



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX CSA 16.0034X**

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Certificate history:

Status: **Current**

Issue No: 10

[Issue 9 \(2023-10-17\)](#)

[Issue 8 \(2022-05-20\)](#)

[Issue 7 \(2020-10-17\)](#)

[Issue 6 \(2020-05-26\)](#)

[Issue 5 \(2019-08-22\)](#)

[Issue 4 \(2019-03-01\)](#)

[Issue 3 \(2017-12-27\)](#)

[Issue 2 \(2017-08-31\)](#)

[Issue 1 \(2017-01-17\)](#)

[Issue 0 \(2016-07-13\)](#)

Date of Issue: 2026-01-06

Applicant: **Endress+Hauser Flowtec AG**
Kägenstrasse 7
CH-4153
Reinach/BL1
Switzerland

Equipment: **Proline 300/500 flowmeter system**

Optional accessory:

Type of Protection: **Ex d, n, i, t, e**

Marking: See below annexes attached to this certificate for details:
Annex A - Proline Promass 300/500 and Proline Cubemass 300/500
Annex B - Proline Promag 300/500
Annex C - Proline Prosonic Flow 300/500
Annex D - Proline t-mass 300/500
Annex E - Proline Teqwave M 300/500

Approved for issue on behalf of the IECEx
Certification Body:

Dave Magee

Position:

Senior Director of Operations

Signature:
(for printed version)

Date:
(for printed version)

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Toronto, Ontario M9W 1R3
Canada





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Manufacturer: **Endress+Hauser Flowtec AG**
Kagenstrasse 7
CH-4153
Reinach/BL1
Switzerland

Manufacturing locations: **Endress+Hauser Flowtec AG**
Kagenstrasse 7
CH-4153
Reinach/BL1
Switzerland

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68700 Cernay
France

Endress+Hauser Flowtec (China)
Co. Ltd.
China-Singapore Industrial Park (SIP)
Su-Hong-Zhong-Lu No. 465
Suzhou 215021
China

See following pages for more locations

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-1:2014](#) Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

[IEC 60079-15:2017](#) Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
Edition:5.0

[IEC 60079-26:2014](#) Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
Edition:3.0

[IEC 60079-31:2013](#) Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

[IEC 60079-7:2017](#) Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

[IEC TS 60079-47:2021](#) Explosive atmospheres – Part 47: Equipment protection by 2-wire intrinsically safe Ethernet concept (2-WISE)
Edition:1.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[CA/CSA/ExTR16.0031/00](#)
[CA/CSA/ExTR16.0031/03](#)
[CA/CSA/ExTR16.0031/06](#)
[CA/CSA/ExTR16.0031/09](#)

[CA/CSA/ExTR16.0031/01](#)
[CA/CSA/ExTR16.0031/04](#)
[CA/CSA/ExTR16.0031/07](#)
[CA/CSA/ExTR16.0031/10](#)

[CA/CSA/ExTR16.0031/02](#)
[CA/CSA/ExTR16.0031/05](#)
[CA/CSA/ExTR16.0031/08](#)



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Quality Assessment Report:

[DE/TUN/QAR06.0004/12](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Description for Proline Promag, Proline Promass, Proline Cubemass, Proline Prosonic Flow, Proline t-mass and Proline Teqwave M:

The Proline 300/500 flowmeters are a platform that offers a range of flow measurement devices. The flowmeters are available in two versions: a compact version (Proline 300) and a remote version (Proline 500).

Proline 300 devices (compact version):

The Proline 300 devices, which consist of a transmitter mounted directly on a sensor, include the following models:

- Proline Promag 300,
- Proline Promass 300
- Proline Cubemass 300
- Proline Prosonic Flow G 300
- Proline t-mass 300
- Proline Teqwave M 300

Proline 500 devices (remote version):

The Proline 500 devices, which consist of a remote sensor connected by cable to a transmitter, are available in two variants, Proline 500 (*) and Proline 500 Digital, as follows:

- **Proline 500:** a version with ISEM (Intelligent Sensor Electronics Module) electronic integrated in the transmitter (defined by order code "Integrated ISEM Electronic k" = B), where the sensor sends analog signals to the transmitter. The Proline 500 includes the following models:
 - Proline Promag 500 (ISEM in transmitter)
 - Proline Promass 500 (ISEM in transmitter)
 - Proline Cubemass 500 (ISEM in transmitter)
 - Proline Prosonic Flow P 500 (ISEM in transmitter)

(*): for marketing reasons, the name "**Proline 500 analog**", used in previous versions of the ExTR and CoC), is changed to "**Proline 500**".

- **Proline 500 Digital:** a version with ISEM electronic integrated in the sensor that processes measurements and sends digital signals to the transmitter. The Proline 500 Digital includes the following models:
 - Proline Promag 500 Digital (ISEM in sensor)
 - Proline Promass 500 Digital (ISEM in sensor)
 - Proline Cubemass 500 Digital (ISEM in sensor)
 - Proline Prosonic Flow G 500 Digital (ISEM in sensor)
 - Proline t-mass 500 Digital (ISEM in sensor)
 - Proline Teqwave M 500 Digital (ISEM in sensor)

The Proline 300/500 flowmeters consist of various components, including electronics, enclosures with factory-assembled cable entry devices (e.g. blanking elements and thread adapters), sensors, antenna bushing, and displays. Each component has been tested and certified separately as an Ex component, with the objective to ensure its suitability for integration within the intended Proline 300/500 platform application.

The Proline 300 flowmeters can be paired with an additional Remote Display, type DKX001 or ODKX001, which is certified separately as Ex equipment. The Remote Display can be ordered as a separate equipment or as part of the flowmeter.

The Proline 300/500 flowmeters are available with three different power supply options: DC 19.2...28.8 V, or AC 85...264 V, or DC 19.2...28.8 V / AC 85...264 V. Different electronics are designed to provide intrinsically safe IO's (Ex ia for EPL Ga / Zone 0 or Ex ic for EPL Gc / Zone 2) or non-intrinsically safe IO's. A combination of intrinsically safe and non-intrinsically safe IO's is not allowed.

The Proline 300/500 flowmeters are available for an ambient temperature from -50°C/-40°C to +60°C for transmitter parts and from -60/-50°C to +80°C for sensor parts, and for use in a medium (process) temperature range from -200°C to +435°C. These temperature ranges are limited by various parameters including, but not limited to, models, sensor types, maximum assigned surface temperature, operating temperature range of the components, sealing materials and liner materials. Refer to Control drawings "Thermal Parameters" as applicable to each model.

The Proline 300/500 devices are rated IP54 (gas) and IP6X (dust) according to the requirements of IEC 60079-0. The devices also meet the requirements of IP66, IP67, IP68 (optional) according to IEC 60529.

The Proline 300/500 flowmeters are equipped with factory-mounted metallic thread adapter and/or thread blanking elements. These thread adapters and thread blanking elements have been evaluated as part of the certification for the complete Proline 300/500 flowmeters.

SPECIFIC CONDITIONS OF USE: YES as shown below:

See annexes attached to this certificate for specific conditions.



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Equipment (continued):

Assignment of Installation Drawings applicable to each model for electrical and thermal ratings:

Device	Order code "Approval" dd =	General Installation Drawings	Thermal Parameter Drawings	Electrical Parameter Drawings
Proline Promass 300	BA, BB, BC, BD		FES0263	
Proline Cubemass 300	BS		FES0264	
Proline Promass 500	BA, BB, BC, BD		FES0263	
Proline Cubemass 500	BS	FES0258	FES0264	FES0259
Proline Promass 500 Digital	BI, BJ, BM, BN		FES0263	
Proline Cubemass 500 Digital	BL, BS		FES0264	
Device	Order code "Approval" dd =	General Installation Drawings	Thermal Parameter Drawings	Electrical Parameter Drawings
Proline Promag 300	BB, BD		FES0260	
	BS		FES0261	
Proline Promag 500	BB, BD, B7, B8	FES0256	FES0260	FES0259
	BS		FES0261	
Proline Promag 500 Digital	BJ, BN		FES0260	
	BL, BS		FES0261	
Device	Order code "Approval" dd =	General Installation Drawings	Thermal Parameter Drawings	Electrical Parameter Drawings
Proline Prosonic Flow G 300	BB, BD		FES0321	
	BS		FES0322	
Proline Prosonic Flow G 500 Digital	BJ, BN	FES0256	FES0321	FES0259
	BL, BS		FES0322	
Proline Prosonic Flow P 500	BB, BD		FES0351	
	BS		FES0352	
Device	Order code "Approval" dd =	General Installation Drawings	Thermal Parameter Drawings	Electrical Parameter Drawings
Proline t-mass 300	BB, BD		FES0331	
	BS		FES0332	
Proline t-mass 500 Digital	BJ, BN	FES0258	FES0331	FES0259
	BL, BS		FES0332	
Device	Order code "Approval" dd =	General Installation Drawings	Thermal Parameter Drawings	Electrical Parameter Drawings
Proline Teqwave M 300	BS			
Proline Teqwave M 500 Digital	BL, BS	FES0258	FES0422	FES0259



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See below annexes attached to the certificate for details:

Annex A - Proline Promass 300/500 and Proline Cubemass 300/500

Annex B - Proline Promag 300/500

Annex C - Proline Prosonic Flow 300/500

Annex D - Proline t-mass 300/500

Annex E - Proline Teqwave M 300/500



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Issue 1:

This certificate is updated to include:- Minor changes to product order code- Minor corrections to product marking- Introduction of remote display as part of the flowmeter- Minor corrections to the product drawings

Issue 2:

The addition of model code for replacement transmitter OEM version and new assignment table of replacement transmitter to product of flowmeter.- The addition of new certified sensor "Promass A" sensor with changes to model code.- Update in the ambient temperature reduced optionally to -60°C for sensors of Promass F/Q/X 500 with code for integrated ISEMelectronic k = "B" as described in the technical description document.- All the corresponding drawings were updated.- Combining all the Proline 300/500 sensor models from two separate certificates IECEX CSA 16.0031X and IECEX CSA 16.0034X into one single certificate IECEX CSA 16.0034X.

Issue 3:

The introduction of a new hygienic stainless steel transmitter enclosure for versions Promag 300, Promass 300 and Cubemass300, installation in Zone 2 only.- Revision of corresponding drawings to include the new hygienic enclosure.

Issue 4:

Addition of new model version Proline Prosonic Flow G 300/500- Addition of new model version Proline t-mass 300/500- Addition of new Antenna bushing model H337 for external antenna connection- Addition of new order codes for IO1 current output (active) with I/O code xx = "CC" and "CD"- Addition of new order codes for IO2, IO3 and IO4 with I/O code "K" for pulse output Ex i (passive) and with I/O code "L" for pulse output Ex i- Addition of new product order codes to include the following: sensor enclosure G350 (plastic) for Promag 500 in Zone 2 for remote version; an alternative transmitter enclosure G328 (plastic) for Proline 500; changes to order code for Promag W300 and Promag W500- Revised standard IEC 60079-0, Edition 6 to IEC60079-0, Edition 7.0- Revised standard IEC 60079-15, Edition 4 to IEC60079-15, Edition 5.0- Revised control drawings to include the above changes in revision 4.0 of this report.

Issue 5:

This revision includes the following changes:- Addition of product order code "ww = A2" that was missed in the previous edition for model Proline Promag 300/500, Proline Prosonic300/500 and Proline t-mass 300/500. See Certificate Annex for order code details- Correction of entity parameter for IO1 order codes: CA, CB. Affected nameplate drawings are revised in this edition.

Issue 6:

This revision includes the below changes:- Introduction of new model version Proline Prosonic Flow P 500- Changes in nomenclature ("Digital" is now referred as ISEM integrated in sensor, "Analog" is now referred as ISEM integrated in transmitter)- Introduction of new flange sizes for Proline Promass 300/500 for High Temperature (HT) flowmeters- Update of related product documentation- Addition of new manufacturing location in China.

Issue 7:

Update to cover corrections related to the maximum process temperature.

Issue 8:

The following changes are introduced in this issue:

- Introduction of additional sensor sizes DN150/200/250 for Proline Promass Q
- Introduction of additional sensor type CH-050-A, CH-100-A for Proline Prosonic Flow P500 with process temperature up to 435°C
- Introduction of additional IO's with IO-1 order code ff = MB, MC for Modbus and ff = RB, RC for Profinet
- Revision to order codes for Proline Prosonic Flow G300/500 and P500 replacement transmitter
- Introduction of new type of liner ETFE for Proline Promag sensors
- Proline Promag P500/W500, when used with sensor enclosure G300, is now available with rating IP68 in addition to IP67
- Introduction of new standard IEC TS 60079-47 for 2-WISE concept
- Update of standard IEC60079-7:2015 Ed. 5 to IEC60079-7:2017 Ed. 5.1
- Update of certification drawings

Issue 9:

- Introduction of new model, flowmeter Proline Teqwave M 300/500
- Correction to product order code and marking of Proline Promag 500 and Proline Prosonic Flow 500
- Update references of component certificates as applicable
- Introduction of additional combination of existing certified enclosures for Proline Promag 300, Proline Promag 500, Proline Promas 500, Proline Flow G 500 and Proline t-mass 500
- Introduction of additional temperature table for Proline Promass 300 (Ex d version) for use with Tmed < -50°C and for Proline Promass 300/500 with sensor Promass F DN 25/40 for use with Tmed at +170°C based on previous calculation and tests



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- Introduction of additional sensor size DN15 for Promag W.
- Revision of technical documentation for the above changes.

Issue 10:

- Correction to the product marking of Proline Promass/Cubemass 500, Proline Promag 500, Proline Prosonic Flow G 500, Proline t-mass 500
- Correction to the product order code of Proline t-mass 500 and Proline Teqwave M 500
- Revision of enclosures used to include new optional adapters to sensor connection
- Removal of Electronic options with Real Time Clock and the Renata CR1632 battery
- Revision of identification marking for Input/Outputs and Service Interface
- New option for accessing intrinsically safe terminals of the inputs/outputs in the Ex eb terminal compartment
- Revision of technical documentation for the above changes
- Update of manufacturing location addresses



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Additional manufacturing locations:

Endress+Hauser Flowtec (China) Co. Ltd.
Suzhou Industrial Park (SIP)
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Suzhou 215021
China

Endress+Hauser Flowtec (Brasil)
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Estrada Municipal Antonio Sesti
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Itatiba SP-13254-085
Brazil

Endress+Hauser Flow USA, Inc.
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Greenwood, Indiana 46143
United States of America

Endress+Hauser Flowtec India Pvt. Ltd
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Chhatrapati Sambhajinagar, 431136
India

Annexes:

- [1Annex_A_to_IECEX_CSA_16.0034X_Issue_10_Promass.pdf](#)
- [2Annex_B_to_IECEX_CSA_16.0034X_Issue_10_Promag.pdf](#)
- [3Annex_C_to_IECEX_CSA_16.0034X_Issue_10_Prosonic.pdf](#)
- [4Annex_D_to_IECEX_CSA_16.0034X_Issue_10_t-mass.pdf](#)
- [5Annex_E_to_IECEX_CSA_16.0034X_Issue_10_Teqwave M.pdf](#)



Annex A

This Annex is applicable for flowmeters type Proline Promass 300/500 and Proline Cubemass 300/500

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1. Description

The Proline Promass 300/500 and Proline Cubemass 300/500 flowmeters are available in two versions, a compact version (Proline 300) and a remote version (Proline 500). The Proline 500 remote version is also available in two variants:

- Proline 500: a version with ISEM electronic integrated into the transmitter to which the sensor sends analog signals.
- Proline 500 Digital: a version with ISEM electronic integrated in the sensor that processes measurements and sends digital signals to the transmitter.

The Proline Promass 300/500 and Proline Cubemass 300/500 flowmeters consist of various components, including electronics, enclosures with factory-assembled cable entry devices (e.g. blanking elements and thread adapters), sensors, antenna bushing, and displays. Each component has been tested and certified separately as an Ex component, with the objective to ensure its suitability for integration within the intended Proline 300/500 end product application.

The Proline Promass 300 and Proline Cubemass 300 flowmeters can be paired with an additional Remote Display, type DKX001 or ODKX001, which is certified separately as Ex equipment. The Remote Display can be ordered as a separate equipment or as part of the flowmeter.

The Proline Promass 300/500 and Proline Cubemass 300/500 flowmeters are available with three different power supply options: DC 19.2...28.8 V, or AC 85...264 V, or DC 19.2...28.8 V / AC 85...264 V. Electronics are designed to provide either intrinsically safe IO's (Ex ia for EPL Ga / Zone 0 or Ex ic for EPL Gc / Zone 2) or non-intrinsically safe IO's. A combination of intrinsically safe and non-intrinsically safe IO's is not allowed.

The Proline Promass 300/500 and Proline Cubemass 300/500 flowmeters are rated for an ambient temperature from -50°C to +60°C and for use in a medium (process) temperature range from -200°C to +350°C. These temperature ranges are limited by various parameters including, but not limited to, models, sensor types, maximum assigned surface temperature, operating temperature range of the components, sealing materials and liner materials. Refer to Control drawings "Thermal Parameters" as applicable to each model.

The Proline Promass 300/500 and Proline Cubemass 300/500 flowmeters are rated IP54 (gas) and IP6X (dust) according to the requirements of IEC 60079-0. They also meet the requirements of IP66, IP67 and IP68 (optional) according to IEC 60529.

The Proline Promass 300/500 and Proline Cubemass 300/500 flowmeters are equipped with factory-mounted metallic thread adapter and/or thread blanking elements. These thread adapters and thread blanking elements have been evaluated as part of the certification for the complete Proline 300/500 flowmeters.



2. Order Code

2.1. Proline Promass 300/500, Proline Cubemass 300/500

Extended order code Proline Promass 300 and Cubemass 300:

8a3bcc – ddeffghjlpstttvw + ###	
O8a3bcc – ddeffghjlpstttvwyy + ###	for OEM-version
8x3bxx – ddeffghjprssww + ###	for replacement transmitter
O8x3bxx – ddeffghjprsswwyy + ###	for replacement transmitter OEM

Extended order code Proline Promass 500 and Cubemass 500:

8a5bcc – ddeffghijkmnopsstttvw + ###	
O8a5bcc – ddeffghijkmnopsstttvwyy + ###	for OEM-version
8x5bxx – ddeffghijkmopqrrssww + ###	for replacement transmitter
O8x5bxx – ddeffghijkmopqrrsswwyy + ###	for replacement transmitter OEM

- a = Type of sensor**
 A = Promass A; C = Cubemass C; E = Promass E; F = Promass F; H = Promass H;
 I = Promass I; O = Promass O; P = Promass P; Q = Promass Q; S = Promass S;
 X = Promass X
- b = Generation**
 B = Promass A (type 8A*B**, O8A*B**); Cubemass C; Promass E;
 Promass F; Promass H; Promass I; Promass O;
 Promass P; Promass Q; Promass S; Promass X
 C = Promass A (type 8A*C**, O8A*C**)
- cc = Size**
 any double digits with combination of number or letter
- dd = Approval**
Proline Promass 300:
 BA = Ex db eb [ia] IIB T6...T1 Gb
 Ex tb IIIC T** Db
 BB = Ex db eb [ia] IIC T6...T1 Gb
 Ex tb IIIC T** Db
 BC = Ex db [ia] IIB T6...T1 Gb
 Ex tb IIIC T** Db
 BD = Ex db [ia] IIC T6...T1 Gb
 Ex tb IIIC T** Db
 BS = Ex ec IIC T5...T1 Gc



Proline Promass 500:

BA	=	Ex db eb [ia] IIB T6...T5 Gb	(transmitter)
		Ex ia IIB T6...T1 Gb	(sensor)
		Ex tb IIIC T** Db	(transmitter + sensor)
BB	=	Ex db eb [ia] IIC T6...T5 Gb	(transmitter)
		Ex ia IIC T6...T1 Gb	(sensor)
		Ex tb IIIC T** Db	(transmitter + sensor)
BC	=	Ex db [ia] IIB T6...T5 Gb	(transmitter)
		Ex ia IIB T6...T1 Gb	(sensor)
		Ex tb IIIC T** Db	(transmitter + sensor)
BD	=	Ex db [ia] IIC T6...T5 Gb	(transmitter)
		Ex ia IIC T6...T1 Gb	(sensor)
		Ex tb IIIC T** Db	(transmitter + sensor)
BI	=	[Ex ia] IIC	(transmitter)
		Ex ia IIB T6...T1 Gb	(sensor)
		Ex tb IIIC T** Db	(sensor)
BJ	=	[Ex ia] IIC	(transmitter)
		Ex ia IIC T6...T1 Gb	(sensor)
		Ex tb IIIC T** Db	(sensor)
BL	=	non-Ex	(transmitter)
		Ex ec IIC T6...T1 Gc	(sensor)
BM	=	Ex ec [ia Ga] IIC T6...T1 Gc	(transmitter)
		Ex ia IIB T6...T1 Gb	(sensor)
		Ex tb IIIC T** Db	(sensor)
BN	=	Ex ec [ia Ga] IIC T6...T1 Gc	(transmitter)
		Ex ia IIC T6...T1 Gb	(sensor)
		Ex tb IIIC T** Db	(sensor)
BS	=	Ex ec IIC T6...T1 Gc	(transmitter + sensor)

e = Power Supply

D	=	24Vdc
E	=	100-230Vac
I	=	100-230Vac / 24Vdc
X	=	sensor only



ff = Input / Output 1

- BA = 4-20mA HART
- BB = 4-20mA WHART
- CA = 4-20mA HART Ex i (passive)
- CB = 4-20mA WHART Ex i (passive)
- CC = 4-20mA HART Ex i (active)
- CD = 4-20mA WHART Ex i (active)
- GA = Profibus PA
- HA = Profibus PA Ex i
- LA = Profibus DP
- MA = Modbus RS485
- MB = Modbus TCP
- MC = Modbus TCP Ex i
- NA = EtherNet/IP
- RA = Profinet IO
- RB = Profinet
- RC = Profinet Ex i
- SA = Foundation Fieldbus
- TA = Foundation Fieldbus Ex i
- XX = sensor only

g = Input / Output 2

- A = without Input/Output 2
- B = 4-20mA
- C = 4-20mA Ex i (passive)
- D = Configurable IO
- E = Pulse/Frequency/Switch output
- F = Pulse output phase-shifted
- G = Pulse/Frequency/Switch output Ex i
- H = Relay
- I = 4-20mA input
- J = Status input
- K = Pulse output Ex i
- L = Pulse output
- X = sensor only

h = Input / Output 3

- A = without Input/Output 3
- B = 4-20mA
- C = 4-20mA Ex i (passive)
- D = Configurable IO
- E = Pulse/Frequency/Switch output
- F = Pulse output phase-shifted
- G = Pulse/Frequency/Switch output Ex i
- H = Relay
- I = 4-20mA input
- J = Status input
- K = Pulse output Ex i
- L = Pulse output
- X = sensor only



- i** = **Input / Output 4** (Proline 500 only)
 - A = without Input/Output 4
 - B = 4-20mA
 - C = 4-20mA Ex i (passive)
 - D = Configurable IO
 - E = Pulse/Frequency/Switch output
 - F = Pulse output phase-shifted
 - G = Pulse/Frequency/Switch output Ex i
 - H = Relay
 - I = 4-20mA input
 - J = Status input
 - K = Pulse output Ex i
 - L = Pulse output
 - X = sensor only
- j** = **Display / Operation**
 - with Remote Display : O
 - without Remote Display : any single number or letter except O
- k** = **Integrated ISEM electronic** (Proline 500 only)
 - A = Sensor
 - B = Transmitter
- l** = **Housing** (Proline 300 only)
 - any single number or letter
- m** = **Transmitter Housing** (Proline 500 only)
 - any single number or letter
- n** = **Sensor Housing** (Proline 500 only)
 - any single number or letter
- o** = **Cable Sensor Connection** (Proline 500 only)
 - any single number or letter
- p** = **Cable Entry**
 - any single number or letter
- qq** = **Upgrade Kid**
 - any double digits with combination of number or letter
- rr** = **Existing Product** (refer to assignment of flowmeter to replacement transmitter)
 - any double digits with combination of number or letter
- ss** = **Measuring tube material**
 - any double digits with combination of number or letter
- ttt** = **Process connection**
 - any triple digits with combination of number or letter
- v** = **Calibration**
 - any single number or letter
- ww** = **Device model (two digit)** (refer to assignment of flowmeter to replacement transmitter)
 - A1 = product version 1
 - A2 = product version 2
- yy** = **Customer version (two digits)**
 - any double digits with combination of number or letter
- **** = **Option in two digits (none, two or multiple of two digits)**
 - any combination of number and/or letter
- #, +** = **Signs used as indicator for optional abbreviation of extended order code**

2.2. Assignment of Replacement Transmitter

The replacement transmitters are assigned to the flowmeter Proline Promass/Cubemass 300/500 as follows:

Product flowmeters			Replacement transmitter type			
Order code	Generation code b =	Device model code ww =	Order code	Generation code b =	Existing product rr =	Device model code ww =
8A*b**-...ww, O8A*b**-...ww	B	A1 / A2	8x*bxx-...rr...ww, O8x*bxx-...rr...ww	B	AA (all sizes)	A1 / A2
8A*b**-...ww, O8A*b**-...ww	C	A1 / A2	8x*bxx-...rr...ww, O8x*bxx-...rr...ww	B	AB (all sizes)	A1 / A2
8C*b**-...ww, O8C*b**-...ww	B	A1 / A2	8x*bxx-...rr...ww, O8x*bxx-...rr...ww	B	CA (all sizes)	A1 / A2
8E*b**-...ww, O8E*b**-...ww	B	A1 / A2	8x*bxx-...rr...ww, O8x*bxx-...rr...ww	B	EA (DN8...15)	A1 / A2
					EB (DN25...50)	A1 / A2
					EC (DN80)	A1 / A2
8F*b**-...ww, O8F*b**-...ww	B	A1 / A2	8x*bxx-...rr...ww, O8x*bxx-...rr...ww	B	FA (DN8...15)	A1 / A2
					FB (DN25...50)	A1 / A2
					FC (DN80...250)	A1 / A2
8H*b**-...ww, O8H*b**-...ww	B	A1 / A2	8x*bxx-...rr...ww, O8x*bxx-...rr...ww	B	HA (DN8...40)	A1 / A2
					HB (DN50)	A1 / A2
8I*b**-...ww, O8I*b**-...ww	B	A1 / A2	8x*bxx-...rr...ww, O8x*bxx-...rr...ww	B	IA (DN8...40)	A1 / A2
					IB (DN40FB...80)	A1 / A2
8O*b**-...ww, O8O*b**-...ww	B	A1 / A2	8x*bxx-...rr...ww, O8x*bxx-...rr...ww	B	OA (all sizes)	A1 / A2
8P*b**-...ww, O8P*b**-...ww	B	A1 / A2	8x*bxx-...rr...ww, O8x*bxx-...rr...ww	B	PA (DN8...40)	A1 / A2
					PB (DN50)	A1 / A2
8Q*b**-...ww, O8Q*b**-...ww	B	A1 / A2	8x*bxx-...rr...ww, O8x*bxx-...rr...ww	B	QA (DN25...50)	A1 / A2
					QB (DN80...100)	A1 / A2
					QC (DN150...250)	A1 / A2
8S*b**-...ww, O8S*b**-...ww	B	A1 / A2	8x*bxx-...rr...ww, O8x*bxx-...rr...ww	B	SA (DN8...40)	A1 / A2
					SB (DN50)	A1 / A2
8X*b**-...ww, O8X*b**-...ww	B	A1 / A2	8x*bxx-...rr...ww, O8x*bxx-...rr...ww	B	XA (all sizes)	A1 / A2

2.3. Sensor Groups

The following tables show the assignment of Promass/Cubemass sensors to different sensor groups (from A1 to C2) depending on type of sensor, sensor size, equipment group, minimum medium temperature and EPL.

Assignment of Promass sensors and Cubemass sensors installed in Zone 0/1 (EPL Ga/Gb):

Sensor Group	Type of sensor	Size of sensor (DN)	Group	T _{med, min}	EPL ⁽²⁾
A1	A (type 8A*B**)	01(DN1)	IIC	-50°C	Gb
		02, 04			Ga/Gb
	C	01, 02, 04, 06	IIC	-50°C	Ga/Gb
	E	25, 40, 50	IIC	-50°C	Ga/Gb
	F	08, 15, 25, 40, 50	IIC	-50°C / -60°C ⁽¹⁾	Ga/Gb
	F(HT)	15, 25, 50	IIC	-50°C	Ga/Gb
	H	08, 15, 25, 40	IIC	-50°C	Gb
	S, P				Ga/Gb
	I	08, 15, 16, 25, 26, 40	IIC	-50°C	Gb
Q	25, 50	IIC	-50°C / -60°C ⁽¹⁾	Ga/Gb	
B1	A (type A*C**)	01(DN1)	IIC	-50°C	Gb
		02, 04			Ga/Gb
	E	08, 15, 80	IIC	-50°C	Ga/Gb
	F	08, 15	IIC	-50°C / -60°C ⁽¹⁾	Ga/Gb
	F, F(HT), O	80, 100, 150, 250	IIC	-50°C / -60°C ⁽¹⁾	Ga/Gb
	I	41, 50, 51, 80	IIC	-50°C	Gb
	H	50	IIC	-50°C	Gb
	S, P				Ga/Gb
	Q	80, 100, 150, 200, 250	IIC	-50°C / -60°C ⁽¹⁾	Ga/Gb
	X	350	IIC	-50°C / -60°C ⁽¹⁾	Ga/Gb
C1	F	15, 25, 40, 50	IIC	-200°C	Ga/Gb
	H	8, 15, 25, 40, 50	IIC	-200°C	Gb
	Q	25, 50	IIC	-200°C	Ga/Gb
D1	F	08, 15, 80, 100, 150, 250	IIC	-200°C	Ga/Gb
	H	50	IIC	-200°C	Gb
	Q	80, 100, 150, 200, 250	IIC	-200°C	Ga/Gb
E1	E	80	IIB	-50°C	Ga/Gb
	F, F(HT), O	80, 100, 150, 250	IIB	-50°C / -60°C ⁽¹⁾	Ga/Gb
	H	50	IIB	-50°C	Gb
	S, P				Ga/Gb
	I	41, 50, 51, 80	IIB	-50°C	Gb
	Q	80, 100, 150, 200, 250	IIB	-50°C / -60°C ⁽¹⁾	Ga/Gb
	X	350	IIB	-50°C / -60°C ⁽¹⁾	Ga/Gb
H1	F, F(HT)	80, 100, 150, 250	IIB	-200°C	Ga/Gb
	H	50	IIB	-200°C	Gb
	Q	80, 100, 150, 200, 250	IIB	-200°C	Ga/Gb

(1) T_{med, min} = -60°C only applicable for the sensor of Proline Promass F 500, Proline Promass Q 500 and Proline Promass X 500 version with ISEM integrated in transmitter.

(2) All sensors of the Proline Promass 300/500 and Proline Cubemass 300/500 flowmeters are available for EPL Ga/Gb, except for sensor types "A" (size DN1), "H" (all sizes), and "I" (all sizes), which are only available for EPL Gb. For sensors rated EPL Ga/Gb, the EPL Ga only applies to the interior of the measuring tube.

Assignment of Promass sensors and Cubemass sensors installed in Zone 2 (EPL Gc):

Sensor Group	Type of sensor	Size of sensor (DN)	Group	T _{med, min}	EPL
A2	C	01, 02, 04, 06	IIC	-50°C	Gc
	E	25, 40, 50, 80	IIC	-50°C	Gc
	F	25, 40, 50, 80, 100, 150, 250	IIC	-50°C / -60°C ⁽¹⁾	Gc
	F(HT)	15, 25, 50, 80, 100, 150, 250	IIC	-50°C	Gc
	H, S, P	15, 25, 40, 50	IIC	-50°C	Gc
	I	08, 15, 16, 25, 26, 40, 41, 50, 51, 80	IIC	-50°C	Gc
	O	80, 100, 150, 250	IIC	-50°C	Gc
	Q	25, 50, 80, 100, 150, 200, 250	IIC	-50°C / -60°C ⁽¹⁾	Gc
	X	350	IIC	-50°C / -60°C ⁽¹⁾	Gc
B2	A (type 8A*B**)	01, 02, 04	IIC	-50°C	Gc
	F	08, 15	IIC	-50°C	Gc
	E	08, 15	IIC	-50°C	Gc
	H, S, P	08	IIC	-50°C	Gc
C2	F	25, 40, 50, 80, 100, 150, 250	IIC	-200°C	Gc
	F(HT)	15, 25, 50, 80, 100, 150, 250	IIC	-200°C	Gc
	H	8, 25, 40, 50	IIC	-200°C	Gc
	Q	25, 50, 80, 100, 150, 200, 250	IIC	-200°C	Gc
D2	F	08, 15	IIC	-200°C	Gc
E2	A (type 8A*C**)	01, 02, 04	IIC	-50°C	Gc

(1) T_{med, min} = -60°C only applicable for the sensor of Proline Promass F 500, Proline Promass Q 500 and Proline Promass X 500 version with ISEM integrated in transmitter.

