

Safety Instructions

Memosens CLS15E, CLS16E, CLS21E, CLS82E

Digital conductivity sensors with Memosens technology

CSA C/US IS Cl. 1 Div. 1 GP A-D T3/T4/T6 + CSA C/US IS
Cl. 1 Zone 0 AEx ia IIC T3/T4/T6



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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

Certificate

CSA C/US certificate, certificate number: CSA20CA80021490X

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						
xLS15E ¹⁾	- CI	**	**	a ²⁾	***	+*	
xLS16E ¹⁾	- CI	**	**	***	+*		
xLS21E ¹⁾	- CI	**	**	***	+*		
xLS82E ¹⁾	- CI	**	**	***	+*		
	CSA C/US IS Cl. I Div. 1 GP A-D T3/T4/T6 + CSA C/US IS Cl. I Zone 0 AEx ia IIC T3/T4/T6	* means all options are certified					

1) x=C, O, OC

2) a = A, B

Certificates and approvals**Ex approval**

CSA C/US IS Cl. 1 Div. 1 GP A-D T3/T4/T6 + CSA C/US IS Cl. 1 Zone 0 AEx ia IIC T3/T4/T6

Details of the fulfilled standards are provided on the certificate.

Safety instructions

The CLSxxE-type conductivity sensors are suitable for use in explosion-hazardous areas according to the mentioned certificate.

- It is not permitted to operate the sensor under electrostatically critical process conditions. Considerable steam and dust clouds that act directly on the Memosens sensor head must be avoided at all times.
- Ex-protected digital sensors with Memosens technology are identified by an orange-red ring on the terminal head.
- Install the device according to the National Electrical Code (NFPA70) or the Canadian Electrical Code, Part 1 (C22.1), where applicable.
- The electrical connection information provided in the Operating Instructions must be adhered to.
- Use only as specified in the related manual. Improper use may impair protection.
- xLS15E, xLS16E, xLS21E: Metallic process connection parts have to be mounted electrostatically conductive at the mounting location ($< 1 \text{ M}\Omega$).
- 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 ($< 1 \text{ M}\Omega$).
With the Pg 13.5 version, this condition is already fulfilled by the pre-assembled conductive o-ring.
- The maximum ambient and process temperatures for temperature classes T3, T4 or T6 are limited as specified in the tables of this certificate.
- It is the responsibility of the system assembler to ensure the safety of any system that incorporates this equipment.

Temperature tables

Sensor type	T _p (process)	T _a (ambient)
CLS15E-*****A***+*	$-20^\circ\text{C} \leq T_p \leq 135^\circ\text{C}$ (T3)	$-20^\circ\text{C} \leq T_a \leq 60^\circ\text{C}$ (T3)
	$-20^\circ\text{C} \leq T_p \leq 120^\circ\text{C}$ (T4)	$-20^\circ\text{C} \leq T_a \leq 60^\circ\text{C}$ (T4)
	$-20^\circ\text{C} \leq T_p \leq 70^\circ\text{C}$ (T6)	$-20^\circ\text{C} \leq T_a \leq 60^\circ\text{C}$ (T6)
CLS15E-*****B***+*	$-20^\circ\text{C} \leq T_p \leq 135^\circ\text{C}$ (T3)	$-20^\circ\text{C} \leq T_a \leq 60^\circ\text{C}$ (T3)
	$-20^\circ\text{C} \leq T_p \leq 100^\circ\text{C}$ (T4)	$-20^\circ\text{C} \leq T_a \leq 60^\circ\text{C}$ (T4)
	$-20^\circ\text{C} \leq T_p \leq 50^\circ\text{C}$ (T6)	$-20^\circ\text{C} \leq T_a \leq 60^\circ\text{C}$ (T6)
CLS16E-*****+*	$-5^\circ\text{C} \leq T_p \leq 135^\circ\text{C}$ (T3)	$-20^\circ\text{C} \leq T_a \leq 60^\circ\text{C}$ (T3)
	$-5^\circ\text{C} \leq T_p \leq 115^\circ\text{C}$ (T4)	$-20^\circ\text{C} \leq T_a \leq 60^\circ\text{C}$ (T4)
	$-5^\circ\text{C} \leq T_p \leq 65^\circ\text{C}$ (T6)	$-20^\circ\text{C} \leq T_a \leq 60^\circ\text{C}$ (T6)
CLS21E-*****+*	$-20^\circ\text{C} \leq T_p \leq 135^\circ\text{C}$ (T3)	$-20^\circ\text{C} \leq T_a \leq 60^\circ\text{C}$ (T3)
	$-20^\circ\text{C} \leq T_p \leq 115^\circ\text{C}$ (T4)	$-20^\circ\text{C} \leq T_a \leq 60^\circ\text{C}$ (T4)
	$-20^\circ\text{C} \leq T_p \leq 65^\circ\text{C}$ (T6)	$-20^\circ\text{C} \leq T_a \leq 60^\circ\text{C}$ (T6)
CLS82E-*****+*	$-20^\circ\text{C} \leq T_p \leq 140^\circ\text{C}$ (T4)	$-20^\circ\text{C} \leq T_a \leq 60^\circ\text{C}$ (T3)
	$-20^\circ\text{C} \leq T_p \leq 120^\circ\text{C}$ (T4)	$-20^\circ\text{C} \leq T_a \leq 60^\circ\text{C}$ (T4)
	$-20^\circ\text{C} \leq T_p \leq 70^\circ\text{C}$ (T6)	$-20^\circ\text{C} \leq T_a \leq 60^\circ\text{C}$ (T6)

