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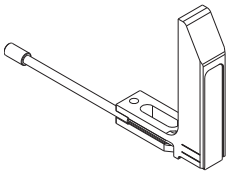
SK-IDS

Version:
- introducer with sensor for inductive component query
- for steel, aluminium and stainless steel
- IO-Link or standard I/O
- with connector M12x1
- with status LED



Technical data

Switching distance Sn*:	10 mm	Idle current I0:	≤ 15 mA
Secured switching distance Sa*:	≤ (0,9 x Sn) mm	Residual current:	≤ 0,1 mA
Sheet thickness:	0,6...2,5 mm	Insulation test voltage:	≤ 0,5 kV
Hysteresis:	3…20 %	Short circuit protection:	yes / clock pulse
Ambient temperature:	0…+60 °C	Current drop at Ie:	≤ 1,8 V
Temperature gradient:	≤ 0,4 K/min	Wire breakage / reverse polarity protection:	yes / complete
Storage temperature:	-25…+80 °C		
Operating voltage:	10…30 VDC	Communication protocol:	IO-Link
Residual ripple:	≤ 10 % Uss	Output function:	4 wire, normally open, PNP
Signal delay:	≤ 180 ms	Output 1:	switching output or IO-Link mode
Standby delay:	300 ms	Output 2:	switching output
Operating current Ie:	≤ 100 mA		

*The given switching distances are valid if the installation instructions are observed and a ferritic steel sheet with a sheet thickness of min. 0,8 mm to max. 2,5 mm and a size of min. 50 x 50 mm is used.
Other parameters can cause a reduction of the switching distances or incorrect function of the sensor!

IO-Link

IO-Link specification:	V 1.1	Frame type:	2.2
IO-Link port type:	Class A	Minimum cycle time:	8 ms
Communication mode:	COM 2 (38,4 kBaud)	Function pin 4:	IO-Link
Process data width:	8 bit	Function pin 2:	DI
Switching point information:	2 bit	Maximum cable length:	20 m
Status bit information:	5 bit	Included in SIDI GSML:	ja

Technical data

Electrical connection:	connector, M12 x 1	Vibration resistance:	55 Hz (1 mm)
Cable:	Ø 5,2 mm, white, D12YSL9Y-OB, PP, 0,2 m, halogen-free	Shock resistance:	30 g (11 ms)
		Protection class:	IP69K, except in the connector area
Wire cross-section:	4 x 0,34 mm²	Operating voltage display:	LED

Material

Body material (introducer):	steel
Body material (sensor):	composite

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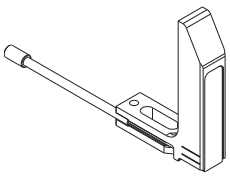

