XA02846C/07/EN/01.22-00
71561592
2022-03-11

Safety Instructions
Memosens CYK10

FM IS Cl. I Div. I Gr. A, B, C and D

Safety instructions for electrical apparatus in explosion-hazardous areas

Endress+Hauser
People for Process Automation

Memosens CYK10

FM IS Cl. I Div. I Gr. A, B, C and D

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Associated documentation

This document is an integral part of Operating Instructions BA00118C.

Supplementary documentation

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

Certificates

The certificates and declarations of conformity are available in the Downloads area of the Endress+Hauser website:

www.endress.com/download

FM Certificate

FM16US0145X

Identification

The nameplate provides you with the following information on your device:
- Manufacturer identification
- Order code
- 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		
CYK10	G, O	**	*
	CL I, Zone 0 AEx ia IIC T6/T4/T3 Ga IS CL I, DIV 1, GP A, B, C, D T6/T4/T3	No Ex relevance	

Certificates and approvals

Ex approvals

The product is verified by compliance with the following standards:
- FM Class 3600 FM Class 3610
- ANSI/UL121201 (old: FM Class 3611)
- FM Class 3810

- ANSI/ISA 60079-0
- ANSI/ISA 60079-11
- ANSI/IEC 60529

Intrinsically Safe for Class I, Division 1, Groups A, B, C and D; Class I, Zone 0, Group IIC;

Non Incendive for Class I, Division 2; Groups A, B, C and D; Class I, Zone 2, Group IIC

Safety Instructions

The Memosens inductive sensor cable connection system, consisting of:
- Approved sensors
- Measuring cable CYK10

is approved for measuring applications in explosive atmospheres.

The sensor must be connected and operated in accordance with its operating instructions and the operating instructions of the connected transmitter. All operational data of the sensor must be observed by the operator.

- It is not permitted to operate the cable under electrostatically critical process conditions. Significant vapor and dust clouds, which have a direct impact on the connection system, must be avoided.
- The terminal head of the Memosens data cable must be protected against electrostatic charging if it is installed in the areas EPL Ga (Zone 0).
- Ex versions of Memosens cables are marked with an orange-red ring.
- The maximum permitted cable length is 100 m (328.1 ft).
- The regulations for electrical installations in potentially explosive atmospheres (e.g. EN/IEC 60079-14) must be observed when using devices and sensors.
- In order to maintain and guarantee the explosion protection of the device, the user may not modify the configuration in any way. Every change can compromise the safety of the device. Overvoltage category specification: I (Supply through limited energy circuit)

Pay attention to the ex-related safety instructions of the transmitter and sensors when cabling.

- The device must be installed as specified in Control Drawing.
- The associated Control Drawing of the transmitter (e.g. XA01687C) must be observed.

Temperature tables

Cable Type	Ambient temperature range T_a		
	T3	T4	T6
CYK10	−15 °C (5 °F) ≤ Ta ≤ 135 °C (275 °F)	−15 °C (5 °F) ≤ Ta ≤ 120 °C (248 °F)	−15 °C (5 °F) ≤ Ta ≤ 70 °C (158 °F)

If the ambient temperatures specified above are not exceeded, there are no invalid temperatures at the cable according to the temperature class.

Connection

Ex specification

The Memosens data cable is used to connect to the Ex-approved intrinsically safe sensor output circuits of the Liquiline CM42 transmitter (e.g. with sensor module FSDG1) or Liquiline CM44 transmitter (e.g. with communication module 2DS Ex-i). The cable can alternatively be used with connectable devices certified with Ex approval. These must have an intrinsically safe Memosens sensor output specified with the following maximum values. In particular, the certified intrinsically safe sensor output may not exceed the effective inner inductance and capacitance of the values indicated below:

1. Entity parameter set	2. Entity parameter set
U_0 = 5.1 V	U_0 = 5.04 V
I_0 = 130 mA	I_0 = 80 mA
P_0 = 166 mW (linear output curve)	P_0 = 112 mW (trapezoid output curve)
C_i = 15 µF	C_i = 14.1 µF
L_i = 95 µH	L_i = 237.2 µH

The connection of energy-limited Memosens sensors (with a defined P_i) to the energy-limited Memosens data cable by means of inductive coupling is permitted, taking into consideration the following value:

