MAN 1000534916 EN Version: F Status: RL (released | freigegeben) printed: 16.02.2026

Type 8098 FLOWave S

with ATEX, IECEx, NEPSI or Hazardous Location approval

Supplement to Operating Instructions

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Technical documentation 2510/03_GBen_00815393_1160736395_1160923915 / Original EN

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1 About this document

This document is additional instructions to the operating instructions. It describes safety instructions and information for the use in a potentially explosive environment.

- Before using the product for the first time, read and observe the whole safety chapter.
- Before starting any work on the product, read and observe the respective sections of the document.
- Keep the document available for reference and give it to the next user.
- Contact the Bürkert sales office for any questions.

Further information in the Operating Instructions at country.burkert.com.

▸ Enter the article number from the type label in the search bar.

1.1 Symbols

DANGER!

Warns of a danger that leads to death or serious injuries.

WARNING!

Warns of a danger that can lead to death or serious injuries.

CAUTION!

Warns of a danger that can lead to minor injuries.

NOTICE!

Warns of property damage on the product or the installation.

Indicates important additional information, tips and recommendations.

Refers to information in this document or in other documents.

▸ Indicates a step to be carried out.

✓ Indicates a result.

Menu Indicates a software user-interface text.

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1.2 Terms and abbreviations

The terms and abbreviations are used in this document to refer to following definitions.

Device	Flowmeter Type 8098 FLOWave S with ATEX, IECEx, NEPSI or UL Listing for use in potentially explosive atmosphere / Hazardous Locations
büS	Bürkert system bus, a communication bus developed by Bürkert and based on the CANopen protocol
Ex area	Potentially explosive atmosphere
Ex approval	Approval for potentially explosive atmosphere

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2 Intended use

The device with ATEX 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 device with IECEx or NEPSI marking was designed for the use in the following explosion groups:

- Ex ec IIC T4 Gc
- Ex tc IIIC T130°C Dc

The device 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

Prerequisites for safe and trouble-free operation are proper transport, storage, installation, commissioning, operation and maintenance.

The instructions are part of the device. The device is intended exclusively for use within the scope of these instructions. Uses of the device that are not described in these instructions, the operating instructions, the contractual documents or the type label can lead to severe personal injury or death, damage to the device or property and dangers for the surrounding area or the environment.

▸ Use the device only in conjunction with third-party devices and components recommended and authorized by Bürkert.

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

3 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 device 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 device yourself, but replace it with an equivalent device.
- The device must only be repaired by the manufacturer.
- Do not expose the device 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 female connector. Observe the recommendations that are given by the manufacturer of the female connector.
- Before removing a connector de-energize the device. When removing a connector, close the connection with a protective cap.

DANGER!

Risk of explosion when opening the device.

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

DANGER!

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.

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DANGER!

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

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

3.1 Specific conditions of use

- Make sure that the transient protection has been set to a value which does not exceed 140 % of the measured peakvoltage value at the supply connections of the device.
- Only use the device in an area with at least pollution degree 2, as defined in standard EN/IEC 60664-1.
- Do not use the device in dust atmospheres in which intensive charging processes can be expected.
- The maximum ambient temperature depends on the medium temperature, see table of parameter relating to safety in annex of the certificate.
- Observe the medium and ambient temperature for use in Ex areas, see chapter 3.3.

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3.2 Additional marking for Ex areas

