operating temperature	-40 +80 °C	
cleaning temperature	80 +100 °C (30 min/day)	
protection class	IP 68/69K & proTect+	
vibration resistance	EN 61373: 2010 (category 3), 5h per axis (14.4 gRMS, 10-500 Hz, EN 60068-2-64)	
shock resistance	EN 61373: 2010 (category 3), 10 bumps per axis (100 g, 6 ms, EN 60068-2-27)	

order reference	output circuit
IFRR 08N13T1/S14L-9	NPN make function (NO)
IFRR 08N33T1/S14L-9	NPN break function (NC)
IFRR 08P13T1/S14L-9	PNP make function (NO)
IFRR 08P33T1/S14L-9	PNP break function (NC)

dimension drawing



connection diagrams

BN (1)		BN (1)	o+Vs
	() → → ○ output	PNP WH/BK (2/4)	output
BU (3)	0 0 V	BU (3)	

* .../S14L pin 2 & 4 electrically connected

connectors and mating connectors			
ESG 34AY0200	Connector M12, 4 pin, straight, 2 m, V4A-PP		
ESW 33AY0200	Connector M12, 4 pin, angular, 2 m, V4A-PP		
ESG 34AE0500	Connector M12, 4 pin, straight, 5 m		
ESG 34AE0500G	Connector M12, 4 pin, straight, 5 m, shielded		
ESG 34AB0200G	Connector M12, 4 pin, straight, 2 m, shielded		
ESW 33AB0200G	Connector M12, 4 pin, angular, 2 m, shielded		
additional cable cor	nnectors and field wireable connectors: see		
accessories			

IR12.P04S



Sn = 4 mm

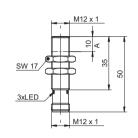
- DNV-GL certification
- robust steel housing

general data

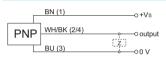
mounting type	flush
special type	Marine
nominal sensing distance Sn	4 mm
temperature drift	± 20 %
hysteresis	2 18 % of Sr
output indicator	3 port LED red
correction factor typ.	mild steel 100 %, stainless steel 70 %, aluminum 35 %
approvals/certificates	DNV GL
electrical data	
switching frequency	< 1 kHz
voltage supply range +Vs	6 36 VDC
normal operating voltage	24 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	stainless steel 1.4404 (V4A)
dimension	12 mm
housing length	50 mm
connection types	connector M12
tightening torque max.	20 Nm (A: 12 Nm)
ambient conditions	
operating temperature	-40 +75 °C
protection class	IP 67

order reference	output circuit	
IR12.P04S-11158411	PNP break function (NC)	
IR12.P04S-11158406	PNP make function (NO)	

dimension drawing



connection diagram



remarks

for correct installation refer to "mounting instructions"

connectors and mating connectors			
ESG 34SH0200	Connector M12, 3 pin, straight, 2 m		
ESW 33SH0200	Connector M12, 3 pin, angular, 2 m		
additional cable connectors and field wireable connectors: see accessories			
Accessories			
10151720	Sensofix series 12 round		
11163237	Adapter for pulse stretching M12		
for details: see accessories section			

IR12.P04S Sn = 4 mm

IFRR 12



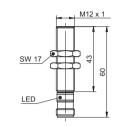
Sn = 4 mm

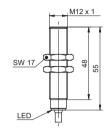
- robust steel housing
- protection class IP 69K & proTect+
- operating temperature -40 ... +80°C

general data		
mounting type	flush	
nominal sensing distance Sn	4 mm	
hysteresis	2 15 % of Sr	
output indicator	LED red	
approvals/certificates	Ecolab	
electrical data		
switching frequency	< 1 kHz	
voltage supply range +Vs	10 30 VDC	
current consumption max. (no load)	10 mA	
voltage drop Vd	< 2 VDC	
output current	< 200 mA	
output current (at cleaning temperature)	< 100 mA	
short circuit protection	yes	
reverse polarity protection	yes	
mechanical data		
type	cylindrical threaded	
material (sensing face)	LCP	
housing material	stainless steel 1.4404 (V4A); LSR	
dimension	12 mm	
cable PVC, 2 m		
housing length	55 mm	
connector M12		
housing length	60 mm	
ambient conditions		
operating temperature	-40 +80 °C	
cleaning temperature	80 +100 °C (30 min/day)	
protection class	IP 68/69K & proTect+	
vibration resistance	EN 61373: 2010 (category 3), 5h per axis (14.4 gRMS, 10-500 Hz, EN 60068-2-64)	
shock resistance	EN 61373: 2010 (category 3), 10 bumps per axis (100 g, 6 ms, EN 60068-2-27)	



dimension drawings





connection diagrams

BN (1) 0 +Vs	BN (1)	0+Vs
NPN BK (4)		o output
BU (3) 0 V	BU (3)	

* .../S14L pin 2 & 4 electrically connected

connectors and mating connectors

connoctoro ana m	
ESG 34AY0200	Connector M12, 4 pin, straight, 2 m, V4A-PP
ESW 33AY0200	Connector M12, 4 pin, angular, 2 m, V4A-PP
ESG 34AE0500	Connector M12, 4 pin, straight, 5 m
ESG 34AE0500G	Connector M12, 4 pin, straight, 5 m, shielded
ESG 34AB0200G	Connector M12, 4 pin, straight, 2 m, shielded
ESW 33AB0200G	Connector M12, 4 pin, angular, 2 m, shielded
additional cable cor accessories	nnectors and field wireable connectors: see

IFRR 12 Sn = 4 mm

order reference	special type	connection types	output circuit
IFRR 12N17T1/L-9	Washdown design	cable PVC, 2 m	NPN make function (NO)
IFRR 12N17T1/S14L-9	Outdoor design Washdown design	connector M12	NPN make function (NO)
IFRR 12N37T1/L-9	Washdown design	cable PVC, 2 m	NPN break function (NC)
IFRR 12N37T1/S14L-9	Outdoor design Washdown design	connector M12	NPN break function (NC)
IFRR 12P17T1/L-9	Washdown design	cable PVC, 2 m	PNP make function (NO)
IFRR 12P17T1/S14L-9	Outdoor design Washdown design	connector M12	PNP make function (NO)
IFRR 12P37T1/L-9	Washdown design	cable PVC, 2 m	PNP break function (NC)
IFRR 12P37T1/S14L-9	Outdoor design Washdown design	connector M12	PNP break function (NC)

IFRR 12



Sn = 6 mm

- robust steel housing
- high switching frequency
- M12 x 1 quick disconnect

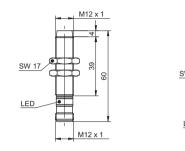
general data

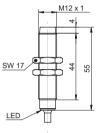
general data	
mounting type	non-flush
nominal sensing distance Sn	6 mm
hysteresis	2 15 % of Sr
output indicator	LED red
electrical data	
switching frequency	< 1 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
output current (at cleaning temperature)	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	LCP
housing material	stainless steel 1.4404 (V4A); LSR
dimension	12 mm
cable PUR 3 x 0,25, 2 m	
housing length	55 mm
cable PVC, 2 m	
housing length	55 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-40 +80 °C
cleaning temperature	80 +100 °C (30 min/day)
protection class	IP 68/69K & proTect+
vibration resistance	EN 61373: 2010 (category 3), 5h per axis (14.4 gRMS, 10-500 Hz, EN 60068-2-64)
shock resistance	EN 61373: 2010 (category 3), 10 bumps per axis (100 g, 6 ms, EN 60068-2-27)





dimension drawings





connection diagrams

BN (1)	→→→→ +Vs	BN (1)	0+Vs
	i.z.; → output	PNP BK (4)	ooutput
BU (3)	0 0 V	BU (3)	:

* .../S14L pin 2 & 4 electrically connected

connectors and mating connectors			
ESG 34AY0200	Connector M12, 4 pin, straight, 2 m, V4A-PP		
ESW 33AY0200	Connector M12, 4 pin, angular, 2 m, V4A-PP		
ESG 34AE0500	Connector M12, 4 pin, straight, 5 m		
ESG 34AE0500G	Connector M12, 4 pin, straight, 5 m, shielded		
ESG 34AH0200	Connector M12, 4 pin, straight, 2 m		
ESW 33AH0200	Connector M12, 4 pin, angular, 2 m		
ESG 34AB0200G	Connector M12, 4 pin, straight, 2 m, shielded		
ESW 33AB0200G	Connector M12, 4 pin, angular, 2 m, shielded		
additional cable connectors and field wireable connectors: see accessories			

order reference	special type	connection types	output circuit	approvals/certificates
IFRR 12N13T1/L-9	Washdown design	cable PVC, 2 m	NPN make function (NO)	Ecolab
IFRR 12N13T1/PL-9	Outdoor design	cable PUR 3 x 0,25, 2 m	NPN make function (NO)	-
IFRR 12N13T1/S14L-9	Outdoor design Washdown design	connector M12	NPN make function (NO)	Ecolab
IFRR 12N33T1/L-9	Washdown design	cable PVC, 2 m	NPN break function (NC)	Ecolab
IFRR 12N33T1/PL-9	Outdoor design	cable PUR 3 x 0,25, 2 m	NPN break function (NC)	-
IFRR 12N33T1/S14L-9	Outdoor design Washdown design	connector M12	NPN break function (NC)	Ecolab
IFRR 12P13T1/L-9	Washdown design	cable PVC, 2 m	PNP make function (NO)	Ecolab
IFRR 12P13T1/PL-9	Outdoor design	cable PUR 3 x 0,25, 2 m	PNP make function (NO)	-
IFRR 12P13T1/S14L-9	Outdoor design Washdown design	connector M12	PNP make function (NO)	Ecolab
IFRR 12P33T1/L-9	Washdown design	cable PVC, 2 m	PNP break function (NC)	Ecolab
IFRR 12P33T1/PL-9	Outdoor design	cable PUR 3 x 0,25, 2 m	PNP break function (NC)	-
IFRR 12P33T1/S14L-9	Outdoor design Washdown design	connector M12	PNP break function (NC)	Ecolab

non-flush

6 mm 2 ... 15 % of Sr

LED red

< 2 kHz

10 mA

10 ... 30 VDC

Outdoor design

IFRM 12



general data

mounting type

nominal sensing distance Sn

special type

hysteresis

load)

output indicator

electrical data

switching frequency

voltage supply range +Vs

current consumption max. (no

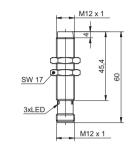
Sn = 6 mm

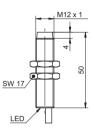
• operating temperature -40 ... +80 °C

-	
1000	
121	
11 18 13	
N HERE P	
Ar. 200 14	



dimension drawings





	connection diagrams
< 200 mA	connection diagrams
yes	BN (1) OF HVS BN (1) OF HVS BN (1)
yes	NPN BK (4)*[WH/BK (2/4)]
cylindrical threaded	
PBT	connectors and mating connectors
brass nickel plated	ESG 34SH0200 Connector M12, 3 pin, straight, 2 m
	ESW 33SH0200 Connector M12, 3 pin, angular, 2 m
12 11111	ESG 34AE0500 Connector M12, 4 pin, straight, 5 m
	ESG 34AE0500G Connector M12, 4 pin, straight, 5 m, shielded
50 mm	additional cable connectors and field wireable connectors: see
	accessories
60 mm	Accessories
	10151720 Sensofix series 12 round
-40 +80 °C	11163237 Adapter for pulse stretching M12
IP 67	for details: see accessories section
	yes cylindrical threaded PBT brass nickel plated 12 mm 50 mm 60 mm -40 +80 °C

order reference	connection types	output circuit
IFRM 12N13T1/PL	cable PUR 3 x 0,25, 2 m	NPN make function (NO)
IFRM 12N13T1/S14L	connector M12	NPN make function (NO)
IFRM 12N33T1/PL	cable PUR 3 x 0,25, 2 m	NPN break function (NC)
IFRM 12N33T1/S14L	connector M12	NPN break function (NC)
IFRM 12P13T1/PL	cable PUR 3 x 0,25, 2 m	PNP make function (NO)
IFRM 12P13T1/S14L	connector M12	PNP make function (NO)
IFRM 12P33T1/PL	cable PUR 3 x 0,25, 2 m	PNP break function (NC)
IFRM 12P33T1/S14L	connector M12	PNP break function (NC)

IFRR 18



Sn = 8 mm

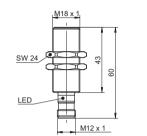
- robust steel housing
- protection class IP 69K & proTect+
- operating temperature -40 ... +80°C

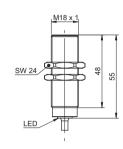
general data	
mounting type	quasi-flush
nominal sensing distance Sn	8 mm
hysteresis	2 15 % of Sr
output indicator	
approvals/certificates	Ecolab
electrical data	
switching frequency	< 500 Hz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
output current (at cleaning temperature)	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	LCP
housing material	stainless steel 1.4404 (V4A); LSR
dimension	18 mm
cable PVC, 2 m	
housing length	55 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-40 +80 °C
cleaning temperature	80 +100 °C (30 min/day)
protection class	IP 68/69K & proTect+
vibration resistance	EN 61373: 2010 (category 3), 5h per axis (14.4 gRMS, 10-500 Hz, EN 60068-2-64)
shock resistance	EN 61373: 2010 (category 3), 10 bumps per axis (100 g, 6 ms, EN 60068-2-27)





dimension drawings





connection diagrams

BN (1)		BN (1)	0+Vs
			o output
BU (3)	0 V	BU (3)	

* .../S14L pin 2 & 4 electrically connected

connectors and mating connectors

	connectors and m	aung	CONNECTORS
	ESG 34AY0200	Conn	ector M12, 4 pin, straight, 2 m, V4A-PP
	ESW 33AY0200	Conn	ector M12, 4 pin, angular, 2 m, V4A-PP
	ESG 34AE0500	Conn	ector M12, 4 pin, straight, 5 m
	ESG 34AE0500G	Conn	ector M12, 4 pin, straight, 5 m, shielded
	ESG 34AB0200G	Conn	ector M12, 4 pin, straight, 2 m, shielded
	ESW 33AB0200G	Conn	ector M12, 4 pin, angular, 2 m, shielded
additional cable connectors and field wireable connectors: see accessories		rs and field wireable connectors: see	
	Accessories		
	ZADAP-M18.STANE	DARD	Mounting bracket series 18
ZADAP-M18.SHORT		Т	Mounting bracket short series 18 (L design)
	ZADAP-M18.LONG		Mounting bracket long series 18 (L design)
for details: see accessories		essorie	es section

IFRR 18 Sn = 8 mm

order reference	special type	connection types	output circuit
IFRR 18N17T1/L-9	Washdown design	cable PVC, 2 m	NPN make function (NO)
IFRR 18N17T1/S14L-9	Outdoor design Washdown design	connector M12	NPN make function (NO)
IFRR 18N37T1/L-9	Washdown design	cable PVC, 2 m	NPN break function (NC)
IFRR 18N37T1/S14L-9	Outdoor design Washdown design	connector M12	NPN break function (NC)
IFRR 18P17T1/L-9	Washdown design	cable PVC, 2 m	PNP make function (NO)
IFRR 18P17T1/S14L-9	Outdoor design Washdown design	connector M12	PNP make function (NO)
IFRR 18P37T1/L-9	Washdown design	cable PVC, 2 m	PNP break function (NC)
IFRR 18P37T1/S14L-9	Outdoor design Washdown design	connector M12	PNP break function (NC)

GammaProx

IFRM 18



Sn = 10 mm

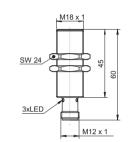
- increased sensing distance
- operating temperature -40 ... +80 °C

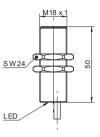
general data	
mounting type	flush
special type	Outdoor design
nominal sensing distance Sn	10 mm
hysteresis	2 15 % of Sr
output indicator	LED red
electrical data	
switching frequency	< 400 Hz
voltage supply range +Vs	12 30 VDC
current consumption max. (no load)	24 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	18 mm
cable PUR 3 x 0,25, 2 m	
housing length	50 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-40 +80 °C
protection class	IP 67





dimension drawings





connection diagrams				
BN (1) BK (4)* [WH/BK (2/4)]	O +Vs O output → 0 o V BN (1) O +Vs O +Vs O +Vs O +Vs O +Vs O (2/4)] O 0 v BU (3) O 0 V			
connectors and mating	connectors			
ESG 34SH0200 Conne	ector M12, 3 pin, straight, 2 m			
ESW 33SH0200 Conne	ector M12, 3 pin, angular, 2 m			
ESG 34AE0500 Conne	ector M12, 4 pin, straight, 5 m			
ESG 34AE0500G Conne	ector M12, 4 pin, straight, 5 m, shielded			
additional cable connector accessories	rs and field wireable connectors: see			
Accessories				
10151658	Sensofix series 18			
ZADAP-M18.STANDARD	Mounting bracket series 18			
ZADAP-M18.SHORT	Mounting bracket short series 18 (L design)			
ZADAP-M18.LONG	Mounting bracket long series 18 (L design)			
11163237	Adapter for pulse stretching M12			

order reference	connection types	output circuit
IFRM 18N17M1/PL	cable PUR 3 x 0,25, 2 m	NPN make function (NO)
IFRM 18N17M1/S14L	connector M12	NPN make function (NO)
IFRM 18N37M1/PL	cable PUR 3 x 0,25, 2 m	NPN break function (NC)
IFRM 18N37M1/S14L	connector M12	NPN break function (NC)
IFRM 18P17M1/PL	cable PUR 3 x 0,25, 2 m	PNP make function (NO)
IFRM 18P17M1/S14L	connector M12	PNP make function (NO)
IFRM 18P37M1/PL	cable PUR 3 x 0,25, 2 m	PNP break function (NC)
IFRM 18P37M1/S14L	connector M12	PNP break function (NC)

for details: see accessories section

flush

Marine

10 mm ± 20 %

DNV GL

< 800 Hz

24 VDC

12 mA

< 2 VDC

yes

yes

PBT

plated

18 mm 60 mm

40 Nm

IP 67

-40 ... +75 °C

connection types

connector M12 5 pin

connector M12 4 pin

< 200 mA

6 ... 36 VDC

2 ... 18 % of Sr

3 port LED red

95 %, aluminum 50 %

PNP make function (NO)

cylindrical threaded

brass nickel plated, chromium

mild steel 100 %, stainless steel

IR18.P10S



general data

mounting type

temperature drift

output indicator

electrical data

voltage drop Vd

output current short circuit protection

mechanical data

housing material

housing length

protection class

order reference

IR18.P10S-11174188

IR18.P10S-11158437

dimension

material (sensing face)

tightening torque max. ambient conditions

operating temperature

load) output circuit

type

correction factor typ.

approvals/certificates

switching frequency

voltage supply range +Vs

normal operating voltage current consumption max. (no

reverse polarity protection

special type

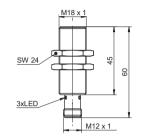
hysteresis

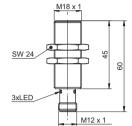
Sn = 10 mm

- DNV-GL certification
- robust steel housing

nominal sensing distance Sn

dimension drawings





connection diagrams

Г	BN (1)	 –o +Vs	Г	BN (1)		–o+Vs
PNP	WH (2) BK (4)	 –o diagnose input –o output	PNP	WH/BK (2/4)	7	-0 output
	BU (3)	 0 0 V		BU (3)	·	-00 V

connectors and mating connectors

Accesso	ories			
accessories				
additional cable connectors and field wireable connectors: see				
ESW 33	SH0200	Connector M12, 3 pin, angular, 2 m		
ESG 34SH0200 Connector M12, 3 pin, straight, 2 m				

	Accessories			
	10151658	Sensofix series 18		
	ZADAP-M18.STANDARD	Mounting bracket series 18		
	ZADAP-M18.SHORT	Mounting bracket short series 18 (L design)		
	ZADAP-M18.LONG	Mounting bracket long series 18 (L design)		
11163237 Adapter for pulse stretching M12				
	for details: see accessories section			

