

Safety Instructions

Liquiline CM82 and CM72

Supplement to:
BA01797C and BA01845C

Safety instructions for electrical apparatus in
explosion-hazardous areas
JPN Ex ia IIC T4/T6 Ga



Liquiline CM82 and CM72

Supplement to:
BA01797C and BA01845C

Table of contents

Associated documentation	3
Documentation	3
Identification	3
Manufacturer address	4
Applied standards	4
Safety instructions	4
Temperature tables	5
Connection values	5
Connection diagram	6

Associated documentation

This document is an integral part of Operating Instructions BA01797C and BA01845C

Intended use

For use in hazardous areas (explosive atmospheres).

Liquiline Compact CM82 and CM72 are loop-powered transmitters for liquid analysis in all areas of process engineering.

The devices are designed for use in the following industries:

- Life science
- Chemical industry
- Water and wastewater
- Food and beverages
- Power stations
- Other industrial applications

The use of the transmitter depends greatly on the sensor that is used.

Therefore please pay attention to the notes on "designated use" provided in the Operating Instructions. If the device is used for any purpose other than that described here, this poses a threat to the safety of people and the entire measuring system, and is therefore not permitted.

The manufacturer does not accept any liability for damage caused by improper or non-designated use.

Documentation

Competence Brochure CP00021Z

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

Identification

	Japan Ex
Certificate number	CML 19JPN2116X
Type of protection	ia Ga ia Db
Marking	Ex ia IIC T6/T4 Ga Ex ia IIIC T85°C/T135°C Db
Certification body	Certification Management Limited (CML)

Only the approvals indicated on the nameplate apply for the CM82 or CM72 transmitters.

Nameplate

The device is labeled on the exterior housing. The nameplate contains the following information:

- Name and address of manufacturer and manufacturer's logo
- Device type / order code
- Explosion protection marking according to the applicable standards
- serial number, year of production encoded
- Certificate No.
- Ambient temperature range

Manufacturer address

Endress+Hauser Conducta GmbH+Co. KG
Dieselstraße 24
D-70839 Gerlingen

Applied standards

All the applied standards are listed in the relevant certificates and manufacturer declarations.

Safety instructions

The product meets the requirements of the Regulation on the Testing of Machinery and other Instruments set down by the Ministry of Health, Labor and Welfare in Japan.

The user must attach the yellow/black label (included in the delivery) beside the installed sensor (e.g. on the connected cable).

The transmitter is an intrinsically safe electrical device which is suitable for:

- Use in Zone 0 with equipment protection level Ga.
- Use in Zone 21 with equipment protection level Db. An intrinsically safe power supply according to Ex ia specifications is absolutely essential. Intrinsically safe Memosens sensors can be connected and can be located in Zone 0.

If installing in Zone 0/Zone 21, the CM82 and CM72 transmitters, and their plugs, must be protected against electrostatic charge.

The process temperature of the sensor depends on the sensor's temperature class and can deviate from the ambient temperature range of the CM82/CM72. Suitable measures must be taken to guarantee the decoupling of the CM82/CM72 temperature and the process temperature.

Installation, connection to the power supply, commissioning, inspection, maintenance and repair of the devices must be performed by qualified skilled staff who are appropriately trained to perform work on Ex devices in accordance with the applicable regulations, e.g. IEC 60079-14, -17, -19, or JNIOHS-TR-44 for Japan, and in accordance with these Operating Instructions.

Certified CM82/CM72 transmitters have a red ring.

Only sensors that are designed for the use as specified in the Operating Instructions may be connected.

Suitable Memosens sensors that can be located in Zone 0 have a red ring.

The nominal values of the input and output circuits must be observed.

The transmitter may only be connected to a suitable power supply.

Maintenance and repair work may only be performed by service personnel or specially trained and authorized staff.

The transmitter meets the requirements of the JNIOHS-TR-46 standard series and is suitable for use in hazardous areas.

Temperature tables

The CM82 and CM72 transmitters are suitable for operation in the following ambient temperature ranges:

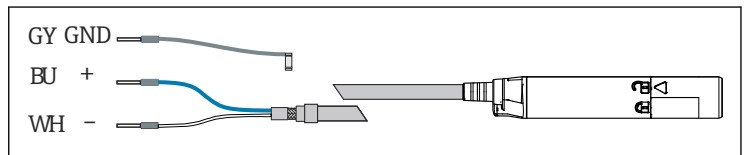
For EPL Ga:

- Temperature class T6: $-20^{\circ}\text{C} \leq T_a \leq 55^{\circ}\text{C}$ ($-4^{\circ}\text{F} \leq T_a \leq 131^{\circ}\text{F}$)
- Temperature class T4: $-20^{\circ}\text{C} \leq T_a \leq 80^{\circ}\text{C}$ ($-4^{\circ}\text{F} \leq T_a \leq 176^{\circ}\text{F}$)

For EPL Db:

- Temperature class T85°C: $-20^{\circ}\text{C} \leq T_a \leq 55^{\circ}\text{C}$ ($-4^{\circ}\text{F} \leq T_a \leq 131^{\circ}\text{F}$)
- Temperature class T135°C: $-20^{\circ}\text{C} \leq T_a \leq 80^{\circ}\text{C}$ ($-4^{\circ}\text{F} \leq T_a \leq 176^{\circ}\text{F}$)

