

INERIS 21 ATEX 3008 X / IECEx INE 21.0040 X UL-Listed for use in Hazardous Locations Type 8098 FLOWave S

SAW flowmeter with ATEX, IECEx and Hazardous Location approval

SAW-Durchflussmessgerät mit ATEX-, IECEx- und Hazardous Location-Zulassung

Débitmètre SAW avec certification ATEX, IECEx et Hazardous Location



Operating Instructions

Bedienungsanleitung
Manuel d'utilisation



We reserve the right to make technical changes without notice.
Technische Änderungen vorbehalten.
Sous réserve de modifications techniques.

© Bürkert SAS 2021 - 2024

Supplement 2410/02_EU-ml_00815393 / Original DE

1. ABOUT THE ADDITIONAL INSTRUCTIONS	4
1.1. Definition of terms / abbreviation	4
2. SYMBOLS	4
3. INTENDED USE	5
4. PARTICULAR SAFETY INSTRUCTIONS	5
4.1. Specific conditions of use	6
4.2. Additional marking for Ex-areas	7
4.3. Fluid temperature and ambient temperature	8
4.4. Degree protection	9
4.5. Cleaning in the Ex-area	9
4.6. Ex approvals	9
5. INSTALLATION	9

1 ABOUT THE ADDITIONAL INSTRUCTIONS

The additional instructions for the use in potentially explosive environments describe the entire life cycle of the product. Keep these instructions in a location which is easily accessible to every user and make these instructions available to every new owner of the product.

Important safety information.

Read the additional instructions carefully and thoroughly.

- ▶ The additional instructions must be read and understood.

The additional instructions describe safety instructions and information for the use in a potentially explosive environment.

All other descriptions and instructions can be found in the operating instructions for the Type 8098 FLOWave S.



The operating instructions can be found on the Internet at: country.burkert.com

1.1 Definition of terms / abbreviation

In these instructions, the term product refers to the Type 8098 flowmeter with ATEX, IECEx or UL Listing for use in potentially explosive atmosphere / Hazardous Locations.

In these instructions, the abbreviation "Ex" always refers to potentially explosive atmosphere or Hazardous Locations.

2 SYMBOLS

The following symbols are used in these instructions.



DANGER

Warns of an immediate danger.

- ▶ Failure to observe the warning results in death or serious injury.



WARNING

Warns of a potentially dangerous situation.

- ▶ Failure to observe the warning may result in a serious injury or death.



CAUTION

Warns of a possible danger.

- ▶ Failure to observe this warning may result in a moderate or minor injury.

NOTICE

Warns of material damage.



Important advice and recommendations.



Refers to information in these instructions or in other documentation.

- ▶ Designates instructions for risk prevention.
- Designates a work step which you must carry out.

3 INTENDED USE

The Type 8098 FLOWave S flowmeter with ATEX and IECEx marking was designed for the use in the following explosion groups:

- II 3G Ex ec IIC T4 Gc
- II 3D Ex tc IIIC T130°C Dc

The Type 8098 FLOWave S marked with the following is suitable for use in the following locations:

- Class I, Division 2 Group A, B, C, D, T4 ¹⁾
- Class II, Division 2 Group F, G, T130°C ¹⁾
- Class III, Division 1 and 2 ¹⁾
- Non-hazardous locations
- ▶ Observe the admissible data, the operating conditions and the conditions of use specified in the contract documents, in the Operating Instructions of the product and on the Type label of the product.
- ▶ Use the product only in conjunction with third-party instruments and components recommended and authorized by Bürkert.
- ▶ Correct transportation, storage and installation, as well as careful use and maintenance are essential for reliable and faultless operation.
- ▶ Use the product as intended.

1) For use in Hazardous Location the product only with approved Turck Eurofast cords and the appropriated Turck lokfast guards (Lock-Euro-G).

