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Subject to technical change.  
All dimensions in mm (inch).

We assume no liability for typing errors.  
Different variations than specified are possible.  
Please contact our technical consultants.

## Safety notes / Technical support

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### Notes

- Installation, maintenance and commissioning may be accomplished only by qualified technical personnel.
- The product must be used only in the manner outlined in this instruction manual.

Special attention must be paid to warnings and notes as follows:

#### WARNING



Relates to a caution symbol on the product: A failure to observe the necessary precautions can result in death, serious injury and/or considerable material damage.

#### WARNING



Relates to a caution symbol on the product: Risk of electric shock

#### WARNING






A failure to observe the necessary precautions can result in death, serious injury and/or considerable material damage.

This symbol is used, when there is no corresponding caution symbol on the product.

#### CAUTION

A failure to observe the necessary precautions can result in considerable material damage.

### Safety symbols

In manual and on product	Description
	CAUTION: refer to accompanying documents (manual) for details.
	Earth (ground) Terminal
	Protective Conductor Terminal

### Technical support

Please contact your local supplier (for address see [www.uwt.de](http://www.uwt.de)). Otherwise you can contact:

UWT GmbH  
 Westendstr. 5  
 D-87488 Betzigau  
 Germany

Tel.: 0049 (0)831 57123-0  
 Fax: 0049 (0)831 76879  
[info@uwt.de](mailto:info@uwt.de)  
[www.uwt.de](http://www.uwt.de)

## Introduction

### Applications

Capacitive level limit switch for level monitoring in all types of containers and silos.

It can be used with powdery and granulated bulk materials with a dielectric constant of min. 1.6

A selection of fields of application:

- **Building materials industry**  
lime, moulding sand, cement, etc.
- **Food industry**  
milk powder, flour, salt, etc.
- **Plastics industry**  
plastics granules etc.
- **Animal feed industry**
- **Chemical industry**
- **Mechanical engineering**

### Function

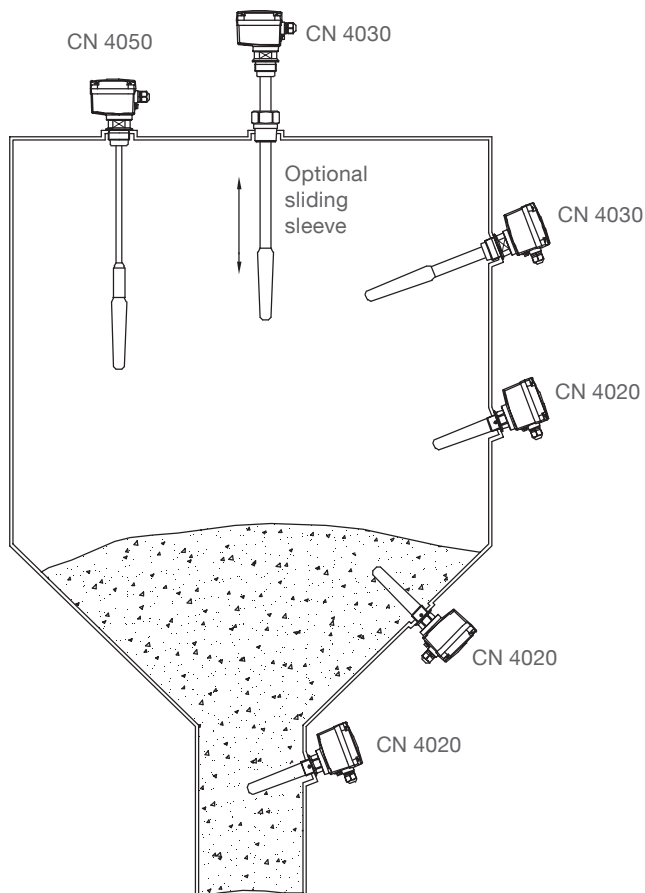
The Capanivo detects the capacitance around its probe. Due to the active shield technology it has an increased insensitivity to material buildup on the probe.

The measurement is nearly independent from the influence of the silo wall. Therefore factory provided precalibration allows measurement of most applications without calibration on site.

The unit is normally screwed into the lateral container wall so that it is level with the filling height to be registered and monitored.

The length of the probe can be up to 3 m (118") with an extension tube (CN 4030) or up to 6 m (236") with an extension rope (CN 4050).

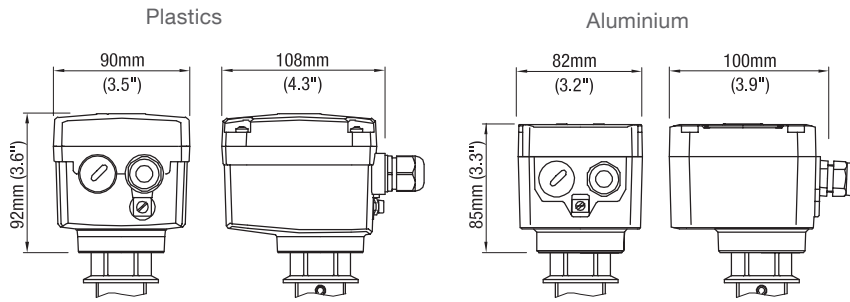
The use of a sliding sleeve is recommended so that the switch point can be changed easily during operation of the device.



