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Safety Instructions
CLS50D, CLS50, CLS54

Safety instructions for electrical equipment for explosion-hazardous areas

EAC Ex, 0Ex ia IIC T6/T4 Ga X
Supplement to:
BA00182C, BA01591C

Endress+Hauser
People for Process Automation

CLS50D, CLS50, CLS54

Safety instructions for electrical equipment for explosion-hazardous areas

Table of contents

Related documentation

This document is an integral part of

Operating Instructions for Indumax CLS50D/CLS50, BA00182C

Operating Instructions for Indumax CLS54, BA01591C

Supplementary documentation

Competence Brochure CP00021Z
- Explosion Protection: Guidelines and General Principles
- www.endress.com

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

Name	Type		Version							
Indumax	CLS50D	-	GB	x	B/C /D	x	x	+	x	x
			For use in explosion-hazardous areas, EAC Ex, 0Ex ia IIC T6/T4 Ga X	Process connections, materials, cable connection, calibration, service; X means that all options are certified						

Name	Type		Version				
Indumax	CLS50	-	K	x	x	1/2 /3/ 4	
			For use in explosion-hazardous areas, EAC Ex, 0Ex ia IIC T6/T4 Ga X	Process connections, materials, cable connection, calibration, service; X means that all options are certified			

Name	Type		Version					
Indumax	CLS54	-	K	xxx	x	x	x	+	x
			For use in explosion-hazardous areas, EAC Ex, 0Ex ia IIC T6/T4/T3 Ga X	Process connections, additional options, cable connection, temperature sensor, identification; X means that all options are certified					

Certificates and approvals

Ex approvals

The product has been certified in accordance with Directive TR CU 012/2011 which applies in the Eurasian Economic Union (EAEU). The EAC conformity mark has been affixed to the product.
- Zone 0
- Certificate number: ЕАЭС KZ 7500525.01.01.02089

Ex-certification body

ТОО/ЖШС "Т-Стандарт"

Safety instructions

CLS50D, CLS50

CLS50D-GB** and CLS50-K*****

- 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 conductivity >10 nS/cm.
- If the connecting cable is installed through Ex Zone 0 (1G), it must be protected against electrostatic charge.

CLS50D-GB**

- 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 the FSDG1 module of the EAC-Ex-certified CM42 transmitter and to the digital sensor interface (Memosens, terminals 87, 88, 97, 98) of the Liquiline CM42B transmitter, as well as to the 2DS Ex-i communication module of the Liquiline CM44**-*** transmitter.
- The maximum permitted length of the measuring cable is 100 m (330 ft) here.

*Connection values of the CLS50D-GB**** sensor*

U_i	5.1 V
I_i	130 mA
P_i	166 mW
C_i	18 µF
L_i	0.72 µH/m

The following also applies for all sensors

- Compliance with the specified ambient and medium temperature ranges is a requirement 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 bonded ($R \leq 1$ MΩ).
- 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 (EN/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 degree of protection only applies when the flange is mounted.

CLS50 only
In the CLS50 sensor, the internal sensor circuits are connected with the shielded wire of the supply cable. When installing the transmitter CM42, CM42B or CLM153, connect the shield of the sensor cable to functional earth as specified. 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, CM42B and CLM153 transmitters are already internally equipped with safe galvanic isolation and therefore safely isolate the sensor circuit from the other circuits.

CLS54

- The sensor may be connected only via a measuring cable to approved transmitters (e.g. CM42 or CM42B).
- The sensor has been developed and manufactured in accordance with the applicable standards and guidelines and is suitable for use in explosion-hazardous areas.
- The sensor must be connected and operated in accordance with the associated Operation Instructions. All sensor operating data must be observed.
- Ensure that it is professionally installed in order to achieve the degree of protection (IP65) for the housing. Use the original seal, and install the cable entry properly.
- Compliance with the specified ambient and process temperature ranges is a prerequisite for safe use of the device!
- The sensors may only be used in liquid media with a conductivity >10 nS/cm.

- To avoid electrostatic charges, all CLS54 versions with metal surfaces (depends on process connection) must be electrostatically connected in such a way that R ≤1 MΩ.
- The maximum permitted length of the measuring cable is 50 m.
- Full compliance with regulations for electrical apparatus in explosive atmospheres (EN 60079-14) is mandatory when using the devices and sensors.

