Safety Instructions
Promass 500

EAC: Zone 2

EAC Ex

Endress+Hauser

People for Process Automation

Promass 500

Table of contents

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 instrument	Documentation code			
	HART	FOUNDATION Fieldbus	PROFIBUS PA	PROFIBUS DP
Promass A 500 (8A5B)	BA01526D	BA01559D	BA01548D	–
Promass E 500	BA01528D	BA01561D	BA01550D	BA01872D
Promass F 500	BA01529D	BA01562D	BA01551D	BA01873D
Promass H 500	BA01530D	BA01563D	BA01552D	BA01874D
Promass I 500	BA01531D	BA01564D	BA01553D	BA01875D
Promass O 500	BA01532D	BA01565D	BA01554D	BA01876D
Promass P 500	BA01533D	BA01566D	BA01555D	BA01877D
Promass Q 500	BA01534D	BA01567D	BA01556D	BA01878D
Promass S 500	BA01535D	BA01568D	BA01557D	BA01879D
Promass X 500	BA01536D	BA01569D	BA01558D	BA01880D

Measuring instrument	Documentation code				
	Modbus RS485	Modbus over Ethernet-APL	EtherNet/IP	PROFINET	PROFINET over Ethernet-APL
Promass A 500 (8A5B)	BA01537D	–	BA01747D	BA01758D	–
Promass E 500	BA01539D	BA02414D	BA01749D	BA01760D	BA02124D
Promass F 500	BA01540D	BA02415D	BA01750D	BA01761D	BA02119D
Promass H 500	BA01541D	BA02416D	BA01751D	BA01762D	BA02125D
Promass I 500	BA01542D	BA02417D	BA01752D	BA01763D	BA02126D
Promass O 500	BA01543D	BA02418D	BA01753D	BA01764D	BA02127D
Promass P 500	BA01544D	BA02419D	BA01754D	BA01765D	BA02128D
Promass Q 500	BA01545D	BA02420D	BA01755D	BA01766D	BA02129D

Measuring instrument	Documentation code				
	Modbus RS485	Modbus over Ethernet-APL	EtherNet/IP	PROFINET	PROFINET over Ethernet-APL
Promass S 500	BA01546D	BA02421D	BA01756D	BA01767D	BA02130D
Promass X 500	BA01547D	BA02423D	BA01757D	BA01768D	BA02131D

Additional documentation

Contents	Document type	Documentation code
Explosion Protection	Brochure	CP00021Z/11
Ethernet-APL Installation Drawing	Installation Drawing	HE_01622

Please note the documentation associated with the device.

Certificates and declarations

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 7500525.01.01.01551

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 31610.15-2014 (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

$$\underline{* \ * \ * \ * \ * \ *} \quad - \quad \underline{* \ * \ * \ * \ * \dots * \ * \ * \ * \ *} \quad + \quad \underline{A*B*C*D*E*F*G*\dots}$$

(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	Selected option	Description
1	Instrument family	8	Coriolis flowmeter [1]
2	Sensor	A, E, F, H, I, O, P, Q, S, X [2]	Sensor type
3	Transmitter	5	Transmitter type: 4-wire, remote version

Position	Order code for	Selected option	Description
4	Generation index	B, C	Platform generation
5, 6	Nominal diameter	Examples: 02, 04, 40, 50, 1H, 3E [3) 4)]	Nominal diameter of sensor

1) For Promass Q: Coriolis flow and density meter
2) For replacement transmitter only: X
3) For the exact specification of the nominal diameter, see nameplate
4) For replacement transmitter only: XX

Proline 500 – digital	Proline 500
Order code for "Integrated ISEM Electronic", option **A** "Sensor"	Order code for "Integrated ISEM Electronic", option **B** "Transmitter"
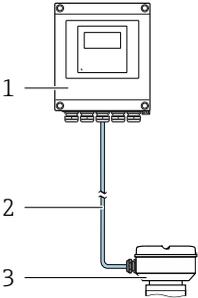
1   Transmitter
2   Connecting cable
3   Sensor connection housing with integrated ISEM
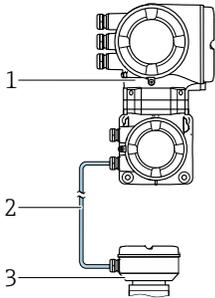
1   Transmitter with integrated ISEM
2   Connecting cable
3   Sensor connection housing

Basic specifications

Position 1, 2 Order code for "Approval" Selected option	Position 10 Order code for "Integrated ISEM electronics" Selected option	Type of protection	
		Transmitter	Sensor
GL, BL	A	(Non-Ex) [1)]	2Ex ec IIC T5...T1 Gc X or 2Ex ec nC IIC T5...T1 Gc X [2)]
GS, BS	A	2Ex ec nC IIC T5...T4 Gc X [3)]	2Ex ec IIC T5...T1 Gc X or 2Ex ec nC IIC T5...T1 Gc X [2)]
	B	2Ex ec nC IIC T5...T4 Gc X [3)]	2Ex ec IIC T6...T1 Gc X or 2Ex ec nC IIC T6...T1 Gc X [2)]

1) The transmitter is located in the non-hazardous area
2) The marking 2Ex ec nC is only applicable for sensor versions without purge connection or rupture disk. (see "Optional specifications").
3) The marking changes with order code "Output; input 1", option HA, MC, RC or TA: 2Ex ec nC [ic] IIC T5...T4 Gc X