4 PARTICULAR SAFETY INSTRUCTIONS



DANGER

To prevent the risk of explosion, observe not only the safety instructions in the operating instructions for operation in the Ex-area, but also the following:

- ▶ Observe information on temperature class, ambient temperature, protection rating, torque and voltage.
- ▶ Do not use the product in areas where there is gas or dust with a lower ignition temperature than indicated on the label for Ex-area.
- ▶ Installation, operation and maintenance must be performed by qualified technicians only.
- ▶ Observe the applicable safety regulations and the applicable national safety regulations as well as the general rules of technology for installation and operation.
- ▶ Do not repair the product yourself, but replace it with an equivalent product.
- ▶ The product must only be repaired by the manufacturer.
- ▶ Do not expose the product to any mechanical or thermal stresses which will exceed the limits that are given in the Operating Instructions.
- ▶ Use only cables that observe the requirements of standard IEC 60079-14 and of local regulation.



DANGER

Risk of explosion when removing a connector.

- ▶ Secure the M12 female connector. Observe the recommendations that are given by the manufacturer of the female connector.
- ▶ Do not remove the connector when the product is energized. When removing the connector, close the connection with a protective cap.

Warning: explosion hazard.

- ▶ Do not disconnect while the circuit is live or unless the area is free of ignitable concentrations.

Risk of explosion when opening the product.

- ▶ Only open the product if no Ex-atmosphere is present.
- ▶ Before product commissioning, tightly close the product and make sure the covers are locked. A cover is locked if you cannot open it without the magnetic unlocking key.

Risk of explosion due to electrostatic discharge.

In the event of a sudden discharge, electrostatically charged products or persons present a risk of explosion in the Ex-area.

- ▶ Make sure that no electrostatic charging can occur in the Ex-area.
- ▶ To clean the product surface, gently wipe the surface with a damp cloth or anti-static cloth.



DANGER

Risk of explosion if the product is not connected to the earth.

- ▶ To earth the product, observe the requirements of standard IEC 60079-14 and local regulation.
- ▶ To earth the product, use the external earthing screw.

4.1 Specific conditions of use

- ▶ Make sure that the transient protection has been set to a value which does not exceed 140% of the measured peak-voltage value at the supply connections of the product.
- ▶ Only use the product in an area with at least pollution degree 2, as defined in standard EN/IEC 60664-1.
- ▶ Do not use the product in dust atmospheres in which intensive charging processes can be expected.
- ▶ To clean the product surface, gently wipe the surface with a damp cloth or anti-static cloth.
- ▶ Do not remove the connector when the product is energized. When removing the connector, close the connection with a protective cap.
- ▶ The maximum ambient temperature depends on the fluid temperature, see table of parameter relating to safety in annex of the certificate.