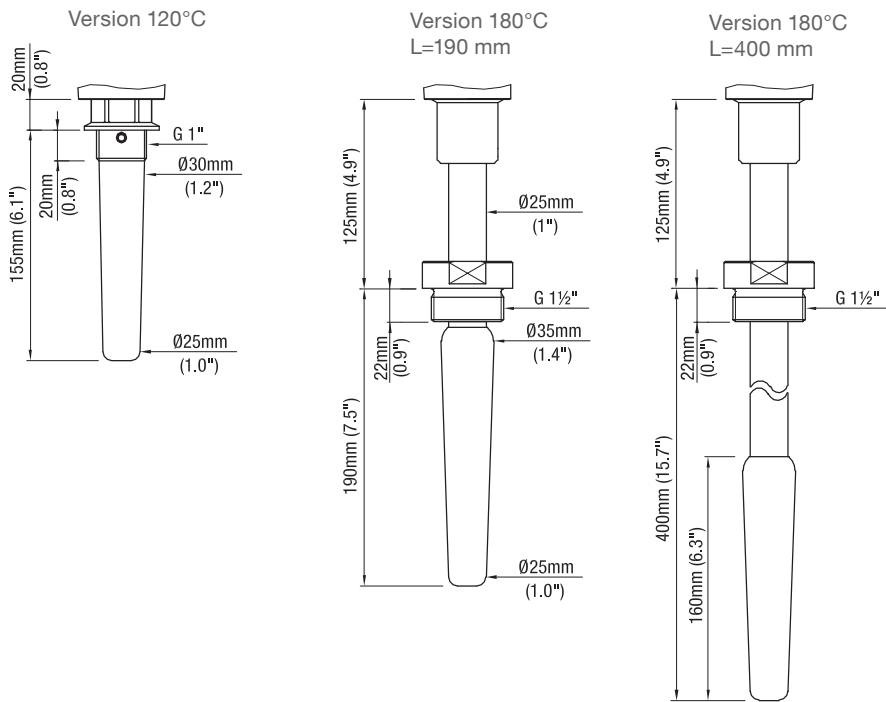
## Technical data

### Dimensions

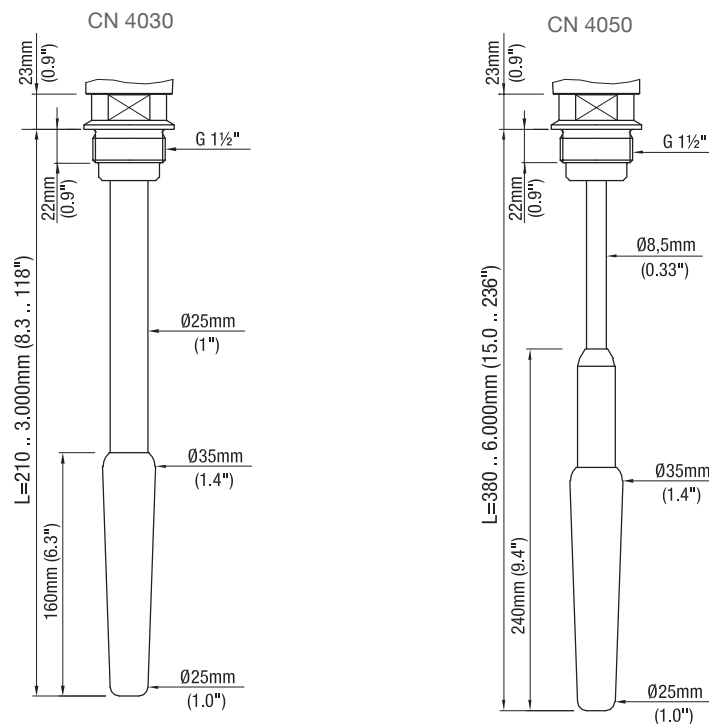
#### Housing versions



### CN 4020



### CN 4030 CN 4050



## Technical data

### Electrical data

<b>Connection terminals</b>	0.14 - 2.5 mm <sup>2</sup> (AWG 26-14)
<b>Cable entry</b>	M20 x 1.5 screwed cable gland NPT ½" or NPT ¾" conduit connection  Clamping range (diameter) of the factory provided cable glands: M20 x 1.5: 6 .. 12 mm (0.24 .. 0.47")
<b>Signal delay</b>	Sensor free -> covered adjustable ca. 0.5 to 20 sec Sensor covered -> free adjustable ca. 0.5 to 20 sec
<b>Safety operation (FSL,FSH)</b>	Switchable for minimum or maximum safety
<b>Sensitivity</b>	Adjustable in 4 ranges
<b>Overvoltage category</b>	II
<b>Pollution degree</b>	2 (inside housing)

<b>Electronics</b>	<b>Relay SPDT</b>	<b>Relay DPDT</b> Universal voltage	<b>PNP</b> 3-wire
<b>Power supply</b>	21 .. 27 V DC ±10% (incl. 10% of EN 61010)	21 .. 230 V AC 50 - 60 Hz 21 .. 45 V DC ±10% (incl. 10% of EN 61010)	20 .. 40 V DC ±10% (incl. 10% of EN 61010)
<b>Max. ripple of power supply</b>	7 V <sub>ss</sub>	7 V <sub>ss</sub> at DC	7 V <sub>ss</sub>
<b>Installed load</b>	max. 1.5 W	max. 18 VA/ 2 W	max. 0.5 A
<b>Signal output</b>	Floating relay SPDT  AC max. 250 V, 3 A non inductive DC max. 30 V, 5 A non inductive	Floating relay DPDT  AC max. 250 V, 8 A non inductive DC max. 30 V, 5 A non inductive	Open Collector: permanent load max. 0.4 A short-circuit and overload protected turn-on voltage: max. 44 V (reverse protection)
<b>Indicating light</b>	Status of signal output by built-in LED	Status of signal output by built-in LED	Status of signal output by built-in LED
<b>Isolation</b>	Power supply to signal output: 2,225 Vrms	Power supply to signal output: 2,225 Vrms Signal output to signal output (DPDT): 2,225 Vrms	-
<b>Protection class</b>	I	I	III

## Technical data

### Mechanical data

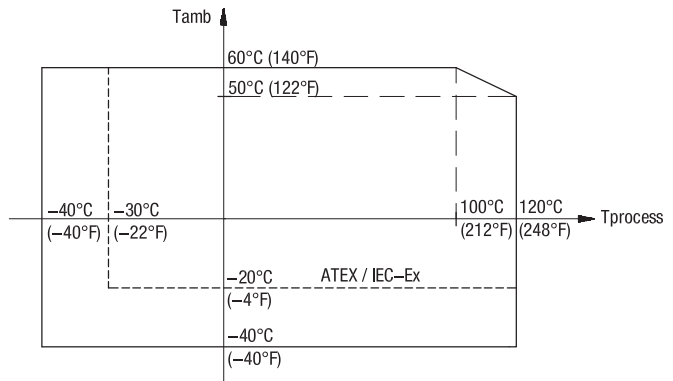
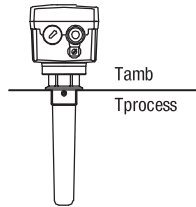
<b>Housing</b>	Plastics PA6 GF, RAL 5010 gentian blue or aluminium, powder coated, RAL 5010 gentian blue	
	Seal between housing and lid: NBR Seal between housing and process connection: NBR Nameplate: polyester film	
<b>Degree of protection</b>	IP66 * (EN 60529) * For version with plug the type of protection can be lower (see option plug/ page 10).	
<b>Process connection and extension</b>	<p>CN 4020 version 120°C:          Material process connection/ probe: Plastics PPS (glass fibre reinforced) <sup>(1)</sup>, FDA listed <sup>(2)</sup>          Thread: G 1"          Adapter (optional): G 1" to G 1½" in aluminium or 1.4305 (SS305) <sup>(2)</sup></p> <p>CN 4020 version 180°C:          Material process connection/ extension: 1.4305 (SS303) <sup>(2)</sup>          Material probe: Plastics PPS (glass fibre reinforced) <sup>(1)</sup>, FDA listed <sup>(2)</sup>          Thread: G 1½"</p> <p>CN 4030:          Material process connection/ extension: Aluminium or 1.4305 (SS303) <sup>(2)</sup>          Material probe: Plastics PBT (glass fibre reinforced) <sup>(1)</sup>, FDA listed <sup>(2)</sup>          Thread: G 1½"</p> <p>CN 4050:          Material process connection: Aluminium or 1.4305 (SS303)          Material extension cable: PE with black carbon          Material probe: Plastics PPS (glass fibre reinforced) <sup>(1)</sup>          Thread: G 1½"</p> <p>Flat gasket (included): Material AFM30</p>	
	<sup>(1)</sup> Discolouration is possible due to influence of UV and temperature. This has no negative effect to the material properties.	
	<sup>(2)</sup> Food grade	
<b>Sound level</b>	max. 40 dBA	
<b>Overall weight (ca.)</b>	<p>CN 4020 version 120°C: 0.5 kg (1.1 lbs)          CN 4020 version 180°C: 1.8 kg (4.0 lbs)          CN 4030 (aluminium extension): 0.8 kg (1.8 lbs) + 0.8 kg/m (1.8 lbs per 39.3")          CN 4030 (stainless steel extension): 1.5 kg (3.3 lbs) + 1.6 kg/m (3.5 lbs per 39.3")          CN 4050 (aluminium extension): 0.9 kg (2.0 lbs) + 0.25 kg/m (0.55 lbs per 39.3")          CN 4050 (stainless steel extension): 1.4 kg (3.1 lbs) + 0.25 kg/m (0.55 lbs per 39.3")</p>	
<b>Tolerance length "L"</b>	<p>CN 4020 version 120°C: ±5 mm (±0.2")          CN 4020 version 180°C : ±10 mm (±0.4")          CN 4030: ±10 mm (±0.4")          CN 4050: ±15 mm (±0.6")</p>	

