



Safety instructions



**LEVEL TRANSMITTER
LT8136**

Intrinsic safety
PTB 08 ATEX 2002 X
Two-wire 4 ... 20 mA/HART



0102



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Supplementary documentation:

- Operating Instructions LEVEL TRANSMITTER LT8136
- EU-type approval certificate PTB 08 ATEX 2002 X (Document ID: 43282)
- EU declaration of conformity (Document ID: 35643)

Editing status: 2020-09-11

| | |
|----|--|
| DE | Sicherheitshinweise für den Einsatz in explosionsgefährdeten Bereichen |
| EN | Safety instructions for the use in hazardous areas |
| FR | Consignes de sécurité pour une application en atmosphères explosibles |
| IT | Normative di sicurezza per l'impiego in luoghi con pericolo di esplosione |
| ES | Instrucciones de seguridad para el empleo en áreas con riesgo de explosión |
| PT | Normas de segurança para utilização em zonas sujeitas a explosão |
| NL | Veiligheidsaanwijzingen voor gebruik op plaatsen waar ontploffingsgevaar kan heersen |
| SE | Säkerhetsanvisningar för användning i explosionsfarliga områden |
| NO | Sikkerhedsforskrifter til anvendelse i explosionsfarlig atmosfære |
| FI | Turvallisuusohjeet räjähdysvaarallisissa tiloissa käyttöä varten |
| EL | Υποδείξεις ασφαλείας για τη χρησιμοποίηση σε περιοχές που υπάρχει κίνδυνος έκρηξης |
| EN | Die vorliegenden Sicherheitshinweise sind in den Sprachen deutsch, englisch, französisch und spanisch verfügbar. Weitere EU-Landessprachen stellt der Hersteller nach Anforderungen zur Verfügung. |
| EN | The present safety instructions are available in German, English, French and Spanish. Further EU languages will be provided by the manufacturer upon request. |
| FR | Les présentes consignes de sécurité sont disponibles dans les langues allemand, anglais, français et espagnol. Le fabricant met d'autres langues de l'Union Européenne à disposition en fonction des demandes. |
| ES | Las presentes instrucciones de seguridad están disponibles en los idiomas alemán, inglés, francés y español. El fabricante pone a disposición según demanda otros idiomas nacionales de la UE. |

1 Area of applicability

These safety instructions apply to the radar sensor LEVEL TRANSMITTER LT8136 series LEVEL TRANSMITTER LT 8136.C****H**** according to EU type approval certificate PTB 08 ATEX 2002 X (Certificate number on the type label) and the number of the safety instruction (43281) on the type label.

Electronics module PS60HK is integrated in LEVEL TRANSMITTER LT 8136.C****H****.

2 General information

The level measuring instrument LEVEL TRANSMITTER LT 8136.C****H**** is based on radar technology and is used to detect the distance between medium surface and sensor by means of high frequency electromagnetic waves in the GHz range. The electronics uses the running time of the signals reflected by the medium surface to calculate the distance to the medium surface.

The LEVEL TRANSMITTER LT 8136.C****H**** consist of an electronics housing, a process connection element and a sensor (the antenna). As an option the display and adjustment module can also be integrated.

The measured products can also be combustible liquids, gases, mist or vapour.

The LEVEL TRANSMITTER LT 8136.C****H**** are suitable for use in hazardous atmospheres of all combustible materials of explosion group IIA, IIB and IIC for applications requiring instruments of category 1/2G or category 2G.

If the LEVEL TRANSMITTER LT 8136.C****H**** are installed and operated in hazardous areas, the general Ex installation regulations EN 60079-14 as well as these safety instructions must be observed.

The operating instructions as well as the installation regulations or standards that apply for explosion protection of electrical systems must generally be observed.

The installation of explosion-endangered systems must always be carried out by qualified personnel.

Category 1/2G instruments

The electronics housing is installed in hazardous areas requiring instruments of category 2G. The process connection element is installed in the separating wall, which separates areas requiring instruments of category 2G or 1G. The antenna system with the mechanical fixing element is installed in hazardous areas requiring instruments of category 1G.