Position	Order code for	Selected option	Description
4, 5	Output; input 1	BA	4-20mA HART
		GA	PROFIBUS PA
		HA	PROFIBUS PA Ex-i
		LA	PROFIBUS DP
		MA	Modbus RS485
		MB	Modbus TCP over Ethernet-APL/SPE, 10Mbit/s
		MC	Modbus TCP over Ethernet-APL, Ex-i, 10Mbit/s
		NA	EtherNet/IP 2-port switch integrated
		RA	PROFINET IO 2-port switch integrated
		RB	PROFINET over Ethernet-APL/SPE, 10Mbit/s
		RC	PROFINET over Ethernet-APL, Ex-i, 10Mbit/s
		SA	FOUNDATION Fieldbus
		TA	FOUNDATION Fieldbus Ex-i
6	Output; input 2	A	W/o
		B	4-20mA
		C	4-20mA Ex-i passive
		D	Configurable I/O initial setting off
		E	Pulse/frequency/switch output
		F	Pulse output, phase-shifted
		G	Pulse/frequency/switch output Ex-i passive
		H	Relay
		I	4-20mA input
		J	Status input
7	Output; input 3	A	W/o
		B	4-20mA
		C	4-20mA Ex-i passive
		D	Configurable I/O initial setting off
		E	Pulse/frequency/switch output
		F	Pulse output, phase-shifted
		G	Pulse/frequency/switch output Ex-i passive
		H	Relay
		I	4-20mA input
		J	Status input

Position	Order code for	Selected option	Description
8	Output; input 4 [1]	A	W/o
		B	4-20mA
		C	4-20mA Ex-i passive
		D	Configurable I/O initial setting off
		E	Pulse/frequency/switch output
		G	Pulse/frequency/switch output Ex-i passive
		H	Relay
		I	4-20mA input
		J	Status input
9	Display; Operation	F	4-line, illuminated; touch control
		G	4-line, illuminated; touch control + WLAN
10	Integrated ISEM Electronic	A	Sensor
		B	Transmitter
D	Polycarbonate		
L	Cast, stainless		
12	Sensor junction Housing	A	Alu, coated
		B	Stainless
		L	Cast, stainless
15, 16	Meas. Tube Mat., Wetted Parts Surface	LA	Stainl. steel, cryogenic -196℃/-320℉
21, 22	Device Model	A1	1
		A2	2

1) The order code "Output; input 4" is only available for the Proline 500 – digital transmitter.

Optional specifications

ID	Order code for	Selected option	Description
Cx	Sensor option	CA	Rupture disk
Cx	Sensor option	CG	Extended neck for insulation
Cx	Sensor option	CH	Purge connection
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.
- Use the device only in media where the wetted materials are known to be suitable.
- 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).
- Avoid electrostatic charges which could result in electrostatic discharges while installing, operating, cleaning or maintaining:
  - For external non-metallic surfaces, e.g. housing, attached additional plates, RFID tag.
  - For attached external metallic parts that are not integrated into the local potential equalization system, e.g. nameplate tag, RFID tag.
  - Do not use in areas where the devices/electronic housing are exposed to highly charge-generating processes, pneumatically conveyed dusts and/or charge spraying in an electrostatic coating process.
  - Do no rub surfaces dry. Clean only with moist cloth.
  - Information on electrostatic hazards and how to minimize the generation of static electricity can be found in the technical specification IEC/TS 60079-32-1.

Safety instructions: Installation

General installation instructions

- Continuous service temperature of the connecting cable: −40 to +85 °C; 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).
- When the measuring device is connected, attention must be paid to the type of protection at the transmitter.
- For devices with order code "Sensor connection housing", option B: To maintain the required degree of ingress protection, ensure that the cover seal of the sensor connection housing is flat and free of bends or distortions before securing the cover. Replace any damaged or non-flat seals prior to reassembly.

Installation 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.
- Connection to or operation with Service interface (Port 2) is not permitted.

Use of cable glands, sealing plugs and thread adapters

- Only use Ex certified cable glands, sealing plugs and thread adapters that are suitable for the intended application (see nameplates).
- Plastic sealing plugs are mounted to cable entries and metallic thread extensions for temporary protection during transport and storage. These must be replaced with suitable Ex certified cable entry devices for permanent use.
- The mounted metallic thread extensions and sealing plugs are tested and certified as part of the device. These meet the device's specific requirements.
- Supplied Ex cable glands are separately certified and meet the device's specific requirements.
- All unused cable entries must be closed with suitable Ex certified sealing plugs.
- Observe selection criteria for Ex cable entry devices as per ГОСТ IEC 60079-14-2013.

Ex ec type of protection

- Only use separately certified cable glands, sealing plugs and thread adapters (Ex ec IIC) which are suitable for operating temperatures from -40 ℃ to +85 ℃ and for IP 66/67.
- The mounted metallic thread extensions and sealing plugs are tested and certified as part of the devices for the type of protection Ex ec IIC.
- The cables must be routed such that they are securely seated, and sufficient strain relief must be ensured.

Optional external WLAN antenna

- Use only the external antenna (with or without extension cable) and the antenna feedthrough supplied by Endress+Hauser.
- The antenna feedthrough must be mounted to the transmitter with a tightening torque of 4 Nm.
  Tightening torques for Polycarbonate transmitter housing: 2.5 Nm
- Use only an external antenna (with or without extension cable) equipped with a Type-N male connector (MIL-STD-348).
- The coupling nut of the Type-N male connector must be tightened by hand only.

Intrinsic safety

- Observe the guidelines for interconnecting intrinsically safe circuits (e.g. ГOCT IEC 60079-14-2013 , proof of intrinsic safety).
- The supplied connecting cable meets all the above requirements.

Potential equalization

- The device must be connected to the potential equalization system using designated protective ground terminals.
- It is also possible to integrate the device into the potential equalization system through a pipe system, provided that the pipe system meets the grounding requirements of applicable national regulations.

Temperature tables Proline 500 - digital

Order code for "Integrated ISEM electronics", option A

NOTICE

In case of heating, risk of overheating.
- ▶ On devices with Heating jacket the corresponding temperature tables for devices with thermal insulation, are to be observed.
- ▶ Make sure that the heating medium, may not exceeded the maximum specified medium temperature of the exact used temperature classes of the device.

Minimum ambient temperature

$T_{a, min}$ = −40 °C

Maximum ambient temperature

$T_{a, max}$ = +60 °C depending on temperature class, maximum medium temperature and device-specific features. See the corresponding temperature tables.