The above temperature table applies only under the following installation conditions, which are described in the following graphic →  1,  6. If the installation conditions cannot be met, the maximum process temperature T_p must not exceed the maximum ambient temperature T_a.

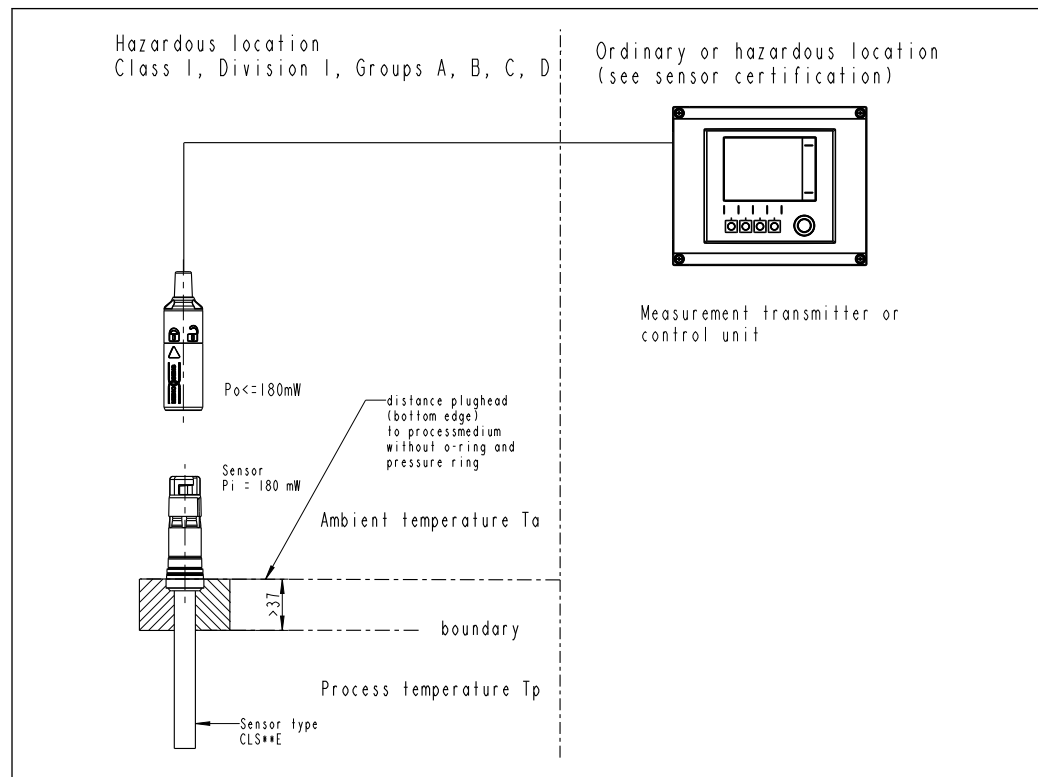
Connection

Ex specification

The CLSxxE-type conductivity sensors are approved 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:
 $P_o \text{ max. } 180 \text{ mW}$
- 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.

Installation conditions



1 Installation in hazardous location