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IFRR 18



Sn = 12 mm

- robust steel housing
- high switching frequency
- M12 x 1 quick disconnect

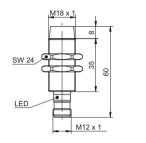
general data

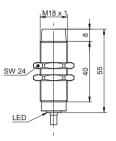
general data	
mounting type	non-flush
nominal sensing distance Sn	12 mm
hysteresis	2 15 % of Sr
output indicator	LED red
electrical data	
switching frequency	< 500 Hz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
output current (at cleaning temperature)	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	LCP
housing material	stainless steel 1.4404 (V4A); LSR
dimension	18 mm
cable PUR 3 x 0,25, 2 m	
housing length	55 mm
cable PVC, 2 m	
housing length	55 mm
connector M12	
housing length	60 mm
ambient conditions	
operating temperature	-40 +80 °C
cleaning temperature	80 +100 °C (30 min/day)
protection class	IP 68/69K & proTect+
vibration resistance	EN 61373: 2010 (category 3), 5h per axis (14.4 gRMS, 10-500 Hz, EN 60068-2-64)
shock resistance	EN 61373: 2010 (category 3), 10 bumps per axis (100 g, 6 ms, EN 60068-2-27)





dimension drawings





connection diagrams

BN (1)	→→→→→ +Vs	BN (1)	0+Vs
			output
BU (3)	0 0 V	BU (3)	(Z) → 0V

* .../S14L pin 2 & 4 electrically connected

connectors and mating connectors				
ESG 34AY0200	Connector M12, 4 pin, straight, 2 m, V4A-PP			
ESW 33AY0200	Connector M12, 4 pin, angular, 2 m, V4A-PP			
ESG 34AE0500	Connector M12, 4 pin, straight, 5 m			
ESG 34AE0500G	Connector M12, 4 pin, straight, 5 m, shielded			
ESG 34AH0200	Connector M12, 4 pin, straight, 2 m			
ESW 33AH0200	Connector M12, 4 pin, angular, 2 m			
ESG 34AB0200G	Connector M12, 4 pin, straight, 2 m, shielded			
ESW 33AB0200G	Connector M12, 4 pin, angular, 2 m, shielded			
additional cable connectors and field wireable connectors: see accessories				
Accessories				
ZADAP-M18.STANDARD Mounting bracket series 18				
ZADAP-M18.SHOF	T Mounting bracket short series 18 (L design)			
ZADAP-M18.LONG Mounting bracket long series 18 (L desig				
for details: see accessories section				

order reference	special type	connection types	output circuit	approvals/certificates
IFRR 18N13T1/L-9	Washdown design	cable PVC, 2 m	NPN make function (NO)	Ecolab
IFRR 18N13T1/PL-9	Outdoor design	cable PUR 3 x 0,25, 2 m	NPN make function (NO)	-
IFRR 18N13T1/S14L-9	Outdoor design Washdown design	connector M12	NPN make function (NO)	Ecolab
IFRR 18N33T1/L-9	Washdown design	cable PVC, 2 m	NPN break function (NC)	Ecolab
IFRR 18N33T1/PL-9	Outdoor design	cable PUR 3 x 0,25, 2 m	NPN break function (NC)	-
IFRR 18N33T1/S14L-9	Outdoor design Washdown design	connector M12	NPN break function (NC)	Ecolab
IFRR 18P13T1/L-9	Washdown design	cable PVC, 2 m	PNP make function (NO)	Ecolab
IFRR 18P13T1/PL-9	Outdoor design	cable PUR 3 x 0,25, 2 m	PNP make function (NO)	-
IFRR 18P13T1/S14L-9	Outdoor design Washdown design	connector M12	PNP make function (NO)	Ecolab
IFRR 18P33T1/L-9	Washdown design	cable PVC, 2 m	PNP break function (NC)	Ecolab
IFRR 18P33T1/PL-9	Outdoor design	cable PUR 3 x 0,25, 2 m	PNP break function (NC)	-
IFRR 18P33T1/S14L-9	Outdoor design Washdown design	connector M12	PNP break function (NC)	Ecolab

non-flush

12 mm

LED red

< 500 Hz

10 mA

10 ... 30 VDC

Outdoor design

2 ... 15 % of Sr

IFRM 18



general data

mounting type

nominal sensing distance Sn

special type

hysteresis

load)

output indicator

electrical data

switching frequency

voltage supply range +Vs

current consumption max. (no

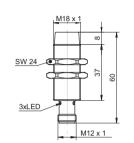
Sn = 12 mm

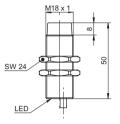
• operating temperature -40 ... +80 °C





dimension drawings





voltage drop Vd	< 2 VDC	
output current	< 200 mA	connection diagrams
short circuit protection	yes	BN (1)
reverse polarity protection	yes	NPN BK (4)* [WH/BK (2/4)]
mechanical data		BU (3)
type	cylindrical threaded	
material (sensing face)	PBT	
housing material	brass nickel plated	connectors and mating o
dimension	18 mm	ESG 34SH0200 Conne
cable PUR 3 x 0,25, 2 m		ESW 33SH0200 Conne
housing length	50 mm	ESG 34AE0500 Conne
0 0	50 1111	ESG 34AE0500G Conne
connector M12		additional cable connector
housing length	60 mm	accessories
ambient conditions		Accessories
operating temperature	-40 +80 °C	10151658
protection class	IP 67	ZADAP-M18.STANDARD
		74545446604657

(1)	Г	BN (1)	o+Vs
(4)*[WH/BK (2/4)] ····································	PNP	BK (4) * [WH/BK (2/4)]	output
(3)		BU (3)	.) 0 V
in 2 & 4 electrically conn	ected		

*	/S14L	pin	2	&	4	electrically	connected
---	-------	-----	---	---	---	--------------	-----------

connectors and mating connectors			
ESG 34SH0200 Conn	Connector M12, 3 pin, straight, 2 m		
ESW 33SH0200 Conn	ector M12, 3 pin, angular, 2 m		
ESG 34AE0500 Conn	ector M12, 4 pin, straight, 5 m		
ESG 34AE0500G Conn	Connector M12, 4 pin, straight, 5 m, shielded		
additional cable connectors and field wireable connectors: see accessories			
Accessories			
10151658	Sensofix series 18		
ZADAP-M18.STANDARD Mounting bracket series 18			
ZADAP-M18.SHORT	Mounting bracket short series 18 (L design)		
ZADAP-M18.LONG	Mounting bracket long series 18 (L design)		
11163237 Adapter for pulse stretching M12			
for details: see accessories section			

order reference	connection types	output circuit
IFRM 18N13T1/PL	cable PUR 3 x 0,25, 2 m	NPN make function (NO)
IFRM 18N13T1/S14L	connector M12	NPN make function (NO)
IFRM 18N33T1/PL	cable PUR 3 x 0,25, 2 m	NPN break function (NC)
IFRM 18N33T1/S14L	connector M12	NPN break function (NC)
IFRM 18P13T1/PL	cable PUR 3 x 0,25, 2 m	PNP make function (NO)
IFRM 18P13T1/S14L	connector M12	PNP make function (NO)
IFRM 18P33T1/PL	cable PUR 3 x 0,25, 2 m	PNP break function (NC)
IFRM 18P33T1/S14L	connector M12	PNP break function (NC)

quasi-flush

< 150 Hz 10 ... 30 VDC

20 mA

< 2 VDC

< 20 bar

6,5 mm

46 mm

connector M8

cylindrical smooth

stainless steel 1.4404 (V4A)

stainless steel 1.4404 (V4A)

yes

yes

2 ... 20 % of Sr

2 mm

Sn = 2 mm

full stainless steel housing 1.4404 (V4A)

• protection class IP 69K

nominal sensing distance Sn

general data

mounting type

electrical data

voltage drop Vd

mechanical data

housing material

pressure static

housing length

connection types

dimension

short circuit protection

material (sensing face)

reverse polarity protection

switching frequency

voltage supply range +Vs current consumption max. (no

hysteresis

load)

type

IFRD 06

ø 6,5

M8 x 1



connection diagrams

3xLED,

dimension drawings

ø 6,5

M8 x 1



remarks

for correct installation refer to "mounting instructions"

	lating connectors	
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m	
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m	
ESG 32SF0500	Connector M8, 3 pin, straight, 5 m, V4A-PVC	
additional cable connectors and field wireable connectors: see accessories		
A		
Accessories		
Accessories 10109474	Mounting bracket for sensors Ø 6,5 mm	
	Mounting bracket for sensors Ø 6,5 mm Clamping nut for sensors Ø 6,5 mm	
10109474		

for details: see accessories section

order reference	special type	output circuit	operating temperature	protection class	output current	output indicator
IFRD 06N17A1/S35L	full metal housing (<i>DuroProx</i>)	NPN make function (NO)	-25 +75 °C	IP 68/67 (sensing face/sensor)	< 200 mA	3 port LED red
IFRD 06N17T1/S35	full metal housing (<i>DuroProx</i>) high temperature	NPN make function (NO)	-25 +100 °C	IP 69K	< 100 mA	-
IFRD 06N37A1/S35L	full metal housing (DuroProx)	NPN break function (NC)	-25 +75 °C	IP 68/67 (sensing face/sensor)	< 200 mA	3 port LED red
IFRD 06N37T1/S35	full metal housing (<i>DuroProx</i>) high temperature	NPN break function (NC)	-25 +100 °C	IP 69K	< 100 mA	-
IFRD 06P17A1/S35L	full metal housing (<i>DuroProx</i>)	PNP make function (NO)	-25 +75 °C	IP 68/67 (sensing face/sensor)	< 200 mA	3 port LED red
IFRD 06P17T1/S35	full metal housing (<i>DuroProx</i>) high temperature	PNP make function (NO)	-25 +100 °C	IP 69K	< 100 mA	-
IFRD 06P37A1/S35L	full metal housing (<i>DuroProx</i>)	PNP break function (NC)	-25 +75 °C	IP 68/67 (sensing face/sensor)	< 200 mA	3 port LED red
IFRD 06P37T1/S35	full metal housing (<i>DuroProx</i>) high temperature	PNP break function (NC)	-25 +100 °C	IP 69K	< 100 mA	-

utput output urrent indicator 200 mA 3 port LEE red

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IFRD 08



Sn = 2 mm

- full stainless steel housing 1.4404 (V4A)
- protection class IP 69K

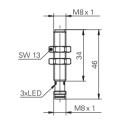
general data

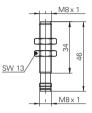
mounting type	quasi-flush
nominal sensing distance Sn	2 mm
hysteresis	2 20 % of Sr
electrical data	
switching frequency	< 150 Hz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	20 mA
voltage drop Vd	< 2 VDC
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	stainless steel 1.4404 (V4A)
housing material	stainless steel 1.4404 (V4A)
pressure static	< 20 bar
dimension	8 mm
housing length	46 mm





dimension drawings





connection diagrams



remarks

for correct installation refer to "mounting instructions"

connectors and mating connectors				
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m			
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m			
ESG 32SF0500	Connector M8, 3 pin, straight, 5 m, V4A-PVC			
additional cable connectors and field wireable connectors: see accessories				
Accessories				
10151719	Sensofix series 08 round			
11163236	Adapter for pulse stretching M8			

connector M8

for details: see accessories section

additional capie
accessories
Accessories
10151719
11163236
for details: see
order referend
order referend
IFRD 08N17A
IFRD 08N17T1

connection types

order reference	special type	output circuit	operating temperature	protection class	output current	output indicator
IFRD 08N17A1/S35L	full metal housing (<i>DuroProx</i>)	NPN make function (NO)	-25 +75 °C	IP 68/67 (sensing face/sensor)	< 200 mA	3 port LED red
IFRD 08N17T1/S35	full metal housing (<i>DuroProx</i>) high temperature	NPN make function (NO)	-25 +100 °C	IP 69K	< 100 mA	-
IFRD 08N37A1/S35L	full metal housing (<i>DuroProx</i>)	NPN break function (NC)	-25 +75 °C	IP 68/67 (sensing face/sensor)	< 200 mA	3 port LED red
IFRD 08N37T1/S35	full metal housing (<i>DuroProx</i>) high temperature	NPN break function (NC)	-25 +100 °C	IP 69K	< 100 mA	-
IFRD 08P17A1/S35L	full metal housing (<i>DuroProx</i>)	PNP make function (NO)	-25 +75 °C	IP 68/67 (sensing face/sensor)	< 200 mA	3 port LED red
IFRD 08P17T1/S35	full metal housing (<i>DuroProx</i>) high temperature	PNP make function (NO)	-25 +100 °C	IP 69K	< 100 mA	-
IFRD 08P37A1/S35L	full metal housing (<i>DuroProx</i>)	PNP break function (NC)	-25 +75 °C	IP 68/67 (sensing face/sensor)	< 200 mA	3 port LED red
IFRD 08P37T1/S35	full metal housing (<i>DuroProx</i>) high temperature	PNP break function (NC)	-25 +100 °C	IP 69K	< 100 mA	-

IFRD 12



Sn = 4 mm

- full stainless steel housing 1.4404 (V4A)
- protection class IP 69K

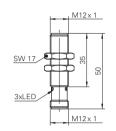
general data

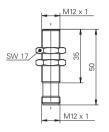
general uata	
mounting type	quasi-flush
nominal sensing distance Sn	4 mm
hysteresis	2 20 % of Sr
electrical data	
switching frequency	< 100 Hz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	14 mA
voltage drop Vd	< 2 VDC
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	stainless steel 1.4404 (V4A)
housing material	stainless steel 1.4404 (V4A)
pressure static	< 20 bar
dimension	12 mm
housing length	50 mm
connection types	connector M12





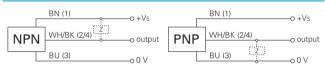
dimension drawings







connection diagrams



remarks

for correct installation refer to "mounting instructions"

connectors and mating connectors				
ESG 34SH0200	34SH0200 Connector M12, 3 pin, straight, 2 m			
ESW 33SH0200	ESW 33SH0200 Connector M12, 3 pin, angular, 2 m			
additional cable connectors and field wireable connectors: see accessories				
Accessories				
10151720	Sensofix series 12 round			
11163237 Adapter for pulse stretching M12				
for dotails: soo acc	assorios soction			

for details: see accessories section

order reference	special type	output circuit	operating temperature	protection class	output current	output indicator
IFRD 12N17A3/S14L	full metal housing (<i>DuroProx</i>)	NPN make function (NO)	-25 +75 °C	IP 68/67 (sensing face/sensor)	< 200 mA	3 port LED red
IFRD 12N17T3/S14	full metal housing (<i>DuroProx</i>) high temperature	NPN make function (NO)	-25 +100 °C	IP 69K	< 100 mA	-
IFRD 12N37A3/S14L	full metal housing (<i>DuroProx</i>)	NPN break function (NC)	-25 +75 °C	IP 68/67 (sensing face/sensor)	< 200 mA	3 port LED red
IFRD 12N37T3/S14	full metal housing (<i>DuroProx</i>) high temperature	NPN break function (NC)	-25 +100 °C	IP 69K	< 100 mA	-
IFRD 12P17A3/S14L	full metal housing (DuroProx)	PNP make function (NO)	-25 +75 °C	IP 68/67 (sensing face/sensor)	< 200 mA	3 port LED red
IFRD 12P17T3/S14	full metal housing (<i>DuroProx</i>) high temperature	PNP make function (NO)	-25 +100 °C	IP 69K	< 100 mA	-
IFRD 12P37A3/S14L	full metal housing (DuroProx)	PNP break function (NC)	-25 +75 °C	IP 68/67 (sensing face/sensor)	< 200 mA	3 port LED red
IFRD 12P37T3/S14	full metal housing (<i>DuroProx</i>) high temperature	PNP break function (NC)	-25 +100 °C	IP 69K	< 100 mA	-

IFRD 18



Sn = 6 mm

- full stainless steel housing 1.4404 (V4A)
- protection class IP 69K

general data

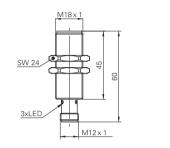
connection types

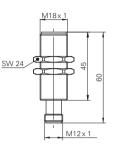
mounting type	quasi-flush
nominal sensing distance Sn	6 mm
hysteresis	2 20 % of Sr
electrical data	
switching frequency	< 100 Hz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	14 mA
voltage drop Vd	< 2 VDC
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	stainless steel 1.4404 (V4A)
housing material	stainless steel 1.4404 (V4A)
pressure static	< 20 bar
dimension	18 mm
housing length	60 mm





dimension drawings





connection diagrams



remarks

for correct installation refer to "mounting instructions"

connectors and mating	connectors				
ESG 34SH0200 Conn	Connector M12, 3 pin, straight, 2 m				
ESW 33SH0200 Conn	ector M12, 3 pin, angular, 2 m				
additional cable connecto accessories	rs and field wireable connectors: see				
Accessories					
10151658	Sensofix series 18				
ZADAP-M18.STANDARD	Mounting bracket series 18				
ZADAP-M18.SHORT	Mounting bracket short series 18 (L design)				
ZADAP-M18.LONG	Mounting bracket long series 18 (L design)				
11163237	Adapter for pulse stretching M12				
for details: see accessories section					

connector M12

IFRD 18 Sn = 6 mm

order reference	special type	output circuit	operating temperature	protection class	output current	output indicator
IFRD 18N17A3/S14L	full metal housing (<i>DuroProx</i>)	NPN make function (NO)	-25 +75 °C	IP 68/67 (sensing face/sensor)	< 200 mA	3 port LED red
IFRD 18N17T3/S14	full metal housing (<i>DuroProx</i>) high temperature	NPN make function (NO)	-25 +100 °C	IP 69K	< 100 mA	-
IFRD 18N37A3/S14L	full metal housing (<i>DuroProx</i>)	NPN break function (NC)	-25 +75 °C	IP 68/67 (sensing face/sensor)	< 200 mA	3 port LED red
IFRD 18N37T3/S14	full metal housing (<i>DuroProx</i>) high temperature	NPN break function (NC)	-25 +100 °C	IP 69K	< 100 mA	-
IFRD 18P17A3/S14L	full metal housing (DuroProx)	PNP make function (NO)	-25 +75 °C	IP 68/67 (sensing face/sensor)	< 200 mA	3 port LED red
IFRD 18P17T3/S14	full metal housing (<i>DuroProx</i>) high temperature	PNP make function (NO)	-25 +100 °C	IP 69K	< 100 mA	-
IFRD 18P37A3/S14L	full metal housing (<i>DuroProx</i>)	PNP break function (NC)	-25 +75 °C	IP 68/67 (sensing face/sensor)	< 200 mA	3 port LED red
IFRD 18P37T3/S14	full metal housing (<i>DuroProx</i>) high temperature	PNP break function (NC)	-25 +100 °C	IP 69K	< 100 mA	-

High temperature sensors up to +100 °C



Sn = 2 mm

- with integral electronics up to +100 °C
- FEP cable

general data	
mounting type	flush
special type	high temperature
nominal sensing distance Sn	2 mm
temperature drift	± 10 % (-25 +75 °C) - 10 % / + 15 % (-25 +100 °C)
hysteresis	3 20 % of Sr
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
material (sensing face)	PBT
housing material	stainless steel
dimension	6,5 mm
housing length	30 mm
connection types	cable FEP, 1 m
ambient conditions	
operating temperature	-25 +100 °C
protection class	IP 67

Mounting bracket for sensors Ø 6,5 mm

output circuit

NPN make function (NO)

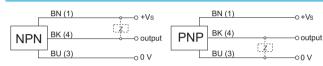
PNP make function (NO)

Clamping nut for sensors Ø 6,5 mm

dimension drawing



connection diagrams



IFRM 06 Sn = 2 mm

Accessories

order reference

IFRM 06N1707

IFRM 06P1707

for details: see accessories section

10109474 10117742

High temperature sensors up to +100 °C

IFRM 08

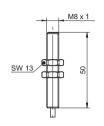


Sn = 2 mm

- with integral electronics up to +100 °C
- very long housing

general data	
mounting type	flush
special type	high temperature
nominal sensing distance Sn	2 mm
temperature drift	± 10 % (-25 +75 °C) - 10 % / + 15 % (-25 +100 °C)
hysteresis	3 20 % of Sr
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	12 30 VDC
current consumption max. (no load)	12 mA
output circuit	PNP make function (NO)
voltage drop Vd	< 3 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
housing material	stainless steel
dimension	8 mm
housing length	50 mm
connection types	cable FEP, 1 m
ambient conditions	
operating temperature	-25 +100 °C
protection class	IP 67

dimension drawing



connection diagram

Г	BN (1)		—o+Vs
PNP	BK (4)		-o output
I INI		z	ooutput
	BU (3)		—00 V

order reference IFRM 08P17T4

High temperature sensors up to +100 °C

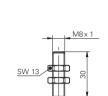
IFRM 08 / IFRM 12



Sn = 2 mm / 4 mm

- with integral electronics up to +100°C
- FEP cable

general data	
mounting type	flush
special type	high temperature
hysteresis	3 20 % of Sr
electrical data	
voltage supply range +Vs	12 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 3 VDC
output current	< 100 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
connection types	cable FEP, 1 m
ambient conditions	
operating temperature	-25 +100 °C
protection class	IP 67



dimension drawings



connection diagrams		
BN (1) 0 +Vs	BN (1)	
NPN BK (4)		o output
BU (3)0 0 V	BU (3)	

Accessories			
10151720	Sensofix series 12 round		
for details: see accessories section			

IFRM 08 / IFRM 12 Sn = 2 mm / 4 mm

order reference	nominal sensing distance Sn	switching frequency	output circuit	dimen- sion	housing material	housing length	temperature drift
IFRM 08N1707	2 mm	< 5 kHz	NPN make function (NO)	8 mm	stainless steel	30 mm	± 10 % (-25 +75 °C) - 10 % / + 15 % (-25 +100 °C)
IFRM 08P1707	2 mm	< 5 kHz	PNP make function (NO)	8 mm	stainless steel	30 mm	± 10 % (-25 +75 °C) - 10 % / + 15 % (-25 +100 °C)
IFRM 08P3707	2 mm	< 5 kHz	PNP break function (NC)	8 mm	stainless steel	30 mm	± 10 % (-25 +75 °C) - 10 % / + 15 % (-25 +100 °C)
IFRM 12N1707	4 mm	< 2 kHz	NPN make function (NO)	12 mm	brass nickel plated	40 mm	-
IFRM 12P1707	4 mm	< 2 kHz	PNP make function (NO)	12 mm	brass nickel plated	40 mm	-







High temperature sensors up to +180 °C

IFRH 08



Sn = 1,5 mm

- probe designed for use up to +180°C
- active face made of LCP
- detached cable amplifier

general data mounting type flush special type high temperature nominal sensing distance Sn 1,5 mm 2 ... 25 % of Sr hysteresis electrical data < 4 kHz switching frequency voltage supply range +Vs 10 ... 30 VDC current consumption max. (no 12 mA load) voltage drop Vd < 2 VDC < 200 mA output current short circuit protection yes reverse polarity protection yes mechanical data cylindrical threaded type material (sensing face) LCP housing material stainless steel dimension 8 mm 30 mm housing length cable, 2 m connection types ambient conditions operating temperature -25 ... +180 °C protection class IP 67 inline amplifier -25 ... +75 °C operating temperature

Sensofix series 08 round

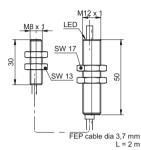
output circuit

PNP make function (NO)

PNP break function (NC)



dimension drawing



connection diagram

Γ	BN (1)	—o+Vs
PNP	BK (4)	 o output
	BU (3)	 —00 V

www.el	tra-trade.com

Accessories 10151719

order reference IFRH 08P1501/L

IFRH 08P3501/L

for details: see accessories section

High temperature sensors up to +180 °C

IFRH 12 / IFRH 18



Sn = 2 mm / 5 mm

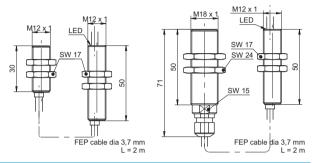
- probe designed for use up to +180°C
- active face made of LCP
- detached cable amplifier

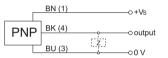
general data	1
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•	
mounting type	flush
special type	high temperature
hysteresis	2 20 % of Sr
electrical data	
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
connection types	cable, 2 m
ambient conditions	
operating temperature	-25 +180 °C
protection class	IP 67
inline amplifier	
operating temperature	-25 +75 °C



dimension drawings





Accessories		
10151720	Sensofix series 12 round	
10151658	Sensofix series 18	
ZADAP-M18.STANDARD	Mounting bracket series 18	
ZADAP-M18.SHORT	Mounting bracket short series 18 (L design)	
ZADAP-M18.LONG	Mounting bracket long series 18 (L design)	
for details: see accessories section		

order reference	nominal sensing distance Sn	switching frequency	output circuit	dimension	housing material	housing length
IFRH 12P1501/L	2 mm	< 2 kHz	PNP make function (NO)	12 mm	brass nickel plated	30 mm
IFRH 12P3501/L	2 mm	< 2 kHz	PNP break function (NC)	12 mm	brass nickel plated	30 mm
IFRH 18P1501/L	5 mm	< 1 kHz	PNP make function (NO)	18 mm	stainless steel	71 mm
IFRH 18P3501/L	5 mm	< 1 kHz	PNP break function (NC)	18 mm	stainless steel	71 mm