Transmitter: Non-hazardous area, Zone 2

Transmitter housing material	$T_{a, max}$ [°C]			
	Non-hazardous area [1]	T6 [85 °C]	T5 [100 °C]	T4 [135 °C]
Aluminum	60	–	45	60
Polycarbonate	60	–	–	–

1) The transmitter is located in the non-hazardous area

Minimum medium temperature

- Promass A, F, H, I, P, Q, S, X:
  $T_{m, min} = -50 °C$
- Promass E, O:
  $T_{m, min} = -40 °C$
- Promass F, Q with cryogenic temperature version (order code for "Measuring tube material", option LA):
  $T_{m, min} = -196 °C$

Maximum medium temperature without thermal insulation

*Promass A (8A5B**-*...)*

DN	$T_{m, max range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
1...4	205	60	–	95	130	170 [1]	205	205

[1]   The following applies for sensors with type of protection 2Ex ec nC: $T_m = 195 °C$

*Promass A (8A5C**-*...)*

DN	$T_{m, max range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
1...4	205	55	–	95	130	170 [1]	205	205
		60	–	95	130	170 [2]	190	190

[1]   The following applies for sensors with type of protection 2Ex ec nC: $T_m = 195 °C$
[2]   The following applies for sensors with type of protection 2Ex ec nC: $T_m = 190 °C$

Promass E

DN	$T_{m, max range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8...15	150	60	–	75 [1]	115 [2]	150	150	150
25...80	150	60	–	60 [1]	95 [2]	140 [3]	150	150

[1]   The following applies for sensors with type of protection 2Ex ec nC: $T_m = 95 °C$
[2]   The following applies for sensors with type of protection 2Ex ec nC: $T_m = 130 °C$
[3]   The following applies for sensors with type of protection 2Ex ec nC: $T_m = 150 °C$

Promass F

DN	$T_{m, max range}$ [1] [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
08…15	150	55	–	80 [2]	115 [3]	130	150	150
		60	–	80 [2]	115 [3]	130	130	130
	150 [4]	60	–	80 [2]	115 [3]	150	150	150
	240	60	–	80 [2]	115 [3]	170 [5]	240	240
25…80	150	55	–	60 [2]	95 [3]	150	150	150
		60	–	60 [2]	95 [3]	130	130	130
	150 [4]	60	–	60 [2]	95 [3]	150	150	150
	240	60	–	60 [2]	95 [3]	160 [5]	240	240
15, 25, 50… 250	350	50	–	85 [2]	120 [3]	185 [5]	280 [6]	350
		60	–	85 [2]	120 [3]	185 [5]	240 (275)	240 (350)
100…250	150	55	–	60 [2]	95 [3]	150	150	150
		60	–	60 [2]	95 [3]	130	130	130
	150 [4]	60	–	60 [2]	95 [3]	150	150	150
	240	60	–	60 [2]	95 [3]	160 [5]	240	240

1) Maximum temperature range, see nameplate
2) The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
3) The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
4) Cryogenic temperature version: T_m = −196 to 150 °C
5) The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C
6) The following applies for sensors with type of protection 2Ex ec nC: T_m = 290 °C

Promass H

DN	$T_{m, max range}$ [1] [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8	150	60	–	80 [2]	115 [3]	150	150	150
	205	60	–	80 [2]	115 [3]	165 [4]	205	205

DN	$T_{m, max\ range}$ [1] [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
15...50	150	60	–	60 [2]	95 [3]	130 [5]	150	150
	205	60	–	60 [2]	95 [3]	130 [4]	205	205

1)   Maximum temperature range, see nameplate
2)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
3)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
4)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C
5)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 150 °C

Promass I

DN	$T_{m, max\ range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8...80	150	55	–	60 [1]	95 [2]	150	150	150
		60	–	60 [1]	95 [2]	140	140	140

1)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
2)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C

Promass O

DN	$T_{m, max\ range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
80 ... 250	205	60	–	60 [1]	95 [2]	160 [3]	205	205

1)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
2)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
3)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C

Promass P

DN	$T_{m, max\ range}$ [1] [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8	150	60	–	80 [2]	115 [3]	150	150	150
	205	60	–	80 [2]	115 [3]	170 [4]	205	205

DN	$T_{m, max\ range}$ [1] [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
15...50	150	60	–	60 [2]	95 [3]	150	150	150
	205	60	–	60 [2]	95 [3]	160 [4]	205	205

1) Maximum temperature range, see nameplate
2) The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
3) The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
4) The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C

Promass Q

DN	$T_{m, max\ range}$ [1] [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
25 ... 250	205	60	–	60 [2]	95 [3]	160 [4]	205	205
	150 [5]	60	–	60 [2]	95 [3]	150	150	150

1) Maximum temperature range, see nameplate
2) The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
3) The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
4) The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C
5) Cryogenic temperature version: T_m = –196 to 150 °C

Promass S

DN	$T_{m, max\ range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8	150	60	–	80 [1]	115 [2]	150	150	150
15...50	150	60	–	60 [1]	95 [2]	150	150	150

1) The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
2) The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C

Promass X

DN	$T_{m, max\ range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
350	180	60	–	60 [1]	95 [2]	160 [3]	180	180

1) The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
2) The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
3) The following applies for sensors with type of protection 2Ex ec nC: T_m = 180 °C

Maximum medium temperature with thermal insulation according to Endress+Hauser specifications

ℹ️ For information on the thermal insulation of the device, see the "Thermal insulation" section of the "Operating instructions" document .

