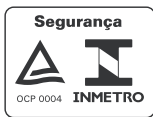


# Safety Instructions

## Indumax CLS50D, CLS50

Inductive conductivity sensor for standard, Ex and high-temperature applications

INMETRO Ex ia IIC T4/T6 Ga



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# Indumax CLS50D, CLS50

Inductive conductivity sensor for standard, Ex and high-temperature applications

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**Associated documentation** These Safety Instructions are integral part of the following manuals, which can be found on the product pages on the Internet:



Operating Instructions for Indumax CLS50D/CLS50, BA00182C

**Supplementary documentation**



Competence Brochure CP00021Z  
 ■ Explosion Protection: Guidelines and General Principles  
 ■ [www.endress.com](http://www.endress.com)

**Certificate**

**CLS50D**  
 INMETRO certificate TÜV 23.0502 X

**CLS50**  
 INMETRO certificate TÜV 23.0501 X

**Identification**

The nameplate provides you with the following information on your device:

- Manufacturer identification
- Extended order code
- Serial number
- Safety information and warnings
- Ex marking on hazardous area versions

► Compare the information on the nameplate with the order.

#### Type code

Type	Version							
CLS50D	-	MA	a <sup>1)</sup>	b <sup>2)</sup>	c <sup>3)</sup>	d <sup>4)</sup>	+	e... e <sup>5)</sup>

- 1) Process connection (no ex-relevance)
- 2) Sensor-, Seal-, Adapter material: B = PEEK, VITON, PEEK; C = PEEK, Chemraz, PEEK; D = PFA, CHEMRAZ, 1.4571
- 3) Cable length (no ex-relevance): 1 = 3 m; 2 = 7 m; 3 = 15 m; 7 = 1 up to 50 m; 8 = 1 up to 164 ft
- 4) Cable connection (no ex-relevance): 1 = Fixed cable, crimp sleeves; 2 = Fixed cable, M12 plug
- 5) Optional = one or more characters determining optional features (no ex-relevance), e.g. test or other certificates or declarations

Type	Version						
CLS50	-	N	a <sup>1)</sup>	b <sup>2)</sup>	c <sup>3)</sup>	+	d <sup>4)</sup>

- 1) Process connection (no ex-relevance)
- 2) Sensor-, Seal-, Adapter material: A = PFA, CHEMRAZ, 1.4571; B = PEEK, VITON, PEEK; C = PEEK, Chemraz, PEEK
- 3) Cable connection (no ex-relevance): 1 = 5 m (125 °C); 2 = 10 m (125 °C); 3 = 20 m (125 °C); 4 = 10 up to 55 m (125 °C); 5 = 5 m (180 °C); 6 = 10 m (180 °C)
- 4) Optional tagging (no ex-relevance)

#### Certificates and approvals

##### Ex approval

INMETRO Ex ia IIC T6... T4 Ga

##### Notified body

TÜV Rheinland do Brasil Ltda

**Safety instructions**

Sensors with INMETRO certificate have been developed and manufactured in accordance with the applicable standards and guidelines and are suitable for use in explosive atmospheres.

- The sensors may be operated in an environment specified as Ex Zone 0 (1G).
- The sensors may only be used in liquid media with a minimum conductivity of 10 nS/cm.
- If the connecting cable runs through Ex Zone 0 (1G), it must be protected against electrostatic charge.
- Compliance with the specified ambient and medium temperature ranges is a prerequisite for safe use.
- The sensor must be connected and operated in accordance with the Operating Instructions of the sensor and of the transmitter to be connected. All sensor operating data must be observed.
- Avoid electrostatic charge. Metal process connections must be electrostatically connected at the mounting location ( $R \leq 1 \text{ M}\Omega$ ).
- Non-metal process connections must be protected against electrostatic charge.
- In order to avoid electrostatic charge clean the sensor with a damp cloth only.
- Full compliance with regulations for electrical systems in explosive atmospheres (ABNT NBR IEC 60079-14) is mandatory when using the devices and sensors.
- Ensure correct installation to maintain the housing protection type. (Use original seal. Fit cable entry properly. Tighten nut).
- The IP68 degree of protection applies only when the flange is mounted.

This device has been developed and manufactured according to Portaria INMETRO n° 115 de 21/03/2022, and also complies with the following standards:

- ABNT NBR IEC 60079-0: 2020 Explosive atmospheres Part 0: General requirements
- ABNT NBR IEC 60079-11:2013 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

**Temperature tables**

	Temperature class	
Typ	T4	T6
CLS50D-MA*B** CLS50D-MA*C**	$-20 \text{ }^\circ\text{C} \leq T_a \leq 120 \text{ }^\circ\text{C}$	$-20 \text{ }^\circ\text{C} \leq T_a \leq 70 \text{ }^\circ\text{C}$
CLS50D-MA*D**	$-20 \text{ }^\circ\text{C} \leq T_a \leq 110 \text{ }^\circ\text{C}$	$-20 \text{ }^\circ\text{C} \leq T_a \leq 70 \text{ }^\circ\text{C}$
CLS50-N***	$-20 \text{ }^\circ\text{C} \leq T_a \leq 125 \text{ }^\circ\text{C}$	$-20 \text{ }^\circ\text{C} \leq T_a \leq 75 \text{ }^\circ\text{C}$

The above temperature table applies only under the installation conditions, which are described in the Operating Instructions. If the installation conditions cannot be met, the maximum process temperature  $T_p$  must not exceed the maximum ambient temperature  $T_a$ .

**Connection****CLS50D-MA\*\*\*\***

- The sensor is a digital sensor with the Memosens protocol and its connection values are those specified below.
- The sensor may also be connected to the intrinsically safe Memosens connection of module FSDG1 of the certified CM42 transmitter.
- The maximum permitted length of the measuring cable is 100 m (330 ft) here.

$U_i$	5.1 V
$I_i$	130 mA
$P_i$	166 mW
$C_i$	18 $\mu\text{F}$
$L_i$	0.72 $\mu\text{H}$

**CLS50-N\*\*\***

- The sensor may only be connected to the following transmitters:  
Certified CM42 transmitter
- The maximum permitted length of the measuring cable here is 55 m (180 ft).

**CLS50 only**

In the CLS50 sensor, the internal sensor circuits are connected with the shielded wire of the supply cable. When installing the CM42 transmitter, the shielding of the sensor cable must be connected to functional ground as prescribed. As a result, the intrinsically safe sensor circuits of CLS50 are also connected to ground. Therefore, the power supply of the transmitter must be galvanically isolated and connected to ground. The CM42 transmitters already have secure internal galvanic isolation and therefore safely separate the sensor circuit from the other circuits.

**Installation conditions**

Operating Instructions for Indumax CLS50D/CLS50, BA00182C

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