## Technical data

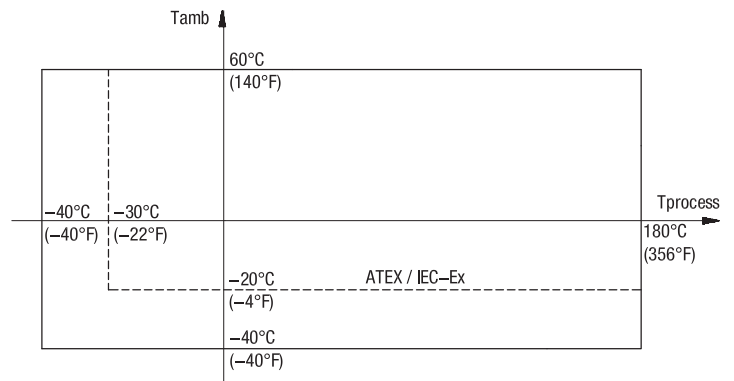
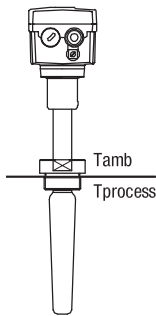
### Operating conditions

**Ambient and process temperature**

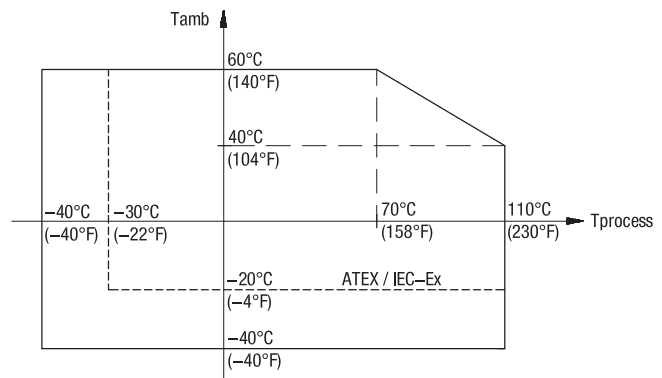
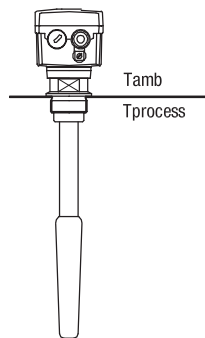
CN 4020  
version 120°C



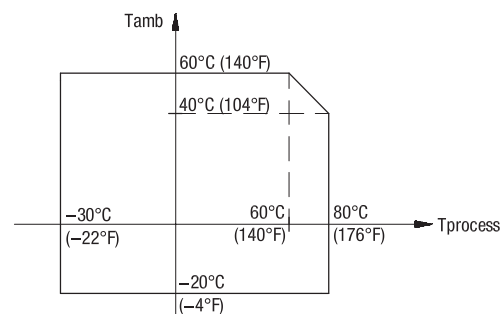
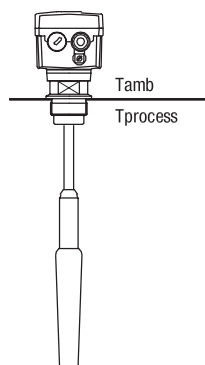
CN 4020  
version 180°C



CN 4030



CN 4050



## Technical data

<b>Ventilation</b>	Ventilation is not required	
<b>Max. permitted mechanical torque</b>	CN 4020 version 120°C	CN 4020 version 180°C CN 4030
	Recommended protection in case of high material load: mounting of a protective angle above the probe	
<b>Max. tractive force</b>	CN 4050	4 kN
<b>Max. process pressure</b>	CN 4020 (Ausführung 120°C) CN 4020 (Ausführung 180°C)/ CN 4030 CN 4050	25 bar (363 psi) 16 bar (232 psi) 6 bar (87 psi)
<b>Vibration</b>	1.5 (m/s <sup>2</sup> )/Hz according to EN 60068-2-64	
<b>Features of bulk material</b>	Min. DK: 1.6 (dielectric constant, see external DK tables) Max. grain size: ca. 30 mm	
<b>Switching point</b>	Material with high DK value -> the signal output switches when the probe is covered a few mm Material with low DK value -> the signal output switches, when the probe is covered a few cm	
<b>Relative Humidity</b>	0 - 100%, suitable for outdoor use	
<b>Altitude</b>	max. 2,000 m (6,562 ft)	
<b>Expected product lifetime</b>	Following parameters have a negative influence on the expected product lifetime: High ambient- and process temperature, corrosive environment, high vibration, high flow rate of abrasive bulk material passing the sensor element.	