Category 2G instruments

The LEVEL TRANSMITTER LT 8136.C****H**** are installed in hazardous areas requiring an instrument of category 2G.

Ignition protection type:

II 1/2G, 2G Ex ia IIC T6 ... T1 Ga/Gb, Gb

3 Important specification in the type code

LEVEL TRANSMITTER LT8136.abcdefghij

| Position | | Feature | Description |
|----------|--|---------|--|
| ab | Approval | CX | ATEX II 1/2G, 2G Ex ia IIC T6 |
| c | Version / Material / Process temperature | A | with encapsulated horn antenna (ø 40 mm) / PVDF / -40 ... +80 °C |
| | | B | with plastic horn antenna (ø 80 mm) / PP / -40 ... +80 °C |

| Position | | Feature | Description |
|-------------------------|---|---------|---|
| Printed: 15.06.2021 | Process fitting / Material | ** | Threaded connection, Clamp, flanges; two-digit alphanumeric code for metallic process fittings, industrial flanges according to ASME, BS, DIN, EN, GOST, HG/T, JIS and for other international, national or industrial standards, guidelines or standards with suitable pressure and temperature specifications |
| | Electronics | H | Two-wire 4 ... 20 mA/HART |
| freigegeben) | Housing / Protection | K | Plastic single chamber / IP66/IP67 |
| | Cable entry / Cable gland / Plug connection | M | M20 x 1.5 / with / without |
| | | * | One-digit alphanumeric code for further suitable fittings, cable entries and closing screws. |
| released freigegeben) | Display and adjustment module PLICSCOM | X | without |
| | | A | mounted |
| | | F | without; lid with inspection window |
| | | K | mounted; with Bluetooth, magnetic pen operation |
| RL | Additional equipment | X | without |
| | | * | with equipment |

In the following, all above mentioned versions are called LEVEL TRANSMITTER LT 8136.C****H****. If parts of these safety instructions refer only to certain versions, then these will be mentioned explicitly with their type code.

4 Technical data

Electrical data

Type of protection intrinsic safety Ex i

Power supply and signal circuit: (terminals 1[+], 2[-] in "Ex-i" electronics compartment; with double chamber housing version in connection compartment)

In type of protection intrinsic safety Ex ia IIC

Only for connection to a certified, intrinsically safe circuit.
Maximum values:

- $U_i = 30\text{ V}$
- $I_i = 131\text{ mA}$
- $P_i = 983\text{ mW}$

The effective internal capacitance C_i is negligibly small.
Effective internal inductance $L_i \leq 5\ \mu\text{H}$.

Circuit of the display and adjustment module:

In type of protection intrinsic safety Ex ia IIC

Only for connection to the corresponding display and adjustment module AB-MODUL-BUERKERT resp. AB-MODUL-B1 (TÜV 19 ATEX 250180 U).

For applications requiring instruments of category 2G, the intrinsically safe power supply and signal circuit can correspond to protection class ia or ib. For connection to a circuit with protection class ib, the ignition protection type identification is Ex ib IIC T6.

For applications requiring instruments of category 1/2G, the intrinsically safe power supply and signal circuit must be in conformity with protection class ia.

For applications requiring instruments of category 1/2G the LEVEL TRANSMITTER LT 8136.C****H**** is preferably connected to appropriate instruments with electrically isolated intrin-

cally safe circuits.

The metal parts of the level measuring instruments on radar basis type LEVEL TRANSMITTER LT 8136 are electrically connected to the earth terminals.

In the versions of the radar sensors LEVEL TRANSMITTER LT 8136.C****H**** the intrinsically safe circuits are electrically isolated from elements that may be earthed.

5 Application conditions

The max. permissible ambient temperatures depending on the temperature classes are specified in the following tables.

For assessment and reduction of the explosion risk, valid standards such as for example EN 1127-1 must be taken into account.

