XA02836C/07/EN/02.26-00
71756149
2026-01-26

Safety Instructions
Indumax CLS50D, CLS50, CLS54

CSA IS/NI Cl.I Div. 1/2 GP A, B, C and D

Safety instructions for electrical apparatus in explosion-hazardous areas

Endress+Hauser
People for Process Automation

Indumax CLS50D, CLS50, CLS54

CSA IS/NI Cl.I Div. 1/2 GP A, B, C and D

Table of contents

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

Operating Instructions for Indumax CLS54, BA01591C

Supplementary documentation

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

Certificate

CLS50D
CSA C/US certificate, certificate number: 80021719

CLS50 and CLS54
CSA C/US certificate, certificate number: 80219586

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	-	C2	a [1]	b [2]	c [3]	d [4]	+	e … e [5]

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	-	S	a [1]	b [2]	c [3]	+	d [4]

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)

Type		Version						
CLS54	-	O	a [1]	b [2]	c [3]	d [4]	+	d [5]

1) Process connection (no ex-relevance)
2) Additional option (no ex-relevance): 0 = not selected; 2 = Bio-reactivity test, USP class VI; 3 = CRN approval; 4 = CRN approval + Bio-reactivity test, USP class VI
3) Cable connection (no ex-relevance): 1 = 5 m; 2 = 10 m; 3 = 20 m; 4 = 10 up to 50 m
4) Temperature sensor (no ex-relevance): 1 = Pt100; 2 = Pt1000
5) Optional tagging (no ex-relevance)

Certificates and approvals

Ex approval

The product meets the requirements of:
- CLASS 2258 04 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe Entity - For Hazardous Locations
- CLASS 2258 84 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe Entity - For Hazardous Locations - Certified to US Standards

This is verified by compliance with the following standards:
- CAN/CSA-C22.2 No. 61010-1-12 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements
- CAN/CSA-C22.2 No. 60079-0 Explosive atmospheres – Part 0: Equipment – General requirements
- CAN/CSA-C22.2 No. 60079-11 Explosive atmospheres – Part 11: Equipment protection by intrinsic safety “i”
- UL 61010-1 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements
- UL 60079-0 Explosive atmospheres – Part 0: Equipment – General requirements
- UL 60079-11 Explosive Atmospheres – Part 11: Equipment Protection by Intrinsic Safety “i”

Ex ia IIC T6/T4 Ga
Class I, Zone 0 AEx ia IIC T6/T4 Ga
IS Class I, Division 1, Groups A, B, C and D T6/T4

Safety instructions

- Install the device according to the National Electrical Code (NFPA70) or the Canadian Electrical Code, Part 1 (C22.1), where applicable.
- 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.
- Metallic process connection parts have to be mounted electrostatically conductive at the mounting location (< 1 MΩ).
- The sensor may only be used in liquid media with a conductivity of a least 10 nS/cm.
- 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 hazardous locations (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.
- The maximum ambient and process temperatures for temperature classes T3, T4 or T6 are limited as specified in the tables of this certificate.
- Observe the documentation and the control drawings of the transmitter.

Temperature tables

	Temperature class	
Typ	**T4**	**T6**
CLS50D-C2*B** CLS50D-C2*C**	-20 °C ≤ T_a ≤ 120 °C	-20 °C ≤ T_a ≤ 70 °C
CLS50D-C2*D**	-20 °C ≤ T_a ≤ 110 °C	-20 °C ≤ T_a ≤ 70 °C
CLS50-S***	-20 °C ≤ T_a ≤ 125 °C	-20 °C ≤ T_a ≤ 75 °C
CLS54-O****	-10 °C ≤ T_a ≤ + 105 °C	-10 °C ≤ T_a ≤ + 55 °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

- The sensor may only be connected to the following transmitter: Liquiline type CM42-LR/S (CLS50D), CM42-IR/S (CLS50) or CM42B
- CLS50 only
  The maximum permissible length of the measuring cable is as follows: 55 m (180 ft).
- Install per control drawing:

Safety Instructions Liquiline CM42, XA01687C

Safety Instructions Liquiline CM42B, XA03509C

The sensors can be connected both Class I Division 1 and Class I Division 2: Division 1 equipment can be used in Division 2 as long as they are installed in the same manner as they were intended for Division 1 (NEC 500.8 (B)(2)). This is the case for Memosens sensor with inductive coupling between sensor and cable. There are no different installation methods between sensor and cable. For the cable-transmitter connection the XA of the transmitter must be considered.

