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Safety Instructions
Prosonic Flow G 300

EAC: Zone 2

Endress+Hauser
People for Process Automation

Prosonic Flow G 300

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About this document

The document number of these Safety Instructions (XA) must match the information on the nameplate.

Associated documentation

For an overview of the scope of the associated Technical Documentation, refer to the following:

- *Device Viewer* (www.endress.com/deviceviewer): Enter serial number from nameplate.
- *Endress+Hauser Operations app*: Enter serial number from nameplate or scan matrix code on nameplate.

To commission the device, please observe the Operating Instructions pertaining to the device:

Measuring device	Documentation code	
	HART	Modbus RS485
Prosonic Flow G 300	BA01834D	BA01835D

Additional documentation

Contents	Document type	Documentation code
Remote display and operating module DKX001	Special documentation	SD01763D
	Safety Instructions 2Ex ec IIC T6 Gc	XA01665D
Explosion Protection	Brochure	CP00021Z/11

Please note the documentation associated with the device.

Manufacturer's certificates

Measuring instruments meet the fundamental health and safety requirements for the design and construction of devices and protective systems intended for use in potentially explosive atmospheres in accordance with TR CU 012/2011.

Certification body

LLP "T-Standard"

Certificate number

ЕАЭС KZ 7500525.01.01.01710

Affixing the certificate number certifies conformity with the standards (depending on the device version).

- ГОСТ 31610.0-2019 (IEC 60079-0:2017)
- ГОСТ 31610.7-2017 (IEC 60079-7:2015)
- ГОСТ 31610.11-2014 (IEC 60079-11:2011)
- ГОСТ 31610.15-2014 (IEC 60079-15:2010)

Manufacturer address

Endress+Hauser Flowtec AG
Kägenstrasse 7
4153 Reinach BL
Switzerland

Extended order code

The extended order code is indicated on the nameplate, which is affixed to the device in such a way that it is clearly visible. Additional information about the nameplate is provided in the associated Operating Instructions.

Structure of the extended order code

* * * * * *	–	* * * * * ... * * * * *	+	A*B*C*D*E*F*G*...
(Device type)		*(Basic specifications)*		*(Optional specifications)*

* = Placeholder
At this position, an option (number or letter) selected from the specification is displayed instead of the placeholders.

Device type

The device and the device design is defined in the "Device type" section (Product root).

Basic specifications

The features that are absolutely essential for the device (mandatory features) are specified in the basic specifications. The number of positions depends on the number of features available.
The selected option of a feature can consist of several positions.

Optional specifications

The optional specifications describe additional features for the device (optional features). The number of positions depends on the number of features available. The features have a 2-digit structure to aid identification (e.g. JA). The first digit (ID) stands for the feature group and consists of a number or a letter (e.g. J = Test, Certificate). The second digit constitutes the value that stands for the feature within the group (e.g. A = 3.1 material (wetted parts), inspection certificate).

More detailed information about the device is provided in the following tables. These tables describe the individual positions and IDs in the extended order code which are relevant to hazardous locations.

Device type

Position	Order code for	Option selected	Description
1	Instrument family	9	Ultrasonic transit time flowmeter
2	Sensor	G	Sensor type
3	Transmitter	3	Transmitter type: 4-wire, compact version
4	Generation index	B	Platform generation
5, 6	Nominal diameter	DN 25...300	Nominal diameter of sensor

Basic specifications

Position 1, 2 Order code for "Approval" Option selected	Position 4, 5 Order code for "Output, input 1" Option selected	Type of protection
GS, BS	BA, MA	2Ex ec nC IIC T5...T1 Gc X

Position	Order code for	Option selected	Description
4, 5	Output, input 1	BA	4-20mA HART
		MA	Modbus RS485
6	Output, input 2	A	W/o
		B	4-20mA
		D	Configurable I/O initial setting off
		E	Pulse/frequency/switch output
		F	Pulse output, phase-shifted
		H	Relay
		I	4-20mA input
		J	Status input
7	Output, input 3	A	W/o
		B	4-20mA
		D	Configurable I/O initial setting off
		E	Pulse/frequency/switch output
		F	Pulse output, phase-shifted

Position	Order code for	Option selected	Description
		H	Relay
		I	4-20mA input
		J	Status input
8	Display; Operation	A	W/o; via communication
		F	4-line, illuminated; touch control
		G	4-line, illuminated; touch control + WLAN
		M	Without; prepared for remote display DKX001 [1]
		O	Separate, with remote display DKX001 [1], 4-line, illuminated; 10 m / 30 ft cable; touch control
9	Housing	A	Alu, coated
		L	Cast, stainless
17, 18	Device Model	A2	2

1) DKX001 is separately approved.