*Promass A (8A5B**-*..., 8A5C**-*...)*

DN	$T_{m, max\ range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
1 to 4	205	50	–	95	130	130	130	130

Promass E

DN	$T_{m, max\ range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8 to 50	150	50	–	75 [1]	115 [2]	150	150	150
80			–	60 [1]	95 [2]	140 [3]	150	150

1) The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
2) The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
3) The following applies for sensors with type of protection 2Ex ec nC: T_m = 150 °C

Promass F

DN	$T_{m, max\ range}$ [°C] [1]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
08 to 15	150	45	–	80 [2]	115 [3]	150	150	150
		50	–	80 [2]	115 [3]	130	130	130
	150 [4]	50	–	80 [2]	115 [3]	150	150	150
	240	50	–	80 [2]	115 [3]	170 [5]	240	240
25 to 80	150	45	–	60 [2]	95 [3]	150	150	150
		50	–	60 [2]	95 [3]	130	130	130
	150 [4]	50	–	60 [2]	95 [3]	150	150	150
	240	50	–	60 [2]	95 [3]	160 [5]	240	240
15, 25, 50 to 250	350	50	–	85 [2]	120 [3]	185 [5]	280	350
100 to 250	150 [4]	45	–	60 [2]	95 [3]	150	150	150
		50	–	60 [2]	95 [3]	130	130	130

DN	$T_{m, max range}$ [°C] [1]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
	150 [4]	50	–	60 [2]	95 [3]	150	150	150
	240	50	–	60 [2]	95 [3]	160 [5]	240	240

1)   Maximum temperature range, see nameplate
2)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
3)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
4)   Cryogenic temperature version: T_m = −196 to 150 °C
5)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C

Promass H

DN	$T_{m, max range}$ [°C] [1]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8	150	55	–	80 [2]	115 [3]	150	150	150
	205	55	–	80 [2]	115 [3]	165 [4]	205	205
15 to 50	150	55	–	60 [2]	95 [3]	130	150	150
	205	55	–	60 [2]	95 [3]	130 [4]	205	205

1)   Maximum temperature range, see nameplate
2)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
3)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
4)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C

Promass I

DN	$T_{m, max range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8 to 80	150	45	–	60 [1]	95 [2]	150	150	150
		50	–	60 [1]	95 [2]	130	130	130

1)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
2)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C

Promass O

DN	$T_{m, max range}$ [°C]	$T_{a, max}$ [°C]	T_m [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
80 to 250	205	55	–	60 [1]	95 [2]	160 [3]	205	205

1)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
2)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
3)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C

Promass P

DN	$T_{m, max range}$ [1] [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8	150	45	–	80 [2]	100 [3]	150	150	150
		50	–	80 [2]	100 [3]	130	130	130
	205	55	–	80 [2]	115 [3]	170 [4]	205	205
15 to 50	150	45	–	60 [2]	95 [3]	150	150	150
		50	–	60 [2]	95 [3]	130	130	130
	205	55	–	60 [2]	95 [3]	160 [4]	205	205

1)   Maximum temperature range, see nameplate
2)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
3)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
4)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C

Promass Q

DN	$T_{m, max range}$ [1] [°C]	$T_{a, max}$ [°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 250	205	50	–	60 [2]	95 [3]	160 [4]	205	205
25 to 250	150 [5]	50	–	60 [2]	95 [3]	150	150	150

1)   Maximum temperature range, see nameplate
2)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
3)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
4)   The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C
5)   Cryogenic temperature version: T_m = −196 to 150 °C

Promass S

DN	$T_{m, max range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8	150	45	–	80 [1]	100 [2]	150	150	150
		50	–	80 [1]	100 [2]	130	130	130
15 to 50	150	45	–	60 [1]	95 [2]	150	150	150
		50	–	60 [1]	95 [2]	130	130	130

1) The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
2) The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
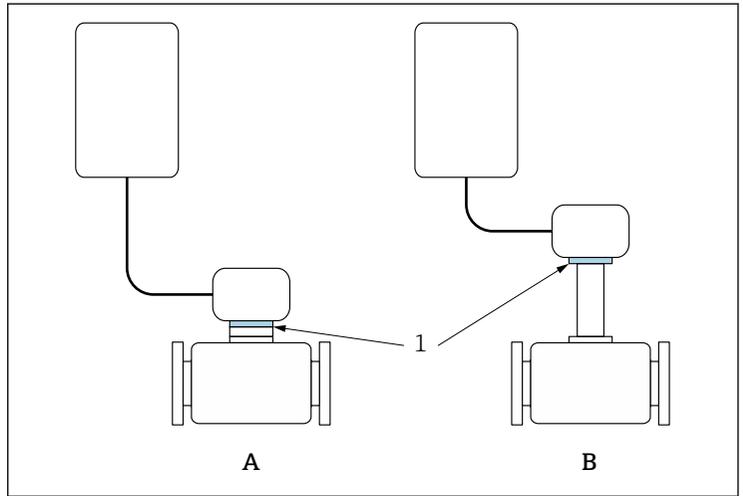
Promass X

DN	$T_{m, max range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
350	180	55	–	60 [1]	95 [2]	160 [3]	180	180

1) The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
2) The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
3) The following applies for sensors with type of protection 2Ex ec nC: T_m = 180 °C

Maximum medium temperature for devices with thermal insulation NOT in accordance with 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. → 🕮 17

A0031199

🖼 *1   Position of reference point for temperature measurement*

A   *Standard version*
B   *Extended temperature version, cryogenic temperature version, high-temperature version*
1   *Reference point (T_{ref})*

Reference temperature T_{ref}

T6 [85 ℃]	T5 [100 ℃]	T4 [135 ℃]	T3 [200 ℃]	T2 [300 ℃]	T1 [450 ℃]
–	72	82	85	85	85

Temperature tables Proline 500

Order code for "Integrated ISEM electronics", option B "Transmitter"

NOTICE

In case of heating, risk of overheating.

▶ On devices with Heating jacket the corresponding temperature tables for devices with thermal insulation, are to be observed.
▶ Make sure that the heating medium, may not exceeded the maximum specified medium temperature of the exact used temperature classes of the device.

Minimum ambient temperature

$T_{a, min}$ = −40 ℃

Maximum ambient temperature

$T_{a, max}$ = +60 ℃ depending on temperature class, maximum medium temperature and device-specific features. See the corresponding temperature tables.

Transmitter: Zone 2

$T_{a, max}$ [℃]		
T6 [85 ℃]	T5 [100 ℃]	T4 [135 ℃]
–	45	60

Minimum medium temperature

- Promass A, F, H, I, P, Q, S, X:
  $T_{m, min}$ = −50 ℃
- Promass E, O:
  $T_{m, min}$ = −40 ℃
- Promass F, Q with cryogenic temperature version (order code for "Measuring tube material", option LA):
  $T_{m, min}$ = −196 ℃

Maximum medium temperature without thermal insulation

Promass A (8A5B**-*..., 8A5C**-*...)