Weld field immune sensors (up to 90 mT)

IFRW 12 / IFRW 18



Sn = 2 mm / 5 mm

• PTFE coated sensing face

connectors and mating connectors

for details: see accessories section

ESG 34SH0200

ESW 33SH0200

accessories
Accessories
10151720

10151658

11163237

- housing made of chromium plated brass
- resist welding spark induced damage

general data	
mounting type	flush
special type	welding and magnetic noise
hysteresis	3 20 % of Sr
electrical data	
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
output circuit	PNP make function (NO)
voltage drop Vd	< 1 VDC
output current	< 250 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PTFE coated
housing material	brass chromium plated
connection types	connector M12
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

Connector M12, 3 pin, straight, 2 m

Connector M12, 3 pin, angular, 2 m

Adapter for pulse stretching M12

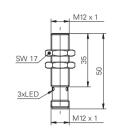
additional cable connectors and field wireable connectors: see

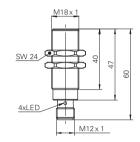
Sensofix series 12 round

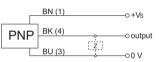
Sensofix series 18



dimension drawings







order reference	nominal sensing distance Sn	switching frequency	dimension	housing length	output indicator
IFRW 12P1501/S14L	2 mm	< 1 kHz	12 mm	50 mm	3 port LED red
IFRW 18P1501/S14L	5 mm	< 500 Hz	18 mm	60 mm	4 port LED red

High pressure sensors up to 500 bar

IFRP 12



Sn = 2 mm

- zirconium oxide ZrO₂ sensing face
- 500 bar/7000 psi pressure rating
- Sensing face sealed to IP 68

general data

mounting type	flush
special type	high pressure
nominal sensing distance Sn	2 mm
hysteresis	2 20 % of Sr
electrical data	
switching frequency	< 5 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
output circuit	PNP make function (NO)
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	ceramic
housing material	stainless steel
peak pressure	1000 bar
pressure static	< 500 bar
pressure dynamic	< 350 bar
dimension	12 mm
connection types	connector M12
ambient conditions	
operating temperature	-25 +80 °C
protection class	IP 68/67 (sensing face/sensor)

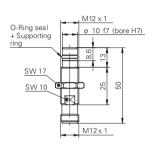
connectors and mating connectors		
ESG 34SH0200	Connector M12, 3 pin, straight, 2 m	
ESW 33SH0200	Connector M12, 3 pin, angular, 2 m	
additional cable connectors and field wireable connectors: see accessories		
Accessories		
11163237	Adapter for pulse stretching M12	
for details: see accessories section		

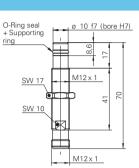
order reference	housing length
IFRP 12P1501/S14	50 mm
IFRP 12P1504/S14	70 mm





dimension drawings





Г	BN (1)		—o+Vs
PNP	BK (4)		o output
	BU (3)	Z.	—00 V

High pressure sensors up to 500 bar

IFRP 16 / IFRP 18



Sn = 2 mm

- zirconium oxide ZrO₂ sensing face
- 500 bar/7000 psi pressure rating
- sensing face sealed to IP 68

general data	
mounting type	flush
special type	high pressure
nominal sensing distance Sn	2 mm
hysteresis	2 20 % of Sr
electrical data	
switching frequency	< 3 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	12 mA
output circuit	PNP make function (NO)
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	ceramic
housing material	stainless steel
peak pressure	1000 bar
pressure static	< 500 bar
pressure dynamic	< 350 bar
housing length	60 mm
connection types	connector M12
ambient conditions	
operating temperature	-25 +80 °C
protection class	IP 68/67 (sensing face/sensor)

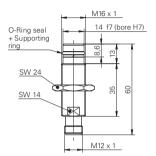
connectors and mating	connectors	
ESG 34SH0200 Conn	ector M12, 3 pin, straight, 2 m	
ESW 33SH0200 Connector M12, 3 pin, angular, 2 m		
additional cable connecto accessories	rs and field wireable connectors: see	
Accessories		
ZADAP-M18.STANDARD	Mounting bracket series 18	
ZADAP-M18.SHORT	Mounting bracket short series 18 (L design)	
ZADAP-M18.LONG	Mounting bracket long series 18 (L design)	
11163237	Adapter for pulse stretching M12	
for details: see accessorie	es section	

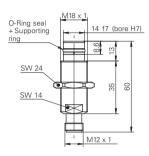
order reference	dimension
IFRP 16P1501/S14	16 mm
IFRP 18P1501/S14	18 mm





dimension drawings





Γ	BN (1)		—o+Vs
PNP	BK (4)		o output
	BU (3)	z	—00 V



Sn = 0,8 mm

- smallest NAMUR type sensors
- high switching frequency
- robust steel housing

general data

mounting type	flush
nominal sensing distance Sn	0,8 mm
electrical data	
switching frequency	< 5 kHz
normal operating voltage	8,2 VDC
voltage supply range +Vs	6 30 VDC
current consumption undamped	> 4 mA
current consumption damped	< 1 mA
current consumption max. (no load)	10 mA
output circuit	NAMUR
residual ripple	< 10 % Vs
mechanical data	
housing material	stainless steel
housing length	25 mm
connection types	cable, 2 m
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

dimension drawings





connection diagram

	BK	→ RL → +Vs
NAMUR	BU	

Accessories

10119345Clamping nut for sensors Ø 4 mmfor details: see accessories section

order reference	type	dimension
IFR 04.82.05	cylindrical smooth	4 mm
IFR 05.82.05	cylindrical threaded	5 mm

IFR 04 / IFR 05 Sn = 0,8 mm

IFRM 06X



Sn = 1,5 mm

- high switching frequency
- ATEX certification

general data	
mounting type	flush
nominal sensing distance Sn	1,5 mm
approvals/certificates	ATEX 1G
electrical data	
switching frequency	< 5 kHz
normal operating voltage	8,2 VDC
voltage supply range +Vs	5 30 VDC
current consumption undamped	> 4 mA
current consumption damped	< 1 mA
current consumption max. (no load)	10 mA
output circuit	NAMUR
residual ripple	< 10 % Vs
mechanical data	
type	cylindrical smooth
housing material	brass nickel plated
dimension	6,5 mm
housing length	25 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67
safe maximum values	
EC-type-examination Certificate	PTB 03 ATEX 2146
marking	II 1G Ex ia IIC T6 Ga
current li	< 37 mA
voltage Ui	< 13,5 VDC
power Pi	< 0,125 W
internal capacitance Ci	< 50 nF
internal inductance Li	< 0,2 mH
operating temperature Ta (temp. class T5)	-20 +60 °C
operating temperature Ta (temp. class T6)	-20 +40 °C

Accessories	
10109474	Mounting bracket for sensors Ø 6,5 mm
10117742	Clamping nut for sensors Ø 6,5 mm
for details: see accessories section	

order reference	connection types
IFRM 06X9503	cable, 2 m
IFRM 06X9503/P	cable PUR 5 x 0,14, 2 m

dimension drawing



connection diagram

	_ ВК	
NAMUR	BU	

operating data according to EN 60947-5-6

+Vs	= 8,2 V
RL	= 1 kΩ
Т	= 20 °C
Sn at	1,8 mA
5	for applications in hazardous areas
<u> </u>	hazardous areas

IFRM 06X Sn = 1,5 mm

IFRM 08X



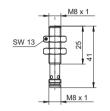
Sn = 1,5 mm / 2 mm

- shielded and unshielded versions
- high switching frequency
- ATEX certification

general data approvals/certificates	ATEX 1G
electrical data	
switching frequency	< 5 kHz
normal operating voltage	8,2 VDC
voltage supply range +Vs	5 30 VDC
current consumption undamped	> 4 mA
current consumption damped	< 1 mA
current consumption max. (no load)	10 mA
output circuit	NAMUR
residual ripple	< 10 % Vs
mechanical data	
type	cylindrical threaded
dimension	8 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67
safe maximum values	
EC-type-examination Certificate	PTB 03 ATEX 2146
marking	II 1G Ex ia IIC T6 Ga
current li	< 37 mA
voltage Ui	< 13,5 VDC
power Pi	< 0,125 W
internal capacitance Ci	< 50 nF
internal inductance Li	< 0,2 mH
operating temperature Ta (temp. class T5)	-20 +60 °C
operating temperature Ta (temp. class T6)	-20 +40 °C

connectors and mating connectors	
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m
additional cable co accessories	nnectors and field wireable connectors: see
Accessories	
10151719	Sensofix series 08 round
for details: see acc	essories section

dimension drawings





flush

ΒK

connection diagrams

non-flush

		BN (1) RL - 0+Vs
00 V	NAMUR	BU (3) 00 V

operating data according to EN 60947-5-6

+Vs	= 8,2 V
R∟	= 1 kΩ

T = 20 °C

Sn at 1,8 mA

for applications in hazardous areas

remarks

available with connector S35

order reference	nominal sensing distance Sn	mounting type	housing material	housing length	connection types
IFRM 08X9103	2 mm	non-flush	brass nickel plated	27 mm	cable, 2 m
IFRM 08X9501/S35	1,5 mm	flush	stainless steel	50 mm	connector M8
IFRM 08X9503	1,5 mm	flush	brass nickel plated	25 mm	cable, 2 m
IFRM 08X9503/S35	1,5 mm	flush	stainless steel	41 mm	connector M8

IFRM 12X



Sn = 2 mm / 4 mm

- shielded and unshielded versions
- ATEX certification

general data	
approvals/certificates	ATEX 1G
electrical data	
switching frequency	< 2 kHz
normal operating voltage	8,2 VDC
voltage supply range +Vs	5 30 VDC
current consumption undamped	> 4 mA
current consumption damped	< 1 mA
current consumption max. (no load)	10 mA
output circuit	NAMUR
residual ripple	< 10 % Vs
mechanical data	
type	cylindrical threaded
housing material	brass nickel plated
dimension	12 mm
connection types	cable, 2 m
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67
safe maximum values	
EC-type-examination Certificate	PTB 03 ATEX 2146
marking	II 1G Ex ia IIC T6 Ga
current li	< 37 mA
voltage Ui	< 13,5 VDC
power Pi	< 0,125 W
internal capacitance Ci	< 50 nF
internal inductance Li	< 0,2 mH
operating temperature Ta (temp. class T5)	-20 +60 °C
operating temperature Ta (temp. class T6)	-20 +40 °C

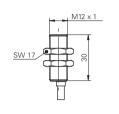
Accessories 10151720 Sensofix series 12 round

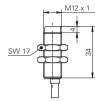
for	details:	see	accessories	section

	-	
-	-	



dimension drawings









connection diagram

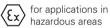
flush

ΒK ⊶<u>RL</u>⊢o+Vs NAMUR ΒU

-00 V

operating data according to EN 60947-5-6

+Vs	= 8,2 V
Rl	= 1 kΩ
Т	= 20 °C
Sn at	1,8 mA



order reference	nominal sensing distance Sn	mounting type	housing length
IFRM 12X9103	4 mm	non-flush	34 mm
IFRM 12X9503	2 mm	flush	30 mm

IFRM 12 ATEX



Sn = 4 mm

- high stability across entire temperature range
- ATEX Zulassung

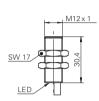
g	e	19	1	e	ľ	a	1	d	a	t

•	
mounting type	flush
nominal sensing distance Sn	4 mm
hysteresis	3 20 % of Sr
output indicator	LED red
approvals/certificates	ATEX 3D
electrical data	
switching frequency	< 2 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	12 mm
housing length	30,4 mm
connection types	cable, 2 m
ambient conditions	
protection class	IP 67
safe maximum values	
marking	II 3D Ex tc IIIC T100°C Dc X
operating temperature Ta	-25 +65 °C

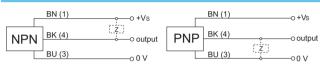
Accessories 10151720 Sensofix series 12 round for details: see accessories section

order reference	output circuit
IFRM 12N17X1/L	NPN make function (NO)
IFRM 12N37X1/L	NPN break function (NC)
IFRM 12P17X1/L	PNP make function (NO)
IFRM 12P37X1/L	PNP break function (NC)

dimension drawing



connection diagrams



IFRM 12 ATEX Sn = 4 mm

IFRM 12 ATEX



Sn = 4 mm

- high stability across entire temperature range
- ATEX Zulassung

general data	
mounting type	flush
nominal sensing distance Sn	4 mm
hysteresis	3 20 % of Sr
output indicator	LED red
approvals/certificates	ATEX 3D
electrical data	
switching frequency	< 2 kHz
voltage supply range +Vs	10 30 VDC
current consumption max. (no load)	10 mA
voltage drop Vd	< 2 VDC
output current	< 200 mA
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	12 mm
housing length	40 mm
connection types	cable, 2 m
ambient conditions	
protection class	IP 67
safe maximum values	
marking	II 3D Ex tc IIIC T100°C Dc X
operating temperature Ta	-25 +65 °C

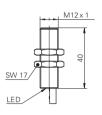
Accessories

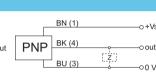
10151720 Sensofix series 12 round for details: see accessories section

order reference	output circuit
IFRM 12N17X2/L	NPN make function (NO)
IFRM 12N37X2/L	NPN break function (NC)
IFRM 12P17X2/L	PNP make function (NO)
IFRM 12P37X2/L	PNP break function (NC)



dimension drawing





connection diagrams

BN (1)		BN (1)	0+Vs
	o output		o output
BU (3)		BU (3)	0 V

IFRM 18X



- shielded and unshielded versions
- ATEX certification

general data		dimension drawings	
approvals/certificates	ATEX 1G		
electrical data		, <u>M</u> 18 ×_1,	M18 x 1
switching frequency	< 1 kHz		
normal operating voltage	8,2 VDC		
voltage supply range +Vs	5 30 VDC	<u>SW 24</u> 8	SW 24
current consumption undamped	> 4 mA		
current consumption damped	< 1 mA		
current consumption max. (no oad)	10 mA		
output circuit	NAMUR		
residual ripple	< 10 % Vs	flush	non-flu
mechanical data			non ne
type	cylindrical threaded	connection diagram	
nousing material	brass nickel plated		
dimension	18 mm		
connection types	cable, 2 m	operating data according to EN 6094	7-5-6
ambient conditions			7-3-0
operating temperature	-25 +75 °C	$+Vs = 8,2 V$ $RL = 1 k\Omega$	
protection class	IP 67	T = 20 °C	
safe maximum values		Sn at 1,8 mA	
EC-type-examination Certificate	PTB 03 ATEX 2146	\int_{c} for applications in	
marking	II 1G Ex ia IIC T6 Ga	hazardous areas	
current li	< 37 mA		
voltage Ui	< 13,5 VDC		
oower Pi	< 0,125 W		
nternal capacitance Ci	< 50 nF		
nternal inductance Li	< 0,2 mH		
operating temperature Ta (temp. class T5)	-20 +60 °C		
operating temperature Ta (temp. class T6)	-20 +40 °C		
Accessories			

order reference	nominal sensing distance Sn	mounting type	housing length
IFRM 18X9103	8 mm	non-flush	38 mm
IFRM 18X9503	5 mm	flush	30 mm

Sn = 5 mm / 8 mm

IFF 08

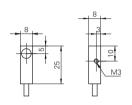


- shielded mounting
- ATEX certification
- NAMUR sensor

general data

•	
mounting type	flush
nominal sensing distance Sn	1,5 mm
electrical data	
switching frequency	< 5 kHz
normal operating voltage	8,2 VDC
voltage supply range +Vs	5 30 VDC
current consumption undamped	> 4 mA
current consumption damped	< 1 mA
current consumption max. (no load)	10 mA
output circuit	NAMUR
residual ripple	< 10 % Vs
mechanical data	
type	rectangular
housing material	brass nickel plated
dimension	8 mm
housing length	25 mm
connection types	cable, 2 m
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

dimension drawing



connection diagram

	BK	
NAMUR	BU	→00V

order reference



Sn = 2 mm



dimension drawing

- non shielded mounting
- ATEX certification
- NAMUR sensor

general data

•	
mounting type	non-flush
nominal sensing distance Sn	2 mm
electrical data	
switching frequency	< 5 kHz
normal operating voltage	8,2 VDC
voltage supply range +Vs	5 30 VDC
current consumption undamped	> 4 mA
current consumption damped	< 1 mA
current consumption max. (no load)	10 mA
output circuit	NAMUR
residual ripple	< 10 % Vs
mechanical data	
type	rectangular
housing material	PBT
dimension	10 mm
housing length	27,8 mm
connection types	spade lug
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

3,1 9,7	27,8	2,8
(-) (+)		3,1
2,8	22	0,4
•	20,8	10,2

connection diagram

	BK	
NAMUR	BU	
	во	0V

remarks

spade plug 4,8 x 0,5 mm

IFFK 10E Sn = 2 mm



Sn = 2 mm / 4 mm

NAMUR

PBT

pins

10 mm

6,6 mm

-25 ... +75 °C IP 67

< 20 mA

< 13 VDC

< 0,065 W

-20 ... +60 °C

< 100 nF < 0,1 mH

II 3G Ex ic IIC T5 Gc X

< 10 % Vs

cylindrical smooth

- circuit board mountable
- pin-spacing 5 mm
- ATEX certification

output circuit

residual ripple mechanical data

housing material

housing length

connection types

protection class safe maximum values

marking

current li

voltage Ui

power Pi

ambient conditions operating temperature

internal capacitance Ci

internal inductance Li operating temperature Ta

dimension

type

general data mounting type flush nominal sensing distance Sn 2 mm approvals/certificates ATEX 3G electrical data < 2 kHz switching frequency normal operating voltage 8,2 VDC 5 ... 30 VDC voltage supply range +Vs current consumption undamped > 4 mA < 1 mA current consumption damped current consumption max. (no 10 mA load)

dimension drawing



connection diagram

	(+)
NAMUR	(-)

order reference IFR 10.82E05

(temp. class T5)



Sn = 2 mm / 4 mm

- circuit board mountable
- pin-spacing 5 mm
- shielded and unshielded versions

electrical data	
switching frequency	< 2 kHz
normal operating voltage	8,2 VDC
voltage supply range +Vs	5 30 VDC
current consumption undamped	> 4 mA
current consumption damped	< 1 mA
current consumption max. (no load)	10 mA
output circuit	NAMUR
residual ripple	< 10 % Vs
mechanical data	
type	cylindrical smooth
housing material	PBT
dimension	10 mm
housing length	6,6 mm
connection types	pins
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

order reference	nominal sensing distance Sn	mounting type
IFR 10.82.01	4 mm	non-flush
IFR 10.82.05	2 mm	flush

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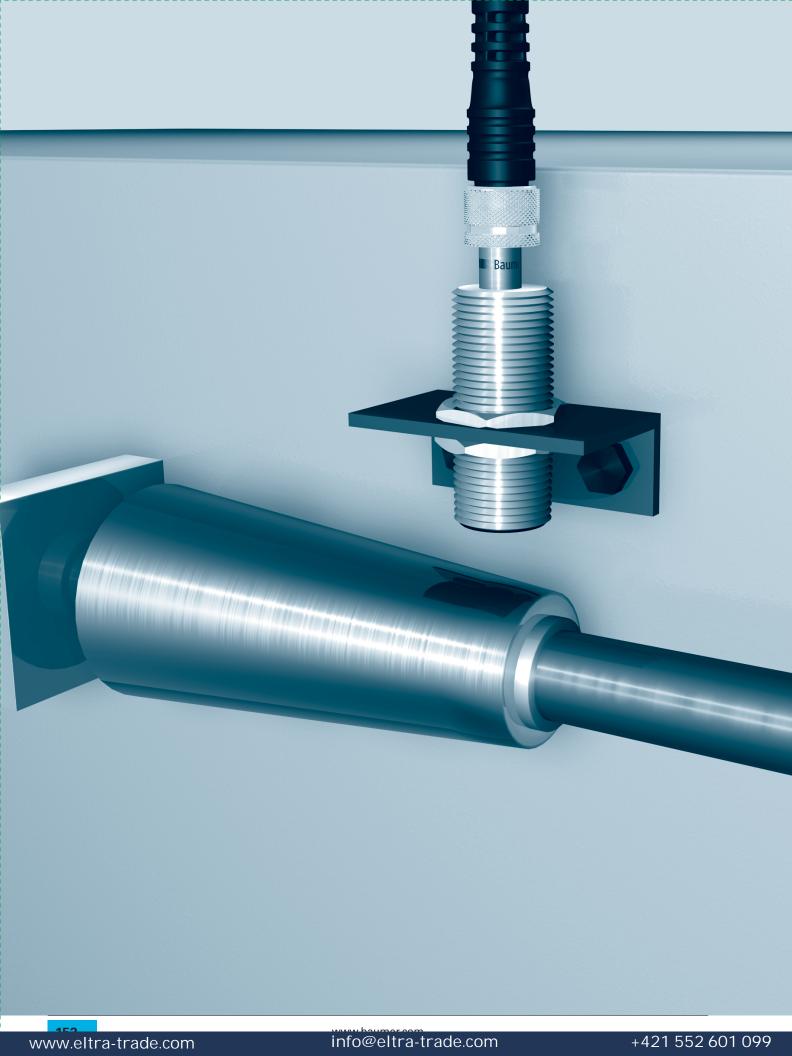
IFR 10 Sn = 2 mm / 4 mm

dimension drawing



connection diagram

	(.)
	(+) RL - 0+Vs
NAMUR	(-)



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Inductive distance sensors AlphaProx®



Overview	Page 154
Function and applications	Page 160
Dynamic and static resolution	Page 161
Teach-in functions	Page 162
For factory automation	Page 164
With linearized characteristic curve	Page 185
Application specific distance sensors	Page 197