ATEX and IECEx and optional NEPSI

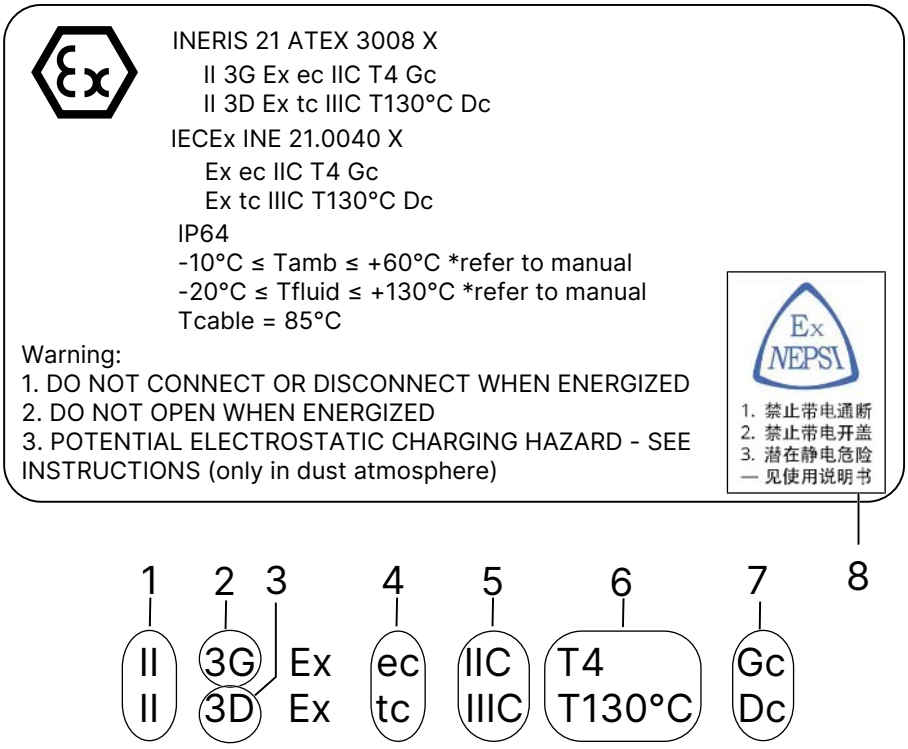

Fig. 1: Additional marking for ATEX and IECEx and optional NEPSI

1	Explosion group	2	Marking for gas explosion protection
3	Marking for dust explosion protection	4	Ignition protection category
5	Gas/Dust group	6	Temperature class
7	Product protection level	8	NEPSI variant only

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Hazardous Location

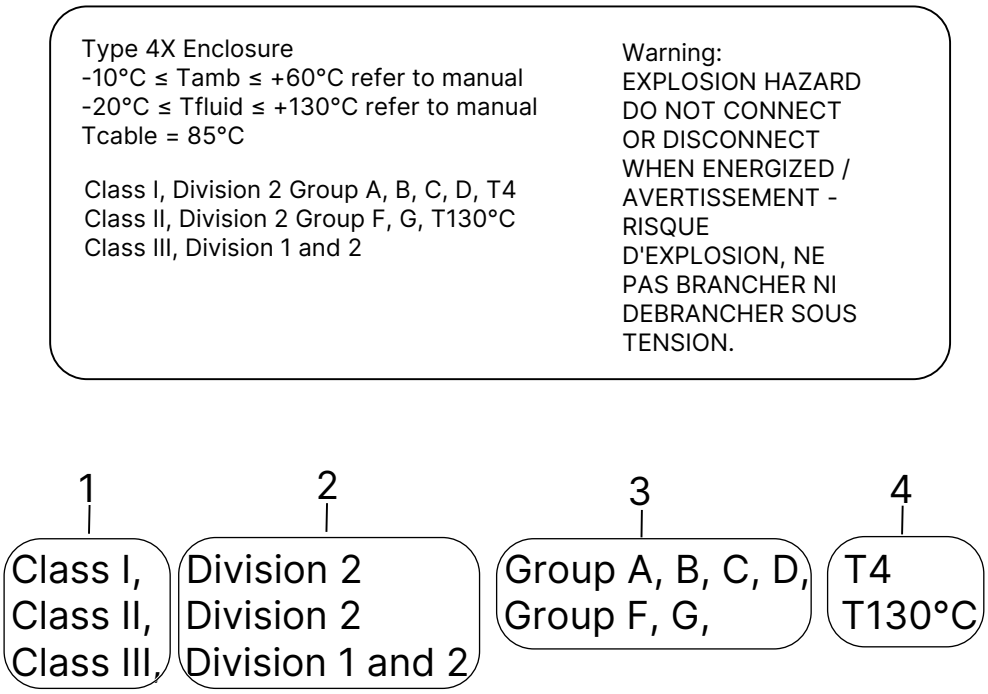

Fig. 2: Additional marking for Hazardous Location

1	Class marking (Material Type)	2	Division marking (Likelihood of Presence)
3	Group marking (Material Properties)	4	Temperature class

3.3 Medium temperature and ambient temperature

Ambient temperature	–10...+60 °C
Medium temperature	–20 ...+110 °C for continuous operation +110...+130 °C for max. 1 hour

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Dependency between the medium temperature and the ambient temperature