3. Parameters

3.1. Electrical Parameters

3.1.1. Power supply

Order code "Power supply" e =	Terminal no.	Values
D ¹⁾	1(L+/L), 2(L-/N)	U _N = DC 19.2...28.8 V U _M = AC 250 V
E ¹⁾	1(L+/L), 2(L-/N)	U _N = AC 85...264 V U _M = AC 250 V
I ²⁾	1(L+/L), 2(L-/N)	U _N = DC 19.2...28.8 V / AC 85...264 V U _M = AC 250 V

1) applicable for Proline 300/500 flowmeters with order code "Approval dd" = BA, BB, BC, BD

2) applicable for Proline 300/500 flowmeters with order code "Approval dd" = BS, BI, BJ, BL, BM, BN

3.1.2. Input/Outputs

Input/Output 1 (Note 4)					
Order code "Input/Output 1" ff =	Terminal no.	Type of protection	Values		
BA, BB, MA	I/O1 (Terminal 26, 27)	Non-intrinsically safe	$U_N = DC 30 V$ $U_M = AC 250 V$		
LA, GA, SA	I/O1 (Terminal 26, 27)	Non-intrinsically safe	$U_N = DC 32 V$ $U_M = AC 250 V$		
CA, CB	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	$U_i = 30 V, I_i = 100 mA, P_i = 1.25 W$ $L_i = 0, C_i = 6 nF$		
CC, CD	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	<table border="0"> <tr> <td> (Note 1) $U_o = 21.8 V$ $I_o = 90 mA$ $P_o = 491 mW$ $L_o = 4.1 mH (IIC) /$ $15 mH (IIB)$ $C_o = 160 nF (IIC) /$ $1160 nF (IIB)$ $U_i = 30 V$ $I_i = 10 mA$ $P_i = 0.3 W$ $C_i = 6 nF$ $L_i = 5 \mu H$ </td> <td> (Note 2) $U_o = 21.8 V$ $I_o = 90 mA$ $P_o = 491 mW$ $L_o = 9 mH (IIC) /$ $39 mH (IIB)$ $C_o = 600 nF (IIC) /$ $4000 nF (IIB)$ $U_i = 30 V$ $I_i = 10 mA$ $P_i = 0.3 W$ $C_i = 6 nF$ $L_i = 5 \mu H$ </td> </tr> </table>	(Note 1) $U_o = 21.8 V$ $I_o = 90 mA$ $P_o = 491 mW$ $L_o = 4.1 mH (IIC) /$ $15 mH (IIB)$ $C_o = 160 nF (IIC) /$ $1160 nF (IIB)$ $U_i = 30 V$ $I_i = 10 mA$ $P_i = 0.3 W$ $C_i = 6 nF$ $L_i = 5 \mu H$	(Note 2) $U_o = 21.8 V$ $I_o = 90 mA$ $P_o = 491 mW$ $L_o = 9 mH (IIC) /$ $39 mH (IIB)$ $C_o = 600 nF (IIC) /$ $4000 nF (IIB)$ $U_i = 30 V$ $I_i = 10 mA$ $P_i = 0.3 W$ $C_i = 6 nF$ $L_i = 5 \mu H$
(Note 1) $U_o = 21.8 V$ $I_o = 90 mA$ $P_o = 491 mW$ $L_o = 4.1 mH (IIC) /$ $15 mH (IIB)$ $C_o = 160 nF (IIC) /$ $1160 nF (IIB)$ $U_i = 30 V$ $I_i = 10 mA$ $P_i = 0.3 W$ $C_i = 6 nF$ $L_i = 5 \mu H$	(Note 2) $U_o = 21.8 V$ $I_o = 90 mA$ $P_o = 491 mW$ $L_o = 9 mH (IIC) /$ $39 mH (IIB)$ $C_o = 600 nF (IIC) /$ $4000 nF (IIB)$ $U_i = 30 V$ $I_i = 10 mA$ $P_i = 0.3 W$ $C_i = 6 nF$ $L_i = 5 \mu H$				
HA, TA	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	<table border="0"> <tr> <td> (Note 1) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> $U_i = 30 V$ $I_i = 570 mA$ $P_i = 8.5 W$ $L_i = 10 \mu H$ $C_i = 5 nF$ </td> <td> (Note 2) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> $U_i = 32 V$ $I_i = 570 mA$ $P_i = 8.5 W$ $L_i = 10 \mu H$ $C_i = 5 nF$ </td> </tr> </table>	(Note 1) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> $U_i = 30 V$ $I_i = 570 mA$ $P_i = 8.5 W$ $L_i = 10 \mu H$ $C_i = 5 nF$	(Note 2) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> $U_i = 32 V$ $I_i = 570 mA$ $P_i = 8.5 W$ $L_i = 10 \mu H$ $C_i = 5 nF$
(Note 1) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> $U_i = 30 V$ $I_i = 570 mA$ $P_i = 8.5 W$ $L_i = 10 \mu H$ $C_i = 5 nF$	(Note 2) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> $U_i = 32 V$ $I_i = 570 mA$ $P_i = 8.5 W$ $L_i = 10 \mu H$ $C_i = 5 nF$				
MB, RB	I/O1 (Terminal 26, 27)	Non-intrinsically safe	<u>APL port profile SLAX / SPE PoDL classes 10, 11, 12</u> $U_N = AC 3.3 V$ $U_M = AC 250 V$		
MC, RC	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	<table border="0"> <tr> <td> (Note 1), (Note 3) <u>2-WISE power load</u> <u>APL port profile SLAA</u> $U_i = 17.5 V$ $I_i = 380 mA$ $P_i = 5.32 W$ $L_i = 10 \mu H$ $C_i = 5 nF$ </td> <td> (Note 2), (Note 3) <u>2-WISE power load</u> <u>APL port profile SLAC</u> $U_i = 17.5 V$ $I_i = 380 mA$ $P_i = 5.32 W$ $L_i = 10 \mu H$ $C_i = 5 nF$ </td> </tr> </table>	(Note 1), (Note 3) <u>2-WISE power load</u> <u>APL port profile SLAA</u> $U_i = 17.5 V$ $I_i = 380 mA$ $P_i = 5.32 W$ $L_i = 10 \mu H$ $C_i = 5 nF$	(Note 2), (Note 3) <u>2-WISE power load</u> <u>APL port profile SLAC</u> $U_i = 17.5 V$ $I_i = 380 mA$ $P_i = 5.32 W$ $L_i = 10 \mu H$ $C_i = 5 nF$
(Note 1), (Note 3) <u>2-WISE power load</u> <u>APL port profile SLAA</u> $U_i = 17.5 V$ $I_i = 380 mA$ $P_i = 5.32 W$ $L_i = 10 \mu H$ $C_i = 5 nF$	(Note 2), (Note 3) <u>2-WISE power load</u> <u>APL port profile SLAC</u> $U_i = 17.5 V$ $I_i = 380 mA$ $P_i = 5.32 W$ $L_i = 10 \mu H$ $C_i = 5 nF$				
NA, RA	I/O1 (Port 1 (RJ45))	Non-intrinsically safe	$U_N = AC 3.3 V$ $U_M = AC 250 V$		



Input/Output 2 (Note 4)			
Order code “Input/Output 2” g =	Terminal no.	Type of protection	Values
C, G, K	I/O2 (Terminal 24, 25)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	U _i = 30 V I _i = 100 mA P _i = 1.25 W L _i = 0 C _i = 0
B, D, E, F, I, J, L	I/O2 (Terminal 24, 25)	Non-intrinsically safe	U _N = DC 30 V U _M = AC 250 V
H	I/O2 (Terminal 24, 25)	Non-intrinsically safe	U _N = DC 30 V I _N = DC 100 mA / AC 500 mA U _M = AC 250 V

Input/Output 3 (Note 4)			
Order code “Input/Output 3” h =	Terminal no.	Type of protection	Values
C, G, K	I/O3 (Terminal 22, 23)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	U _i = 30 V I _i = 100 mA P _i = 1.25 W L _i = 0 C _i = 0
B, D, E, F, I, J, L	I/O3 (Terminal 22, 23)	Non-intrinsically safe	U _N = DC 30 V U _M = AC 250 V
H	I/O3 (Terminal 22, 23)	Non-intrinsically safe	U _N = DC 30 V I _N = AC 100 mA / AC 500 mA U _M = AC 250 V

Input/Output 4 (Proline 500 only) (Note 4)			
Order code “Input/Output 4” i =	Terminal no.	Type of protection	Values
C, G, K	I/O4 (Terminal 20, 21)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	U _i = 30 V I _i = 100 mA P _i = 1.25 W L _i = 0 C _i = 0
B, D, E, F, I, J, L	I/O4 (Terminal 20, 21)	Non-intrinsically safe	U _N = DC 30 V U _M = AC 250 V
H	I/O4 (Terminal 20, 21)	Non-intrinsically safe	U _N = DC 30 V I _N = DC 100 mA / AC 500 mA U _M = AC 250 V

Notes:

- (1) applicable for Proline 300/500 flowmeters with order code “Approval dd” = BA, BB, BC, BD
- (2) applicable for Proline 300/500 flowmeters with order code “Approval dd” = BS, BM, BN
- (3) no additional internal capacitances are effective to the output value (refer to note 1 of drawing “Ethernet-APL Installation Drawing – Device Vendors v1.0, March 8th 2022”)
- (4) it is not permitted to combine a non-intrinsically safe I/Os with intrinsically safe I/Os between I/O1, I/O2, I/O3, and I/O4 within the same system or device

3.1.3. Service interface / Port 2 (RJ45)

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BA, BB	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	$U_N = AC\ 3.3\ V$, $U_M = AC\ 250\ V$ Service Interface shall only be connected to a non- intrinsically safe circuit in areas which are known to be non-hazardous
		Intrinsically safe Ex ia	$U_i = 10\ V$, $I_i = n.a.$, $P_i = n.a.$, $C_i = 200\ nF$, $L_i = 0$
BC, BD	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	$U_N = AC\ 3.3\ V$, $U_M = AC\ 250\ V$
		Intrinsically safe Ex ia	$U_i = 10\ V$, $I_i = n.a.$, $P_i = n.a.$, $C_i = 200\ nF$, $L_i = 0$
BS, BI, BJ, BL, BM, BN	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	$U_N = AC\ 3.3\ V$, $U_M = AC\ 250\ V$

3.1.4. Output for external antenna (via Antenna Bushing)

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BA, BB	Type N connector	Intrinsically safe Ex ia	See conditions of certification
BM, BN, BS		Intrinsically safe Ex ic	
BI, BJ, BL		Non-intrinsically safe	

3.1.5. Output for Remote Display DKX001 or ODKX001

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BA, BB, BC, BD	81, 82, 83, 84	Intrinsically safe Ex ia	$U_o = 3.9\ V$ $I_o = 1.5\ A$ (spark) $200\ mA$ (power) $P_o = 600\ mW$ $R_i = 2.6\ \Omega$ $C_o = 670\ \mu F$ $L_o = 0$ Note: a connection cable with a ratio $L_{cable}/R_{cable} \leq 0.024\ mH/\Omega$ and $C_{cable} \leq 600\ \mu F$ shall be used when connecting the Remote Display type DKX001 or ODKX001
BS	81, 82, 83, 84	Non-intrinsically safe	$U_N = 3.3\ V$ $I_N = 150\ mA$
BI, BJ, BL, BM, BN	Remote Display type DKX001 or ODKX001 is not intended to be connected to the Proline 300 devices		

3.1.6. Sensor circuits for Proline Promass/Cubemass 500 (ISEM in transmitter)

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BA, BB, BC, BD	Transmitter terminal board (in the sensor connection compartment of transmitter):		
	41, 42 (exciter coil circuit)	Intrinsically safe Ex ia	$U_o = 15 \text{ V}$, $I_o = 129 \text{ mA}$, $P_o = 484 \text{ mW}$ (sensor group A1/C1/E1) or $U_o = 15 \text{ V}$, $I_o = 46 \text{ mA}$, $P_o = 173 \text{ mW}$ (sensor group B1/D1/H1)
	9, 10, 11, 12, X3, X4 (temperature circuit)	Intrinsically safe Ex ia	$U_o = 15 \text{ V}$, $I_o = 18.2 \text{ mA}$, $P_o = 68.3 \text{ mW}$
	4, 5, 6, 7 (sensor coil circuit)	Intrinsically safe Ex ia	$U_o = 15 \text{ V}$, $I_o = 15.2 \text{ mA}$, $P_o = 57 \text{ mW}$
	<i>Only for Promass Q DN ≥ 150 (Dual ISEM):</i>		
	41, 42, X1, X2 (exciter coil circuit)	Intrinsically safe Ex ia	$U_o = 15 \text{ V}$, $I_o = 129 \text{ mA}$, $P_o = 484 \text{ mW}$ (sensor group E1) or $U_o = 15 \text{ V}$, $I_o = 46 \text{ mA}$, $P_o = 173 \text{ mW}$ (sensor group B1/D1/H1)
	9, 10, 11, 12, X3, X4 (temperature circuit)	Intrinsically safe Ex ia	$U_o = 15 \text{ V}$, $I_o = 18.2 \text{ mA}$, $P_o = 68.3 \text{ mW}$
	4, 5, 6, 7, X5, X6, X7, X8 (sensor coil circuit)	Intrinsically safe Ex ia	$U_o = 15 \text{ V}$, $I_o = 15.2 \text{ mA}$, $P_o = 57 \text{ mW}$
	Sensor terminal board (in the sensor terminal enclosure):		
	41, 42 (exciter coil circuit)	Intrinsically safe Ex ia	$U_i = 15 \text{ V}$, $I_i = 129 \text{ mA}$, $P_i = 484 \text{ mW}$ (sensor group A1/C1/E1) or $U_i = 15 \text{ V}$, $I_i = 46 \text{ mA}$, $P_i = 173 \text{ mW}$ (sensor group B1/D1/H1)
	9, 10, 11, 12, X3, X4 (temperature circuit)	Intrinsically safe Ex ia	$U_i = 15 \text{ V}$, $I_i = 18.2 \text{ mA}$, $P_i = 68.3 \text{ mW}$
	4, 5, 6, 7 (sensor coil circuit)	Intrinsically safe Ex ia	$U_i = 15 \text{ V}$, $I_i = 15.2 \text{ mA}$, $P_i = 57 \text{ mW}$
	<i>Only for Promass Q DN ≥ 150 (Dual ISEM):</i>		
	41, 42, X1, X2 (exciter coil circuit)	Intrinsically safe Ex ia	$U_i = 15 \text{ V}$, $I_i = 129 \text{ mA}$, $P_i = 484 \text{ mW}$ (sensor group E1) or $U_i = 15 \text{ V}$, $I_i = 46 \text{ mA}$, $P_i = 173 \text{ mW}$ (sensor group B1/D1/H1)
	9, 10, 11, 12, X3, X4 (temperature circuit)	Intrinsically safe Ex ia	$U_i = 15 \text{ V}$, $I_i = 18.2 \text{ mA}$, $P_i = 68.3 \text{ mW}$
	4, 5, 6, 7, X5, X6, X7, X8 (sensor coil circuit)	Intrinsically safe Ex ia	$U_i = 15 \text{ V}$, $I_i = 15.2 \text{ mA}$, $P_i = 57 \text{ mW}$

The cable used to connect the transmitter to the remote sensor must fulfill the following parameters:

- Cable inductance $\leq 0.5 \text{ mH/km}$
- Cable capacitance $\leq 0.5 \text{ }\mu\text{F/km}$
- Cable length $\leq 120 \text{ m}$



Order code "Approval" dd =	Terminal no.	Type of protection	Values
BS	Transmitter terminal board (in the sensor connection compartment of transmitter):		
	41, 42 (exciter coil circuit)	Non-intrinsically safe	$U_N = 15\text{ V}$, $I_N = 100\text{ mA}$ (sensor group A2/C2) or $U_N = 15\text{ V}$, $I_N = 72\text{ mA}$ (sensor group B2/D2) or $U_N = 15\text{ V}$, $I_N = 25\text{ mA}$ (sensor group E2) or
	9, 10, 11, 12, X3, X4 (temperature circuit)	Non-intrinsically safe	$U_N = 15\text{ V}$, $I_N = 18.2\text{ mA}$
	4, 5, 6, 7 (sensor coil circuit)	Non-intrinsically safe	$U_N = 15\text{ V}$, $I_N = 15.2\text{ mA}$
	<i>Only for Promass Q DN ≥ 150 (Dual ISEM):</i>		
	41, 42, X1, X2 (exciter coil circuit)	Non-intrinsically safe	$U_N = 15\text{ V}$, $I_N = 100\text{ mA}$ (sensor group A2/C2)
	9, 10, 11, 12, X3, X4 (temperature circuit)	Non-intrinsically safe	$U_N = 15\text{ V}$, $I_N = 18.2\text{ mA}$
	4, 5, 6, 7, X5, X6, X7, X8 (sensor coil circuit)	Non-intrinsically safe	$U_N = 15\text{ V}$, $I_N = 15.2\text{ mA}$
	Sensor terminal board (in the sensor terminal enclosure):		
	41, 42 (exciter coil circuit)	Non-intrinsically safe	$U_N = 15\text{ V}$
	9, 10, 11, 12, X3, X4 (temperature circuit)	Non-intrinsically safe	$U_N = 15\text{ V}$
	4, 5, 6, 7 (sensor coil circuit)	Non-intrinsically safe	$U_N = 15\text{ V}$
	<i>Only for Promass Q DN ≥ 150 (Dual ISEM):</i>		
	41, 42, X1, X2 (exciter coil circuit)	Non-intrinsically safe	$U_N = 15\text{ V}$, $I_N = 100\text{ mA}$ (sensor group A2/C2)
	9, 10, 11, 12, X3, X4 (temperature circuit)	Non-intrinsically safe	$U_N = 15\text{ V}$, $I_N = 18.2\text{ mA}$
	4, 5, 6, 7, X5, X6, X7, X8 (sensor coil circuit)	Non-intrinsically safe	$U_N = 15\text{ V}$, $I_N = 15.2\text{ mA}$



3.1.7. Sensor circuits for Proline Promass/Cubemass 500 Digital (ISEM in sensor)

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BI, BJ, BM, BN	Transmitter terminal board (in the sensor connection compartment of transmitter):		
	61, 62, 63, 64	Intrinsically safe Ex ia	$U_o = 13.8 \text{ V}$, $I_o = 1.156 \text{ A}$, $P_o = 3.3 \text{ W}$
	Sensor terminal board (in the sensor terminal enclosure):		
	61, 62, 63, 64	Intrinsically safe Ex ia	$U_i = 14 \text{ V}$, $I_i = 1.2 \text{ A}$, $P_i = 3.4 \text{ W}$

The cable used to connect the transmitter to the remote sensor must fulfill the following requirements:

- For Group IIC: $L_{\text{cable}}/R_{\text{cable}} \leq 0.0089 \text{ mH}/\Omega$ or $L_{\text{cable}} \leq 26 \mu\text{H}$ and $C_{\text{cable}} \leq 760 \text{ nF}$
- For Group IIB: $L_{\text{cable}}/R_{\text{cable}} \leq 0.0356 \text{ mH}/\Omega$ or $L_{\text{cable}} \leq 104 \mu\text{H}$ and $C_{\text{cable}} \leq 4.2 \mu\text{F}$

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BL, BS	Transmitter terminal board (in the sensor connection compartment of transmitter):		
	61, 62	Non-intrinsically safe	$U_N = 32 \text{ V}$
	63, 64	Non-intrinsically safe	$U_N = 3.3 \text{ V}$
	Sensor terminal board (in the sensor terminal enclosure):		
	61, 62	Non-intrinsically safe	$U_N = 32 \text{ V}$
	63, 64	Non-intrinsically safe	$U_N = 3.3 \text{ V}$

3.2. Thermal Parameters (Zone 1)

1. Proline Promass A/E/F/H/I/O/P/Q/S/X 300 & Proline Cubemass C 300

Notes: The chapter 1 applies to Proline Promass 300 and Proline Cubemass 300 versions with extended order code covering:

	flowmeter	flowmeter OEM version	replacement transmitter	replacement transmitter OEM
Proline Promass 300	8*3*** – dd...	O8*3*** – dd...	8x3xxx – dd...	O8x3xxx – dd...
Proline Cubemass 300				
with "Approval"	dd = CC, CD, CE, C1, C2, C3, C4	(cCSAus / CSA)		
	dd = BA, BB, BC, BD	(IECEx / ATEX)		

1.1. Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, this range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

1.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

1.3. Proline Promass 300 & Proline Cubemass 300 without thermal insulation

Temperature class vs. Maximum ambient temperature (T _{a,max}) and Maximum permitted medium temperature (T _{m,max permitted})											
Device	Size / DN	Medium range T _m ⁽³⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)					
		min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A	01...04	-50	205	-40 / -50	50	50	95	130	150	205	205
					60	---	95	130	150	205	205
Cubemass C	01...06	-50	205		50	50	95	130	150	205	205
					60	---	95	130	150	205	205
Promass E	08...50	-50	205		50	50	100	130	130	205	205
					55	---	80	100	130	205	205
					60	---	(80) ⁽²⁾	(100) ⁽²⁾	(130) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾
	80	-50	205		50	50	75	110	170	205	205
					55	---	75	110	170	205	205
					60	---	(75) ⁽²⁾	(110) ⁽²⁾	(170) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾
Promass F	08...15	-50	150		50	50	95	130	150	150	150
					60	---	95	130	150	150	150
		-50	240	50	50	95	130	180	240	240	
				60	---	95	130	180	(240) ⁽²⁾	(240) ⁽²⁾	
		-200 ⁽⁴⁾	240	50	50	95	100	180	240	240	
				60	---	95	100	180	(240) ⁽²⁾	(240) ⁽²⁾	
	25...40	-50	150	50	50	95	130	150	150	150	
				60	---	95	130	150	150	150	
		-50	240	50	50	95	130	170	240	240	
				60	---	95	130	170	(240) ⁽²⁾	(240) ⁽²⁾	
		-200 ⁽⁴⁾	240	50	50	95	100	170	240	240	
				60	---	95	100	170	(240) ⁽²⁾	(240) ⁽²⁾	
	50	-50	150	50	50	95	130	150	150	150	
				60	---	95	130	150	150	150	
		-50	240	50	50	95	130	180	240	240	
				60	---	95	130	180	(240) ⁽²⁾	(240) ⁽²⁾	
		-200 ⁽⁴⁾	240	50	50	95	100	180	240	240	
				60	---	95	100	180	(240) ⁽²⁾	(240) ⁽²⁾	
80...250	-50	150	50	50	75	110	150	150	150		
			60	---	75	110	150	150	150		
	-50	240	50	50	75	110	170	240	240		
			60	---	75	110	170	(240) ⁽²⁾	(240) ⁽²⁾		
	-200 ⁽⁴⁾	240	50	50	75	110	170	240	240		
			60	---	75	110	170	(240) ⁽²⁾	(240) ⁽²⁾		
15...25	-50 / -200 ⁽⁴⁾	350	50	45	95	130	175	275	350		
			60	---	95	130	175	275	350		
50...250	-50 / -200 ⁽⁴⁾	350	50	45	85	120	175	275	350		
			60	---	85	120	175	275	350		



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Temperature class vs. Maximum ambient temperature (T _{a, max}) and Maximum permitted medium temperature (T _{m, max permitted})														
Device	Size / DN	Medium range T _m ⁽³⁾		Ambient range T _a ⁽¹⁾		T _{m, max permitted} (°C)								
		min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)			
Promass H	08	-50 / -200 ⁽⁴⁾	205	-40 / -50	50	50	85	100	160	205	205			
					60	---	85	100	160	205	205			
	15...50	-50 / -200 ⁽⁴⁾	205		50	50	75	115	180	205	205			
					60	---	75	115	180	205	205			
Promass S, P	08	-50	150		45	45	85	100	150	150	150			
					60	---	85	100	150	150	150			
					15...50	-50	150	45	45	85	100	180	205	205
								60	---	85	100	180	205	205
	15...50	-50	205	50	50	75	115	150	150	150				
				60	---	75	115	150	150	150				
				50	50	75	115	180	205	205				
				60	---	75	115	180	205	205				
Promass I	08, 15, 15FB, 25	-50	150	50	50	95	130	150	150	150				
				60	---	95	120	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾				
	25FB, 40, 40FB, 50	-50	150	50	50	85	120	150	150	150				
				60	---	85	120	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾				
50FB, 80	-50	150	50	50	85	120	150	150	150					
			60	---	85	120	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾					
			50	50	75	110	170	205	205					
			60	---	75	110	170	205	205					
Promass O	80...250	-50	205	50	50	75	110	170	205	205				
				55	---	75	110	170	205	205				
				60	---	75	110	170	(205) ⁽²⁾	(205) ⁽²⁾				
				50	50	90	120	170	205	205				
Promass X	350	-50	205	55	---	90	120	170	205	205				
				60	---	90	120	170	205	205				
				80	---	(90) ⁽²⁾	(120) ⁽²⁾	(170) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾				
				50	50	75	110	160	240	240				
Promass Q	25...250	-50 / -200 ⁽⁴⁾	240	50	50	75	110	160	240	240				
				60	---	75	110	160	240	240				

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplates on the device).
 (2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
 (3) Applicable medium temperature range may be further limited (see the nameplates on the device).
 (4) For the Proline Promass F/H/Q 300 with Ex db or XP rated enclosures, which is used at a medium temperature below -50°C, the minimum applied ambient temperature T_{a, min} shall be limited according to the table below. This table is applicable only during the period when the flowmeter is in a non-operational state prior to reaching its normal operating temperature.

T _{m, min}	-50°C	-75°C	-100°C	-125°C	-150°C	-175°C	-200°C
T _{a, min}	-50°C	-47°C	-45°C	-43°C	-41°C	-39°C	-37°C

1.4. Proline Promass 300 & Proline Cubemass 300 with thermal insulation in accordance with E+H's specifications
 Note: for thermal insulation specifications, refer to E+H's manuals.

Temperature class vs. Maximum ambient temperature (T _{a, max}) and Maximum permitted medium temperature (T _{m, max permitted})											
Device	Size / DN	Medium range T _m ⁽³⁾		Ambient range T _a ⁽¹⁾		T _{m, max permitted} (°C)					
		min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A	01...04	-50	205	-40 / -50	50	50	95	130	150	205	205
					55	---	(95) ⁽²⁾	(130) ⁽²⁾	(150) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾
Cubemass C	01...08	-50	205		50	---	95	130	150	205	205
					55	---	(95) ⁽²⁾	(130) ⁽²⁾	(150) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾
Promass E	08...50	-50	205		50	50	100	130	130	205	205
					55	---	(100) ⁽²⁾	(130) ⁽²⁾	(130) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾
	80	-50	205		45	50	75	110	170	205	205
					50	---	75	110	170	205	205
Promass F	08...15	-50	150	55	---	(75) ⁽²⁾	(110) ⁽²⁾	(170) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾	
				50	50	95	130	150	150	150	
	-50 / -200 ⁽⁴⁾	240	60	---	95	110	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾		
			50	50	95	130	160	240	240		
55	---	95	(130) ⁽²⁾	(160) ⁽²⁾	(240) ⁽²⁾	(240) ⁽²⁾					
60	---	95	110	110	110	110					

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	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	H
	Thermal Parameter	Date:	15.04.2025
	EPL Gb (Zone 1); EPL Db (Zone 21); Cl. I Div. 1, Cl. II Div. 1, Cl. III; Cl. I Zone 1, Zone 21	Page:	2/11



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Temperature class vs. Maximum ambient temperature ($T_{a,max}$) and Maximum permitted medium temperature ($T_{m,max}$ permitted)											
Device	Size / DN	Medium range T_m ⁽³⁾		Ambient range T_a ⁽¹⁾		$T_{m,max}$ permitted (°C)					
		min. (°C)	max. (°C)	min. (°C)	max. (°C)	T8 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass F	25 ... 40	-50	150	-40 / -50	50	50	95	130	150	150	150
					60	---	95	110	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾
		-50 / -200 ⁽⁴⁾	240		50	50	95	130	170	240	240
		55	---		95	(130) ⁽²⁾	(170) ⁽²⁾	(240) ⁽²⁾	(240) ⁽²⁾	(240) ⁽²⁾	
		60	---		95	110	110	110	110	110	
		50	50		95	130	150	150	150	150	
	50	-50	150		60	---	95	110	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾
					50	50	95	130	180	240	240
		-50 / -200 ⁽⁴⁾	240		55	---	95	(130) ⁽²⁾	(180) ⁽²⁾	(240) ⁽²⁾	(240) ⁽²⁾
		60	---		95	110	110	110	110	110	
		50	50		95	130	150	150	150	150	
		60	---		95	110	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	
	80 ... 250	-50	150		50	50	75	110	150	150	150
					60	---	75	110	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾
		-50 / -200 ⁽⁴⁾	240		50	50	75	110	170	240	240
		55	---		75	110	(170) ⁽²⁾	(240) ⁽²⁾	(240) ⁽²⁾		
		60	---		75	110	110	110	110	110	
		50	45		95	130	175	275	350	350	
	15 ... 25	-50 / -200 ⁽⁴⁾	350		60	---	95	130	175	275	350
					50	50	85	120	175	275	350
		60	---		85	120	175	275	350		
		50	50		85	120	175	275	350		
		60	---		85	120	175	275	350		
		50	50		85	120	175	275	350		
Promass H	08	-50 / -200 ⁽⁴⁾	205	50	50	85	100	160	205	205	
				55	---	85	100	(160) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾	
	60	---	85	100	100	100	100	100			
	15 ... 50	-50 / -200 ⁽⁴⁾	205	50	50	75	115	180	205	205	
	55			---	75	115	(180) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾		
	60	---	75	115	115	115	115	115			
Promass S, P	08	-50	150	45	45	85	100	150	150	150	
				50	---	85	100	150	150	150	
		-50	205	60	---	85	100	125	(150) ⁽²⁾	(150) ⁽²⁾	
		45	45	85	100	160	205	205			
		50	---	85	100	160	205	205			
		60	---	85	100	115	(205) ⁽²⁾	(205) ⁽²⁾			
	15 ... 50	-50	150	50	50	75	115	150	150	150	
				60	---	75	115	125	(150) ⁽²⁾	(150) ⁽²⁾	
		-50	205	50	50	75	115	180	205	205	
		60	---	75	115	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾			
		50	50	75	115	150	150	150			
		60	---	75	115	180	205	205			
Promass I	08, 15, 15FB, 25	-50	150	50	50	95	130	150	150	150	
				60	---	95	120	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	
	25FB, 40, 40FB, 50	-50	150	50	50	85	120	150	150	150	
				60	---	85	120	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	
	50FB, 80	-50	150	50	50	85	120	150	150	150	
				60	---	85	120	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	
Promass O	80 ... 250	-50	205	50	50	75	110	170	205	205	
				55	---	(75) ⁽²⁾	(110) ⁽²⁾	(170) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾	
Promass X	350	-50	205	50	50	90	120	170	205	205	
				55	---	(90) ⁽²⁾	(120) ⁽²⁾	(170) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾	
Promass Q	25 ... 250	-50 / -200 ⁽⁴⁾	240	50	50	75	110	160	240	240	
				55	---	(75) ⁽²⁾	(110) ⁽²⁾	(160) ⁽²⁾	(240) ⁽²⁾	(240) ⁽²⁾	

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplates on the device).
 (2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
 (3) Applicable medium temperature range may be further limited (see the nameplates on the device).
 (4) For the Proline Promass F/H/Q 300 with Ex db or XP rated enclosures, which is used at a medium temperature below -50°C, the minimum applied ambient temperature $T_{a,min}$ shall be limited according to the table below. This table is applicable only during the period when the flowmeter is in a non-operational state prior to reaching its normal operating temperature.

$T_{m,min}$	-50°C	-75°C	-100°C	-125°C	-150°C	-175°C	-200°C
$T_{a,min}$	-50°C	-47°C	-45°C	-43°C	-41°C	-39°C	-37°C

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	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	H
	Thermal Parameter	Date:	15.04.2025
	EPL Gb (Zone 1); EPL Db (Zone 21); Cl. I Div. 1, Cl. II Div. 1, Cl. III; Cl. I Zone 1, Zone 21	Page:	3/11

1.5. Proline Promass 300 & Proline Cubemass 300 with thermal insulation NOT in accordance with E+H's specifications

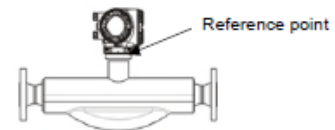
Temperature class vs. Maximum ambient temperature ($T_{a, max}$) and Maximum permitted reference temperature ($T_{ref, max permitted}$)											
Device	Size / DN	Medium range $T_m^{(3)}$		Ambient range $T_a^{(1)}$		Reference temperature $T_{ref, max permitted}^{(2)}$ (°C)					
		min. (°C)	max. (°C)	min. (°C)	max. (°C)	T8 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A	01...04	-50	205	-40 / -50	60	59	72	75	76	77	77
Cubemass C	01...06	-50	205								
Promass E	08...80	-50	205								
Promass F	08...250	-50 / -200 ⁽⁴⁾	150 / 240 / 350								
Promass H	08...50	-50 / -200 ⁽⁴⁾	205								
Promass S, P	08...50	-50	150 / 205								
Promass I	08...80	-50	150								
Promass O	80...250	-50	205								
Promass X	350	-50	205								
Promass Q	25...250	-50 / -200 ⁽⁴⁾	240								

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplates on the device).

(2) $T_{ref, max permitted}$: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref, max permitted}$ shall not exceed the values given in this table.

(3) Applicable medium temperature range may be further limited (see the nameplates on the device).

(4) For the Proline Promass F/H/Q 300 with Ex db or XP rated enclosures, which is used at a medium temperature below -50°C, the minimum applied ambient temperature $T_{a, min}$ shall be limited according to the table below. This table is applicable only during the period when the flowmeter is in a non-operational state prior to reaching its normal operating temperature.



$T_{m, min}$	-50°C	-75°C	-100°C	-125°C	-150°C	-175°C	-200°C
$T_{a, min}$	-50°C	-47°C	-45°C	-43°C	-41°C	-39°C	-37°C



2. Proline Promass A/E/F/H/I/O/P/Q/S/X 500 & Proline Cubemass C 500 (ISEM in transmitter, defined by the order code "ISEM electronic" k = B)

Notes: The chapter 2 applies to Proline Promass 500 and Proline Cubemass 500 versions with extended order code covering:

	flowmeter	flowmeter OEM version	replacement transmitter	replacement transmitter OEM
Proline Promass 500	8*5*** – dd*****B...	O8*5*** – dd*****B...	8x5xxx – dd*****B...	O8x5xxx – dd*****B...
Proline Cubemass 500 with "Approval"	dd = CC, CD, CE, C1, C2, C3, C4 (cCSAus / CSA) dd = BA, BB, BC, BD			

2.1. Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, this range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

2.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

2.3. Proline Promass 500 & Proline Cubemass 500 without thermal insulation

Transmitter	$T_{a,max}$ (°C)	Temperature class
Proline Promass 500 & Proline Cubemass 500	60	T5 (100°C)
	55	T6 (85°C)

Notes: $T_{a,min}$ = -50°C or may be further limited (see the nameplate on the transmitter housing)

Sensor	Size / DN	Medium range T_m (°C)		Ambient range T_a (°C)		$T_{m,max}$ permitted (°C)					
		min.	max.	min.	max.	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A (type 8A5B)	01...04	-50	205	-40 / -50	60	60	95	130	150	205	205
	01...04	-50	205		55	55	95	130	150	205	205
Promass A (type 8A5C)	01...04	-50	205		60	---	95	130	150	205	205
					50	50	95	130	150	205	205
Cubemass C	01...08	-50	205		60	---	95	130	150	205	205
					50	50	100	130	130	205	205
Promass E	08...50	-50	205		60	---	100	130	130	205	205
					60	---	100	130	130	205	205
Promass F	08...15	-50 / -60	150		60	60	75	110	170	205	205
					55	50	95	130	150	150	150
		-50 / -60 / -200	240		60	---	95	130	150	150	150
					55	50	95	130	180	240	240
		-50 / -60 / -200	240		60	---	95	130	180	240	240
					55	55	95	130	150	150	150
		-50 / -60 / -200	240		60	---	95	130	150	150	150
					55	55	95	130	170	240	240
		-50 / -60 / -200	240		60	---	95	130	170	240	240
					55	55	95	130	150	150	150
		-50 / -60 / -200	240		60	---	95	130	150	150	150
					55	55	95	130	150	150	150
	-50 / -60 / -200	240	60	60	95	130	170	240	240		
			55	55	75	110	150	150	150		
	-50 / -60 / -200	240	60	---	75	110	150	150	150		
			60	60	75	110	170	240	240		
Promass H	08	-50 / -200	205	60	70	95	130	175	265	350	
				60	70	85	120	175	265	350	
	15...50	-50 / -200	205	50	50	65	100	180	205	205	
				60	---	65	100	180	205	205	
				60	60	75	115	180	205	205	

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 Kägenstrasse 7, 4153 Reinach, Basel-Landschaft, Switzerland

Control Drawing - IECEx, ATEX, CSA, cCSAus	Document No.:	FES0263
Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	H
Thermal Parameter	Date:	15.04.2025
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Sensor temperature class vs. Max. ambient temperature (T _{a,max}) & Max. permitted medium temperature (T _{m,max permitted})											
Sensor	Size / DN	Medium range T _m ⁽²⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)					
		min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass S, P	08	-50	150	-40 / -50 / -60	45	45	65	100	150	150	150
					60	---	65	100	150	150	150
		-50	205		45	45	65	100	160	205	205
					60	---	65	100	160	205	205
	15...40	-50	150		50	50	75	115	150	150	150
					60	---	75	115	150	150	150
					50	50	75	115	180	205	205
		-50	205		60	---	75	115	180	205	205
					60	60	75	115	150	150	150
					60	60	75	115	180	205	205
50	-50	150	60	60	75	115	150	150	150		
	-50	205	60	60	75	115	180	205	205		
Promass I	08, 15, 15FB, 25	-50	150	60	60	95	130	150	150	150	
	25FB, 40, 40FB, 50, 50FB, 80	-50	150	60	70	85	120	150	150	150	
Promass O	80...250	-50	205	60	60	75	110	170	205	205	
Promass X	350	-50 / -60	205	60	70	90	120	170	205	205	
Promass Q	25...250	-50 / -60 / -200	240	60	55	75	110	160	240	240	

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

2.4. Proline Promass 500 & Proline Cubemass 500 with thermal insulation in accordance with E+H's specifications
 Note: for thermal insulation specifications, refer to E+H's manuals

Transmitter temperature class vs. Maximum ambient temperature (T _{a,max})		
Transmitter	T _{a,max} (°C)	Temperature class
Proline Promass 500 & Proline Cubemass 500	60	T5 (100°C)
	55	T6 (85°C)

Notes: T_{a,min} = -50°C or may be further limited (see the nameplate on the transmitter housing)