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product family	IWRM 04	IR06.D03S	IR08.D02S	IR08.D03S	IR12.D04S	IR12.D06S	IR18.D05S
			Ŧ	ł			
dimension	ø 4 mm	ø 6,5 mm	M8	M8	M12	M12	M18
measuring distance Sd	0 1 mm	0 3 mm	0 2 mm	0 3 mm	0 4 mm	0 6 mm	2 5 mm
mounting type	quasi-flush	quasi-flush	flush	quasi-flush	flush	quasi-flush	flush
resolution min.	1 µm	1 µm	1 µm	1 µm	1 µm	5 µm	5 µm
repeat accuracy	5 µm	20 µm	20 µm	10 µm	10 µm	10 µm	15 µm
response time	0,5 ms	0,5 ms	0,5 ms	0,5 ms	1 ms	1 ms	2 ms
operating temperature	−10 +60 °C	−10 +70 °C	−10 +70 °C	−10 +70 °C	−25 +75 °C	−25 +75 °C	−10 +70 °C
protection class	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67
housing material	stainless steel	stainless steel	stainless steel	stainless steel	brass	brass	brass
housing length	30 mm	22 46 mm	40 46 mm	22 46 mm	40 50 mm	40 50 mm	60 mm
connection types	connector M5	connector M8 cable	connector M8 cable	connector M8 cable	connector M12 cable	connector M12 cable	connector M12
output circuit	0 10 V	0 10 V 0 10 mA	0 10 V 0 10 mA	0 10 V 0 10 mA	0 10 V	0 10 V 0 10 mA	1 9 V
page	164	165 167	168	169 171	172	173	174

Distance sensors for factory automation – cylindrical designs

Distance sensors for factory automation – rectangular designs

product family	IWFM 05	IF08.D02S	IWFM 12	IWFM 12	IWFM 18	IWFM 20	IWFM 20
	I	ľ					. ,
dimension	5 × 5 mm	8 × 4,7 mm	12 × 12 mm	12 × 12 mm	18 × 10 mm	20 × 12 mm	20 × 12 mm
measuring distance Sd	0 1 mm	0 2 mm	0 4 mm	1 2 mm	0 4 mm	0 2 mm	2 5 mm
mounting type	flush	flush	flush	flush	flush	flush	flush
resolution min.	1 µm	1 µm	1 µm	1 µm	1 µm	1 µm	1 µm
repeat accuracy	10 µm	20 µm	5 µm	20 µm	5 µm	10 µm	10 µm
response time	0,5 ms	1 ms	2 ms	2 ms	2 ms	0,5 ms	1 ms
operating temperature	+10 +60 °C	+10 +60 °C	−10 +70 °C	0 +60 °C	–10 +70 °C	–10 +70 °C	0 +60 °C
protection class	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67
housing material	brass	zinc die-cast	brass	brass	brass	brass	brass
housing length	32 mm	16 mm	60 mm	60 mm	30 mm	30 mm	35 mm
connection types	connector M5	cable flylead connector M5/M8	connector M8 cable	cable	connector M8	flylead connector M8	connector M8
output circuit	0 10 V	0 10 V	0 10 V 4 20 mA		0 10 V 4 20 mA	0 10 V	1 9 V 4 20 mA
page	178	179	180	181	182	183	184

IR18.D08S	IR30.D18S	IR30.D24S
	₽	-
M18	M30	M30
0 8 mm	0 18 mm	0 24 mm
quasi-flush	flush	non flush
2 µm	5 µm	5 µm
15 µm	20 µm	20 µm
2 ms	2 ms	2 ms
−10 +70 °C	−25 +75 °C	−25 +75 °C
IP 67	IP 67	IP 67
brass	brass	brass
50 60 mm	50 60 mm	50 60 mm
connector M12 cable	connector M12 cable	connector M12 cable
0 10 V	0 10 V 0 10 mA	0 10 V 0 10 mA
175	176	177

Overview

With linearized characteristic curve

product family	IR06.D03L	IR08.D03L	IR12.D04L	IR12.D06L	IR18.D08L	IR30.D18L	IR30.D24L
		ł				ł	
dimension	ø 6,5 mm	M8	M12	M12	M18	M30	M30
measuring distance Sd	0 3 mm	0 3 mm	0 4 mm	0 6 mm	0 8 mm	0 24 mm	0 24 mm
mounting type	quasi-flush	quasi-flush	flush	quasi-flush	quasi-flush	flush	non flush
resolution min.	3 µm	3 µm	3 µm	3 µm	8 µm	5 µm	5 µm
repeat accuracy	10 µm	10 µm	10 µm	10 µm	15 µm	20 µm	20 µm
response time	2 ms	2 ms	1 ms	1 ms	1 ms	5 ms	5 ms
operating temperature	−25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C	−25 +75 °C
protection class	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67	IP 67
housing material	stainless steel	stainless steel	brass	brass	brass	brass	brass
housing length	40 46 mm	46 mm	60 mm	60 mm	60 mm	60 mm	60 mm
connection types	connector M8	connector M8	connector M12	connector M12	connector M12	connector M12	connector M12
output circuit	0 10 V	0 10 V	0 10 V	0 10 V 4 20 mA	0 10 V	0 10 V 4 20 mA	0 10 V 4 20 mA
page	185	186	187	188 190	191 192	193	194

IWFM 18	IWFK 20
	p
18 x 10 mm	20 x 15 mm
0 4 mm	0 10 mm
flush	flush
5 µm	10 µm
10 µm	15 µm
2,5 ms	3 ms
–10 +70 °C	−10 +70 °C
IP 67	IP 67
brass	polyester
30 mm	42 mm
connector M8	connector M8
0 10 V	0 10 V
195	196

Overview

Application specific distance sensors

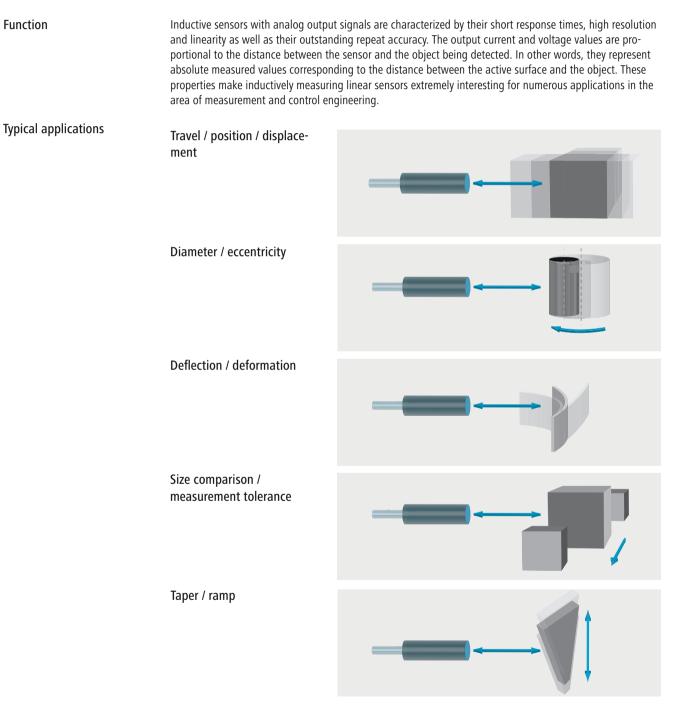
product family	IR12.D03K	IR18.D03K	IR18.D08F	IWRR 18	IWRM 18	IWRM 12
	ł					
features	High Sensitivity	High Sensitivity	Faktor 1	Outdoor Washdown	Outdoor	ATEX 2D
dimension	M12	M18	M18	M18	M18	M12
measuring distance Sd	2,75 3 mm	2,75 3 mm	0 8 mm	0 7 mm	0 8 mm	0 4 mm
mounting type	flush	flush	flush	quasi-flush	quasi-flush	quasi-flush
resolution min.	0,25 µm	0,25 µm	20 µm	5 µm	5 µm	1 µm
sensitivity	40 V/mm 64 mA/mm	40 V/mm 64 mA/mm	1,25 V/mm	2,3 mA/mm	2 mA/mm	4 mA/mm
repeat accuracy	1 µm	1 µm	30 µm	15 µm	15 µm	10 µm
response time	3 ms	3 ms	15 ms	2 ms	2 ms	2 ms
operating temperature	−10 +60 °C	−10 +60 °C	–25 +75 °C	−40 +70 °C	–40 +70 °C	−40 +70 °C
protection class	IP 67	IP 67	IP 67	IP 68/69K & proTect+	IP 67	IP 67
housing material	steel-nickel plated	steel-nickel plated	brass	stainless steel	brass	brass
housing length	60 mm	60 mm	60 mm	60 mm	60 mm	50 mm
connection types	connector M12 cable	connector M12 cable	connector M12	connector M12	connector M12	connector M12
output circuit	0 10 V 4 20 mA	0 10 V 4 20 mA	0 10 V	4 20 mA	4 20 mA	4 20 mA
page	197	198	199	200	201	202

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Function and applications



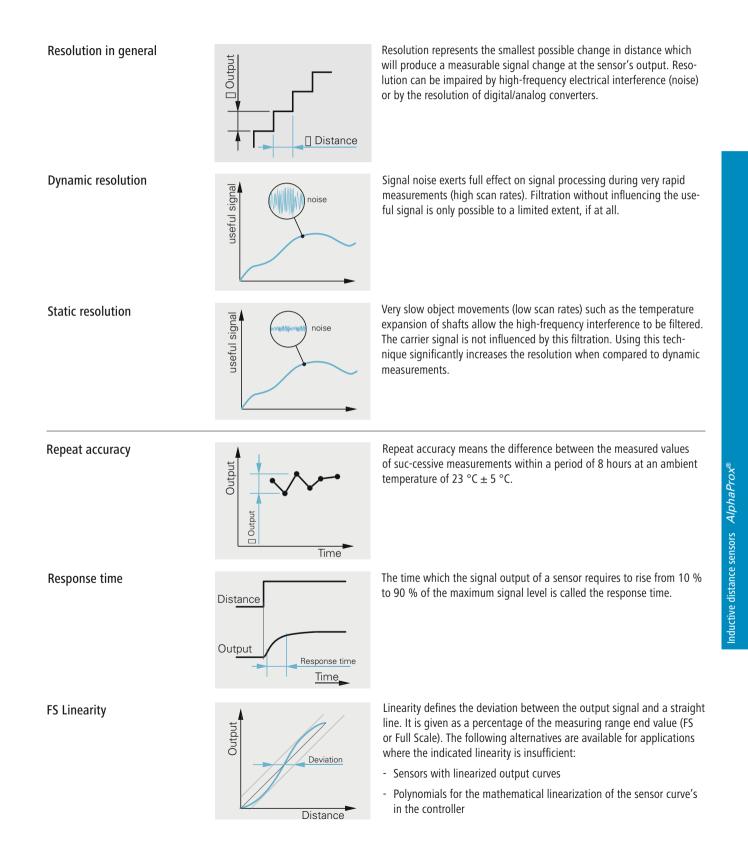


AlphaProx[®]

Dynamic and static resolution

AlphaProx[®]





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Teach-in functions



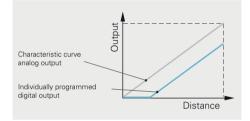
The following parameters can be altered using the Teach-in function:

- Analog output (measuring range)
- on: Digital output (switching window)

Procedure

Baumer AlphaProx sensors with linearized characteristic curve, factor 1 sensors and high sensitivity sensors have a teach function with several teach modes. This allows the measuring range to be freely configured within specified limits. If, for example, a small measuring range with a large signal amplitude is required, it is possible to limit this to a few millimeters. The operating direction of the analog output can also be inverted if required.

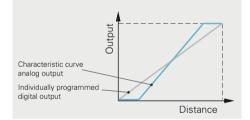
In addition, the switch-on and switch-off points of a digital output can be defined. These may lie both within and outside the individually programmed measuring range.

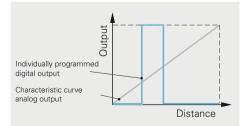




position (e.g. 5 V) or end position (e.g. 10 V) of the measuring range. In this teach mode, the output characteristic curve can be shifted without changing the sensitivity or slope of the characteristic curve. It is used for electronic compensation of installation tolerances and thus enables quick and easy adjustment in series production.

AlphaPro





2-Point Teach Analog

The 2-point teach is used in applications in which two reference points (start and end position) can be approached. By adjusting the measuring range, the sensitivity or slope of the output characteristic curve can be perfectly adapted to the application and installation and mechanical manufacturing tolerances can be compensated. The first taught-in position always corresponds to the start value (e.g. 0 V) and the second to the end value (e.g. 10 V) Depending on the teach sequence, the output characteristic curve increases or decreases as the target object approaches.

Window Teach Digital

Analog distance sensors with an additional digital output offer a window teach digital instead of a 2-point Teach analog. This allows defining a valid or invalid distance range between the target and sensor for the digital output - independent of the analog output signal. Depending on the teach sequence, the digital output is HIGH or LOW if the measured object is within the taught-in distance range. This teach function is used to define a separate switching signal, e.g. for an end position circuit, independently of the analog signal.

Teach-in functions

AlphaProx[®]

2	
Procedure	Factory Reset All sensors with teach functions have a factory reset to reset the sensor to the factory settings.
Accessories	Various accessories are available for analog sensors, such as an external teach-in adapter or an analog sensor tester.



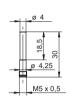
Sd = 0 ... 1 mm

- compact housing design
- very high resolution
- short response time

general data

general data	
mounting type	quasi-flush
measuring distance Sd	0 1 mm
resolution	< 0,001 mm (stat.) < 0,005 mm (dynam.)
repeat accuracy	< 0,005 mm
linearity error	± 100 μm
temperature drift	± 5 % (Full Scale)
electrical data	
response time (factory characteristic)	< 0,5 ms
voltage supply range +Vs	15 30 VDC
current consumption max. (no load)	15 mA
output circuit	voltage output
output signal	0 10 VDC
load resistance	> 1000 Ohm
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
housing material	stainless steel
dimension	4 mm
housing length	30 mm
connection types	connector M5
ambient conditions	
operating temperature	10 +60 °C
protection class	IP 67

dimension drawing



connection diagram

IWRI	M _	BN (1)		–o+Vs
\approx		/VH/BK (2/4)	-Ooutput
		BU (3)	·	-00 V

connectors and mating connectorsESG 05SP0200Connector M5, 3 pin, straight, 2 mESW 05SP0200Connector M5, 3 pin, angular, 2 mESG 05AP0200GConnector M5, 4 pin, straight, 2 m, shieldedadditional cable connectors and field wireable connectors: see
accessories

order reference IWRM 04U9701/S05

WRM 04 Sd = 0 ... 1 mm

IR06.D03S



Sd = 0 ... 3 mm

- large measuring distance
- very short type
- very high resolution

general data mounting type quasi-flush measuring distance Sd 0 ... 3 mm resolution < 0,001 mm (stat.) < 0,01 mm (dynam.) < 0,02 mm repeat accuracy - 0 μm / + 270 μm (S = 0,2 ... linearity error 1,7 mm) - 150 μm / + 900 μm (S = 0 ... 3 mm) temperature drift ± 4 % (Full Scale; 0 ... +60 °C) ± 6 % (Full Scale; -25 ... +75 °C) electrical data < 0,5 ms response time (factory characteristic) voltage supply range +Vs 12 ... 36 VDC current consumption max. (no 10 mA load) output circuit voltage output output signal 0 ... 10 VDC > 4000 Ohm load resistance short circuit protection yes reverse polarity protection yes mechanical data type cylindrical smooth housing material stainless steel dimension 6,5 mm housing length 22 mm connection types cable, 2 m ambient conditions operating temperature -25 ... +75 °C IP 67 protection class

order reference

IR06.D03S-11144078

dimension drawing



connection diagram

ſ	BN (1)	—o+Vs
Analog U	BK (4)	o output
	BU (3)	o 0 V

Accessories

10109474	Mounting bracket for sensors Ø 6,5 mm
10117742	Clamping nut for sensors Ø 6,5 mm
for details: s	ee accessories section

Sd = 0 ... 3 mm

IR06.D03S



Sd = 0 ... 3 mm

- large measuring distance
- short type
- very high resolution

general data

general uata	
mounting type	quasi-flush
measuring distance Sd	0 3 mm
resolution	< 0,001 mm (stat.) < 0,01 mm (dynam.)
repeat accuracy	< 0,02 mm
linearity error	± 120 μm (S = 0,75 2,25 mm) ± 360 μm (S = 0 3 mm)
temperature drift	± 4 % (Full Scale; 0 +60 °C) ± 6 % (Full Scale; -10 +70 °C)
electrical data	
response time (factory characteristic)	< 0,5 ms
voltage supply range +Vs	12 36 VDC
current consumption max. (no load)	10 mA
output circuit	voltage output
output signal	0 10 VDC
load resistance	> 4000 Ohm
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
housing material	stainless steel
dimension	6,5 mm
housing length	30 mm
connection types	cable, 2 m
ambient conditions	
operating temperature	-10 +70 °C
protection class	IP 67

dimension drawing



connection diagram

Г	BN (1)	—o +Vs
Analog U	BK (4)	—o output
	BU (3)	—o 0 V

Accessories 10109474 Mounting bracket for sensors Ø 6,5 mm 10117742 Clamping nut for sensors Ø 6,5 mm for details: see accessories section

order reference

IR06.D03S-11144090

IR06.D03S



Sd = 0 ... 3 mm

- large measuring distance
- very high resolution

general data quasi-flush mounting type measuring distance Sd 0 ... 3 mm resolution < 0,001 mm (stat.) < 0,01 mm (dynam.) < 0,02 mm repeat accuracy linearity error ± 120 µm (S = 0,75 ... 2,25 mm) ± 360 µm (S = 0 ... 3 mm) temperature drift ± 4 % (Full Scale; 0 ... +60 °C) ± 6 % (Full Scale; -10 ... +70 °C) electrical data response time (factory < 0,5 ms characteristic) short circuit protection ves reverse polarity protection yes voltage output voltage supply range +Vs 12 ... 36 VDC 10 mA current consumption max. (no load) 0 ... 10 VDC output signal > 4000 Ohm load resistance current output voltage supply range +Vs 6 ... 36 VDC 12 mA current consumption max. (no load) output signal 0 ... 10 mA load resistance < 100 Ohm/V * Vs - 400 Ohm > 500 Ohm (Vs = 30 ... 36 VDC) mechanical data cylindrical smooth type housing material stainless steel dimension 6,5 mm housing length 46 mm connector M8 connection types ambient conditions -10 ... +70 °C operating temperature protection class IP 67

order reference	output circuit
IR06.D03S-11141032	current output
IR06.D03S-11137807	voltage output

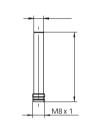
dimension drawing

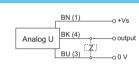
connection diagrams

BN (1)

BK (4)

Analog I





connectors and mating connectors

BU (3)

o+Vs

o output

0 V 0 c

ESG 3	2SH0200	Connector M8, 3 pin, straight, 2 m
ESW 3	31SH0200	Connector M8, 3 pin, angular, 2 m
additional cable connectors and field wireable connectors: see		
acces	SULLES	

Accessories

Accessories		
10109474	Mounting bracket for sensors Ø 6,5 mm	
10117742	Clamping nut for sensors Ø 6,5 mm	
for details: see accessories section		

IR08.D02S



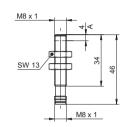
Sd = 0 ... 2 mm

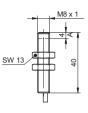
- large measuring distance
- very high resolution

general data	
mounting type	flush
measuring distance Sd	0 2 mm
resolution	< 0,001 mm (stat.) < 0,005 mm (dynam.)
repeat accuracy	< 0,02 mm
linearity error	± 60 μm (S = 0,5 1,5 mm) ± 140 μm (S = 0 2 mm)
temperature drift	± 3 % (Full Scale; 0 +60 °C) ± 5 % (Full Scale; -10 +70 °C)
electrical data	
response time (factory characteristic)	< 0,5 ms
voltage supply range +Vs	12 36 VDC
current consumption max. (no load)	10 mA
output circuit	voltage output
output signal	0 10 VDC
load resistance	> 4000 Ohm
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
housing material	stainless steel
dimension	8 mm
tightening torque max.	10 Nm (A: 7 Nm)
ambient conditions	
operating temperature	-10 +70 °C
protection class	IP 67

order reference	housing length	connection types
IR08.D02S-11130472	40 mm	cable, 2 m
IR08.D02S-11123872	46 mm	connector M8

dimension drawings





connection diagram

Г	BN (1)	—o +Vs
Analog U	BK (4)	—o output
L	BU (3)	0 0 V

connectors and mating connectors		
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m	
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m	
additional cable connectors and field wireable connectors: see accessories		
Accessories		
10151719	Sensofix series 08 round	
for details: see accessories section		

IR08.D03S



Sd = 0 ... 3 mm

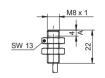
- large measuring distance
- very high resolution

mounting type	guasi fluch
mounting type	quasi-flush
measuring distance Sd	0 3 mm
resolution	< 0,001 mm (stat.) < 0,01 mm (dynam.)
repeat accuracy	< 0,02 mm
linearity error	- 0 μm / + 270 μm (S = 0,2 1,7 mm) - 150 μm / + 900 μm (S = 0 3 mm)
temperature drift	± 4 % (Full Scale; 0 +60 °C) ± 6 % (Full Scale; -25 +75 °C)
electrical data	
response time (factory characteristic)	< 0,5 ms
voltage supply range +Vs	12 36 VDC
current consumption max. (no load)	10 mA
output circuit	voltage output
output signal	0 10 VDC
load resistance	> 4000 Ohm
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
housing material	stainless steel
dimension	8 mm
housing length	22 mm
connection types	cable, 2 m
tightening torque max.	10 Nm (A: 7 Nm)
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