Category 1/2G instruments

| Temperature class | Temperature on the antenna | Ambient temperature on the electronics |
|-------------------|----------------------------|--|
| | -20 ... +60 °C | -40 ... +46 °C |
| | -20 ... +60 °C | -40 ... +61 °C |
| T3, T2, T1 | -20 ... +60 °C | -40 ... +80 °C |

For applications requiring instruments of category 1/2G the process pressure of the media must be between 0.8 ... 1.1 bar. If the LEVEL TRANSMITTER LT 8136.C****H**** are operated at temperatures higher than those specified in the above table, please make sure by means of appropriate measures that there is no danger of ignition from the hot surfaces. The max. permissible temperature on the electronics/housing should not exceed the values according to the above table.

Please make sure that the sensor also in case of failure does not generate heat itself. Responsibility for safe operation of the equipment, with respect to pressures/temperatures of the materials used, rests with the operator.

The prerequisites for operation in the absence of explosive mixtures can be found in the manufacturer specifications.

Category 2G instruments

| Temperature class | Temperature on the antenna | Ambient temperature on the electronics |
|-------------------|----------------------------|--|
| T6 | -60 ... +80 °C | -40 ... +46 °C |
| T5 | -60 ... +80 °C | -40 ... +61 °C |
| T4, T3, T2, T1 | -60 ... +80 °C | -40 ... +80 °C |

If the LEVEL TRANSMITTER LT 8136.C****H**** are operated at higher temperatures than those specified in the above table, please make sure by means of appropriate measures that there is no danger of ignition from hot surfaces. The max. permissible temperature on the electronics/housing must not exceed the values specified in the above table.

Please make sure that the sensor also in case of failure does not generate heat itself. Responsibility for safe operation of the equipment, with respect to pressures/temperatures of the materials used, rests with the operator.

The prerequisites for operation in the absence of explosive mixtures can be found in the manufacturer specifications.

6 Protection against static electricity

The LEVEL TRANSMITTER LT 8136.C****H**** in versions with electrostatically chargeable plastic parts, such as e.g. plastic housing, metal housing with inspection window or plastic antenna, have a caution label pointing out the safety measures that must be taken with regard to electrostatic charges during operation.

WARNING - POTENTIAL ELECTROSTATIC CHARGING HAZARD - SEE INSTRUCTIONS

Caution: Plastic parts! Danger of electrostatic charging!

- Avoid friction
- No dry cleaning
- Construction/Installation: The LEVEL TRANSMITTER LT 8136.C****H**** must be constructed/installed in such a way that electrostatic charges are ruled out during operation, maintenance and cleaning. process-related electrostatic charges, e.g. by measuring media flowing past, are ruled out

7 Use of an overvoltage arrester

If necessary, a suitable overvoltage arrester can be connected in front of the LEVEL TRANSMITTER LT 8136.C****H****.

When used as category 1/2G instrument, as far as necessary analogue, a suitable overvoltage arrester must be connected in front as protection against voltage surges according to EN 60079-14.

8 Grounding

In order to avoid the danger of electrostatic charging of the metallic parts, the LEVEL TRANSMITTER LT 8136.C****H****, used as category 1/2G instrument, must be electrostatically connected to the local potential equalisation (transfer resistance $\leq 1 \text{ M}\Omega$), e.g. via the ground terminal.

Metallic adapter flanges must be earthed, especially when installed on non-conductive plastic vessels or non-earthed vessels. Earthing can be realised with cable lug via the flange gland.

9 Impact and friction sparks

The LEVEL TRANSMITTER LT 8136.C****H**** in Aluminium/Titanium version must be mounted in such a way that sparks from impact and friction between Aluminium/Titanium and steel (except stainless steel, if the presence of rust particles can be excluded) cannot occur.

10 Non-grounded, metallic parts

The capacitance of the metal measuring point identification plate was measured as follows:

| Measurement loop identification label | Capacitance |
|---------------------------------------|-------------|
| 45 x 23 mm (standard) | 21 pF |
| 100 x 30 mm | 52 pF |
| 73 x 47 mm | 61 pF |

The capacitance of the metal housing was measured with 31 pF.

11 Material resistance

With applications requiring instruments of category 1/2G the LEVEL TRANSMITTER LT

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8136.C****H**** should only be used in media against which the wetted materials are sufficiently resistant.