## Transport and Storage

<b>Transport</b>	Observe the instructions as stated on the transport packaging, otherwise the products may get damaged. Transport temperature: -40 .. +80°C (-40 .. +176°F) Transport humidity: 20 .. 85% Transport incoming inspections must be carried out to check for possible transport damage.
<b>Storage</b>	Products must be stored at a dry and clean place. They must be protected from influence of corrosive environment, vibration and exposure to direct sunlight. Storage temperature: -40 .. +80°C (-40 .. +176°F) Storage humidity: 20 .. 85%



## Approvals

<b>General Purpose (Ordinary Locations)</b>	CE TR-CU	EN 61010-1
<b>Hazardous Locations *</b>	CN 4020 (120 °C)	ATEX II 1/2D Ex ta/tb IIIC T! Da/Db IEC-Ex Ex ta/tb IIIC T! Da/Db TR-CU Ex ta/tb IIIC T120°C Da/Db X CCC Ex tD A21 IP6X T!
	CN 4020 (180 °C)	ATEX II 1/2D Ex ta/tb IIIC T! Da/Db IEC-Ex Ex ta/tb IIIC T! Da/Db TR-CU Ex ta/tb IIIC T120°C...T180°C Da/Db X CCC Ex tD A21 IP6X T!
	CN 4030	ATEX II 1/2D Ex ta/tb IIIC T! Da/Db IEC-Ex Ex ta/tb IIIC T! Da/Db TR-CU Ex ta/tb IIIC T120°C Da/Db X CCC Ex tD A21 IP6X T!
	CN 4050	ATEX II 1/2D Ex ia/tb IIIC T! Da/Db IEC-Ex Ex ia/tb IIIC T! Da/Db TR-CU Ex ia/tb IIIC T135°C Da/Db X CCC Ex iaD 21/tD A21 IP6X T!
<b>EMC</b>	EN 61326 - A1	
<b>RoHS conform</b>	According to directive 2011/65/EU	
<b>Food grade material</b>	According to directive 1935/2004/EC	
<b>Pressure Equipment Directive (2014/68/EU)</b>	<p>The units are not subject to this directive, because they are classified as „pressure-keeping equipment“ and do not have a pressurized housing (see Art.1, Abs. 2.1.4).</p> <p>The units are designed and manufactured in accordance to the Pressure Equipment Directive.</p> <p>The unit is NOT intended for use as an “equipment part with safety function (Art.1, Abs. 2.1.3). If the units should be used as „equipment part with safety function“ please contact the manufacturer.</p>	

\* Depending on selected version

## Options / Accessories

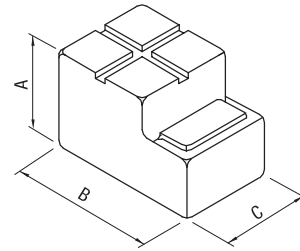
### Weather-protection-cover

When the measuring device is used outdoor, the use of the weather-protection-cover is recommended. It protects the device from all atmospheric influences such as:

- rain water
- condensation of water
- excessively high temperatures due to insulation
- excessively low temperatures in winter

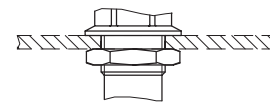
Material: PE, weathering and temperature stable

**!** For use in Hazardous Locations: only permitted for Zone 22.



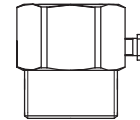
### Hexagon nut

For mounting on a wall without a socket.  
 Material: Aluminium or 1.4305 (303)



### Sliding sleeve

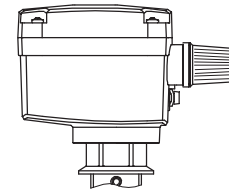
CN 4030 G 1½" ISO 228  
 Material: 1.4305 (303)  
 Sealing material to the extension tube: FKM



### Bulb

Bright indicating light seen from outside.

Not available for use in Hazardous Locations.

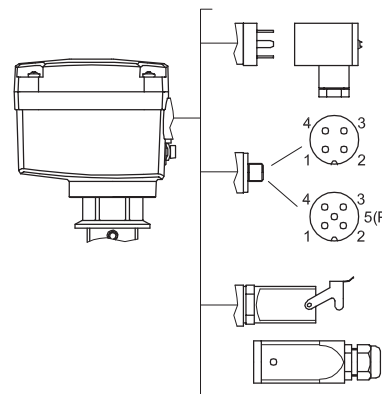


### Plug

Used instead of cable gland.

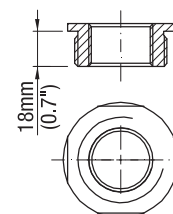
- Valve connector (IP65) or
- M12 (IP66) or
- Harting Han 4A (IP65)

Not available for use in Hazardous Locations.



### Adapter

G 1" to G 1½" / NPT 1¼" / NPT 1½"  
 Material: Aluminium or 1.4305 (303)



### Shortening kit

For CN 4050 cable

## Mounting

### ! General Safety Instructions

<b>Process pressure</b>	Improper installation may result in loss of process pressure.
<b>Chemical resistance against the medium</b>	Materials of construction are chosen based on their chemical compatibility (or inertness) for general purposes. For exposure to specific environments, check with chemical compatibility charts before installing.
<b>Fastening of the threaded process connection</b>	Mounting torque for the thread may not exceed 40 Nm (metal thread)/ 20 Nm (plastic thread). Use an open-end wrench. Do not fasten by turning the housing, for this will destroy the unit.
<b>Food grade material</b>	The materials are available for the use under normal and predictable applications (according to directive 1935/2004 Art.3). Other conditions can influence the safety.

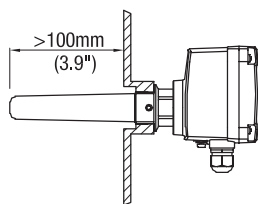
## Mounting instructions

**Direction of the cable glands** When the unit is mounted from the side, ensure, that the cable glands face downwards and are closed to avoid water penetration into the housing. The housing can be rotated after installation.

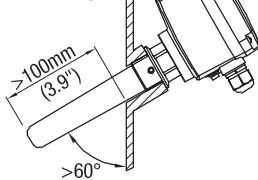
**Sealing** Ensure proper seal of the process thread in case of process pressure.

### Distances of the probe

**CORRECT**  
 Probe leads into the product

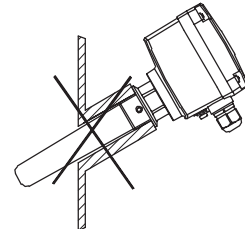
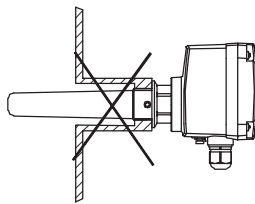


Oblique mounting

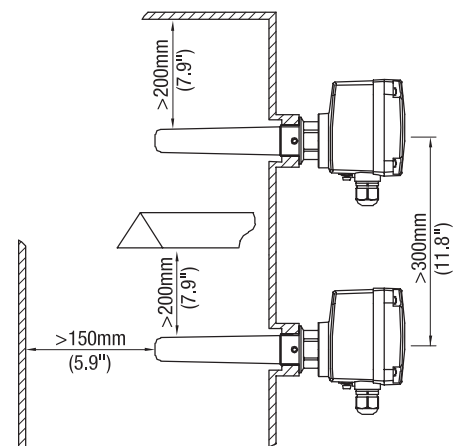


Observe mounting angle to ensure, that the active tip of the probe has enough distance to the metal silo wall

**WRONG**  
 Socket too long

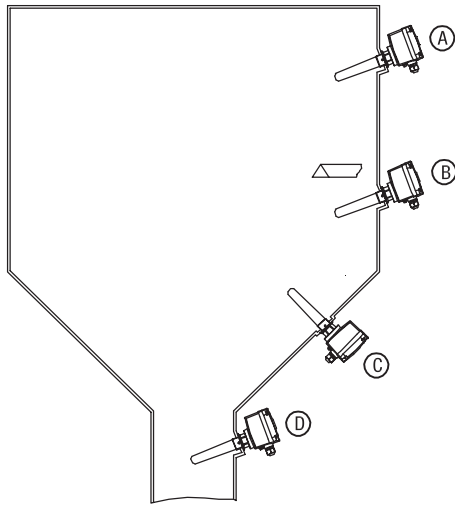


Observe min. distance between two sensors, to metal silo wall and to protective angle.