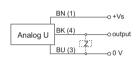
order reference

IR08.D03S-11141036

dimension drawing



connection diagram



Accessories

10151719	Sensofix series 08 round	
for details: see ad	ccessories section	

+421 552 601 099

IR08.D03S



Sd = 0 ... 3 mm

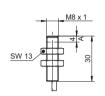
- large measuring distance
- very high resolution

general data	
mounting type	quasi-flush
measuring distance Sd	0 3 mm
resolution	< 0,001 mm (stat.) < 0,01 mm (dynam.)
repeat accuracy	< 0,02 mm
linearity error	± 120 μm (S = 0,75 2,25 mm) ± 360 μm (S = 0 3 mm)
temperature drift	± 4 % (Full Scale; 0 +60 °C) ± 6 % (Full Scale; -10 +70 °C)
electrical data	
response time (factory characteristic)	< 0,5 ms
voltage supply range +Vs	12 36 VDC
current consumption max. (no load)	10 mA
output circuit	voltage output
output signal	0 10 VDC
load resistance	> 4000 Ohm
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
housing material	stainless steel
dimension	8 mm
housing length	30 mm
connection types	cable, 2 m
tightening torque max.	10 Nm (A: 7 Nm)
ambient conditions	
operating temperature	-10 +70 °C
protection class	IP 67

order reference

IR08.D03S-11141037

dimension drawing



connection diagram

	BN (1)	—o +Vs
Analog U	BK (4)	—o output
	BU (3)	0 0 V

Accessories

10151719	Sensofix series 08 round	
for details: see	accessories section	

IR08.D03S



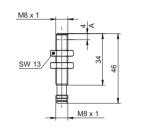
Sd = 0 ... 3 mm

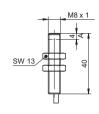
- large measuring distance
- very high resolution

general data mounting type quasi-flush measuring distance Sd 0 ... 3 mm resolution < 0,001 mm (stat.) < 0,01 mm (dynam.) < 0,02 mm repeat accuracy linearity error ± 120 µm (S = 0,75 ... 2,25 mm) ± 360 µm (S = 0 ... 3 mm) temperature drift ± 4 % (Full Scale; 0 ... +60 °C) ± 6 % (Full Scale; -10 ... +70 °C) electrical data response time (factory < 0,5 ms characteristic) short circuit protection ves reverse polarity protection yes voltage output voltage supply range +Vs 12 ... 36 VDC current consumption max. (no 10 mA load) 0 ... 10 VDC output signal > 4000 Ohm load resistance current output voltage supply range +Vs 6 ... 36 VDC current consumption max. (no 12 mA load) output signal 0 ... 10 mA load resistance < 100 Ohm/V * Vs - 400 Ohm > 500 Ohm (Vs = 30 ... 36 VDC) mechanical data cylindrical threaded type housing material stainless steel dimension 8 mm tightening torque max. 10 Nm (A: 7 Nm) ambient conditions operating temperature -10 ... +70 °C IP 67 protection class

.

dimension drawings





connection diagrams



connectors and mating connectors ESG 32SH0200 Connector M8, 3 pin, straight, 2 m ESW 31SH0200 Connector M8, 3 pin, angular, 2 m additional cable connectors and field wireable connectors: see

accessories		
Accessories		
10151719	Sensofix series 08 round	
for details: see ad	ccessories section	

Sd = 0 ... 3 mm

R08.D03S

order reference	output circuit	housing length	connection types
IR08.D03S-11130473	voltage output	40 mm	cable, 2 m
IR08.D03S-11141034	current output	46 mm	connector M8
IR08.D03S-11123873	voltage output	46 mm	connector M8

IR12.D04S



Sd = 0 ... 4 mm

- large measuring distance
- very high resolution





general data	
mounting type	flush
measuring distance Sd	0 4 mm
resolution	< 0,001 mm (stat.) < 0,005 mm (dynam.)
repeat accuracy	< 0,01 mm
linearity error	± 80 μm (S = 1 3 mm) ± 280 μm (S = 0 4 mm)
temperature drift	± 2 % (Full Scale; 0 +60 °C) ± 3 % (Full Scale; -25 +75 °C
electrical data	
response time (factory characteristic)	< 1 ms
voltage supply range +Vs	12 36 VDC
current consumption max. (no load)	10 mA
output circuit	voltage output
output signal	0 10 VDC

> 4000 Ohm

cylindrical threaded

brass nickel plated

15 Nm (A: 10 Nm)

connection types

connector M12

cable, 2 m

-25 ... +75 °C

yes

yes

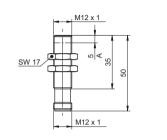
12 mm

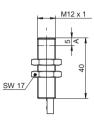
IP 67

housing length

40 mm

50 mm





connection diagrams

dimension drawings

	BN (1)	o+Vs
Analog	I WH/BK (2/4)	—o output
	BU (3)	0 V

	BN (1)	—o +Vs
	-	
Analog U	WH/BK (2/4)	-o output
Analog U		ooupu
	BU (3)	00V

connectors and mating connectors		
ESG 34SH0200	Connector M12, 3 pin, straight, 2 m	
ESW 33SH0200	Connector M12, 3 pin, angular, 2 m	
ESW 33AH0200G	Connector M12, 4 pin, angular, 2 m, shielded	
additional cable connectors and field wireable connectors: see accessories		
Accessories		
10151720	Sensofix series 12 round	
for dotaile: coo aco	assorias sostian	

for details: see accessories section

S	
IR12.D04S	
AlphaProx	
mation	

load resistance short circuit protection

mechanical data

housing material

protection class

order reference

IR12.D04S-11130475

IR12.D04S-11123876

tightening torque max.

ambient conditions operating temperature

dimension

type

reverse polarity protection

= 0 ... 4 mm

IR12.D06S



Sd = 0 ... 6 mm

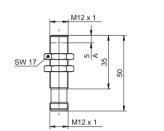
- large measuring distance
- very high resolution

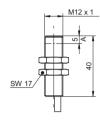
and and shows	
general data	
mounting type	quasi-flush
measuring distance Sd	0 6 mm
resolution	< 0,005 mm (stat.) < 0,01 mm (dynam.)
repeat accuracy	< 0,01 mm
linearity error	± 300 μm (S = 1,5 4,5 mm) ± 720 μm (S = 0 6 mm)
temperature drift	± 4 % (Full Scale; 0 +60 °C) ± 6 % (Full Scale; -25 +75 °C)
electrical data	
response time (factory characteristic)	< 1 ms
current consumption max. (no load)	10 mA
short circuit protection	yes
reverse polarity protection	yes
voltage output	
voltage supply range +Vs	12 36 VDC
output signal	0 10 VDC
load resistance	> 4000 Ohm
current output	
voltage supply range +Vs	8 36 VDC
output signal	4 20 mA
load resistance	< 50 Ohm/V * Vs - 150 Ohm > 500 Ohm (Vs = 30 … 36 VDC)
mechanical data	
type	cylindrical threaded
housing material	brass nickel plated
dimension	12 mm
tightening torque max.	15 Nm (A: 10 Nm)
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

numuna mununa mununa



dimension drawings





connection diagrams

BN (1)	o+Vs		BN (1)	—o+Vs
Analog I WH/BK (2/4)	o output	Analog U	WH/BK (2/4)	-o output
BU (3)	0 0 V		BU (3)	0 0 V

connectors and mating connectors		
ESG 34SH0200	Connector M12, 3 pin, straight, 2 m	
ESW 33SH0200	Connector M12, 3 pin, angular, 2 m	
ESW 33AH0200G	Connector M12, 4 pin, angular, 2 m, shielded	
additional cable connectors and field wireable connectors: see accessories		
Accessories		

10151720	Sensofix series 12 round
for details: see	accessories section

_

order reference	output circuit	housing length	connection types
IR12.D06S-11130476	voltage output	40 mm	cable, 2 m
IR12.D06S-11141039	current output	50 mm	connector M12
IR12.D06S-11123877	voltage output	50 mm	connector M12

IR18.D05S



Sd = 2 ... 5 mm

- large measuring distance
- very high resolution

general data	
mounting type	flush
measuring distance Sd	2 5 mm
resolution	< 0,005 mm (stat.) < 0,01 mm (dynam.)
repeat accuracy	< 0,015 mm
linearity error	± 350 μm
temperature drift	± 2 % (Full Scale; 0 +60 °C) ± 4 % (Full Scale; -10 +70 °C)
electrical data	
response time (factory characteristic)	< 2 ms
voltage supply range +Vs	12 36 VDC
current consumption max. (no load)	10 mA
output circuit	voltage output
output signal	1 9 VDC
load resistance	> 4000 Ohm
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
housing material	brass nickel plated
dimension	18 mm
housing length	60 mm
connection types	connector M12
tightening torque max.	40 Nm
ambient conditions	
operating temperature	-10 +70 °C
protection class	IP 67

	<u>M18 x 1</u>
<u>SW 2</u>	
	M12x 1

connection diagram

dimension drawing

Г	BN (1)	—o +Vs
Analog U	WH/BK (2/4)	—o output
	BU (3)	00 V

connectors and mating connectors			
ESG 34SH0200 Cc	Connector M12, 3 pin, straight, 2 m		
ESW 33SH0200 Co	nnector M12, 3 pin, angular, 2 m		
ESW 33AH0200G Co	nnector M12, 4 pin, angular, 2 m, shielded		
additional cable connectors and field wireable connectors: see accessories			
Accessories			
10151658 Sensofix series 18			
ZADAP-M18.STANDARD Mounting bracket series 18			
ZADAP-M18.SHORT Mounting bracket short series 18 (L design)			
ZADAP-M18.LONG Mounting bracket long series 18 (L design)			
for details: see accessories section			

order reference IR18.D05S-11140166

IR18.D08S



general data

mounting type

repeat accuracy

temperature drift

electrical data

characteristic)

output signal

load resistance short circuit protection

mechanical data

housing material

tightening torque max. ambient conditions

operating temperature

IR18.D08S-11123879

protection class

order reference IR18.D08S-11130479

dimension

load) output circuit

type

response time (factory

voltage supply range +Vs

reverse polarity protection

current consumption max. (no

linearity error

resolution

measuring distance Sd

Sd = 0 ... 8 mm

quasi-flush

0 ... 8 mm

< 2 ms

10 mA

yes

yes

18 mm 40 Nm

IP 67

housing length

50 mm

60 mm

-10 ... +70 °C

connection types

connector M12

cable, 2 m

12 ... 36 VDC

voltage output 0 ... 10 VDC

> 4000 Ohm

cylindrical threaded

brass nickel plated

< 0,002 mm (stat.) < 0,006 mm (dynam.) < 0,015 mm

± 240 µm (S = 2 ... 6 mm)

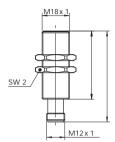
± 640 µm (S = 0 ... 8 mm)

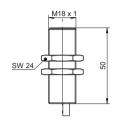
± 2 % (Full Scale; 0 ... +60 °C) ± 4 % (Full Scale; -10 ... +70 °C)

- large measuring distance
- very high resolution



dimension drawings





connection diagram

1	BN (1)	—o+Vs
Analog U	WH/BK (2/4)	—o output
	BU (3)	0 0 V

connectors and mating connectors			
ESG 34SH0200 Co	Connector M12, 3 pin, straight, 2 m		
ESW 33SH0200 Co	Connector M12, 3 pin, angular, 2 m		
ESW 33AH0200G Co	Connector M12, 4 pin, angular, 2 m, shielded		
additional cable connectors and field wireable connectors: see accessories			
Accessories			
10151658 Sensofix series 18			
ZADAP-M18.STANDARD Mounting bracket series 18			
ZADAP-M18.SHORT Mounting bracket short series 18 (L design)			
ZADAP-M18.LONG Mounting bracket long series 18 (L design)			
for details: see accessories section			

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IR30.D18S



Sd = 0 ... 18 mm

- linear analog output
- large measuring distance

general data	
mounting type	flush
measuring distance Sd	0 18 mm
resolution	< 0,005 mm (stat.) < 0,01 mm (dynam.)
repeat accuracy	< 0,02 mm
linearity error	± 800 μm (S = 4,5 13,5 mm) ± 2400 μm (S = 0 18 mm)
temperature drift	± 6 % (Full Scale)
electrical data	
response time (factory characteristic)	< 2 ms
short circuit protection	yes
reverse polarity protection	yes
voltage output	
voltage supply range +Vs	12 36 VDC
current consumption max. (no load)	10 mA
output signal	0 10 VDC
load resistance	> 4000 Ohm
current output	
voltage supply range +Vs	8 36 VDC
current consumption max. (no load)	20 mA
output signal	4 20 mA
load resistance	< 50 Ohm/V * Vs - 250 Ohm > 500 Ohm (Vs = 30 36 VDC)
mechanical data	
type	cylindrical threaded
housing material	brass nickel plated
dimension	30 mm
housing length	60 mm
connection types	connector M12
tightening torque max.	100 Nm
ambient conditions	

-25 ... +75 °C

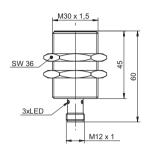
output circuit

current output

voltage output

IP 67

dimension drawing



connection diagrams

Г	BN (1)	-o+Vs
Analog U	WH/GY (2/5) BK (4)	-0 n.c. -0 output
L	BU (3)	-0 V

	BN (1)	
Analog I	WH/GY (2/5) BK (4)o output	
	BU (3)	

connectors and mating connectors		
ESG 34SH0200	Connector M12, 3 pin, straight, 2 m	
ESW 33SH0200	Connector M12, 3 pin, angular, 2 m	
ESW 33AH0200G Connector M12, 4 pin, angular, 2 m, shielded		
additional cable connectors and field wireable connectors: see accessories		

IR30.D18S Sd = 0 ... 18 mm

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operating temperature protection class

order reference IR30.D18S-11179024

IR30.D18S-11179023

IR30.D24S



general data

mounting type

repeat accuracy

temperature drift

response time (factory

reverse polarity protection

voltage supply range +Vs

voltage supply range +Vs

current consumption max. (no

current consumption max. (no

electrical data

characteristic) short circuit protection

voltage output

load resistance

output signal

load resistance

mechanical data

housing material dimension

housing length

connection types tightening torque max.

ambient conditions operating temperature

load) output signal

load)

type

linearity error

resolution

measuring distance Sd

Sd = 0 ... 24 mm

non-flush

0 ... 24 mm

< 0,005 mm (stat.)

± 8 % (Full Scale)

< 2 ms

yes

yes

10 mA

12 ... 36 VDC

0 ... 10 VDC

> 4000 Ohm

8 ... 36 VDC

4 ... 20 mA

< 50 Ohm/V * Vs - 250 Ohm

cylindrical threaded

brass nickel plated

> 500 Ohm (Vs = 30 ... 36 VDC)

20 mA

30 mm

60 mm connector M12

100 Nm

-25 ... +75 °C IP 67

< 0,01 mm (dynam.) < 0,02 mm

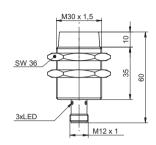
 \pm 800 µm (S = 6 ... 18 mm)

± 3000 µm (S = 0 ... 24 mm)

- linear analog output
- large measuring distance

	10.00	
10	41	
9	ALC: N	

dimension drawing



connection diagrams

BN (1) 0+Vs	BN (1) o +Vs
WH/GY (2/5) → o n.c. BK (4) o output BU (3) (2) O V	WH/GY (2/5) → on.c. BK (4) o output BU (3) ∴ Z → o 0 V

connectors and mating connectors

ESG 34SH0200	Connector M12, 3 pin, straight, 2 m
ESW 33SH0200	Connector M12, 3 pin, angular, 2 m
ESW 33AH0200G	Connector M12, 4 pin, angular, 2 m, shielded
additional cable connectors and field wireable connectors: see	
accessories	

= 0 24 mm	
Sd = 0	
30.D24S	

č

protection class	IP 67
order reference	output circuit
IR30.D24S-11179026	current output
IR30.D24S-11179025	voltage output

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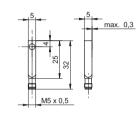


Sd = 0 ... 1 mm

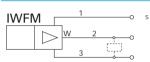
- very high resolution
- short response time

general data	
mounting type	quasi-flush
measuring distance Sd	0 1 mm
resolution	< 0,001 mm (stat.) < 0,005 mm (dynam.)
repeat accuracy	< 0,01 mm
linearity error	± 70 μm
temperature drift	± 5 % (Full Scale)
electrical data	
response time (factory characteristic)	< 0,5 ms
voltage supply range +Vs	15 30 VDC
current consumption max. (no load)	15 mA
output circuit	voltage output
output signal	0 10 VDC
load resistance	> 1000 Ohm
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	rectangular
housing material	brass nickel plated
dimension	5 mm
housing length	32 mm
connection types	connector M5
ambient conditions	
operating temperature	10 +60 °C
protection class	IP 67

dimension drawing



connection diagram



connectors and mating connectors		
ESG 05SP0200 Connector M5, 3 pin, straight, 2 m		
ESW 05SP0200 Connector M5, 3 pin, angular, 2 m		
ESG 05AP0200G Connector M5, 4 pin, straight, 2 m, shielded		
additional cable connectors and field wireable connectors: see accessories		

order reference IWFM 05U9701/S05

IWFM 05 Sd = 0 ... 1 mm

IF08.D02S



Sd = 0 ... 2 mm

- very high resolution
- short response time

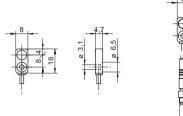
general data

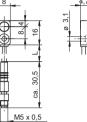
gonorar aata	
mounting type	flush
measuring distance Sd	0 2 mm
resolution	< 0,001 mm (stat.)
	< 0,005 mm (dynam.)
repeat accuracy	< 0,02 mm
linearity error	± 120 μm
temperature drift	± 5 % (Full Scale)
electrical data	
response time (factory characteristic)	< 1 ms
voltage supply range +Vs	12 30 VDC
current consumption max. (no load)	8 mA
output circuit	voltage output
output signal	0 10 VDC
load resistance	> 4000 Ohm
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	rectangular
housing material	die-cast zinc nickel plated
dimension	8 mm
housing length	16 mm
ambient conditions	
operating temperature	10 +60 °C
protection class	IP 67

order reference	connection types
IF08.D02S-F16.UA1Z.7WCU	cable PUR, 2 m
IF08.D02S-F16.UA1Z.7WCV	cable PVC, 2 m
IF08.D02S-F16.UA1Z.7WLV	flylead connector M8
IF08.D02S-F16.UA1Z.7WMV	flylead connector M5

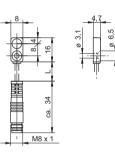


dimension drawings





flylead connector version



standard cable length 200 mm (L)

connection diagram

[BN (1)	—o +Vs
Analog U	BK (4)	-o output
[BU (3)	—00V

connectors and mating connectors		
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m	
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m	
ESG 05AP0200G	Connector M5, 4 pin, straight, 2 m, shielded	
ESG 05SP0200	Connector M5, 3 pin, straight, 2 m	
ESW 05SP0200	Connector M5, 3 pin, angular, 2 m	
additional cable connectors and field wireable connectors: see accessories		

IWFM 12



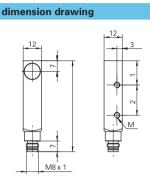
Sd = 0 ... 4 mm

- very high resolution
- short response time
- current- and voltage output

general data

3		
mounting type	flush	
measuring distance Sd	0 4 mm	
linearity error	± 160 μm	
temperature drift	±4% (Full Scale)	
electrical data		
voltage supply range +Vs	15 30 VDC	
current consumption max. (no load)	40 mA	
output circuit	voltage - / current output	
output signal	0 10 V / 4 20 mA	
load resistance	> 1000 Ohm (Uout) / 330 1000 Ohm (lout)	
voltage drop Vd	< 7,2 VDC (lout)	
short circuit protection	yes	
reverse polarity protection	yes	
mechanical data		
type	rectangular	
housing material	brass nickel plated	
dimension	12 mm	
housing length	60 mm	
connection types	connector M8	
ambient conditions		
operating temperature	-10 +70 °C	
protection class	IP 67	

D



connection diagram

IWFM	Г	BN (1)	o + Vs
≋ 1		BK (4) BU (3)	o output I

connectors and mating connectors			
ESG 32AH0200	Connector M8, 4 pin, straight, 2 m		
ESW 31AH0200	Connector M8, 4 pin, angular, 2 m		
ESG 32AH0200G	Connector M8, 4 pin, straight, 2 m, shielded		
ESW 31AH0200G	Connector M8, 4 pin, angular, 2 m, shielded		
additional cable connectors and field wireable connectors: see			
accessories			

order reference	resolution	repeat accuracy	response time (factory characteristic)
IWFM 12L9504/S35A	< 0,005 mm	< 0,01 mm	< 2 ms
IWFM 12L9505/S35A	< 0,001 mm	< 0,005 mm	< 30 ms

IWFM 12



Sd = 1 ... 2 mm

- shielded mounting
- short design

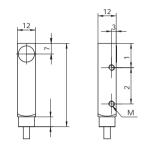
general data

general auta	
mounting type	flush
measuring distance Sd	1 2 mm
reference distance	1,35 1,65 mm
measuring speed	< 0,5 mm / ms
repeat accuracy	< 0,02 mm
linearity error	± 80 μm
temperature coefficient	1 µm / (K mm)
electrical data	
voltage supply range +Vs	15 30 VDC
current consumption max. (no load)	20 mA
output circuit	voltage output
output signal	1 9 VDC
load resistance	> 1000 Ohm
residual output ripple	< 0,5 % Vs
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	rectangular
housing material	brass nickel plated
dimension	12 mm
housing length	55 mm
connection types	cable, 2 m
ambient conditions	
operating temperature	0 +60 °C
protection class	IP 67

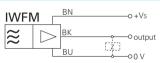
order reference IWFM 12U9501/O1



dimension drawing



connection diagram





Sd = 0 ... 4 mm

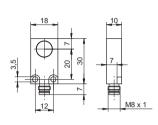
- very high resolution
- short response time
- linear analog output

general data

general data	
mounting type	flush
measuring distance Sd	0 4 mm
voltage - / current output	
linearity error	± 160 μm
temperature drift	±4% (Full Scale)
voltage output	
special type	linearized
linearity error	± 16 µm
temperature drift	± 5 % (Full Scale)
electrical data	
voltage supply range +Vs	15 30 VDC
short circuit protection	yes
reverse polarity protection	yes
voltage - / current output	
current consumption max. (no load)	40 mA
output signal	0 10 V / 4 20 mA
load resistance	> 1000 Ohm (Uout) / 330 1000 Ohm (lout)
voltage drop Vd	< 7,2 VDC (lout)
voltage output	
current consumption max. (no load)	20 mA
output signal	0 10 VDC
mechanical data	
type	rectangular
housing material	brass nickel plated
dimension	18 mm
housing length	30 mm
connection types	connector M8
ambient conditions	
operating temperature	-10 +70 °C
protection class	IP 67