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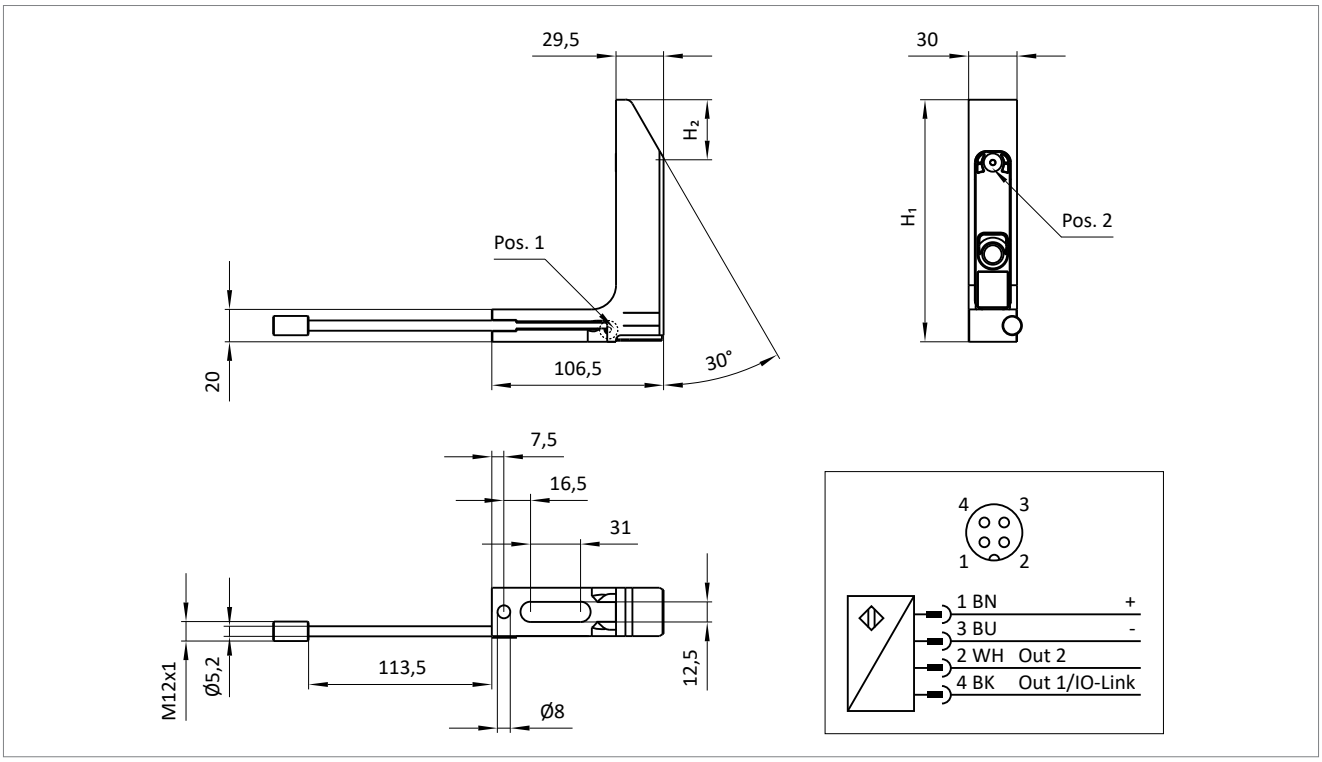
Dimensions



Dimension table

Part no.	Description	H_1 [mm]	H_2 [mm]	m [kg]	Spare part sensor for component query Description (Part no.)
108677	SK-IDS-01-10-090-03	90	20,3	0,53	SK-IDS-32-069-M12 (108398)
108678	SK-IDS-01-10-120-03	120	37,3	0,67	SK-IDS-32-069-M12 (108398)
108679	SK-IDS-01-10-150-03	150	37,3	0,72	SK-IDS-32-105-M12 (108399)
108680	SK-IDS-01-10-180-03	180	37,3	0,93	SK-IDS-32-105-M12 (108399)
108681	SK-IDS-01-10-250-03	250	37,3	1,41	SK-IDS-32-105-M12 (108399)
108682	SK-IDS-01-10-300-03	300	37,3	1,76	SK-IDS-32-105-M12 (108399)

Note regarding Pos. 1 and Pos. 2
The countersunk screws (2x M5x16 8.8) for fixing the sensor in the introducer have a permissible tightening torque of 3 Nm.

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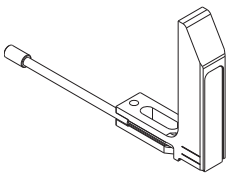
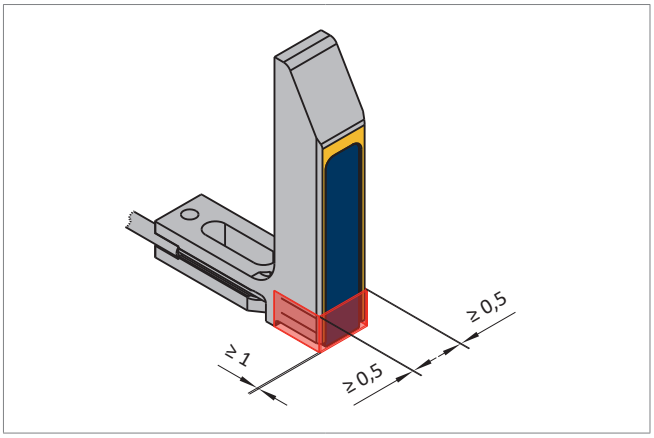


