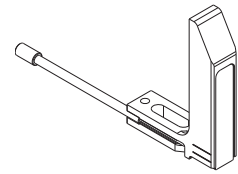


# Inductive sensor – teach-in process

Start phase: Connect to power at least 2 minutes before the teach-in phase.  
 LEDs: Flashing at 1-second intervals.



Start phase

1

■ Press for 3-10 seconds

Until LEDs flash alternately.

2

■ Release (< 3 sec.)

LEDs light up continuously.

3

■ Press for 1-3 seconds

LEDs flash alternately.

4

■ Release (< 3 sec.)

LEDs light up continuously.

5

■ Press for 1-3 seconds

Until LEDs flash alternately.

Release.

Sensor is calibrated without metal sheet. (LEDs are off except of green)

Within 20 seconds place the metal sheet (distance ≈ 10 mm).

6

■ Press for 3-10 seconds

Until LEDs flash alternately.

7

■ Release

LEDs light up continuously.

Sensor calibrated with metal sheet. (LEDs off except of green)

**Attention:**

If the sequence is interrupted for more than 10 seconds or not adhered to, the red LED lights up and you must start again from 1.

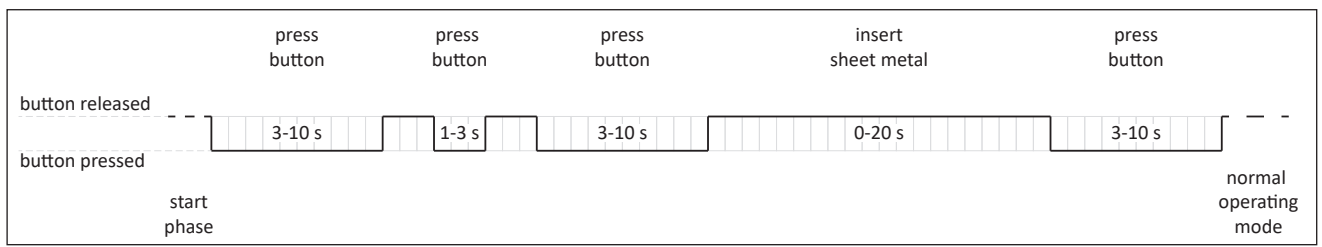
LEDs light up red and green.

**Video tutorial:**

Watch a video about the entire process on our website.

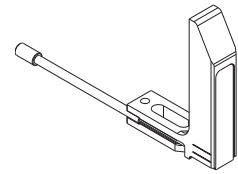
[www.springer.group/teach-SK-IDS-01-10](http://www.springer.group/teach-SK-IDS-01-10)

## Teach-in process - interval display

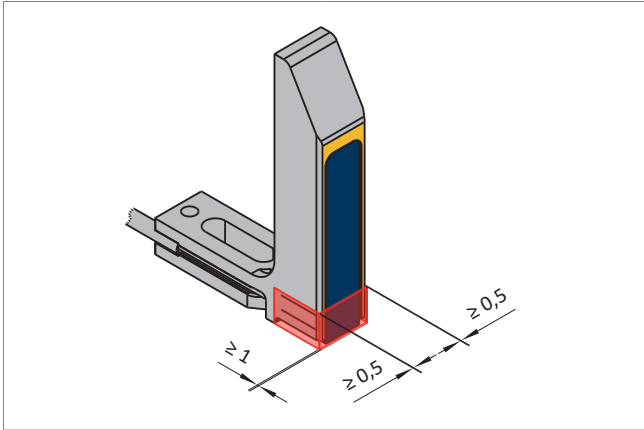


# Inductive sensor – teach-in process

Start phase: Connect to power at least 2 minutes before the teach-in phase.  
 LEDs: Flashing at 1-second intervals.



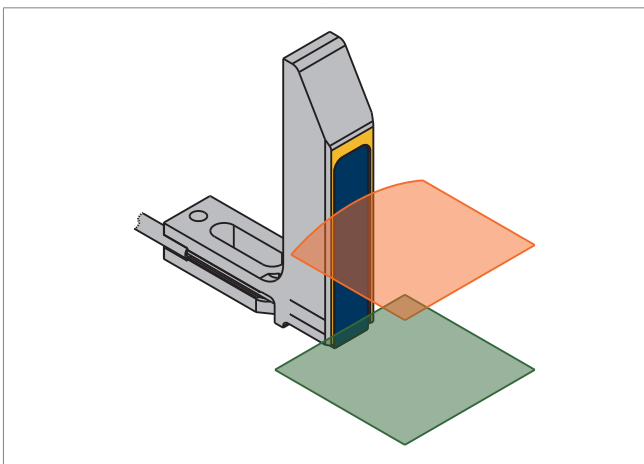
## Distances between introducer and tool



