

# Safety Instructions **Liquiline CM42B**

Two-wire transmitter

KOR Ex ia IIC T6/T4 Ga





# Liquiline CM42B

Two-wire transmitter

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**Associated documentation** This document is an integral part of the Liquiline CM42B Operating instructions BA02380C and BA02381C.

**Additional documentation**

 Competence Brochure CP00021Z

- Explosion Protection: Guidelines and General Principles
- [www.endress.com](http://www.endress.com)

**Identification** The following information on the device can be found on the nameplate:

- Manufacturer identification
- Product designation
- Serial number
- Ambient conditions
- Input and output values
- Safety information and warnings
- Ex markings
- Certification information
- Warnings

► Compare the information on the nameplate with the order.

#### Type code

Type	Version							
CM42B	KA	**	**	**	**	**	**	+*
	KOR Ex ia IIC T6/T4 Ga	No Ex relevance						

**Certificates and declarations** **Ex marking**

CM42B
KOR Ex ia IIC T6/T4 Ga

#### Certificate number

이 제품은 한국산업안전보건법의 요구사항을 충족합니다. 인증 번호 KTL 25-KA4BO-0539X

#### Notified body

KTل 한국산업기술시험원

#### Applied standards

Applied standards are listed in the certificates.

#### Technical data

Voltage input	nom. 24 V DC max. 30 V DC min. 17 V DC ELV
Current	4...20 mA loop max. 23 mA
Ambient temperature range $T_a$	T6: -20° C ≤ $T_a$ ≤ +50° C (-4° F ≤ $T_a$ ≤ +122° F) T4: -20° C ≤ $T_a$ ≤ +60° C (-4° F ≤ $T_a$ ≤ +140° F)

### Connection values

*Current outputs SA1 and SA2 (terminals 33 and 34)*

Intrinsically safe power supply and signal circuits	
Max. input voltage $U_i$	30 V
Max. input current $I_i$	100 mA
Max. input power $P_i$	750 mW
Max. internal inductance $L_i$	30 $\mu$ H
Max. internal capacitance $C_i$	Current output 1: 15.2 nF Current output 2: 7.9 nF

*Digital sensor interface (Memosens) (terminals 87, 88, 97, 98)*

Max. output voltage $U_o$	5 V
Max. output current $I_o$	100 mA
Max. output power $P_o$	120 mW
Max. internal inductance $L_i$	Negligible
Max. internal capacitance $C_i$	15.6 $\mu$ F
Max. external inductance $L_o$	3.5 mH
Max. external capacitance $C_o$	100 $\mu$ F

Only approved devices shall be connected to the digital Memosens sensor input:

- Memosens cable xYK10, xYK20

The connection of the CM42B and the Memosens cable xYK10 and xYK20 with a maximum length of 100 m is certified as a system via spark ignition test, separate proof of intrinsic safety is not necessary.

- Digital Memosens sensors / other Memosens devices

Digital Memosens sensors and other devices that match the stated electrical parameters of the Liquiline CM42B.

Digital Memosens sensors/devices other than xLS50D are connected via an inductive interface to the Memosens cables xYK10 and xYK20.

The devices stated in the following certificates and additional devices that match the stated entity parameter may be connected to the Liquiline CM42B:

IECEx / KTL

- xYK10 and xYK20 according to IECEx BVS 11.0052X or 17-KA4BO-0633X
- xLS50D according to IECEx BVS 14.0004X or 17-KA4BO-0634X

*Analog input conductivity, measured inductively (terminals 11, 12, 13, 15, 16, 17, 18, 20)*

Max. output voltage $U_o$	7.6 V
Max. output current $I_o$	95 mA
Max. output power $P_o$	100 mW
Max. internal inductance $L_i$	Negligible
Max. external inductance $L_o$	3.5 mH
Max. internal capacitance $C_i$	480 nF
Max. external capacitance $C_o$	10.4 $\mu$ F

*Analog input conductivity, measured conductively (terminals 11, 12, 13, 19, 20)*

Max. output voltage $U_o$	8.2 V
Max. output current $I_o$	30 mA
Max. output power $P_o$	38 mW
Max. internal inductance $L_i$	Negligible
Max. external inductance $L_o$	30 mH
Max. internal capacitance $C_i$	0 nF
Max. external capacitance $C_o$	7.6 $\mu$ F

*Analog input pH/ORP (terminals 11, 12, 13, 14, 16, 17, 18, 20, 21, 22)*

Max. output voltage $U_o$	5 V
Max. output current $I_o$	30 mA
Max. output power $P_o$	37.5 mW
Max. internal inductance $L_i$	Negligible
Max. external inductance $L_o$	30 mH
Max. internal capacitance $C_i$	1 $\mu$ F
Max. external capacitance $C_o$	100 $\mu$ F

### Galvanic separation

The device electronic is fully isolated from earthed metal parts up to a test voltage of 500 VAC rms.