Connection values Ex-specification for current output



A0040059

Current outputs: BU+, WH- wires

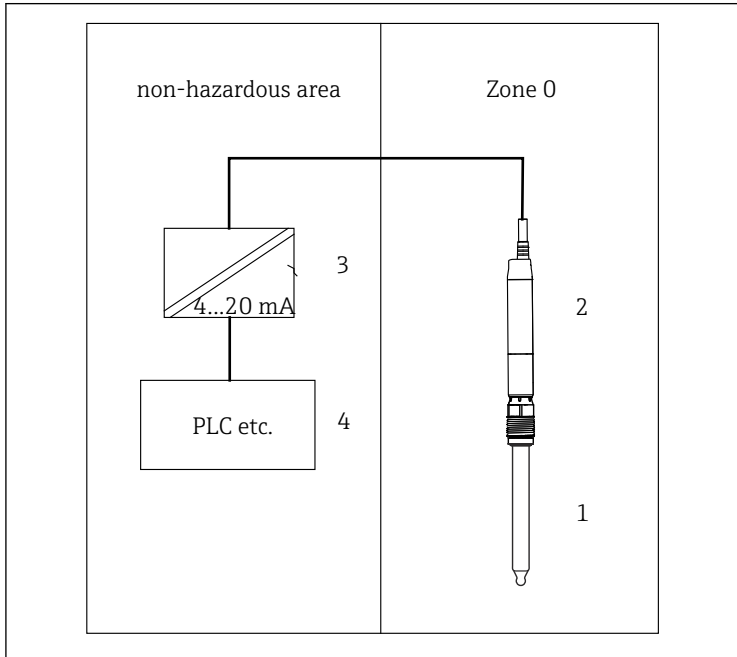
Intrinsically safe power supply and signal circuit (ia circuit)	
Max. input voltage U_i	30 V
Max. input current I_i	100 mA
Max. input power P_i	750 mW
Max. internal capacitance C_i	7 nF (including 15 m (49 ft) cable)
Max. internal inductance L_i	20 uH (including 15 m (49 ft) cable)

Connecting Memosens sensors

Memosens interface, intrinsically safe sensor circuit with Ex ia IIC protection	
Max. output power P_o	105 mW
For connecting to certified Memosens sensors with input parameter P_i .	

The Memosens interface makes it possible to connect to certified Memosens sensors. CM82/CM72 provides galvanic isolation in relation to Memosens sensors. The insulation voltage is 500 Vrms. The galvanic isolation corresponds to an infallible separation according to intrinsic safety requirements.

Connection diagram



A0040055

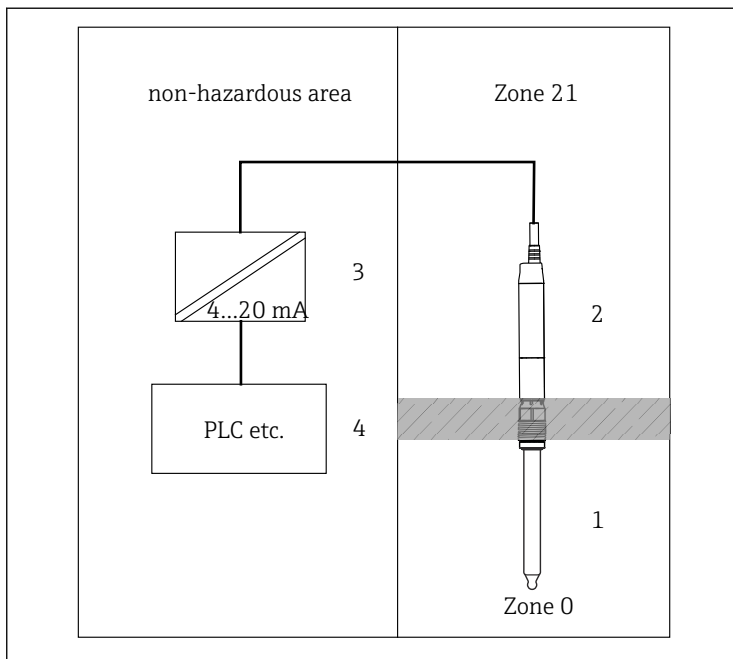
1 Installation in hazardous area: CM82/CM72 and sensor in explosive gas atmosphere

1 Sensor with suitable Ex protection

2 Transmitter Liquiline Compact CM82 or CM72

3 Ex ia certified power supply and signal circuit (4 to 20 mA), e.g. active barrier RN221N

4 Programmable logic controller etc.



A0040056

- 2 Installation in hazardous area: CM82/CM72 in explosive dust atmosphere (Zone 21) and sensor in explosive gas atmosphere (Zone 0)
- 1 Sensor with suitable Ex protection
 - 2 Transmitter Liquiline Compact CM82 or CM72
 - 3 Ex ia certified power supply and signal circuit (4 to 20 mA), e.g. active barrier RN221N
 - 4 Programmable logic controller etc.



71554977

www.addresses.endress.com