CLS50

U_i	14 V
I_i	100 mA
P_i	350 mW

CLS54

U_i	14 V
I_i	100 mA
P_i	140 mW

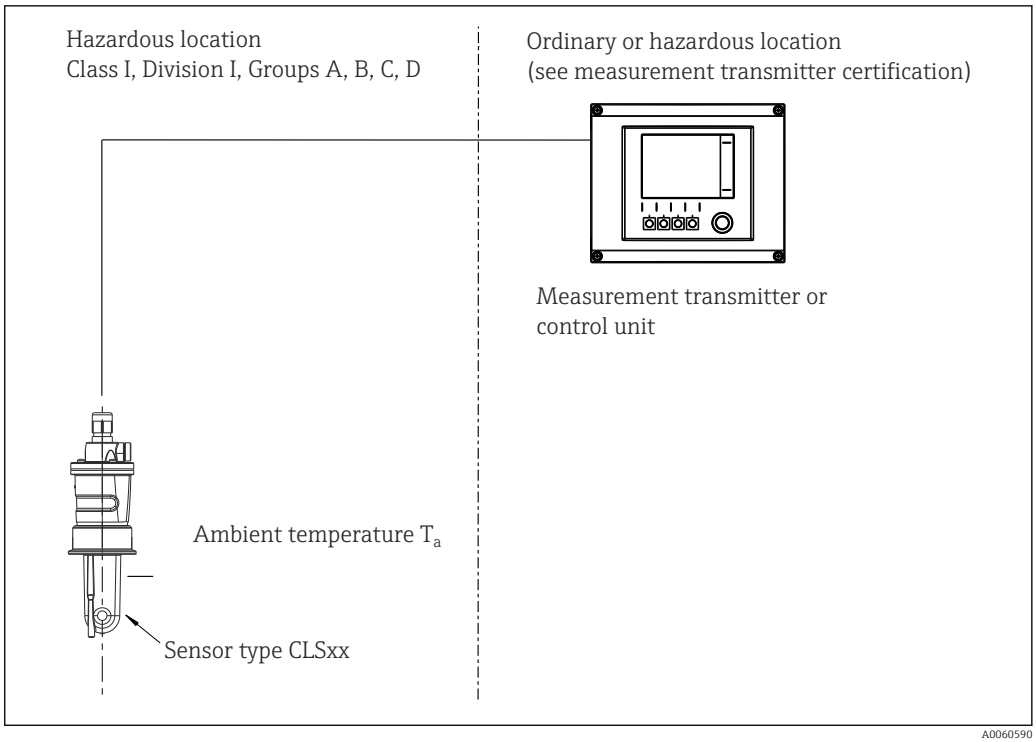
CLS54D

U_i	5.1 V
I_i	130 mA
P_i	166 mW

Installation conditions

Operating Instructions for Indumax CLS50D/CLS50, BA00182C

Operating Instructions for Indumax CLS54, BA01591C



1 *Electrical Connection*

Additional Equipment Ratings:

Pollution degree	4
Installation category	N/A DC supplied (supplied from secondary non-hazardous live)
Ingress protection code	IP68
Altitude	N/A (not relevant for limited energy devices without insulation requirements)
Humidity	up to 95 % Indoor use (wet location)
Process pressure	CLS54: 13 bar (188.5 psi) up to 90 °C (194 °F) 9 bar (130.5 psi) at 125 °C (257 °F) 1 to 6 bar (14.5 to 87 psi) in CRN environment tested with 1 bar (725 psi) Underpressure down to 0.1 bar (1.5 psi) CLS50/ CLS50D Max. 41 bar (595), depending on sensor version, → Process temperature chart in BA00182C

Endress+Hauser

People for Process Automation