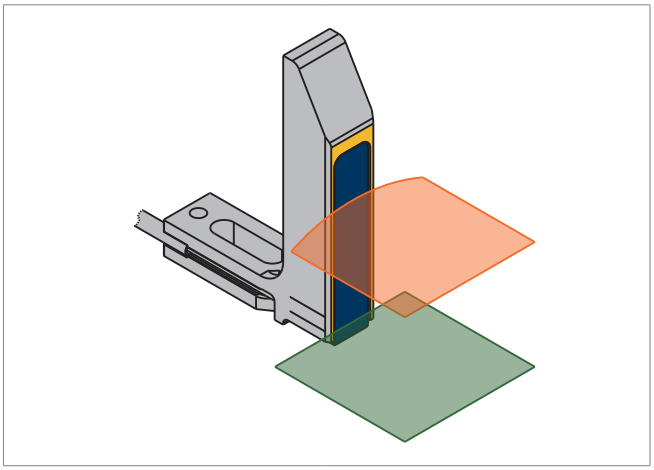
Distances between introducer and tool



The introducer must not have any contact with the pocket in the tool in the area of the sensor (shown in blue). Minimum distances must be maintained (front ≥ 1 mm; sides ≥ 0,5 mm).

The introducer must be positioned in such a way that the sheet to be detected only touches the steel housing (light grey+yellow) and not the sensor (blue). For this purpose, the sensor is installed recessed in the introducer and is protected by the stop surface (yellow).

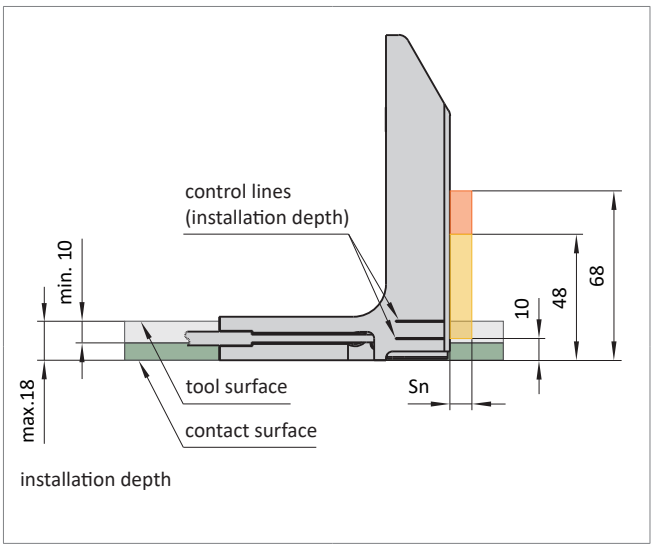
Sheet metal with radius



The sheet metal edge may only touch the introducer at the stop surface provided for this purpose (shown in yellow). Only this surface has an adequate surface hardness and is therefore designed to be low-abrasive.

Preferably, the introducer should therefore be used on straight metal sheet edges (green).
If the introducer is used on outwardly curved sheet metal edges (orange), it is imperative that the sensor (blue) does not come into contact with the sheet metal.
Any contact between the sheet metal and the sensor can lead to damage and failure of the sensor. A permanent and process-safe function of the sensor can only be guaranteed without contact.

Installation depth in the tool and range of switch (RS)



The installation depth must be min. 10 mm and max. 18 mm. The lower edge of the introducer or the contact surface of the introducer in the tool must be located in this area (green). To check this dimension, the introducer has control lines on both sides. The tool surface must be located between these lines.
Other dimensions outside this specification can lead to a reduction of the switching distances or to the sensor not functioning properly!

The maximum range of switch (RS) of the introducer is 48 mm (yellow) for the short version and 68 mm (yellow+orange) for the long version.