)	(
2	0
0	-
0	2

dimension drawing



connection diagrams

IWFM BN (1) + Vs	IWFM	BN (1)	—o + Vs
WH (2) output 1 BK (4) output 1 BU (3) 0 0 0		BK (4) BU (3)	o don't connect o output U o 0 V

connectors and mating connectors ESG 32AH0200 Connector M8, 4 pin, straight, 2 m ESW 31AH0200 Connector M8, 4 pin, angular, 2 m ESG 32AH0200G Connector M8, 4 pin, straight, 2 m, shielded ESW 31AH0200G Connector M8, 4 pin, angular, 2 m, shielded additional cable connectors and field wireable connectors: see accessories Accessories 10152385 Sensofix series 18/20 inductive rectangular for details: see accessories section

temperature drift special order reference resolution output circuit response time linearity repeat accuracy (factory charactererror type istic) IWFM 18L9504/S35A < 0,005 mm < 0,01 mm voltage - / < 2 ms ± 160 µm ± 4 % (Full Scale) _ current output IWFM 18L9505/S35A voltage - / < 30 ms < 0,001 mm < 0,005 mm ± 160 µm ± 4 % (Full Scale) _ current output < 0,005 mm IWFM 18U7504/S35A < 0,01 mm voltage output < 2,5 ms ± 16 µm ± 5 % (Full Scale) linearized

IWFM 20



Sd = 0 ... 2 mm

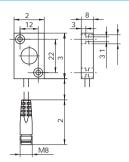
- small linearity error
- very short response time

general data

gonorar data	
mounting type	flush
measuring distance Sd	0 2 mm
resolution	< 0,001 mm (stat.) < 0,005 mm (dynam.)
repeat accuracy	< 0,01 mm
linearity error	± 40 μm
temperature drift	± 2 % (Full Scale)
electrical data	
response time (factory characteristic)	< 0,5 ms
voltage supply range +Vs	15 30 VDC
current consumption max. (no load)	20 mA
output circuit	voltage output
output signal	0 10 VDC
load resistance	> 1000 Ohm
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	rectangular
housing material	brass nickel plated
dimension	20 mm
housing length	30 mm
connection types	flylead connector M8
ambient conditions	
operating temperature	-10 +70 °C
protection class	IP 67



dimension drawing



standard cable length 200 mm (L)

connection diagram

IWF	N -	BN (1)	—o + Vs
≋		WH (2) BK (4) BU (3)	—o n.c. —o output U —o 0 V

connectors and m	connectors and mating connectors				
ESG 32AH0200	Connector M8, 4 pin, straight, 2 m				
ESW 31AH0200	Connector M8, 4 pin, angular, 2 m				
ESG 32AH0200G	Connector M8, 4 pin, straight, 2 m, shielded				
ESW 31AH0200G	Connector M8, 4 pin, angular, 2 m, shielded				
additional cable con accessories	nnectors and field wireable connectors: see				

order reference

IWFM 20U9509/KS35AP



Sd = 2 ... 5 mm

- Integrated current and voltage output
- Fully integrated electronics

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dimension drawing

general data	
mounting type	flush
measuring speed	< 1 mm / ms
repeat accuracy	< 0,01 mm
temperature coefficient	1 µm / (K mm)
electrical data	
voltage supply range +Vs	15 30 VDC
residual output ripple	< 0,5 % Vs
short circuit protection	yes
reverse polarity protection	yes
voltage output	
current consumption max. (no load)	20 mA
output signal	1 9 VDC
load resistance	> 1000 Ohm
current output	
current consumption max. (no load)	35 mA
output signal	4 20 mA
load resistance +Vs min.	< 500 Ohm
load resistance +Vs max.	< 1000 Ohm
mechanical data	
type	rectangular
housing material	brass nickel plated
dimension	20 mm
housing length	35 mm
housing length connection types	35 mm connector M8
connection types	
connection types ambient conditions	connector M8

connection diagram	าร			
	o+Vs	IWFM	BN (1)	o +Vs
₩ BU (3)	output	\approx	BK (4)	output
00 (0)	00∨		20 (0)	00 ∨

connectors and	mating connectors
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m
additional cable co accessories	onnectors and field wireable connectors: see
Accessories	
10152385	Sensofix series 18/20 inductive rectangular
for details: see ac	cessories section

order reference	measuring distance Sd	reference distance	output circuit	linearity error
IWFM 2019501/S35	2 5 mm	3,25 3,75 mm	current output	± 100 μm
IWFM 2019503/S35	2 3 mm	2,35 2,65 mm	current output	± 60 μm
IWFM 20U9501/S35	2 5 mm	3,25 3,75 mm	voltage output	± 100 μm
IWFM 20U9503/S35	2 3 mm	2,35 2,65 mm	voltage output	± 60 μm

Inductive distance sensors linearized characteristic curve AlphaProx® IR06.D03L



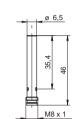
Sd = 0 ... 3 mm

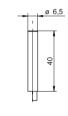
- linear analog output
- large measuring distance
- magnetic teach

general data

general data	
mounting type	quasi-flush
special type	linearized
measuring distance Sd	0 3 mm
sensitivity	3,33 V/mm
resolution	< 0,003 mm (stat.) < 0,009 mm (dynam.,S = 0 2 mm) < 0,018 mm (dynam.,S = 0 3 mm)
repeat accuracy	< 0,01 mm
temperature drift	± 2 % (Full Scale; S = 0 2 mm) ± 6 % (Full Scale; S = 0 3 mm)
electrical data	
response time (factory characteristic)	< 2 ms
voltage supply range +Vs	12 30 VDC
output circuit	voltage output
output signal	0 10 VDC
load resistance	> 4000 Ohm
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical smooth
housing material	stainless steel
dimension	6,5 mm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

dimension drawings





connection diagram

	BN (1)	—o+Vs
Analog U	BK (4)	—o output
	BU (3)	00 V

connectors and mating connectors		
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m	
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m	
additional cable co accessories	nnectors and field wireable connectors: see	
Accessories		
10109474	Mounting bracket for sensors Ø 6,5 mm	
10117742	Clamping nut for sensors Ø 6.5 mm	

10117742	Clamping nut for sensors Ø 6,5 mm	
11137318	Teach Pen for sensors in metal housing	
11141124	Teach Pen for sensors in metal housing (USA, CAN, JP)	
for details: see accessories section		

order reference	adjustment	housing length	linearity error	connection types	current consumption max. (no load)
IR06.D03L-11174154	-	40 mm	\pm 15 µm (S = 0 2 mm) \pm 90 µm (S = 0 3 mm)	cable, 2 m	10 mA
IR06.D03L-11176070	Teach-in	46 mm	\pm 10 µm (S = 0 2 mm) \pm 90 µm (S = 0 3 mm)	connector M8	12 mA
IR06.D03L-11174153	-	46 mm	\pm 15 µm (S = 0 2 mm) \pm 90 µm (S = 0 3 mm)	connector M8	10 mA

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Inductive distance sensors linearized characteristic curve AlphaProx® IR08.D03L



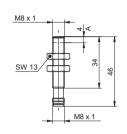
Sd = 0 ... 3 mm

- linear analog output
- large measuring distance
- magnetic teach

general data

gonoraraata	
mounting type	quasi-flush
special type	linearized
measuring distance Sd	0 3 mm
sensitivity	3,33 V/mm
resolution	< 0,003 mm (stat.) < 0,009 mm (dynam.,S = 0 2 mm) < 0,018 mm (dynam.,S = 0 3 mm)
repeat accuracy	< 0,01 mm
linearity error	± 10 μm (S = 0 2 mm) ± 90 μm (S = 0 3 mm)
temperature drift	± 2 % (Full Scale; S = 0 2 mm) ± 6 % (Full Scale; S = 0 3 mm)
electrical data	
response time (factory characteristic)	< 2 ms
voltage supply range +Vs	12 30 VDC
output circuit	voltage output
output signal	0 10 VDC
load resistance	> 4000 Ohm
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
housing material	stainless steel
dimension	8 mm
housing length	46 mm
connection types	connector M8
tightening torque max.	10 Nm (A: 7 Nm)
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

dimension drawing



connection diagram

ſ	BN (1)	—o +Vs
Analog U	BK (4)	—o output
l	BU (3)	0 0 V

connectors and n	nating connectors
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m
additional cable co accessories	nnectors and field wireable connectors: see
Accessories	
10151719	Sensofix series 08 round
11137318	Teach Pen for sensors in metal housing
11141124	Teach Pen for sensors in metal housing (USA, CAN, JP)
for details: see acc	cessories section

order reference	adjustment	current consumption max. (no load)
IR08.D03L-11175999	Teach-in	12 mA
IR08.D03L-11141038	-	10 mA

Inductive distance sensors linearized characteristic curve AlphaProx ® IR12.D04L



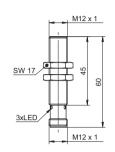
Sd = 0 ... 4 mm

- linear analog output
- external Teach-in
- 2 adjustable switching points

general data mounting type flush special type 2 adjust. switching points linearized measuring distance Sd 0 ... 4 mm 2,5 V/mm sensitivity resolution < 0,003 mm (stat.) < 0,005 mm (dynam.) repeat accuracy < 0,01 mm adjustment external Teach-in teach 1-point analog, window digital, factory reset linearity error ± 16 µm ± 4 % (Full Scale) temperature drift electrical data response time (factory < 1 ms characteristic) 12 ... 36 VDC voltage supply range +Vs current consumption max. (no 15 mA load) output circuit voltage output / PNP output signal 0 ... 10 VDC > 4000 Ohm load resistance < 100 mA (PNP) output current short circuit protection ves reverse polarity protection yes mechanical data type cylindrical threaded housing material brass nickel plated dimension 12 mm 60 mm housing length connection types connector M12 15 Nm (A: 10 Nm) tightening torque max. ambient conditions -25 ... +75 °C (Vs = 12 ... 30 VDC) operating temperature -25 ... +60 °C (Vs = 12 ... 36 VDC) IP 67 protection class

The amount of amountained

dimension drawing



connection diagram

	BN (1)	–o+Vs
Analog U PNP	GY (5) WH (2) BK (4)	–o teach-in –o output PNP –o output analog –o 0 V

for details: see accessories section

connectors and mating connectors ESG 34CH0200 Connector M12, 5 pin, straight, 2 m ESW 33CH0200 Connector M12, 5 pin, angular, 2 m ESW 33CH0500 Connector M12, 5 pin, angular, 5 m Connector M12, 5 pin, straight, 2 m, shielded ESG 34CH0200G additional cable connectors and field wireable connectors: see accessories Accessories 10151720 Sensofix series 12 round 10141584 Teach-in Adapter M12

order reference IR12.D04L-11130474

Inductive distance sensors linearized characteristic curve AlphaProx® IR12.D06L



Sd = 0 ... 6 mm

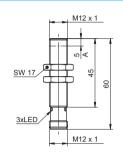
- linear analog output
- external Teach-in
- large measuring distance

general data

general uata	
mounting type	quasi-flush
special type	linearized
measuring distance Sd	0 6 mm
resolution	< 0,003 mm (stat.) < 0,005 mm (dynam.,S = 0 4 mm) < 0,022 mm (dynam.,S = 0 6 mm)
repeat accuracy	< 0,01 mm
adjustment	external Teach-in
teach	1-point analog, 2-point analog, factory reset
temperature drift	± 2 % (Full Scale; S = 0 4 mm) ± 5 % (Full Scale; S = 0 6 mm)
voltage output	
sensitivity	1,67 V/mm
linearity error	± 25 μm (S = 0 4 mm) ± 60 μm (S = 0 6 mm)
current output	
sensitivity	2,67 mA/mm
linearity error	± 25 μm (S = 0 4 mm) ± 120 μm (S = 0 6 mm)
electrical data	
response time (factory characteristic)	< 1 ms
short circuit protection	yes
reverse polarity protection	yes
voltage output	
voltage supply range +Vs	12 36 VDC
current consumption max. (no load)	15 mA
output signal	0 10 VDC
load resistance	> 4000 Ohm
current output	
voltage supply range +Vs	8 36 VDC
current consumption max. (no load)	25 mA
output signal	4 20 mA
load resistance	< 50 Ohm/V * Vs - 250 Ohm > 500 Ohm (Vs = 30 … 36 VDC)
mechanical data	
type	cylindrical threaded
housing material	brass nickel plated
dimension	12 mm
housing length	60 mm
connection types	connector M12
tightening torque max.	15 Nm (A: 10 Nm)
ambient conditions	
operating temperature	-25 +75 °C (Vs = 8 30 VDC) -25 +60 °C (Vs = 8 36 VDC)
and the state of the second state of the secon	ID 67

IP 67

dimension drawing



connection diagrams

	BN (1)	o+Vs	
Analog I	WH/GY (2	2/5) •o teach	i-in
7 thatog t	BK (4) BU (3)	o outpu	ıt

[BN (1)	—o +Vs
Analog U	WH/GY (2/5)	—○ teach-in —○ output
l	BU (3)	-00V

connectors and mating connectors		
ESG 34CH0200	Connector M12, 5 pin, straight, 2 m	
ESW 33CH0200	Connector M12, 5 pin, angular, 2 m	
ESW 33CH0500	Connector M12, 5 pin, angular, 5 m	
ESG 34CH0200G	Connector M12, 5 pin, straight, 2 m, shielded	
additional cable connectors and field wireable connectors: see accessories		
Accessories		
10151720	Sensofix series 12 round	
10141584	Teach-in Adapter M12	
6 1 4 1	1	

for details: see accessories section

protection class

order reference	output circuit	linearity error	operating temperature	sensitivity
IR12.D06L-11157693	current output	± 25 μm (S = 0 4 mm) ± 120 μm (S = 0 6 mm)	-25 +75 °C (Vs = 8 30 VDC) -25 +60 °C (Vs = 8 36 VDC)	2,67 mA/mm
IR12.D06L-11141090	voltage output	\pm 25 µm (S = 0 4 mm) \pm 60 µm (S = 0 6 mm)	-25 +75 °C (Vs = 12 30 VDC) -25 +60 °C (Vs = 12 36 VDC)	1,67 V/mm

Inductive distance sensors linearized characteristic curve AlphaProx® IR12.D06L



Sd = 0 ... 6 mm

- linear analog output
- external Teach-in
- 2 adjustable switching points

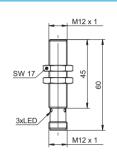
general data

mounting type	quasi-flush
special type	2 adjust. switching points linearized
measuring distance Sd	0 6 mm
sensitivity	1,67 V/mm
resolution	< 0,003 mm (stat.) < 0,005 mm (dynam.,S = 0 4 mm) < 0,022 mm (dynam.,S = 0 6 mm)
repeat accuracy	< 0,01 mm
adjustment	external Teach-in
teach	1-point analog, window digital, factory reset
linearity error	$\pm 25 \ \mu m \ (S = 0 \ \ 4 \ mm)$ $\pm 60 \ \mu m \ (S = 0 \ \ 6 \ mm)$
temperature drift	± 2 % (Full Scale; S = 0 4 mm) ± 5 % (Full Scale; S = 0 6 mm)
electrical data	
response time (factory characteristic)	< 1 ms
voltage supply range +Vs	12 36 VDC
current consumption max. (no load)	15 mA
output circuit	voltage output / PNP
output signal	0 10 VDC
load resistance	> 4000 Ohm
output current	< 100 mA (PNP)
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
housing material	brass nickel plated
dimension	12 mm
housing length	60 mm
connection types	connector M12
tightening torque max.	15 Nm (A: 10 Nm)
ambient conditions	
operating temperature	-25 +75 °C (Vs = 12 30 VDC) -25 +60 °C (Vs = 12 36 VDC)
protection class	IP 67

order reference

IR12.D06L-11135332

dimension drawing



connection diagram

Analog U PNP	BN (1) GY (5)	—o +Vs —o teach-in —o output PNP …o output analog
	BU (3)	

connectors and mating connectors		
ESG 34CH0200	Connector M12, 5 pin, straight, 2 m	
ESW 33CH0200	Connector M12, 5 pin, angular, 2 m	
ESW 33CH0500	Connector M12, 5 pin, angular, 5 m	
ESG 34CH0200G	Connector M12, 5 pin, straight, 2 m, shielded	
additional cable connectors and field wireable connectors: see accessories		
Accessories		
10151720	Sensofix series 12 round	
10141584	Teach-in Adapter M12	
for details: see accessories section		

Inductive distance sensors linearized characteristic curve AlphaProx® IR18.D08L



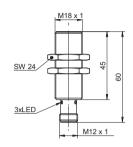
Sd = 0 ... 8 mm

- linear analog output
- external Teach-in
- large measuring distance

general data

general uata	
mounting type	quasi-flush
special type	linearized
measuring distance Sd	0 8 mm
resolution	< 0,002 mm (stat.) < 0,006 mm (dynam.)
repeat accuracy	< 0,015 mm
adjustment	external Teach-in
teach	1-point analog, 2-point analog, factory reset
linearity error	± 32 μm
voltage output	
sensitivity	1,25 V/mm
temperature drift	± 3 % (Full Scale)
current output	
sensitivity	2,0 mA/mm
temperature drift	±4% (Full Scale)
electrical data	
response time (factory characteristic)	< 1 ms
voltage supply range +Vs	12 36 VDC
short circuit protection	yes
reverse polarity protection	yes
voltage output	
current consumption max. (no load)	15 mA
output signal	0 10 VDC
load resistance	> 4000 Ohm
current output	
current consumption max. (no load)	20 mA
output signal	4 20 mA
load resistance	< 50 Ohm/V * Vs - 250 Ohm > 500 Ohm (Vs = 30 36 VDC)
mechanical data	
type	cylindrical threaded
housing material	brass nickel plated
dimension	18 mm
housing length	60 mm
connection types	connector M12
tightening torque max.	40 Nm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

dimension drawing



connection diagram

ſ	BN (1) 0 +Vs
Analog U	BK (4) output
Ĺ	BU (3) Z 0 V

	connectors and mating connectors		
	ESG 34CH0200	Conne	ector M12, 5 pin, straight, 2 m
	ESW 33CH0200	Conne	ector M12, 5 pin, angular, 2 m
	ESW 33CH0500	Conne	ector M12, 5 pin, angular, 5 m
	ESG 34CH0200G	Conne	ector M12, 5 pin, straight, 2 m, shielded
	additional cable con accessories	nnector	rs and field wireable connectors: see
	Accessories		
	10151658		Sensofix series 18
	ZADAP-M18.STAN	DARD	Mounting bracket series 18
	ZADAP-M18.SHORT		Mounting bracket short series 18 (L design)
	ZADAP-M18.LONG	ì	Mounting bracket long series 18 (L design)
	10141584		Teach-in Adapter M12
for details: see accessorie		assoria	as section

for details: see accessories section

order reference	output circuit	temperature drift	sensitivity
IR18.D08L-11164789	current output	± 4 % (Full Scale)	2,0 mA/mm
IR18.D08L-11141092	voltage output	± 3 % (Full Scale)	1,25 V/mm

Inductive distance sensors linearized characteristic curve AlphaProx® IR18.D08L



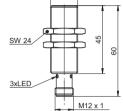
Sd = 0 ... 8 mm

- linear analog output
- external Teach-in
- 2 adjustable switching points

general data

general uata	
mounting type	quasi-flush
special type	2 adjust. switching points linearized
measuring distance Sd	0 8 mm
sensitivity	1,25 V/mm
resolution	< 0,002 mm (stat.) < 0,006 mm (dynam.)
repeat accuracy	< 0,015 mm
adjustment	external Teach-in
teach	1-point analog, window digital, factory reset
linearity error	± 32 µm
temperature drift	± 3 % (Full Scale)
electrical data	
response time (factory characteristic)	< 1 ms
voltage supply range +Vs	12 36 VDC
current consumption max. (no load)	15 mA
output circuit	voltage output / push-pull
output signal	0 10 VDC
load resistance	> 4000 Ohm
output current	< 100 mA (push-pull)
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
housing material	brass nickel plated
dimension	18 mm
housing length	60 mm
connection types	connector M12
tightening torque max.	40 Nm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

dimension drawing



connection diagram

	BN (1) + + Vs
Analog U	GY (5) GY
push pull	BK (4) Output push push
l	BU (3)

connectors and mating connectors					
ESG 34CH0200 Conr	ESG 34CH0200 Connector M12, 5 pin, straight, 2 m				
ESW 33CH0200 Conr	nector M12, 5 pin, angular, 2 m				
ESW 33CH0500 Conr	nector M12, 5 pin, angular, 5 m				
ESG 34CH0200G Conr	nector M12, 5 pin, straight, 2 m, shielded				
additional cable connecto accessories	ors and field wireable connectors: see				
Accessories					
10151658	Sensofix series 18				
ZADAP-M18.STANDARD	Mounting bracket series 18				
ZADAP-M18.SHORT	Mounting bracket short series 18 (L design)				
ZADAP-M18.LONG	Mounting bracket long series 18 (L design)				
10141584	Teach-in Adapter M12				
for details: see accessories section					

order reference

IR18.D08L-11130478

Inductive distance sensors linearized characteristic curve AlphaProx® IR30.D18L



Sd = 0 ... 18 mm

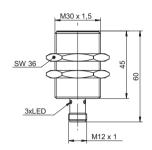
- linear analog output
- external Teach-in
- large measuring distance

general data

general data	
mounting type	flush
special type	linearized
measuring distance Sd	0 18 mm
resolution	< 0,005 mm (stat.) < 0,01 mm (dynam.)
repeat accuracy	< 0,02 mm
adjustment	external Teach-in
teach	1-point analog, 2-point analog, factory reset
linearity error	± 360 μm
temperature drift	± 6 % (Full Scale)
voltage output	
sensitivity	0,56 V/mm
current output	
sensitivity	0,89 mA/mm
electrical data	
response time (factory characteristic)	< 5 ms
current consumption max. (no load)	20 mA
short circuit protection	yes
reverse polarity protection	yes
voltage output	
voltage supply range +Vs	12 36 VDC
output signal	0 10 VDC
load resistance	> 4000 Ohm
current output	
voltage supply range +Vs	8 36 VDC
output signal	4 20 mA
load resistance	< 50 Ohm/V * Vs - 250 Ohm > 500 Ohm (Vs = 30 36 VDC)
mechanical data	
type	cylindrical threaded
housing material	brass nickel plated
dimension	30 mm
housing length	60 mm
connection types	connector M12
tightening torque max.	100 Nm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

order reference	output circuit	sensitivity	
IR30.D18L-11179029	current output	0,89 mA/mm	
IR30.D18L-11179028	voltage output	0,56 V/mm	

dimension drawing



connection diagrams

	BN (1) 0+Vs	BN (1) 0 +Vs
Analog U	H/GY (2/5) •.: o teach-in BK (4) o output	Analog I BK (4) o output
		BU (3)

connectors and mating connectors

Accessories	
accessories	
	nnectors and field wireable connectors: see
ESW 33AH0200G	Connector M12, 4 pin, angular, 2 m, shielded
ESW 33AH0200	Connector M12, 4 pin, angular, 2 m
ESG 34AH0200	Connector M12, 4 pin, straight, 2 m