Maximum output power P_0	178 mW

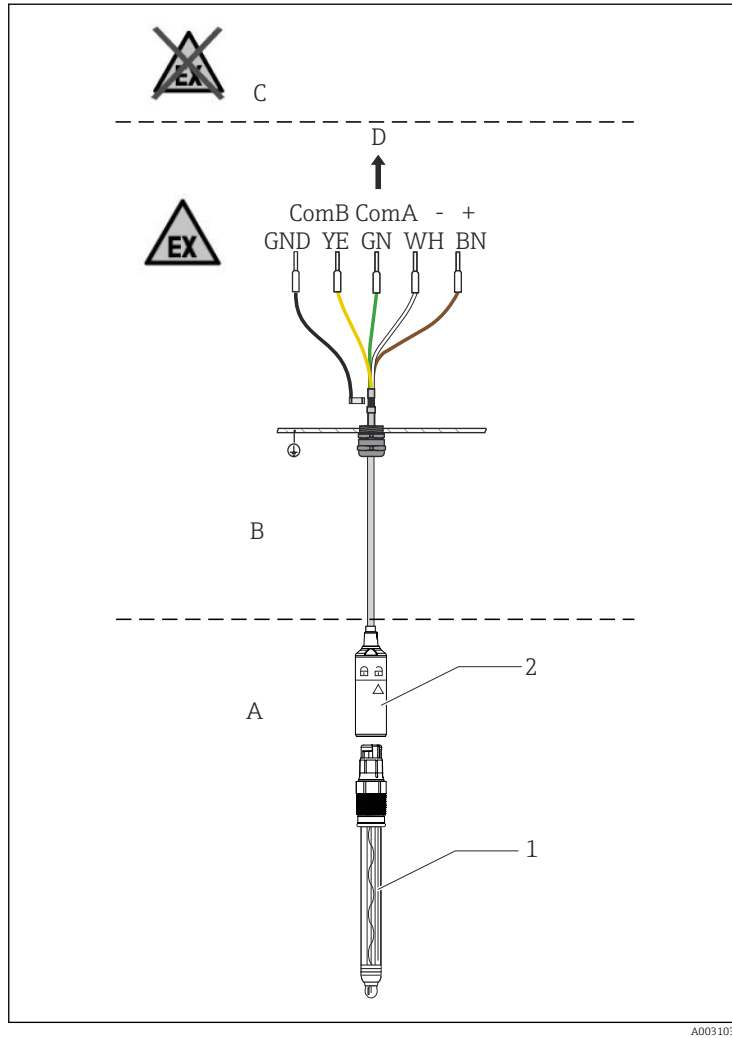
The electrical connection must be performed in accordance with the Operating Instructions.

The cable 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.

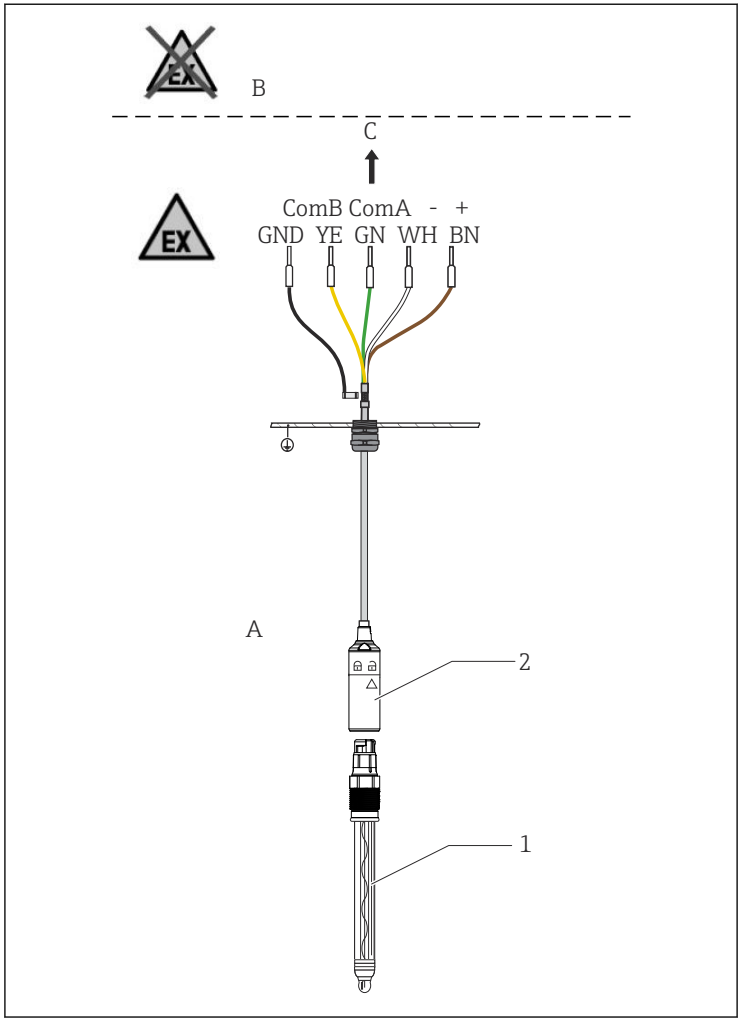
For the cable-transmitter connection the XA of the transmitter must be considered.

Installation conditions



1 *Memosens data cable in Zone 0*

A Hazardous area Zone 0/Class I Div 1
B Hazardous area Zone 1/Class I Div 1
C Non-hazardous area
D Ex-certified transmitter CM42 or transmitter with an intrinsically safe output power
1 Certified Memosens sensor
2 Memosens data cable, P_0 = 178 mW



2 *Memosens data cable in Zone 1*

A Hazardous area Zone 1/Class I Div 1&2
B Non-hazardous area
C Ex-certified transmitter CM42 or transmitter with an intrinsically safe output power
1 Certified Memosens sensor
2 Memosens data cable, P_0 = 178 mW

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