Maximum range of switch (RS)
- RS=Sn x 48 mm for SK-IDS-01-10-**090**-03 and SK-IDS-01-10-**120**-03
- RS=Sn x 68 mm for SK-IDS-01-10-**150**-03 to SK-IDS-01-10-**300**-03

Installation depth (overlap/interference geometry of the tool)
- 10-18 mm

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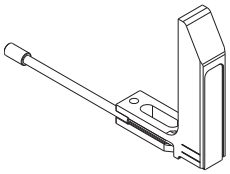

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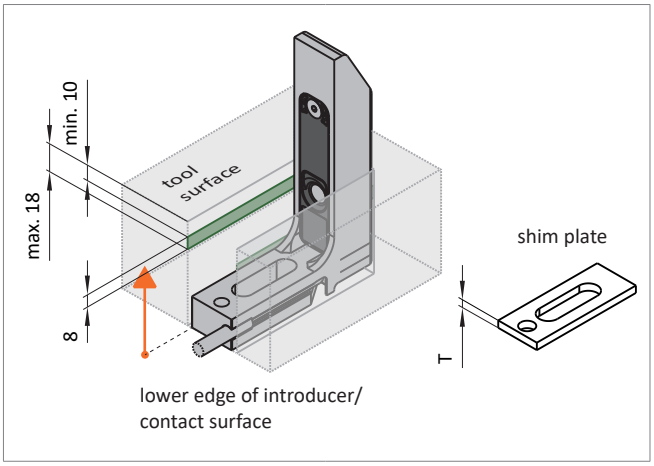
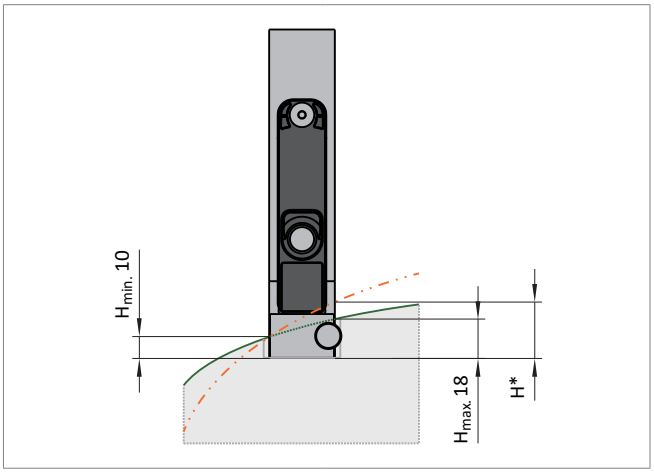
Installation depth of the sensor (existing tool)



If the pocket in an existing tool does not correspond to the optimum depth of 10 to 18 mm (green area), the introducer must be shimmed so that its lower edge or contact surface is moved into this area. This can be achieved by combining shim plates:
T=2mm (Part no. 319762)
T=5mm (Part no. 319763)
T=10mm (Part no. 319764)

When designing new tools, the optimum pocket depth must be taken into account.

Curved tool geometry



Regular installation case

—— tool surface

If the introducer is positioned on a strongly curved part of the tool, special attention must be paid to the pocket design. Here too, the dimensions of min. 10 mm ($H_{min.}$) and max. 18 mm ($H_{max.}$) must be observed.

Special installation case

– · – · tool surface

If the curvature (height difference) in the tool is too strong and if the recommended installation dimensions cannot be adhered to exactly, the minimum installation depth at the point $H_{min.}$= 10 mm must be implemented. The deeper side of the pocket at the point H*> 18 mm can have a negative influence on the switching behaviour.

Use of several sensors

Distance to the next sensor: ≥ 120 mm

Notes regarding the teaching and operation of the sensor

Before initial operation, make sure that the sensor is firmly seated in the introducer and that the introducer is firmly seated on the tool rest.

The installation orientation of the introducer should not be changed after the teach-in-process, otherwise a new teach-in will be necessary.

The sensor must be taught-in at:
- initial operation
- change of the target (material/sheet thickness/position)
- displacement of the sensor

Note: When using the sensor outside the last operating temperature, there must be no sheet metal in the system or it must first be removed for the sensor to function properly.

For dynamic readjustment, it is important that the sensor has a time window of ≥500ms within the 360° crank angle in which no upper tool and also no sheet metal is in front of the active sensor front.

The status of the sensor is indicated to the user via 4 LEDs (red, green, 2x yellow):
- green = ready for operation
- red = error case (flashing)
- 1 x yellow = switching status of the sensor
- 2 x yellow = sensor is in the teach-in process