

- For limit level sensing of bulk-solid, fragmental and extruded materials
- Simple sensitivity setting by means of magnetic pen
- Two-wire connection directly to the contactor or relay circuit
- Wide range of supply voltage (20 to 250 V)
- Optical indication by LED

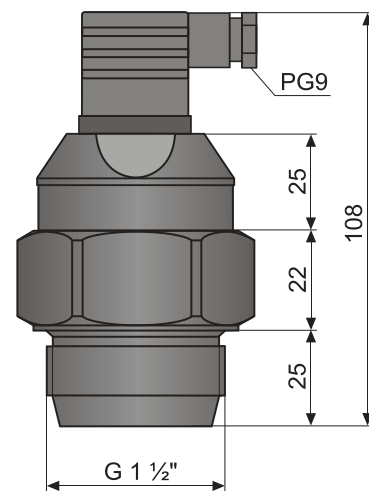


The capacitive level switch CLS® is designed for limit (2-state) level sensing of bulk-solid materials (pellets, wooden chips, cereals, granulates, etc.) in hoppers, containers, silos, etc. The sensor output is equipped with electronic switch. The sensitivity and output mode (normally open / closed) can be simply set by attaching a magnetic pen to the sensitive spot on the sensor housing.

### TECHNICAL SPECIFICATION

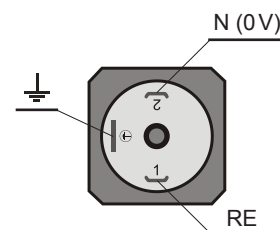
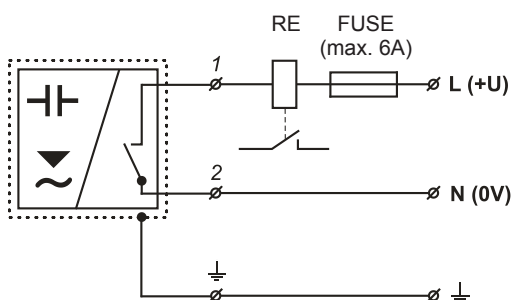
|                                  |                                    |
|----------------------------------|------------------------------------|
| Supply voltage                   | 20 ÷ 230 V AC/DC±10%<br>50 ÷ 60 Hz |
| Switched current - min           | 4 mA                               |
| - max                            | 300 mA                             |
| Supply current - OFF state       | max. 1,7 mA                        |
| Output                           | setting O/C                        |
| Max. remanent voltage - ON state | 6 V                                |
| Max. switching frequency         | 0,5 Hz                             |
| Ambient temperature range        | -20 to +60 °C                      |
| Protection class                 | IP 65                              |
| Connection cable type            | 3x 1,5 mm <sup>2</sup>             |
| Housing material                 | PP and PVC-U                       |
| Weight                           | approx. 130 g                      |

### DIMENSION DRAWING



### ELECTRICAL CONNECTION

Phase conductor (positive supply pole +U in case DC voltage) is connected through the device (relay, contactor) to terminal (1), neutral conductor (N) (negative pole 0V) to terminal (2). The terminal ⊥ is connected to ground. Connection to supply voltages must be done through fuse or circuit breaker.



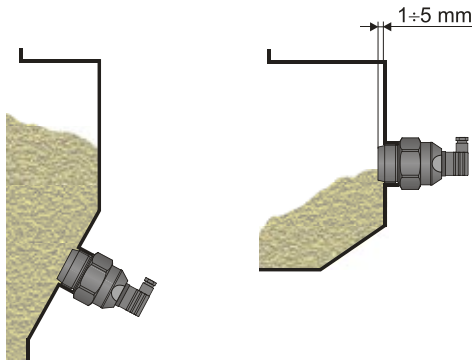
Top view on the connector

#### Caution:

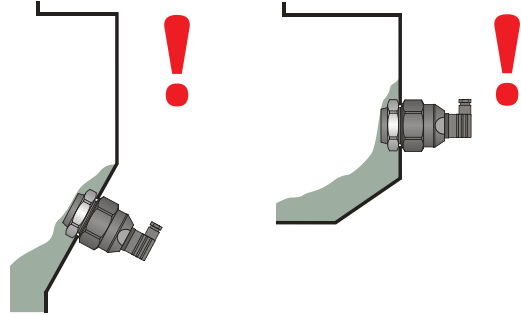
Low resistance loads (bulbs) or capacity loads can **damage the sensor!**

The sensor is not suitable for direct connection to a binary input of the control system.

## MOUNTING RECOMMENDATION



The sensor should be mounted to a slant or vertical wall of the hopper using a welding flange with G1 ½" thread. The front of the sensor stands 1 to 5 mm behind the inner wall.



Mounting with the fixing nut for some sticky materials might cause false activation (locking) of the sensor.

## SENSOR SETTING

The setting is performed by means of attaching magnetic pen MP-8 to **"SENSE"** spots placed next to the connector and marked with **"set ON"** or **"set OFF"**. Such method is used for setting of the sensitivity and the switching mode. The **"mode O"** – normally open (opens when the level drops) and **"mode C"** – normally closed (connects when the level drops). When attaching the magnetic pen to **"SENSE"** spot, LED indicator **"STATE"** shortly flashes four times.

**mode O:** When the level is high (the container is full), attach the magnetic pen MP-8 to the **"SENSE"** spot marked with **"set OFF"** for approx. 3 seconds. When the level is low (the container is empty) attach the magnetic pen MP-8 to the **"SENSE"** spot marked with **"set ON"** for approx. 3 seconds.

**mode C:** When the level is high (the container is full), attach the magnetic pen MP-8 to the **"SENSE"** spot marked with **"set ON"** for approx. 3 seconds. When the level is low (the container is empty) attach the magnetic pen MP-8 to the **"SENSE"** spot marked with **"set OFF"** for approx. 3 seconds.

## STATUS SIGNALIZATION AND FAILURE ALARM

| LED indicator | colour | function   |
|---------------|--------|--|
| "STATE"       | red    | <b>Shines</b> – sensor is switched ON<br><b>Dark</b> – sensor is switched OFF<br><b>Blinks</b> – sensor did not recognize upper and lower level limit or mistake occurred during setting<br><b>Four short flashes</b> – attaching the magnetic pen to "SENSE" spot |

## RANGE OF APPLICATION

Detection of various types of electrically conductive and non-conductive bulk-solid materials (pellets, wooden chips, granulates, cereals, sand, etc.) in various metal and plastic hoppers, containers, and silos.

## ORDER CODE

CLS-53  -SAC

performance:

**N** - normal - for non-explosive areas

## CORRECT SPECIFICATION

CLS-53N-SAC

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## ACCESSORIES

*standard – include in the sensor price*

- 1x magnetic pen MP-8
  - 1x connector with protection class IP 65
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## SAFETY, PROTECTION AND COMPATIBILITY

The sensor is equipped with protection against reverse polarity and short time overvoltages. The sensor is not equipped with protection against current overload.

Electrical equipment of protection group II. Electrical safety according to EN 61010-1.

Electromagnetic compatibility is provided by conformity with standards: EN 55022, EN 61000-6-2, -3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6 and EN 61000-4-11.

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