

# Safety Instructions

## **Memosens CLS15E, CLS16E, CLS21E, CLS82E**

Supplement to: BA02018C, BA02019C, BA02020C and  
BA02027C

Safety instructions for electrical apparatus in explosion-  
hazardous areas







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# Memosens CLS15E, CLS16E, CLS21E, CLS82E

Supplement to: BA02018C, BA02019C, BA02020C and BA02027C

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- Associated documentation** This document is an integral part of
-  Operating Instructions Memosens CLS21E, BA02020C
  -  Operating Instructions Memosens CLS15E, BA02018C
  -  Operating Instructions Memosens CLS16E, BA02019C
  -  Operating Instructions Memosens CLS82E, BA02027C

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

**Certificate** NEPSI certificate of conformity, certificate number: GYJ19.1374X

- Identification** The nameplate provides you with the following information on your device:
- Manufacturer identification
  - Extended order code
  - Serial number
  - Safety information and warnings
  - Ex labeling on hazardous area versions
- Compare the information on the nameplate with the order.

#### Type code

Type	Version					
xLS15E <sup>1)</sup>	- NA	**	**	a <sup>2)</sup>	***	+*
xLS16E	- NA	**	**	***	+*	
xLS21E	- NA	**	**	***	+*	
xLS82E	- NA	**	**	***	+*	
	NEPSI Ex ia IIC T3/T4/T6 Ga	No Ex relevance				

1) x=C, O, OC

2) a = A, B

#### Certificates and approvals

##### Ex approval

The CLSxxE-type conductivity sensors, have been certified by the National Supervision and Inspection Centre for Explosion Protection and Safety of Instrumentation (NEPSI). These products meet the following standards:

- GB 3836.1-2010 Explosive atmospheres-Part 1: Equipment-General requirements
- GB 3836.4-2010 Explosive atmospheres-Part 4: Equipment protection by intrinsic safety "I"
- GB 3836.20-2010 Explosive atmospheres-Part 20: Equipment with equipment protection level (EPL) Ga

NEPSI Ex ia IIC T3/T4/T6 Ga


#### Safety instructions

The CLSxxE-type conductivity sensors are suitable for use in explosion-hazardous areas according to: NEPSI certificate GYJ19.1374X

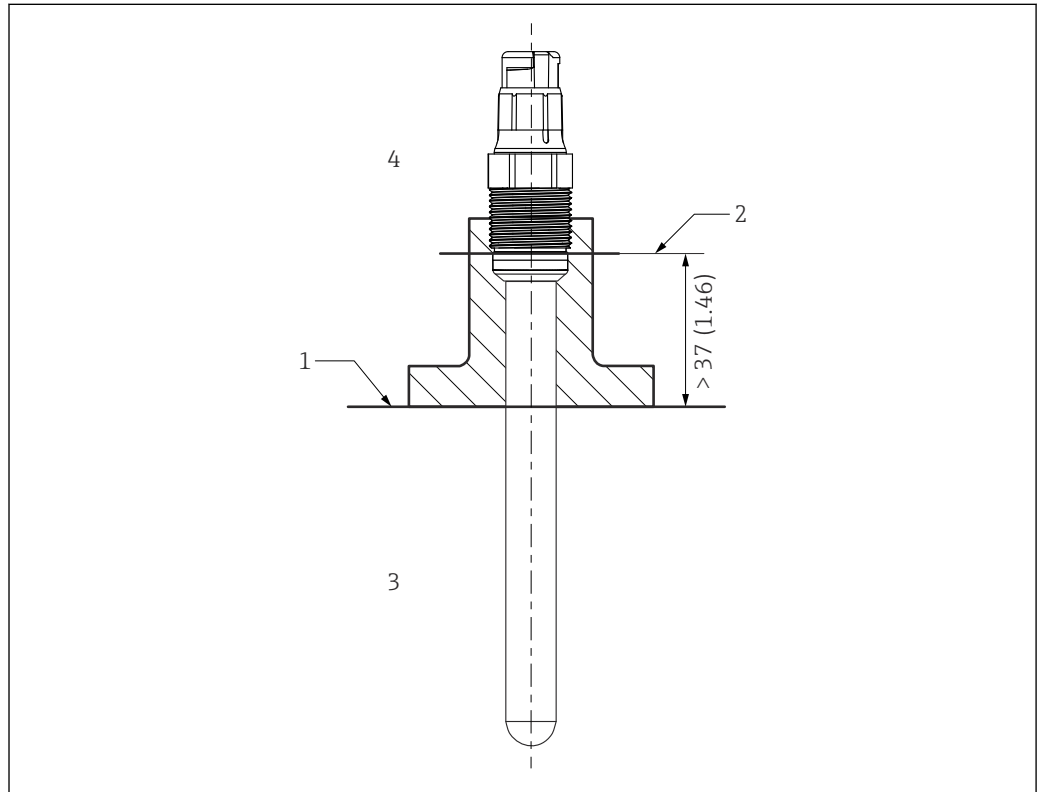
- xLS15E, xLS16E, xLS21E: Metallic process connection parts have to be mounted electrostatically conductive at the mounting location (< 1 MΩ).
- xLS15E and xLS21E with non-metallic process connection may only be used in liquid media with a conductivity of at least 10 nS/cm.
- xLS15E with non-metallic process connection may not be operated on processing conditions, in which an electrostatic loading of the sensor and in particular of the electrically separated outer electrode, could be expected to occur.
- xLS82E: The sensor may not be operated in electrostatically critical processing conditions. Intense vapour or dust flows directly impacting on the connection system must be avoided. The metallic parts of the sensor have to be mounted at the mounting location electrostatically conductive (< 1 MΩ).
- The end user must adhere to the Operating Instructions and the following standards for the installation, operation and maintenance of the product:
  - GB 50257-2014 "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".
  - GB 3836.13-2013 "Explosive atmospheres - Part 13: Equipment repair, overhaul and reclamation"
  - GB/T 3836.15-2017 "Explosive atmospheres - Part 15: Electrical installations design, selection and erection"
  - GB/T 3836.16-2017 "Explosive atmospheres - Part 16: Electrical installations inspection and maintenance"
  - GB/T 3836.18-2017 "Explosive atmospheres - Part 18: Intrinsically safe electrical systems"
- The correlations between the device model, the temperature class, the process temperature range and the ambient temperature range are indicated in the temperature tables. → 5