DN	$T_{m, max\ range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
1...4	205	50	50 [1]	95	130	170 [2]	205	205
		60	– [1]	95	130	170 [2]	205	205

[1] The following applies for sensors with type of protection 2Ex ec nC: T_m = 80 °C
[2] The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C

Promass E

DN	$T_{m, max\ range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8...15	150	45	45 [1]	80 [2]	115 [3]	150	150	150
		60	– [1]	80 [2]	115 [3]	150	150	150
25...80	150	60	– [1]	60 [2]	95 [3]	140 [4]	150	150

[1] The following applies for sensors with type of protection 2Ex ec nC: T_m = 80 °C
[2] The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
[3] The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
[4] The following applies for sensors with type of protection 2Ex ec nC: T_m = 150 °C

Promass F

DN	$T_{m, max\ range}$ [1] [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
08...15	150	50	50	80	115	150	150	150
		60	– [2]	– [3]	115 [4]	150	150	150
	150 [5]	50	50	80	115	150	150	150
		60	– [2]	80 [3]	115 [4]	150	150	150
	240	50	50	80	115	170	240	240
		60	– [2]	80 [3]	115 [4]	170 [6]	240	240
25...80	150	45	60	60	95	150	150	150
		60	– [2]	60 [3]	95 [4]	150	150	150
	150 [5]	45	60	60	95	150	150	150
		60	– [2]	60 [3]	95 [4]	150	150	150

DN	$T_{m, max\ range}$ [1] [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
	240	45	60	60	95	160	240	240
		60	– [2]	60 [3]	95 [4]	160 [6]	240	240
15, 25, 50... 250	350	60	70 [2]	85 [3]	120 [4]	185 [6]	280 [7]	350
100...250	150	45	60	60	95	150	150	150
		60	– [2]	60 [3]	95 [4]	150	150	150
	150 [5]	45	60	60	95	150	150	150
		60	– [2]	60 [3]	95 [4]	150	150	150
	240	45	60	60	95	160	240	240
		60	– [2]	60 [3]	95 [4]	160 [6]	240	240

[1] Maximum temperature range, see nameplate
[2] The following applies for sensors with type of protection 2Ex ec nC: $T_m = 80\ °C$
[3] The following applies for sensors with type of protection 2Ex ec nC: $T_m = 95\ °C$
[4] The following applies for sensors with type of protection 2Ex ec nC: $T_m = 130\ °C$
[5] Cryogenic temperature version: $T_m = -196$ to $150\ °C$
[6] The following applies for sensors with type of protection 2Ex ec nC: $T_m = 195\ °C$
[7] The following applies for sensors with type of protection 2Ex ec nC: $T_m = 290\ °C$

Promass H

DN	$T_{m, max\ range}$ [1] [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8	150	50	45	80	115	150	150	150
		60	– [2]	80 [3]	115 [4]	150	150	150
	205	50	45	80	115	165	205	205
		60	– [2]	80 [3]	115 [4]	165 [5]	205	205
15...50	150	60	– [2]	60 [3]	95 [4]	130	150	150
	205	60	– [2]	60 [3]	95 [4]	130 [5]	205	205

[1] Maximum temperature range, see nameplate
[2] The following applies for sensors with type of protection 2Ex ec nC: $T_m = 80\ °C$
[3] The following applies for sensors with type of protection 2Ex ec nC: $T_m = 95\ °C$
[4] The following applies for sensors with type of protection 2Ex ec nC: $T_m = 130\ °C$
[5] The following applies for sensors with type of protection 2Ex ec nC: $T_m = 195\ °C$

Promass I

DN	$T_{m, max range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8...80	150	45	45	60	95	150	150	150
		60	– [1]	60 [2]	95 [3]	150	150	150

1)　　The following applies for sensors with type of protection 2Ex ec nC: T_m = 80 °C
2)　　The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
3)　　The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C

Promass O

DN	$T_{m, max range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
80 ... 250	205	45	45	60	95	160	205	205
		60	– [1]	60 [2]	95 [3]	160 [4]	205	205

1)　　The following applies for sensors with type of protection 2Ex ec nC: T_m = 80 °C
2)　　The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
3)　　The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
4)　　The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C

Promass P

DN	$T_{m, max range}$ [1] [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8	150	45	45	80	115	150	150	150
		60	– [2]	80 [3]	115 [4]	150	150	150
	205	45	45	80	115	170	205	205
		60	– [2]	80 [3]	115 [4]	170 [5]	205	205
15...50	150	45	45	60	95	150	150	150
		60	– [2]	60 [3]	95 [4]	150	150	150
	205	45	45	60	95	160	205	205
		60	– [2]	60 [3]	95 [4]	160 [5]	205	205

1)　　Maximum temperature range, see nameplate
2)　　The following applies for sensors with type of protection 2Ex ec nC: T_m = 80 °C
3)　　The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
4)　　The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
5)　　The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C

Promass Q

DN	$T_{m, max\ range}$ [1] [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
25 ... 250	205	45	45	60	95	160	205	205
		60	– [2]	60 [3]	95 [4]	160 [5]	205	205
	150 [6]	45	45	60	95	150	150	150
		60	– [2]	60 [3]	95 [4]	150	150	150

1) Maximum temperature range, see nameplate
2) The following applies for sensors with type of protection 2Ex ec nC: T_m = 80 °C
3) The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
4) The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
5) The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C
6) Cryogenic temperature version: T_m = –196 to 150 °C

Promass S

DN	$T_{m, max\ range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8	150	45	45	80	115	150	150	150
		60	– [1]	80 [2]	115 [3]	150	150	150
15...50		45	45	60	95	150	150	150
		60	– [1]	60 [2]	95 [3]	150	150	150

1) The following applies for sensors with type of protection 2Ex ec nC: T_m = 80 °C
2) The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
3) The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C

Promass X

DN	$T_{m, max\ range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
350	180	45	45	60	95	160	180	180
		60	– [1]	60 [2]	95 [3]	160 [4]	180	180

1) The following applies for sensors with type of protection 2Ex ec nC: T_m = 80 °C
2) The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
3) The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
4) The following applies for sensors with type of protection 2Ex ec nC: T_m = 180 °C

Maximum medium temperature with thermal insulation according to Endress+Hauser specifications

For information on the thermal insulation of the device, see the "Thermal insulation" section of the "Operating instructions" document .