Optional specifications

ID	Order code for	Option selected	Description
Jx	Test, certificate	JP	Ambient temperature measuring device −50 °C
Px	Enclosed accessories	P8	Wireless antenna, wide area (external WLAN antenna) [1]

1) The external WLAN antenna is available with the order code for "Accessory Enclosed", option P8.

Safety instructions: General

- Staff must meet the following conditions for mounting, electrical installation, commissioning and maintenance of the device:
  - Be suitably qualified for their role and the tasks they perform
  - Be trained in explosion protection
  - Be familiar with national regulations or guidelines (e.g. ГОСТ IEC 60079-14-2013)
- Install the device according to the manufacturer's instructions and national regulations.
- Do not operate the device outside the specified electrical, thermal and mechanical parameters.
- Only use the device in media to which the wetted materials have sufficient durability.

- Refer to the temperature tables for the relationship between the permitted ambient temperature for the sensor and/or transmitter, depending on the range of application, and the temperature classes.
- Alterations to the device can affect the explosion protection and must be carried out by staff authorized to perform such work by Endress+Hauser.
- Observe all the technical data of the device (see nameplate).

Safety instructions: Installation

- Continuous service temperature of the connecting cable: −40 to +80 °C (−50 to +60 °C for optional specification, ID Jx (Test, certificate) = JP); but at least according to the operating temperature range of the application plus allowance for process conditions ($T_{a, min}$ and $T_{a, max}$ + 20 K).
- Only use certified cable glands suitable for the application. Observe selection criteria as per ГОСТ IEC 60079-14-2013.
- When the measuring device is connected, attention must be paid to the type of protection at the transmitter.
- Turning the transmitter housing
  - Loosen both hexagon socket screws until the transmitter housing can be turned.
  - Turn transmitter housing to desired position (mechanically limited); if necessary turn 270° in other direction.
  - Tighten both hexagon socket screws with a maximum of 7 Nm.
- In potentially explosive atmospheres:
  - Do not disconnect the electrical connection of the power supply circuit when energized.
  - Do not open the connection compartment cover when the device is energized.

Ex ec type of protection

- In potentially explosive atmospheres: Do not disconnect the electrical connection of the power supply circuit when energized.
- Seal unused entry glands with approved sealing plugs that correspond to the type of protection.
- Only use certified cable entries or sealing plugs.

Optional external WLAN antenna

- Connect the antenna bushing H337 to the transmitter housing and tighten by hand.
- Use only external antennas supplied by Endress+Hauser.
- Connect antenna or antenna cable with plug-in connector type N (MIL-STD-348) to antenna bushing H337.

Intrinsic safety

Observe the guidelines for interconnecting intrinsically safe circuits (e.g. ГОСТ IEC 60079-14-2013 , proof of intrinsic safety).

- When using the remote display and operating module DKX001 the internal display and operating module must be removed.
- When using the separate approved, remote display and operating module DKX001, only use the following variants: Basic specification of the remote display and operating module DKX001, order code "Approval", option GS, BS

Potential equalization

- Integrate the device into the potential equalization .
- If the ground connection has been established via the pipe as specified, it is also possible to integrate the sensor into the potential equalization system via the pipe.
- The antenna bushing H337 of the external antenna must be integrated into the potential equalization system. This is the case if the sensor is connected in accordance with the regulations via the coupling.

Temperature tables

Ambient temperature

Minimum ambient temperature

- $T_{a, min}$ = −40 °C
- *Optional specification, ID Jx (Test, Certificate) = JP*
  $T_{a, min}$ = −50 °C depending on the selected device variant (see nameplate)

Maximum ambient temperature

$T_{a, max}$ = +60 °C depending on the medium temperature and temperature class.

Medium temperature

Minimum medium temperature

$T_{m, min}$ = −50 °C

Maximum medium temperature

$T_{m, max}$ for T5…T1 depending on the maximum ambient temperature $T_{a, max}$.