Accessories

10141584 Teach-in Adapter M12 for details: see accessories section

Inductive distance sensors linearized characteristic curve AlphaProx ® IR30.D24L



Sd = 0 ... 24 mm

- linear analog output
- external Teach-in
- large measuring distance

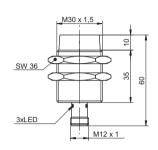
general data

general data	
mounting type	non-flush
special type	linearized
measuring distance Sd	0 24 mm
resolution	< 0,005 mm (stat.) < 0,01 mm (dynam.)
repeat accuracy	< 0,02 mm
adjustment	external Teach-in
teach	1-point analog, 2-point analog, factory reset
linearity error	± 480 μm
temperature drift	± 6 % (Full Scale)
voltage output	
sensitivity	0,42 V/mm
current output	
sensitivity	0,67 mA/mm
electrical data	
response time (factory characteristic)	< 5 ms
current consumption max. (no load)	20 mA
short circuit protection	yes
reverse polarity protection	yes
voltage output	
voltage supply range +Vs	12 36 VDC
output signal	0 10 VDC
load resistance	> 4000 Ohm
current output	
voltage supply range +Vs	8 36 VDC
output signal	4 20 mA
load resistance	< 50 Ohm/V * Vs - 250 Ohm > 500 Ohm (Vs = 30 36 VDC)
mechanical data	
type	cylindrical threaded
housing material	brass nickel plated
dimension	30 mm
housing length	60 mm
connection types	connector M12
tightening torque max.	100 Nm
ambient conditions	
operating temperature	-25 +75 °C
protection class	IP 67

order reference	output circuit	sensitivity	
IR30.D24L-11179051	current output	0,67 mA/mm	
IR30.D24L-11179050	voltage output	0,42 V/mm	



dimension drawing



connection diagrams

[BN (1) → +Vs → +Vs	r
Analog U	BU (3)	

	BN (1)	(0(5) *1	–o +Vs
	<u>WH/GY</u>	(2/5) •	-o teach-in
Analog I	BK (4)		-o output
	BU (3)	(Ž.)	-0 n V

connectors and mating connectorsESG 34AH0200Connector M12, 4 pin, straight, 2 mESW 33AH0200Connector M12, 4 pin, angular, 2 mESW 33AH0200GConnector M12, 4 pin, angular, 2 m, shieldedadditional cable connectors and field wireable connectors: see
accessoriesAccessories10141584Teach-in Adapter M12

for details: see accessories section

Inductive distance sensors linearized characteristic curve *AlphaProx*® **IWFM 18**



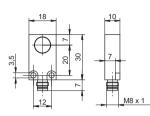
Sd = 0 ... 4 mm

- very high resolution
- short response time
- linear analog output

general data mounting type flush measuring distance Sd 0 ... 4 mm voltage - / current output linearity error ± 160 µm temperature drift ± 4 % (Full Scale) voltage output special type linearized linearity error ± 16 µm temperature drift ± 5 % (Full Scale) electrical data 15 ... 30 VDC voltage supply range +Vs short circuit protection ves reverse polarity protection yes voltage - / current output current consumption max. (no 40 mA load) 0 ... 10 V / 4 ... 20 mA output signal > 1000 Ohm (Uout) / 330 ... 1000 load resistance Ohm (lout) voltage drop Vd < 7,2 VDC (lout) voltage output 20 mA current consumption max. (no load) output signal 0 ... 10 VDC mechanical data type rectangular housing material brass nickel plated dimension 18 mm 30 mm housing length connection types connector M8 ambient conditions -10 ... +70 °C operating temperature protection class IP 67



dimension drawing



connection diagrams

IWFM	BN (1) 0 + Vs	IWFM	BN (1)	o + Vs
	WH (2) output I BK (4) output U BU (3) Z Z O V	≋ ▷	WH (2) BK (4) BU (3)	o don't connect o output U o 0 V

connectors and mating connectors

ESG 32AH0200	Connector M8, 4 pin, straight, 2 m
ESW 31AH0200	Connector M8, 4 pin, angular, 2 m
ESG 32AH0200G	Connector M8, 4 pin, straight, 2 m, shielded
ESW 31AH0200G	Connector M8, 4 pin, angular, 2 m, shielded
additional cable con accessories	nnectors and field wireable connectors: see
Accessories	
10152385	Sensofix series 18/20 inductive rectangular

for details: see accessories section

Inductive distance sensors linearized characteristic curve $AlphaProx^{\otimes}$

IWFM 18

order reference	resolution	repeat accuracy	output circuit	response time (factory character- istic)	linearity error	temperature drift	special type
IWFM 18L9504/S35A	< 0,005 mm	< 0,01 mm	voltage - / current output	< 2 ms	± 160 μm	±4% (Full Scale)	-
IWFM 18L9505/S35A	< 0,001 mm	< 0,005 mm	voltage - / current output	< 30 ms	± 160 µm	±4% (Full Scale)	-
IWFM 18U7504/S35A	< 0,005 mm	< 0,01 mm	voltage output	< 2,5 ms	± 16 µm	± 5 % (Full Scale)	linearized

Inductive distance sensors linearized characteristic curve AlphaProx® IWFK 20



Sd = 0 ... 10 mm

- internal Teach-in
- analog- and switching output
- linear analog output

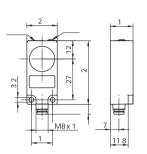
general data

general data	
mounting type	quasi-flush
special type	linearized
measuring distance Sd	0 10 mm
resolution	< 0,01 mm (stat.) < 0,01 mm (dynam.)
repeat accuracy	< 0,015 mm
adjustment	Teach-in
linearity error	± 50 μm
temperature drift	± 5 % (Full Scale)
electrical data	
response time (factory characteristic)	< 2,5 ms
response time (teach in characteristic)	< 3,1 ms
voltage supply range +Vs	15 30 VDC
current consumption max. (no load)	30 mA
output circuit	voltage output / PNP
output signal	0 10 VDC
load resistance	> 1000 Ohm
output current	< 10 mA (PNP)
voltage drop Vd	< 5 VDC (PNP)
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	rectangular
housing material	polyester
dimension	20 mm
housing length	42 mm
connection types	connector M8
ambient conditions	
operating temperature	-10 +70 °C
protection class	IP 67

order reference IWFK 20Z8704/S35A



dimension drawing



connection diagram

IWF		—o +Vs
≋	BK (4) WH (2) BU (3) :	-o output analog o output digital

connectors and mating connectors

	· · · · · · · · · · · · · · · · · · ·	
ESG 32AH0200	Connector M8, 4 pin, straight, 2 m	
ESW 31AH0200	Connector M8, 4 pin, angular, 2 m	
ESG 32AH0200G	Connector M8, 4 pin, straight, 2 m, shielded	
ESW 31AH0200G	Connector M8, 4 pin, angular, 2 m, shielded	
additional cable connectors and field wireable connectors: see		
accessories		
Accessories		
10152385	Sensofix series 18/20 inductive rectangular	

for details: see accessories section

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IR12.D03K



Sd = 2,75 ... 3 mm

- linear analog output
- external Teach-in
- large measuring distance

general data

gonorar aata	
mounting type	flush
special type	linearized
	high sensitivity
measuring distance Sd	2,75 3 mm
resolution	< 0,00025 mm (stat.) < 0,0005 mm (dynam.)
repeat accuracy	< 0,001 mm
adjustment	external Teach-in
teach	1-point analog, factory reset
linearity error	± 5 μm
temperature drift	± 4 % (Full Scale; +10 +30 °C) ± 12 % (Full Scale; -10 +60 °C)
voltage output	
sensitivity	40 V/mm (Range: 0,25 mm)
current output	
sensitivity	64 mA/mm (Range: 0,25 mm)
electrical data	
response time (factory characteristic)	< 3 ms
current consumption max. (no load)	15 mA
short circuit protection	yes
reverse polarity protection	yes
voltage output	
voltage supply range +Vs	12 30 VDC
output signal	0 10 VDC
load resistance	> 4000 Ohm
current output	
voltage supply range +Vs	8 30 VDC
output signal	4 20 mA
load resistance	< 25 Ohm/V * Vs
mechanical data	
type	cylindrical threaded
material (sensing face)	ceramic
housing material	steel nickel plated
dimension	12 mm
housing length	60 mm
connection types	connector M12
tightening torque max.	15 Nm
ambient conditions	
operating temperature	-10 +60 °C
protection class	IP 67

order reference	output circuit	sensitivity
IR12.D03K-11158152	current output	64 mA/mm (Range: 0,25 mm)
IR12.D03K-11158153	voltage output	40 V/mm (Range: 0,25 mm)

SW 17 SW 17

dimension drawing

connection diagrams

connectors and mating connectors

	··· · · · · · · · · · · · · · · · · ·	
ESG 34CH0200	Connector M12, 5 pin, straight, 2 m	
ESW 33CH0200	Connector M12, 5 pin, angular, 2 m	
ESW 33CH0500	Connector M12, 5 pin, angular, 5 m	
ESG 34CH0200G	Connector M12, 5 pin, straight, 2 m, shielded	
additional cable connectors and field wireable connectors: see accessories		
Accessories		
10151720	Sensofix series 12 round	
10141584	Teach-in Adapter M12	
for details: see accessories section		

IR18.D03K



Sd = 2,75 ... 3 mm

- linear analog output
- High Sensitivity
- large measuring distance

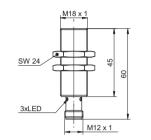
general data

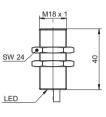
U	
mounting type	flush
special type	linearized
	high sensitivity
measuring distance Sd	2,75 3 mm
resolution	< 0,00025 mm (stat.) < 0,0005 mm (dynam.)
repeat accuracy	< 0,001 mm
adjustment	external Teach-in
teach	1-point analog, factory reset
linearity error	± 5 μm
temperature drift	± 4 % (Full Scale; +10 +30 °C) ± 12 % (Full Scale; -10 +60 °C)
voltage output	
sensitivity	40 V/mm (Range: 0,25 mm)
current output	
sensitivity	64 mA/mm (Range: 0,25 mm)
electrical data	
response time (factory characteristic)	< 3 ms
current consumption max. (no load)	15 mA
short circuit protection	yes
reverse polarity protection	yes
voltage output	
voltage supply range +Vs	12 30 VDC
output signal	0 10 VDC
load resistance	> 4000 Ohm
current output	
voltage supply range +Vs	8 30 VDC
output signal	4 20 mA
load resistance	< 25 Ohm/V * Vs
mechanical data	
type	cylindrical threaded
material (sensing face)	ceramic
housing material	steel nickel plated
dimension	18 mm
housing length	60 mm
connection types	connector M12
tightening torque max.	40 Nm
ambient conditions	
operating temperature	-10 +60 °C
protection class	IP 67
1	

order reference	output circuit	sensitivity
IR18.D03K-11158154	current output	64 mA/mm (Range: 0,25 mm)
IR18.D03K-11158155	voltage output	40 V/mm (Range: 0,25 mm)



dimension drawings



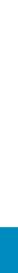


connection diagrams

BN (1) • +Vs • +Vs • • +Vs • • • • teach-in BK (4) • • • • output BU (3) • • • • • • • • • • • • • • • • • • •	BN (1) o +Vs o +Vs wH (2) : o teach-in BK (4) o output BU (3) : 20 v
connectors and mating con	nectors
ESC 24CH0200 Connecto	r M12 E nin straight 2 m

ESG 34CH0200	Conne	ector M12, 5 pin, straight, 2 m
ESW 33CH0200	Conne	ector M12, 5 pin, angular, 2 m
ESW 33CH0500	Conne	ector M12, 5 pin, angular, 5 m
ESG 34CH0200G	Conne	ector M12, 5 pin, straight, 2 m, shielded
additional cable connectors and field wireable connectors: see accessories		rs and field wireable connectors: see
Accessories		
10151658		Sensofix series 18
ZADAP-M18.STAN	DARD	Mounting bracket series 18
ZADAP-M18.SHOF	RΤ	Mounting bracket short series 18 (L design)
ZADAP-M18.LONG	ì	Mounting bracket long series 18 (L design)
10141584		Teach-in Adapter M12
for details: see accessories section		

IR18.D08F



Inductive distance sensors application specific $AlphaProx^{\circ}$

le connectors and field wireable co		
	Sensofix series 18	
STANDARD	Mounting bracket seri	
SHORT	Mounting bracket sho design)	
LONG	Mounting bracket long	
	Teach-in Adapter M12	
e accessories section		

-8

Sd = 0 ... 8 mm

- factor 1
- linear analog output
- external Teach-in

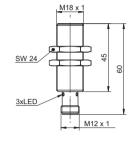
general data

special type linearized factor 1 measuring distance Sd 0 8 mm sensitivity 1,25 V/mm resolution < 0,02 mm (stat.) < 0,03 mm (dynam.) repeat accuracy < 0,03 mm adjustment external Teach-in teach 1-point analog, 2-point analog, factory reset
measuring distance Sd 0 8 mm sensitivity 1,25 V/mm resolution < 0,02 mm (stat.)
resolution < 0,02 mm (stat.) < 0,03 mm (dynam.) repeat accuracy < 0,03 mm adjustment external Teach-in teach 1-point analog, 2-point analog,
< 0,03 mm (dynam.)
adjustmentexternal Teach-inteach1-point analog, 2-point analog,
teach 1-point analog, 2-point analog,
linearity error ± 70 µm
temperature drift ± 3 % (Full Scale; S = 0 6 mm) ± 5 % (Full Scale; S = 0 8 mm)
electrical data
response time (factory < 15 ms characteristic)
voltage supply range +Vs 12 36 VDC
current consumption max. (no 15 mA load)
output circuit voltage output
output signal 0 10 VDC
load resistance > 4000 Ohm
short circuit protection yes
reverse polarity protection yes
mechanical data
type cylindrical threaded
housing material brass nickel plated
dimension 18 mm
housing length 60 mm
connection types connector M12
tightening torque max. 40 Nm
ambient conditions
operating temperature -25 +75 °C
protection class IP 67

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Carros a

dimension drawing



connection diagram

Г	BN (1)	—o +Vs
Analog U	WH/BK (2/4)	—o output
	BU (3)	00 V

connectors and mati	ing connectors
ESG 34CH0200 Co	onnector M12, 5 pin, straight, 2 m
ESW 33CH0200 C	onnector M12, 5 pin, angular, 2 m
ESW 33CH0500 C	onnector M12, 5 pin, angular, 5 m
ESG 34CH0200G Co	onnector M12, 5 pin, straight, 2 m, shielded
additional cable conne accessories	ectors and field wireable connectors: see
Accessories	
10151658	Sensofix series 18
ZADAP-M18.STANDA	RD Mounting bracket series 18
ZADAP-M18.SHORT	Mounting bracket short series 18 (L design)
ZADAP-M18.LONG	Mounting bracket long series 18 (L design)
10141584	Teach-in Adapter M12
for details: see access	sories section

for details: see

order reference IR18.D08F-11170540

IWRR 18



general data

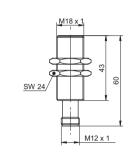
mounting type

special type

Sd = 0 ... 7 mm

- outdoor design, robust steel housing
- protection class IP 69K & proTect+
- operating temperature -40 ... +70°C

dimension drawing



connection diagram

IWRI	M _	BN (1)		–o+Vs
\approx	9	WH/BK	(2/4)	-0 output
		BU(3)		-00 V

connectors and mating connectors				
ESG 34AY0200	Connector M12, 4 pin, straight, 2 m, V4A-PP			
ESW 33AY0200	Connector M12, 4 pin, angular, 2 m, V4A-PP			
ESG 34AE0500	Connector M12, 4 pin, straight, 5 m			
ESG 34AE0500G	Connector M12, 4 pin, straight, 5 m, shielded			
additional cable connectors and field wireable connectors: see accessories				
Accessories				
Accessories				
Accessories 10151658	Sensofix series 18			
10151658	ARD Mounting bracket series 18			
10151658 ZADAP-M18.STAND	ARD Mounting bracket series 18 Mounting bracket short series 18 (L			

special type	Washdown design	
measuring distance Sd	0 7 mm	
resolution	< 0,005 mm (stat.) < 0,01 mm (dynam.)	
repeat accuracy	< 0,015 mm	
linearity error	± 350 μm	
temperature drift	± 10 % (Full Scale)	
approvals/certificates	Ecolab	
electrical data		
response time (factory characteristic)	< 2 ms	
voltage supply range +Vs	15 30 VDC	
current consumption max. (no load)	40 mA	
output circuit	current output	
output signal	4 20 mA	
load resistance +Vs min.	< 330 Ohm	
load resistance +Vs max.	< 1000 Ohm	
short circuit protection	yes	
reverse polarity protection	yes	
mechanical data		
type	cylindrical threaded	
material (sensing face)	LCP	
housing material	stainless steel 1.4404 (V4A)	
dimension	18 mm	
housing length	60 mm	
connection types	connector M12	
ambient conditions		
operating temperature	-40 +70 °C	
cleaning temperature	70 +85 °C (30 min/day)	
protection class	IP 68/69K & proTect+	
vibration resistance	EN 61373: 2010 (category 3), 5h per axis (14.4 gRMS, 10-500 Hz, EN 60068-2-64)	
shock resistance	EN 61373: 2010 (category 3), 10 bumps per axis (100 g, 6 ms, EN 60068-2-27)	

quasi-flush Outdoor design

order reference IWRR 18I97T4/S14

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IWRM 18



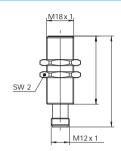
Sd = 0 ... 8 mm

- large measuring distance
- operating temperature -40 ... +70°C



general data	
mounting type	quasi-flush
special type	Outdoor design
measuring distance Sd	0 8 mm
resolution	< 0,005 mm (stat.) < 0,01 mm (dynam.)
repeat accuracy	< 0,015 mm
linearity error	± 400 μm
temperature drift	± 10 % (Full Scale)
electrical data	
response time (factory characteristic)	< 2 ms
voltage supply range +Vs	15 30 VDC
current consumption max. (no load)	40 mA
output circuit	current output
output signal	4 20 mA
load resistance +Vs min.	< 330 Ohm
load resistance +Vs max.	< 1000 Ohm
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
material (sensing face)	PBT
housing material	brass nickel plated
dimension	18 mm
housing length	60 mm
connection types	connector M12
ambient conditions	
operating temperature	-40 +70 °C
protection class	IP 67

dimension drawing



connection diagram

IWRN	1 _	BN (1)		–o+Vs
\approx	ę	WH/BK	(2/4)	–• output
		BU(3)	نہ جہ ا 	

connectors and mating connectors

ESG 34AE0500	Connector M12, 4 pin, straight, 5 m			
	Connector M12, 4 pin, straight, 5 m, shielded			
E3G 34AE0300G	Connector Witz, 4 pin, straight, 5 m, shielded			
additional cable connectors and field wireable connectors: see				
accessories				

Accessories			
10151658	Sensofix series 18		
ZADAP-M18.STANDARD	Mounting bracket series 18		
ZADAP-M18.SHORT	Mounting bracket short series 18 (L design)		
ZADAP-M18.LONG	Mounting bracket long series 18 (L design)		
for details: see accessories section			

gn)____

Inductive distance sensors application specific $AlphaProx^{\otimes}$

IWRM 18 Sd = 0 ... 8 mm

order reference IWRM 18I97T4/S14

IWRM 12 ATEX



Sd = 0 ... 4 mm

- ATEX certification
- very high resolution

	81-mm	

dimension drawing

general data	
mounting type	quasi-flush
measuring distance Sd	0 4 mm
resolution	< 0,001 mm (stat.) < 0,005 mm (dynam.)
repeat accuracy	< 0,01 mm
linearity error	± 160 μm
temperature drift	±4% (Full Scale)
approvals/certificates	ATEX 2D
electrical data	
response time (factory characteristic)	< 2 ms
voltage supply range +Vs	15 27 VDC
current consumption max. (no load)	20 mA
output circuit	current output
output signal	4 20 mA
load resistance +Vs min.	< 330 Ohm
load resistance +Vs max.	< 1000 Ohm
Maximal zulässige Verlustleistung	< 1,35 W
short circuit protection	yes
reverse polarity protection	yes
mechanical data	
type	cylindrical threaded
housing material	brass nickel plated
dimension	12 mm
housing length	50 mm
connection types	connector M12
tightening torque max.	15 Nm
ambient conditions	
protection class	IP 67
safe maximum values	
safe maximum values marking	II 2D Ex tb IIIC T100°C Db IP6X

M12 x 1	
<u>SW 17</u> m	
M12 x 1	

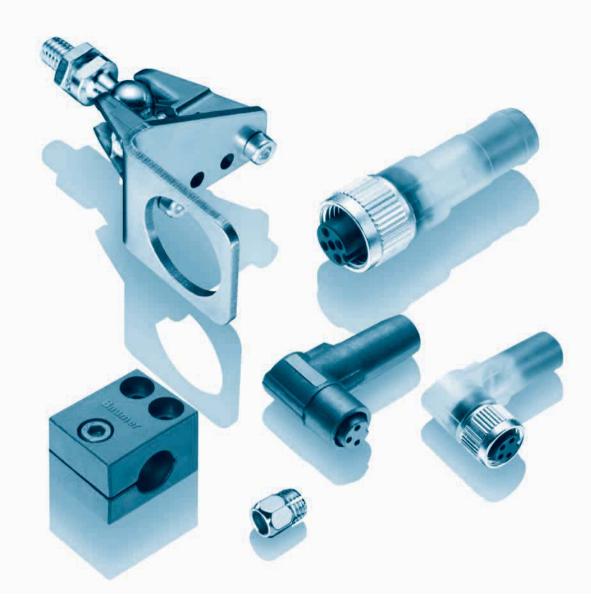
IWRM BN (1) O+Vs	IWRM BN (1) 0+Vs
₩ <u>H/BK (2/4)</u> BU (3)	₩H/BK (2/4) BU(3) (27) BU(3) 00 V

connectors and m	nating connectors
ESG 34SH0200X	Connector M12, 3 pin, straight, 2 m, only for ATEX applications with sensor IWRM 12I9704/ S14X
ESW 33SH0200X	Connector M12, 3 pin, angular, 2 m, only for ATEX applications with sensor IWRM 12I9704/S14X
additional cable co accessories	nnectors and field wireable connectors: see
Accessories	
10151720	Sensofix series 12 round
for datailar and and	and the section

for details: see accessories section

order reference IWRM 12I9704/S14X

IWRM 12 ATEX Sd = 0 ... 4 mm

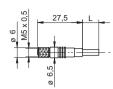


Connectors and mating connectors	Page 204
Connectors/Pin assignment	Page 212
Installation dimensions	Page 213
Mounting accessories	Page 214
Mounting kits SENSOFIX	Page 217