*Promass A (8A5B**-*..., 8A5C**-*...)*

DN	$T_{m, max range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
1 to 4	205	50	50 [1]	95	130	150	150 (180)	150 (180)
		60	–	95	130	150	150	150

[1] The following applies for sensors with type of protection 2Ex ec nC: $T_m = 80$ °C

Promass E

DN	$T_{m, max range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8 to 15	150	45	45	80	115	150	150	150
		60	– [1]	80 [2]	115 [3]	150	150	150
25 to 50		60	– [1]	60 [2]	95 [3]	140 [4]	150	150

[1] The following applies for sensors with type of protection 2Ex ec nC: $T_m = 80$ °C
[2] The following applies for sensors with type of protection 2Ex ec nC: $T_m = 95$ °C
[3] The following applies for sensors with type of protection 2Ex ec nC: $T_m = 130$ °C
[4] The following applies for sensors with type of protection 2Ex ec nC: $T_m = 150$ °C

Promass F

DN	$T_{m, max range}$ [1] [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
08 to 15	150	50	50	80	115	150	150	150
		60	– [2]	80 [3]	115 [4]	150	150	150
	150 [5]	50	50	80	115	150	150	150
		60	– [2]	80 [3]	115 [4]	150	150	150
	240	50	50	80	115	170	240	240
		60	– [2]	80 [3]	115 [4]	170 [6]	240	240
25 to 80	150	45	60	60	95	150	150	150

DN	$T_{m, max\ range}$ [1] [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
		60	– [2]	60 [3]	95 [4]	150	150	150
	150 [5]	45	60	60	95	150	150	150
		60	– [2]	60 [3]	95 [4]	150	150	150
	240	45	60	60	95	160	240	240
		60	– [2]	60 [3]	130 [3]	160 [6]	240	240
15, 25, 50 to 250	350	60	70 [2]	85 [3]	120 [4]	185 [6]	280 [7]	350
100 to 250	150	45	60	60	95	150	150	150
		60	– [2]	60 [3]	95 [4]	150	150	150
	150 [5]	45	60	60	95	150	150	150
		60	– [2]	60 [3]	95 [4]	150	150	150
	240	45	60	60	95	160 [6]	240	240
		60	– [2]	60 [3]	95 [4]	160 [6]	240	240

1) Maximum temperature range, see nameplate
2) The following applies for sensors with type of protection 2Ex ec nC: $T_m = 80\ °C$
3) The following applies for sensors with type of protection 2Ex ec nC: $T_m = 95\ °C$
4) The following applies for sensors with type of protection 2Ex ec nC: $T_m = 130\ °C$
5) Cryogenic temperature version: $T_m = -196$ to $150\ °C$
6) The following applies for sensors with type of protection 2Ex ec nC: $T_m = 195\ °C$
7) The following applies for sensors with type of protection 2Ex ec nC: $T_m = 290\ °C$

Promass H

DN	$T_{m, max\ range}$ [1] [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8	150	50	45	80	115	150	150	150
		60	– [2]	80 [3]	115 [4]	150	150	150
	205	50	45	80	115	165	205	205
		60	– [2]	80 [3]	115 [4]	165 [5]	205	205
15 to 50	150	60	– [2]	60 [3]	95 [4]	150	150	150
	205	60	– [2]	60 [3]	95 [4]	130 [5]	205	205

1) Maximum temperature range, see nameplate
2) The following applies for sensors with type of protection 2Ex ec nC: $T_m = 80\ °C$
3) The following applies for sensors with type of protection 2Ex ec nC: $T_m = 95\ °C$
4) The following applies for sensors with type of protection 2Ex ec nC: $T_m = 130\ °C$
5) The following applies for sensors with type of protection 2Ex ec nC: $T_m = 195\ °C$

Promass I

DN	$T_{m, max\ range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8 to 80	150	45	45	60	95	150	150	150
		60	– [1]	60 [2]	95 [3]	150	150	150

[1]   The following applies for sensors with type of protection 2Ex ec nC: T_m = 80 °C
[2]   The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
[3]   The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C

Promass O

DN	$T_{m, max\ range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
80 to 250	205	45	45	60	95	160	205	205
		60	– [1]	60 [2]	95 [3]	160 [4]	205	205

[1]   The following applies for sensors with type of protection 2Ex ec nC: T_m = 80 °C
[2]   The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
[3]   The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
[4]   The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C

Promass P

DN	$T_{m, max\ range}$ [1] [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8	150	45	45	80	115	150	150	150
		60	– [2]	80 [3]	115 [4]	150	150	150
	205	45	45	80	115	170	205	205
		60	– [2]	80 [3]	115 [4]	170 [5]	205	205
15 to 50	150	45	45	60	95	150	150	150
		60	– [2]	60 [3]	95 [4]	150	150	150
	205	45	45	60	95	160	205	205
		60	– [2]	60 [3]	95 [4]	160 [5]	205	205

[1]   Maximum temperature range, see nameplate
[2]   The following applies for sensors with type of protection 2Ex ec nC: T_m = 80 °C
[3]   The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
[4]   The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
[5]   The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C

Promass Q

DN	$T_{m, max\ range}$ [1] [°C]	$T_{a, max}$ [°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 250	205	45	45	60	95	160	205	205
		60	– [2]	60 [3]	95 [4]	160 [5]	205	205
	150 [6]	45	45	60	95	150	150	150
		60	– [2]	60 [3]	95 [4]	150	150	150

1) Maximum temperature range, see nameplate
2) The following applies for sensors with type of protection 2Ex ec nC: T_m = 80 °C
3) The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
4) The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
5) The following applies for sensors with type of protection 2Ex ec nC: T_m = 195 °C
6) Cryogenic temperature version: T_m = −196 to 150 °C