Temperature tables

Sensor	Temperature class	
	T4	T6
CLS50-K***	-20 °C ≤ Ta ≤ 125 °C	-20 °C ≤ Ta ≤ 75 °C
CLS50D-GB*D/E/G**+*	-20 °C ≤ Tp ≤ 110 °C	-20 °C ≤ Tp ≤ 70 °C
CLS50D-GB*B/C**+*	-20 °C ≤ Tp ≤ 120 °C	-20 °C ≤ Tp ≤ 70 °C

Sensor	Temperature class		
	T3	T4	T6
CLS54-K******	-10 °C ≤ Tp ≤ 125 °C [1]	-10 °C ≤ Tp ≤ 105 °C	-10 °C ≤ Tp ≤ 55 °C

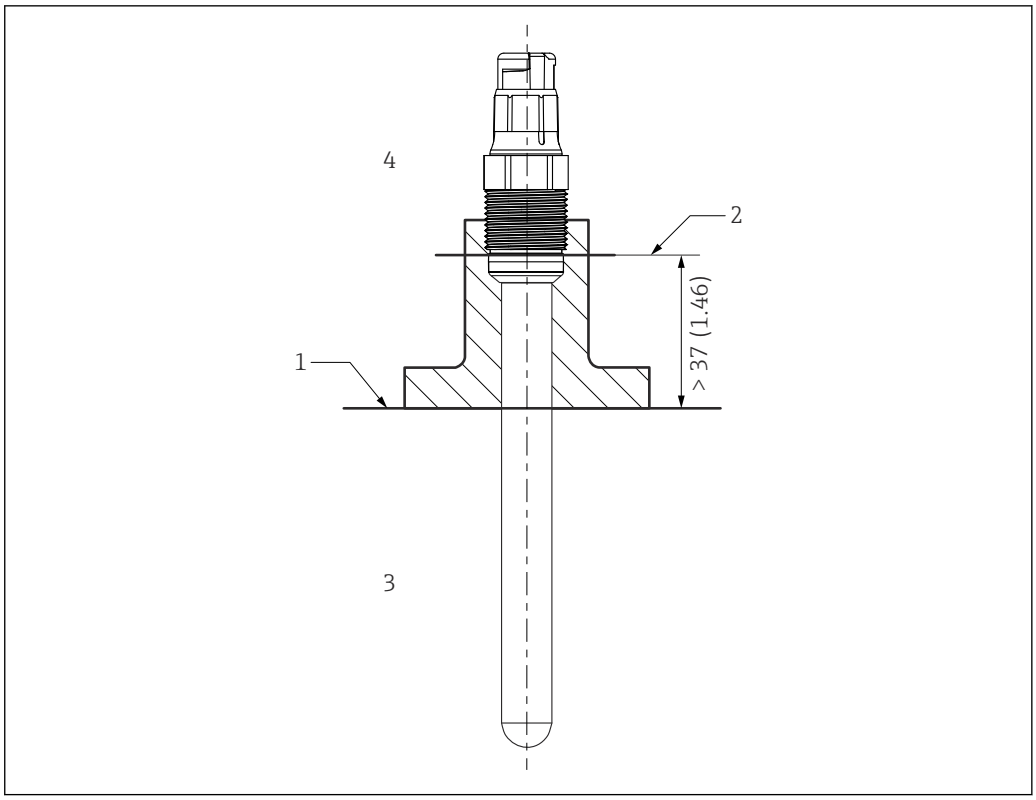
1) 150 °C for max. 60 min.

Note that, for CLS50, the temperatures specified include both ambient and process temperatures.

For CLS50D and CLS54, the ambient temperature range is always -20 °C ≤ Ta ≤ 60°C.

The temperature tables apply only under the installation conditions described in the following graphic → 1. If the installation conditions cannot be met, the maximum process temperature T_p must not exceed the maximum ambient temperature T_a.

Installation conditions



1 Installation conditions

1 Limit
2 Distance between plug-in head (lower edge) and process medium, without ring and thrust collar
3 Process temperature T_p
4 Ambient temperature T_a

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