Temperature tables

Sensor	Temperature class	Process temperature T <sub>p</sub>	Ambient temperature T <sub>a</sub>
CLS15E-*****B****+*	T3	-20 °C ≤ T <sub>p</sub> ≤ +135 °C	-20 °C ≤ T <sub>a</sub> ≤ +70 °C
	T4	-20 °C ≤ T <sub>p</sub> ≤ +120 °C	-20 °C ≤ T <sub>a</sub> ≤ +75 °C
		-20 °C ≤ T <sub>p</sub> ≤ +110 °C	-20 °C ≤ T <sub>a</sub> ≤ +80 °C
		-20 °C ≤ T <sub>p</sub> ≤ +100 °C	-20 °C ≤ T <sub>a</sub> ≤ +85 °C
		-20 °C ≤ T <sub>p</sub> ≤ +90 °C	-20 °C ≤ T <sub>a</sub> ≤ +90 °C
	T6	-20 °C ≤ T <sub>p</sub> ≤ +60 °C	-20 °C ≤ T <sub>a</sub> ≤ +60 °C
CLS15E-*****A****+* CLS21E-*****+*	T3	-20 °C ≤ T <sub>p</sub> ≤ +140 °C	-20 °C ≤ T <sub>a</sub> ≤ +70 °C
	T4	-20 °C ≤ T <sub>p</sub> ≤ +120 °C	-20 °C ≤ T <sub>a</sub> ≤ +75 °C
		-20 °C ≤ T <sub>p</sub> ≤ +110 °C	-20 °C ≤ T <sub>a</sub> ≤ +80 °C
		-20 °C ≤ T <sub>p</sub> ≤ +100 °C	-20 °C ≤ T <sub>a</sub> ≤ +85 °C
		-20 °C ≤ T <sub>p</sub> ≤ +90 °C	-20 °C ≤ T <sub>a</sub> ≤ +90 °C
	T6	-20 °C ≤ T <sub>p</sub> ≤ +70 °C	-20 °C ≤ T <sub>a</sub> ≤ +70 °C
CLS16E-*****+*	T3	-5 °C ≤ T <sub>p</sub> ≤ +135 °C -5 °C ≤ T <sub>p</sub> ≤ +120 °C	-5 °C ≤ T <sub>a</sub> ≤ +70 °C -5 °C ≤ T <sub>a</sub> ≤ +75 °C
	T4	-5 °C ≤ T <sub>p</sub> ≤ +115 °C	-5 °C ≤ T <sub>a</sub> ≤ +75 °C
		-5 °C ≤ T <sub>p</sub> ≤ +110 °C	-5 °C ≤ T <sub>a</sub> ≤ +80 °C
		-5 °C ≤ T <sub>p</sub> ≤ +100 °C	-5 °C ≤ T <sub>a</sub> ≤ +85 °C
T6	-5 °C ≤ T <sub>p</sub> ≤ +90 °C	-5 °C ≤ T <sub>a</sub> ≤ +90 °C	
CLS82E-*****+*	T3	-20 °C ≤ T <sub>p</sub> ≤ +140 °C	-20 °C ≤ T <sub>p</sub> ≤ +65 °C
		-20 °C ≤ T <sub>p</sub> ≤ +135 °C	-20 °C ≤ T <sub>p</sub> ≤ +70 °C
		-20 °C ≤ T <sub>p</sub> ≤ +125 °C	-20 °C ≤ T <sub>p</sub> ≤ +75 °C
	T4	-20 °C ≤ T <sub>p</sub> ≤ +120 °C	-20 °C ≤ T <sub>p</sub> ≤ +75 °C
		-20 °C ≤ T <sub>p</sub> ≤ +110 °C	-20 °C ≤ T <sub>p</sub> ≤ +80 °C
		-20 °C ≤ T <sub>p</sub> ≤ +100 °C	-20 °C ≤ T <sub>p</sub> ≤ +85 °C
		-20 °C ≤ T <sub>p</sub> ≤ +90 °C	-20 °C ≤ T <sub>p</sub> ≤ +90 °C
	T6	-20 °C ≤ T <sub>p</sub> ≤ +70 °C	-20 °C ≤ T <sub>p</sub> ≤ +70 °C

The above temperature table applies only under the following installation conditions, which are 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



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#### 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 CLSxxE-type conductivity sensors are approved according to NEPSI certificate GYJ19.1374X and are suitable for use in explosion-hazardous environments.

- The approved CLSxxE-type digital conductivity sensors have an intrinsically safe input with the following parameter set:  
 $P_i = 180 \text{ mW}$
- The approved CLSxxE-type digital conductivity sensors may only be connected to a Memosens cable or a compact transmitter with an intrinsically safe output with the following parameter set:  
 $P_o \text{ max. } 180 \text{ mW}$

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