Safety Instructions
Liquiline CM82 and CM72

Supplement to:
BA01797C and BA01845C

Safety instructions for electrical apparatus in
explosion-hazardous areas
Liquiline CM82 and CM72

Endress+Hauser

Istruzioni di sicurezza per apparecchiature elettriche certificato per utilizzo in aree con pericolo di esplosione. Si prega di leggere con attenzione tutte le istruzioni e le avvisi di sicurezza prima di utilizzare l'apparecchio.

Diariazione di conformità CE

Con questa dichiarazione e con l'applicazione del marchio CE, il costruttore Endress+Hauser, assicura che il prodotto è conforme alle direttive europee vigenti. Prova della conformità è fornita dall'osservanza delle direttive, delle norme e dei documenti elencati.

Evatittes deklaracija

Gaminioje Endress+Hauser šiai attitikties deklaracija ir ĖE įstatymų patvirtina, kad gaminio attitinka tikslinio ĖE direktyvos. Taikomas direktyvos, normos ir dokumentai yra pateikiami attitikties deklaracijoje.

Drošibos noras

Ds. Endress+Hauser ar šios aptikimų apie ĖE zinomu lytojumui apipiktinai, kaip produktas atitiko saugą arba atitiko ĖE Europos vadovų, Pietrusios vadinamos, normas ir dokumentai atrasti atitikties apribojimus.

Veisligio instrukcijos

Endress+Hauser, laikantį ES noras, veikia, kad šis paslaugos atitinka ES žurnalą apipiktinai, kaip produktas atitiko tokias veiksmus ir ĖE ryši su ES noras, kuris pasirinktas. Minėtos normos ir dokumentai yra pateikiami veiksmų, noras ir dokumentai apipiktinai šios noros apribojimus.

Užtikrinimo tiekiančio

Dėl norėto galimybės įrengti elektrinę rūšį priedą, kurioje bus įrengtos mažiausias gaminio ĖE. Gaminio galimybės yra pateiktos veiksmų, noras ir dokumentai apipiktinai šios noros apribojimus.
EU-Konformitätserklärung
EU-Declaration of Conformity
Déclaration UE de Conformité

Company
Endress+Hauser Conducta GmbH+Co. KG
Dieselstraße 24, 70839 Gerlingen, Germany

Product
Liquiline Compact
CM72-B4**********, CM72-82**********

Regulations
den folgenden Europäischen Richtlinien entspricht:
conforms to following European Directives:
est conforme aux prescription des Directives Européennes suivantes:

EMC 2014/30/EU (L96/79)
ATEX 2014/34/EU (L96/309)
RoHS 2011/65/EU (L174/88)

Standards
angewandte harmonisierte Normen oder normative Dokumente:
applied harmonized standards or normative documents:
normes harmonisées ou documents normatifs appliqués:

EN 50581  (2012)

Certification
EG-Baumusterprüfbescheinigung Nr.
EC-Type Examination Certificate No.
Numéro de l’attestation d’examen CE de type

TÜV 18 ATEX 8194 X
TÜV Rheinland Industrie Service GmbH (0035)
DEKRA Exam GmbH (0158)

Ausgestellt von/issued by/délivré par
Qualitätssicherung/Quality assurance/Système d’assurance qualité

Gerlingen, 23.07.2018
Endress+Hauser Conducta GmbH+Co. KG

I.V. Jörg-Martin Müller
Technology

I.V. Robert Binder
Technology Certifications and Approvals
Endress+Hauser Conducta GmbH+Co. KG
Dieselstraße 24, 70839 Gerlingen, Germany

Endress+Hauser Conducta GmbH+Co. KG

Liquiline CM82 and CM72

Endress+Hauser
People for Process Automation

Company

Endress+Hauser Conducta GmbH+Co. KG
Dieselstraße 24, 70839 Gerlingen, Germany
deklariert als Hersteller in alleiniger Verantwortung, dass das Produkt
declares as manufacturer under sole responsibility, that the product
déclare sous sa seule responsabilité en qualité de fabricant que le produit

Product

Liquiline Compact
CM82-B4**********, CM82-82**********

Regulations

den folgenden Europäischen Richtlinien entspricht:
conforms to following European Directives:
est conforme aux prescription des Directives Européennes suivantes :

RED 2014/53/EU (L153/62)
ATEX 2014/34/EU (L96/309)
RoHS 2011/65/EU (L174/88)

Standards

angewandte harmonisierte Normen oder normative Dokumente:
applied harmonized standards or normative documents:
normes harmonisées ou documents normatifs appliqués :

EN 301 489-1 V1.9.2 (2011) EN 50581 (2012)
EN 301 489-17 V2.2.1 (2012)

Certification

EG-Baumusterprüfbescheinigung Nr.
EC-Type Examination Certificate No.
Numéro de l’attestation d’examen CE de type