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  $\geq 1$  mm; sides  $\geq 0,5$  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



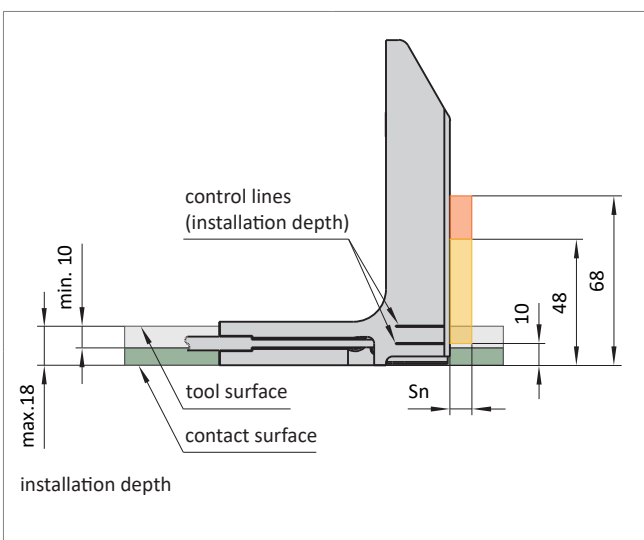
The sheet metal edge may only touch the introducer at the stop surface provided for this purpose (shown in yellow). Only this surface has an adequate surface hardness and is therefore designed to be low-abrasive.

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)

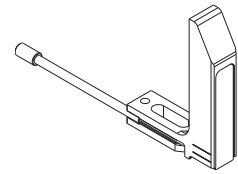
- RS=Sn x 48 mm for SK-IDS-01-10-090-03 and SK-IDS-01-10-120-03
- RS=Sn x 68 mm for SK-IDS-01-10-150-03 to SK-IDS-01-10-300-03

### Installation depth (overlap/interference geometry of the tool)

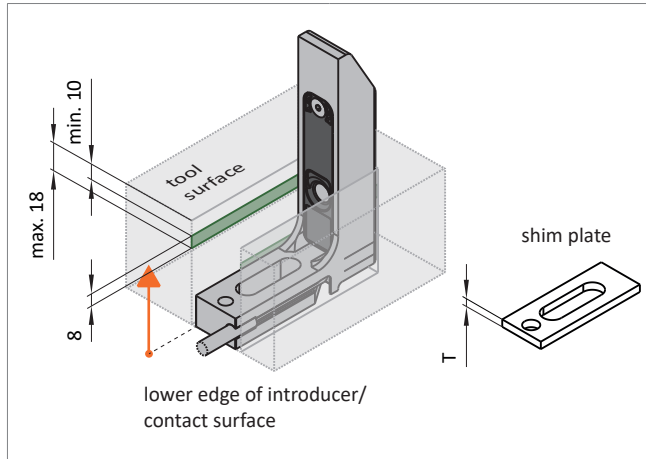
- 10-18 mm

# Inductive sensor – teach-in process

Start phase: Connect to power at least 2 minutes before the teach-in phase.  
 LEDs: Flashing at 1-second intervals.



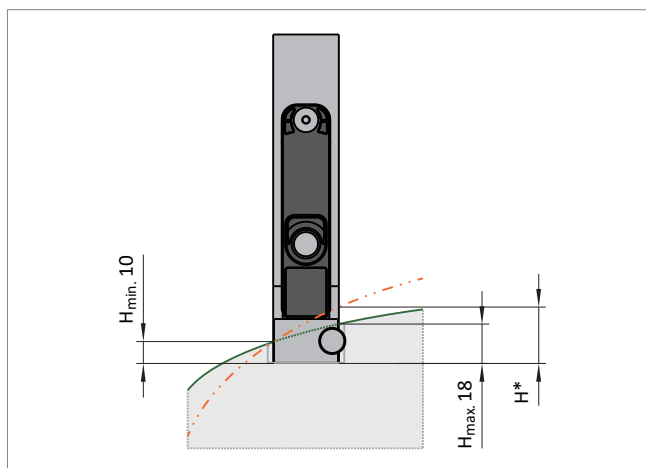
## Installation depth of the sensor (existing tool)



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:  $\geq 120$  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  $\geq 500$ ms within the  $360^\circ$  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