Connectors and mating connectors

ESG 05 - Connector M5 straight

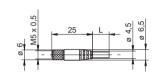




order reference	
ESG 05SP0200	Connector M5, 3 pin, straight, 2 m
ESG 05SP0500	Connector M5, 3 pin, straight, 5 m
ESG 05SP1000	Connector M5, 3 pin, straight, 10 m

- Connector unshielded
- Miniature version
- Cable coating PUR

ESG 05G - Connector M5 straight, shielded



order referenceESG 05AP0200GConnector M5, 4 pin, straight, 2 m, shielded

- Connector shielded
- Miniature version
- Cable coating PUR





20 L

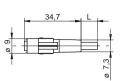
order reference	
ESW 05SP0200	Connector M5, 3 pin, angular, 2 m
ESW 05SP0500	Connector M5, 3 pin, angular, 5 m

- Connector unshielded
- Miniature version
- Cable coating PUR

Connectors and mating connectors

ESG 09 - Connector Ø 8 mm straight, snap-in

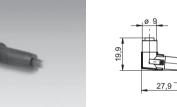




order reference	
ESG 09SH0200	Connector clip fastener, 3 pin, straight, 2 m
ESG 09SH0500	Connector clip fastener, 3 pin, straight, 5 m
ESG 09SH1000	Connector clip fastener, 3 pin, straight, 10 m

- Connector unshielded "snap-in"
- 3 pin versions
- Cable coating PUR
- Halogen-free
- Suitable for flexible cable carriers
- UL listed, number E315836

ESW 08 - Connector Ø 8 mm angular, snap-in



order reference	
ESW 08AH0200	Connector clip fastener, 4 pin, straight, 2 m
ESW 08AH0500	Connector clip fastener, 4 pin, straight, 5 m
ESW 08SH0200	Connector clip fastener, 3 pin, straight, 2 m
ESW 08SH0500	Connector clip fastener, 3 pin, straight, 5 m

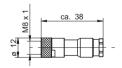
- Connector unshielded "snap-in"
- 3 and 4 pin versions
- Cable coating PUR
- Halogen-free
- Suitable for flexible cable carriers
- UL listed, number E315836

ES 21 - Cable socket M8 straight, not pre-assembled



Connector female unshieldedConnector only, no cable supplied

• 3 and 4 pin version



order referenceES 21Connector M8, 3 pin, straightES 21AConnector M8, 4 pin, straight

Accessories

Connectors and mating connectors

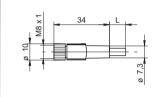
ES 22 - Cable socket M8 angular, not pre-assembled



order re	ference
ES 22	Connector M8, 3 pin, angular
ES 22A	Connector M8, 4 pin, angular

- Connector female unshielded
- Connector only, no cable supplied
- 3 and 4 pin versions

ESG 32 - Connector M8 straight



M8 x 1

18 24

order reference	
ESG 32AH0200	Connector M8, 4 pin, straight, 2 m
ESG 32AH0500	Connector M8, 4 pin, straight, 5 m
ESG 32AH1000	Connector M8, 4 pin, straight, 10 m
ESG 32SH0200	Connector M8, 3 pin, straight, 2 m
ESG 32SH0500	Connector M8, 3 pin, straight, 5 m
ESG 32SH1000	Connector M8, 3 pin, straight, 10 m

- Connector unshielded
- 3 and 4 pin versions
- Cable coating PUR
- Halogen-free
- Suitable for flexible cable carriers
- UL listed, number E315836
- Meet EN 60079-25 requirements for intrinsically safe ATEX applications

ESG 32F - Connector M8 straight, PVC/V4A



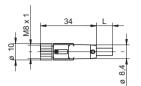
order reference	
ESG 32SF0500	Connector M8, 3 pin, straight, 5 m, V4A-PVC
ESG 32SF1000	Connector M8, 3 pin, straight, 10 m, V4A-PVC

- Connector unshielded
- 3 pin version
- Cable coating PVC
- Cap nut material in stainless steel V4A
- Suitable for flexible cable carriers

Connectors and mating connectors

ESG 32G - Connector M8 straight, shielded

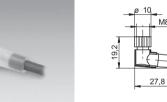


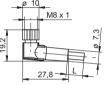


order reference	
ESG 32AH0200G	Connector M8, 4 pin, straight, 2 m, shielded
ESG 32AH0500G	Connector M8, 4 pin, straight, 5 m, shielded
ESG 32AH1000G	Connector M8, 4 pin, straight, 10 m, shielded
ESG 32SH0500G	Connector M8, 3 pin, straight, 5 m, shielded
ESG 32SH1000G/T	Connector M8, 3 pin, straight, 10 m, shielded

- Connector shielded, screen connected with cap nut
- 3 and 4 pin versions
- Cable coating PUR
- Halogen-free
- Suitable for flexible cable carriers
- UL listed, number E315836

ESW 31 - Connector M8 angular



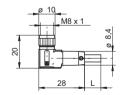


order reference	
ESW 31AH0200	Connector M8, 4 pin, angular, 2 m
ESW 31AH0500	Connector M8, 4 pin, angular, 5 m
ESW 31AH1000	Connector M8, 4 pin, angular, 10 m
ESW 31SH0200	Connector M8, 3 pin, angular, 2 m
ESW 31SH0500	Connector M8, 3 pin, angular, 5 m
ESW 31SH1000	Connector M8, 3 pin, angular, 10 m
	ESW 31AH0200 ESW 31AH0500 ESW 31AH1000 ESW 31SH0200 ESW 31SH0500

- Connector unshielded
- 3 and 4 pin versions
- Cable coating PUR
- Halogen-free
- Suitable for flexible cable carriers
- UL listed, number E315836
- Meet EN 60079-25 requirements for intrinsically safe ATEX applications

ESW 31G - Connector M8 angular, shielded





order reference	
ESW 31AH0200G	Connector M8, 4 pin, angular, 2 m, shielded
ESW 31AH0500G	Connector M8, 4 pin, angular, 5 m, shielded
ESW 31AH1000G	Connector M8, 4 pin, angular, 10 m, shielded
ESW 31SH0200G	Connector M8, 3 pin, angular, 2 m, shielded
ESW 31SH0500G	Connector M8, 3 pin, angular, 5 m, shielded

- Connector shielded, screen connected with cap nut
- 3 and 4 pin versions
- Cable coating PUR
- Halogen-free
- Suitable for flexible cable carriers
- UL listed, number E315836

ESW 31AH0200G	Connector M8, 4 pin, angular, 2 m, shielded
ESW 31AH0500G	Connector M8, 4 pin, angular, 5 m, shielded
ESW 31AH1000G	Connector M8, 4 pin, angular, 10 m, shielded
ESW 31SH0200G	Connector M8, 3 pin, angular, 2 m, shielded
ESW 31SH0500G	Connector M8, 3 pin, angular, 5 m, shielded

Accessories

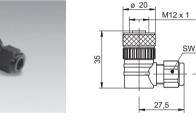
ES 18 - Cable socket M12 straight, not pre-assembled



order reference		
ES 18A PG7	Connector M12, 4 pin, straight	
ES 18C PG7	Connector M12, 5 pin, straight	

- Connector female unshielded
- Connector only, no cable supplied
- 4 and 5 pin versions

ES 14 - Cable socket M12 angular, not pre-assembled



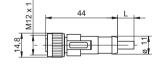
SW 15

order reference	
ES 14A PG7	Connector M12, 4 pin, angular
ES 14C PG7	Connector M12, 5 pin, angular

- Connector female unshielded
- Connector only, no cable supplied
- 4 and 5 pin versions

ESG 34 - Connector M12 straight





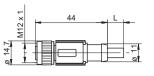
order reference	
ESG 34AH0200	Connector M12, 4 pin, straight, 2 m
ESG 34AH0500	Connector M12, 4 pin, straight, 5 m
ESG 34AH1000	Connector M12, 4 pin, straight, 10 m
ESG 34CH0200	Connector M12, 5 pin, straight, 2 m
ESG 34CH0500	Connector M12, 5 pin, straight, 5 m
ESG 34SH0200	Connector M12, 3 pin, straight, 2 m
ESG 34SH0500	Connector M12, 3 pin, straight, 5 m
ESG 34SH1000	Connector M12, 3 pin, straight, 10 m

- Connector unshielded
- 3, 4 and 5 pin versions
- Cable coating PUR
- Halogen-free
- Suitable for flexible cable carriers
- UL listed, number E315836

Connectors and mating connectors

ESG 34G - Connector M12 straight, shielded



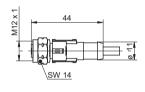


- Connector shielded, screen connected with cap nut
- 4, 5 and 8 pin versions
- Cable coating PUR
- Halogen-free
- Suitable for flexible cable carriers
- UL listed, number E315836

order reference	
ESG 34AH0200G	Connector M12, 4 pin, straight, 2 m, shielded
ESG 34AH0500G	Connector M12, 4 pin, straight, 5 m, shielded
ESG 34AH1000G	Connector M12, 4 pin, straight, 10 m, shielded
ESG 34CH0200G	Connector M12, 5 pin, straight, 2 m, shielded
ESG 34CH0500G	Connector M12, 5 pin, straight, 5 m, shielded
ESG 34CH1000G	Connector M12, 5 pin, straight, 10 m, shielded
ESG 34FH0200G	Connector M12, 8 pin, straight, 2 m, shielded
ESG 34FH0500G	Connector M12, 8 pin, straight, 5 m, shielded
ESG 34FH1000G	Connector M12, 8 pin, straight, 10 m, shielded

ESG 34F - Connector M12 straight, PVC/V4A





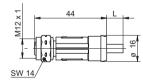
ESG 34AF0500Connector M12, 4 pin, straight, 5 m, V4A-PVCESG 34AF1000Connector M12, 4 pin, straight, 10 m, V4A-PVC

order reference

- Connector unshielded
- 4 pin version
- Cable coating PVC
- Cap nut material in stainless steel V4A
- Ecolab certified and FDA conform
- UL listed, number E315836

ESG 34 (Outdoor) - Connector M12 straight, PE-X cable





or	rder reference	
ES	SG 34AE0500	Connector M12, 4 pin, straight, 5 m
ES	SG 34AE1000	Connector M12, 4 pin, straight, 10 m

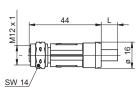
- For outdoor applications
- 4 pin versions unshielded
- Cable coating PE-X
- Halogen-free
- Cap nut material in high grade steel (1.4401)

Accessories

Connectors and mating connectors

ESG 34G (Outdoor) - Connector M12 straight, shielded, PE-X cable





order reference	
ESG 34AE0500G	Connector M12, 4 pin, straight, 5 m, shielded
ESG 34AE1000G	Connector M12, 4 pin, straight, 10 m, shielded

- For outdoor applications
- 4 pin versions shielded
- Cable coating PE-X
- Halogen-free
- Cap nut material in high grade steel (1.4401)

ESW 33 - Connector M12 angular





order reference	
ESW 33AH0200	Connector M12, 4 pin, angular, 2 m
ESW 33AH0500	Connector M12, 4 pin, angular, 5 m
ESW 33AH1000	Connector M12, 4 pin, angular, 10 m
ESW 33CH0200	Connector M12, 5 pin, angular, 2 m
ESW 33CH0500	Connector M12, 5 pin, angular, 5 m
ESW 33SH0200	Connector M12, 3 pin, angular, 2 m
ESW 33SH0500	Connector M12, 3 pin, angular, 5 m
ESW 33SH1000	Connector M12, 3 pin, angular, 10 m

- Connector unshielded
- 3, 4 and 5 pin versions
- Cable coating PUR
- Halogen-free

Connectors and mating connectors

- Suitable for flexible cable carriers
- UL listed, number E315836



28	<u>0</u> 14.8 M12 x 1
	36,2 L

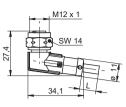
order reference	
ESW 33AH0200G	Connector M12, 4 pin, angular, 2 m, shielded
ESW 33AH0500G	Connector M12, 4 pin, angular, 5 m, shielded
ESW 33AH1000G	Connector M12, 4 pin, angular, 10 m, shielded
ESW 33CH0500G	Connector M12, 5 pin, angular, 5 m, shielded
ESW 33FH0200G	Connector M12, 8 pin, angular, 2 m, shielded
ESW 33FH0500G	Connector M12, 8 pin, angular, 5 m, shielded
ESW 33FH1000G	Connector M12, 8 pin, angular, 10 m, shielded

- Connector shielded, screen connected with cap nut
- 4, 5 and 8 pin versions
- Cable coating PUR
- Halogen-free
- Suitable for flexible cable carriers
- UL listed, number E315836

Connectors and mating connectors

ESW 33F - Connector M12 angular, PVC/V4A





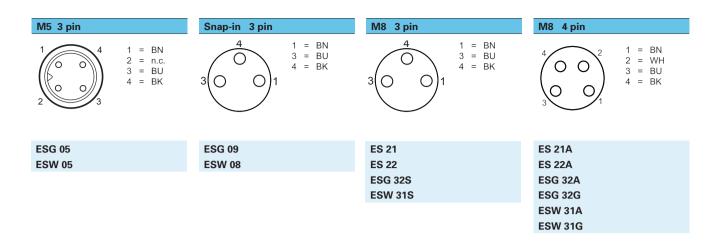
order reference	
ESW 33AF0200	Connector M12, 4 pin, angular, 2 m, V4A-PVC
ESW 33AF0500	Connector M12, 4 pin, angular, 5 m, V4A-PVC
ESW 33AF1000	Connector M12, 4 pin, angular, 10 m, V4A-PVC
ESW 33AF2500	Connector M12, 4 pin, angular, 25 m, V4A-PVC

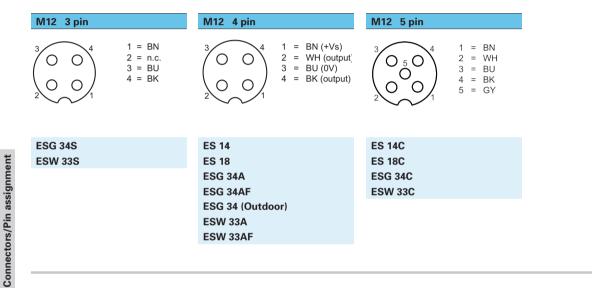
- Connector unshielded
- 4 pin version
- Cable coating PVC
- Cap nut material in stainless steel V4A
- Ecolab certified and FDA conform
- UL listed, number E315836

Accessories

www.eltra-trade.com

Connectors/Pin assignment



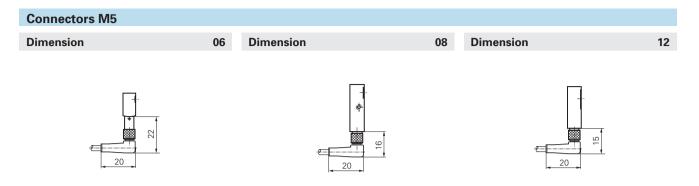


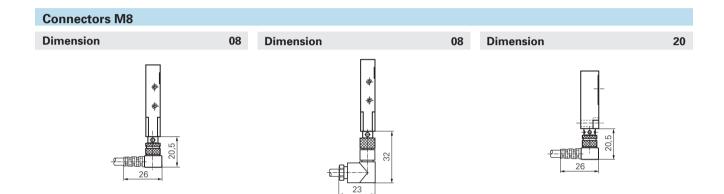
Note

Halogen-free cables

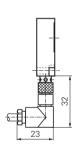
Sheath material	PUR black gray
Special properties	suitable for drag chains silicone-free free from substances that might impair surface wetting in the coating process
Free of halogens	according to DIN VDE 0472 part 815
Flame resistance	according to UL-Style 20549
Oil resistance	according to DIN VDE 60811-2-1

Installation dimensions





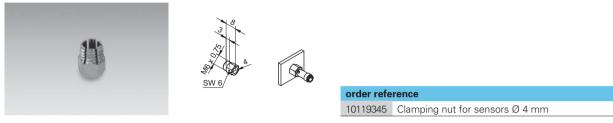
Dimension 20



Clamping nut for sensors Ø 3 mm



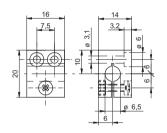
Clamping nut for sensors Ø 4 mm



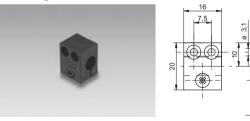
Clamping nut for sensors Ø 6,5 mm

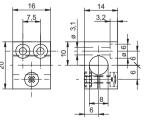


Mounting bracket 6,5 mm



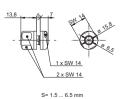
Mounting bracket 8 mm





Mounting HI06-1H for sensors in hygienic design Ø 6,5 mm





- Material: Stainless steel V4A
- EHEDG-certified

order reference

order reference

• Material: Plastic (PA6) For sensors with Ø 6,5 mm

order reference

• Material: Plastic (PA6) For sensors with Ø 8 mm

10117742 Clamping nut for sensors Ø 6,5 mm

10109474 Mounting bracket for sensors Ø 6,5 mm

10109475 Mounting bracket for sensors Ø 8 mm

For use with inductive sensors 6,5 mm

order reference

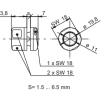
HI06-1H Mounting for sensors in hygienic design Ø 6,5 mm

Accessories

www.eltra-trade.com

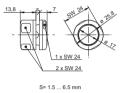
Mounting HI11-1H for sensors in hygienic design \varnothing 11 mm





Mounting HI17-1H for sensors in hygienic design Ø 17 mm





PNP to NPN Converter M8

PNP to NPN Converter M12



PNP/NPN Converter

- For frequencies up to max. 5 kHz
- For connector M8 3 pins

• Material: Stainless steel V4A

Material: Stainless steel V4A

For use with inductive sensors 11 mm

HI11-1H Mounting for sensors in hygienic design Ø 11 mm

For use with inductive sensors 17 mm and photoelectric sensors in

HI17-1H Mounting for sensors in hygienic design Ø 17 mm

• EHEDG-certified

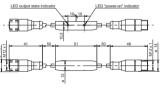
order reference

• EHEDG-certified

hygienic design

order reference





PNP/NPN Converter

order reference

• For frequencies up to max. 5 kHz

10161959 Converter PNP/NPN - M8 x 1

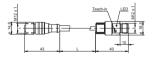
• For connector M12 - 3 pins

order reference

10161958 Converter PNP/NPN - M12 x 1

Teach-in Adapter M12





order reference

10141584 Teach-in Adapter M12

Test unit for sensors analog & digital

- Teach-in of sensors with integrated Teach- button
- Connection for plug in power supply (available as accessory)

Test- and configuration device for analog and digital PNP/NPN sensors with 18 VDC supply voltage

order reference

11084376 Test unit for sensors analog & digital

www.eltra-trade.com

info@eltra-trade.com

Test unit for sensors digital



Power supply for sensor test unit



- LED (red/green) for digital PNP/NPN signals
- Teach-in of sensors with integrated Teach- button
- Connection for plug in power supply (available as accessory)

Test- and configuration device for digital PNP/NPN sensors with 18 VDC supply voltage $% \left({{\rm S}_{\rm A}} \right)$

 order reference

 11084377
 Test unit for sensors digital

- Input 90-260 VAC
- Output 24 V/0,75 A
- Interchangeable plug-Type A, C, G and I

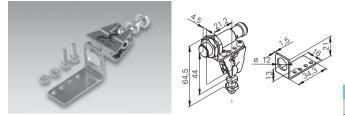
Protects the batteries of the sensor tester analog & digital for extended lifetime

order reference

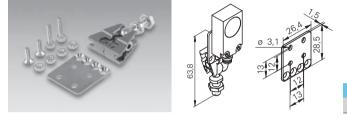
11087165 Test unit for sensors

Accessories

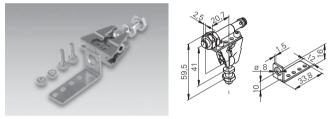
Sensofix-Mounting kit for sensors series 12 round



Sensofix-Mounting kit for sensors series 18/20

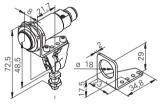


Sensofix-Mounting kit for sensors series 08 round



Sensofix-Mounting kit for sensors series 18 round





- Clamps made of stainless steel
- Ball pivots made of galvanized steel
- Mounting panel made of stainless steel

For use with all sensors in M12 housing

order reference

10151720 Sensofix series 12 round

- Clamps made of stainless steel
- Ball pivots made of galvanized steel
- Mounting panel made of stainless steel

For use with inductive sensors series 18/20 in rectangular designs

order reference

10152385 Sensofix series 18/20 inductive rectangular

- Clamps made of stainless steel
- Ball pivots made of galvanized steel
- Mounting panel made of stainless steel
- For use with all sensors in M8 housing

order reference

order reference

10151719 Sensofix series 08 round

Clamps made of stainless steel
Ball pivots made of galvanized steel
Mounting panel made of stainless steel
For use with all sensors in M18 housing

10151658 Sensofix series 18

Accessories

info@eltra-trade.com

Index

order reference	page	order reference
		ESW 31SH1000
E		ESW 33AF0200
ES 14A PG7	208	ESW 33AF0500
ES 14A PG7 ES 14C PG7	208	ESW 33AF1000
ES 18A PG7	208	ESW 33AF2500
ES 18C PG7	208	ESW 33AH0200
ES 21	205	ESW 33AH0200G
ES 21A	205	ESW 33AH0500
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