

Instruction Manual Flow Sensors Category 3G and 3D



Failure to comply with the specifications of the operating manual can result in an explosion.

1 Apparatus

- Vane wheel flow sensors FA and measuring tubes FA Di with integrated or separate evaluation unit and optional integrated temperature probe Pt100
- Vortex flow sensors VA40 and measuring tubes VA Di with integrated or separate evaluation unit and optional integrated temperature probe Pt100
- Thermal flow sensors TA as model TA10C with integrated evaluation unit

This apparatus is designed for measuring the flow velocity and flow rate of gases in areas in which category 3G or 3D equipment is required.

During normal operation within the boundaries of the technical specifications the equipment is safe and does not generate sparks. Provision for self-heating does not need to be made in the case of vane wheel and vortex sensors. This also applies to thermal sensors in category 3G. The maximum additional surface temperature for category 3D areas is 135 °C.

Do not use the sensors

- in areas in which category 1G or 2G apparatus is required
- in areas in which category 1D or 2D apparatus is required



2 Safety Precautions

2.1 General

Hazard risks:

- modifications to the device by the customer
- handling the device outside the specified operating conditions
- handling the sensors outside the specified operating conditions
- improper use of the equipment

Danger when installing the sensors in pressurized pipelines:

- sensors for use in pressurized pipelines are to be inserted or retracted only in depressurized conditions; non-observance may result in serious harm to personnel
- when installing or removing under pressure, the appropriate protective equipment must be used, e.g. ball valve and probe guide pieces with chain guard or spindle probe guide pieces

The medium container for the measurement gases must be insulated in a way that it is ensured that the electronics housing of the apparatus does not assume a higher temperature than the aforementioned maximum ambient temperature. The radiation and convection heat has to be considered also.

2.2 Use in potentially explosive atmospheres

Danger when use of the device in potentially explosive atmospheres:

- The flow sensors may only be used in areas specified for category 3G (zone 2) or category 3D (zone 22) apparatus.
- The apparatus is to be connected to the local equipotential bonding system according to the currently valid regulations. The earth terminal is designed for cross-sections of 1,5 ... 4 mm². Use a cable lug. The torque for fixture to the earth terminal must amount to 2 ... 3 Nm.
- If severe variations in temperature are to be expected, the device should be left to adapt to the ambient temperature for at least one hour before use to avoid problems with condensation.
- The housing cover may only be opened and connection cables may only be connected or disconnected after the supply voltage has been disconnected.
- Instrument sensors with a separate evaluation unit may only be connected or disconnected when voltage-free. Protect the connection cables against opening.
- Before starting measurement in an explosive atmosphere, check whether the housing cover has been screwed down correctly.
- Mechanical shocks are to be avoided.
- Damaged instruments must not be used. This also applies to damage on the housing.
- The connection cable used must be approved for the temperature range of the evaluation electronics as a minimum.
- Any covering of dust on the electronic housing may not exceed 5 mm.
- Only the manufacturer's cable glands ducts included in the scope of delivery or permitted, identical cable glands may be used.
- TA10C sensors may only be operated with a connection cable supplied by Höntzsch.
- **The electronic housing** must be protected from strokes and shocks.

Category 3G and category 3D vane wheel flow sensors FA and vortex flow sensors VA listed in chapter 1 are to be used solely in areas in which the ambient temperature range **for the electronic housing** is in the following range

- 40 to +60 °C in AS80 housing, without evaluation unit
- 40 to +60 °C in AS80 housing, with integrated evaluation unit
- 5 to +60 °C in AS80 housing, with LCD display
- 25 to +60 °C in AS102 housing, without evaluation unit
- 25 to +60 °C in AS102 housing, with integrated evaluation unit
- 25 bis +60 °C in AS102 housing, with LCD display

Consult the information in the appendant technical documentation.

Category 3G and category 3D thermal flow sensors TA10C listed in chapter 1 are to be used solely in areas in which the ambient temperature range **for the electronic housing** does not exceed -20 to +60 °C. Consult the information in the appendant technical documentation.

Category 3G apparatus listed in chapter 1 is to be used solely in areas with the temperatures marked on the type plate for the measuring medium and ambient atmosphere and for the maximum permissible overpressure.

The maximum permissible **surface temperature** for vane wheel and vortex sensors in category 3D areas is the maximum temperature of the medium and for thermal sensors 135 °C in addition to the maximum temperature of the medium. The maximum permissible temperature of the medium can be checked on the type plate and corresponding technical documents.

VAT and FT probes may be used in category 3G or 3D solely with a Höntzsch-approved evaluation unit specifically for these probes. Other combinations and categories are not permissible. Always check that the sensor is connected correctly. A wrongly connected sensor can increase the risk of explosion.

3 Technical Data

Marking: **CE**  **II 3 G**

Explosion protection: vane wheel sensors FA and vortex sensors VA

Ex ec IIC T6 Gc X

Explosion protection: thermal sensors TA

Ex ec IIC T4 Gc X

Marking: **CE**  **II 3 D**

Explosion protection: vane wheel sensors FA and vortex sensors VA

Ex tc IIIC TX Dc X

Explosion protection: thermal sensors TA

Ex tc IIIC T135°C Dc X

X: There are certain special factors to be observed for applications in explosive atmospheres (see chapter 2.2)

3.1 Electrical Data

For power supply, power input, current consumption, refer to the details on the type plate and corresponding technical documents.



4 Installation

The current European Specifications for Assembly, the recognised standards of good practice and this Instruction Manual apply.

We recommend a cable with a 4 ... 6 mm² cross section for connection to the earth terminal. Use a cable lug.

The earth terminal must be tightened with a torque of 2 ... 3 Nm.



5 Cleaning / Maintenance

Sensors should be cleaned at regular intervals.

Any other maintenance or repair work is to be carried out solely by Höntzsch GmbH & Co. KG.

Declaration of Conformity, Declaration of Incorporation Category 3G and 3D for

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bearing sole responsibility, hereby declare that the above-mentioned products referred to by this declaration are in conformity with the following standards or normative documents:

Provisions of the Directive	Reference and date of issue
2014/34/EU: Equipment and Protective Systems in Potentially Explosive Atmospheres	EN 60079-0: 2018 EN 60079-7: 2015 EN 60079-31: 2014
2014/30/EU: Electromagnetic Compatibility	EN 61000-6-4: 2007 + A1: 2011 EN 61000-6-2: 2006 + Corrigendum 1: 2011
2014/68/EU: Pressure Equipment	



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Subject to alteration