Promass S

DN	$T_{m, max\ range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
8	150	45	45	80	115	150	150	150
		60	– [1]	80 [2]	115 [3]	150	150	150
15 to 50	150	45	45	60	95	150	150	150
		60	– [1]	60 [2]	95 [3]	150	150	150

1) The following applies for sensors with type of protection 2Ex ec nC: T_m = 80 °C
2) The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
3) The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
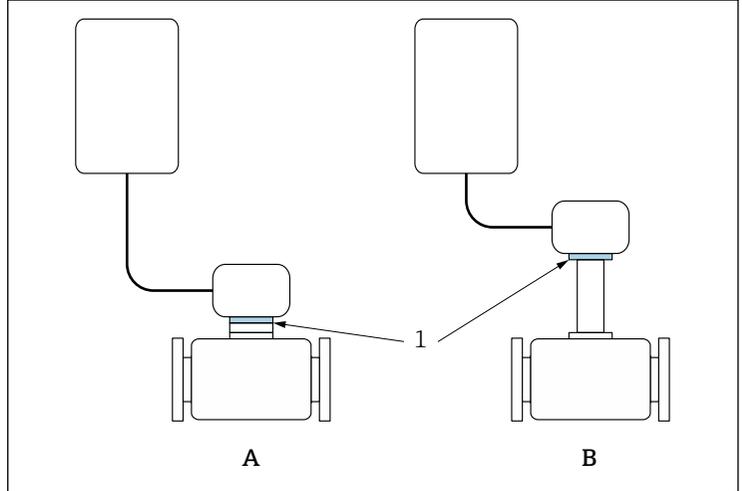
Promass X

DN	$T_{m, max\ range}$ [°C]	$T_{a, max}$ [°C]	$T_{m, max}$ [°C]					
			T6 [85 °C]	T5 [100 °C]	T4 [135 °C]	T3 [200 °C]	T2 [300 °C]	T1 [450 °C]
350	180	45	45	60	95	160	180	180
		60	– [1]	60 [2]	95 [3]	160 [4]	180	180

1) The following applies for sensors with type of protection 2Ex ec nC: T_m = 80 °C
2) The following applies for sensors with type of protection 2Ex ec nC: T_m = 95 °C
3) The following applies for sensors with type of protection 2Ex ec nC: T_m = 130 °C
4) The following applies for sensors with type of protection 2Ex ec nC: T_m = 180 °C

Maximum medium temperature for devices with thermal insulation NOT in accordance with 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. → 🕮 27

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🖾 *2   Position of reference point for temperature measurement*

A   Standard version
B   Extended temperature version, cryogenic temperature version, high-temperature version
1   Reference point (T_{ref})

Reference temperature T_{ref}

T6 [85 ℃]	T5 [100 ℃]	T4 [135 ℃]	T3 [200 ℃]	T2 [300 ℃]	T1 [450 ℃]
69	72	84	91	91	91

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 (port 1)		Input/output 2		Input/output 3		Input/output 4 [1]		Service interface (Port 2)
1 (+)	2 (−)	26 (+)	27 (−)	24 (+)	25 (−)	22 (+)	23 (−)	20 (+)	21 (−)	CDI-RJ45
				Device-specific terminal assignment: adhesive label in terminal cover.						

1)   Input/output only available for Proline 500 - digital.

FOUNDATION fieldbus

Supply voltage		Input/output 1 (port 1)		Input/output 2		Input/output 3		Input/output 4 [1]		Service interface (Port 2)
1 (+)	2 (−)	26 (A)	27 (B)	24 (+)	25 (−)	22 (+)	23 (−)	20 (+)	21 (−)	CDI-RJ45
				Device-specific terminal assignment: adhesive label in terminal cover.						

1)   Input/output only available for Proline 500 - digital.

PROFIBUS DP

Supply voltage		Input/output 1 (port 1)		Input/output 2		Input/output 3		Input/output 4 [1]		Service interface (Port 2)
1 (+)	2 (−)	26 (B)	27 (A)	24 (+)	25 (−)	22 (+)	23 (−)	20 (+)	21 (−)	CDI-RJ45
				Device-specific terminal assignment: adhesive label in terminal cover.						

1)   Input/output only available for Proline 500 - digital.

PROFIBUS PA

Supply voltage		Input/output 1 (port 1)		Input/output 2		Input/output 3		Input/output 4 [1]		Service interface (Port 2)
1 (+)	2 (−)	26 (B)	27 (A)	24 (+)	25 (−)	22 (+)	23 (−)	20 (+)	21 (−)	CDI-RJ45
				Device-specific terminal assignment: adhesive label in terminal cover.						

1)   Input/output only available for Proline 500 - digital.

Modbus RS485

Supply voltage		Input/output 1 (port 1)		Input/output 2		Input/output 3		Input/output 4 [1]		Service interface (Port 2)
1 (+)	2 (−)	26 (B)	27 (A)	24 (+)	25 (−)	22 (+)	23 (−)	20 (+)	21 (−)	CDI-RJ45
				Device-specific terminal assignment: adhesive label in terminal cover.						

1)   Input/output only available for Proline 500 - digital.

Modbus TCP

Supply voltage		Input/output 1 (Port 1 [1])		Input/output 2		Input/output 3		Input/output 4 [2]		Service interface (Port 2) [1]
1 (+)	2 (−)	26 (+)	27 (-)	24 (+)	25 (−)	22 (+)	23 (−)	20 (+)	21 (-)	CDI-RJ45
				Device-specific terminal assignment: adhesive label in terminal cover.						

1)   For Modbus TCP communication, either port 1 OR port 2 can be used.
2)   Input/output only available for Proline 500 - digital.

PROFINET

Supply voltage		Input/output 1 (Port 1) [1]		Input/output 2		Input/output 3		Input/output 4 [2]		Service interface (Port 2) [1]
1 (+)	2 (−)	RJ45		24 (+)	25 (−)	22 (+)	23 (−)	20 (+)	21 (−)	CDI-RJ45
				Device-specific terminal assignment: adhesive label in terminal cover.						