## Mounting

### CN 4020



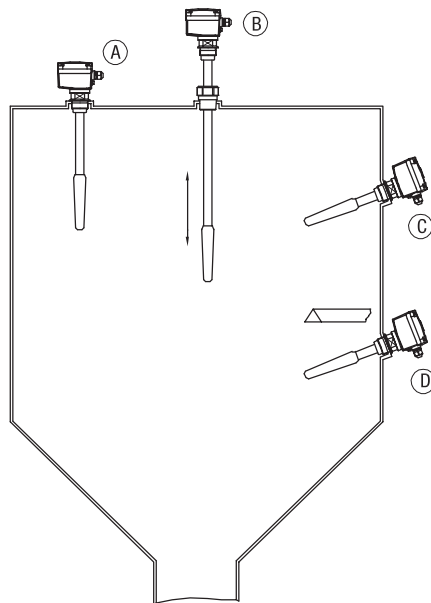
#### CAUTION

Observe:

- General distances of the probe (see page 11).
- Distance to material flow (filling).
- Max. permitted mechanical load (see page 8).
- Wearing due to abrasive bulk material.

- A** Full detector horizontal or oblique. Slight incline mounting helps remaining material to fall off more easily.
- B** Demand or empty detector horizontal or oblique. Slight incline mounting helps remaining material to fall off more easily. Protective angle recommended depending on load and abrasion of the material.
- C** Empty detector oblique from the bottom.
- D** Empty detector in the silo outlet.

### CN 4030



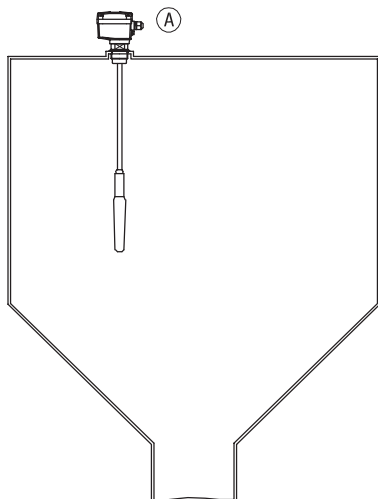
#### CAUTION

Observe:

- General distances of the probe (see page 11).
- Distance to material flow (filling).
- Max. permitted mechanical load (see page 8).
- Wearing due to abrasive bulk material.

- A** Full detector vertical.
- B** Full detector with sliding sleeve.
- C** Full detector horizontal or oblique. Slight incline mounting helps remaining material to fall off more easily.
- D** Demand or empty detector horizontal or oblique. Slight incline mounting helps remaining material to fall off more easily. Protective angle recommended depending on load and abrasion of the material.

### CN 4050



#### CAUTION

Observe:

- Distance of the probe to the silo wall (see page 11). Consider that the hanging probe can move sideways with material.
- Distance to material flow (filling).
- Max. permitted mechanical traction (see page 8). Empty detector: Do not install in the center of the silo due to high traction with moving material.
- Wearing due to abrasive bulk material.

- A** Full, demand or empty detector vertical.

## Electrical installation

### ! General Safety Instructions

<b>Handling</b>	In the case of inexpert handling or handling malpractice the electric safety of the device cannot be guaranteed.
<b>Protective earthing</b>	Before any electrical installation, the device must be connected to the protective earthing terminal inside the housing.
<b>Installation regulations</b>	The local regulations must be observed. With use of 24 V supply voltage, an approved power supply with reinforced isolation to mains is required
<b>Fuse</b>	Use a fuse as stated in the connection diagram.
<b>RCCB protection</b>	In the case of a defect, the distribution voltage must automatically be cut off by a RCCB protection switch so as to protect the user of the device from indirect contact with dangerous electric tensions.
<b>Power supply switch</b>	A power-supply-disconnecting switch must be provided and marked near the device.
<b>Wiring diagram</b>	The electrical connections have to be made according to the wiring diagram.
<b>Supply voltage</b>	Compare the supply voltage applied with the specifications given on the electronic and name plate before switching the device on.
<b>Cable gland/ closing element</b>	The screwed cable gland and closing element must have following specifications: Ingress protection IP66, temperature range from -40°C to +70°C, certified depending on the country where the unit is installed, pull relief. Make sure that the screwed cable gland safely seals the cable and that it is tight (danger of water intrusion). Cable glands that are not used have to be locked with a closing element.
<b>Field wiring cables</b>	<ul style="list-style-type: none"> <li>• The diameter has to match to the clamping range of the used cable gland.</li> <li>• The cross section has to match with the clamping range of the connection terminals and consider the max. current.</li> <li>• All field wirings must have insulation suitable for at least 250 V AC.</li> <li>• The temperature rating must be at least 90°C (194°F).</li> <li>• If higher immunity interferences as specified in the stated EMC standards are present (see chapter approval), a shielded cable is required, otherwise an unshielded instrumentation cable is satisfactory.</li> </ul>
<b>Connecting the terminals</b>	Make sure that max. 8 mm (0.31") of the pigtailed are bared (danger of contact with live parts).
<b>Guiding the cables in the terminal box</b>	Cut the field wiring cables to appropriate length to fit properly into the terminal box.
<b>Relay and transistor protection</b>	Provide protection for relay contacts and output transistors to protect the device against spikes with inductive loads.
<b>Protection against static charging</b>	The unit must be grounded in any case to avoid static charging of the unit, especially on applications with pneumatic conveying.

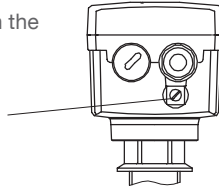
## Electrical installation

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### ! Additional Safety Instructions for Hazardous Locations

#### External equipotential bonding terminal

Connect external terminal on the housing with equipotential bonding of the plant.



#### Cable glands

- Installation according to the regulations of the country, where the product is installed.
- Not used entries have to be closed with blanking elements certified for this purpose.
- Where applicable the factory provided parts must be used.
- A strain relief must be provided for the field wiring cables, when the device is installed with the factory provided cable glands.
- The diameter of the field wiring cable must match to the clamping range of the cable clamp.
- If other than the factory provided parts are used, following must be ensured:  
 The parts must have an approval adequate to the approval of the level sensor (certificate and type of protection). The approved temperature range must be from the min. ambient temperature of the level sensor to the max. ambient temperature of the level sensor increased by 10 K.  
 The parts must be mounted according to the instructions of the supplier.