Sensor temperature class vs. Max. ambient temperature (T _{a,max}) & Max. permitted medium temperature (T _{m,max permitted})											
Sensor	Size / DN	Medium range T _m ⁽²⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)					
		min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A (type 8A5B)	01...04	-50	205	-40 / -50 / -60	50	60	95	130	150	150	150
Promass A (type 8A5C)	01...04	-50	205		50	60	95	130	150	(180) ⁽²⁾	(180) ⁽²⁾
					55	55	95	130	150	150	150
Cubemass C	01...06	-50	205		60	---	95	130	150	150	150
					50	60	95	130	150	(180) ⁽²⁾	(180) ⁽²⁾
Promass E	08...50	-50	205		60	---	100	130	130	205	205
					60	---	100	130	130	205	205
					60	60	75	110	170	205	205
Promass F	08...15	-50 / -60	150		55	50	95	130	150	150	150
		-50 / -60 / -200	240		60	---	95	130	150	150	150
				55	50	95	130	160	240	240	
				60	---	95	130	160	240	240	
	25...40	-50 / -60	150	55	55	95	130	150	150	150	
		-50 / -60 / -200	240	60	---	95	130	150	150	150	
				55	55	95	130	170	240	240	
				60	---	95	130	170	240	240	
				55	55	95	130	150	150	150	
				60	---	95	130	170	240	240	
50	-50 / -60	150	55	55	95	130	150	150	150		
	-50 / -60 / -200	240	60	---	95	130	150	150	150		
			60	60	95	130	170	240	240		
			55	55	75	110	150	150	150		
			60	---	75	110	150	150	150		
			60	60	75	110	170	240	240		
80...250	-50 / -60	150	55	55	75	110	150	150	150		
	-50 / -60 / -200	240	60	---	75	110	150	150	150		
			60	60	75	110	170	240	240		
			60	60	75	110	170	240	240		
			60	70	95	130	175	265	350		
			60	70	85	120	175	265	350		

Endress+Hauser People for Process Automation Endress+Hauser Flow Kägenstrasse 7, 4153 Reinach, Basel-Landschaft, Switzerland	Control Drawing - IECEx, ATEX, CSA, cCSA _{US}	Document No.:	FES0263
	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	H
	Thermal Parameter	Date:	15.04.2025
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Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted medium temperature ($T_{m,max}$ permitted)											
Sensor	Size / DN	Medium range $T_m^{(3)}$		Ambient range $T_a^{(1)}$		$T_{m,max}$ permitted ($^{\circ}\text{C}$)					
		min. ($^{\circ}\text{C}$)	max. ($^{\circ}\text{C}$)	min. ($^{\circ}\text{C}$)	max. ($^{\circ}\text{C}$)	T6 (85 $^{\circ}\text{C}$)	T5 (100 $^{\circ}\text{C}$)	T4 (135 $^{\circ}\text{C}$)	T3 (200 $^{\circ}\text{C}$)	T2 (300 $^{\circ}\text{C}$)	T1 (450 $^{\circ}\text{C}$)
Promass H	08	-50 / -200	205	-40 / -50 / -60	50	50	65	100	180	205	205
	15...50	-50 / -200	205		60	---	65	100	180	205	205
					60	60	75	115	180	205	205
Promass S, P	08	-50	150		45	45	65	100	150	150	150
					60	---	65	100	150	150	150
					45	45	65	100	160	205	205
	15...40	-50	150		60	---	65	100	180	205	205
					50	50	75	115	150	150	150
					60	---	75	115	150	150	150
					50	50	75	115	180	205	205
					60	---	75	115	180	205	205
					60	60	75	115	150	150	150
Promass I	08, 15, 15FB, 25	-50	150	60	60	95	130	150	150	150	
	25FB, 40, 40FB, 50, 50FB, 80	-50	150	60	70	85	120	150	150	150	
	Promass O	80...250	-50	205	60	60	75	110	170	205	205
Promass X	350	-50 / -80	205	60	70	90	120	170	205	205	
Promass Q	25...250	-50 / -80 / -200	240	60	55	75	110	180	240	240	

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

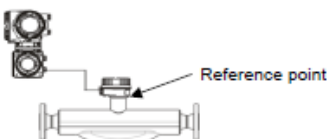
2.5. Proline Promass 500 & Proline Cubemass 500 with thermal insulation NOT in accordance with E+H's specifications

Transmitter temperature class vs. Maximum ambient temperature ($T_{a,max}$)		
Transmitter	$T_{a,max}$ ($^{\circ}\text{C}$)	Temperature class
Proline Promass 500 & Proline Cubemass 500	60	T5 (100 $^{\circ}\text{C}$)
	55	T6 (85 $^{\circ}\text{C}$)

Notes: $T_{a,min}$ = -50 $^{\circ}\text{C}$ or may be further limited (see the nameplate on the transmitter housing)

Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted reference temperature ($T_{ref,max}$ permitted)											
Sensor	Size / DN	Medium range $T_m^{(3)}$		Ambient range $T_a^{(1)}$		Reference temperature $T_{ref,max}$ permitted $^{(2)}$ ($^{\circ}\text{C}$)					
		min. ($^{\circ}\text{C}$)	max. ($^{\circ}\text{C}$)	min. ($^{\circ}\text{C}$)	max. ($^{\circ}\text{C}$)	T6 (85 $^{\circ}\text{C}$)	T5 (100 $^{\circ}\text{C}$)	T4 (135 $^{\circ}\text{C}$)	T3 (200 $^{\circ}\text{C}$)	T2 (300 $^{\circ}\text{C}$)	T1 (450 $^{\circ}\text{C}$)
Promass A, A2	01...04	-50	205	-40 / -50 / -60	60	63	72	84	91	91	91
Cubemass C	01...06	-50	205								
Promass E	08...80	-50	205								
Promass F	08...250	-50 / -200	150 / 240 / 350								
Promass H	08...50	-50 / -200	205								
Promass S, P	08...50	-50	150 / 205								
Promass I	08...80	-50	150								
Promass O	80...250	-50	205								
Promass X	350	-50	205								
Promass Q	25...250	-50 / -200	240								

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) $T_{ref,max}$ permitted: the maximum temperature measured at the reference point at the sensor neck. For safe use, the $T_{ref,max}$ shall not exceed the values given in this table.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).





3. Proline Promass A/E/F/H/I/O/P/Q/S/X 500 Digital & Proline Cubemass 500 Digital (ISEM in sensor, defined by the order code "ISEM electronic" k = A)

Notes: The chapter 3 applies to Proline Promass 500 Digital & Proline Cubemass 500 Digital versions with extended order code covering:

	flowmeter	flowmeter OEM version	replacement transmitter	replacement transmitter OEM
Proline Promass 500 Digital	8*5*** – dd*****A...	O8*5*** – dd*****A...	8x5xxx – dd*****A...	O8x5xxx – dd*****A...
Proline Cubemass 500 Digital				
with "Approval"	dd = CM, CN, C5, C6 dd = BI, BJ, BM, BN	(cCSAus / CSA) (IECEx / ATEX)		

3.1. Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, this range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

3.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

3.3. Proline Promass 500 Digital & Proline Cubemass 500 Digital without thermal insulation

Transmitter temperature class vs. Maximum ambient temperature ($T_{a,max}$)				
Transmitter	Type of enclosure	$T_{a,min}$ (°C)	$T_{a,max}$ (°C)	Temperature class
Proline Promass 500 Digital & Proline Cubemass 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	80	T4 (135°C)
			45	T5 (100°C)

Notes: (1) $T_{a,min}$ = -50°C for aluminium enclosure, $T_{a,min}$ = -40°C for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BI, BJ); $T_{a,max}$ = 80°C.
 Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted medium temperature ($T_{m,max}$ permitted)											
Sensor	Size / DN	Medium range T_m ⁽⁸⁾		Ambient range T_a ⁽¹⁾		$T_{m,max}$ permitted (°C)					
		min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A (type 8A5B)	01...04	-50	205	-50 / -40	35	60	95	130	150	205	205
					50	---	95	130	150	205	205
					60	---	---	130	150	205	205
Promass A (type 8A5C)	01...04	-50	205		35	55	95	130	150	205	205
					50	---	95	130	150	205	205
					55	---	---	130	150	205	205
Cubemass C	01...06	-50	205		35	40	75	130	150	205	205
					50	---	75	130	150	205	205
					55	---	---	130	150	205	205
Promass E	08...50	-50	205		35	40	60	130	130	205	205
					50	---	60	130	130	205	205
					60	---	---	130	130	205	205
	80	-50	205	35	40	60	110	170	205	205	
				50	---	60	110	170	205	205	
				60	---	---	110	170	205	205	
Promass F	08...40	-50	150	35	40	65	130	150	150	150	
				50	---	65	130	150	150	150	
				60	---	---	130	130	130	130	
	-50 / -200	240	35	40	65	130	170	240	240		
			50	---	65	130	170	240	240		
			60	---	---	130	170	240	240		
	50	-50	150	35	40	65	130	150	150	150	
				50	---	65	130	150	150	150	
				60	---	---	130	130	130	130	
-50 / -200	240	35	40	65	130	160	240	240			
		50	---	65	130	160	240	240			
		60	---	---	130	160	240	240			

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	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	H
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Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted medium temperature ($T_{m,max}$ permitted)													
Sensor	Size / DN	Medium range T_m ⁽³⁾		Ambient range T_a ⁽¹⁾		$T_{m,max}$ permitted (°C)							
		min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)		
Promass F	15...25	-50 / -200	350	-50 / -40	35	40	80	130	175	275	350		
					50	---	80	130	175	275	350		
					60	---	---	130	175	240	240		
											(275) ⁽²⁾	(350) ⁽²⁾	
					35	40	65	110	150	150	150		
					50	---	65	110	150	150	150		
	80...250	-50	150		60	---	---	110	130	130	130		
					35	40	65	110	170	240	240		
					50	---	65	110	170	240	240		
					60	---	---	110	170	240	240		
					35	40	80	120	175	275	350		
					50	---	80	120	175	275	350		
50...250	-50 / -200	350	60	---	---	110	170	240	240				
			35	40	80	120	175	275	350				
			50	---	80	120	175	275	350				
			60	---	---	120	175	240	240				
									(275) ⁽²⁾	(350) ⁽²⁾			
Promass S, P	08	-50	150	35	45	65	100	150	150	150			
				50	---	65	100	150	150	150			
				60	---	---	100	150	150	150			
				35	45	65	100	160	205	205			
				50	---	65	100	160	205	205			
				60	---	---	100	160	205	205			
	15...50	-50	150	35	45	65	110	150	150	150			
				50	---	65	110	150	150	150			
				60	---	---	110	150	150	150			
				35	45	65	110	180	205	205			
				50	---	65	110	180	205	205			
				60	---	---	110	180	205	205			
Promass H	08	-50 / -200	205	35	40	65	100	160	205	205			
				50	---	65	100	160	205	205			
				60	---	---	100	160	205	205			
				35	40	65	115	180	205	205			
				50	---	65	115	180	205	205			
				60	---	---	115	180	205	205			
15...50	-50 / -200	205	35	40	65	115	180	205	205				
			50	---	65	115	180	205	205				
			60	---	---	115	180	205	205				
			35	45	70	115	140	140	150				
			50	---	70	115	140	140	150				
			60	---	---	115	140	140	150				
Promass I	08...80	-50	150	35	45	70	115	140	140	150			
				50	---	70	115	140	140	150			
				60	---	---	115	140	140	150			
				35	45	65	110	170	205	205			
				50	---	65	110	170	205	205			
				60	---	---	110	170	205	205			
Promass O	80...250	-50	205	35	45	65	110	170	205	205			
				50	---	65	110	170	205	205			
				60	---	---	110	170	205	205			
				35	45	65	110	170	205	205			
				50	---	65	110	170	205	205			
				60	---	---	110	170	205	205			
Promass X	350	-50	205	35	45	65	110	170	205	205			
				50	---	65	110	170	205	205			
				60	---	---	110	170	205	205			
				35	45	65	100	160	240	240			
				50	---	65	100	160	240	240			
				60	---	---	100	160	240	240			
Promass Q	25...250	-50 / -200	240	35	45	65	100	160	240	240			
				50	---	65	100	160	240	240			
				60	---	---	100	160	240	240			

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Values in brackets apply to installations where the sensor terminal enclosure is not installed above the sensor.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

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	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	H
	Thermal Parameter	Date:	15.04.2025
	EPL Gb (Zone 1); EPL Db (Zone 21); Cl. I Div. 1, Cl. II Div. 1, Cl. III; Cl. I Zone 1, Zone 21	Page:	9/11



3.3. Proline Promass 500 Digital & Proline Cubemass 500 Digital with thermal insulation in accordance with E+H's specifications

Note: for thermal insulation specifications, refer to E+H's manuals

Transmitter temperature class vs. Maximum ambient temperature (T _{a,max})				
Transmitter	Type of enclosure	T _{a,min} (°C)	T _{a,max} (°C)	Temperature class
Proline Promass 500 Digital & Proline Cubemass 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
			45	T5 (100°C)

Notes: (1) T_{a,min} = -50°C for aluminium enclosure, T_{a,min} = -40°C for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BI, BJ): T_{a,max} = 60°C.
 Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature (T _{a,max}) & Max. permitted medium temperature (T _{m,max} permitted)											
Sensor	Size / DN	Medium range T _m ⁽²⁾		Ambient range T _a ⁽¹⁾		T _{m,max} permitted (°C)					
		min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A	01...04	-50	205	-50 / -40	35	40	90	90	150	150	150
					40	---	90	90	150	150	150
					45	---	90	150	150	150	
					50	---	90	120	120	120	
Cubemass C	01...06	-50	205	-50 / -40	35	40	90	100	150	150	150
					40	---	90	100	150	150	150
					45	---	100	150	150	150	
					50	---	100	120	120	120	
Promass E	08...50	-50	205	-50 / -40	35	40	55	130	160	205	205
					50	---	55	130	160	205	205
	80	-50	205		35	40	55	110	170	205	205
					50	---	55	110	170	205	205
Promass F	08...40	-50	150	-50 / -40	35	40	60	130	130	130	130
					45	---	60	130	130	130	130
					50	---	130	130	130	130	
					50	---	60	130	170	240	240
		-50 / -200	45	---	60	130	170	240	240		
			50	---	130	170	240	240			
			35	40	60	130	160	240	240		
			45	---	60	130	160	240	240		
	50	-50	150	-50 / -40	35	40	60	130	130	130	130
					45	---	60	130	130	130	130
					50	---	130	130	130	130	
					50	---	60	130	160	240	240
		-50 / -200	45	---	60	130	160	240	240		
			50	---	130	160	240	240			
			35	40	60	130	175	275	350		
			50	---	60	130	175	275	350		
	15...25	-50 / -200	350	-50 / -40	60	---	130	175	240	240	240
					35	40	60	110	130	130	130
					45	---	60	110	130	130	130
					50	---	110	130	130	130	
-50 / -200		35	40	60	110	170	240	240			
		45	---	60	110	170	240	240			
		50	---	110	170	240	240				
		50	---	60	120	175	275	350			
80...250	-50	150	-50 / -40	35	40	60	120	175	275	350	
				45	---	60	120	175	275	350	
				50	---	120	175	275	350		
				50	---	60	120	175	275	350	
	-50 / -200	60	---	120	175	240	240	240			
		35	40	60	110	130	130	130			
		45	---	60	110	130	130	130			
		50	---	110	130	130	130				
50...250	-50 / -200	350	-50 / -40	35	40	60	120	175	275	350	
				45	---	60	120	175	275	350	
				50	---	120	175	275	350		
				50	---	60	120	175	275	350	
	-50 / -200	60	---	120	175	240	240	240			
		35	40	60	110	130	130	130			
		45	---	60	110	130	130	130			
		50	---	110	130	130	130				
Promass S, P	08	-50	150	-50 / -40	35	40	55	100	150	150	150
					45	---	55	100	150	150	150
		-50	205		35	40	55	100	160	205	205
					50	---	55	100	160	205	205
	15...50	-50	150		35	40	55	110	150	150	150
					45	---	55	110	150	150	150
		-50	205		35	40	55	100	180	205	205
					50	---	55	100	180	205	205
55	---	---	100	35	40	55	110	150	150	150	
				45	---	55	110	150	150	150	
				50	---	110	120	120	120	120	
				55	---	55	100	180	205	205	

Endress+Hauser People for Process Automation Endress+Hauser Flow Kägenstrasse 7, 4153 Reinach, Basel-Landschaft, Switzerland	Control Drawing - IECEx, ATEX, CSA, cCSA _{US}	Document No.:	FES0263
	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	H
	Thermal Parameter	Date:	15.04.2025
	EPL Gb (Zone 1); EPL Db (Zone 21); Cl. I Div. 1, Cl. II Div. 1, Cl. III; Cl. I Zone 1, Zone 21	Page:	10/11

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted medium temperature ($T_{m, max}$ permitted)											
Sensor	Size / DN	Medium range $T_m^{(2)}$		Ambient range $T_a^{(1)}$		$T_{m, max}$ permitted ($^{\circ}C$)					
		min. ($^{\circ}C$)	max. ($^{\circ}C$)	min. ($^{\circ}C$)	max. ($^{\circ}C$)	T6 (85 $^{\circ}C$)	T5 (100 $^{\circ}C$)	T4 (135 $^{\circ}C$)	T3 (200 $^{\circ}C$)	T2 (300 $^{\circ}C$)	T1 (450 $^{\circ}C$)
Promass I	08...80	-50	150	-50 / -40	35	45	70	90	150	150	150
					45	---	70	90	150	150	150
					50	---	---	90	120	120	---
Promass O	80...250	-50	205		35	40	55	110	170	205	205
					50	---	55	110	170	205	205
Promass X	350	-50	205		35	40	55	120	170	205	205
					50	---	55	120	170	205	205
Promass Q	25...250	-50 / -200	240		55	---	---	120	170	205	205
					35	40	55	100	160	240	240
Promass H	08	-50 / -200	205		50	---	55	100	160	240	240
					35	40	65	100	160	205	205
					45	---	65	100	160	205	205
	15...50	-50 / -200	205	55	---	---	100	160	205	205	
				35	40	65	115	180	205	205	
				45	---	65	115	180	205	205	
				55	---	---	115	180	205	205	

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) Values in brackets apply to installations where the sensor terminal enclosure is not installed above the sensor.

3.3. Proline Promass 500 Digital & Proline Cubemass 500 Digital with thermal insulation NOT in accordance with E+H's specifications

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)			
Transmitter	Type of enclosure	$T_{a, min}$ ($^{\circ}C$)	Temperature class
Proline Promass 500 Digital & Proline Cubemass 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60
			45

Notes: (1) $T_{a, min} = -50^{\circ}C$ for aluminium enclosure, $T_{a, min} = -40^{\circ}C$ for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BI, BJ): $T_{a, max} = 60^{\circ}C$.
 Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted reference temperature ($T_{ref, max}$ permitted)											
Sensor	Size / DN	Medium range $T_m^{(3)}$		Ambient range $T_a^{(1)}$		Reference temperature $T_{ref, max}$ permitted ⁽²⁾ ($^{\circ}C$)					
		min. ($^{\circ}C$)	max. ($^{\circ}C$)	min. ($^{\circ}C$)	max. ($^{\circ}C$)	T6 (85 $^{\circ}C$)	T5 (100 $^{\circ}C$)	T4 (135 $^{\circ}C$)	T3 (200 $^{\circ}C$)	T2 (300 $^{\circ}C$)	T1 (450 $^{\circ}C$)
Promass A	01...04	-50	205	-50 / -40	60	45	64	82	82	85	85
Cubemass C	01...06	-50	205								
Promass E	08...80	-50	205								
Promass F	08...250	-50 / -200	150 / 240 / 350								
Promass H	08...50	-50 / -200	205								
Promass S, P	08...50	-50	150 / 205								
Promass I	08...80	-50	150								
Promass O	80...250	-50	205								
Promass X	350	-50	205								
Promass Q	25...250	-50 / -200	240								

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) $T_{ref, max}$ permitted: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref, max}$ permitted shall not exceed the values given in this table.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

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	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	H
	Thermal Parameter	Date:	15.04.2025
	EPL Gb (Zone 1); EPL Db (Zone 21); Cl. I Div. 1, Cl. II Div. 1, Cl. III; Cl. I Zone 1, Zone 21	Page:	11/11

3.3. Thermal Parameters (Zone 2)

1. Proline Promass A/E/F/H/I/O/P/Q/S/X 300 & Proline Cubemass C 300

Notes: The chapter 1 applies to Proline Promass 300 and Proline Cubemass 300 versions with extended order code covering:

	flowmeter	flowmeter OEM version	replacement transmitter	replacement transmitter OEM
Proline Promass 300	8*3*** - dd...	O8*3*** - dd...	8x3xxx - dd...	O8x3xxx - dd...
Proline Cubemass 300				
with "Approval"	dd = CS, CZ dd = BS	(cCSAus / CSA) (IECEx / ATEX)		

1.1. Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, this range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

1.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

1.3. Proline Promass 300 & Proline Cubemass 300 without thermal insulation

1.3.1. Versions with sensor rated in type of protection Ex ec, AEx ec or NI (Cl. I Div. 2)

Note: Refer to the nameplate on the sensor housing to determine the type of protection.

Temperature class vs. Maximum ambient temperature ($T_{a, max}$) and Maximum permitted medium temperature ($T_{m, max}$ permitted)													
Sensor	Size / DN	Type of protection	Medium range T_m ⁽³⁾		Ambient range T_a ⁽¹⁾		$T_{m, max}$ permitted (°C)						
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)	
Promass A	01...04	Ex ec / NI	-50	205	-50 / -40	50	---	90	130	170	205	205	
						60	---	---	130	170	205	205	
Cubemass C	01...06	Ex ec / NI	-50	205		50	---	90	130	140	205	205	
						60	---	---	130	140	205	205	
Promass E	08...50	Ex ec / NI	-50	205		50	---	80	115	165	205	205	
						55	---	---	115	165	205	205	
						60	---	---	(115) ⁽²⁾	(140) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾	
	80	Ex ec / NI	-50	205		50	---	80	95	140	205	205	
						55	---	---	95	140	205	205	
						60	---	---	(95) ⁽²⁾	(140) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾	
Promass F	08...15	Ex ec / NI	-50 / -200	150		50	---	80	115	150	150	150	
						60	---	---	115	150	150	150	
			-50 / -200	240	50	---	80	115	170	240	240		
					55	---	---	115	170	240	240		
			60	---	---	115	170	170	170	(240) ⁽²⁾	(240) ⁽²⁾		
												50	---
	25...40	Ex ec / NI	-50 / -200	150	50	---	---	95	150	150	150		
					60	---	---	95	150	150	150		
			-50 / -200	240	50	---	80	95	170	240	240		
					55	---	---	95	170	240	240		
			60	---	---	95	170	170	170	(240) ⁽²⁾	(240) ⁽²⁾		
												50	---
50...80	Ex ec / NI	-50 / -200	150	50	---	80	95	150	150	150			
				60	---	---	95	150	150	150			
		-50 / -200	240	50	---	80	95	160	240	240			
				55	---	---	95	160	240	240			
		60	---	---	95	160	170	170	(240) ⁽²⁾	(240) ⁽²⁾			
											50	---	80
100...250	Ex ec / NI	-50 / -200	150	50	---	---	95	150	150	150			
				60	---	---	95	150	150	150			
		-50 / -200	240	50	---	80	95	160	240	240			
				55	---	---	95	160	240	240			
		60	---	---	95	160	170	170	(240) ⁽²⁾	(240) ⁽²⁾			
											50	---	80
15...250	Ex ec / NI	-50 / -200	350	50	---	85	120	185	280	350			
				60	---	---	120	185	280	350			

Temperature class vs. Maximum ambient temperature (T _{a,max}) and Maximum permitted medium temperature (T _{m,max permitted})													
Sensor	Size / DN	Type of protection	Medium range T _m ⁽²⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)						
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T8 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)	
Promass H	08	Ex ec / NI	-50 / -200	205	-50 / -40	50	---	80	115	185	205	205	
	15...50	Ex ec / NI	-50 / -200	205		50	---	80	95	130	205	205	
Promass S, P	08	Ex ec / NI	-50	150		50	---	80	115	150	150	150	
				205		60	---	115	150	150	150		
	15...50	Ex ec / NI	-50	150		50	---	80	115	170	205	205	
				205		60	---	115	170	205	205		
Promass I	08...80	Ex ec / NI	-50	150		-50 / -40	50	---	80	95	150	150	150
							55	---	---	95	150	150	150
Promass O	80...250	Ex ec / NI	-50	205			60	---	---	95	160	205	205
							50	---	80	95	160	205	205
Promass X	350	Ex ec / NI	-50	205			55	---	---	95	150	150	150
							60	---	---	95	160	205	205
Promass Q	25...250	Ex ec / NI	-50 / -200	240	50		---	---	(95) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	
					50		---	80	95	160	240	240	
					60		---	---	95	160	240	240	

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 Specific requirements for Proline Promass 300 & Proline Cubemass 300 using a stainless steel (hygienic) enclosure:
 - the transmitter shall not be installed vertically above the sensor.
 - to maintain a temperature class T5 rating, the maximum applied ambient temperature shall be reduced by 3°C.

1.3.2. Versions with sensor rated in type of protection Ex ec nC or AEx ec nC

- Notes:
 - Refer to the nameplate on the sensor housing to determine the type of protection.
 - Type of protection Ex ec nC or AEx ec nC is applicable only for sensor versions without purge connection or rupture disk.
 - The table below is not applicable for versions rated Class I Division 2 (with order code "Approval" dd = CS).

Temperature class vs. Maximum ambient temperature (T _{a,max}) and Maximum permitted medium temperature (T _{m,max permitted})													
Sensor	Size / DN	Type of protection	Medium range T _m ⁽²⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)						
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T8 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)	
Promass A	01...04	Ex ec nC	-50	205	-50 / -40	50	---	95	130	195	205	205	
Cubemass C	01...08	Ex ec nC	-50	205		60	---	---	130	195	205	205	
						50	---	95	130	195	205	205	
Promass E	08...15	Ex ec nC	-50	205		60	---	---	130	195	205	205	
						50	---	95	130	195	205	205	
	25...80	Ex ec nC	-50	205		55	---	---	130	195	205	205	
						60	---	---	(130) ⁽²⁾	(195) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾	
Promass F	08...15	Ex ec nC	-50 / -200	150		-50 / -40	50	---	95	130	150	150	150
				240			60	---	---	130	150	150	150
			-50 / -200				50	---	95	130	195	240	240
							55	---	---	130	195	240	240
							60	---	---	130	170	170	170
										(240) ⁽²⁾	(240) ⁽²⁾	(240) ⁽²⁾	

<p>Endress+Hauser People for Process Automation</p> <p>Endress+Hauser Flow Kägenstrasse 7, 4153 Reinach, Basel-Landschaft, Switzerland</p>	Control Drawing - IECEx, ATEX, CSA, cCSA _{US}	Document No.:	FES0264
	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	I
	Thermal Parameter	Date:	15.04.2025
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Temperature class vs. Maximum ambient temperature (T _{a,max}) and Maximum permitted medium temperature (T _{m,max permitted})													
Sensor	Size / DN	Type of protection	Medium range T _m ⁽³⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)						
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T8 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)	
Promass F	25...80	Ex ec nC	-50 / -200	150	-50 / -40	50	---	95	130	150	150	150	
			-50 / -200	240		60	---	---	130	150	150	150	
			-50 / -200	240		50	---	95	130	195	240	240	
		-50 / -200	240	55		---	---	130	195	240	240		
		-50 / -200	240	60		---	---	130	170	170	170	(240) ⁽²⁾	(240) ⁽²⁾
		-50 / -200	240	60		---	---	130	170	170	170	(240) ⁽²⁾	(240) ⁽²⁾
	100...250	Ex ec nC	-50 / -200	150		50	---	95	130	150	150	150	150
			-50 / -200	240		60	---	---	130	150	150	150	150
			-50 / -200	240		50	---	95	130	195	240	240	
		-50 / -200	240	55		---	---	130	195	240	240		
		-50 / -200	240	60		---	---	130	170	170	170	(240) ⁽²⁾	(240) ⁽²⁾
		-50 / -200	240	60		---	---	130	170	170	170	(240) ⁽²⁾	(240) ⁽²⁾
15...250	Ex ec nC	-50 / -200	350	50	---	95	130	195	290	350	350		
		-50 / -200	350	60	---	---	130	195	290	350	350		
Promass H	08	Ex ec nC	-50 / -200	205	50	---	95	130	195	205	205		
	15...50	Ex ec nC	-50 / -200	205	60	---	---	130	195	205	205		
Promass S, P	08	Ex ec nC	-50	150	50	---	95	130	150	150	150		
			-50	205	60	---	---	130	150	150	150		
			-50	205	50	---	95	130	195	205	205		
	15...50	Ex ec nC	-50	150	60	---	---	130	195	205	205		
			-50	150	50	---	95	130	150	150	150		
			-50	205	60	---	---	130	150	150	150		
Promass I	08...80	Ex ec nC	-50	150	50	---	95	130	150	150	150		
			-50	150	55	---	---	130	150	150	150		
			-50	150	60	---	---	130	150	150	150		
			-50	150	60	---	---	130	195	205	205		
			-50	150	50	---	95	130	150	150	150		
			-50	150	60	---	---	130	150	150	150		
Promass O	80...250	Ex ec nC	-50	205	50	---	95	130	195	205	205		
			-50	205	55	---	---	130	195	205	205		
			-50	205	60	---	---	130	180	180	180		
			-50	205	60	---	---	130	180	180	180	(205) ⁽²⁾	(205) ⁽²⁾
Promass X	350	Ex ec nC	-50	205	50	---	95	130	195	205	205		
			-50	205	55	---	---	130	195	205	205		
			-50	205	60	---	---	130	195	205	205		
Promass Q	25...250	Ex ec nC	-50 / -200	240	50	---	95	130	195	240	240		
			-50 / -200	240	60	---	---	130	195	240	240		
			-50 / -200	240	60	---	---	130	195	240	240		

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

Specific notes for Proline Promass 300 & Proline Cubemass 300 using a stainless steel (hygienic) enclosure:
 - the transmitter shall not be installed vertically above the sensor.
 - to maintain a temperature class T5 rating, the maximum applied ambient temperature shall be reduced by 3°C.

1.4. Proline Promass 300 & Proline Cubemass 300 with thermal insulation in accordance with E+H's specifications
 Note: For thermal insulation specifications, refer to E+H's manuals.

1.4.1. Versions with sensor rated in type of protection Ex ec, AEx ec or NI (Cl. I Div. 2)

Note:

- Refer to the nameplate on the sensor housing to determine the type of protection.
- Versions using a stainless steel (hygienic) enclosure are not allowed to be installed with thermal insulation.

Temperature class vs. Maximum ambient temperature (T _{a, max}) and Maximum permitted medium temperature (T _{m, max permitted})												
Sensor	Size / DN	Type of protection	Medium range T _m ⁽³⁾		Ambient range T _a ⁽¹⁾		T _{m, max permitted} (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A	01...04	Ex ec / NI	-50	205	-50 / -40	50	---	90	130	170	205	205
						55	---	---	(130) ⁽²⁾	(170) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾
Cubemass C	01...06	Ex ec / NI	-50	205		50	---	95	130	195	205	205
						55	---	---	(130) ⁽²⁾	(170) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾
Promass E	08...15	Ex ec / NI	-50	205		50	---	80	115	165	205	205
						55	---	---	(115) ⁽²⁾	(140) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾
						25...80	Ex ec / NI	-50	205	50	---	60
55	---	---	(95) ⁽²⁾	(140) ⁽²⁾		(205) ⁽²⁾				(205) ⁽²⁾		
Promass F	08...15	Ex ec / NI	-50 / -200	150		50				---	80	115
						55	---	---	(115) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾
						50	---	80	115	170	240	240
	55	---	---	(115) ⁽²⁾		(170) ⁽²⁾	(240) ⁽²⁾	(240) ⁽²⁾				
	25...40	Ex ec / NI	-50 / -200	150		50	---	60	95	150	150	150
						55	---	---	(95) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾
50						---	60	95	170	240	240	
55	---	---	(95) ⁽²⁾	(170) ⁽²⁾		(240) ⁽²⁾	(240) ⁽²⁾					
50...80	Ex ec / NI	-50 / -200	150	50		---	60	95	150	150	150	
				55		---	---	(95) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	
				50		---	60	95	170	240	240	
	55	---	---	(95) ⁽²⁾		(170) ⁽²⁾	(240) ⁽²⁾	(240) ⁽²⁾				
	100...250	Ex ec / NI	-50 / -200	150		50	---	60	95	150	150	150
						55	---	---	(95) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾
50						---	60	95	180	240	240	
55	---	---	(95) ⁽²⁾	(180) ⁽²⁾		(240) ⁽²⁾	(240) ⁽²⁾					
15...250	Ex ec / NI	-50 / -200	350	50	---	85	120	185	280	350		
				60	---	---	120	185	280	350		
				50	---	80	115	165	205	205		
	55	---	---	(115) ⁽²⁾	(165) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾					
	Promass H	08	Ex ec / NI	-50 / -200	205	50	---	60	95	130	205	205
						55	---	---	(95) ⁽²⁾	(130) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾
15...50						Ex ec / NI	-50 / -200	205	50	---	80	115
55	---	---	(115) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾				(150) ⁽²⁾			
Promass S, P	08	Ex ec / NI	-50	150	50				---	60	95	150
					55	---	---	(115) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	
					50	---	80	115	170	205	205	
	55	---	---	(115) ⁽²⁾	(170) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾					
	15...50	Ex ec / NI	-50	150	50	---	60	95	150	150		
					55	---	---	(95) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	
50					---	60	95	180	205	205		
55	---	---	(95) ⁽²⁾	(180) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾						
Promass I	08...80	Ex ec / NI	-50	150	50	---	60	95	150	150		
					60	---	---	(95) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	
Promass O	80...250	Ex ec / NI	-50	205	50	---	60	95	180	205		
					55	---	---	(95) ⁽²⁾	(180) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾	
Promass X	350	Ex ec / NI	-50	205	50	---	60	95	160	205		
					55	---	---	(95) ⁽²⁾	(160) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾	
Promass Q	25...250	Ex ec / NI	-50 / -200	240	50	---	60	95	160	205		
					55	---	---	(40) ⁽²⁾	(95) ⁽²⁾	(160) ⁽²⁾	(240) ⁽²⁾	(240) ⁽²⁾

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

<p>Endress+Hauser People for Process Automation</p> <p>Endress+Hauser Flow Kägenstrasse 7, 4153 Reinach, Basel-Landschaft, Switzerland</p>	Control Drawing - IECEx, ATEX, CSA, cCSA _{US}	Document No.:	FES0264
	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	I
	Thermal Parameter	Date:	15.04.2025
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1.4.2. Versions with sensor rated in type of protection Ex ec nC or AEx ec nC

Notes:

- Refer to the nameplate on the sensor housing to determine the type of protection.
- Type of protection Ex ec nC or AEx ec nC is applicable only for sensor versions without purge connection or rupture disk.
- The table below is not applicable for versions rated Class I Division 2 (with order code "Approval" dd = CS).
- Versions using a stainless steel (hygienic) enclosure are not allowed to be installed with thermal insulation.