1)   Port can be used for communication or as a service interface (CDI-RJ45).
2)   Input/output only available for Proline 500 - digital.

PROFINET over Ethernet-APL

Supply voltage		Input/output 1 (Port 1)		Input/output 2		Input/output 3		Input/output 4 [1]		Service interface (Port 2 [2])
1 (+)	2 (−)	26 (+)	27 (−)	24 (+)	25 (−)	22 (+)	23 (−)	20 (+)	21 (−)	CDI-RJ45
				Device-specific terminal assignment: adhesive label in terminal cover.						

1)   Input/output only available for Proline 500 - digital.
2)   No PROFINET communication available on port 2

Ethernet/IP

Supply voltage		Input/output 1 (Port 1) [1]	Input/output 2		Input/output 3		Input/output 4 [2]		Service interface (Port 2) [1]
1 (+)	2 (−)	RJ45	24 (+)	25 (−)	22 (+)	23 (−)	20 (+)	21 (−)	CDI-RJ45
			Device-specific terminal assignment: adhesive label in terminal cover.						

1)   Port can be used for communication or as a service interface (CDI-RJ45).
2)   Input/output only available for Proline 500 - digital.

Safety-related values

Order code for "Output; input 1"	Output type	Safety-related values	
		Output; input 1 (Port 1)	Service interface (Port 2)
Option **BA**	Current output 4-20 mA HART	U_N = 30 V_{DC} U_M = 250 V_{AC}	U_N = 3.3 V_{AC} U_M = 250 V_{AC}
Option **GA**	PROFIBUS PA	U_N = 32 V_{DC} U_M = 250 V_{AC}	U_N = 3.3 V_{AC} U_M = 250 V_{AC}
Option **LA**	PROFIBUS DP	U_N = 5 V U_M = 250 V_{AC}	U_N = 3.3 V_{AC} U_M = 250 V_{AC}
Option **MA**	Modbus RS485	U_N = 5 V U_M = 250 V_{AC}	U_N = 3.3 V_{AC} U_M = 250 V_{AC}
Option **MB**	Modbus TCP over Ethernet-APL 10 Mbit/s, SPE 10 Mbit/s, Ethernet 100 Mbit/s	APL port profile SLAX SPE PoDL classes 10, 11, 12 U_N = 30 V_{DC} U_M = 250 V_{AC}	U_N = 3.3 V_{AC} U_M = 250 V_{AC}
Option **NA**	EtherNet/IP	U_N = 3.3 V_{AC} U_M = 250 V_{AC}	U_N = 3.3 V_{AC} U_M = 250 V_{AC}
Option **RA**	PROFINET	U_N = 3.3 V_{AC} U_M = 250 V_{AC}	U_N = 3.3 V_{AC} U_M = 250 V_{AC}

Order code for "Output; input 1"	Output type	Safety-related values	
		Output; input 1 (Port 1)	Service interface (Port 2)
Option **RB**	PROFINET over Ethernet-APL/SPE, 10Mbit/s	APL port profile SLAX SPE PoDL classes 10, 11, 12 $U_N = 30\ V_{DC}$ $U_M = 250\ V_{AC}$	$U_N = 3.3\ V_{AC}$ $U_M = 250\ V_{AC}$
Option **SA**	FOUNDATION Fieldbus	$U_N = 32\ V_{DC}$ $U_M = 250\ V_{AC}$	$U_N = 3.3\ V_{AC}$ $U_M = 250\ V_{AC}$

Order code for "Output; input 2" "Output; input 3" "Output; input 4"	Output type	Safety-related values		
		Output; input 2	Output; input 3	Output; input 4
Option **B**	Current output 4-20 mA	$U_N = 30\ V_{DC}$ $U_M = 250\ V_{AC}$		
Option **D**	Configurable I/O initial setting off	$U_N = 30\ V_{DC}$ $U_M = 250\ V_{AC}$		
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 4-20 mA	$U_N = 30\ V_{DC}$ $U_M = 250\ V_{AC}$		
Option **J**	Status input	$U_N = 30\ V_{DC}$ $U_M = 250\ V_{AC}$		

Intrinsically safe values

Order code for "Output; input 1"	Output type	Intrinsically safe values Output; input 1 (Port 1)
Option HA	PROFIBUS PA Ex i (STANDARD + FISCO)	U_i = 32 V I_i = 570 mA P_i = 8.5 W L_i = 10 µH C_i = 5 nF
Option MC	Modbus TCP over Ethernet-APL, Ex-i, 10Mbit/s	**2-WISE power load, APL port profile SLAC** [1] U_i = 17.5 V
Option RC	PROFINET over Ethernet-APL, Ex-i, 10Mbit/s	I_i = 380 mA P_i = 5.32 W L_i = 10 µH C_i = 5 nF **Cable specifications according to 2-WISE:** R_c = 15 to 150 Ω/km L_c = 0.4 to 1 mH/km C_c = 45 to 200 nF/km C_c = C_c line/line + 0,5 C_c line/screen, if both lines are floating, or C_c = C_c line/line + C_c line/screen, if the screen is connected to one line Length of cable (not including cable stubs): ≤ 200 m (656.2 ft) Length of cable stubs: ≤1 m (3.3 ft)
Option TA	FOUNDATION Fieldbus Ex i (STANDARD + FISCO)	U_i = 32 V I_i = 570 mA P_i = 8.5 W L_i = 10 µH C_i = 5 nF

1)   For further options see Ethernet-APL Installation Drawing HE_01622.

Order code for "Output; input 2" "Output; input 3" "Output; input 4"	Output type	Intrinsically safe values		
		Output; input 2	Output; input 3	Output; input 4
Option C	Current output 4-20mA Ex-i passive	U_i = 30 V I_i = 100 mA P_i = 1.25 W L_i = 0 C_i = 0		
Option G	Pulse/frequency/switch output Ex-i passive	U_i = 30 V I_i = 100 mA P_i = 1.25 W L_i = 0 C_i = 0		

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