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Removing and replacing the red threaded/dust cover

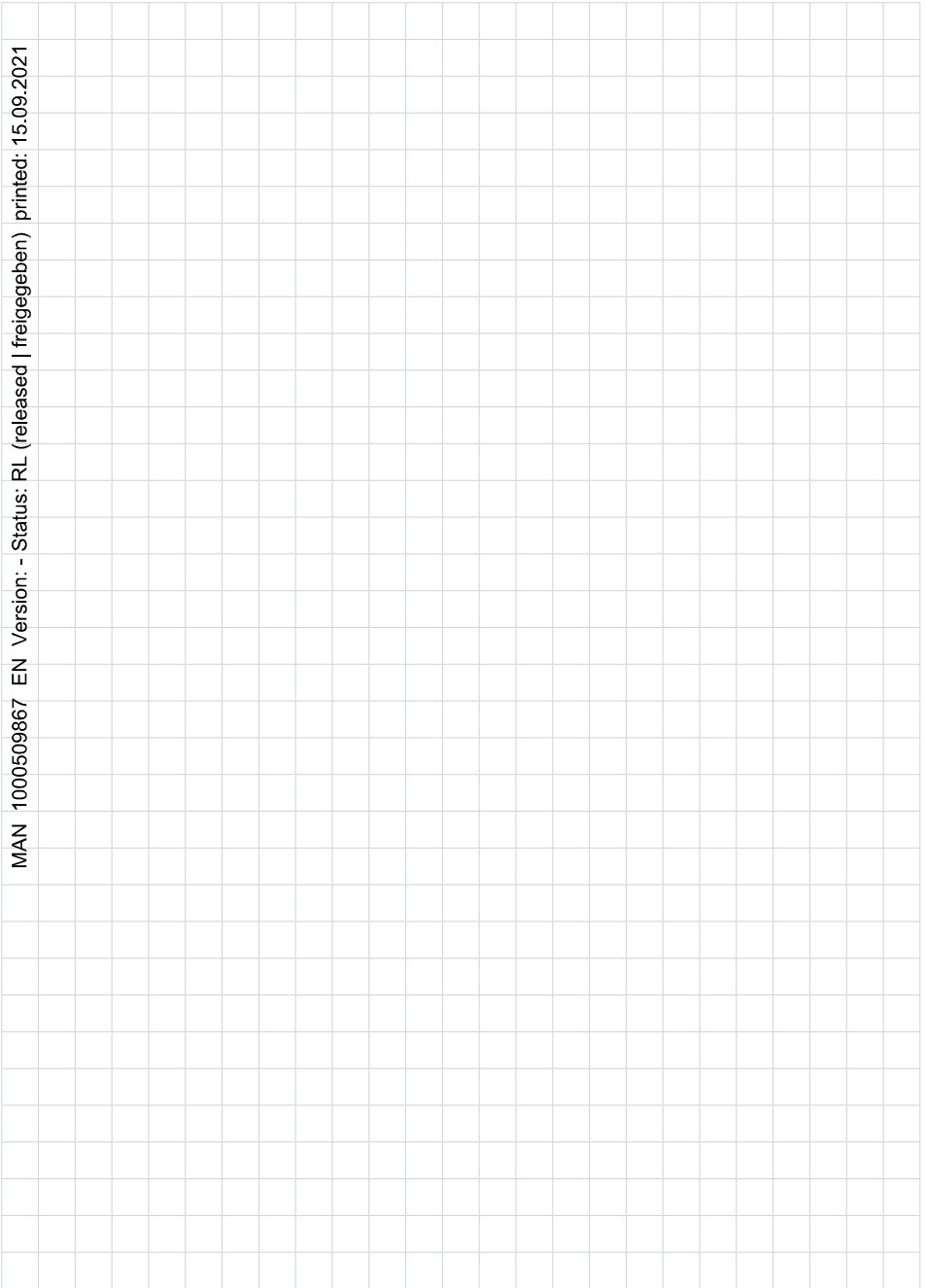
When the LEVEL TRANSMITTER LT 8136.C****H**** are delivered, depending on the version, the red threaded or dust protection caps must be removed before installing the device and the openings must be sealed according to the requirements of the type of protection and the IP protection type specified on the type label.

