

Info card

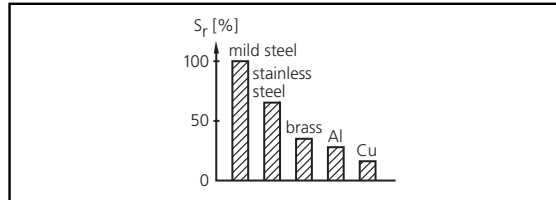
efector100
Inductive sensors

ifm electronic



Correction factors

(Exception K1 units:
Constant sensing range on all
metals)



Configuration of cables and connectors

Colours: BK: black, BN: brown, BU: blue, WH: white

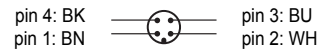
Standard configuration for 3-wire DC:

	Cable	Terminal chamber	US-100-plug
L+	BN	1 / 3	pin 1 / BN
L-	BU	2 / 4	pin 3 / BU
Output	BK	X	pin 2 / WH pin 4 / BK

2-wire quadronorm units:

	Cable	Terminal chamber	US-100-plug
	WH	—	1 / 4
	BK	—	1 / 4

Pin configuration of the US-100 connectors (view onto the plug at the unit)



For the cable and the pin configuration as well as the unit data of
special versions please refer to the wiring diagrams in our main position
sensors catalogue or on our website.



This info card is to be regarded as a supplement to the main position sensors catalogue and to the
individual data sheets. For further information and contact addresses please visit our homepage at
www.ifm.com.

Important terms

Active Zone / Active face	Area over the sensing face in which the sensor reacts to the approach of the target.
Output function	Normally open: Object within the active zone – output switched. Normally closed: Object within the active zone – output blocked. Programmable: Choice between normally closed or normally open. Positive switching: Positive output signal (to L-). Negative switching: Negative output signal (to L+).
Power-on delay time	The time the sensor needs to be ready for operation after application of the operating voltage (in the millisecond range).
Hysteresis	The difference between the switch-on and the switch-off point.
Leakage current	Current for the internal supply of 2-wire units, also flows through the load when the output is unswitched.
Current consumption	Current for the internal supply of 3-wire DC units.
Switch point drift	The shifting of the switch point owing to changes in the ambient temperature.
Short circuit protection	ifm sensors which are protected against excessive current by means of a pulsed short-circuit protection. The inrush current of incandescent lamps, electronic relays and low resistance loads may cause this protection to cut in and turn the switch off!
Operating voltage	The voltage range in which the sensor functions safely. A stabilised and smoothed direct voltage should be used! Take into account residual ripple!
Switching frequency	Damping with standard target (mild steel) at half nominal sensing range. The damped – undamped ratio is 1 : 2.

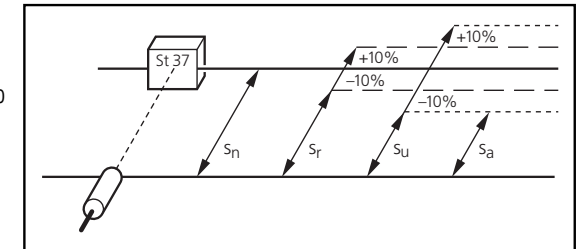
Sensing range

Nominal sensing range s_n :
design range of the unit

Real sensing range s_r :
individual deviations at room
temperature between 90 % and 110
% of s_n