#### Commissioning

Commissioning only with closed lid.

#### Opening the lid

Before opening the lid take care, that no dust deposits or whirlings are present.  
 Do not remove the lid (cover) while circuits are alive.

## Electrical installation

### Relay SPDT

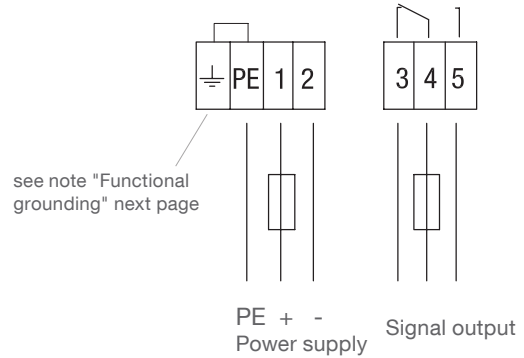
**Power supply:**  
 21 .. 27 V DC  $\pm 10\%$ \* 1.5W  
 \*incl. 10% of EN 61010

Fuse on power supply:  
 max. 10 A, fast or slow, HBC, 250 V

**Signal output:**  
 Floating relay SPDT

AC max. 250 V, 3 A, non inductive  
 DC max. 30 V, 5 A, non inductive

Fuse on signal output:  
 max. 5 A, fast or slow, HBC, 250 V



### Relay DPDT Universal voltage

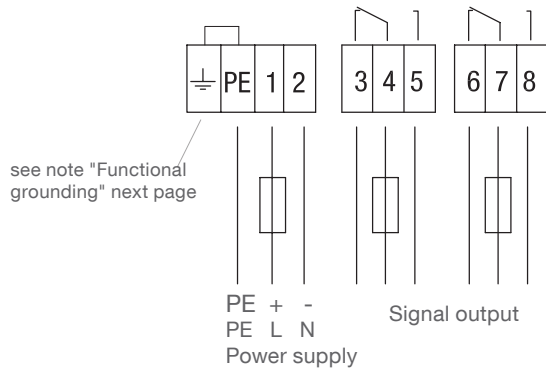
**Power supply:**  
 21 .. 230 V 50 - 60 Hz  $\pm 10\%$ \* 18 VA  
 21 .. 45 V DC  $\pm 10\%$ \* 2 W  
 \*incl. 10% of EN 61010