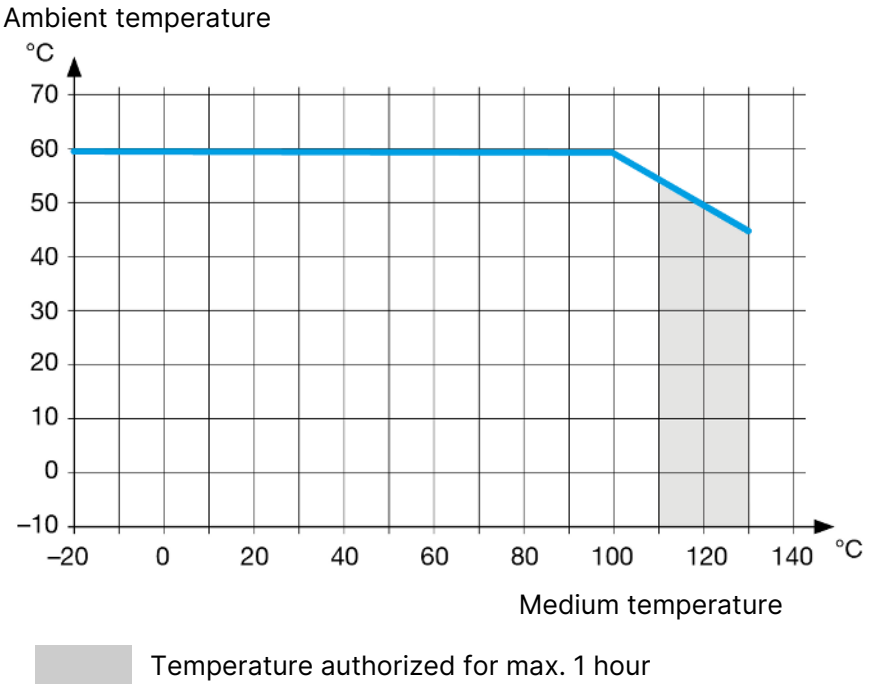

Fig. 3: Medium temperature depending on the ambient temperature

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Medium 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
120[2)]	50[2)]
130[2)]	45[2)]

Tab. 1: Dependency between the medium temperature and ambient temperature

3.4 Degree of protection

IP64:
If the device is wired and the covers are locked.

According to UL50/50E: 4X:
If the device is wired and the covers are locked.

3.5 Cleaning in Ex area

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

3.6 Ex approvals

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

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

2) Operation is allowed for maximum 1 hour.

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This device complies with the legal requirements applicable at the time of placing on the market and has been developed and tested in accordance with the relevant European directives/regulations and harmonized standards.

The conformity is documented and, if necessary, supported by evidence. The EU Declaration of Conformity can be found behind the respective type on the home page country.burkert.com.

The product is also evaluated for usage in hazardous locations in China by NEPSI under certificate number GYJ25.1095X

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4 Technical data

Degree of pollution	Degree 2 according to UL/EN 61010-1
Communication interface	CANopen/büS or IO-Link The büS connection of the variant with outputs is only for connection to the Bürkert Communicator for configuration and software updating of the device.

Electrical data

Operating voltage	12...35 V ⎓ ±10 %, filtered and regulated Connected permanently to a Safety Extra-Low Voltage circuit (SELV circuit)
Power consumption	≤ 2.5 W without the consumption of the outputs

Outputs

Analogue output	12...35 V ⎓ 0...22.5 mA functional insulation (not in IO-Link variant)
Digital output	5...35 V ⎓ max. 700 mA functional insulation (not in IO-Link variant)

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5 Installation

For connecting the circular male connector, the mating female connector must be provided by the 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 degree of protection 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.

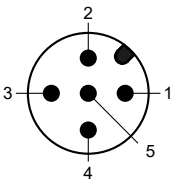
Specification of the cables:

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	+24 V DC (12...35 V DC)	AO/DO
3	GND	L–
4	CAN_H	CQ
5	CAN_L	Not connected

Tab. 2: Pin assignment of the 5-pin M12 male connector

Pin assignment for M12, 8-pin:

Connection to supply voltage, communication and outputs.

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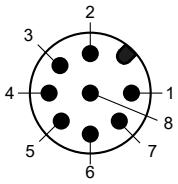
	Pin	Assignment (designation on the device)
	1	+24 V DC (12...35 V DC)
	2	GND
	3	CAN_L
	4	CAN_H
	5	1AO/DO –
	6	1AO/DO +
	7	2AO/DO –
	8	2AO/DO +

büS

Tab. 3: Pin assignment of the 8-pin M12 male connector

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6 Material description

Characteristic description	Allowed value	Signification
Type	8098	FLOWave flowmeter
Nominal diameter	08,0 10,0 15,0 20,0 25,0 40,0 50,0 65,0 80,0 0100	Measurement pipe diameter (DN)
...[3)]	–	–
Port connection	TCxx / TGxx / TDxx HBxx HCxx RVxx	Pharmaceutical clamp connection Hygienic flange connection Hygienic clamp connection Dairy thread connection
...[3)]	–	–
Display size	0	No display
...[3)]	–	–
Transmitter type	04	SE91 (transmitter S)
Electrical connection	RE RG	1x M12, 5-pin 1x M12, 8-pin
Electrical connection material	2	Stainless steel
...[3)]	–	–
Extension module 1	0	Without
...[3)]	–	–
Measuring parameter	08 13	Volume flow + temperature Volume flow + temperature + density + mass flow
...[3)]	–	–
Communication	BI BU SB	Bürkert büS + IO-Link Bürkert büS Service büS
...[3)]	–	–

3) Characteristics not relevant for certification

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Characteristic description	Allowed value	Signification
Input / Output	0 U W	Without 2x config. AO/DO 1x config. AO/DO
...[3)]	–	–
Approval IECEx	0004	IECEx Ex ec IIC... + NEPSI Ex ec IIc...