

# INDUCTIVE SENSORS



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## Series ISZL

### Key-Features:

- Measurement range up to 24 mm
- Linearity up to  $\pm 0.025$  mm
- Resolution up to 0.01 mm
- Analog output: 0...10 V, 4...20 mA
- Protection class IP67
- Temperature range -25...+75 °C
- Cylindrical housing with outer thread
- Measurement on metallic objects
- Teach function
- Linearised output curve

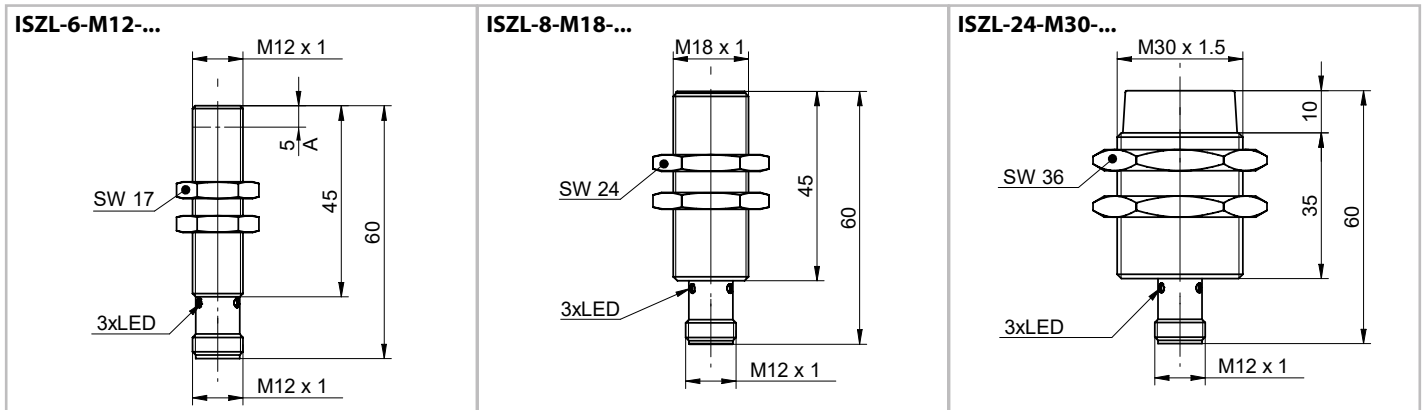
## TECHNICAL DATA

Measurement range <sup>1)</sup>	[mm]	0...6		0...8		0...24	
Linearity <sup>1)</sup>	[mm]	MR 0...4: ±0.025 MR 0...6: ±0.12	MR 0...4: ±0.025 MR 0...6: ±0.06	±0.08		±0.48	
Resolution <sup>1)</sup>	[mm]	<0.022		<0.01		<0.04	
Repeatability <sup>1)</sup>	[mm]	<0.01		<0.015		<0.02	
Sensitivity		2.67 mA/mm	1.67 V/mm	2 mA/mm	1.25 V/mm	0.67 mA/mm	0.42 V/mm
Response time <sup>1)</sup>	[ms]	10					
Refresh rate <sup>1)</sup>	[ms]	0.5					
Output signal		4...20 mA	0...10 V	4...20 mA	0...10 V	4...20 mA	0...10 V
Power supply V <sub>s</sub>	[VDC]	8...36		12...36		8...36	12...36
Current consumption <sup>2)</sup>	[mA]	max. 25	max. 15	max. 20	max. 15	max. 20	
Load resistance		<50 Ω/V * V <sub>s</sub> - 250 Ω >500 Ω (V <sub>s</sub> = 30...36)	>4 kΩ	<50 Ω/V * V <sub>s</sub> - 250 Ω >500 Ω (V <sub>s</sub> = 30...36)	>4 kΩ	<50 Ω/V * V <sub>s</sub> - 250 Ω >500 Ω (V <sub>s</sub> = 30...36)	>4 kΩ
Short circuit protection		yes					
Reverse polarity prot.		yes					
Protection class		IP67					
Operating temperature	[°C]	V <sub>s</sub> = 8...30: -25...+75 V <sub>s</sub> = 8...36: -25...+60		-25...+75			
Temperature drift max.	[%]	MR 0...4: ±2 MR 0...6: ±5		±4	±3	±6	
Housing material		brass nickel plated					
Connection		connector M12, 5 pins					
Optimal mounting		quasi-flush				non-flush	
Tightening torque	[Nm]	max. 15 (area A: 10)		max. 40		max. 100	