Temperature class vs. Maximum ambient temperature (T _{a, max}) and Maximum permitted medium temperature (T _{m, max permitted})												
Sensor	Size / DN	Type of protection	Medium range T _m ⁽³⁾		Ambient range T _a ⁽¹⁾		T _{m, max permitted} (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T8 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A	01...04	Ex ec nC	-50	205	-50 / -40	50	---	95	130	195	205	205
						55	---	---	(130) ⁽²⁾	(195) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾
Cubemass C	01...06	Ex ec nC	-50	205		50	---	95	130	195	205	205
						55	---	---	(130) ⁽²⁾	(195) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾
Promass E	08...15	Ex ec nC	-50	205		50	---	95	130	195	205	205
						55	---	---	(130) ⁽²⁾	(195) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾
	25...80	Ex ec nC	-50	205		50	---	95	130	195	205	205
						55	---	---	(130) ⁽²⁾	(195) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾
Promass F	08...15	Ex ec nC	-50 / -200	150		50	---	95	130	150	150	150
						55	---	---	(130) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾
			-50 / -200	240		50	---	95	130	195	240	240
						55	---	---	(130) ⁽²⁾	(195) ⁽²⁾	(240) ⁽²⁾	(240) ⁽²⁾
	25...80	Ex ec nC	-50 / -200	150		50	---	95	130	150	150	150
						55	---	---	(130) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾
			-50 / -200	240		50	---	95	130	195	240	240
						55	---	---	(130) ⁽²⁾	(195) ⁽²⁾	(240) ⁽²⁾	(240) ⁽²⁾
	100...250	Ex ec nC	-50 / -200	150		50	---	95	130	150	150	150
						55	---	---	(130) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾
			-50 / -200	240		50	---	95	130	195	240	240
						55	---	---	(130) ⁽²⁾	(195) ⁽²⁾	(240) ⁽²⁾	(240) ⁽²⁾
15...250	Ex ec nC	-50 / -200	350	50		---	95	130	195	290	350	
				60		---	---	130	195	290	350	
		-50 / -200	205	50		---	95	130	195	205	205	
				55		---	---	(130) ⁽²⁾	(195) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾	
Promass H	08	Ex ec nC	-50 / -200	205	50	---	95	130	195	205	205	
					55	---	---	(130) ⁽²⁾	(195) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾	
	15...50	Ex ec nC	-50 / -200	205	50	---	95	130	195	205	205	
					55	---	---	(130) ⁽²⁾	(195) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾	
Promass S, P	08	Ex ec nC	-50	150	50	---	95	130	150	150	150	
					55	---	---	(130) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	
			-50	205	50	---	95	130	195	205	205	
					55	---	---	(130) ⁽²⁾	(195) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾	
	15...50	Ex ec nC	-50	150	50	---	95	130	150	150	150	
					55	---	---	130	150	150	150	
			-50	205	50	---	95	130	195	205	205	
					55	---	---	(130) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	
Promass I	08...80	Ex ec nC	-50	150	50	---	95	130	150	150	150	
					60	---	---	(130) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	
Promass O	80...250	Ex ec nC	-50	205	50	---	95	130	195	205	205	
					55	---	---	(130) ⁽²⁾	(195) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾	
Promass X	350	Ex ec nC	-50	205	50	---	95	130	195	205	205	
					55	---	---	(130) ⁽²⁾	(195) ⁽²⁾	(205) ⁽²⁾	(205) ⁽²⁾	
Promass Q	25...250	Ex ec nC	-50 / -200	240	50	---	95	130	195	205	205	
					55	---	---	(40) ⁽²⁾	(95) ⁽²⁾	(160) ⁽²⁾	(240) ⁽²⁾	(240) ⁽²⁾

- Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

1.5. Proline Promass 300 & Proline Cubemass 300 with thermal insulation NOT in accordance with E+H's specifications

1.5.1. Versions with sensor rated in type of protection Ex ec, AEx ec or NI (Cl. I Div. 2)

Notes:

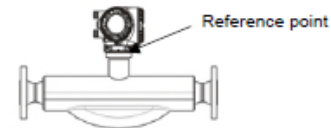
- Refer to the nameplate on the sensor housing to determine the type of protection.
- Versions using a stainless steel (hygienic) enclosure are not allowed to be installed with thermal insulation.

Temperature class vs. Maximum ambient temperature ($T_{a,max}$) and Maximum permitted reference temperature ($T_{ref,max permitted}$)											
Sensor	Size / DN	Medium range $T_m^{(3)}$		Ambient range $T_a^{(1)}$		Reference temperature $T_{ref,max permitted}^{(2)}$ (°C)					
		min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A	01...04	-50	205	-40 / -50	60	---	63	72	75	77	77
Cubemass C	01...06	-50	205								
Promass E	08...80	-50	205								
Promass F	08...250	-50 / -200	150 / 240 / 350								
Promass H	08...50	-50 / -200	205								
Promass S, P	08...50	-50	150 / 205								
Promass I	08...80	-50	150								
Promass O	80...250	-50	205								
Promass X	350	-50	205								
Promass Q	25...250	-50 / -200	240								

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).

(2) $T_{ref,max permitted}$: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref,max permitted}$ shall not exceed the values given in this table.

(3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).



1.5.2. Versions with sensor rated in type of protection Ex ec nC or AEx ec nC

Notes:

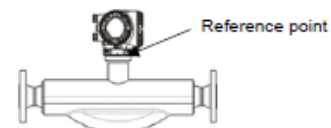
- Refer to the nameplate on the sensor housing to determine the type of protection.
- Type of protection Ex ec nC or AEx ec nC is applicable only for sensor versions without purge connection or rupture disk.
- The table below is not applicable for versions rated Class I Division 2 (with order code "Approval" dd = CS).
- Versions using a stainless steel (hygienic) enclosure are not allowed to be installed with thermal insulation.

Temperature class vs. Maximum ambient temperature ($T_{a,max}$) and Maximum permitted reference temperature ($T_{ref,max permitted}$)											
Sensor	Size / DN	Medium range $T_m^{(3)}$		Ambient range $T_a^{(1)}$		Reference temperature $T_{ref,max permitted}^{(2)}$ (°C)					
		min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A	01...04	-50	205	-40 / -50	60	---	63	72	75	77	77
Cubemass C	01...06	-50	205								
Promass E	08...80	-50	205								
Promass F	08...250	-50 / -200	150 / 240 / 350								
Promass H	08...50	-50 / -200	205								
Promass S, P	08...50	-50	150 / 205								
Promass I	08...80	-50	150								
Promass O	80...250	-50	205								
Promass X	350	-50	205								
Promass Q	25...250	-50 / -200	240								

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).

(2) $T_{ref,max permitted}$: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref,max permitted}$ shall not exceed the values given in this table.

(3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).



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2. Proline Promass A/E/F/H/I/O/P/Q/S/X 500 & Proline Cubemass C 500 (ISEM in transmitter, defined by the order code "ISEM electronic" k = B)

Notes: The chapter 2 applies to Proline Promass 500 and Proline Cubemass 500 versions with extended order code covering:

	flowmeter	flowmeter OEM version	replacement transmitter	replacement transmitter OEM
Proline Promass 500	8*5*** – dd*****B...	O8*5*** – dd*****B...	8x5xxx – dd*****B...	O8x5xxx – dd*****B...
Proline Cubemass 500				
with "Approval"	dd = CS, CZ (cCSAus / CSA) dd = BS (IECEx / ATEX)			

2.1. Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, this range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

2.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

2.3. Proline Promass 500 & Proline Cubemass 500 without thermal insulation

2.3.1. Versions with sensor rated in type of protection Ex ec, AEx ec or NI (Cl. I Div. 2)

Note:

- Refer to the nameplate on the sensor housing to determine the type of protection.

Transmitter temperature class vs. Maximum ambient temperature (T _{a,max})		
Transmitter	T _{a,max} (°C)	Temperature class
Proline Promass 500 & Proline Cubemass 500	80	T4 (135°C)
	45	T5 (100°C)

Notes: T_{a,min} = -40°C, -50°C or may be further limited (see the nameplate on the transmitter housing)

Sensor temperature class vs. Max. ambient temperature (T _{a,max}) & Max. permitted medium temperature (T _{m,max permitted})												
Sensor	Size / DN	Type of protection	Medium range T _m ⁽²⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A	01...04	Ex ec / NI	-50	205	-50 / -40	50	50	95	130	170	205	205
						80	---	95	130	170	205	205
Cubemass C	01...08	Ex ec / NI	-50	205		60	---	90	130	140	205	205
						45	45	80	115	165	205	205
Promass E	08...50	Ex ec / NI	-50	205		60	---	80	115	165	205	205
						80	---	80	95	140	205	205
						50	50	80	115	150	150	150
						60	---	---	115	150	150	150
Promass F	08...15	Ex ec / NI	-50 / -200	150		50	50	80	115	170	240	240
						60	---	---	115	150	150	150
						45	50	80	115	170	240	240
						60	---	80	115	170	240	240
					45	60	60	95	150	150	150	
					60	---	60	95	150	150	150	
	25...40	Ex ec / NI	-50 / -200	150	45	60	60	95	150	150	150	
					60	---	60	95	150	150	150	
					45	60	60	95	170	240	240	
					60	---	60	95	170	240	240	
					45	60	60	95	170	240	240	
					60	---	60	95	170	240	240	
50...80	Ex ec / NI	-50 / -200	150	45	60	60	95	150	150	150		
				60	---	60	95	150	150	150		
				45	60	60	95	180	240	240		
				60	---	60	95	180	240	240		
				45	60	60	95	180	240	240		
				60	---	60	95	180	240	240		
100...250	Ex ec / NI	-50 / -200	150	45	60	60	95	150	150	150		
				60	---	60	95	150	150	150		
				45	60	60	95	180	240	240		
				60	---	60	95	180	240	240		
				45	60	60	95	180	240	240		
				60	---	60	95	180	240	240		
Promass H	15...250	Ex ec / NI	-50 / -200	350	60	70	85	120	185	280	350	
					50	45	80	115	165	205	205	
15...50	Ex ec / NI	-50 / -200	205	60	---	80	115	165	205	205		
				60	---	60	95	130	205	205		

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	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	I
	Thermal Parameter	Date:	15.04.2025
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Sensor temperature class vs. Max. ambient temperature (T _{a,max}) & Max. permitted medium temperature (T _{m,max permitted})												
Sensor	Size / DN	Type of protection	Medium range T _m ⁽²⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass S, P	08	Ex ec / NI	-50	150	-50 / -40	45	45	80	115	150	150	150
			-50	205		60	---	80	115	150	150	150
			-50	205		45	45	80	115	170	205	205
	15...50	Ex ec / NI	-50	150		60	---	80	115	170	205	205
			-50	205		45	45	80	95	150	150	150
			-50	205		60	---	80	95	150	150	150
Promass I	08...80	Ex ec / NI	-50	150	45	45	80	95	150	150	150	
Promass O	80...250	Ex ec / NI	-50	205	60	---	80	95	150	150	150	
Promass X	350	Ex ec / NI	-50	205	45	45	80	95	160	205	205	
Promass Q	25...250	Ex ec / NI	-50 / -200	240	60	---	80	95	160	205	205	
						45	45	80	95	180	240	240
						60	---	80	95	180	240	240

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

2.3.2. Versions with sensor rated in type of protection Ex ec nC or AEx ec nC

Notes:

- Refer to the nameplate on the sensor housing to determine the type of protection.
- Type of protection Ex ec nC or AEx ec nC is applicable only for sensor versions without purge connection or rupture disk.
- The table below is not applicable for versions rated Class I Division 2 (with order code "Approval" dd = CS).

Transmitter temperature class vs. Maximum ambient temperature (T _{a,max})		
Transmitter	T _{a,max} (°C)	Temperature class
Proline Promass 500 & Proline Cubemass 500	60	T4 (135°C)
	45	T5 (100°C)

Notes: T_{a,min} = -40°C, -50°C or may be further limited (see the nameplate on the transmitter housing)

Sensor temperature class vs. Max. ambient temperature (T _{a,max}) & Max. permitted medium temperature (T _{m,max permitted})												
Sensor	Size / DN	Type of protection	Medium range T _m ⁽²⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A	01 ... 04	Ex ec nC	-50	205	-50 / -40	60	80	95	130	195	205	205
Cubemass C	01 ... 06	Ex ec nC	-50	205		60	80	95	130	195	205	205
Promass E	08 ... 15	Ex ec nC	-50	205		60	80	95	130	195	205	205
	25 ... 80	Ex ec nC	-50	205		60	80	95	130	195	205	205
Promass F	08 ... 15	Ex ec nC	-50 / -200	150		60	80	95	130	150	150	150
			-50 / -200	240		60	80	95	130	195	240	240
	25 ... 80	Ex ec nC	-50 / -200	150		60	80	95	130	150	150	150
			-50 / -200	240		60	80	95	130	195	240	240
	100...250	Ex ec nC	-50 / -200	150		60	80	95	130	150	150	150
			-50 / -200	240		60	80	95	130	195	240	240
Promass H	08	Ex ec nC	-50 / -200	350		60	80	95	130	195	290	350
Promass S, P	08	Ex ec nC	-50	150		60	80	95	130	150	150	150
			-50	205		60	80	95	130	195	205	205
Promass S, P	15 ... 50	Ex ec nC	-50	150		60	80	95	130	150	150	150
			-50	205		60	80	95	130	195	205	205
Promass I	8 ... 80	Ex ec nC	-50	150		60	80	95	130	150	150	150
Promass O	80...250	Ex ec nC	-50	205		60	80	95	130	195	205	205
Promass X	350	Ex ec nC	-50	205		60	80	95	130	195	205	205
Promass Q	25...250	Ex ec nC	-50 / -200	240		60	80	95	130	195	240	240

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).



2.4. Proline Promass 500 & Proline Cubemass 500 with thermal insulation in accordance with E+H's specifications

Notes:

- For thermal insulation specifications, refer to E+H's manuals.
- Versions with a stainless steel (hygienic) enclosure are not allowed to be installed with thermal insulation.

2.4.1. Versions with sensor rated in type of protection Ex ec, AEx ec or NI (Cl. I Div. 2)

Note: Refer to the nameplate on the sensor housing to determine the type of protection.

Transmitter temperature class vs. Maximum ambient temperature (T _{a,max})		
Transmitter	T _{a,max} (°C)	Temperature class
Proline Promass 500 & Proline Cubemass 500	60	T4 (135°C)
	45	T5 (100°C)

Notes: T_{a,min} = -40°C, -50°C or may be further limited (see the nameplate on the transmitter housing)

Sensor temperature class vs. Max. ambient temperature (T _{a,max}) & Max. permitted medium temperature (T _{m,max permitted})																
Sensor	Size / DN	Type of protection	Medium range T _m ⁽³⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)									
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)				
Promass A	01...04	Ex ec / NI	-50	205	-50 / -40	50	50	95	130	150	150	150	150			
						60	---	95	130	150	150	150	150			
Cubemass C	01...06	Ex ec / NI	-50	205		50	---	90	130	140	(180) ⁽²⁾	(180) ⁽²⁾	(180) ⁽²⁾			
						60	---	90	130	140	150	150	150			
Promass E	08...15	Ex ec / NI	-50	205		45	45	80	115	165	205	205	205			
						60	---	80	115	165	205	205	205			
Promass F	08...15	Ex ec / NI	-50 / -200	150		50	50	80	115	150	150	150	150			
						60	---	80	115	150	150	150	150			
						50	50	80	115	170	240	240	240			
						60	---	80	115	170	240	240	240			
						25...40	Ex ec / NI	-50 / -200	150	45	60	60	95	150	150	150
						60				---	60	95	150	150	150	
	100...250	Ex ec / NI	-50 / -200	150	45	60	60	95	160	240	240					
					60	---	60	95	160	240	240					
					60	---	60	95	160	240	240					
					60	---	60	95	160	240	240					
					15...250	Ex ec / NI	-50 / -200	350	60	70	85	120	185	280	350	
					60				---	80	115	165	205	205		
Promass H	08	Ex ec / NI	-50 / -200	205	60	---	80	115	165	205	205					
					60	---	80	95	130	205	205					
Promass S, P	08	Ex ec / NI	-50	150	45	45	80	115	150	150	150					
					60	---	80	115	150	150	150					
					45	45	80	115	170	205	205					
					60	---	80	115	170	205	205					
					15...50	Ex ec / NI	-50	150	45	45	80	95	150	150	150	
					60				---	60	95	150	150	150		
Promass I	08...80	Ex ec / NI	-50	150	45	45	80	95	160	205	205					
					60	---	60	95	150	150	150					
					60	---	60	95	150	150	150					
Promass O	80...250	Ex ec / NI	-50	205	45	45	80	95	160	205	205					
					60	---	60	95	160	205	205					
Promass X	350	Ex ec / NI	-50	205	45	45	80	95	160	205	205					
					60	---	60	95	160	205	205					
Promass Q	25...250	Ex ec / NI	-50 / -200	240	45	45	80	95	160	240	240					
					60	---	60	95	160	240	240					

- Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

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	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	I
	Thermal Parameter	Date:	15.04.2025
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2.4.2. Versions with sensor rated in type of protection Ex ec nC or AEx ec nC

Notes:

- Refer to the nameplate on the sensor housing to determine the type of protection.
- Type of protection Ex ec nC or AEx ec nC is applicable only for sensor versions without purge connection or rupture disk.
- The table below is not applicable for versions rated Class I Division 2 (with order code "Approval" dd = CS).

Transmitter temperature class vs. Maximum ambient temperature (T _{a,max})		
Transmitter	T _{a,max} (°C)	Temperature class
Proline Promass 500 & Proline Cubemass 500	60	T4 (135°C)
	45	T5 (100°C)

Notes: T_{a,min} = -40°C, -50°C or may be further limited (see the nameplate on the transmitter housing)

Sensor temperature class vs. Max. ambient temperature (T _{a,max}) & Max. permitted medium temperature (T _{m,max permitted})												
Sensor	Size / DN	Type of protection	Medium range T _m ⁽³⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A	01...04	Ex ec nC	-50	205	-50 / -40	50	80	95	130	150	150 (180) ⁽²⁾	150 (180) ⁽²⁾
						60	---	95	130	150	150	150
Cubemass C	01...06	Ex ec nC	-50	205		50	80	95	130	150	150 (180) ⁽²⁾	150 (180) ⁽²⁾
						60	80	95	130	150	150	150
Promass E	08...15	Ex ec nC	-50	205		60	80	95	130	195	205	205
	25...80	Ex ec nC	-50	205		60	80	95	130	195	205	205
Promass F	08...15	Ex ec nC	-50 / -200	150		60	80	95	130	150	150	150
			-50 / -200	240		60	80	95	130	195	240	240
	25...80	Ex ec nC	-50 / -200	150		60	80	95	130	150	150	150
			-50 / -200	240		60	80	95	130	195	240	240
	100...250	Ex ec nC	-50 / -200	150		60	80	95	130	150	150	150
			-50 / -200	240		60	80	95	130	195	240	240
	15...250	Ex ec nC	-50 / -200	350		60	80	95	130	195	290	350
Promass H	08	Ex ec nC	-50 / -200	205		60	80	95	130	195	205	205
	15...50	Ex ec nC	-50 / -200	205		60	80	95	130	195	205	205
Promass S, P	08	Ex ec nC	-50	150		60	80	95	130	150	150	150
			-50	205		60	80	95	130	195	205	205
	15...50	Ex ec nC	-50	150		60	80	95	130	150	150	150
			-50	205		60	80	95	130	195	205	205
Promass I	08...80	Ex ec nC	-50	150		60	80	95	130	150	150	150
Promass O	80...250	Ex ec nC	-50	205	60	80	95	130	195	205	205	
Promass X	350	Ex ec nC	-50	205	60	80	95	130	195	205	205	
Promass Q	25...250	Ex ec nC	-50 / -200	240	60	80	95	130	195	240	240	

- Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

2.5. Proline Promass 500 & Proline Cubemass 500 with thermal insulation NOT in accordance with E+H's specifications

Note:

- Versions with a stainless steel (hygienic) enclosure are not allowed to be installed with thermal insulation.

2.5.1. Versions with sensor rated in type of protection Ex ec, AEx ec or NI (Cl. I Div. 2)

Note:

- Refer to the nameplate on the sensor housing to determine the type of protection.

Transmitter temperature class vs. Maximum ambient temperature (T _{a,max})		
Transmitter	T _{a,max} (°C)	Temperature class
Proline Promass 500 & Proline Cubemass 500	60	T4 (135°C)
	45	T5 (100°C)

Notes: T_{a,min} = -40°C, -50°C or may be further limited (see the nameplate on the transmitter housing)

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	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	I
	Thermal Parameter	Date:	15.04.2025
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Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted reference temperature ($T_{ref,max}$ permitted)											
Sensor	Size / DN	Medium range $T_m^{(3)}$		Ambient range $T_a^{(1)}$		Reference temperature $T_{ref,max}$ permitted ⁽²⁾ (°C)					
		min. (°C)	max. (°C)	min. (°C)	max. (°C)	T8 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A	01...04	-50	205	-50 / -40	60	69	72	84	91	91	91
Cubemass C	01...06	-50	205								
Promass E	08...80	-50	205								
Promass F	08...250	-50 / -200	150 / 240 / 350								
Promass H	08...50	-50 / -200	205								
Promass S, P	08...50	-50	150 / 205								
Promass I	08...80	-50	150								
Promass O	80...250	-50	205								
Promass X	350	-50	205								
Promass Q	25...250	-50 / -200	240								

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) $T_{ref,max}$: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref,max}$ permitted shall not exceed the values given in this table.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

2.5.2. Versions with sensor rated in type of protection Ex ec nC or AEx ec nC

Notes:

- Refer to the nameplate on the sensor housing to determine the type of protection.
- Type of protection Ex ec nC or AEx ec nC is applicable only for sensor versions without purge connection or rupture disk.
- The table below is not applicable for versions rated Class I Division 2 (with order code "Approval" dd = CS).

Transmitter temperature class vs. Maximum ambient temperature ($T_{a,max}$)		
Transmitter	$T_{a,max}$ (°C)	Temperature class
Proline Promass 500 & Proline Cubemass 500	60	T4 (135°C)
	45	T5 (100°C)

Notes: $T_{a,min}$ = -40°C, -50°C or may be further limited (see the nameplate on the transmitter housing)

Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted reference temperature ($T_{ref,max}$ permitted)											
Sensor	Size / DN	Medium range $T_m^{(3)}$		Ambient range $T_a^{(1)}$		Reference temperature $T_{ref,max}$ permitted ⁽²⁾ (°C)					
		min. (°C)	max. (°C)	min. (°C)	max. (°C)	T8 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A	01...04	-50	205	-50 / -40	60	69	72	84	91	91	91
Cubemass C	01...06	-50	205								
Promass E	08...80	-50	205								
Promass F	08...250	-50 / -200	150 / 240 / 350								
Promass H	08...50	-50 / -200	205								
Promass S, P	08...50	-50	150 / 205								
Promass I	08...80	-50	150								
Promass O	80...250	-50	205								
Promass X	350	-50	205								
Promass Q	25...250	-50 / -200	240								

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) $T_{ref,max}$: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref,max}$ permitted shall not exceed the values given in this table.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).



3. Proline Promass A/E/F/H/I/O/P/Q/S/X 500 Digital & Proline Cubemass 500 Digital (ISEM in sensor, defined by the order code "ISEM electronic" k = A)

Notes: The chapter 3 applies to Proline Promass 500 Digital & Proline Cubemass 500 Digital versions with extended order code covering:

	flowmeter	flowmeter OEM version	replacement transmitter	replacement transmitter OEM
Proline Promass 500 Digital	8*5*** – dd*****A...	08*5*** – dd*****A...	8x5xxx – dd*****A...	08x5xxx – dd*****A...
Proline Cubemass 500 Digital with "Approval"	dd = CS, CZ dd = BS, BL	(cCSAus / CSA) (IECEX / ATEX)		

3.1. Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, this range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

3.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

3.3. Proline Promass 500 Digital & Proline Cubemass 500 Digital without thermal insulation

3.3.1. Versions with sensor rated in type of protection Ex ec, AEx ec or NI (Cl. I Div. 2)

Note: Refer to the nameplate on the sensor housing to determine the type of protection.

Transmitter temperature class vs. Maximum ambient temperature (T _{a, max})				
Transmitter	Type of enclosure	T _{a, min} (°C)	T _{a, max} (°C)	Temperature class
Proline Promass 500 Digital & Proline Cubemass 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
			45	T5 (100°C)

Notes: (1) T_{a, min} = -50°C for aluminium enclosure, T_{a, min} = -40°C for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BL): T_{a, max} = 60°C.
 Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature (T _{a, max}) & Max. permitted medium temperature (T _{m, max permitted})												
Sensor	Size / DN	Type of protection	Medium range T _m ⁽³⁾		Ambient range T _a ⁽¹⁾		T _{m, max permitted} (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A (type 8A5B)	01...04	Ex ec / NI	-50	205	-50 / -40	60	---	95	130	170	205	205
Promass A (type 8A5C)	01...04	Ex ec / NI	-50	205		55	---	95	130	170	205	205
Cubemass C	01...06	Ex ec / NI	-50	205		60	---	95	130	140	205	205
						55	---	95	130	140	160	160
Promass E	08...15	Ex ec / NI	-50	205		60	---	75	115	165	205	205
						25...80	Ex ec / NI	-50	205	60	---	60
Promass F	08...15	Ex ec / NI	-50 / -200	150		55	---	80	115	130	150	150
						60	---	80	115	130	130	130
						60	---	80	115	170	240	240
						55	---	60	95	150	150	150
	25...40	Ex ec / NI	-50 / -200	150		60	---	60	95	130	130	130
						60	---	60	95	170	240	240
						55	---	60	95	150	150	150
						60	---	60	95	130	130	130
	50...80	Ex ec / NI	-50 / -200	150		60	---	60	95	160	240	240
						55	---	60	95	150	150	150
						60	---	60	95	130	130	130
						60	---	60	95	160	240	240
100...250	Ex ec / NI	-50 / -200	150	55		---	60	95	150	150	150	
				60		---	60	95	130	130	130	
				60		---	60	95	160	240	240	
				55		---	60	95	150	150	150	
15...250	Ex ec / NI	-50 / -200	350	60		---	60	95	185	280	350	
				60		---	60	95	130	130	130	
				60	---	60	95	160	240	240		
				50	---	85	120	185	280	350		
Promass H	08	Ex ec / NI	-50 / -200	205	60	---	80	115	165	205	205	
					15...50	Ex ec / NI	-50 / -200	205	60	---	60	95

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	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	I
	Thermal Parameter	Date:	15.04.2025
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Sensor temperature class vs. Max. ambient temperature (T _{a,max}) & Max. permitted medium temperature (T _{m,max permitted})												
Sensor	Size / DN	Type of protection	Medium range T _m ⁽³⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass S, P	08	Ex ec / NI	-50	150	-50 / -40	60	---	80	115	150	150	150
			-50	205		80	---	80	115	170	205	205
	15...50	Ex ec / NI	-50	150		80	---	60	95	150	150	150
-50			205	80		---	60	95	160	205	205	
Promass I	08...80	Ex ec / NI	-50	150		55	---	60	95	150	150	150
Promass O	80...250	Ex ec / NI	-50	205		60	---	60	95	140	140	140
			-50	205		60	---	60	95	160	205	205
Promass X	350	Ex ec / NI	-50	205		80	---	60	95	160	205	205
Promass Q	25...250	Ex ec / NI	-50 / -200	240		60	---	60	95	160	240	240

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

3.3.2. Versions with sensor rated in type of protection Ex ec nC, AEx ec nC

Notes:

- Refer to the nameplate on the sensor housing to determine the type of protection.
- Type of protection Ex ec nC or AEx ec nC is applicable only for sensor versions without purge connection or rupture disk.
- The following temperature tables are not applicable for versions rated Class I Division 2 (with order code "Approval" dd = CS).

Transmitter temperature class vs. Maximum ambient temperature (T _{a,max})				
Transmitter	Type of enclosure	T _{a,min} (°C)	T _{a,max} (°C)	Temperature class
Proline Promass 500 Digital & Proline Cubemass 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
			45	T5 (100°C)

Notes: (1) T_{a,min} = -50°C for aluminium enclosure, T_{a,min} = -40°C for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BL): T_{a,max} = 60°C. Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature (T _{a,max}) & Max. permitted medium temperature (T _{m,max permitted})												
Sensor	Size / DN	Type of protection	Medium range T _m ⁽³⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A (type 8A5B)	01...04	Ex ec nC	-50	205	-50 / -40	60	---	95	130	195	205	205
Promass A (type 8A5C)	01...04	Ex ec nC	-50	205		55	---	95	130	195	205	205
Cubemass C	01...06	Ex ec nC	-50	205		60	---	95	130	190	190	190
			-50	205		55	---	95	130	195	205	205
Promass E	08...15	Ex ec nC	-50	205		60	---	95	130	160	160	160
			-50	205		60	---	95	130	195	205	205
Promass F	08...15	Ex ec nC	-50 / -200	150		55	---	95	130	130	150	150
			-50 / -200	240		60	---	95	130	130	130	130
			-50 / -200	240		60	---	95	130	195	240	240
			-50 / -200	150		55	---	95	130	150	150	150
			-50 / -200	240		60	---	95	130	130	130	130
			-50 / -200	240		60	---	95	130	195	240	240
	100...250	Ex ec nC	-50 / -200	150		55	---	95	130	150	150	150
			-50 / -200	240		60	---	95	130	130	130	130
			-50 / -200	240		60	---	95	130	195	240	240
			-50 / -200	150		50	---	95	130	195	290	350
			-50 / -200	240		60	---	95	130	195	240	240
			-50 / -200	350		60	---	95	130	195	240	240
Promass H	08	Ex ec nC	-50 / -200	205		60	---	95	130	195	205	205
			-50 / -200	205		60	---	95	130	195	205	205
Promass S, P	08	Ex ec nC	-50	150		60	---	95	130	150	150	150
			-50	205		60	---	95	130	195	205	205
			-50	150		60	---	95	130	150	150	150
			-50	205		60	---	95	130	195	205	205



Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted medium temperature ($T_{m, max}$ permitted)												
Sensor	Size / DN	Type of protection	Medium range $T_m^{(3)}$		Ambient range $T_a^{(1)}$		$T_{m, max}$ permitted ($^{\circ}C$)					
			min. ($^{\circ}C$)	max. ($^{\circ}C$)	min. ($^{\circ}C$)	max. ($^{\circ}C$)	T6 (85 $^{\circ}C$)	T5 (100 $^{\circ}C$)	T4 (135 $^{\circ}C$)	T3 (200 $^{\circ}C$)	T2 (300 $^{\circ}C$)	T1 (450 $^{\circ}C$)
Promass I	8 ... 80	Ex ec nC	-50	150	-50 / -40	55	---	95	130	150	150	150
						60	---	95	130	140	140	140
Promass O	80...250	Ex ec nC	-50	205		60	---	95	130	195	205	205
Promass X	350	Ex ec nC	-50	205		60	---	95	130	195	205	205
Promass Q	25...250	Ex ec nC	-50 / -200	240		60	---	95	130	195	240	240

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

3.4. Proline Promass 500 Digital & Proline Cubemass 500 Digital with thermal insulation in accordance with E+H's specifications

Notes:
 - For thermal insulation specifications, refer to E+H's manuals.

3.4.1. Versions with sensor rated in type of protection Ex ec, AEx ec or NI (Cl. I Div. 2)

Note: Refer to the nameplate on the sensor housing to determine the type of protection.

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)				
Transmitter	Type of enclosure	$T_{a, min}$ ($^{\circ}C$)	$T_{a, max}$ ($^{\circ}C$)	Temperature class
Proline Promass 500 Digital & Proline Cubemass 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135 $^{\circ}C$)
			45	T5 (100 $^{\circ}C$)

Notes: (1) $T_{a, min}$ = -50 $^{\circ}C$ for aluminium enclosure, $T_{a, min}$ = -40 $^{\circ}C$ for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BL): $T_{a, max}$ = 60 $^{\circ}C$. Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted medium temperature ($T_{m, max}$ permitted)																				
Sensor	Size / DN	Type of protection	Medium range $T_m^{(2)}$		Ambient range $T_a^{(1)}$		$T_{m, max}$ permitted ($^{\circ}C$)													
			min. ($^{\circ}C$)	max. ($^{\circ}C$)	min. ($^{\circ}C$)	max. ($^{\circ}C$)	T6 (85 $^{\circ}C$)	T5 (100 $^{\circ}C$)	T4 (135 $^{\circ}C$)	T3 (200 $^{\circ}C$)	T2 (300 $^{\circ}C$)	T1 (450 $^{\circ}C$)								
Promass A	01...04	Ex ec / NI	-50	205	-50 / -40	50	---	95	130	130	130	130								
Cubemass C	01...06	Ex ec / NI	-50	205		50	---	90	130	130	130	130								
Promass E	08...15	Ex ec / NI	-50	205		50	---	75	115	165	205	205								
						50	---	60	95	140	205	205								
Promass F	08...15	Ex ec / NI	-50 / -200	150		45	---	80	115	150	150	150								
						50	---	80	115	130	130	130								
						50	---	80	115	170	240	240								
						25...40	Ex ec / NI	-50 / -200	150	45	---	60	95	150	150	150				
						50				---	60	95	130	130	130					
						50				---	60	95	170	240	240					
	100...250	Ex ec / NI	-50 / -200	150		45	---	60	95	150	150	150								
						50	---	60	95	130	130	130								
						50	---	60	95	170	240	240								
						15...250	Ex ec / NI	-50 / -200	350	50	---	85	120	185	280	350				
						Promass H				08	Ex ec / NI	-50 / -200	205	55	---	80	115	165	205	205
						15...50								Ex ec / NI	-50 / -200	205	55	---	60	95
Promass S, P	08	Ex ec / NI	-50	150		45	---	80	100	150	150	150								
						50	---	80	100	130	130	130								
						55	---	80	115	170	205	205								
	15...50	Ex ec / NI	-50	150		45	---	60	95	150	150	150								
					50	---	60	95	130	130	130									
					55	---	60	95	160	205	205									

<p>Endress+Hauser People for Process Automation</p> <p>Endress+Hauser Flow Kagenstrasse 7, 4153 Reinach, Basel-Landschaft, Switzerland</p>	Control Drawing - IECEx, ATEX, CSA, cCSA _{US}	Document No.:	FES0264
	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	I
	Thermal Parameter	Date:	15.04.2025
	EPL Gc (Zone 2); Class I Zone 2; Class I Division 2	Page:	14/17

Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted medium temperature ($T_{m,max}$ permitted)												
Sensor	Size / DN	Type of protection	Medium range $T_m^{(2)}$		Ambient range $T_a^{(1)}$		$T_{m,max}$ permitted ($^{\circ}C$)					
			min. ($^{\circ}C$)	max. ($^{\circ}C$)	min. ($^{\circ}C$)	max. ($^{\circ}C$)	T6 (85 $^{\circ}C$)	T5 (100 $^{\circ}C$)	T4 (135 $^{\circ}C$)	T3 (200 $^{\circ}C$)	T2 (300 $^{\circ}C$)	T1 (450 $^{\circ}C$)
Promass I	08...80	Ex ec / NI	-50	150	-50 / -40	45	---	60	95	150	150	150
						50	---	60	95	130	130	130
Promass O	80...250	Ex ec / NI	-50	205		55	---	60	95	160	205	205
Promass X	350	Ex ec / NI	-50	205		55	---	60	95	160	205	205
Promass Q	25...250	Ex ec / NI	-50 / -200	240		50	---	60	95	160	240	240

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

3.4.2. Versions with sensor rated in type of protection Ex ec nC, AEx ec nC

- Notes:
- Refer to the nameplate on the sensor housing to determine the type of protection.
 - Type of protection Ex ec nC or AEx ec nC is applicable only for sensor versions without purge connection or rupture disk.
 - The following temperature tables are not applicable for versions rated Class I Division 2 (with order code "Approval" dd = CS).