Maximum medium temperature with or without thermal insulation according to Endress+Hauser specifications

With integrated pressure measuring cell

DN	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
		T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
25 to 300	55	–	40	90	90	90	90
	60	–	–	90	90	90	90

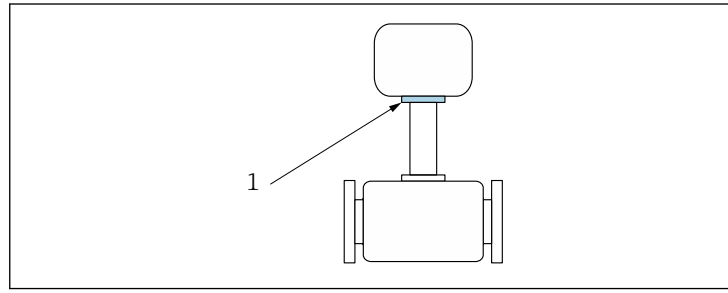
Without integrated pressure measuring cell

DN	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
		T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
25 to 300	50	–	85	120	150	150	150
	55	–	–	120	150	150	150
	60	–	–	120 [1)]	150 [1)]	150 [1)]	150 [1)]

1) For horizontal installation: Install the transmitter below the sensor.

With thermal insulation without Endress+Hauser specifications

The specified reference temperature T_{ref} and the maximum medium temperature $T_{m, max}$ for each temperature class must not be exceeded → 10.



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1 Position of reference point for temperature measurement

1 Reference point (T_{ref})

Reference temperature T_{ref}

T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
–	62	72	73	73	73

Connection values: Signal circuits

The following tables contain specifications which are dependent on the transmitter type and its input and output assignment. Compare the following specifications with those on the nameplate of the transmitter.

Terminal assignment

Transmitter: supply voltage, input/outputs

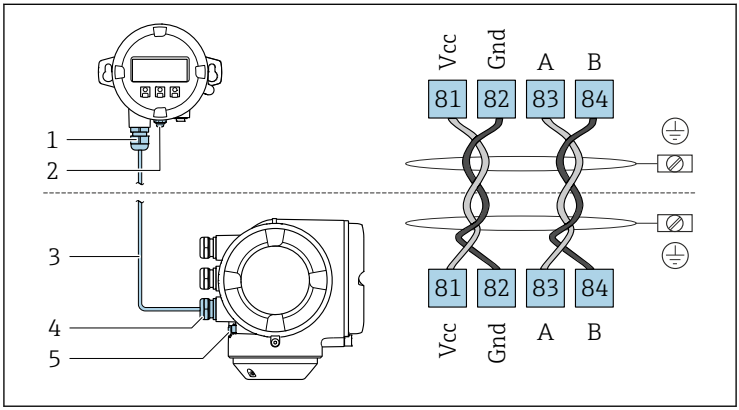
HART

Supply voltage		Input/output 1		Input/output 2		Input/output 3	
1 (+)	2 (–)	26 (+)	27 (–)	24 (+)	25 (–)	22 (+)	23 (–)
		Device-specific terminal assignment: adhesive label in terminal cover.					

Modbus RS485

Supply voltage		Input/output 1		Input/output 2		Input/output 3	
1 (+)	2 (–)	26 (B)	27 (A)	24 (+)	25 (–)	22 (+)	23 (–)
		Device-specific terminal assignment: adhesive label in terminal cover.					

Remote display and operating module DKX001



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1 *Remote display and operating module DKX001*
2 *Protective earth (PE)*
3 *Connecting cable*
4 *Measuring device*
5 *Protective earth (PE)*

Safety-related values

Order code "Output; input 1"	Output type	Safety-related values "Output; input 1"	
		26 (+)	27 (–)
Option **BA**	Current output 4 to 20 mA HART	U_N = 30 V_{DC} U_M = 250 V_{AC}	
Option **MA**	Modbus RS485	U_N = 30 V_{DC} U_M = 250 V_{AC}	

Order code "Output; input 2"; "Output; input 3"	Output type	Safety-related values			
		Output; input 2		Output; input 3	
		24 (+)	25 (–)	22 (+)	23 (–)
Option **B**	Current output 4 to 20 mA	U_N = 30 V_{DC} U_M = 250 V_{AC}			
Option **D**	User-configurable input/output	U_N = 30 V_{DC} U_M = 250 V_{AC}			
Option **E**	Pulse/frequency/ switch output	U_N = 30 V_{DC} U_M = 250 V_{AC}			
Option **F**	Double pulse output	U_N = 30 V_{DC} U_M = 250 V_{AC}			
Option **H**	Relay output	U_N = 30 V_{DC} I_N =100 mA_{DC}/500 mA_{AC} U_M = 250 V_{AC}			
Option **I**	Current input 4 to 20 mA	U_N = 30 V_{DC} U_M = 250 V_{AC}			
Option **J**	Status input	U_N = 30 V_{DC} U_M = 250 V_{AC}			

Remote display DKX001

Basic specification, position 1, 2 Approval	Terminal assignment	Basic specification, position 8 Display; operation Option O
Option **GS, BS**	81, 82, 83, 84	U_n = 3.3 V
		I_n = 150 mA

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