XA03295C/07/EN/01.24-00
71654994
2024-04-30

Safety Instructions
Condumax CLS12, CLS13, CLS15, CLS16B, CLS21

Conductivity sensors with conductive measurement of conductivity

NEPSI Ex ia IIC T6 ... T2 Ga

Endress+Hauser
People for Process Automation

Condumax CLS12, CLS13, CLS15, CLS16B, CLS21

Conductivity sensors with conductive measurement of conductivity

Table of contents

Related documentation

The technical documentation for the device is available on the Internet:

www.endress.com

▶ Enter the serial number from the nameplate into the search screen (magnifying glass).

Operating Instructions for Condumax CLS12/CLS13, BA01641C

Operating instructions for Condumax CLS16B, BA02334C

Operating instructions for Condumax CLS15/CLS21/(CLS16), BA01148C

Supplemental documentation

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

Certifications

Certificates and declarations of conformity are available on: www.endress.com/download. The number of the NEPSI certificate that applies to the product can be found on the nameplate.

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					
CLS12	A/B [1]	** [3]	* [5]	A [6]		
CLS13	A/B [1]	** [3]	* [5]	A [6]		
CLS15	A/B/L [1]	** [3]	* [5]	A [6]		
CLS16B-	N [2]	** [3]	** [4]	* [5]	A/B [6]	+ (optional) [7]
CLS21	C/L [1]	** [3]	*	A/D [6]		

1) Measuring range, cell constant (not Ex-relevant), A: k = 0.01/cm, B: k = 0.1/cm, C: k = 1/cm, L: PWIS-free version of B (CLS15) or C (CLS21)
2) NEPSI Ex ia IIC T3/T4/T6 Ga
3) Process connection (not Ex-relevant)
4) Material (not Ex-relevant)
5) Cable connection (not Ex-relevant)
6) Temperature sensor, A: Pt100, B: Pt1000
7) Optional features (not Ex-relevant)

Certificates and approvals

- CLS12: Ex ia IIC T6 ... T3 Ga
- CLS13: Ex ia IIC T6 ... T2 Ga
- CLS15: Ex ia IIC T6 ... T3 Ga
- CLS16B: Ex ia IIC T6 ... T3 Ga
- CLS21: Ex ia IIC T6 ... T3 Ga

Ex inspection authority

National Supervision and Inspection Centre for Explosion Protection and Safety of Instrumentation (NEPSI)

Safety instructions

- 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.
- The sensors may only be operated on suitable intrinsically safe circuits. Make sure that the maximum permissible sensor input characteristic values, the maximum permissible inductance L_i and capacitance values C_i in these circuits and the ambient temperature ranges indicated are not exceeded.
- The maximum permissible cable length is limited by the maximum permissible characteristic values of the transmitter. The total of the maximum permissible inductance L_i and capacitance values C_i for the sensor and measuring cable may not exceed the maximum permissible inductance L_o and capacitance values C_o for the transmitter.
- When connected to the Liquiline M CM42 transmitter, the maximum permissible length of measuring cables CYK71 or CYK71-Ex is 50 m.
- The CLS21 sensor may only be used for measurement in liquids with a minimum conductivity > 10 nS/cm.
- Pay attention to the regulations for electrical installations in explosive atmospheres (EN/IEC 60079-14) when using the devices and sensors.
- Do not operate type CLS15 sensors with non-metallic process connections and type CLS21 sensors under process conditions in which electrostatic charging of the sensor, particularly of the electrically insulated outer electrode, is likely to occur.
- The sensor heads of types CLS12 and CLS13 have to be protectively installed against impacts and friction.
- The ambient temperature range of the sensor head is -20 °C ≤ T_a ≤ 60 °C.
- The end user must adhere to the Operating Instructions and the following standards for the installation, operation and maintenance of the product:

- GB 3836.13 "Explosive atmospheres - Part 13: Equipment repair, overhaul, reclamation and modification"
- GB/T 3836.15 "Explosive atmospheres - Part 15: Electrical installations design, selection and erection"
- GB/T 3836.16 "Explosive atmospheres - Part 16: Electrical installations inspection and maintenance"
- GB/T 3836.18 "Explosive atmospheres - Part 18: Intrinsically safe electrical systems"
- GB 50257 "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering"
  Find the current standard versions on the certificate.

- To ensure that the explosion protection of the device is maintained, the operator must not change the configuration. Any modification may affect safety.
- Observe the instructions of the NEPSI certificate, available via the website of the product: www.endress.com/download.