Transmitter temperature class vs. Maximum ambient temperature ($T_{a,max}$)				
Transmitter	Type of enclosure	$T_{a,min}$ ($^{\circ}C$)	$T_{a,max}$ ($^{\circ}C$)	Temperature class
Proline Promass 500 Digital & Proline Cubemass 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135 $^{\circ}C$)
			45	T5 (100 $^{\circ}C$)

Notes: (1) $T_{a,min}$ = -50 $^{\circ}C$ for aluminium enclosure, $T_{a,min}$ = -40 $^{\circ}C$ for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BL): $T_{a,max}$ = 60 $^{\circ}C$. Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted medium temperature ($T_{m,max}$ permitted)												
Sensor	Size / DN	Type of protection	Medium range $T_m^{(2)}$		Ambient range $T_a^{(1)}$		$T_{m,max}$ permitted ($^{\circ}C$)					
			min. ($^{\circ}C$)	max. ($^{\circ}C$)	min. ($^{\circ}C$)	max. ($^{\circ}C$)	T6 (85 $^{\circ}C$)	T5 (100 $^{\circ}C$)	T4 (135 $^{\circ}C$)	T3 (200 $^{\circ}C$)	T2 (300 $^{\circ}C$)	T1 (450 $^{\circ}C$)
Promass A	01...04	Ex ec nC	-50	205	-50 / -40	50	---	95	130	130	130	130
Cubemass C	01...06	Ex ec nC	-50	205		50	---	95	130	130	130	130
Promass E	08...15	Ex ec nC	-50	205		50	---	95	130	195	205	205
	25...80	Ex ec nC	-50	205		50	---	95	130	195	205	205
Promass F	08...15	Ex ec nC	-50 / -200	150		45	---	95	130	150	150	150
			-50 / -200	240		50	---	95	130	130	130	130
			-50 / -200	240		50	---	95	130	195	240	240
			-50 / -200	240		50	---	95	130	195	240	240
	25...80	Ex ec nC	-50 / -200	150		45	---	95	130	150	150	150
			-50 / -200	240		50	---	95	130	130	130	130
			-50 / -200	240		50	---	95	130	195	240	240
			-50 / -200	240		50	---	95	130	195	240	240
15...250	Ex ec nC	-50 / -200	150	45		---	95	130	150	150	150	
		-50 / -200	240	50		---	95	130	130	130	130	
	15...250	Ex ec nC	-50 / -200	350		50	---	95	130	195	280	350
Promass H	08	Ex ec nC	-50 / -200	205		55	---	95	130	195	205	205
			-50 / -200	205		55	---	95	130	195	205	205
Promass S, P	08	Ex ec nC	-50	150		45	---	95	130	150	150	150
			-50	205		50	---	95	130	130	130	130
			-50	205		55	---	95	130	195	205	205
	15...50	Ex ec nC	-50	150	45	---	95	130	150	150	150	
			-50	205	50	---	95	130	130	130	130	
			-50	205	55	---	95	130	195	205	205	
Promass I	08...80	Ex ec nC	-50	150	45	---	95	130	150	150	150	
Promass O	80...250	Ex ec nC	-50	205	55	---	95	130	195	205	205	
Promass X	350	Ex ec nC	-50	205	55	---	95	130	195	205	205	
Promass Q	25...250	Ex ec nC	-50 / -200	240	50	---	95	130	195	240	240	

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

<p>Endress+Hauser People for Process Automation</p> <p>Endress+Hauser Flow Kägenstrasse 7, 4153 Reinach, Basel-Landschaft, Switzerland</p>	Control Drawing - IECEx, ATEX, CSA, cCSA _{US}	Document No.:	FES0264
	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	I
	Thermal Parameter	Date:	15.04.2025
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3.5. Proline Promass 500 Digital & Proline Cubemass 500 Digital with thermal insulation NOT in accordance with E+H's specifications

3.5.1. Versions with sensor rated in type of protection Ex ec, AEx ec or NI (Cl. I Div. 2)

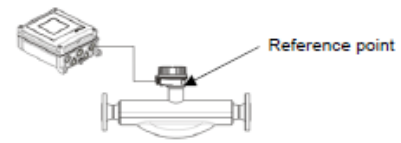
Note: Refer to the nameplate on the sensor housing to determine the type of protection.

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)				
Transmitter	Type of enclosure	$T_{a, min}$ (°C)	$T_{a, max}$ (°C)	Temperature class
Proline Promass 500 Digital & Proline Cubemass 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
			45	T5 (100°C)

Notes: (1) $T_{a, min} = -50^{\circ}\text{C}$ for aluminium enclosure, $T_{a, min} = -40^{\circ}\text{C}$ for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BL): $T_{a, max} = 60^{\circ}\text{C}$. Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted reference temperature ($T_{ref, max permitted}$)											
Sensor	Size / DN	Medium range T_m ⁽³⁾		Ambient range T_a ⁽¹⁾		Reference temperature $T_{ref, max permitted}$ ⁽²⁾ (°C)					
		min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A	01...04	-50	205	-50 / -40	60	---	72	82	85	85	85
Cubemass C	01...06	-50	205								
Promass E	08...80	-50	205								
Promass F	08...250	-50 / -200	150 / 240 / 350								
Promass H	08...50	-50 / -200	205								
Promass S, P	08...50	-50	150 / 205								
Promass I	08...80	-50	150								
Promass O	80...250	-50	205								
Promass X	350	-50	205								
Promass Q	25...250	-50 / -200	240								

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) $T_{ref, max permitted}$: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref, max permitted}$ shall not exceed the values given in this table.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).



3.4.2. Versions with sensor rated in type of protection Ex ec nC, AEx ec nC

Notes:
 - Refer to the nameplate on the sensor housing to determine the type of protection.
 - Type of protection Ex ec nC or AEx ec nC is applicable only for sensor versions without purge connection or rupture disk.
 - The following temperature tables are not applicable for versions rated Class I Division 2 (with order code "Approval" dd = CS).

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)				
Transmitter	Type of enclosure	$T_{a, min}$ (°C)	$T_{a, max}$ (°C)	Temperature class
Proline Promass 500 Digital & Proline Cubemass 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
			45	T5 (100°C)

Notes: (1) $T_{a, min} = -50^{\circ}\text{C}$ for aluminium enclosure, $T_{a, min} = -40^{\circ}\text{C}$ for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BL): $T_{a, max} = 60^{\circ}\text{C}$. Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Endress+Hauser <small>People for Process Automation</small> Endress+Hauser Flow Kägenstrasse 7, 4153 Reinach, Basel-Landschaft, Switzerland	Control Drawing - IECEx, ATEX, CSA, cCSA _{US}	Document No.:	FES0264
	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	I
	Thermal Parameter	Date:	15.04.2025
	EPL Gc (Zone 2); Class I Zone 2; Class I Division 2	Page:	16/17

Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted reference temperature ($T_{ref,max\ permitted}$)											
Sensor	Size / DN	Medium range $T_m^{(3)}$		Ambient range $T_a^{(1)}$		Reference temperature $T_{ref,max\ permitted}^{(2)}$ (°C)					
		min. (°C)	max. (°C)	min. (°C)	max. (°C)	T8 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promass A	01...04	-50	205	-50 / -40	60	---	72	82	85	85	85
Cubemass C	01...06	-50	205								
Promass E	08...80	-50	205								
Promass F	08...250	-50 / -200	150 / 240 / 350								
Promass H	08...50	-50 / -200	205								
Promass S, P	08...50	-50	150 / 205								
Promass I	08...80	-50	150								
Promass O	80...250	-50	205								
Promass X	350	-50	205								
Promass Q	25...250	-50 / -200	240								

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) $T_{ref,max\ permitted}$: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref,max\ permitted}$ shall not exceed the values given in this table.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).



4. Marking

4.1. Proline Promass 300, Proline Cubemass 300

Order Code: 8*3*** – dd*ff*****+## O8*3*** – dd*ff*****+##		
Approval dd =	I/O1 ff =	Marking of Ex protection
BA	CA, CB, CC, CD, HA, TA, MC, RC	Ex db eb ia [ia Ga] IIB T6...T1 Ga/Gb ¹⁾ or Ex db eb ia [ia Ga] IIB T6...T1 Gb and/or Ex tb [ia Da] IIIC T** °C Db
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex db eb ia IIB T6...T1 Ga/Gb ¹⁾ or Ex db eb ia IIB T6...T1 Gb and/or Ex tb IIIC T** °C Db
BB	CA, CB, CC, CD, HA, TA, MC, RC	Ex db eb ia [ia Ga] IIC T6...T1 Ga/Gb ¹⁾ or Ex db eb ia [ia Ga] IIC T6...T1 Gb and/or Ex tb [ia Da] IIIC T** °C Db
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex db eb ia IIC T6...T1 Ga/Gb ¹⁾ or Ex db eb ia IIC T6...T1 Gb ¹⁾ and/or Ex tb IIIC T** °C Db
BC	CA, CB, CC, CD, HA, TA, MC, RC	Ex db ia [ia Ga] IIB T6...T1 Ga/Gb ¹⁾ or Ex db ia [ia Ga] IIB T6...T1 Gb and/or Ex tb [ia Da] IIIC T** °C Db
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex db ia IIB T6...T1 Ga/Gb ¹⁾ or Ex db ia IIB T6...T1 Gb and/or Ex tb IIIC T** °C Db
BD	CA, CB, CC, CD, HA, TA, MC, RC	Ex db ia [ia Ga] IIC T6...T1 Ga/Gb ¹⁾ or Ex db ia [ia Ga] IIC T6...T1 Gb and/or Ex tb [ia Da] IIIC T** °C Db
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex db ia IIC T6...T1 Ga/Gb ¹⁾ or Ex db ia IIC T6...T1 Gb and/or Ex tb IIIC T** °C Db
BS	CA, CB, CC, CD, HA, TA, MC, RC	Ex ec nC [ic] IIC T5...T1 Gc
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex ec nC IIC T5...T1 Gc

Information: Marking of protection representative for ...	
db	-> electronic compartment of the transmitter enclosure
eb	-> terminal compartment of the transmitter enclosure
ia	-> sensor, display, electronic, antenna bushing
tb	-> transmitter enclosure, sensor
[ia Ga]	-> electronic with input/output Ex ia
[ia Da]	-> electronic with input/output Ex ia
db	-> electronic and terminal compartments of the transmitter enclosure
ia	-> sensor, display, electronic
tb	-> transmitter enclosure, sensor
[ia Ga]	-> electronic with input/output Ex ia
[ia Da]	-> electronic with input/output Ex ia
ec	-> transmitter enclosure, sensor, electronic, display, antenna bushing
nC	-> electronic
[ic]	-> electronic with input/output Ex ic

1) The marking with zone separation Ga/Gb does not apply to Proline Promass 300 devices using the following sensors: Promass A DN1, Promass H DN8...50, and Promass I DN8...80



4.2. Proline Promass 500, Proline Cubemass 500 (with ISEM integrated in transmitter)

Order Code: 8*5*** – dd*ff****B*****+### O8*5*** – dd*ff****B*****+###			
Approval dd =	I/O1 ff =	Parts of Device	Marking of Ex protection
BA	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ex db eb ia [ia Ga] IIB T6...T5 Gb and/or Ex tb [ia Da] IIIC T85°C Db
		Sensor	Ex ia IIB T6...T1 Ga/Gb ¹⁾ or Ex ia IIB T6...T1 Gb and/or Ex tb IIIC T** °C Db
BB	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ex db eb ia [ia Ga] IIC T6... T5 Gb and/or Ex tb [ia Da] IIIC T85°C Db
		Sensor	Ex ia IIC T6...T1 Ga/Gb ¹⁾ or Ex ia IIC T6...T1 Gb and/or Ex tb IIIC T** °C Db
BC	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ex db ia [ia Ga] IIB T6... T5 Gb and/or Ex tb [ia Da] IIIC T85°C Db
		Sensor	Ex ia IIB T6...T1 Ga/Gb ¹⁾ or Ex ia IIB T6...T1 Gb and/or Ex tb IIIC T** °C Db
BD	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ex db ia [ia Ga] IIC T6... T5 Gb and/or Ex tb [ia Da] IIIC T85°C Db
		Sensor	Ex ia IIC T6...T1 Ga/Gb ¹⁾ or Ex ia IIC T6...T1 Gb and/or Ex tb IIIC T** °C Db
BS	CA, CB, CC, CD, HA, TA, MC, RC	Transmitter	Ex ec nC [ic] IIC T5...T4 Gc
		Sensor	Ex ec IIC T6...T1 Gc or Ex ec nC IIC T6...T1 Gc ²⁾
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	Ex ec nC IIC T5...T4 Gc
		Sensor	Ex ec IIC T6...T1 Gc or Ex ec nC IIC T6...T1 Gc ²⁾

Information: Marking of protection representative for ...	
db	-> electronic compartment of the transmitter
eb	-> terminal compartment and sensor connection compartment of the transmitter enclosure
ia	-> sensor, display, electronic, antenna bushing
tb	-> transmitter enclosures, sensor terminal enclosure, sensor
[ia Ga]	-> electronic with input/output Ex ia and/or output Ex ia for sensor circuit
[ia Da]	-> electronic with input/output Ex ia and/or output Ex ia for sensor circuit
db	-> electronic compartment, terminal compartment and sensor connection compartment of the transmitter enclosure
ia	-> sensor, display, electronic
tb	-> transmitter enclosure, sensor terminal enclosure, sensor
[ia Ga]	-> electronic with input/output Ex ia and/or output Ex ia for sensor circuit
[ia Da]	-> electronic with input/output Ex ia and/or output Ex ia for sensor circuit
ec	-> transmitter enclosure, sensor, electronic, display, sensor terminal enclosure, antenna bushing
nC	-> electronic
[ic]	-> electronic with input/output Ex ic

- 1) The marking with zone separation Ga/Gb does not apply to Proline Promass 500 devices using the following sensors: Promass A DN1, Promass H DN8...50, Promass I DN8...80
- 2) The marking "Ex ec nC..." only applies to the sensors without purge connection or rupture disk

4.3. Proline Promass 500 Digital, Proline Cubemass 500 Digital (with ISEM integrated in sensor)

Order Code: 8*5*** – dd*ff****A*****+### O8*5*** – dd*ff****A*****+###			
Approval dd =	I/O1 ff =	Parts of Device	Marking of Ex protection
BI	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	[Ex ia Ga] IIC and/or [Ex ia Da] IIIC
		Sensor	Ex ia IIB T6...T1 Ga/Gb ¹⁾ or Ex ia IIB T6...T1 Gb and/or Ex tb IIIC T** °C Db
BJ	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	[Ex ia Ga] IIC and/or [Ex ia Da] IIIC
		Sensor	Ex ia IIC T6...T1 Ga/Gb ¹⁾ or Ex ia IIC T6...T1 Gb and/or Ex tb IIIC T** °C Db
BL	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	n.a. (non-Ex)
		Sensor	Ex ec IIC T5...T1 Gc or Ex ec nC IIC T5...T1 Gc ²⁾
BM	CA, CB, CC, CD, HA, TA, MC, RC	Transmitter	Ex ec nC [ic] [ia Ga] IIC T5...T4 Gc and/or [Ex ia Da] IIIC
		Sensor	Ex ia IIB T6...T1 Ga/Gb ¹⁾ or Ex ia IIB T6...T1 Gb and/or Ex tb IIIC T** °C Db
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	Ex ec nC [ia Ga] IIC T5...T4 Gc and/or [Ex ia Da] IIIC
		Sensor	Ex ia IIB T6...T1 Ga/Gb ¹⁾ or Ex ia IIB T6...T1 Gb and/or Ex tb IIIC T** °C Db
BN	CA, CB, CC, CD, HA, TA, MC, RC	Transmitter	Ex ec nC [ic] [ia Ga] IIC T5...T4 Gc and/or [Ex ia Da] IIIC
		Sensor	Ex ia IIC T6...T1 Ga/Gb ¹⁾ or Ex ia IIC T6...T1 Gb and/or Ex tb IIIC T** °C Db
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	Ex ec nC [ia Ga] IIC T5...T4 Gc and/or [Ex ia Da] IIIC
		Sensor	Ex ia IIC T6...T1 Ga/Gb ¹⁾ or Ex ia IIC T6...T1 Gb and/or Ex tb IIIC T** °C Db
BS	CA, CB, CC, CD, HA, TA, MC, RC	Transmitter	Ex ec nC [ic] IIC T5...T4 Gc
		Sensor	Ex ec IIC T5...T1 Gc or Ex ec nC IIC T5...T1 Gc ²⁾
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	Ex ec nC IIC T5...T4 Gc
		Sensor	Ex ec IIC T5...T1 Gc or Ex ec nC IIC T5...T1 Gc ²⁾

Information: Marking of protection representative for ...
[Ex ia] -> electronic with output Ex ia for sensor circuit
ia -> sensor
tb -> sensor, sensor terminal enclosure
Note: I/O signals from the transmitter are non-IS
[Ex ia] -> electronic with output Ex ia for sensor circuit
ia -> sensor
tb -> sensor, sensor terminal enclosure
Note: I/O signals from the transmitter are non-IS
ec -> sensor, electronic, sensor terminal enclosure, antenna bushing
nC -> sensor, electronic
Note: I/O signals from the transmitter are non-IS
[ia Ga] -> electronic with output Ex ia for sensor circuit
[Ex ia] -> electronic with output Ex ia for sensor circuit
[ic] -> electronic with input/output Ex ic
ec -> transmitter enclosure, electronic, display, antenna bushing
nC -> electronic
ia -> sensor
tb -> sensor terminal enclosure, sensor
[ia Ga] -> electronic with output Ex ia for sensor circuit
[Ex ia] -> electronic with output Ex ia for sensor circuit
[ic] -> electronic with input/output Ex ic
ec -> transmitter enclosure, electronic, display, antenna bushing
nC -> electronic
ia -> sensor
tb -> sensor terminal enclosure, sensor
[ic] -> electronic with input/output Ex ic
ec -> transmitter enclosure, sensor, electronic, display, sensor terminal enclosure, antenna bushing
nC -> sensor, electronic

- 1) The marking with zone separation does not apply to Proline Promass 500 Digital devices using the following sensors: Promass A DN1, Promass H DN8...50, Promass I DN8...80
- 2) The marking "Ex ec nC..." only applies to the sensors without purge connection or rupture disk



5. Conditions of Certification

- All equipment of the measurement system shall be included in the equipotential bonding. Along the intrinsically safe sensor circuits potential equalization must exist.
- The sensors may only be used with process media, for which the wetted parts are known to be suitable.
- For the Proline Promass/Cubemass 500 (ISEM in transmitter) and Proline Promass/Cubemass 500 Digital (ISEM in sensor) flowmeters, which use a flat gasket within the sensor terminal enclosure (refer to the Safety Instruction XA*** for applicable models), the end user shall ensure that the flat cover seals are not bent before securing the cover. Any seals that are not flat or are damaged shall be replaced prior to reassembly.
- If the Proline 300 flowmeter is connected to a Remote Display type DKX001 or ODKX001, the order code “Approval dd” of the flowmeter shall be paired to the order code “Approval bb” of the Remote Display as follows:

Proline Promass 300 / Proline Cubemass 300 with order code “Approval dd” =	Remote Display DKX001 or ODKX001 (covered by IECEx DEK 15.0024) with order code “Approval bb” =
BA, BB, BC or BD	BE, BF or BG
BS	BS

- The equipment may have non-conductive surfaces which are a potential electrostatic charging hazard – see instructions for guidance.
- The flameproof joints are not intended to be repaired.
- For the Proline Promass/Cubemass 300, Proline Promass/Cubemass 500 (ISEM in transmitter) and Proline Promass/Cubemass 500 Digital (ISEM in sensor) flowmeters with order code “Approval dd” = BA, BB, BC, BD, BI, BJ, BM & BN, which are marked with zone separation Ga/Gb: EPL Ga (Zone 0) is only applicable to sensors with process medium in the measuring tube.
- For the Proline Promass/Cubemass 300 and Proline Promass/Cubemass 500 (ISEM in transmitter) flowmeters with order code “Approval dd” = BA, BB in combination with “Power supply” code e = D (24 V version) and intrinsically safe input/outputs (I/O1, I/O2, I/O3): the Ex eb terminal compartment of the transmitter may be opened for a short period to access intrinsically safe terminals of the inputs/outputs. This option is limited to I/Os in gas application only.
- Do not operate the I/O1 (Terminal 26, 27 or Port 1 (RJ45)) and Service Interface (CDI) / Port 2 (RJ45) simultaneously in hazardous locations.

Applicable to Antenna bushing H337 when used with Proline 300/500 transmitter enclosure:

- Antenna supplied by Endress+Hauser shall be used only. As an alternative, any passive omni-directional RF antenna with or without cable is permitted to be connected when meeting the following parameters:
 - a) The antenna shall have an impedance of at least 50 Ω
 - b) The rated frequency range of the antenna shall not exceed 1710 MHz ... 6000 MHz
 - c) The RF antenna or the RF antenna cable shall be fitted with a Type N connector plug (MIL-STD-348)
- The antenna bushing type H337 shall be mounted wrench tight to the transmitter enclosure to maintain the ingress protection of the enclosure.
- The coupling nut of the Type N plug connector shall be hand tightened only.
- The metal enclosure of the Antenna Bushing H337 shall be securely connected to local earth, typically via the enclosure to which it is connected.



Annex B

This Annex is applicable for flowmeters type Proline Promag 300/500

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1. Description

The Proline Promag 300/500 flowmeters are available in two versions, a compact version (Proline 300) and a remote version (Proline 500). The Proline 500 remote version is also available in two variants:

- Proline 500: a version with ISEM electronic integrated into the transmitter to which the sensor sends analog signals.
- Proline 500 Digital: a version with ISEM electronic integrated in the sensor that processes measurements and sends digital signals to the transmitter.

The Proline Promag 300/500 flowmeters consist of various components, including electronics, enclosures with factory-assembled cable entry devices (e.g. blanking elements and thread adapters), sensors, antenna bushing, and displays. Each component has been tested and certified separately as an Ex component, with the objective to ensure its suitability for integration within the intended Proline 300/500 end product application.

The Proline Promag 300 flowmeters can be paired with an additional Remote Display, type DKX001 or ODKX001, which is certified separately as Ex equipment. The Remote Display can be ordered as a separate equipment or as part of the flowmeter.

The Proline Promag 300/500 flowmeters are available with three different power supply options: DC 19.2...28.8 V, or AC 85...264 V, or DC 19.2...28.8 V / AC 85...264 V. Electronics are designed to provide either intrinsically safe IO's (Ex ia for EPL Ga / Zone 0 or Ex ic for EPL Gc / Zone 2) or with non-intrinsically safe IO's. A combination of intrinsically safe and non-intrinsically safe IO's is not allowed.

The Proline Promag 300/500 flowmeters are rated for an ambient temperature from -50°C to +60°C and for use in a medium (process) temperature range from -40°C to +180°C. These temperature ranges are limited by various parameters including, but not limited to, models, sensor types, maximum assigned surface temperature, operating temperature range of the components, sealing materials and liner materials. Refer to Control drawings "Thermal Parameters" as applicable to each model.

The Proline Promag 300/500 flowmeters are rated IP54 (gas) and IP6X (dust) according to the requirements of IEC 60079-0. They also meet the requirements of IP66, IP67 and IP68 (optional) according to IEC 60529.

The Proline Promag 300/500 flowmeters are equipped with factory-mounted metallic thread adapter and/or thread blanking elements. These thread adapters and thread blanking elements have been evaluated as part of the certification for the complete Proline Promag 300/500 flowmeters.



2. Order Code

2.1. Proline Promag 300/500

Extended order code Proline Promag 300:

- 5a3bcc – ddzeffghjlpstttuvvw + ###**
- O5a3bcc – ddzeffghjlpstttuvwwyy + ###** for OEM-version
- 5x3bxx – ddeffghjlpww + ###** for replacement transmitter only
- O5x3bxx – ddeffghjlpwwyy + ###** for replacement transmitter OEM

Extended order code Proline Promag 500:

- 5a5bcc – ddzeffghijkmnopstttuvvw + ###**
- O5a5bcc – ddzeffghijkmnopstttuvwwyy + ###** for OEM-version
- 5x5bxx – ddeffghijkmopqqww + ###** for replacement transmitter only
- O5x5bxx – ddeffghijkmopqqwwyy + ###** for replacement transmitter OEM

- a = Type of sensor**
 - H = Sensor Promag H
 - P = Sensor Promag P
 - W = Sensor Promag W
- b = Generation**
 - B = Generation of Flowmeter
- cc = Size**
 - any combination of number and/or letter up to size = DN3000
- dd = Approval**
 - Proline Promag 300:
 - BB = Ex db eb ia [ia] IIC T6...T1 Gb
 - Ex tb IIIC T* Db
 - BD = Ex db ia [ia] IIC T6...T1 Gb
 - Ex tb IIIC T* Db
 - BS = Ex ec IIC T5...T1 Gc



Proline Promag 500 :

BB	=	Ex db eb [ia] IIC T6...T5 Gb	(transmitter)
		Ex eb ia IIC T6...T1 Gb	(sensor)
		Ex tb IIIC T** Db	(transmitter + sensor)
BD	=	Ex db [ia] IIC T6...T5 Gb	(transmitter)
		Ex eb ia IIC T6...T1 Gb	(sensor)
		Ex tb IIIC T** Db	(transmitter + sensor)
BJ	=	non-Ex	(transmitter)
		Ex db ia IIC T6...T1 Gb	(sensor)
		Ex ia tb IIIC T** Db	(sensor)
BL	=	non-Ex	(transmitter)
		Ex ec ic IIC T6...T1 Gc	(sensor)
BN	=	Ex ec IIC T5...T4 Gc	(transmitter)
		Ex db ia IIC T6...T1 Gb	(sensor)
		Ex ia tb IIIC T* Db	(sensor)
BS	=	Ex ec IIC T5...T4 Gc	(transmitter)
		Ex ec IIC T6...T1 Gc	(sensor)
B7	=	Ex db eb [ia] IIC T6...T5 Gb	(transmitter)
		Ex eb ia IIC T6...T1 Gb	(sensor)
B8	=	Ex db [ia] IIC T6...T5 Gb	(transmitter)
		Ex eb ia IIC T6...T1 Gb	(sensor)

z = **Design** (Promag W 300 and Proline W 500 only)
 any single number or letter

e = **Power Supply**

D	=	24Vdc
E	=	100-230Vac
I	=	100-230Vac / 24Vdc
X	=	sensor only

ff = **Input / Output 1**

BA	=	4-20mA HART
BB	=	4-20mA WHART
CA	=	4-20mA HART Ex i (passive)
CB	=	4-20mA WHART Ex i (passive)
CC	=	4-20mA HART Ex i (active)
CD	=	4-20mA WHART Ex i (active)
GA	=	Profibus PA
HA	=	Profibus PA Ex i
LA	=	Profibus DP
MA	=	Modbus RS485
MB	=	Modbus TCP
MC	=	Modbus TCP Ex i
NA	=	EtherNet/IP
RA	=	Profinet IO
RB	=	Profinet
RC	=	Profinet Ex i
SA	=	Foundation Fieldbus
TA	=	Foundation Fieldbus Ex i
XX	=	sensor only



- g = Input / Output 2**
 - A = without Input/Output 2
 - B = 4-20mA
 - C = 4-20mA Ex i (passive)
 - D = Configurable IO
 - E = Pulse/Frequency/Switch output
 - F = Pulse output phase-shifted
 - G = Pulse/Frequency/Switch output Ex i
 - H = Relay
 - I = 4-20mA input
 - J = Status input
 - K = Pulse output Ex i
 - L = Pulse output
 - X = sensor only
- h = Input / Output 3**
 - A = without Input/Output 3
 - B = 4-20mA
 - C = 4-20mA Ex i (passive)
 - D = Configurable IO
 - E = Pulse/Frequency/Switch output
 - F = Pulse output phase-shifted
 - G = Pulse/Frequency/Switch output Ex i
 - H = Relay
 - I = 4-20mA input
 - J = Status input
 - K = Pulse output Ex i
 - L = Pulse output
 - X = sensor only
- i = Input / Output 4 (Proline 500 only)**
 - A = without Input/Output 4
 - B = 4-20mA
 - C = 4-20mA Ex i (passive)
 - D = Configurable IO
 - E = Pulse/Frequency/Switch output
 - F = Pulse output phase-shifted
 - G = Pulse/Frequency/Switch output Ex i
 - H = Relay
 - I = 4-20mA input
 - J = Status input
 - K = Pulse output Ex i
 - L = Pulse output
 - X = sensor only
- j = Display / Operation**
 - with remote Display : O
 - without remote Display : any single number or letter except O
- k = Integrated ISEM electronic (Proline 500 only)**
 - A = Sensor
 - B = Transmitter
- l = Housing (Proline 300 only)**
 - any single number or letter



- m** = **Transmitter Housing** (Proline 500 only)
any single number or letter
- n** = **Sensor Housing** (Proline 500 only)
any single number or letter
- o** = **Cable Sensor Connection** (Proline 500 only)
any single number or letter
- p** = **Cable Entry**
any single number or letter
- qq** = **Upgrade Kit**
any double digits with combination of number or letter
- s** = **Liner material**
any single number or letter
- ttt** = **Process connection**
any triple digits with combination of number or letter
- u** = **Electrode**
any number or letter
- v** = **Calibration**
any single number or letter
- ww** = **Device Model (two digit)** (refer to assignment of flowmeter to replacement transmitter)
A1 = product version 1
A2 = product version 2
- yy** = **Customer version (two digits)**
any double digits with combination of number or letter
- **** = **Option in two digits (none, two or multiple of two digits)**
any combination of number and/or letter
- #, +** = **Signs used as indicator for optional abbreviation of extended order code**

2.2. Assignment of Replacement Transmitter

The replacement transmitters are assigned to the flowmeter Proline Promag 300/500 as follows:

Product flowmeters			Replacement transmitter type		
Order code	Generation code b =	Device model code ww =	Order code	Generation code b =	Device model code ww =
5H*b**-...ww, O5H*b**-...ww 5P*b**-...ww, O5P*b**-...ww 5W*b**-...ww, O5W*b**-...ww	B	A1 / A2	5x*bxx-...ww, O5x*bxx-...ww	B	A1 / A2

3. Parameters

3.1. Electrical Parameters

3.1.1. Power supply

Order code "Power supply" e =	Terminal no.	Values
D ¹⁾	1(L+/L), 2(L-/N)	U _N = DC 19.2...28.8 V U _M = AC 250 V
E ¹⁾	1(L+/L), 2(L-/N)	U _N = AC 85...264 V U _M = AC 250 V
I ²⁾	1(L+/L), 2(L-/N)	U _N = DC 19.2...28.8 V / AC 85...264 V U _M = AC 250 V

- 1) applicable for Proline 300/500 flowmeters with order code "Approval dd" = BB, BD, B7, B8
 2) applicable for Proline 300/500 flowmeters with order code "Approval dd" = BS, BJ, BL, BN

3.1.2. Input/Outputs

Input/Output 1 (Note 4)					
Order code "Input/Output 1" ff =	Terminal no.	Type of protection	Values		
BA, BB, MA	I/O1 (Terminal 26, 27)	Non-intrinsically safe	U _N = DC 30 V U _M = AC 250 V		
LA, GA, SA	I/O1 (Terminal 26, 27)	Non-intrinsically safe	U _N = DC 32 V U _M = AC 250 V		
CA, CB	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	U _i = 30 V, I _i = 100 mA, P _i = 1.25 W, L _i = 0, C _i = 6 nF		
CC, CD	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	<table border="0"> <tr> <td> (Note 1) U_o = 21.8 V I_o = 90 mA P_o = 491 mW L_o = 4.1 mH (IIC) / 15 mH (IIB) C_o = 160 nF (IIC) / 1160 nF (IIB) U_i = 30 V I_i = 10 mA P_i = 0.3 W C_i = 6 nF L_i = 5 μH </td> <td> (Note 2) U_o = 21.8 V I_o = 90 mA P_o = 491 mW L_o = 9 mH (IIC) / 39 mH (IIB) C_o = 600 nF (IIC) / 4000 nF (IIB) U_i = 30 V I_i = 10 mA P_i = 0.3 W C_i = 6 nF L_i = 5 μH </td> </tr> </table>	(Note 1) U _o = 21.8 V I _o = 90 mA P _o = 491 mW L _o = 4.1 mH (IIC) / 15 mH (IIB) C _o = 160 nF (IIC) / 1160 nF (IIB) U _i = 30 V I _i = 10 mA P _i = 0.3 W C _i = 6 nF L _i = 5 μH	(Note 2) U _o = 21.8 V I _o = 90 mA P _o = 491 mW L _o = 9 mH (IIC) / 39 mH (IIB) C _o = 600 nF (IIC) / 4000 nF (IIB) U _i = 30 V I _i = 10 mA P _i = 0.3 W C _i = 6 nF L _i = 5 μH
(Note 1) U _o = 21.8 V I _o = 90 mA P _o = 491 mW L _o = 4.1 mH (IIC) / 15 mH (IIB) C _o = 160 nF (IIC) / 1160 nF (IIB) U _i = 30 V I _i = 10 mA P _i = 0.3 W C _i = 6 nF L _i = 5 μH	(Note 2) U _o = 21.8 V I _o = 90 mA P _o = 491 mW L _o = 9 mH (IIC) / 39 mH (IIB) C _o = 600 nF (IIC) / 4000 nF (IIB) U _i = 30 V I _i = 10 mA P _i = 0.3 W C _i = 6 nF L _i = 5 μH				
HA, TA	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	<table border="0"> <tr> <td> (Note 1) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> U_i = 30 V I_i = 570 mA </td> <td> (Note 2) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> U_i = 32 V I_i = 570 mA </td> </tr> </table>	(Note 1) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> U _i = 30 V I _i = 570 mA	(Note 2) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> U _i = 32 V I _i = 570 mA
(Note 1) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> U _i = 30 V I _i = 570 mA	(Note 2) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> U _i = 32 V I _i = 570 mA				

Input/Output 1 (Note 4)				
Order code "Input/Output 1" ff =	Terminal no.	Type of protection	Values	
			$P_i = 8.5 \text{ W}$ $L_i = 10 \mu\text{H}$ $C_i = 5 \text{ nF}$	$P_i = 8.5 \text{ W}$ $L_i = 10 \mu\text{H}$ $C_i = 5 \text{ nF}$
MB, RB	I/O1 (Terminal 26, 27)	Non-intrinsically safe	APL port profile SLAX / SPE PoDL classes 10, 11, 12 $U_N = \text{AC } 3.3 \text{ V}$ $U_M = \text{AC } 250 \text{ V}$	
MC, RC	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	(Note 1), (Note 3) 2-WISE power load APL port profile SLAA $U_i = 17.5 \text{ V}$ $I_i = 380 \text{ mA}$ $P_i = 5.32 \text{ W}$ $L_i = 10 \mu\text{H}$ $C_i = 5 \text{ nF}$	(Note 2), (Note 3) 2-WISE power load APL port profile SLAC $U_i = 17.5 \text{ V}$ $I_i = 380 \text{ mA}$ $P_i = 5.32 \text{ W}$ $L_i = 10 \mu\text{H}$ $C_i = 5 \text{ nF}$
NA, RA	I/O1 (Port 1 (RJ45))	Non-intrinsically safe	$U_N = \text{AC } 3.3 \text{ V}$ $U_M = \text{AC } 250 \text{ V}$	

Input/Output 2 (Note 4)			
Order code "Input/Output 2" g =	Terminal no.	Type of protection	Values
C, G, K	I/O2 (Terminal 24, 25)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 1.25 \text{ W}$ $L_i = 0$ $C_i = 0$
B, D, E, F, I, J, L	I/O2 (Terminal 24, 25)	Non-intrinsically safe	$U_N = \text{DC } 30 \text{ V}$ $U_M = \text{AC } 250 \text{ V}$
H	I/O2 (Terminal 24, 25)	Non-intrinsically safe	$U_N = \text{DC } 30 \text{ V}$ $I_N = \text{DC } 100 \text{ mA} / \text{AC } 500 \text{ mA}$ $U_M = \text{AC } 250 \text{ V}$

Input/Output 3 (Note 4)			
Order code "Input/Output 3" h =	Terminal no.	Type of protection	Values
C, G, K	I/O3 (Terminal 22, 23)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 1.25 \text{ W}$ $L_i = 0$ $C_i = 0$
B, D, E, F, I, J, L	I/O3 (Terminal 22, 23)	Non-intrinsically safe	$U_N = \text{DC } 30 \text{ V}$ $U_M = \text{AC } 250 \text{ V}$
H	I/O3 (Terminal 22, 23)	Non-intrinsically safe	$U_N = \text{DC } 30 \text{ V}$ $I_N = \text{AC } 100 \text{ mA} / \text{AC } 500 \text{ mA}$ $U_M = \text{AC } 250 \text{ V}$

Input/Output 4 (Proline 500 only) (Note 4)			
Order code “Input/Output 4” i =	Terminal no.	Type of protection	Values
C, G, K	I/O4 (Terminal 20, 21)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	U _i = 30 V I _i = 100 mA P _i = 1.25 W L _i = 0 C _i = 0
B, D, E, F, I, J, L	I/O4 (Terminal 20, 21)	Non-intrinsically safe	U _N = DC 30 V U _M = AC 250 V
H	I/O4 (Terminal 20, 21)	Non-intrinsically safe	U _N = DC 30 V I _N = DC 100 mA / AC 500 mA U _M = AC 250 V

Notes:

(1) applicable for Proline 300/500 flowmeters with order code “Approval dd” = BB, BD, B7, B8

(2) applicable for Proline 300/500 flowmeters with order code “Approval dd” = BS, BN

(3) no additional internal capacitances are effective to the output value (refer to note 1 of drawing “Ethernet-APL Installation Drawing – Device Vendors v1.0, March 8th 2022”)

(4) it is not permitted to combine a non-intrinsically safe I/Os with intrinsically safe I/Os between I/O1, I/O2, I/O3, and I/O4 within the same system or device