Useful sensing range s_u :
switch point drift
between 90 % and 110 % of s_r

Operating distance s_a :
safe switching
between 0 and 81 % of s_n



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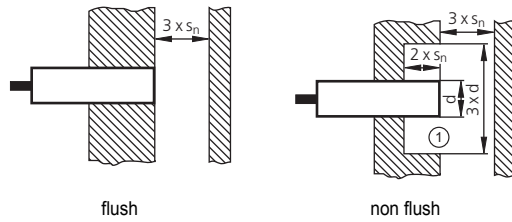
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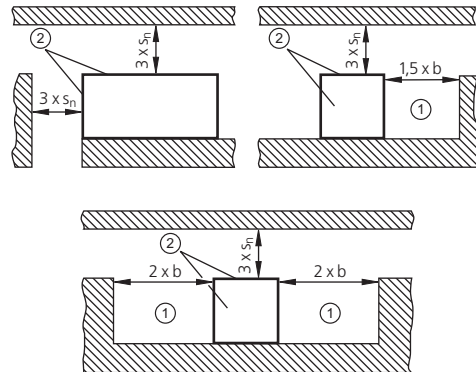


Tips on flush and non-flush mounting in metal

Mounting instructions
cylindrical designs

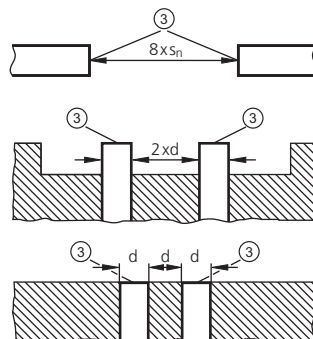


Mounting instructions
rectangular designs



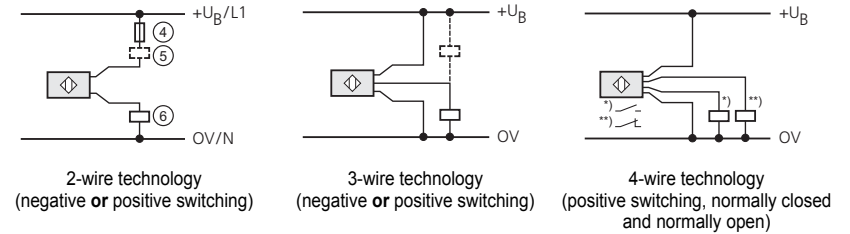
When mounting units of the same type, certain minimum distances have to be adhered to if the units are mounted opposite each other or in parallel.

Applies to cylindrical and rectangular sensors

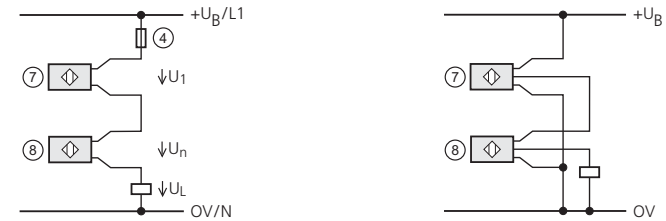


i If non-flush mountable units are mounted flush the device will be permanently switched!

Connection systems



Series connection



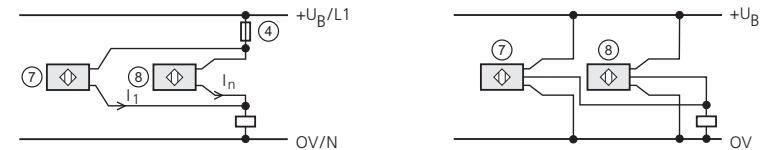
Series connection of 2-wire units

Maximum of 3 units, however not recommended! Voltage drops add up, the load is provided with less voltage.

Series connection of 3-wire units

Maximum of 10 units, each sensor must switch the current consumption of the subsequent units in addition to the load current. The power-on delay times add up!

Parallel connection



Parallel connection 2-wire units

Maximum of 10 units, the leakage currents of all non-switched units add up. This sum of the leakage currents must be clearly below the holding current of the load.

Parallel connection 3-wire units

Maximum of 30 units, the current consumption of all non-switched units adds up. The units can be used in combination with mechanical switches.

- ① Clear space
- ② Active zone
- ③ Sensing face
- ④ Miniature fuse according to the technical data sheet, if specified. Recommendation: check the unit for reliable function after a short circuit.
- ⑤ Negative switching
- ⑥ Positive switching
- ⑦ Sensor 1
- ⑧ Sensor n

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