4.2 Additional marking for Ex-areas

ATEX and IECEx

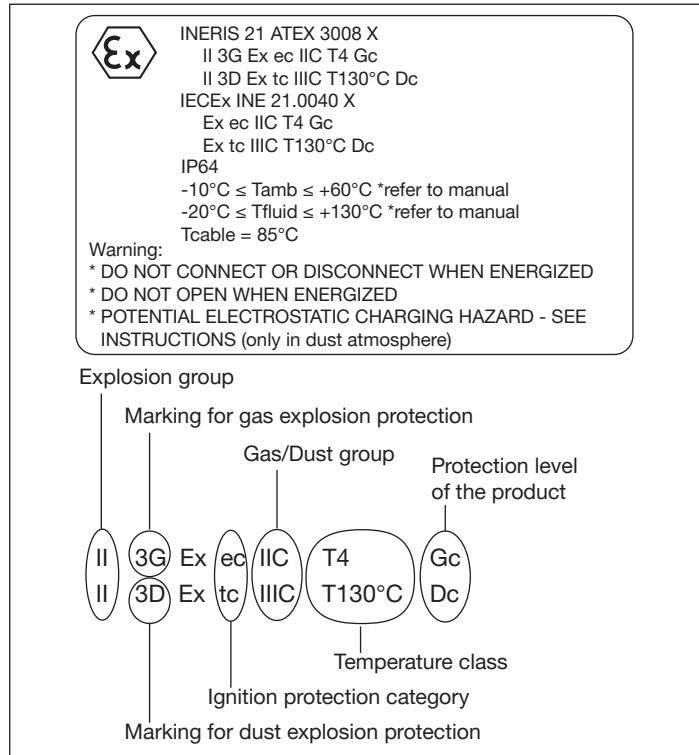


Fig. 1: Additional marking for ATEX and IECEx

Hazardous Location

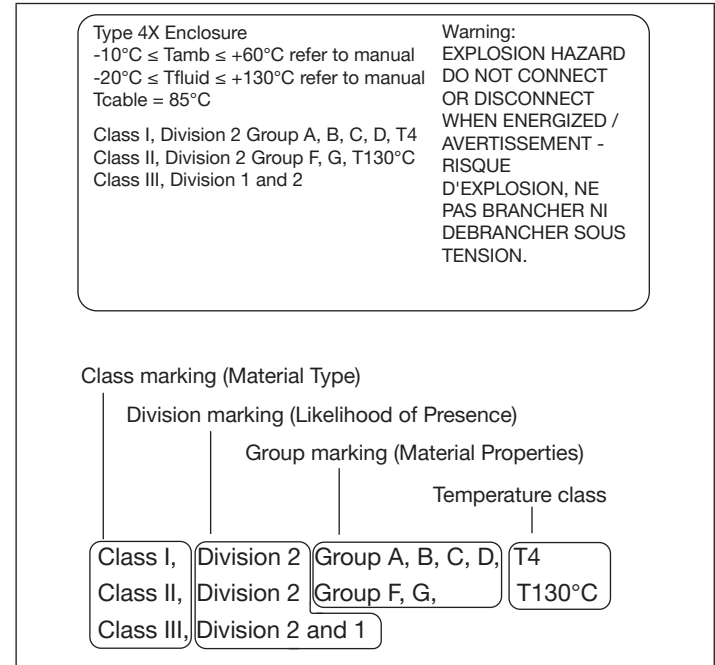


Fig. 2: Additional marking for Hazardous Location

4.3 Fluid temperature and ambient temperature

→ Observe the ambient temperature for use in Ex-areas and given in [Tab. 1](#).

Ambient temperature	-10 °C – +60 °C
Fluid temperature	-20 °C – +110 °C for permanent operation +110 °C – +130 °C for max. 1 hour

Tab. 1: Ambient temperature and fluid temperature

→ Respect the dependency between the fluid temperature and the ambient temperature. Refer to [Fig. 3](#) and [Tab. 2](#).

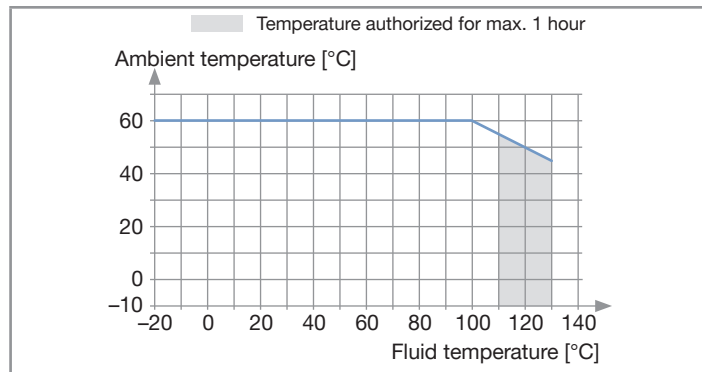


Fig. 3: Fluid temperature depending on the ambient temperature

	Fluid temperature [°C]	Ambient temperature [°C]
	-10	60
	0	60
	10	60
	20	60
	30	60
	40	60
	50	60
	60	60
	70	60
	80	60
	90	60
	100	60
	110	55
Operation is allowed for maximum 1 hour	120	50
	130	45

Tab. 2: Continuous operation depending on the fluid temperature and the ambient temperature

4.4 Degree protection

IP64, if the product is wired and if the cable glands are tightened and the covers are locked.