3.1.3. Service interface / Port 2 (RJ45)

Order code “Approval” dd =	Terminal no.	Type of protection	Values
BB, B7	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	U _N = AC 3.3 V, U _M = AC 250 V Service Interface shall only be connected to a non- intrinsically safe circuit in areas which are known to be non-hazardous
		Intrinsically safe Ex ia	U _i = 10 V, I _i = n.a., P _i = n.a., C _i = 200 nF, L _i = 0
BD, B8	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	U _N = AC 3.3 V, U _M = AC 250 V
		Intrinsically safe Ex ia	U _i = 10 V, I _i = n.a., P _i = na., C _i = 200 nF, L _i = 0
BS, BJ, BL, BN	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	U _N = AC 3.3 V, U _M = AC 250 V

3.1.4. Output for external antenna (via Antenna Bushing)

Order code “Approval” dd =	Terminal no.	Type of protection	Values
BB, B7	Type N connector	Intrinsically safe Ex ia	See conditions of certification
BN, BS		Intrinsically safe Ex ic	
BJ, BL		Non-intrinsically safe	

3.1.5. Output for Remote Display DKX001 or ODKX001

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BB, BD, B7, B8	81, 82, 83, 84	Intrinsically safe Ex ia	$U_o = 3.9 \text{ V}$ $I_o = 1.5 \text{ A (spark)}$ 200 mA (power) $P_o = 600 \text{ mW}$ $R_i = 2.6 \Omega$ $C_o = 670 \mu\text{F}$ $L_o = 0$ Note: a connection cable with a ratio $L_{\text{cable}}/R_{\text{cable}} \leq 0.024 \text{ mH}/\Omega$ and $C_{\text{cable}} \leq 600 \mu\text{F}$ shall be used when connecting the Remote Display type DKX001 or ODKX001
BS	81, 82, 83, 84	Non-intrinsically safe	$U_N = 3.3 \text{ V}$ $I_N = 150 \text{ mA}$
BJ, BL, BN	Remote Display type DKX001 or ODKX001 is not intended to be connected to the Proline 300 devices		

3.1.6. Sensor circuits for Proline Promag 500 (ISEM in transmitter)

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BB, BD, B7, B8	Transmitter terminal board (in the sensor connection compartment of transmitter):		
	4, 5, 6, 7, 8, 32, 33, 34, 35, 36, 37	Intrinsically safe Ex ia	$U_o = 26.6 \text{ V}$, $I_o = 19.2 \text{ mA}$, $P_o = 128 \text{ mW}$, $L_o = 20 \text{ mH}$, $C_o = 94 \text{ nF}$ and $U_o = 13.3 \text{ V}$, $I_o = 39.2 \text{ mA}$, $P_o = 131 \text{ mW}$, $L_o = 20 \text{ mH}$, $C_o = 94 \text{ nF}$
	41, 42	Non-intrinsically safe	$U_N = 60 \text{ V}$, $I_N = 90 \text{ mA}$
	Sensor terminal board (in the sensor terminal enclosure):		
	4, 5, 6, 7, 8, 32, 33, 34, 35, 36, 37	Intrinsically safe Ex ia	$U_i = 26.6 \text{ V}$, $I_i = \text{n.a.}$, $P_i = \text{n.a.}$, $L_i = 0$, $C_i = 0$
	41, 42	Non-intrinsically safe	$U_N = 60 \text{ V}$, $I_N = 90 \text{ mA}$

The cable used to connect the intrinsically safe circuits from the transmitter to the remote sensor must fulfill the following parameters:

- Cable inductance $\leq 1 \text{ mH/km}$
- Cable capacitance $\leq 0.42 \mu\text{F/km}$
- Cable length $\leq 200 \text{ m}$

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BS	Transmitter terminal board (in the sensor connection compartment of transmitter):		
	4, 5, 6, 7, 8, 32, 33, 34, 35, 36, 37	Intrinsically safe Ex ia	$U_o = 26.6 \text{ V}$, $I_o = 19.2 \text{ mA}$, $P_o = 128 \text{ mW}$, $L_o = 50 \text{ mH}$, $C_o = 325 \text{ nF}$ and $U_o = 13.3 \text{ V}$, $I_o = 39.2 \text{ mA}$, $P_o = 131 \text{ mW}$, $L_o = 50 \text{ mH}$, $C_o = 325 \text{ nF}$
	41, 42	Non-intrinsically safe	$U_N = 60 \text{ V}$
	Sensor terminal board (in the sensor terminal enclosure):		
	4, 5, 6, 7, 8, 32, 33, 34, 35, 36, 37	Intrinsically safe Ex ia	$U_i = 26.6 \text{ V}$, $I_i = 19.2 \text{ mA}$, $P_i = \text{n.a.}$, $L_i = 0$, $C_i = 0$ (+13.3 V to -13.3 V) or $U_i = 13.3 \text{ V}$, $I_i = 39.2 \text{ mA}$, $P_i = \text{n.a.}$, $L_i = 0$, $C_i = 0$ (to ground)
	41, 42	Non-intrinsically safe	$U_N = 60 \text{ V}$

The cable used to connect the intrinsically safe circuits from the transmitter to the remote sensor must fulfill the following parameters:

- Cable inductance $\leq 1 \text{ mH/km}$
- Cable capacitance $\leq 1 \text{ }\mu\text{F/km}$
- Cable length $\leq 200 \text{ m}$

3.1.7. Sensor circuits for Proline Promag 500 Digital (ISEM in sensor)

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BJ, BL, BN, BS	Transmitter terminal board (in the sensor connection compartment of transmitter):		
	61, 62	Non-intrinsically safe	$U_N = 35 \text{ V}$
	63, 64	Non-intrinsically safe	$U_N = 3.3 \text{ V}$
	Sensor terminal board (in the sensor terminal enclosure):		
	61, 62	Non-intrinsically safe	$U_N = 35 \text{ V}$
	63, 64	Non-intrinsically safe	$U_N = 3.3 \text{ V}$

3.2. Thermal Parameters (Zone 1)

1. Proline Promag H/P/W 300

Notes: The chapter 1 applies to Proline Promag H/P/W 300 versions with extended order code covering:

	flowmeter	flowmeter OEM version	replacement transmitter	replacement transmitter OEM
Proline Promag H 300	5H3B** - dd...	O5H3B** - dd...	5x3Bxx - dd...	O5x3Bxx - dd...
Proline Promag P 300	5P3B** - dd...	O5P3B** - dd...	5x3Bxx - dd...	O5x3Bxx - dd...
Proline Promag W 300	5W3B** - dd...	O5W3B** - dd...	5x3Bxx - dd...	O5x3Bxx - dd...

with "Approval" dd = CD, CE, C2, C4
 dd = BB, BD (cCSAus / CSA)
 (IECEx / ATEX)

1.1. Ambient temperature range T_a

The applicable ambient temperature range is determined by factors such as sensor type, size, flange, liner material, maximum working pressure, and selected options when ordering. Additionally, this range may be further limited by the applied medium (process) temperature, thermal insulation and temperature class as shown in the temperature tables below. The rated ambient temperature range is indicated on the device's nameplate.

1.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, liner material, maximum working pressure, and selected options when ordering. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

1.3. Proline Promag H/P/W 300 – Standard version

Note: without thermal insulation.

Temperature class vs. Max. ambient temperature ($T_{a, max}$) and Max. permitted medium temperature ($T_{m, max, permitted}$)												
Device	Size / DN	Liner	Medium range $T_m^{(2)}$		Ambient range $T_a^{(1)}$		$T_{m, max, permitted} (^{\circ}C)$					
			min. ($^{\circ}C$)	max. ($^{\circ}C$)	min. ($^{\circ}C$)	max. ($^{\circ}C$)	T6 (85 $^{\circ}C$)	T5 (100 $^{\circ}C$)	T4 (135 $^{\circ}C$)	T3 (200 $^{\circ}C$)	T2 (300 $^{\circ}C$)	T1 (450 $^{\circ}C$)
Promag P Promag W	15...600	PTFE	-40	150	-40	45	80	90	130	130	130	130
						50	80	90	130	130	130	130
						55	---	---	130	130	130	130
						60	---	---	100	100	100	100
						40	80	95	130	150	150	150
						45	80	95	130	130	130	130
	25...200	PFA	-40	180		40	80	95	130	150	150	150
						45	80	95	130	130	130	130
						50	80	90	130	130	130	130
						60	---	---	100	100	100	100
						50	60	80	80	80	80	80
						60	---	---	80	80	80	80
50...3000	HG (Hard rubber)	-20	80	50	50	50	50	50	50	50		
				45	80	95	120	120	120	120		
				55	---	95	120	120	120	120		
				60	---	95	100	100	100	100		
				50	60	60	60	60	60	60		
				60	---	60	60	60	60	60		
25...1000	PU	-20	50	50	50	50	50	50	50	50		
				45	80	95	120	120	120	120		
				55	---	95	120	120	120	120		
				60	---	95	100	100	100	100		
				50	60	60	60	60	60	60		
				60	---	60	60	60	60	60		
25...3000	ETFE	-40	120 ⁽⁴⁾	45	80	95	120	120	120	120		
				55	---	95	120	120	120	120		
				60	---	95	100	100	100	100		
				50	60	60	60	60	60	60		
				60	---	60	60	60	60	60		
				50	80 ⁽³⁾	95	130	150	150	150		
Promag H	PFA	-40	180	55 ⁽³⁾	65 ⁽³⁾	80	130	150	150	150		
				60 ⁽³⁾	---	---	115	115	115	115		

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) For the Proline Promag H 300 with the medium temperature measurement option, to maintain a temperature class T6 rating, the maximum applied temperatures shall be limited as follows: $T_{a, max} = 50^{\circ}C$ and $T_{m, max} = 50^{\circ}C$.
 (4) For ETFE: $T_{m, max} = 120^{\circ}C$ may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

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	Proline Promag 300/500	Rev.:	G
	Thermal Parameter	Date:	15.04.2025
	EPL Gb (Zone 1); EPL Db (Zone 2); Cl. I Div. 1, Cl. II Div. 1, Cl. III; Cl. I Zone 1, Zone 2	Page:	1/9

1.4. Proline Promag P/W 300 – High temperature version (with extended neck)

1.4.1. Version without thermal insulation

Temperature class vs. Max. ambient temperature (T _{a,max}) and Max. permitted medium temperature (T _{m,max permitted})													
Device	Size / DN	Liner	Medium range T _m ⁽²⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)						
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)	
Promag P Promag W	15...600	PTFE	-40	150	-40	50	60	95	130	130	130	130	
						55	---	95	130	130	130	130	
						60	---	---	100	100	100	100	
	25...200	PFA	-40	180		45	80	95	130	150	150	150	150
						50	60	95	130	150	150	150	
						60	---	---	100	100	100	100	
	50...3000	HG (Hard rubber)	-20	80		50	60	80	80	80	80	80	80
						60	---	80	80	80	80	80	
	25...1000	PU	-20	50		50	50	50	50	50	50	50	50
						60	---	95	100	100	100	100	
	25...3000	ETFE	-40	120 ⁽³⁾		45	80	95	120	120	120	120	120
						55	---	95	120	120	120	120	
						60	---	95	100	100	100	100	
						50	60	60	60	60	60	60	
25...3000	PE	-40	60	50	60	60	60	60	60	60			
				60	---	60	60	60	60	60			

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) For ETFE: T_{m,max} = 120°C may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

1.4.2. Version with thermal insulation in accordance with E+H's specifications

Note: for thermal insulation specifications, refer to E+H's manuals.

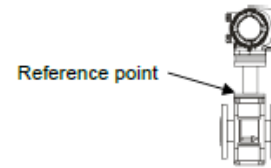
Temperature class vs. Max. ambient temperature (T _{a,max}) and Max. permitted medium temperature (T _{m,max permitted})													
Device	Size / DN	Liner	Medium range T _m ⁽²⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)						
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)	
Promag P Promag W	15...600	PTFE	-40	150	-40	50	60	95	130	130	130	130	
						55	---	95	130	130	130	130	
						60	---	---	100	100	100	100	
	25...200	PFA	-40	180		45	80	95	130	150	150	150	150
						50	60	95	130	150	150	150	
						60	---	---	100	100	100	100	
	50...3000	HG (Hard rubber)	-20	80		50	60	80	80	80	80	80	80
						60	---	80	80	80	80	80	
	25...1000	PU	-20	50		50	50	50	50	50	50	50	50
						60	---	95	100	100	100	100	
	25...3000	ETFE	-40	120 ⁽³⁾		45	80	95	120	120	120	120	120
						55	---	95	120	120	120	120	
						60	---	95	100	100	100	100	
						50	60	60	60	60	60	60	
25...3000	PE	-40	60	50	60	60	60	60	60	60			
				60	---	60	60	60	60	60			

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) For ETFE: T_{m,max} = 120°C may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

1.4.3. Version with thermal insulation NOT in accordance with E+H's specifications

Temperature class vs. Max. ambient temperature ($T_{a, max}$) and Max. permitted reference temperature ($T_{ref, max permitted}$)												
Device	Size / DN	Liner	Medium range $T_m^{(4)}$		Ambient range $T_a^{(1)}$		Reference temperature $T_{ref, max permitted}^{(2)}$ (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promag P	15...600	PTFE	-40	150	-40	60	56.4	71.3	72.0	72.0	72.0	72.0
	25...200	PFA	-40	180		60	56.4	71.3	72.0	72.0	72.0	72.0
Promag W	50...3000	HG (Hard rubber)	-20	80		60	56.4	71.3	72.0	72.0	72.0	72.0
	25...1000	PU	-20	50		60	56.4	71.3	72.0	72.0	72.0	72.0
	25...3000	ETFE	-40	120 ⁽³⁾		60	56.4	71.3	72.0	72.0	72.0	72.0
	25...3000	PE	-40	60		60	56.4	71.3	72.0	72.0	72.0	72.0

- Notes:
- (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 - (2) $T_{ref, max permitted}$: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref, max permitted}$ shall not exceed the values given in this table.
 - (3) For ETFE: $T_{m, max} = 120^\circ\text{C}$ may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).
 - (4) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).



2. Proline Promag H/P/W 500 (ISEM in transmitter, defined by order code "Integrated ISEM Electronic" k = B)

Notes: The chapter 2 applies to Proline Promag H/P/W 500 versions with extended order code covering:

	flowmeter	flowmeter OEM version	replacement transmitter	replacement transmitter OEM
Proline Promag H 500	5H5B** – dd*****B...	O5H5B** – dd*****B...	5x5Bxx – dd*****B...	O5x5Bxx – dd*****B...
Proline Promag P 500	5P5B** – dd*****B...	O5P5B** – dd*****B...	5x5Bxx – dd*****B...	O5x5Bxx – dd*****B...
Proline Promag W 500	5W5B** – dd*****B...	O5W5B** – dd*****B...	5x5Bxx – dd*****B...	O5x5Bxx – dd*****B...

with "Approval" dd = CD, CE, C2, C4, C7, C8 (cCSAus / CSA)
 dd = BB, BD, B7, B8 (IECEx / ATEX)

2.1. Ambient temperature range T_a

The applicable ambient temperature range is determined by factors such as sensor type, size, flange, liner material, maximum working pressure, and selected options when ordering. Additionally, this range may be further limited by the applied medium (process) temperature, thermal insulation and temperature class as shown in the temperature tables below. The rated ambient temperature range is indicated on the device's nameplate.

2.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, liner material, maximum working pressure, and selected options when ordering. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

2.3. Proline Promag H/P/W 500 – Standard version

Note: without thermal insulation.

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)		
Transmitter	$T_{a, max}$ (°C)	Temperature class
Proline Promag P	60	T5 (100°C)
Proline Promag W	55	T6 (85°C)
Proline Promag H		

Notes: $T_{a, min}$ = -50°C or may be further limited (see the nameplate on the transmitter housing)

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted medium temperature ($T_{m, max, permitted}$)													
Sensor	Size / DN	Liner	Medium range T_m (2)		Ambient range T_a (1)		$T_{m, max, permitted}$ (°C)						
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)	
Promag P Promag W	15...600	PTFE	-40	150	-40	60	80	95	130	130	130	130	
	25...200	PFA	-40	180		50	80	95	130	150	150	150	
	50...3000	HG (Hard rubber)	-20	80		60	80	80	80	80	80	80	80
	25...1000	PU	-20	50		50	50	50	50	50	50	50	50
	25...3000	ETFE	-40	120 (4)		60	80	95	120	120	120	120	120
Promag H	2...150	PFA	-40	180	-40	60	60	60	60	60	60	60	
						45	80	95	130	150	150	150	
						55 (3)	80 (3)	95	130	130	130	130	
						60 (3)	80 (3)	95	110	110	110	110	

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) For the Proline Promag H 300 with the medium temperature measurement option, to maintain a temperature class T6 rating, the maximum applied temperature shall be limited as follows: $T_{a, max}$ = 50°C and $T_{m, max}$ = 50°C.
 (4) For ETFE: $T_{m, max}$ = 120°C may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

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	Proline Promag 300/500	Rev.:	G
	Thermal Parameter	Date:	15.04.2025
	EPL Gb (Zone 1); EPL Db (Zone 21); Cl. I Div. 1, Cl. II Div. 1, Cl. III; Cl. I Zone 1, Zone 21	Page:	4/9

2.4. Proline Promag P/W 500 – High temperature version (with extended neck)

2.4.1. Version without thermal insulation

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)		
Transmitter	$T_{a, max}$ (°C)	Temperature class
Proline Promag P	60	T5 (100°C)
Proline Promag W	55	T6 (85°C)

Notes: $T_{a, min} = -50^{\circ}\text{C}$ or may be further limited (see the nameplate on the transmitter housing)

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted medium temperature ($T_{m, max}$ permitted)												
Sensor	Size / DN	Liner	Medium range $T_m^{(2)}$		Ambient range $T_a^{(1)}$		$T_{m, max}$ permitted (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promag P	15...600	PTFE	-40	150	-40	60	80	95	130	130	130	130
Promag W	25...200	PFA	-40	180		60	80	95	130	150	150	150
	50...3000	HG (Hard rubber)	-20	80		60	80	80	80	80	80	80
	25...1000	PU	-20	50		50	50	50	50	50	50	50
	25...3000	ETFE	-40	120 ⁽³⁾		60	80	95	120	120	120	120
	25...3000	PE	-40	60		60	60	60	60	60	60	60

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) For ETFE: $T_{m, max} = 120^{\circ}\text{C}$ may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

2.4.2. Version with thermal insulation in accordance with E+H's specifications

Note: for thermal insulation specifications, refer to E+H's manuals.

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)		
Transmitter	$T_{a, max}$ (°C)	Temperature class
Proline Promag P	60	T5 (100°C)
Proline Promag W	55	T6 (85°C)

Notes: $T_{a, min} = -50^{\circ}\text{C}$ or may be further limited (see the nameplate on the transmitter housing)

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted medium temperature ($T_{m, max}$ permitted)												
Sensor	Size / DN	Liner	Medium range $T_m^{(2)}$		Ambient range $T_a^{(1)}$		$T_{m, max}$ permitted (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promag P	15...600	PTFE	-40	150	-40	60	75	95	130	130	130	130
Promag W	25...200	PFA	-40	180		60	75	95	130	150	150	150
	50...3000	HG (Hard rubber)	-20	80		60	75	80	80	80	80	80
	25...1000	PU	-20	50		50	50	50	50	50	50	50
	25...3000	ETFE	-40	120 ⁽³⁾		55	80	95	120	120	120	120
	25...3000	PE	-40	60		60	60	60	60	60	60	60

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) For ETFE: $T_{m, max} = 120^{\circ}\text{C}$ may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

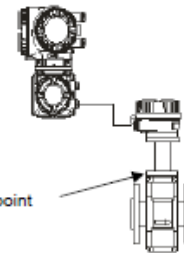
2.4.3. Version with thermal insulation NOT in accordance with E+H's specifications

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)		
Transmitter	$T_{a, max}$ (°C)	Temperature class
Proline Promag P	60	T5 (100°C)
Proline Promag W	55	T6 (85°C)

Notes: $T_{a, min}$ = -50°C or may be further limited (see the nameplate on the transmitter housing)

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted reference temperature ($T_{ref, max}$ permitted) (°C)												
Sensor	Size / DN	Liner	Medium range T_m (4)		Ambient range T_a (1)		Reference temperature $T_{ref, max}$ permitted (2) (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promag P Promag W	15...600	PTFE	-40	150	-40	60	63.8	65.7	69	69	69	69
	25...200	PFA	-40	180		60	63.8	65.7	69	69	69	69
	50...3000	HG (Hard rubber)	-20	80		60	63.8	65.7	69	69	69	69
	25...1000	PU	-20	50		60	63.8	65.7	69	69	69	69
	25...3000	ETFE	-40	120 (3)		60	63.8	65.7	69	69	69	69
	25...3000	PE	-40	60		60	63.8	65.7	69	69	69	69

- Notes:
- (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 - (2) $T_{ref, max}$ permitted: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref, max}$ permitted shall not exceed the values given in this table.
 - (3) For ETFE: $T_{m, max}$ = 120°C may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).
 - (4) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).



3. Proline Promag H/P/W 500 Digital (ISEM in sensor, defined by order code "Integrated ISEM Electronic" k = A)

Notes: The chapter 3 applies to Proline Promag H/P/W 500 Digital versions with extended order code covering:

	flowmeter	flowmeter OEM version	replacement transmitter	replacement transmitter OEM
Proline Promag H 500	5H5B** – dd*****A...	O5H5B** – dd*****A...	5x5Bxx – dd*****A...	O5x5Bxx – dd*****A...
Proline Promag P 500	5P5B** – dd*****A...	O5P5B** – dd*****A...	5x5Bxx – dd*****A...	O5x5Bxx – dd*****A...
Proline Promag W 500	5W5B** – dd*****A...	O5W5B** – dd*****A...	5x5Bxx – dd*****A...	O5x5Bxx – dd*****A...

with "Approval" dd = CN, C6 (cCSAus / CSA)
 dd = BJ, BN (IECEx / ATEX)

3.1. Ambient temperature range T_a

The applicable ambient temperature range is determined by factors such as sensor type, size, flange, liner material, maximum working pressure, and selected options when ordering. Additionally, this range may be further limited by the applied medium (process) temperature, thermal insulation and temperature class as shown in the temperature tables below. The rated ambient temperature range is indicated on the device's nameplate.

3.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, liner material, maximum working pressure, and selected options when ordering. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

3.3. Proline Promag H/P/W 500 Digital - Standard version

Note: without thermal insulation.

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)				
Transmitter	Type of enclosure	$T_{a, min}$ (°C)	$T_{a, max}$ (°C)	Temperature class
Proline Promag P 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
Proline Promag W 500 Digital Proline Promag H 500 Digital			45	T5 (100°C)

Notes: (1) $T_{a, min}$ = -50°C for aluminium enclosure, $T_{a, min}$ = -40°C for plastic enclosure.

For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BJ): $T_{a, max}$ = 60°C. Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted medium temperature ($T_{m, max}$ permitted)															
Sensor	Size / DN	Liner	Medium range T_m ⁽²⁾		Ambient range T_a ⁽³⁾		$T_{m, max}$ permitted (°C)								
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)			
Promag P Promag W	15...800	PTFE	-40	150	-40	60	80	95	130	130	130	130			
	25...200					PFA	-40	180	50	80	95	130	150	150	150
	50...3000	HG (Hard rubber)	-20	80					60	80	95	130	130	130	130
	25...1000					PU	-20	50	50	50	50	50	50	50	50
	25...3000								ETFE	-40	120 ⁽⁴⁾	60	80	95	120
25...3000	PE	-40	60	60	60	60	60	60				60	60		
Promag H	2...150	PFA	-40	180	35	80 ⁽³⁾	95	130	150	150	150	150			
					45	80 ⁽³⁾	95	135	135	135	135				
					60 ⁽³⁾	80 ⁽³⁾	95	115	115	115	115				

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).

(2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

(3) For the Proline Promag H 500 with the medium temperature measurement option, to maintain a temperature class T6 rating, the maximum applied temperature shall be limited as follows: $T_{a, max}$ = 50°C and $T_{m, max}$ = 50°C.

(4) For ETFE: $T_{m, max}$ = 120°C may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

3.4. Proline Promag H/P/W 500 Digital – High temperature version (with extended neck)

3.4.1. Version without thermal insulation

Transmitter temperature class vs. Maximum ambient temperature ($T_{a,max}$)				
Transmitter	Type of enclosure	$T_{a,min}$ (°C)	$T_{a,max}$ (°C)	Temperature class
Proline Promag P 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
Proline Promag W 500 Digital			45	T5 (100°C)

Notes: (1) $T_{a,min}$ = -50°C for aluminium enclosure, $T_{a,min}$ = -40°C for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BJ): $T_{a,max}$ = 60°C.
 Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted medium temperature ($T_{m,max}$ permitted)												
Sensor	Size / DN	Liner	Medium range T_m ⁽²⁾		Ambient range T_a ⁽¹⁾		$T_{m,max}$ permitted (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promag P Promag W	15...600	PTFE	-40	150	-40	60	80	95	130	130	130	130
	25...200	PFA	-40	180			80	95	130	150	150	150
	50...3000	HG (Hard rubber)	-20	80			80	80	80	80	80	80
	25...1000	PU	-20	50			50	50	50	50	50	50
	25...3000	ETFE	-40	120 ⁽³⁾			80	95	120	120	120	120
	25...3000	PE	-40	60			60	60	60	60	60	60

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) For ETFE: $T_{med,max}$ = 120°C may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

3.4.2. Version with thermal insulation in accordance with E+H's specifications

Note: for thermal insulation specifications, refer to E+H's manuals.

Transmitter temperature class vs. Maximum ambient temperature ($T_{a,max}$)				
Transmitter	Type of enclosure	$T_{a,min}$ (°C)	$T_{a,max}$ (°C)	Temperature class
Proline Promag P 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
Proline Promag W 500 Digital			45	T5 (100°C)

Notes: (1) $T_{a,min}$ = -50°C for aluminium enclosure, $T_{a,min}$ = -40°C for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BJ): $T_{a,max}$ = 60°C.
 Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted medium temperature ($T_{m,max}$ permitted)												
Sensor	Size / DN	Liner	Medium range T_m ⁽²⁾		Ambient range T_a ⁽¹⁾		$T_{m,max}$ permitted (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promag P Promag W	15...600	PTFE	-40	150	-40	60	70	95	130	130	130	130
	25...200	PFA	-40	180			75	95	130	150	150	150
	50...3000	HG (Hard rubber)	-20	80			80	75	80	80	80	80
	25...1000	PU	-20	50			50	50	50	50	50	50
	25...3000	ETFE	-40	120 ⁽³⁾			70	95	120	120	120	120
	25...3000	PE	-40	60			60	60	60	60	60	60

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) For ETFE: $T_{med,max}$ = 120°C may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

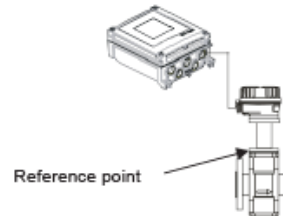
3.4.3. Version with thermal insulation NOT in accordance with E+H's specifications

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)				
Transmitter	Type of enclosure	$T_{a, min}$ (°C)	$T_{a, max}$ (°C)	Temperature class
Proline Promag P 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
Proline Promag W 500 Digital			45	T5 (100°C)

Notes: (1) $T_{a, min} = -50^{\circ}\text{C}$ for aluminium enclosure, $T_{a, min} = -40^{\circ}\text{C}$ for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BJ): $T_{a, max} = 60^{\circ}\text{C}$.
 Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted reference temperature ($T_{ref, max permitted}$)												
Sensor	Size / DN	Liner	Medium range T_m ⁽⁴⁾		Ambient range T_a ⁽¹⁾		Reference temperature $T_{ref, max permitted}$ ⁽²⁾ (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promag P Promag W	15...600	PTFE	-40	150	-40	60	63.8	65.7	69	70.9	70.9	70.9
	25...200	PFA	-40	180		60	63.8	65.7	69	70.9	70.9	70.9
	50...3000	HG (Hard rubber)	-20	80		60	63.8	65.7	69	70.9	70.9	70.9
	25...1000	PU	-20	50		60	63.8	65.7	69	70.9	70.9	70.9
	25...3000	ETFE	-40	120 ⁽³⁾		60	63.8	65.7	69	70.9	70.9	70.9
	25...3000	PE	-40	60		60	63.8	65.7	69	70.9	70.9	70.9

- Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) $T_{ref, max permitted}$: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref, max permitted}$ shall not exceed the values given in this table.
 (3) For ETFE: $T_{m, max} = 120^{\circ}\text{C}$ may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).
 (4) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).





3.3. Thermal Parameters (Zone 2)

1. Proline Promag H/P/W 300

Notes: The chapter 1 applies to Proline Promag H/P/W 300 versions with extended order code covering:

	flowmeter	flowmeter OEM version	replacement transmitter	replacement transmitter OEM
Proline Promag H 300	5H3B** – dd...	O5H3B** – dd...	5x3Bxx – dd...	O5x3Bxx – dd...
Proline Promag P 300	5P3B** – dd...	O5P3B** – dd...	5x3Bxx – dd...	O5x3Bxx – dd...
Proline Promag W 300	5W3B** – dd...	O5W3B** – dd...	5x3Bxx – dd...	O5x3Bxx – dd...

with "Approval" dd = CS, CZ (cCSAus / CSA)
 dd = BS (IECEx / ATEX)

1.1. Ambient temperature range T_a

The applicable ambient temperature range is determined by factors such as sensor type, size, flange, liner material, maximum working pressure, and selected options when ordering. Additionally, this range may be further limited by the applied medium (process) temperature, thermal insulation and temperature class as shown in the temperature tables below. The rated ambient temperature range is indicated on the device's nameplate.

1.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, liner material, maximum working pressure, and selected options when ordering. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

1.3. Proline Promag H/P/W 300 – Standard version

Note: without thermal insulation.

Temperature class vs. Max. ambient temperature ($T_{a,max}$) and Max. permitted medium temperature ($T_{m,max}$ permitted)													
Device	Size / DN	Liner	Medium range T_m ⁽²⁾		Ambient range T_a ⁽¹⁾		$T_{m,max}$ permitted (°C)						
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)	
Promag P Promag W	15...600	PTFE	-40	150	-40	50	---	90	130	130	130	130	130
						55	---	---	130	130	130	130	
						60	---	---	100	100	100	100	
						40	---	---	---	150 ⁽³⁾	150 ⁽³⁾	150 ⁽³⁾	
						45	---	95	130	130	130	130	
						50	---	90	130	130	130	130	
	25...200	PFA	-40	180		60	---	---	100	100	100	100	
						50	---	---	80	80	80	80	
						50	---	90	130	130	130	130	
						60	---	---	100	100	100	100	
						50	---	80	80	80	80	80	
						60	---	---	80	80	80	80	
						50	---	50	50	50	50	50	
						50	---	90	120	120	120	120	
50...3000	HG (Hard rubber)	-20	80	60	---	---	100	100	100	100			
				50	---	---	80	80	80	80			
25...1000	PU	-20	50	50	---	---	100	100	100	100			
				50	---	90	120	120	120	120			
25...3000	ETFE	-40	120 ⁽⁷⁾	60	---	---	100	100	100	100			
				50	---	60	60	60	60	60			
25...3000	PE	-40	60	60	---	---	60	60	60	60			
				50	---	---	60	60	60	60			
				50	---	95 ⁽⁴⁾	130	150	150	150			
				55 ⁽⁴⁾	---	80 ⁽⁴⁾	130	150	150	150			
				60	---	---	100	100	100	100			
				60	---	---	60	60	60	60			
Promag H ^{(5), (6)}	2...150	PFA	-40	180	50	---	---	100	100	100	100		
					55 ⁽⁴⁾	---	80 ⁽⁴⁾	130	150	150	150		
					60	---	---	100	100	100	100		
					60	---	---	60	60	60	60		

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) The Proline Promag P 300 with liner type PFA may be used for condition of process with $T_{m,max} = 180^\circ\text{C}$ at $T_{a,max} = 50^\circ\text{C}$ for a short duration (max. 10 min.).
 (4) For the Proline Promag H 300 with the medium temperature measurement option: to maintain a temperature class T6 rating, the maximum applied temperature shall be limited as follows: $T_{a,max} = 50^\circ\text{C}$ and $T_{m,max} = 50^\circ\text{C}$.
 (5) For the Proline Promag 300 using a stainless steel hygienic enclosure: the transmitter shall not be installed vertically above the sensor.
 (6) For the Proline Promag 300 using a stainless steel hygienic enclosure: to maintain a temperature class T5 rating, the maximum applied ambient temperature shall be reduced by 3°C.
 (7) For ETFE: $T_{m,max} = 120^\circ\text{C}$ may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

1.4. Proline Promag P/W 300 – High temperature version (with extended neck)

1.4.1. Version without thermal insulation

Temperature class vs. Max. ambient temperature (T _{a, max}) and Max. permitted medium temperature (T _{m, max permitted})													
Device	Size / DN	Liner	Medium range T _m ⁽²⁾		Ambient range T _a ⁽¹⁾		T _{m, max permitted} (°C)						
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)	
Promag P Promag W	15...600	PTFE	-40	150	-40	50	---	90	130	130	130	130	
						55	---	---	130	130	130	130	
						60	---	---	100	100	100	100	
	25...200	PFA	-40	180		45	---	95	130	180	180	180	180
						50	---	90	130	160	160	160	
						60	---	---	100	100	100	100	
	50...3000	HG (Hard rubber)	-20	80		50	---	80	80	80	80	80	80
						60	---	---	80	80	80	80	
						50	---	50	50	50	50	50	
	25...1000	PU	-20	50		50	---	90	120	120	120	120	120
						60	---	---	100	100	100	100	
	25...3000	ETFE	-40	120 ⁽³⁾		50	---	60	60	60	60	60	60
60					---	---	60	60	60	60			
25...3000	PE	-40	60	50	---	---	---	---	---	---	---		
				60	---	---	60	60	60	60			

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) For ETFE: T_{m, max} = 120°C may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

1.4.2 Version with thermal insulation in accordance with E+H's specifications

Note: for thermal insulation specifications, refer to E+H's manuals.

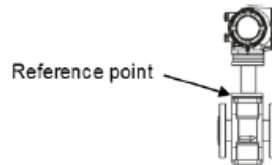
Temperature class vs. Max. ambient temperature (T _{a, max}) and Max. permitted medium temperature (T _{m, max permitted})													
Device	Size / DN	Liner	Medium range T _m ⁽²⁾		Ambient range T _a ⁽¹⁾		T _{m, max permitted} (°C)						
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)	
Promag P Promag W	15...600	PTFE	-40	150	-40	50	---	90	130	130	130	130	
						55	---	---	130	130	130	130	
						60	---	---	100	100	100	100	
	25...200	PFA	-40	180		45	---	95	130	170	170	170	170
						50	---	90	130	160	160	160	
						60	---	---	100	100	100	100	
	50...3000	HG (Hard rubber)	-20	80		50	---	80	80	80	80	80	80
						60	---	---	80	80	80	80	
						50	---	50	50	50	50	50	
	25...1000	PU	-20	50		50	---	90	120	120	120	120	120
						60	---	---	100	100	100	100	
	25...3000	ETFE	-40	120 ⁽³⁾		50	---	60	60	60	60	60	60
60					---	---	60	60	60	60			
25...3000	PE	-40	60	50	---	---	---	---	---	---	---		
				60	---	---	60	60	60	60			

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) For ETFE: T_{m, max} = 120°C may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

1.4.3. Version with thermal insulation NOT in accordance with E+H's specifications

Temperature class vs. Max. ambient temperature ($T_{a, max}$) and Max. permitted reference temperature ($T_{ref, max permitted}$)												
Device	Size / DN	Liner	Medium range $T_m^{(4)}$		Ambient range $T_a^{(1)}$		Reference temperature $T_{ref, max permitted}^{(2)}$ (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promag P	15...600	PTFE	-40	150	-40	55	---	62.2	74.0	75.6	75.6	75.6
Promag W	25...200	PFA	-40	180		50	---	62.2	74.0	75.6	75.6	75.6
	50...3000	HG (Hard rubber)	-20	80		60	---	62.2	74.0	75.6	75.6	75.6
	25...1000	PU	-20	50		50	---	62.2	74.0	75.6	75.6	75.6
	25...3000	ETFE	-40	120 ⁽³⁾		60	---	62.2	74.0	75.6	75.6	75.6
	25...3000	PE	-40	60		60	---	62.2	74.0	75.6	75.6	75.6

- Notes:
- (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 - (2) $T_{ref, max permitted}$: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref, max permitted}$ shall not exceed the values given in this table.
 - (3) For ETFE: $T_{m, max} = 120^\circ\text{C}$ may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).
 - (4) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).