<sup>1)</sup> with regard to a norm measurement plate (≥ [3 x MR] x [3 x MR] x 1 mm), mild steel (ST37)

<sup>2)</sup> without load

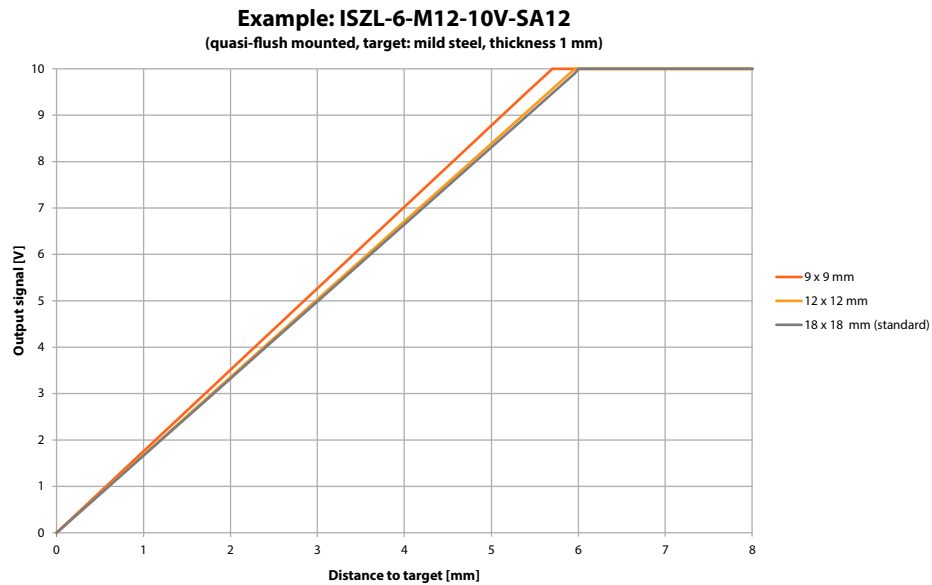
## TECHNICAL DRAWING



## INFLUENCES ON THE MEASUREMENT

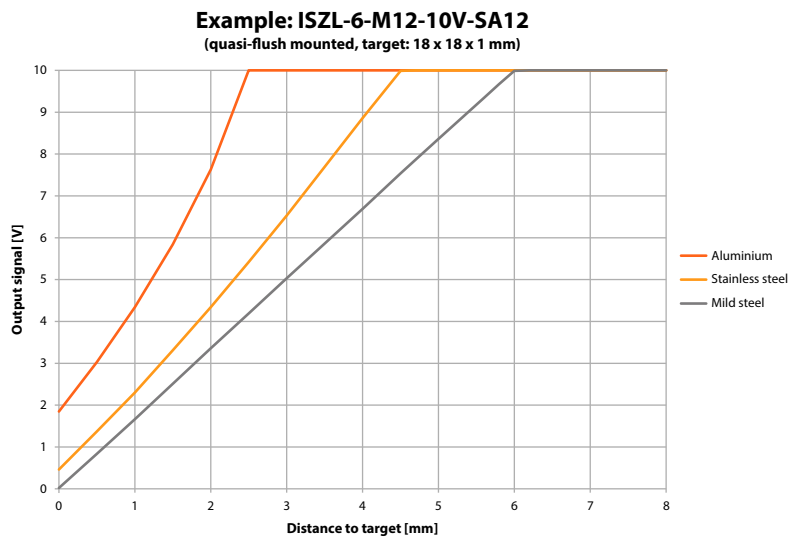
### Target size

If the target is smaller than the standard target, the maximal measurement range will be reduced. This means that the output will reach its maximum at a shorter distance than shown in the table "Technical Data". If the target is larger than the standard target, there will be only minimal influences.



### Target material

The sensors are optimized for mild steel targets, which can be identified by its distinctive attraction to magnets (magnetically soft, permeability coefficient  $\gg 1$ ) - i.e. a magnet sticks to it after contact. For other materials the maximal measurement range is reduced.