Fuse on power supply:  
 max. 10 A, fast or slow, HBC, 250 V

**Signal output:**  
 Floating relay DPDT

AC max. 250 V, 8 A, non inductive  
 DC max. 30 V, 5 A, non inductive

Fuse on signal output:  
 max. 10 A, fast or slow, HBC, 250 V



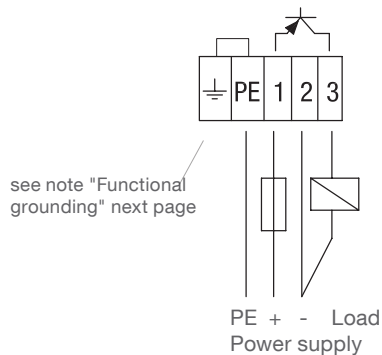
### PNP 3-wire

**Power supply:**  
 20 .. 40 V DC  $\pm 10\%$ \* 0.5 A  
 \*incl. 10% of EN 61010

Fuse:  
 max. 4 A, fast or slow, 250V, HBC

**Signal output:**  
 max. 0.4 A

Load for example:  
 PLC, relay, contactor, bulb



Approved power supply with reinforced insulation to mains is required

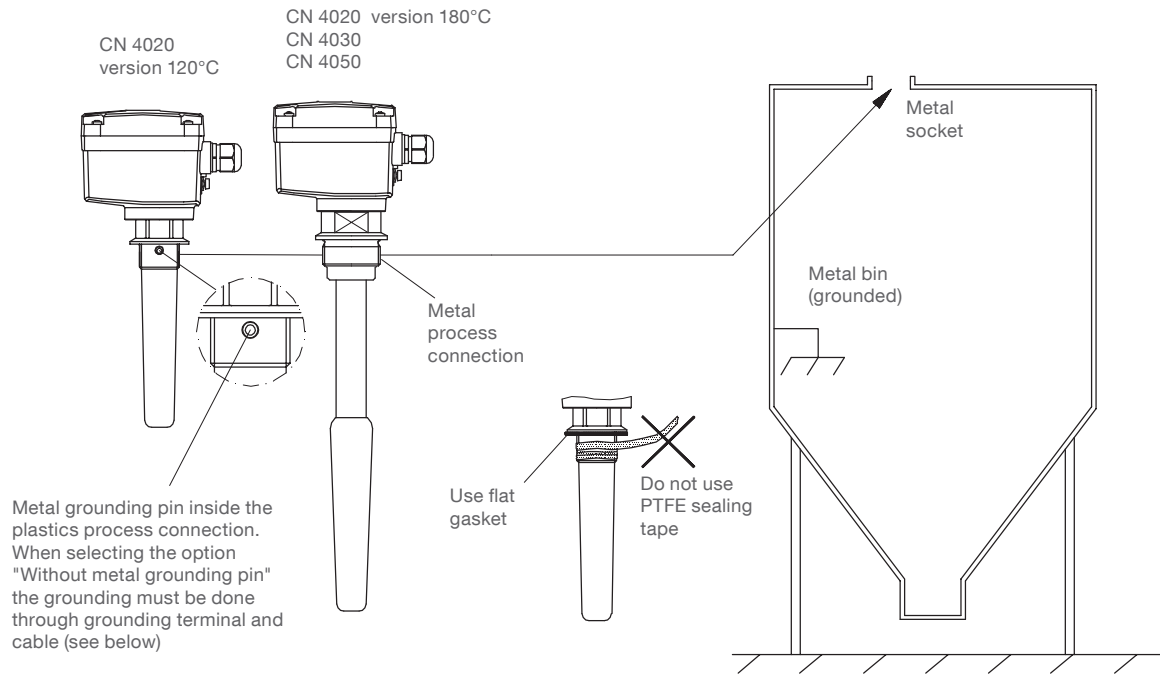
## Electrical installation

### Functional grounding

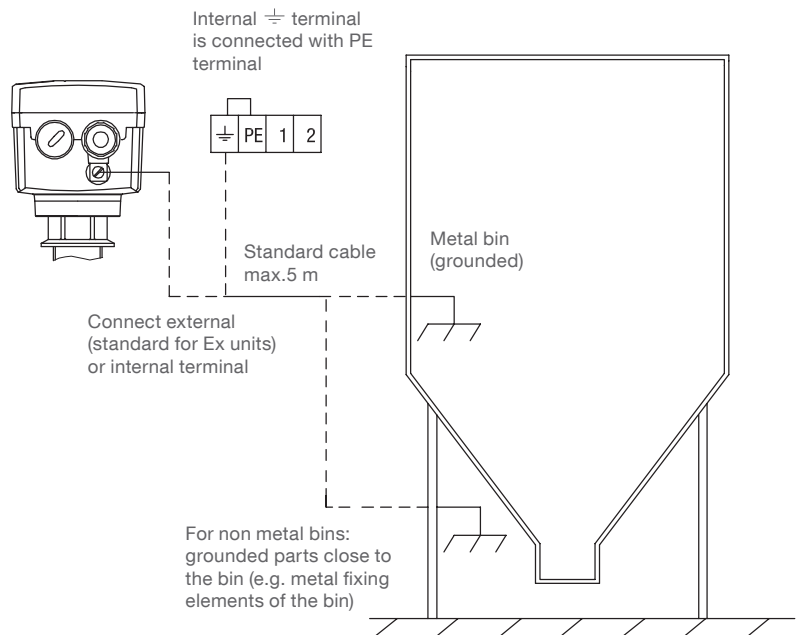
The unit must have connection to earth for proper functioning. This can be done by one of the following possibilities:

#### Grounding through process connection

CAUTION: This grounding alone is not enough for Ex applications.



#### Grounding through grounding terminal and cable



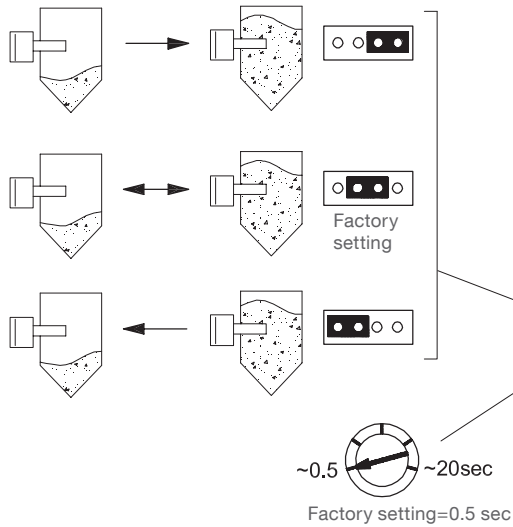


## Settings

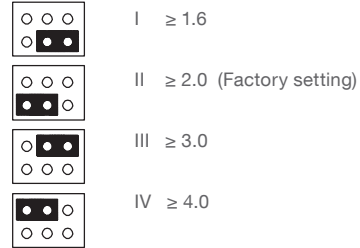
### Control elements

#### Relay SPDT

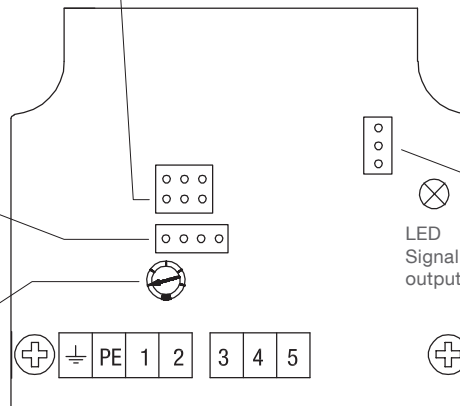
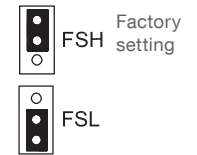
**Signal output delay:**  
 Delay works in one or both directions  
 as shown by the arrows below.



**Sensitivity setting:**  
 Range DK



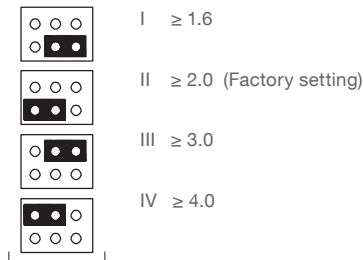
**FSH/FSL setting:**



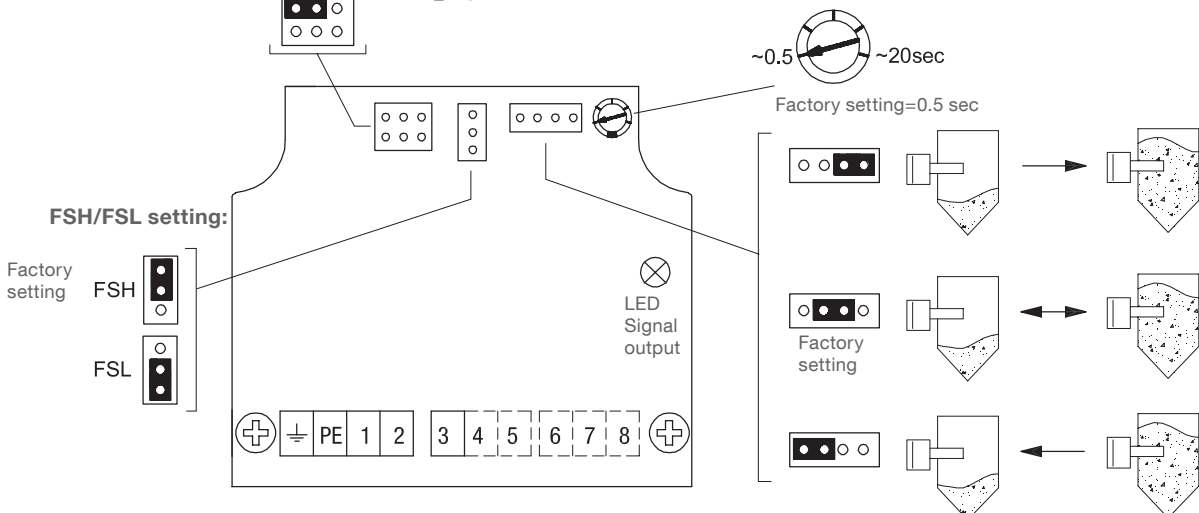
#### Relay DPDT Universal voltage

#### PNP 3-wire

**Sensitivity setting:**  
 Range DK



**Signal output delay.**  
 Delay works in one or both directions  
 as shown by the arrows below.



## Settings / Signal output logic

### Sensitivity setting

The units are factory set to Range II and do normally not need to be resetted on site.  
 If required, the setting can be changed:

	Description	Required DK value	Possible material buildup
<b>Range I</b>	Max. sensitivity for low DK value	$\geq 1.6$	Low
<b>Range II</b>	Standard setting for most applications	$\geq 2.0$	Medium
<b>Range III</b>	Low sensitivity for high material buildup on the probe	$\geq 3.0$	High
<b>Range IV</b>	Min. sensitivity for very high material buildup on the probe	$\geq 4.0$	Very high

### Signal output logic

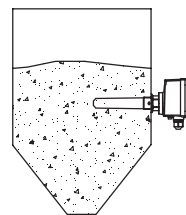
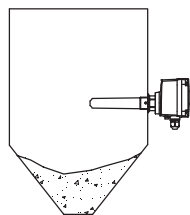
**FSH:** Set in case of using the sensor as a full detector: Power failure or line break is regarded as "full" signal (protection against overcharging).