According to UL50/50E: 4X, if the product is wired and the cover is locked.

4.5 Cleaning in the Ex-area



Make sure that cleaning agent is approved for the use in explosive atmospheres.

4.6 Ex approvals

The Type 8098 FLOWave S has been evaluated according to: IEC 60079-0, IEC 60079-7, IEC 60079-31 standards
UL121201, CSA C22.2 No. 213-17

The Ex approvals are only valid if the Bürkert product is used as described in these additional instructions.

If unauthorized changes are made to the product, the Ex approvals become invalid.

5 INSTALLATION

Degree of pollution	Degree 2 according to EN/IEC 61010-1
Electrical features	12...35 V DC, filtered and regulated The product must be connected permanently to a Safety Extra-Low Voltage circuit (SELV circuit)
<ul style="list-style-type: none"> Operating voltage Power consumption without outputs 	<ul style="list-style-type: none"> 12...35 V DC, filtered and regulated ≤ 2.5 W
Outputs	12...35 V DC 0...22.5 mA functional insulation (not in IO-Link variant)
<ul style="list-style-type: none"> Analogue output Digital output 	<ul style="list-style-type: none"> 5...35 V DC max. 700 mA functional insulation (not in IO-Link variant)
<ul style="list-style-type: none"> Communication interface 	IO-Link or CANopen/büS The büS connection of the variant with outputs is only for connection to the Bürkert Communicator for configuration and software updating of the device.

→ Connect the product.

- ▶ If you connect the circular male connector, the mating female connector must be provided by the product user.
 - The mating female connector is not part of the approval.
 - The mating female connector for the ATEX/IECEx variant must comply with the requirements of IEC 60079-0, IEC 60079-7, IEC 60079-31.
 - The protection class of the mating female connector must be at least IP65 according to IEC 60529.
 - The connector shall not be disconnected while flowmeter is energized. And when the connector is unmatched, a protective cap shall be installed.
 - For the Hazardous Location variant connect the product to approved Turck-Eurofast cords and the appropriate Turck lokfast guards (Lock-Euro-G).

For installations in US:

- For installation in accordance with National Electrical code (NEC): The mating Turck-Eurofast male connector P-FSV 5.64-*/M20 or P-FSV 8-*/M20 shall be in accordance with FM certificate no. FM17US0047X and related Turck control drawing no. QCF-00147.

For installations in Canada:

- For installation in accordance with Canadian Electrical code (CEC): The mating Turck-Eurofast male connector P-FSV 5.64-*/M20 or P-FSV 8-*/M20 shall be in accordance with CSA certificate no. 1690200 and related Turck control drawing no. NI-2.404.

Specification of the cables:

Connection diameter of the earthing connection: min 4 mm²

Pin assignment for M12, 5-pin:

Connection to

- Without outputs: supply voltage
- CANopen/büS: supply voltage and communication
- IO-Link: supply voltage, communication and output



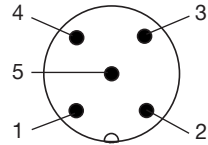
	Pin	Assignment  büS	Assignment  IO-Link
	1	CAN shield	L+
	2	12...35 V DC	AO/DO
	3	GND	L-
	4	CAN_H	CQ
	5	CAN_L	N.C.

Fig. 4: Pin assignment of the 5-pin M12 male connector

Pin assignment for M12, 8-pin:

Connection to supply voltage, communication and outputs:

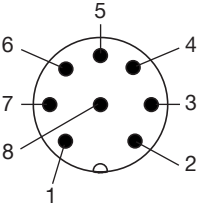
	Pin assignment (designation on the device)
	Pin 1: +24 V DC (12...35 V DC)
	Pin 2: GND
	Pin 3: CAN_L
	Pin 4: CAN_H
	Pin 5: 1AO/DO -
	Pin 6: 1AO/DO +
	Pin 7: 2AO/DO -
	Pin 8: 2AO/DO +



Fig. 5: Pin assignment of the 8-pin M12 male connector

country.burkert.com