Temperature tables

	Temperature class			
Type	**T2**	**T3**	**T4**	**T6**
CLS12	- [1]	-20 °C ≤ T_a ≤ 160 °C	-20 °C ≤ T_a ≤ 125 °C	-20 °C ≤ T_a ≤ 75 °C
CLS13	-20 °C ≤ T_a ≤ +250 °C	-20 °C ≤ T_a ≤ 190 °C	-20 °C ≤ T_a ≤ 125 °C	-20 °C ≤ T_a ≤ 75 °C
CLS15	- [1]	-20 °C ≤ T_a ≤ 140 °C	-20 °C ≤ T_a ≤ 115 °C	-20 °C ≤ T_a ≤ 65 °C

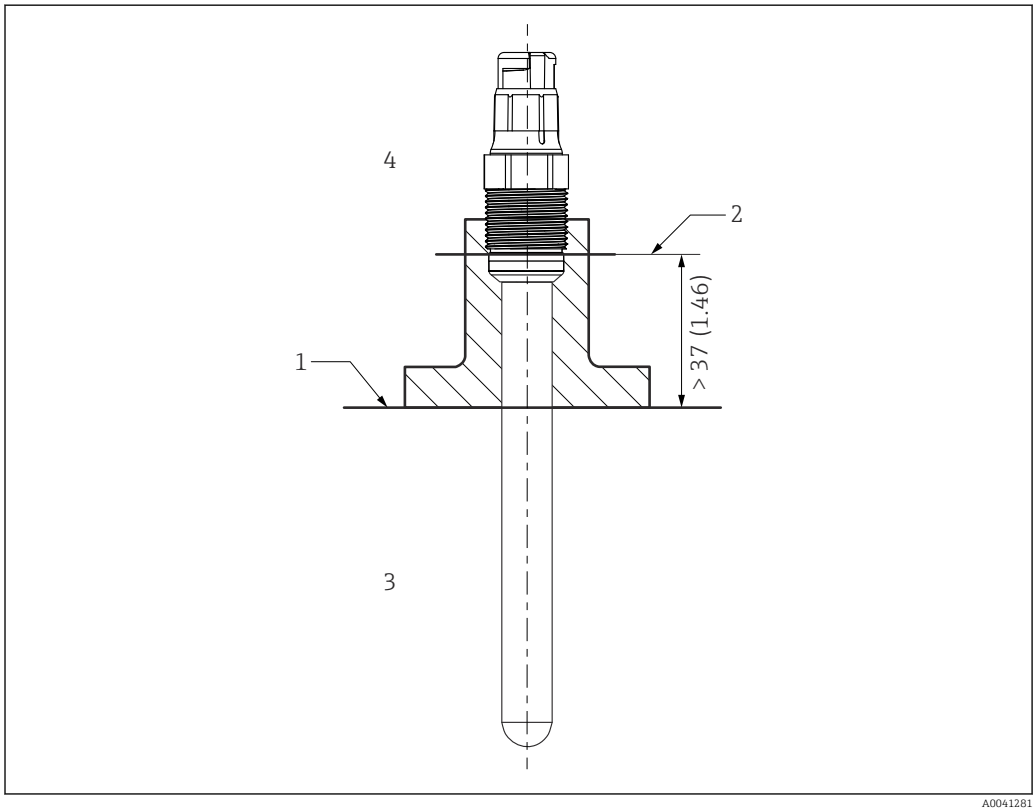
	Temperature class			
Type	**T2**	**T3**	**T4**	**T6**
CLS16B	- [1]	-5 °C ≤ T_a ≤ 150 °C	-5 °C ≤ T_a ≤ 115 °C	-5 °C ≤ T_a ≤ 65 °C
CLS21-****A CLS21-****D	- [1] - [1]	-20 °C ≤ T_a ≤ 135 °C -20 °C ≤ T_a ≤ 135 °C	-20 °C ≤ T_a ≤ 115 °C -20 °C ≤ T_a ≤ 130 °C	-20 °C ≤ T_a ≤ 65 °C -20 °C ≤ T_a ≤ 80 °C

1) not applicable

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.

- For functional reasons, the CLS15 sensors may only be operated up to 120 °C (248 °F) during continuous operation/and up to 140 °C (284 °F) for short periods.
- For functional reasons, the CLS16 sensors may only be operated up to 120 °C (248 °F) during continuous operation/and up to 150 °C (302 °F) for short periods.

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*

Connection

Ex specification

The following connection data refer to safety-related limit values which must not be exceeded.

Associated transmitter

Characteristic	Connection data
Power supply circuit	Intrinsically safe
Maximum output voltage U_o	15 V
Maximum output current I_o	30 mA
Maximum output power P_o	130 mW

Sensor

Characteristic	Connection data
Maximum internal capacitance C_i	Negligible
Maximum internal inductance L_i	Negligible

Cables

Characteristic	Connection data
Maximum internal capacitance C_i	1 nF/m
Maximum internal inductance L_i	6 µH/m

Endress+Hauser

People for Process Automation