**FSL:** Set in case of using the sensor as an empty detector: Power failure or line break is regarded as "empty" signal (protection against running dry).

Signal output

Signal output

Setting	FSL	FSH	FSL	FSH	
Relay SPDT					
Relay DPDT					
PNP					
LED „Signal output“					



## Maintenance

**Opening the lid (cover)** Before opening the lid for maintenance reasons observe following items:

- Do not remove the lid while circuits are alive.
- No dust deposits or whirlings are present.
- No rain can enter into the housing.

**Frequent check of the unit** To ensure durable safety in hazardous locations and with electrical safety, following items must be checked frequently depending on the application:

- Mechanical damage or corrosion of any components (housing side and sensor side) and of the field wiring cables.
- Tight sealing of the process connection, cable glands and enclosure lid.
- Properly connected external PE cable (if present).

**Cleaning** If cleaning is required by the application, following must be observed:

- Cleaning agent must comply with the materials of the unit (chemical resistance). Mainly the lid sealing, cable gland and the surface of the unit must be considered.

The cleaning process must be done in a way, that:

- The cleaning agent cannot enter into the unit through the lid sealing or cable gland.
- No mechanical damage of the lid sealing, cable gland or other parts can happen.

A possible accumulation of dust on the unit does not increase the maximum surface temperature and must therefore not be removed for purposes of maintaining the surface temperature in hazardous locations.

**Function test** A frequent function test may be required depending on the application.

Observe all relevant safety precautions related with a safe work depending on the application (e.g. hazardous locations, hazardous bulk material, electric safety, process pressure).

This test does not proof if the sensor is sensitive enough to measure the material of the application.

Function test is done by touching the sensor part with appropriate means (e.g. grounded metal plate or hand) and monitor if a correct change of the signal output from uncovered to covered happens.

**Production date** The production date can be traced by the serial number on the typeplate. Please contact the manufacturer or your local distributor.

**Spare parts** All available spare parts are stated in the selection list

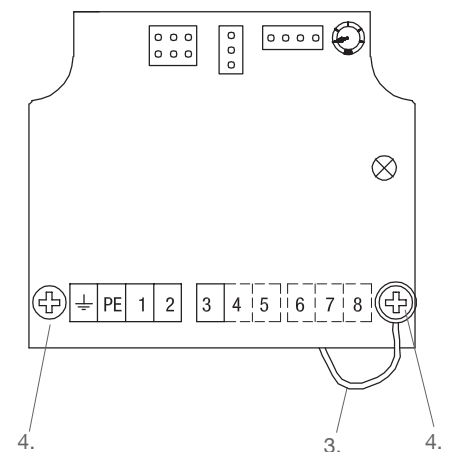
### Change of the electronic board:

**CN 4020** Deenergise device and secure against being switched on again. Before opening the lid take care, that the unit is clean and no water or dirt can enter into the housing.

1. Open the housing lid.
2. Remove the field wiring cables.
3. Remove the internal functional ground cable.
4. Unscrew the two fastening screws of the electronic board.
5. Take out the electronic board.
6. Remove the plug to the probe.
7. Connect the plug to a new electronic board.
8. Insert the new electronic board and tighten fastening screws.
9. Connect the functional ground cable and the field wire cables.

Calibration is not required.

**CN 4030** For these types a non changeable electronic is located inside the probe. Please return defective units to the manufacturer.  
**CN 4050**



## Notes for use in Hazardous Locations

### Zone classification

	Usable in zone	Category	Equipement Protection Level (EPL)
Dust applications	20, 21, 22	1 D	Da
	21, 22	2 D	Db
	22	3 D*	Dc

\* in case of conductive dust additional demands for the installation are possible.

### General Notes

**Marking** Devices with Ex approval are marked on the name plate.

**Process pressure** Devices with Ex Approval are approved for atmospheric pressure. A detailed explanation is given below for ATEX and applies analogously for other Ex approvals:

- The scope of the ATEX directive is generally limited to atmospheric pressure, see ATEX directive 2014\_34\_EU Chapter 1 Art.2 (4). Atmospheric pressure is defined as absolute pressure 0.8bar to 1.1bar, see ATEX guideline §50 and IEC 60079-0 chapter 1 Scope.

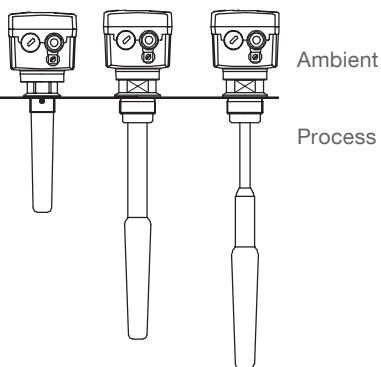
The technical background is that an explosive atmosphere which is compressed (overpressure) or released (underpressure) can exhibit different explosion behaviour than under atmospheric conditions. The standards for the types of protection against explosion (IEC 60079 series), on which a type approval according to the ATEX directive is based, are designed for atmospheric conditions and do not automatically cover deviating pressure conditions. Thus, an ATEX type approval issued in accordance with this directive only covers atmospheric pressure. This applies to all manufacturers. A deviating operating pressure can be assessed and approved by an expert for the respective application. Regardless of this, the design of the level indicators is suitable for a vessel overpressure / underpressure in accordance with the specified technical data.

**Process and ambient temperature** The permitted temperature ranges are marked on the name plate. Observe derating curves.


### Permitted zones (categories) for mounting in partition wall

EPL	Db
Category	2D
Zone	21

EPL	Da
Category	1D
Zone	20



### Max. Surface Temperature

The temperature marking on the name plate  refers to the instruction manual. On the following tables the relevant temperature ratings are shown. The maximum surface temperature is the hottest temperature of the unit which could occur during malfunction (according to Ex-definition).

Version CN 4020 120°C/ CN 4030/ CN 4050:

Max. ambient temperature*	Max. process temperature*	Max. surface temperature
60°C (140°F)	CN 4020: 120°C (248°F) CN 4030: 110°C (230°F)	120°C (248°F)
	CN 4050: 80°C (176°F)	135°C (275°F)

Version CN 4020 180°C:

Max. ambient temperature	Max. process temperature	Max. surface temperature
60°C (140°F)	120°C (248°F)	120°C (248°F)
	130°C (266°F)	130°C (266°F)
	140°C (284°F)	140°C (284°F)
	150°C (302°F)	150°C (302°F)
	160°C (320°F)	160°C (320°F)
	170°C (338°F)	170°C (338°F)
	180°C (356°F)	180°C (356°F)

\* Observe derating (see page 7)

## Disposal

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The product consists of materials which can be recycled, details of the used materials see chapter "Technical data - mechanical data".

Recycling must be done by a specialised recycling company.