When using certified i.e. suitable cable glands, sealing plugs or plug connectors, they must be mounted correctly and the respective certificates/documents must be observed.

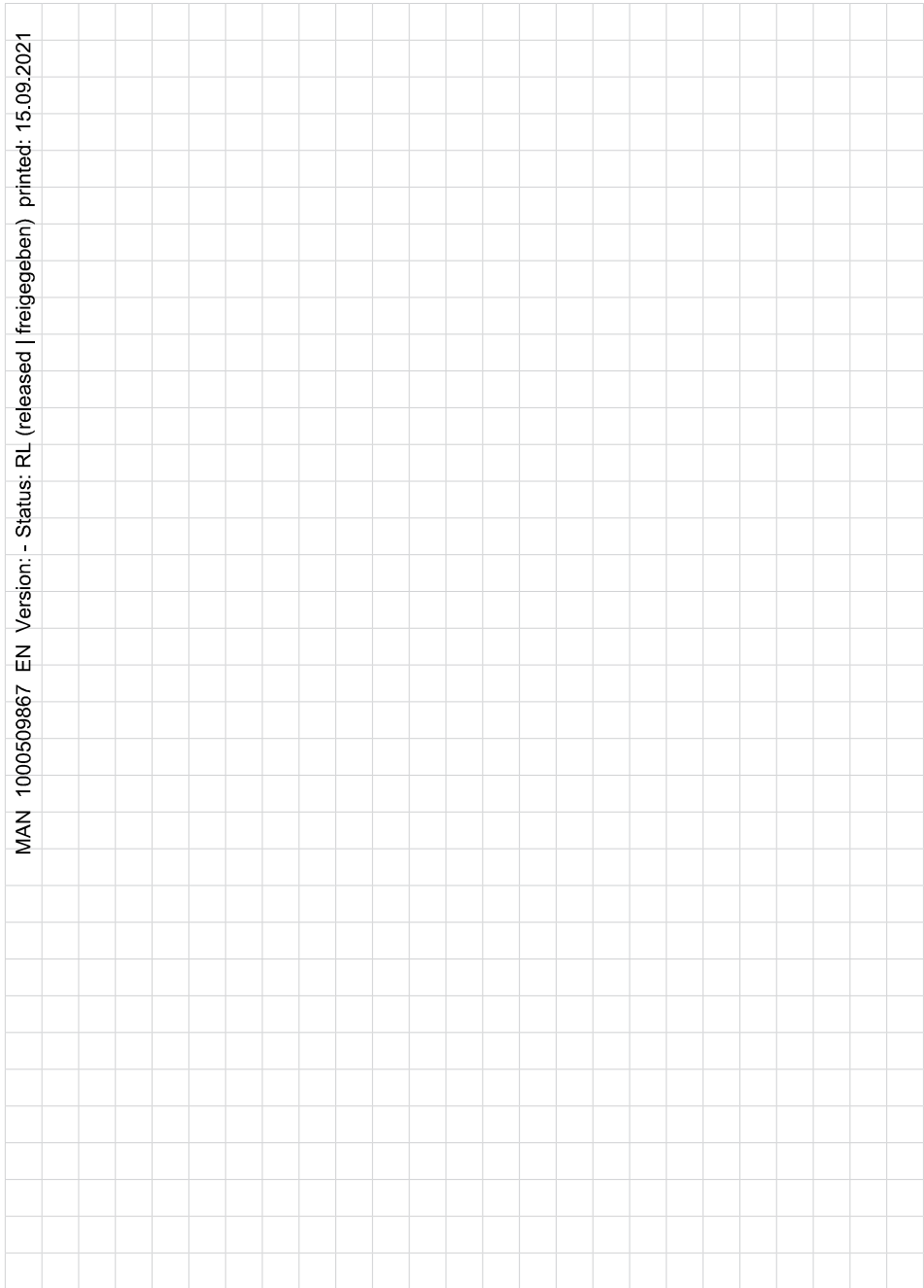
The sealing plugs supplied by the manufacturer meet the necessary requirements.

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