2. Proline Promag H/P/W 500 (ISEM in transmitter, defined by order code "Integrated ISEM Electronic" k = B)

Notes: The chapter 2 applies to Proline Promag H/P/W 500 versions with extended order code covering:

	flowmeter	flowmeter OEM version	replacement transmitter	replacement transmitter OEM
Proline Promag H 500	5H5B** – dd*****B...	O5H5B** – dd*****B...	5x5Bxx – dd*****B...	O5x5Bxx – dd*****B...
Proline Promag P 500	5P5B** – dd*****B...	O5P5B** – dd*****B...	5x5Bxx – dd*****B...	O5x5Bxx – dd*****B...
Proline Promag W 500	5W5B** – dd*****B...	O5W5B** – dd*****B...	5x5Bxx – dd*****B...	O5x5Bxx – dd*****B...

with "Approval" dd = CS, CZ (cCSAus / CSA)
 dd = BS (IECEx / ATEX)

2.1. Ambient temperature range T_a

The applicable ambient temperature range is determined by factors such as sensor type, size, flange, liner material, maximum working pressure, and selected options when ordering. Additionally, this range may be further limited by the applied medium (process) temperature, thermal insulation and temperature class as shown in the temperature tables below. The rated ambient temperature range is indicated on the device's nameplate.

2.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, liner material, maximum working pressure, and selected options when ordering. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

2.3. Proline Promag H/P/W 500 – Standard version

Note: without thermal insulation.

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)		
Transmitter	$T_{a, max}$ (°C)	Temperature class
Proline Promag P	60	T4 (135°C)
Proline Promag W	45	T5 (100°C)
Proline Promag H		

Notes: $T_{a, min}$ = -50°C or may be further limited (see the nameplate on the transmitter housing)

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted medium temperature ($T_{m, max}$ permitted)												
Sensor	Size / DN	Liner	Medium range T_m (2)		Ambient range T_a (1)		$T_{m, max}$ permitted (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promag P Promag W	15...600	PTFE	-40	150	-40	60	80	95	130	130	130	130
	25...200	PFA	-40	180		50	80	95	130	150	150	150
	50...3000	HG (Hard rubber)	-20	80		60	80	95	130	130	130	130
	25...1000	PU	-20	50		60	50	50	50	50	50	50
	25...3000	ETFE	-40	120 (4)		60	80	95	120	120	120	120
	25...3000	PE	-40	60		60	60	60	60	60	60	60
Promag H	2...150	PFA	-40	180	45	80 (3)	95	130	150	150	150	
					55 (3)	80 (3)	95	130	130	130		
					60 (3)	80 (3)	95	110	110	110		

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) For the Proline Promag H 300 with the medium temperature measurement option, to maintain a temperature class T6 rating, the maximum applied temperature shall be limited as follows: $T_{a, max}$ = 50°C and $T_{m, max}$ = 50°C.
 (4) For ETFE: $T_{m, max}$ = 120°C may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

<p>Endress+Hauser <small>People for Process Automation</small></p> <p>Endress+Hauser Flow Kägenstrasse 7, 4153 Reinach, Basel-Landschaft, Switzerland</p>	Control Drawing - IECEx, ATEX, CSA, cCSAus	Document No.:	FES0261
	Proline Promag 300/500	Rev.:	G
	Thermal Parameter	Date:	15.04.2025
	EPL Go (Zone 2); Class I Division 2, Class I Zone 2	Page:	4/9

2.4. Proline Promag P/W 500 – High temperature version (with extended neck)

2.4.1. Version without thermal insulation

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)		
Transmitter	$T_{a, max}$ (°C)	Temperature class
Proline Promag P	60	T4 (135°C)
Proline Promag W	45	T5 (100°C)

Notes: $T_{a, min}$ = -50°C or may be further limited (see the nameplate on the transmitter housing)

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted medium temperature ($T_{m, max}$ permitted)												
Sensor	Size / DN	Liner	Medium range $T_m^{(2)}$		Ambient range $T_a^{(1)}$		$T_{m, max}$ permitted (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promag P Promag W	15...600	PTFE	-40	150	-40	60	80	95	130	130	130	130
	25...200	PFA	-40	180		50	80	95	130	180	180	180
50...3000	HG (Hard rubber)	-20	80	60		80	80	80	80	80	80	80
25...1000	PU	-20	50	50		50	50	50	50	50	50	50
25...3000	ETFE	-40	120 ⁽³⁾	60		80	95	120	120	120	120	120
25...3000	PE	-40	60	60		60	60	60	60	60	60	60

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) For ETFE: $T_{med, max}$ = 120°C may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

2.4.2. Version with thermal insulation in accordance with E+H's specifications

Note: for thermal insulation specifications, refer to E+H's manuals

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)		
Transmitter	$T_{a, max}$ (°C)	Temperature class
Proline Promag P	60	T4 (135°C)
Proline Promag W	45	T5 (100°C)

Notes: $T_{a, min}$ = -50°C or may be further limited (see the nameplate on the transmitter housing)

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted medium temperature ($T_{m, max}$ permitted)												
Sensor	Size / DN	Liner	Medium range $T_m^{(2)}$		Ambient range $T_a^{(1)}$		$T_{m, max}$ permitted (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promag P Promag W	15...600	PTFE	-40	150	-40	60	75	95	130	130	130	130
	25...200	PFA	-40	180		35	60	95	130	180	180	180
50...3000	HG (Hard rubber)	-20	80	40		80	95	130	170	170	170	
25...1000	PU	-20	50	60		75	95	130	150	150	150	
25...3000	ETFE	-40	120 ⁽³⁾	60		75	80	80	80	80	80	80
25...3000	PE	-40	60	50		50	50	50	50	50	50	50
				55		80	95	120	120	120	120	120
				60		75	95	120	120	120	120	120
				60	60	60	60	60	60	60	60	

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) For ETFE: $T_{med, max}$ = 120°C may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

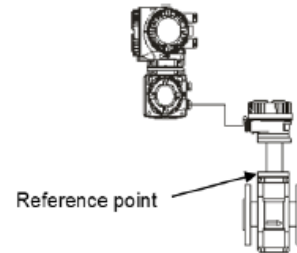
2.4.3. Version with thermal insulation, NOT in accordance with E+H's specifications

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)		
Transmitter	$T_{a, max}$ (°C)	Temperature class
Proline Promag P	60	T4 (135°C)
Proline Promag W	45	T5 (100°C)

Notes: $T_{a, min} = -50^{\circ}\text{C}$ or may be further limited (see the nameplate on the transmitter housing)

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted reference temperature ($T_{ref, max}$ permitted)												
Sensor	Size / DN	Liner	Medium range $T_m^{(4)}$		Ambient range $T_a^{(1)}$		Reference temperature $T_{ref, max}$ permitted ⁽²⁾ (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promag P Promag W	15...600	PTFE	-40	150	-40	60	63.8	65.7	69	70.9	70.9	70.9
	25...200	PFA	-40	180		60	63.8	65.7	69	70.9	70.9	70.9
	50...3000	HG (Hard rubber)	-20	80		60	63.8	65.7	69	70.9	70.9	70.9
	25...1000	PU	-20	50		50	63.8	65.7	69	70.9	70.9	70.9
	25...3000	ETFE	-40	120 ⁽³⁾		60	63.8	65.7	69	70.9	70.9	70.9
	25...3000	PE	-40	60		60	63.8	65.7	69	70.9	70.9	70.9

- Notes:
- (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 - (2) $T_{ref, max}$ permitted: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref, max}$ permitted shall not exceed the values given in this table.
 - (3) $T_{m, max} = 120^{\circ}\text{C}$ may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).
 - (4) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).



3. Proline Promag H/P/W 500 Digital (ISEM in sensor, defined by order code "Integrated ISEM Electronic" k = A)

Notes: The chapter 3 applies to Proline Promag H/P/W 500 Digital versions with extended order code covering:

	flowmeter	flowmeter OEM version	replacement transmitter	replacement transmitter OEM
Proline Promag H 500	5H5B** – dd*****A...	O5H5B** – dd*****A...	5x5Bxx – dd*****A...	O5x5Bxx – dd*****A...
Proline Promag P 500	5P5B** – dd*****A...	O5P5B** – dd*****A...	5x5Bxx – dd*****A...	O5x5Bxx – dd*****A...
Proline Promag W 500	5W5B** – dd*****A...	O5W5B** – dd*****A...	5x5Bxx – dd*****A...	O5x5Bxx – dd*****A...

with "Approval" dd = CS, CZ (cCSAus / CSA)
 dd = BL, BS (IECEx / ATEX)

3.1. Ambient temperature range T_a

The applicable ambient temperature range is determined by factors such as sensor type, size, flange, liner material, maximum working pressure, and selected options when ordering. Additionally, this range may be further limited by the applied medium (process) temperature, thermal insulation and temperature class as shown in the temperature tables below. The rated ambient temperature range is indicated on the device's nameplate.

3.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, liner material, maximum working pressure, and selected options when ordering. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

3.3. Proline Promag H/P/W 500 Digital - Standard version

Note: without thermal insulation.

Transmitter temperature class vs. Maximum ambient temperature ($T_{a,max}$)				
Transmitter	Type of enclosure	$T_{a,min}$ (°C)	$T_{a,max}$ (°C)	Temperature class
Proline Promag P 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
Proline Promag W 500 Digital			45	T5 (100°C)
Proline Promag H 500 Digital				

Notes: (1) $T_{a,min}$ = -50°C for aluminium enclosure, $T_{a,min}$ = -40°C for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BL): $T_{a,max}$ = 60°C.
 Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted medium temperature ($T_{m,max}$ permitted)												
Sensor	Size / DN	Liner	Medium range T_m ⁽²⁾		Ambient range T_a ⁽¹⁾		$T_{m,max}$ permitted (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promag P Promag W	15...600	PTFE	-40	150	-40	50	50	95	130	130	130	130
						60	---	95	130	130	130	130
	25...200	PFA	-40	180		50	50	95	130	150 ⁽³⁾	150 ⁽³⁾	150 ⁽³⁾
						60	---	95	130	130	130	130
	50...3000	HG (Hard rubber)	-20	80		50	80	80	80	80	80	80
						60	---	80	80	80	80	80
	25...1000	PU	-20	50		45	50	50	50	50	50	50
						50	---	50	50	50	50	50
	25...3000	ETFE	-40	120 ⁽⁴⁾		50	40	95	120	120	120	120
						60	---	95	120	120	120	120
25...3000	PE	-40	60	50	50	60	60	60	60	60		
				60	---	60	60	60	60	60		
Promag H	2...150	PFA	-40	180	40	50	95	130	150	150	150	
					45	50	95	130	145	145	145	
					55	---	95	115	115	115	115	
					60	---	---	115	115	115	115	

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) The Proline Promag P 300 with liner type PFA may be used for condition of process with $T_{m,max}$ = 180°C at $T_{a,max}$ = 50°C for a short duration (max. 10 min.).
 (4) For ETFE: $T_{m,max}$ = 120°C may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

3.4. Proline Promag P/W 500 digital – High temperature version (with extended neck)

3.4.1. Version without thermal insulation

Transmitter temperature class vs. Maximum ambient temperature (T _{a,max})				
Transmitter	Type of enclosure	T _{a,min} (°C)	T _{a,max} (°C)	Temperature class
Proline Promag P 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
Proline Promag W 500 Digital			45	T5 (100°C)

Notes: (1) T_{a,min} = -50°C for aluminium enclosure, T_{a,min} = -40°C for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BL): T_{a,max} = 60°C.
 Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature (T _{a,max}) & Max. permitted medium temperature (T _{m,max permitted})												
Sensor	Size / DN	Liner	Medium range T _m ⁽²⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promag P Promag W	15...600	PTFE	-40	150	-40	45	70	95	130	130	130	130
						60	---	95	130	130	130	130
	25...200	PFA	-40	180		50	40	95	130	180	180	180
						60	---	95	130	150	150	150
	50...3000	HG (Hard rubber)	-20	80		45	50	80	80	80	80	80
						60	---	80	80	80	80	80
	25...1000	PU	-20	50		45	50	50	50	50	50	50
						50	---	50	50	50	50	50
	25...3000	ETFE	-40	120 ⁽³⁾		50	40	95	120	120	120	120
						60	---	95	120	120	120	120
	25...3000	PE	-40	60		50	40	60	60	60	60	60
						60	---	60	60	60	60	60

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) For ETFE: T_{m,max} = 120°C may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

3.4.2. Version with thermal insulation in accordance with E+H's specifications

Note: for thermal insulation specifications, refer to E+H's manuals.

Transmitter temperature class vs. Maximum ambient temperature (T _{a,max})				
Transmitter	Type of enclosure	T _{a,min} (°C)	T _{a,max} (°C)	Temperature class
Proline Promag P 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
Proline Promag W 500 Digital			45	T5 (100°C)

Notes: (1) T_{a,min} = -50°C for aluminium enclosure, T_{a,min} = -40°C for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BL): T_{a,max} = 60°C.
 Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature (T _{a,max}) & Max. permitted medium temperature (T _{m,max permitted})												
Sensor	Size / DN	Liner	Medium range T _m ⁽²⁾		Ambient range T _a ⁽¹⁾		T _{m,max permitted} (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promag P Promag W	15...600	PTFE	-40	150	-40	45	70	95	130	130	130	130
						60	---	95	130	130	130	130
	25...200	PFA	-40	180		35	40	95	130	180	180	180
						50	40	95	130	175	175	175
	50...3000	HG (Hard rubber)	-20	80		45	45	80	80	80	80	80
						60	---	80	80	80	80	80
	25...1000	PU	-20	50		45	50	50	50	50	50	50
						50	---	50	50	50	50	50
	25...3000	ETFE	-40	120 ⁽³⁾		50	40	95	120	120	120	120
						60	---	95	120	120	120	120
	25...3000	PE	-40	60		50	40	60	60	60	60	60
						60	---	60	60	60	60	60

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).
 (3) For ETFE: T_{m,max} = 120°C may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).

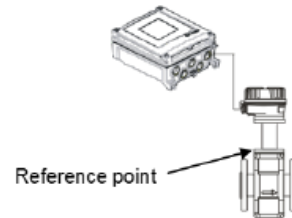
3.4.3. Version with thermal insulation NOT in accordance with E+H's specifications

Transmitter temperature class vs. Maximum ambient temperature ($T_{a,max}$)				
Transmitter	Type of enclosure	$T_{a,min}$ (°C)	$T_{a,max}$ (°C)	Temperature class
Proline Promag P 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
Proline Promag W 500 Digital			45	T5 (100°C)

Notes: (1) $T_{a,min}$ = -50°C for aluminium enclosure, $T_{a,min}$ = -40°C for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BL): $T_{a,max}$ = 60°C.
 Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted reference temperature ($T_{ref,max}$ permitted)												
Sensor	Size / DN	Liner	Medium range T_m ⁽⁴⁾		Ambient range T_a ⁽¹⁾		Reference temperature $T_{ref,max}$ permitted ⁽²⁾ (°C)					
			min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Promag P	15...600	PTFE	-40	150	-40	60	51.4	65.7	69	70.9	70.9	70.9
	25...200	PFA	-40	180		60	51.4	65.7	69	70.9	70.9	70.9
Promag W	50...3000	HG (Hard rubber)	-20	80		60	51.4	65.7	69	70.9	70.9	70.9
	25...1000	PU	-20	50		50	51.4	65.7	69	70.9	70.9	70.9
	25...3000	ETFE	-40	120 ⁽³⁾		60	51.4	65.7	69	70.9	70.9	70.9
	25...3000	PE	-40	60		60	51.4	65.7	69	70.9	70.9	70.9

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) $T_{ref,max}$ permitted: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref,max}$ permitted shall not exceed the values given in this table.
 (3) For ETFE: $T_{m,max}$ = 120°C may be reduced depending on the maximum working process pressure (see the nameplate on the sensor housing).
 (4) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).





4. Marking

4.1. Proline Promag 300

Order Code: 5*3*** – dd*ff*****+### O5*3*** – dd*ff*****+###				Information: Marking of protection representative for ...
Approval dd =	I/O1 ff =	Marking of Ex protection		
BB	CA, CB, CC, CD, HA, TA, MC, RC	Ex db eb ia [ia Ga] IIC T6...T1 Gb and/or Ex tb [ia Da] IIIC T** °C Db		db -> electronic compartment of the transmitter enclosure
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex db eb ia IIC T6...T1 Gb and/or Ex tb IIIC T** °C Db		eb -> terminal compartment of the transmitter enclosure, sensor, electronic for sensor circuit Ex eb ia -> sensor, display, antenna bushing tb -> transmitter enclosure and sensor [ia Ga] -> electronic with input/output Ex ia [ia Da] -> electronic with input/output Ex ia
BD	CA, CB, CC, CD, HA, TA, MC, RC	Ex db eb ia [ia Ga] IIC T6...T1 Gb and/or Ex tb [ia Da] IIIC T** °C Db		db -> electronic and terminal compartments of the transmitter enclosure
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex db eb ia IIC T6...T1 Gb and/or Ex tb IIIC T** °C Db		ia -> sensor, display eb -> sensor, electronic for sensor circuit Ex eb tb -> transmitter enclosure and sensor [ia Ga] -> electronic with input/output Ex ia [ia Da] -> electronic with input/output Ex ia
BS	CA, CB, CC, CD, HA, TA, MC, RC	Ex ec nC ic [ic] IIC T5...T1 Gc		ec -> transmitter enclosure, sensor, electronic, display, antenna bushing
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex ec nC ic IIC T5...T1 Gc		nC -> electronic ic -> sensor [ic] -> electronic with input/output Ex ic

4.2. Proline Promag 500 (with ISEM integrated in transmitter)

Order Code: 5*5*** – dd*ff***B*****+### O5*5*** – dd*ff***B*****+###				Information: Marking of protection representative for ...
Approval dd =	I/O1 ff =	Parts of Device	Marking of Ex protection	
BB	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ex db eb [ia Ga] IIC T6...T5 Gb and/or Ex tb [ia Da] IIIC T85°C Db	db -> electronic compartment of the transmitter enclosure
		Sensor	Ex eb ia IIC T6...T1 Gb and/or Ex tb IIIC T** °C Db	eb -> terminal compartment and sensor connection compartment of the transmitter enclosure, sensor, sensor terminal enclosure, electronic for sensor circuit Ex eb ia -> sensor, display, antenna bushing tb -> transmitter enclosure, sensor, sensor terminal enclosure [ia Ga] -> electronic with input/output Ex ia and/or output Ex ia for sensor circuit [ia Da] -> electronic with input/output Ex ia



Order Code: 5*5*** – dd*ff****B*****+##*## O5*5*** – dd*ff****B*****+##*##				
Approval dd =	I/O1 ff =	Parts of Device	Marking of Ex protection	Information: Marking of protection representative for ...
BD	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ex db eb [ia Ga] IIC T6...T5 Gb and/or Ex tb [ia Da] IIIC T85°C Db	db -> electronic and terminal compartments of the transmitter enclosure eb -> sensor, sensor connection compartment of the transmitter enclosure, electronic for sensor circuit Ex be, sensor terminal enclosure ia -> sensor, display tb -> transmitter enclosure, sensor, sensor terminal enclosure [ia Ga] -> electronic with input/output Ex ia and/or output Ex ia for sensor circuit [ia Da] -> electronic with input/output Ex ia
		Sensor	Ex eb ia IIC T6...T1 Gb and/or Ex tb IIIC T** °C Db	
BS	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ex ec nC [ic] IIC T5...T4 Gc	ec -> transmitter enclosures, sensor , sensor terminal box, electronic, display nC -> electronic ic -> sensor [ic] -> electronic with input/output Ex ic and/or output for sensor circuit
		Sensor	Ex ec ic IIC T6...T1 Gc	
B7	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ex db eb [ia Ga] IIC T6... T5 Gb	db -> electronic compartment of the transmitter enclosure eb -> terminal compartment and sensor connection compartment of the transmitter enclosure, sensor, sensor terminal enclosure, electronic for sensor circuit Ex eb ia -> sensor, display, antenna bushing [ia Ga] -> electronic with input/output Ex ia and/or output Ex ia for sensor circuit
		Sensor	Ex eb ia IIC T6...T1 Gb	
B8	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ex db eb [ia Ga] IIC T6... T5 Gb	db -> electronic and terminal compartments of the transmitter enclosure eb -> sensor, sensor connection compartment of the transmitter enclosure, sensor terminal enclosure, electronic for sensor circuit Ex eb ia -> sensor, display [ia Ga] -> electronic with input/output Ex ia and/or output Ex ia for sensor circuit
		Sensor	Ex eb ia IIC T6...T1 Gb	



4.3. Proline Promag 500 Digital (with ISEM integrated in sensor)

Order Code: 5*5*** – dd*ff****A*****+##*## O5*5*** – dd*ff****A*****+##*##				
Approval dd =	I/O1 ff =	Parts of Device	Marking of Ex protection	Information:Marking of protection representative for ...
BJ	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	n.a. (non-Ex)	db -> sensor terminal enclosure tb -> sensor, sensor terminal enclosure ia -> sensor, electronic Note: I/O signals from the transmitter are non-IS
		Sensor	Ex db ia IIC T6...T1 Gb and/or Ex tb IIIC T** °C Db	
BL	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	n.a. (non-Ex)	ec -> sensor terminal enclosure ic -> sensor, electronic Note: I/O signals from the transmitter are non-IS
		Sensor	Ex ec ic IIC T6...T1 Gc	
BN	HA, TA, CA, CB, CC, CD, MC, RC	Transmitter	Ex ec nC [ic] IIC T5...T4 Gc	ec -> transmitter enclosure, electronic, display, antenna bushing nC -> electronic db -> sensor terminal enclosure ia -> sensor tb -> sensor, sensor terminal enclosure [ic] -> electronic with input/output Ex ic
		Sensor	Ex db ia IIC T6...T1 Gb and/or Ex tb IIIC T** °C Db	
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	Ex ec nC IIC T5...T4 Gc	
		Sensor	Ex db ia IIC T6...T1 Gb and/or Ex tb IIIC T** °C Db	
BS	HA, TA, CA, CB, CC, CD, MC, RC	Transmitter	Ex ec nC [ic] IIC T5...T4 Gc	ec -> transmitter enclosure, electronic, display, sensor terminal enclosure, antenna bushing nC -> electronic ic -> sensor [ic] -> electronic with input/output Ex ic and/or output Ex ic for sensor circuit
		Sensor	Ex ec ic IIC T6...T1 Gc	
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	Ex ec nC IIC T5...T4 Gc	
		Sensor	Ex ec ic IIC T6...T1 Gc	



5. Conditions of Certification

- All equipment of the measurement system shall be included in the equipotential bonding. Along the intrinsically safe sensor circuits potential equalization must exist.
- The sensors may only be used for those process media, for which the wetted parts are known to be suitable.
- For the Proline Promag 500 (ISEM in transmitter) and Proline Promag 500 Digital (ISEM in sensor) flowmeters, which use a flat gasket within the sensor terminal enclosure (refer to the Safety Instruction XA*** for applicable models), the end user shall ensure that flat cover seals are not bent before securing the cover. Any seals that are not flat or are damaged shall be replaced prior to reassembly.
- If the Proline Promag 300 flowmeter is connected to a Remote Display type DKX001 or ODKX001, the order code “Approval dd” of the flowmeter shall be paired to the order code “Approval bb” of the Remote Display as follows:

Proline Promag 300 with order code “Approval dd” =	Remote Display DKX001 or ODKX001 (covered by IECEx DEK 15.0024) with order code “Approval bb” =
BB, BD, B7 or B8	BE, BF or BG
BS	BS

- The equipment may have non-conductive surfaces which are a potential electrostatic charging hazard – see instructions for guidance.
- The flameproof joints are not intended to be repaired.
- For the Proline Promag 300 and Proline Promag 500 (ISEM in transmitter) flowmeters with order code “Approval dd” = BB, B7 in combination with “Power supply” code e = D (24 V version) and intrinsically safe input/outputs (I/O1, I/O2, I/O3): the Ex eb terminal compartment of the transmitter may be opened for a short period to access intrinsically safe terminals of the inputs/outputs. This option is limited to I/Os in gas application only.
- Do not operate the I/O1 (Terminal 26, 27 or Port 1 (RJ45)) and Service Interface (CDI) / Port 2 (RJ45) simultaneously in hazardous locations.

Applicable to Antenna bushing H337 when used with Proline 300/500 transmitter enclosure:

- Antenna supplied by Endress+Hauser shall be used only. As an alternate, any passive omni-directional RF ante or without cable is permitted to be connected when meeting the following parameters:
 - a) The antenna shall have an impedance of at least 50 Ω
 - b) The rated frequency range of the antenna shall not exceed 1710 MHz ... 6000 MHz
 - c) The RF antenna or the RF antenna cable shall be fitted with a Type N connector plug (MIL-STD-348)
- The antenna bushing type H337 shall be mounted wrench tight to the transmitter enclosure to maintain the ingress protection of the enclosure.
- The coupling nut of the Type N plug connector shall be hand tightened only.
- The metal enclosure of the Antenna Bushing H337 shall be securely connected to local earth, typically via the enclosure to which it is connected.



Annex C

This Annex is applicable for flowmeters type Proline Prosonic Flow 300/500

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1. Description

The Proline Prosonic Flow 300/500 flowmeters are available in two versions, a compact version (Proline 300) and a remote version (Proline 500). The Proline Prosonic Flow 500 remote version is also available in two variants:

- Proline Prosonic Flow P 500: a version with ISEM electronic integrated into the transmitter to which the sensor sends analog signals.
- Proline Prosonic Flow G 500 Digital: a version with ISEM electronic integrated in the sensor that processes measurements and sends digital signals to the transmitter.

The Proline Prosonic Flow 300/500 flowmeters consist of various components, including electronics, enclosures with factory-assembled cable entry devices (e.g. blanking elements and thread adapters), sensors, antenna bushing, and displays. Each component has been tested and certified separately as an Ex component, with the objective to ensure its suitability for integration within the intended Proline 300/500 end product application.

The Proline Prosonic Flow 300 can be paired with an additional Remote Display, type DKX001 or ODKX001, which is certified separately as Ex equipment. The Remote Display can be ordered as a separate equipment or as part of the flowmeter.

The Proline Prosonic Flow 300/500 flowmeters are available with three different power supply options: DC 19.2...28.8 V, or AC 85...264 V, or DC 19.2...28.8 V / AC 85...264 V. Electronics are designed to provide either intrinsically safe IO's (Ex ia for EPL Ga / Zone 0 or Ex ic for EPL Gc / Zone 2) or with non-intrinsically safe IO's. A combination of intrinsically safe and non-intrinsically safe IO's is not allowed.

The Proline Prosonic Flow 300/500 flowmeters are rated for an ambient temperature of -50°C to +60°C/+80°C and for use in a medium (process) temperature range from -50°C to +435°C. These temperature ranges are limited by various parameters including, but not limited to, models, sensor types, maximum assigned surface temperature, operating temperature range of the components, sealing materials and liner materials. Refer to Control drawings "Thermal Parameters" as applicable to each model.

The Proline Prosonic Flow 300/500 are rated IP54 (gas) and IP6X (dust) according to the requirements of IEC 60079-0. They also meet the requirements of IP66, IP67 and IP68 (optional) according to IEC 60529.

The Proline Prosonic Flow 300/500 flowmeters are equipped with factory-mounted metallic thread adapter and/or thread blanking elements. These thread adapters and thread blanking elements have been evaluated as part of the certification for the complete Proline Prosonic Flow 300/500 flowmeters



2. Order Code

2.1. Proline Prosonic Flow G 300/500

Extended order code Proline Prosonic Flow G 300:

- 9G3bcc – ddeffghjlpstuuuvww + ###**
 - O9G3bcc – ddeffghjlpstuuuvwwyy + ###**
 - 9x3bxx – ddeffghjlprrssww + ###**
 - O9x3bxx – ddeffghjlprrsswwyy + ###**
- for OEM-version
for replacement transmitter
for replacement transmitter OEM

Extended order code Proline Prosonic Flow G 500:

- 9G5bcc – ddeffghijkmnopsstuuuvww + ###**
 - O9G5bcc – ddeffghijkmnopsstuuuvwwyy + ###**
 - 9x5bxx – ddeffghijkmopqrrssww + ###**
 - O9x5bxx – ddeffghijkmopqrrsswwyy + ###**
- for OEM-version
for replacement transmitter
for replacement transmitter OEM

- b = Generation**
B = Generation of Flowmeter
- cc = Size**
any double digits with combination of number or letter
- dd = Approval**
Proline Prosonic Flow G 300:
 BB = Ex db eb [ia] IIC T6...T1 Gb
 Ex tb IIIC T** Db
 BD = Ex db [ia] IIC T6...T1 Gb
 Ex tb IIIC T** Db
 BS = Ex ec IIC T6...T1 Gc

Proline Prosonic Flow G 500:
 BJ = Non-Ex (transmitter)
 Ex ia IIC T6...T1 Gb (sensor)
 Ex tb IIIC T** Db (sensor)
 BL = non-Ex (transmitter)
 Ex ec IIC T6...T1 Gc (sensor)
 BN = Ex ec [ia Ga] IIC T6...T1 Gc (transmitter)
 Ex ia IIC T6...T1 Gb (sensor)
 Ex tb IIIC T** Db (sensor)
 BS = Ex ec IIC T6...T1 Gc (transmitter + sensor)
- e = Power Supply**
 D = 24Vdc
 E = 100-230Vac
 I = 100-230Vac / 24Vdc
 X = sensor only



- ff = Input / Output 1**
- BA = 4-20mA HART
 - BB = 4-20mA WHART
 - CA = 4-20mA HART Ex i (passive)
 - CB = 4-20mA WHART Ex i (passive)
 - CC = 4-20mA HART Ex i (active)
 - CD = 4-20mA WHART Ex i (active)
 - GA = Profibus PA
 - HA = Profibus PA Ex i
 - LA = Profibus DP
 - MA = Modbus RS485
 - MB = Modbus
 - MC = Modbus Ex i
 - NA = EtherNet/IP
 - RA = Profinet IO
 - RB = Profinet
 - RC = Profinet Ex i
 - SA = Foundation Fieldbus
 - TA = Foundation Fieldbus Ex i
 - XX = sensor only
- g = Input / Output 2**
- A = without Input/Output 2
 - B = 4-20mA
 - C = 4-20mA Ex i (passive)
 - D = Configurable IO
 - E = Pulse/Frequency/Switch output
 - F = Pulse output phase-shifted
 - G = Pulse/Frequency/Switch output Ex i
 - H = Relay
 - I = 4-20mA input
 - J = Status input
 - K = Pulse output Ex i
 - L = Pulse output
 - X = sensor only
- h = Input / Output 3**
- A = without Input/Output 3
 - B = 4-20mA
 - C = 4-20mA Ex i (passive)
 - D = Configurable IO
 - E = Pulse/Frequency/Switch output
 - F = Pulse output phase-shifted
 - G = Pulse/Frequency/Switch output Ex i
 - H = Relay
 - I = 4-20mA input
 - J = Status input
 - K = Pulse output Ex i
 - L = Pulse output
 - X = sensor only



- i** = **Input / Output 4** (Proline 500 only)
 - A = without Input/Output 4
 - B = 4-20mA
 - C = 4-20mA Ex i (passive)
 - D = Configurable IO
 - E = Pulse/Frequency/Switch output
 - F = Pulse output phase-shifted
 - G = Pulse/Frequency/Switch output Ex i
 - H = Relay
 - I = 4-20mA input
 - J = Status input
 - K = Pulse output Ex i
 - L = Pulse output
 - X = sensor only
- j** = **Display / Operation**
 - with remote Display : O
 - without remote Display : any single number or letter except O
- k** = **Integrated ISEM electronic** (Proline 500 only)
 - A = Sensor
- l** = **Housing** (Proline 300 only)
 - any single number or letter
- m** = **Transmitter Housing** (Proline 500 only)
 - any single number or letter
- n** = **Sensor Housing** (Proline 500 only)
 - any single number or letter
- o** = **Cable Sensor Connection** (Proline 500 only)
 - any single number or letter
- p** = **Cable Entry**
 - any single number or letter
- qq** = **Upgrade Kid**
 - any double digits with combination of number or letter
- rr** = **Existing Product** (refer to assignment of flowmeter to replacement transmitter)
 - GA = Prosonic Flow G
 - 00 = not used
- ss** = **Measuring tube material, sensor version**
 - any double digits with combination of number or letter
- t** = **Process component**
 - any single number or letter
- uuu** = **Process connection**
 - any triple digits with combination of number or letter
- v** = **Calibration**
 - any single number or letter
- ww** = **Device model (two digit)** (refer to assignment of flowmeter to replacement transmitter)
 - A1 = product version 1
 - A2 = product version 2
- yy** = **Customer version (two digits)**
 - any double digits with combination of number or letter
- **** = **Option in two digits (none, two or multiple of two digits)**
 - any combination of number and/or letter
- #, +** = **Signs used as indicator for optional abbreviation of extended order code**



2.2. Proline Prosonic Flow P 500

Extended order code Proline Prosonic Flow P 500:

- 9P5bcc – ddeffghjkmossstuuvvww + ###**
- 09P5bcc – ddeffghjkmossstuuvvwwyy + ###** for OEM-version
- 9x5bxx – ddeffghjkmnoprrssww + ###** for replacement transmitter
- 09x5bxx – ddeffghjkmnoprrsswwyy + ###** for replacement transmitter OEM

- b = Generation**
 - B = Generation of Flowmeter
- cc = Mounting Type**
any double digits with combination of number and/or letter
- dd = Approval Transmitter**
 - BB = Ex db eb [ia] IIC T6...T5 Gb (transmitter)
 - Ex tb IIIC T** Db (transmitter)
 - Ex ia IIC T6...T1 Gb (Sensor)
 - Ex ia IIIC T** Db (Sensor)
 - BD = Ex db [ia] IIC T6...T5 Gb (transmitter)
 - Ex tb IIIC T** Db (transmitter)
 - Ex ia IIC T6...T1 Gb (Sensor)
 - Ex ia IIIC T** Db (Sensor)
 - BS = Ex ec IIC T5...T4 Gc (transmitter)
 - Ex ic IIC T6...T1 Gc (Sensor)
- e = Power Supply**
 - D = 24Vdc
 - E = 100-230Vac
 - I = 100-230Vac / 24Vdc
- ff = Input / Output 1**
 - BA = 4-20mA HART
 - BB = 4-20mA WHART
 - CA = 4-20mA HART Ex i (passive)
 - CB = 4-20mA WHART Ex i (passive)
 - CC = 4-20mA HART Ex i (active)
 - CD = 4-20mA WHART Ex i (active)
 - GA = Profibus PA
 - HA = Profibus PA Ex i
 - LA = Profibus DP
 - MA = Modbus RS485
 - MB = Modbus TCP
 - MC = Modbus TCP Ex i
 - NA = EtherNet/IP
 - RA = Profinet IO
 - RB = Profinet
 - RC = Profinet Ex i
 - SA = Foundation Fieldbus
 - TA = Foundation Fieldbus Ex i
 - XX = Sensor only



- g = Input / Output 2**
 - A = without Input/Output 2
 - B = 4-20mA
 - C = 4-20mA Ex i (passive)
 - D = Configurable IO
 - E = Pulse/Frequency/Switch output
 - F = Pulse output phase-shifted
 - G = Pulse/Frequency/Switch output Ex i
 - H = Relay
 - I = 4-20mA input
 - J = Status input
 - K = Pulse output Ex i
 - L = Pulse output
 - X = Sensor only
- h = Input / Output 3**
 - A = without Input/Output 3
 - B = 4-20mA
 - C = 4-20mA Ex i (passive)
 - D = Configurable IO
 - E = Pulse/Frequency/Switch output
 - F = Pulse output phase-shifted
 - G = Pulse/Frequency/Switch output Ex i
 - H = Relay
 - I = 4-20mA input
 - J = Status input
 - K = Pulse output Ex i
 - L = Pulse output
 - X = Sensor only
- i = Input / Output 4**
 - A = without Input/Output 4
 - X = Sensor only
- j = Display / Operation**
 - any single number or letter
- k = Integrated ISEM electronic**
 - A = Sensor
 - B = Transmitter
- m = Transmitter Housing**
 - any single number or letter
- n = Cable Sensor Connection**
 - any single number or letter
- o = Cable Entry**
 - any single number or letter
- pp = Upgrade Kit**
 - AA = not used
- rr = Existing Product (see assignment of flowmeter to replacement transmitter)**
 - PA = Prosonic Flow P
 - 00 = not used
- ss = Sensor type**
 - any double digits with combination of number and/or letter