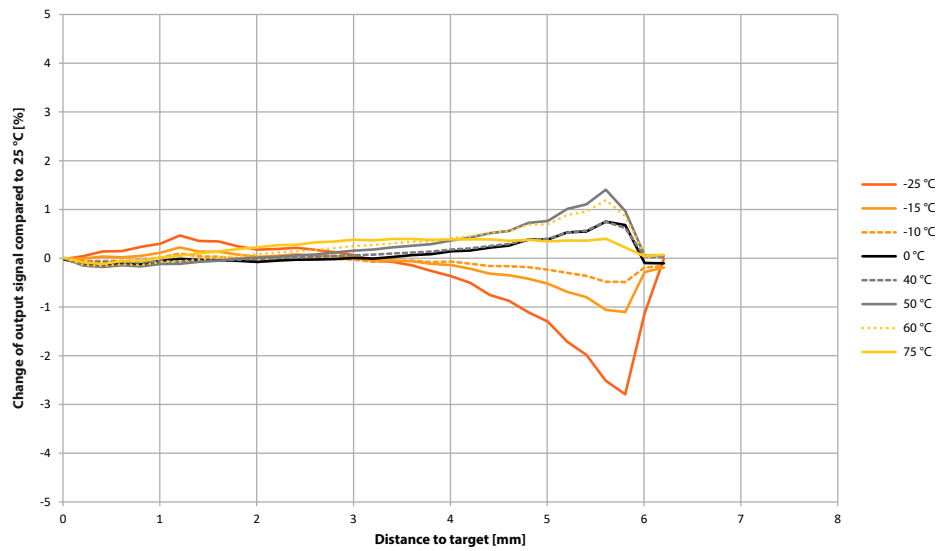


## INFLUENCES ON THE MEASUREMENT

### Temperature influence

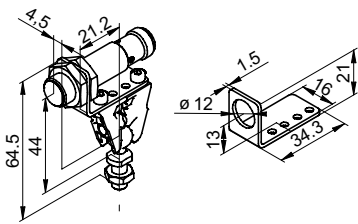
Inductive sensors are susceptible to temperature changes – i.e. the output value at a given distance between sensor and target changes slightly if the temperature varies. Please note that the values mentioned in the datasheet do also include production tolerances, so a single sensor can have even smaller drifts.

**Example: ISZL-6-M12-10V-SA12**  
(quasi-flush mounted, target: mild steel, 18 x 18 x 1 mm)

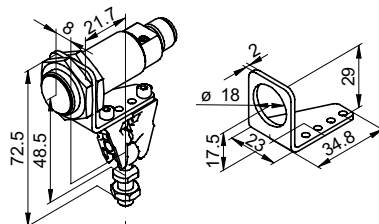


## ACCESSORIES MOUNTING SETS

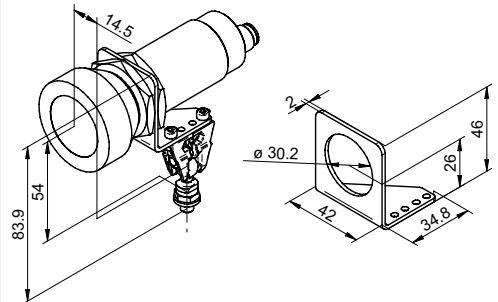
### Mounting set ISMZ-M12 for ISZL-6-M12



### Mounting set ISMZ-M18 for ISZL-8-M18



### Mounting set ISMZ-M30 for ISZL-24-M30



The mounting sets consist of:

- Clamps (stainless steel)
- Ball pivot (galvanised steel)
- Mounting panel (stainless steel)

## ORDER CODE

ISZL — □ — □ — □

Measurement range and thread		
0...6 mm	M12-thread	6-M12
0...8 mm	M18-thread	8-M18
0...24 mm	M30-thread	24-M30

Connection	
SA12	connector M12 (male), 5 pins

Output signals	
10V 420A	0...10 V 4...20 mA

## ACCESSORIES

### Cable with connector (female) M12, 5 poles, shielded

K5P2M-S-M12	2 m, straight connector
K5P5M-S-M12	5 m, straight connector
K5P10M-S-M12	10 m, straight connector
K5P2M-SW-M12	2 m, angular connector
K5P5M-SW-M12	5 m, angular connector
K5P10M-SW-M12	10 m, angular connector

### Mounting sets

ISMZ-M12	Mounting set for sensors with M12 thread
ISMZ-M18	Mounting set for sensors with M18 thread
ISMZ-M30	Mounting set for sensors with M30 thread

### Mating connector (female) M12, 5 poles, shielded

D5-G-M12-S	straight, for self assembly
D5-W-M12-S	angular, for self assembly

### Digital displays

WAY-AX-S	2 channel, power supply 18...30 VDC
WAY-AX-S-AC	2 channel, power supply 115...230 VAC