XA03517C/07/EN/01.25-00
71702781
2025-04-30

Safety Instructions
Liquiline M CM42

Two-wire transmitter for hazardous areas

ATEX II 3G Ex ec [ic Gc] IIC T6 Gc
NEPSI Ex ec [ic Gc] IIC T6 Gc

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Table of contents

Related documentation

This document is an integral part of Operating Instructions BA00381C and BA00382C.

Supplementary documentation

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

Identification

Nameplate

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						
CM42-	*	V	*	*	0	0	(+*)
	No Ex relevance	ATEX II 3G Ex ec [ic Gc] IIC T6 Gc NEPSI Ex ec [ic Gc] IIC T6 Gc	No Ex relevance		Plastic	M20x1.5	No Ex relevance

Certificate

GYJ24.1279X

Ex certification body

Shanghai Inspection and Testing Institute of Instruments and Automation Systems Co., Ltd. - NEPSI

Safety instructions

The transmitter meets the requirements of the EU Directive on equipment and protective systems intended for use in potentially explosive atmospheres (ATEX), as well as the requirements of Chinese explosion protection regulations.

- The transmitter is an electrical device with intrinsically safe sensor outputs, suitable for use in Zone 2, with equipment protection level Gc.
- The protection level of the intrinsically safe sensor outputs is "ic", suitable for connecting intrinsically safe sensors that can be used in Zone 2.
- The nominal values of the output and input circuits, in particular the intrinsic safety parameters, must be observed.
- The power supply for the transmitter must comply with the SELV degree of protection. The power supply must therefore have galvanic isolation from other circuits in accordance with the standards IEC 60558-2-16, IEC 62368-1 Class ES1, or IEC 61010-1.
- If the power supply does not provide sufficient overvoltage protection, this must be provided separately, ensuring that the maximum level at the terminal connections does not exceed 140% of the nominal voltage.
- Devices with a stainless steel housing must be connected to the local potential equalization system of the place of installation.
- Only genuine spare parts may be used for maintenance or repair measures on the device. These measures may only be performed by service staff or properly trained and authorized technical staff.
- Installation, electrical connection, commissioning, inspection, maintenance and repair may only be carried out by qualified personnel trained for work on Ex-protected equipment, in accordance with applicable standards, e.g. EN 60079-14, -17, -19 (or GB 50257, GB/T 3836.13, GB/T 3836.15, GB/T 3836.16, GB/T 3836.18). Comply with the instructions in the Operating Instructions.
- The technical data of the device must be observed.

- To avoid electrostatic charge, the device is fitted with a warning label bearing the following information: "Protect against electrostatic charge. Clean the device with a damp cloth only."
- The device must be installed in such a way that the risk of mechanical damage is minimized, e.g. by using a weather protection cover. When installing the device outdoors, a weather protection cover is strongly recommended.
- Cable glands and sealing plugs must be certified for use in hazardous areas and must provide the appropriate level of protection (minimum requirement: IP54).
- Ensure that cable glands are properly tightened and protected against loosening.
- Cables must be laid in such a way that they are fixed in position. It must be ensured that no strain is exerted on the device.
- The housing of this device ensures that a pollution degree of 2 is maintained inside, provided the device is installed outdoors (with weather protection cover; pollution degree 3 in the macro-environment). Installation and maintenance may only be carried out under controlled conditions to ensure that pollution degree 2 is restored when the housing is closed again (clean and dry conditions).
- The Commubox FXA291 may only be connected to the CDI port outside the potentially explosive area.

Temperature table

	Temperature class T6
Minimum ambient temperature T_a	−10 °C
Maximum ambient temperature T_a	+50 °C

Connection values

Input parameter FBIH1, current outputs 1 and 2 (connections 133-134, 233-234)	**Maximum values**
U_m	30 V

Input parameter FBPA3, fieldbus (terminals 997, 998)	**Maximum values**
U_m	32 V

Output parameter of the digital sensor interface FSDG1 (Memosens) (terminals 187, 188, 197, 198)	**Maximum values**
U_o	5.04 V
I_o	80 mA
P_o	112 mW
L_i	160.05 µH
C_i	12.4 µF

Only approved devices may be connected to the digital Memosens input:
- Memosens cable xYK10, xYK20
  Connection of the CM42 to the Memosens cable xYK10 and xYK20 with a maximum length of 100 m is certified as a system by means of spark ignition testing; separate proof of intrinsic safety is not required.
- Digital Memosens sensors/other Memosens devices
  Digital Memosens sensors and other devices whose specified electrical parameters comply with those of the CM42. Digital Memosens sensors/other devices such as xLS50D are connected to the Memosens cable xYK10 and xYK20 via an inductive interface.

Devices listed in the following certificates, as well as other devices that comply with the specified entity parameters, may be connected to the CM42:
ATEX
- xYK10 and xYK20 acc. to IECEx BVS 11.0052X / BVS 04 ATEX E121X or GYJ24.1204X / GYJ24.1205X
- xLS50D according to IECEx BVS 14.0004X / BVS 12 ATEX E048X or GYJ24.1068X

Output parameter FSPH1 (pH/ORP module) (terminals 111-113 and 317-320 or 315-320)	Maximum values	
	pH/ORP (glass)	pH ISFET
U_o	10.08 V	10.08 V
I_o	4.1 mA	50.7 mA
P_o	10.2 mW	128 mW
L_o	1 mH	1 mH
C_o	250 nF	250 nF
L_i	305 µH	305 µH
C_i	28.9 nF	28.9 nF

Output parameter FSLI1 (inductive conductivity module) (terminations 111 – 113, 215 – 218)	Maximum values
U_o	10.08 V
I_o	64 mA
P_o	128 mW
L_o	0.1 mH
C_o	1.8 µF
L_i	305 µH
C_i	62 µF

Output parameter FSLC1 (conductive conductivity module) (terminations 111 – 113, 219 – 222)	Maximum values
U_o	10.08 V
I_o	23 mA
P_o	57 mW
L_o	300 µH
C_o	50 nF
L_i	305 µH
C_i	21 nF

Topology of galvanic isolation
The electronics of the device are completely isolated from grounded metal parts up to a testing voltage of 500 V AC rms.

Analog sensor input:
- The analog sensor input is galvanically isolated from current outputs 1 and 2 up to a testing voltage of 500 V AC rms.
- Galvanic isolation ensures that the intrinsically safe current output circuits are considered isolated from ground in accordance with IEC 60079-14, even if the intrinsically safe sensor circuit has functional grounding.

Digital Memosens sensor input:
The digital Memosens sensor input is not galvanically isolated from current output 1.

Galvanic isolation between current output 1 and 2:
The current outputs are galvanically isolated from each other up to a test voltage of 500 V AC rms.

Cable glands	Cable diameter
M20 x 1.5	Standard: 6 to 12 mm Reduced: 5 to 9 mm

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