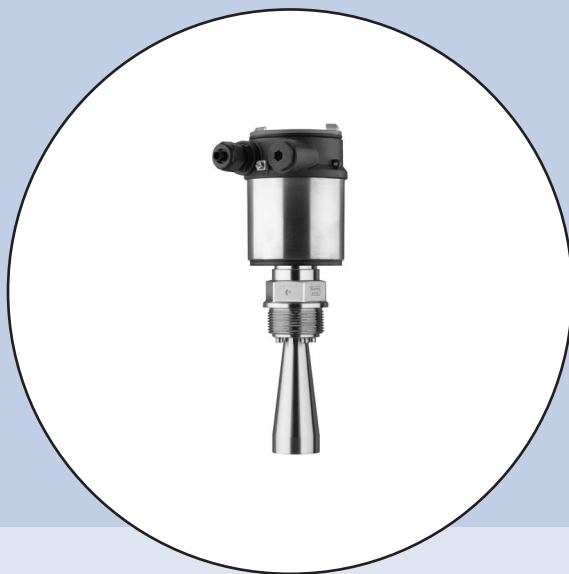




Safety instructions



**LEVEL TRANSMITTER
LT8137**

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



0102



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Supplementary documentation:

- Operating Instructions LEVEL TRANSMITTER LT8137
- EU-type approval certificate PTB 08 ATEX 2002 X (Document ID: 43282)
- EU declaration of conformity (Document ID: 35643)

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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
DK	Sikkerhedsforskrifter til anvendelse i explosionsfarlig atmosfære
FI	Turvallisuusohjeet räjähdyksvaarallisissa 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 LT8137 series LEVEL TRANSMITTER LT8137.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 (43283) on the type label.

The electronics module PS60HK is integrated in the LEVEL TRANSMITTER LT8137.C****H****.

2 General information

The level measuring instrument LEVEL TRANSMITTER LT8137.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 LT8137.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 LT8137.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 LT8137.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 LT8137.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 LT8137.abcdefghijkl

Position		Feature	Description
ab	Approval	CX	ATEX II 1/2G, 2G Ex ia IIC T6
c	Version / Material / Process temperature	*	Horn antennas, standpipe, parabolic antenna; One-digit alphanumeric variable for metal antenna, standpipe with different metal materials and diameters

Position		Feature	Description
MAN 1000509875 EN 1000509875 Version: - Status: RL (released) freigegeben printed: 15.06.2021	Process fitting / Material	**	Threaded connection, flanges, swivelling holder; 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
	Seal / Process temperature	2	FKM (SHS FPM 70C3 GLT) and PTFE / -40 ... +130 °C
		Z	FKM (SHS FPM 70C3 GLT) and PTFE / -40 ... +100 °C
		3	FFKM (Kalrez 6375) and PTFE / -20 ... +130 °C
		4	FKM (SHS FPM 70C3 GLT) and PTFE / -40 ... +200 °C
		5	FFKM (Kalrez 6375) and PTFE / -20 ... +200 °C
		7	FFKM (Kalrez 6230) and PTFE (FDA) / -15 ... +130 °C
		9	FFKM (Kalrez 6230) and PTFE / -15 ... +200 °C
		B	FKM (SHS FPM 70C3 GLT) and PP / -40 ... +80 °C, max. 3 bar
		D	FFKM (Kalrez 6375) and PP / -15 ... +80 °C, max. 3 bar
		A	FKM (SHS FPM 70C3 GLT) and PEEK / -40 ... +200 °C
		E	FFKM (Kalrez 6230) and PEEK / -15 ... +250 °C
		F	FFKM (Kalrez 6375) and PEEK / -20 ... +250 °C
H	Ceramic graphite / -196 ... +450 °C		
Electronics	H	Two-wire 4 ... 20 mA/HART	
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.	
Display and adjustment module PLICSCOM	X	without	
	A	mounted	
	F	without; lid with inspection window	
	K	mounted; with Bluetooth, magnetic pen operation	
k	Additional equipment	X	without
		V	Purging connection with reflux valve
		*	with equipment

In the following, all above mentioned versions are called LEVEL TRANSMITTER LT8137.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: <ul style="list-style-type: none"> • $U_i = 30\text{ V}$ • $I_i = 131\text{ mA}$ • $P_i = 983\text{ mW}$ The effective internal capacitance C_i is negligibly small. Effective internal inductance $L_i \leq 5\ \mu\text{H}$.
Display and adjustment circuit:	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 LT8137.C****H**** is preferably connected to appropriate instruments with electrically isolated intrinsically safe circuits.	
The metal parts of the level measuring instruments on radar basis type LEVEL TRANSMITTER LT8137 are electrically connected to the earth terminals.	
In the versions of the radar sensors LEVEL TRANSMITTER LT8137.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
T6	-20 ... +60 °C	-40 ... +46 °C
T5	-20 ... +60 °C	-40 ... +61 °C
T4, 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 LT8137.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 tempera-

ture 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
	-60 ... +80 °C	-40 ... +46 °C
	-60 ... +95 °C	-40 ... +61 °C
	-60 ... +130 °C	-40 ... +80 °C
	-60 ... +195 °C	-40 ... +80 °C
	-60 ... +290 °C	-40 ... +80 °C
RT	-60 ... +440 °C	-40 ... +80 °C

If the LEVEL TRANSMITTER LT8137.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.

Category 2G instrument - low temperature version up to -170 °C

Temperature class	Temperature on the antenna	Ambient temperature on the electronics
T6	-170 ... +80 °C	-40 ... +46 °C
T5	-170 ... +95 °C	-40 ... +61 °C
T4	-170 ... +130 °C	-40 ... +80 °C
T3	-170 ... +195 °C	-40 ... +80 °C
T2	-170 ... +290 °C	-40 ... +80 °C
T1	-170 ... +440 °C	-40 ... +80 °C

If the LEVEL TRANSMITTER LT8137.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.

LT8137.C****H**** should only be used in media against which the wetted materials are sufficiently resistant.

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13 Installation with swivelling holder

LEVEL TRANSMITTER LT8137.C****H**** as category 1/2G instrument in the version with swivelling holder must be installed in such a way that, after the antenna has been aligned (by means of the swivelling holder) and the mounting flange screwed on, protection rating IP67 is maintained.

13 Versions with rinsing connection

LEVEL TRANSMITTER LT8137.C****H**** as category 1/2G instrument in the version with rinsing connection make sure the protection rating IP67 is ensured on the connection to the reflux valve.

After removal of the reflux valve or the rinsing air connection on the reflux valve, the opening has to be closed with an appropriate closing screw, so that protection class IP67 is maintained. Please make sure that during rinsing processes in the antennas, i.e. when the sensor is cleaned, no hazardous atmosphere is present.

14 Removing and replacing the red threaded/dust cover

When the LEVEL TRANSMITTER LT8137.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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