Analog sensor interface:

- The analog sensor interface is galvanically isolated from current output 1 & 2 up to a test voltage of 500 VAC rms.
- The galvanic isolation ensures that the intrinsically safe current output circuits in the sense of IEC 60079-14 can be considered isolated from earth, even if the intrinsically safe sensor circuit has a functional earthing.

Digital Memosens sensor interface:

- The digital sensor output of the device is not galvanically isolated from current output 1.
- If the sensor connection cable runs through areas of Zone 0 or Div.1 or the sensor is installed in Zone 0 or Div. 1, the use of a galvanically isolated power supply is recommended.

Galvanic isolation between current output 1 and current output 2

The two current outputs of the CM42B are isolated from each other up to a test voltage of 500 VAC rms.

### Cable specification

*Qualified cable glands (only field device)*

Cable gland	Clamping area, permitted cable diameter
M20x1.5	6 mm to 12 mm (0.24" to 0.47") 5 mm to 9 mm (0.2" to 0.35")
NPT1/2 Via M20x1.5 adapter on NPT1/2	6 mm to 12 mm (0.24" to 0.47") 5 mm to 9 mm (0.2" to 0.35")
G1/2 Via M20x1.5 adapter on G1/2	7 mm to 12 mm (0.28" to 0.47") 4 mm to 9 mm (0.16" to 0.35")

*Cable cross-section*

Terminal connector is suitable for strands and ferrules.

Cable cross-section: 0.25 mm<sup>2</sup> (≈23 AWG) to 2.5 mm<sup>2</sup> (≈12 AWG)

**Safety instructions for electrical apparatus for explosion-hazardous areas**

The transmitter CM42B is suitable for use in hazardous areas.

The transmitter meets the requirements of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres and is suitable for use in hazardous areas.

- The transmitter is an intrinsically safe electrical apparatus for use in hazardous areas, spec. classified as Zone 0, 1 or 2.
- The transmitter provides Equipment Protection Level Ga.
- The output protection level is "ia", therefore approved intrinsically safe sensors can be connected, which may be located in Zone 0, dependent on the Ex marking of the sensor.
- Only sensors intended for use in hazardous areas must be connected.
- The rated values of input and output circuits must be followed, particularly the intrinsic safety parameter.
- The transmitter may only be connected to a suitable power supply with protection level "ia". Associated apparatus with galvanic isolation from other circuits is preferred, such as e.g. active barrier.
- Metal enclosures must be connected to the local equipotential bonding system at the point of installation.
- Only genuine spare parts may be used for maintenance and repair work on the device. This work may only be carried out by service staff or specially trained and authorized personnel.
- Installation, electrical connection, commissioning, inspection, maintenance and repair may only be performed by qualified specialists trained to work on explosion protected devices in accordance with the applicable standards, e.g. IEC 60079-14, -17, -19. Comply with the instructions in the Operating Instructions.
- Compliance with all of the technical data of the device is mandatory.
- The device shall be installed in a way to minimize the risk of electrostatic discharge. For ESD safety reasons the transmitter is marked with a warning label. Following content is stated on the label: "Beware of electrostatic charging. Device must be cleaned using a wetted cloth."
- In case of repair work, when the cable management module has been dismantled, attention shall be applied to fix the screw to the earthing bolt when reassembling.
- If the battery for the clock shall be replaced, the following types must be used only:
  - Maxell CR2032
  - Panasonic BR2032
- The cables must be installed such that they are fixed in place. Adequate strain relief must be ensured.
- Make sure that the cable glands are secured to prevent from working loose.
- The rail mount version of the device is intended to be used within another enclosure, e.g. control box.
- The connector marked "Display" is not for external use, but for connection of the display which is part of the device only.
- The connector marked "Service" is not for external use, but for manufacturer purposes only.



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