Ausgestellt von/issued by/délivré par
TÜV 18 ATEX 8194 X
TÜV Rheinland Industrie Service
GmbH (0035)
DEKRA Exam GmbH (0158)

Qualitätssicherung/Quality assurance/Système d’assurance qualité

Gerlingen, 23.08.2018
Endress+Hauser Conducta GmbH+Co. KG

i.V.

i.V. Jörg-Martin Müller
Technology

i.V. Robert Binder
Technology Certifications and Approvals

EC_00674_01.18

1/1
Liquiline CM82 and CM72

Supplement to:
BA01797C and BA01845C

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

**Designated 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.

**Supplementary documentation**

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

**Manufacturer's certificates**

**Declaration of Conformity**
With this declaration of conformity, Endress+Hauser guarantees that the product complies with the provisions of ATEX guideline 2014/34/EU. Compliance is verified by adherence to the standards listed in the Declaration of Conformity.

<table>
<thead>
<tr>
<th>Identification</th>
<th>ATEX</th>
<th>IECEx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate number</td>
<td>TÜV 18 ATEX 8194 X</td>
<td>IECEx TUR 18.0037X</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>1G: ia Ga 2D: ia Db</td>
<td>ia Ga ia Db</td>
</tr>
<tr>
<td>Marking</td>
<td>II 1G Ex ia IIC T6/T4 Ga II 2D Ex ia IIC T85°C/T135°C Db</td>
<td>Ex ia IIC T6/T4 Ga Ex ia IIC T85°C/T135°C Db</td>
</tr>
<tr>
<td>Certification body</td>
<td>TÜV Rheinland</td>
<td>TÜV Rheinland</td>
</tr>
</tbody>
</table>
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 (Ex) marking according to the required standards
- Reference number of third-party provider for QA testing - serial number, coded year of production
- Approval No.
- Ambient temperature range
- CE mark (ATEX versions)

**Manufacturer's address**

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

**Additional standards**

The following standards have been applied:

**Extended order code**

**Structure of the extended order code**

*Device type*

The device and the device design is defined in the "Device type" section (Product root).

*Basic specifications*

The features that are absolutely essential for the device (mandatory features) are specified in the basic specifications. The number of positions depends on the number of features available. The selected option of a feature can consist of several positions.

*Optional specifications*

The optional specifications describe additional features for the device (optional features). The number of positions depends on the number of features available. The features have a 2-digit structure to aid identification (e.g. JA). The first digit (ID) stands for the feature group and consists of a number or a letter (e.g. J = Test, Certificate). The
second digit constitutes the value that stands for the feature within the group (e.g. A = 3.1 material (wetted parts), inspection certificate).

**General safety instructions**

The transmitter meets the requirements of the Explosion Protection Directive 2014/34/EU and is suitable for use in hazardous areas.

The harmonized standards or normative documents that have been applied are listed in the EU Declaration of Conformity.

The transmitter meets the requirements of the "IEC Certification Scheme for Explosive Atmospheres" and is suitable for use in hazardous areas.

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

- Equipment group II, equipment category 1G for use in Zone 0, which offers equipment protection level Ga.
- Equipment group II, equipment category 2D for use in Zone 21, which offers equipment protection level Db. An intrinsically safe power supply as per Ex ia requirements is absolutely essential. Intrinsically safe Memosens sensors can be connected and are 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 according to applicable regulations, e.g. EN 60079-14, -17, -19, or JNIOSH-TR-44 in the case of Japan, and according to 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.
For Japan: The transmitter satisfies the requirements of the JNIOSH-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: \( -20^\circ C \leq T_a \leq 55^\circ C \) \((-4^\circ F \leq T_a \leq 131^\circ F)\)
- Temperature class T4: \( -20^\circ C \leq T_a \leq 80^\circ C \) \((-4^\circ F \leq T_a \leq 176^\circ F)\)

For epl Db:
- Temperature class T85°C: \( -20^\circ C \leq T_a \leq 55^\circ C \) \((-4^\circ F \leq T_a \leq 131^\circ F)\)
- Temperature class T135°C: \( -20^\circ C \leq T_a \leq 80^\circ C \) \((-4^\circ F \leq T_a \leq 176^\circ F)\)

**Connection data**

**Ex-specification, current output**

![Connection diagram](image)

**Current outputs: BU+, WH- wires**

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

**Connecting Memosens sensors**

<table>
<thead>
<tr>
<th>Memosens interface, intrinsically safe sensor circuit with Ex ia IIC protection</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. output power ( P_o )</td>
<td>105 mW</td>
</tr>
<tr>
<td>For connecting to certified Memosens sensors with input parameter ( P_i ).</td>
<td></td>
</tr>
</tbody>
</table>

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 isolation that is not susceptible to interference.
(60 V peak voltage value) in accordance with the requirements of intrinsic safety.

Connection diagram

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.
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.