- t** = **Process Temperature**
any single number or letter
- uu** = **Cable**
any double digits with combination of number and/or letter
- vv** = **Installation set**
any double digits with combination of number and/or letter
- ww** = **Device model (two digit)** (see assignment of flowmeter to replacement transmitter)
A2 = product version 2
- yy** = **Customer version (two digits)**
any double digits with combination of number or letter
- **** = **Option in two digits (none, two or multiple of two digits)**
any combination of number and/or letter
- #, +** = **Signs used as indicator for optional abbreviation of extended order code**

Extended order code Proline Prosonic Flow P 500 Clamp-On sensor:

DK9013 – ddqqrww + ##**
ODK9013 – ddqqrwwyy + ##** for OEM-version

- dd** = **Approval**
 - BB = Ex ia IIC T6...T1 Gb
Ex ia IIIC T** Db
 - BD = Ex ia IIC T6...T1 Gb
Ex ia IIIC T** Db
 - BS = Ex ic IIC T6...T1 Gc
- qq** = **Sensor type**
any double digits with combination of number and/or letter
- r** = **Process Temperature**
any single number or letter
- ww** = **Device model (two digit)** (see assignment of flowmeter to replacement transmitter)
00 = not used
- yy** = **Customer version (two digits)**
any double digits with combination of number or letter
- **** = **Option in two digits (none, two or multiple of two digits)**
any combination of number and/or letter
- #, +** = **Signs used as indicator for optional abbreviation of extended order code**

Note: Clamp-On sensors types DK9013 and ODK9013 are intended for use as replacement of sensors for product Prosonic Flow P 500 types 9P5B and O9P5B or for extension of Prosonic Flow P 500 types 9P5B and O9P5B from one sensor set to two sensor sets



2.3. Assignment of Replacement Transmitter

The replacement transmitters are assigned to the flowmeter Proline Prosonic Flow 300/500 as follows:

Product flowmeters			Replacement transmitter type			
Order code	Generation code b =	Device model code ww =	Order code	Generation code b =	Existing product rr =	Device model code ww =
9G*b**-...ww, O9G*b**-...ww	B	A1 / A2	9x*bxx-...rr...ww, O9x*bxx-...rr...ww	B	GA	A1 / A2
9P*b**-...ww, O9P*b**-...ww	B	A1 / A2	9x*bxx-...rr...ww, O9x*bxx-...rr...ww	B	PA	A1 / A2

3. Parameters

3.1. Electrical Parameters

3.1.1. Power supply

Order code "Power supply" e =	Terminal no.	Values
D ¹⁾	1(L+/L), 2(L-/N)	U _N = DC 19.2...28.8 V U _M = AC 250 V
E ¹⁾	1(L+/L), 2(L-/N)	U _N = AC 85...264 V U _M = AC 250 V
I ²⁾	1(L+/L), 2(L-/N)	U _N = DC 19.2...28.8 V / AC 85...264 V U _M = AC 250 V

1) applicable for Proline 300/500 flowmeters with order code "Approval dd" = BB, BD

2) applicable for Proline 300/500 flowmeters with order code "Approval dd" = BS, BJ, BL, BN

3.1.2. Input/Outputs

Input/Output 1 (Note 4)					
Order code "Input/Output 1" ff =	Terminal no.	Type of protection	Values		
BA, BB, MA	I/O1 (Terminal 26, 27)	Non-intrinsically safe	U _N = DC 30 V U _M = AC 250 V		
LA, GA, SA	I/O1 (Terminal 26, 27)	Non-intrinsically safe	U _N = DC 32 V U _M = AC 250 V		
CA, CB	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	U _i = 30 V, I _i = 100 mA, P _i = 1.25 W L _i = 0, C _i = 6 nF		
CC, CD	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	<table border="0"> <tr> <td>(Note 1) U_o = 21.8 V I_o = 90 mA P_o = 491 mW L_o = 4.1 mH (IIC) / 15 mH (IIB) C_o = 160 nF (IIC) / 1160 nF (IIB) U_i = 30 V I_i = 10 mA P_i = 0.3 W C_i = 6 nF L_i = 5 μH</td> <td>(Note 2) U_o = 21.8 V I_o = 90 mA P_o = 491 mW L_o = 9 mH (IIC) / 39 mH (IIB) C_o = 600 nF (IIC) / 4000 nF (IIB) U_i = 30 V I_i = 10 mA P_i = 0.3 W C_i = 6 nF L_i = 5 μH</td> </tr> </table>	(Note 1) U _o = 21.8 V I _o = 90 mA P _o = 491 mW L _o = 4.1 mH (IIC) / 15 mH (IIB) C _o = 160 nF (IIC) / 1160 nF (IIB) U _i = 30 V I _i = 10 mA P _i = 0.3 W C _i = 6 nF L _i = 5 μH	(Note 2) U _o = 21.8 V I _o = 90 mA P _o = 491 mW L _o = 9 mH (IIC) / 39 mH (IIB) C _o = 600 nF (IIC) / 4000 nF (IIB) U _i = 30 V I _i = 10 mA P _i = 0.3 W C _i = 6 nF L _i = 5 μH
(Note 1) U _o = 21.8 V I _o = 90 mA P _o = 491 mW L _o = 4.1 mH (IIC) / 15 mH (IIB) C _o = 160 nF (IIC) / 1160 nF (IIB) U _i = 30 V I _i = 10 mA P _i = 0.3 W C _i = 6 nF L _i = 5 μH	(Note 2) U _o = 21.8 V I _o = 90 mA P _o = 491 mW L _o = 9 mH (IIC) / 39 mH (IIB) C _o = 600 nF (IIC) / 4000 nF (IIB) U _i = 30 V I _i = 10 mA P _i = 0.3 W C _i = 6 nF L _i = 5 μH				
HA, TA	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	<table border="0"> <tr> <td>(Note 1) Profibus PA (Fisco Field Device) / Foundation Fieldbus U_i = 30 V I_i = 570 mA</td> <td>(Note 2) Profibus PA (Fisco Field Device) / Foundation Fieldbus U_i = 32 V I_i = 570 mA</td> </tr> </table>	(Note 1) Profibus PA (Fisco Field Device) / Foundation Fieldbus U _i = 30 V I _i = 570 mA	(Note 2) Profibus PA (Fisco Field Device) / Foundation Fieldbus U _i = 32 V I _i = 570 mA
(Note 1) Profibus PA (Fisco Field Device) / Foundation Fieldbus U _i = 30 V I _i = 570 mA	(Note 2) Profibus PA (Fisco Field Device) / Foundation Fieldbus U _i = 32 V I _i = 570 mA				



Input/Output 1 (Note 4)				
Order code "Input/Output 1" ff =	Terminal no.	Type of protection	Values	
			$P_i = 8.5 \text{ W}$ $L_i = 10 \mu\text{H}$ $C_i = 5 \text{ nF}$	$P_i = 8.5 \text{ W}$ $L_i = 10 \mu\text{H}$ $C_i = 5 \text{ nF}$
MB, RB	I/O1 (Terminal 26, 27)	Non-intrinsically safe	APL port profile SLAX / SPE PoDL classes 10, 11, 12 $U_N = \text{AC } 3.3 \text{ V}$ $U_M = \text{AC } 250 \text{ V}$	
MC, RC	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	(Note 1), (Note 3) 2-WISE power load APL port profile SLAA $U_i = 17.5 \text{ V}$ $I_i = 380 \text{ mA}$ $P_i = 5.32 \text{ W}$ $L_i = 10 \mu\text{H}$ $C_i = 5 \text{ nF}$	(Note 2), (Note 3) 2-WISE power load APL port profile SLAC $U_i = 17.5 \text{ V}$ $I_i = 380 \text{ mA}$ $P_i = 5.32 \text{ W}$ $L_i = 10 \mu\text{H}$ $C_i = 5 \text{ nF}$
NA, RA	I/O1 (Port 1 (RJ45))	Non-intrinsically safe	$U_N = \text{AC } 3.3 \text{ V}$ $U_M = \text{AC } 250 \text{ V}$	

Input/Output 2 (Note 4)			
Order code "Input/Output 2" g =	Terminal no.	Type of protection	Values
C, G, K	I/O2 (Terminal 24, 25)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 1.25 \text{ W}$ $L_i = 0$ $C_i = 0$
B, D, E, F, I, J, L	I/O2 (Terminal 24, 25)	Non-intrinsically safe	$U_N = \text{DC } 30 \text{ V}$ $U_M = \text{AC } 250 \text{ V}$
H	I/O2 (Terminal 24, 25)	Non-intrinsically safe	$U_N = \text{DC } 30 \text{ V}$ $I_N = \text{DC } 100 \text{ mA} / \text{AC } 500 \text{ mA}$ $U_M = \text{AC } 250 \text{ V}$

Input/Output 3 (Note 4)			
Order code "Input/Output 3" h =	Terminal no.	Type of protection	Values
C, G, K	I/O3 (Terminal 22, 23)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 1.25 \text{ W}$ $L_i = 0$ $C_i = 0$
B, D, E, F, I, J, L	I/O3 (Terminal 22, 23)	Non-intrinsically safe	$U_N = \text{DC } 30 \text{ V}$ $U_M = \text{AC } 250 \text{ V}$
H	I/O3 (Terminal 22, 23)	Non-intrinsically safe	$U_N = \text{DC } 30 \text{ V}$ $I_N = \text{AC } 100 \text{ mA} / \text{AC } 500 \text{ mA}$ $U_M = \text{AC } 250 \text{ V}$



Input/Output 4 (Proline 500 only) (Note 4)			
Order code “Input/Output 4” i =	Terminal no.	Type of protection	Values
C, G, K	I/O4 (Terminal 20, 21)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	U _i = 30 V I _i = 100 mA P _i = 1.25 W L _i = 0 C _i = 0
B, D, E, F, I, J, L	I/O4 (Terminal 20, 21)	Non-intrinsically safe	U _N = DC 30 V U _M = AC 250 V
H	I/O4 (Terminal 20, 21)	Non-intrinsically safe	U _N = DC 30 V I _N = DC 100 mA / AC 500 mA U _M = AC 250 V

(1) applicable for Proline 300/500 flowmeters with order code “Approval dd” = BB, BD

(2) applicable for Proline 300/500 flowmeters with order code “Approval dd” = BS, BL, BN

(3) no additional internal capacitances are effective to the output value (refer to note 1 of drawing “Ethernet-APL Installation Drawing - Device Vendors v1.0, March 8th 2022”)

(4) it is not permitted to combine a non-intrinsically safe I/Os with intrinsically safe I/Os between I/O1, I/O2, I/O3, and I/O4 within the same system or device

3.1.3. Service interface / Port 2 (RJ45)

Order code “Approval” dd =	Terminal no.	Type of protection	Values
BB	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	U _N = AC 3.3 V, U _M = AC 250 V Service Interface shall only be connected to a non- intrinsically safe circuit in areas which are known to be non-hazardous
		Intrinsically safe Ex ia	U _i = 10 V, I _i = n.a., P _i = n.a., C _i = 200 nF, L _i = 0
BD	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	U _N = AC 3.3 V, U _M = AC 250 V
		Intrinsically safe Ex ia	U _i = 10 V, I _i = n.a., P _i = na., C _i = 200 nF, L _i = 0
BS, BJ, BL, BN	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	U _N = AC 3.3 V, U _M = AC 250 V

3.1.4. Output for external antenna (via Antenna Bushing)

Order code “Approval” dd =	Terminal no.	Type of protection	Values
BB	Type N connector	Intrinsically safe Ex ia	See conditions of certification
BN, BS		Intrinsically safe Ex ic	
BJ, BL		Non-intrinsically safe	

3.1.5. Output for Remote Display DKX001 or ODKX001

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BB, BD	81, 82, 83, 84	Intrinsically safe Ex ia	$U_o = 3.9 \text{ V}$ $I_o = 1.5 \text{ A (spark)}$ 200 mA (power) $P_o = 600 \text{ mW}$ $R_i = 2.6 \Omega$ $C_o = 670 \mu\text{F}$ $L_o = 0$ Note: a connection cable with a ratio $L_{\text{cable}}/R_{\text{cable}} \leq 0.024 \text{ mH}/\Omega$ and $C_{\text{cable}} \leq 600 \mu\text{F}$ shall be used when connecting the Remote Display type DKX001 or ODKX001
BS	81, 82, 83, 84	Non-intrinsically safe	$U_N = 3.3 \text{ V}$ $I_N = 150 \text{ mA}$
BJ, BL, BN	Remote Display type DKX001 or ODKX001 is not intended to be connected to the Proline 300 devices		

3.1.6. Sensor circuits for Proline Prosonic Flow G 500 Digital (ISEM in sensor)

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BJ, BL, BN, BS	Transmitter terminal board (in the sensor connection compartment of transmitter):		
	61, 62	Non-intrinsically safe	$U_N = 35 \text{ V}$
	63, 64	Non-intrinsically safe	$U_N = 3.3 \text{ V}$
	Sensor terminal board (in the sensor terminal enclosure):		
	61, 62	Non-intrinsically safe	$U_N = 35 \text{ V}$
	63, 64	Non-intrinsically safe	$U_N = 3.3 \text{ V}$

3.1.7. Sensor circuits for Proline Prosonic Flow P 500 (ISEM in transmitter)

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BB, BD	Transmitter terminal board (in the sensor connection compartment of transmitter):		
	CH1, CH2	Intrinsically safe Ex ia	$U_o = 40 \text{ V}$, $I_o = 36.7 \text{ mA}$, $P_o = 459 \text{ mW}$, $L_o = \text{n.a.}$, $C_o = \text{n.a.}$
	Sensor terminal board (in the sensor terminal enclosure):		
	Connector	Intrinsically safe Ex ia	$U_i = 40 \text{ V}$, $I_i = \text{n.a.}$, $P_i = \text{n.a.}$, $L_i = \text{n.a.}$, $C_i = \text{n.a.}$



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Order code "Approval" dd =	Terminal no.	Type of protection	Values
BS	Transmitter terminal board (in the sensor connection compartment of transmitter):		
	CH1, CH2	Intrinsically safe Ex ic	$U_o = 50 \text{ V}$, $I_o = 45.9 \text{ mA}$, $P_o = 459 \text{ mW}$, $L_o = \text{n.a.}$, $C_o = \text{n.a.}$
	Sensor terminal board (in the sensor terminal enclosure):		
	Connector	Intrinsically safe Ex ic	$U_i = 50 \text{ V}$, $I_i = \text{n.a.}$, $P_i = \text{n.a.}$, $L_i = \text{n.a.}$, $C_i = \text{n.a.}$

3.2. Thermal Parameters (Zone 1)

3.2.1. Proline Prosonic Flow G 300/500

1. Proline Prosonic Flow G 300

Notes: The chapter 1 applies to Proline Prosonic Flow G 300 versions with extended order code covering:

9*3B** – dd...	(flowmeter)
O9*3B** – dd ...	(flowmeter OEM version)
9x3Bxx – dd...	(replacement transmitter)
O9x3Bxx – dd...	(replacement transmitter OEM)
with "Approval"	dd = CD, CE, C2, C4 (cCSAus / CSA) dd = BB, BD (IECEx / ATEX)

1.1. Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, this range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

1.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

1.3. Proline Prosonic Flow G 300 without thermal insulation OR with thermal insulation in accordance with E-H's specifications

Note: for thermal insulation specifications, refer to E+H's manuals.

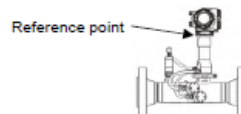
Temperature class vs. Max. ambient temperature ($T_{a, max}$) and Max. permitted medium temperature ($T_{m, max permitted}$)										
Size / DN	Medium range $T_m^{(2)}$		Ambient range $T_a^{(1)}$		$T_{m, max permitted} (^{\circ}C)$					
	min. ($^{\circ}C$)	max. ($^{\circ}C$)	min. ($^{\circ}C$)	max. ($^{\circ}C$)	T6 (85 $^{\circ}C$)	T5 (100 $^{\circ}C$)	T4 (135 $^{\circ}C$)	T3 (200 $^{\circ}C$)	T2 (300 $^{\circ}C$)	T1 (450 $^{\circ}C$)
With integrated pressure sensor:										
25...300	-50	90	-40 / -50	40	40	40	90	90	90	90
				55	---	40	90	90	90	90
				60	---	---	90	90	90	90
Without integrated pressure sensor:										
25...300	-50	150	-40 / -50	45	70	85	120	150	150	150
				55	---	85	120	150	150	150
				60	---	(85) ⁽²⁾	(120) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾

Notes: (1) Applicable ambient temperature may be further limited (see the nameplate on the sensor housing).
 (2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

1.4. Proline Prosonic Flow G 300 with thermal insulation NOT in accordance with E+H's specifications

Temperature class vs. Max. ambient temperature ($T_{a, max}$) and Max. permitted reference temperature ($T_{ref, max permitted}$)										
Size / DN	Medium range $T_m^{(2)}$		Ambient range $T_a^{(1)}$		Reference temperature $T_{ref, max permitted}^{(2)}$ ($^{\circ}C$)					
	min. ($^{\circ}C$)	max. ($^{\circ}C$)	min. ($^{\circ}C$)	max. ($^{\circ}C$)	T6 (85 $^{\circ}C$)	T5 (100 $^{\circ}C$)	T4 (135 $^{\circ}C$)	T3 (200 $^{\circ}C$)	T2 (300 $^{\circ}C$)	T1 (450 $^{\circ}C$)
With integrated pressure sensor:										
25...300	-50	90	-40 / -50	60	55	69	72	74	74	74
				60	55	69	72	74	74	74
				60	55	69	72	74	74	74
Without integrated pressure sensor:										
25...300	-50	150	-40 / -50	60	55	69	72	74	74	74
				60	55	69	72	74	74	74
				60	55	69	72	74	74	74

Notes: (1) Applicable ambient temperature may be further limited (see the nameplate on the sensor housing).
 (2) $T_{ref, max permitted}$: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref, max permitted}$ shall not exceed the values given in this table.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).



2. Proline Prosonic Flow G 500 Digital (with ISEM electronics in sensor, defined by the order code "ISEM electronic" k = A)

Notes: The chapter 2 applies to versions with extended order code covering:

- 9*5B** – dd*****A... (flowmeter)
- O9*5B** – dd*****A ... (flowmeter OEM version)
- 9x5Bxx – dd*****A ... (replacement transmitter)
- O9x5Bxx – dd*****A ... (replacement transmitter OEM)
- with "Approval" dd = CN, C6 (cCSAus / CSA)
- dd = BJ, BN (IECEX / ATEX)

2.1. Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, this range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

2.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

2.3. Proline Prosonic Flow G 500 Digital without thermal insulation OR with thermal insulation in accordance with E+H's specifications

Note: for thermal insulation specifications, refer to E+H's manuals.

Transmitter temperature class vs. Maximum ambient temperature ($T_{a,max}$)				
Transmitter	Type of enclosure	$T_{a,min}$ (°C)	$T_{a,max}$ (°C)	Temperature class
Proline Prosonic Flow G Digital	Aluminium or Plastic	-40 / -50 ⁽¹⁾	60	T4 (135°C)
			45	T5 (100°C)

Notes: (1) $T_{a,min}$ = -50°C for aluminium enclosure, $T_{a,min}$ = -40°C for plastic enclosure. For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BJ): $T_{a,max}$ = 60°C. Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted medium temperature ($T_{m,max}$ permitted)										
Size / DN	Medium range T_m ⁽²⁾		Ambient range T_a ⁽¹⁾		$T_{m,max}$ permitted (°C)					
	min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
With integrated pressure sensor:										
25...300	-50	90	-40 / -50	40	40	40	90	90	90	90
				55	---	40	90	90	90	90
				60	---	---	90	90	90	90
Without integrated pressure sensor:										
25...300	-50	150	-40 / -50	60	70	85	120	150	150	150

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

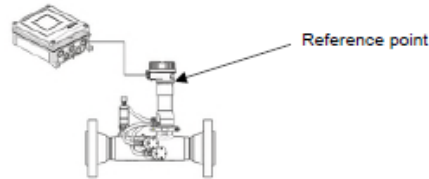
2.4. Proline Prosonic Flow G 500 Digital with thermal insulation NOT in accordance with E+H's specifications

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)				
Transmitter	Type of enclosure	$T_{a, min}$ (°C)	$T_{a, max}$ (°C)	Temperature class
Proline Prosonic Flow G Digital	Aluminium or Plastic	-40 / -50 ⁽¹⁾	60	T4 (135°C)
			45	T5 (100°C)

Notes: (1) $T_{a, min} = -50^{\circ}\text{C}$ for aluminium enclosure, $T_{a, min} = -40^{\circ}\text{C}$ for plastic enclosure. For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BJ): $T_{a, max} = 60^{\circ}\text{C}$. Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted reference temperature ($T_{ref, max permitted}$)										
Size / DN	Medium range T_m ⁽³⁾		Ambient range T_a ⁽¹⁾		Reference temperature $T_{ref, max permitted}$ ⁽²⁾ (°C)					
	min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
With integrated pressure sensor:										
25...300	-50	90	-40 / -50	60	69	71	75	77	77	77
Without integrated pressure sensor:										
25...300	-50	150	-40 / -50	60	69	71	75	77	77	77

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) $T_{ref, max permitted}$: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref, max permitted}$ shall not exceed the values given in this table.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).





3.2.2. Proline Prosonic Flow P 500

Proline Prosonic Flow P 500 (with ISEM electronics in transmitter, defined by the order code "ISEM electronic" k = B)

Notes: This document applies to versions with extended order code covering:

- 9*5B** – dd*****B ... (flowmeter)
- O9*5B** – dd*****B ... (flowmeter OEM version)
- 9x5Bxx – dd*****B ... (replacement transmitter)
- O9x5Bxx – dd*****B ... (replacement transmitter OEM)
- DK9013 – dd... (replacement or extension sensor)
- ODK9013 – dd... (replacement or extension sensor OEM version)
- with "Approval" dd = CD, C2, C4 (cCSAus / CSA)
- dd = BB, BD (IECEx / ATEX)

Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range is determined by factors such as sensor type, size, gas group, and selected options. Additionally, this range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, gas group, and selected options. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

Temperature table for Proline Prosonic Flow P 500 without thermal insulation or with thermal insulation in accordance with E+H's specifications

Note: for thermal insulation specifications, refer to E+H's manuals.

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)		
Transmitter	$T_{a, max}$ (°C)	Temperature class
Proline Prosonic Flow P	60	T5 (100°C)
	55	T6 (85°C)

Notes: $T_{a, min}$ = -50°C or may be further limited (see the nameplate on the transmitter housing)

Type of sensor ⁽¹⁾	Medium range T_m ⁽²⁾		Ambient range T_a ⁽²⁾		$T_{m, max}$ permitted (°C)					
	min (°C)	max (°C)	min (°C)	max (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
	C-030-A	-50	120	-50	80	80	95	120	120	120
C-100-B	-40	80	-40	50	50	80	80	80	80	80
				80	---	80	80	80	80	80
C-100-C	0	170	-40	50	50	95	130	170	170	170
				80	---	95	130	170	170	170
C-200-B	-40	80	-40	65	65	80	80	80	80	80
				80	---	80	80	80	80	80
C-200-C	0	170	-40	65	65	95	130	170	170	170
				80	---	95	130	170	170	170
C-500-A	-40	150	-40	75	75	95	130	150	150	150
				80	---	95	130	150	150	150
CH-050-A	-50	435	-50	75	75	95	130	190	285	435
				80	---	95	130	190	285	435
CH-100-A	-50	435	-50	75	75	95	130	190	285	435
				80	---	95	130	190	285	435

Notes: (1) For type of sensor, applicable temperature range and gas group, see the nameplate on the housing.
 (2) Applicable range of T_m and/or T_a may be further limited (see the nameplate on the sensor housing).

Endress+Hauser People for Process Automation Endress+Hauser Flow Kägenstrasse 7, 4153 Reinach, Basel-Landschaft, Switzerland	Control Drawing - IECEx, ATEX, CSA, cCSAus	Document No.:	FES0351
	Proline Prosonic Flow P 500	Rev.:	D
	Thermal Parameter	Date:	15.04.2025
	EPL Gb (Zone 1); EPL Db (Zone 21); Cl. I Div. 1, Cl. II Div. 1, Cl. III; Cl. I Zone 1, Zone 21	Page:	1/1

3.3. Thermal Parameters (Zone 2)

3.3.1. Proline Prosonic Flow G 300/500

1. Proline Prosonic Flow G 300

Notes: The chapter 1 applies to versions with extended order code covering:

9*3B** – dd...	(flowmeter)
O9*3B** – dd ...	(flowmeter OEM version)
9x3Bxx – dd...	(replacement transmitter)
O9x3Bxx – dd...	(replacement transmitter OEM)
with "Approval"	dd = CS, CZ (cCSAus / CSA)
	dd = BS (IECEX / ATEX)

1.1. Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, this range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

1.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

1.3. Proline Prosonic Flow G 300 *without thermal insulation* OR *with thermal insulation* in accordance with E-H's specifications

Note: for thermal insulation specifications, refer to E+H's manuals.

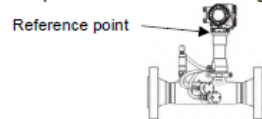
Temperature class vs. Max. ambient temperature ($T_{a, max}$) and Max. permitted medium temperature ($T_{m, max permitted}$)										
Size / DN	Medium range $T_m^{(3)}$		Ambient range $T_a^{(1)}$		$T_{m, max permitted} (^{\circ}C)$					
	min. ($^{\circ}C$)	max. ($^{\circ}C$)	min. ($^{\circ}C$)	max. ($^{\circ}C$)	T6 (85 $^{\circ}C$)	T5 (100 $^{\circ}C$)	T4 (135 $^{\circ}C$)	T3 (200 $^{\circ}C$)	T2 (300 $^{\circ}C$)	T1 (450 $^{\circ}C$)
With integrated pressure sensor:										
25...300	-50	90	-40 / -50	55	---	40	90	90	90	90
				60	---	---	90	90	90	90
Without integrated pressure sensor:										
25...300	-50	150	-40 / -50	50	---	85	120	150	150	150
				55	---	---	120	150	150	150
				60	---	---	(120) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾	(150) ⁽²⁾

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

1.4. Proline Prosonic Flow G 300 *with thermal insulation* NOT in accordance with E+H's specifications

Temperature class vs. Max. ambient temperature ($T_{a, max}$) and Max. permitted reference temperature ($T_{ref, max permitted}$)										
Size / DN	Medium range $T_m^{(3)}$		Ambient range $T_a^{(1)}$		Reference temperature $T_{ref, max permitted}^{(2)}$ ($^{\circ}C$)					
	min. ($^{\circ}C$)	max. ($^{\circ}C$)	min. ($^{\circ}C$)	max. ($^{\circ}C$)	T6 (85 $^{\circ}C$)	T5 (100 $^{\circ}C$)	T4 (135 $^{\circ}C$)	T3 (200 $^{\circ}C$)	T2 (300 $^{\circ}C$)	T1 (450 $^{\circ}C$)
With integrated pressure sensor:										
25...300	-50	90	-40 / -50	60	---	62	72	73	73	73
				60	---	62	72	73	73	73
Without integrated pressure sensor:										
25...300	-50	150	-40 / -50	60	---	62	72	73	73	73
				60	---	62	72	73	73	73

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) $T_{ref, max permitted}$: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref, max permitted}$ shall not exceed the values given in this table.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).





2. Proline Prosonic Flow G 500 Digital (ISEM in sensor, defined by the order code "ISEM electronic" k = A)

Notes: The chapter 2 applies to versions with extended order code covering:

- 9*5B** – dd*****A... (flowmeter)
- O9*5B** – dd*****A ... (flowmeter OEM version)
- 9x5Bxx – dd*****A ... (replacement transmitter)
- O9x5Bxx – dd*****A ... (replacement transmitter OEM)
- with "Approval" dd = CS, CZ (cCSAus / CSA)
- dd = BL, BS (IECEx / ATEX)

2.1. Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, this range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

2.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

2.3. Proline Prosonic Flow G 500 Digital without thermal insulation OR with thermal insulation in accordance with E+H's specifications

Note: for thermal insulation specifications, refer to E+H's manuals.

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)				
Transmitter	Type of enclosure	$T_{a, min}$ (°C)	$T_{a, max}$ (°C)	Temperature class
Proline Prosonic Flow G Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
			45	T5 (100°C)

Notes: (1) $T_{a, min} = -50^\circ\text{C}$ for aluminium enclosure, $T_{a, min} = -40^\circ\text{C}$ for plastic enclosure. For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BL): $T_{a, max} = 60^\circ\text{C}$. Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted medium temperature ($T_{m, max}$ permitted)										
Size / DN	Medium range T_m ⁽²⁾		Ambient range T_a ⁽¹⁾		$T_{m, max}$ permitted (°C)					
	min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
With integrated pressure sensor:										
25...300	-50	90	-50 / -40	55	---	40	90	90	90	90
				60	---	---	90	90	90	90
Without integrated pressure sensor:										
25...300	-50	150	-50 / -40	60	---	85	120	150	150	150

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

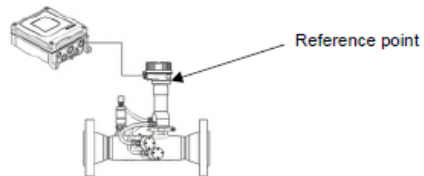
2.4. Proline Prosonic Flow G 500 Digital with thermal insulation NOT in accordance with E+H's specifications

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)				
Transmitter	Type of enclosure	$T_{a, min}$ (°C)	$T_{a, max}$ (°C)	Temperature class
Proline Prosonic Flow G Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
			45	T5 (100°C)

Notes: (1) $T_{a, min} = -50^{\circ}\text{C}$ for aluminium enclosure, $T_{a, min} = -40^{\circ}\text{C}$ for plastic enclosure. For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BL): $T_{a, max} = 60^{\circ}\text{C}$. Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted reference temperature ($T_{ref, max permitted}$)										
Size / DN	Medium range T_m ⁽³⁾		Ambient range T_a ⁽¹⁾		Reference temperature $T_{ref, max permitted}$ ⁽²⁾ (°C)					
	min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
With integrated pressure sensor:										
25...300	-50	90	-50 / -40	60	---	71	75	77	77	77
Without integrated pressure sensor:										
25...300	-50	150	-50 / -40	60	---	71	75	77	77	77

- Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) $T_{ref, max permitted}$: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref, max permitted}$ shall not exceed the values given in this table.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).





4. Marking

4.1. Proline Prosonic Flow G 300

Order Code: 9*3*** - dd*ff*****+## O9*3*** - dd*ff*****+##			
Approval dd =	I/O1 ff =	Marking of Ex protection	Information: Marking of protection representative for ...
BB	HA, TA, CA, CB, CC, CD, MC, RC	Ex db eb ia [ja Ga] IIC T6...T1 Gb and/or Ex tb [ja Da] IIIC T** °C Db	db -> electronic compartment of the transmitter enclosure eb -> terminal compartment of the transmitter enclosure ia -> sensor, display, electronic, antenna bushing tb -> transmitter enclosure [ja Ga] -> electronic with input/output Ex ia [ja Da] -> electronic with input/output Ex ia
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex db eb ia IIC T6...T1 Gb and/or Ex tb IIIC T** °C Db	
BD	HA, TA, CA, CB, CC, CD, MC, RC	Ex db ia [ja Ga] IIC T6...T1 Gb and/or Ex tb [ja Da] IIIC T** °C Db	db -> electronic and terminal compartments of the transmitter enclosure ia -> sensor, display, electronic tb -> transmitter enclosure [ja Ga] -> electronic with input/output Ex ia [ja Da] -> electronic with input/output Ex ia
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex db ia IIC T6...T1 Gb and/or Ex tb IIIC T** °C Db	
BS	HA, TA, CA, CB, CC, CD, MC, RC	Ex ec nC ic [ic] IIC T5...T1 Gc	ec -> transmitter enclosure, electronic, display, antenna bushing nC -> electronic ic -> sensor, electronic [ic] -> electronic with input/output Ex ic
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex ec nC ic IIC T5...T1 Gc	

4.2. Proline Prosonic Flow G 500 Digital (with ISEM integrated in sensor)

Order Code: 9*5*** - dd*ff****A*****+## O9*5*** - dd*ff****A*****+##				
Approval dd =	I/O1 ff =	Parts of Device	Marking of Ex protection	Information: Marking of protection representative for ...
BJ	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	n.a. (non-Ex)	db -> sensor terminal enclosure ia -> sensor, electronic tb -> sensor, sensor terminal enclosure Note: I/O signals from the transmitter are non-IS
		Sensor	Ex db ia IIC T6...T1 Gb and/or Ex ia tb IIIC T** °C Db	
BL	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	n.a. (non-Ex)	ec -> sensor terminal enclosure, electronic ic -> sensor Note: I/O signals from the transmitter are non-IS
		Sensor	Ex ec ic IIC T5...T1 Gc	
BN	HA, TA, CA, CB, CC, CD, MC, RC	Transmitter	Ex ec nC [ic] IIC T5...T4 Gc	ec -> transmitter enclosure, electronic, display, antenna bushing nC -> electronic
		Sensor	Ex db ia IIC T6...T1 Gb and/or Ex ia tb IIIC T** °C Db	db -> sensor terminal enclosure ia -> sensor, electronic
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	Ex ec nC IIC T5...T4 Gc	tb -> sensor terminal enclosure
		Sensor	Ex db ia IIC T6...T1 Gb and/or Ex ia tb IIIC T** °C Db	[ic] -> electronic with input/output Ex ic



Order Code: 9*5*** – dd*ff***A*****+##*# O9*5*** – dd*ff***A*****+##*#			
BS	HA, TA, CA, CB, CC, CD, MC, RC	Transmitter	Ex ec nC [ic] IIC T5...T4 Gc
		Sensor	Ex ec ic IIC T5...T1 Gc
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	Ex ec nC IIC T5...T4 Gc
		Sensor	Ex ec ic IIC T5...T1 Gc

ec	-> sensor terminal enclosure, transmitter enclosure, electronic, display, antenna bushing
nC	-> electronic
ic	-> sensor
[ic]	-> electronic with input/output Ex ic and/or output Ex ic for sensor circuit

4.3. Proline Prosonic Flow P 500 (with ISEM integrated in transmitter)

Order Code: 9P5*** – dd*ff***B*****+##*# O9P5*** – dd*ff***B*****+##*# DK9013 – dd***** ODK9013 – dd*****			
Approval dd =	I/O1 ff =	Parts of Device	Marking of Ex protection
BB	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ex db eb ia [ia Ga] IIC T6... T5 Gb and/or Ex tb [ia Da] IIIC T85°C Db
		Sensor	Ex ia IIC T6...T1 Gb and/or Ex ia IIIC T** °C Db
BD	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ex db ia [ia Ga] IIC T6... T5 Gb and/or Ex tb [ia Da] IIIC T85°C Db
		Sensor	Ex ia IIC T6...T1 Gb and/or Ex ia IIIC T** °C Db
BS	HA, TA, CA, CB, CC, CD, MC, RC	Transmitter	Ex ec nC ic [ic] IIC T5...T4 Gc
		Sensor	Ex ic IIC T6...T1 Gc or Ex ic IIB T6...T1 Gc ¹⁾
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	Ex ec nC ic [ic] IIC T5...T4 Gc
		Sensor	Ex ic IIC T6...T1 Gc or Ex ic IIB T6...T1 Gc ¹⁾

Information: Marking of protection representative for ...	
db	-> electronic compartment of the transmitter enclosure
eb	-> terminal compartment of the transmitter enclosure
ia	-> sensor, display, electronic, antenna bushing
tb	-> transmitter enclosure
[ia Ga]	-> electronic with input/output Ex ia and/or output Ex ia for sensor circuit
[ia Da]	-> electronic with input/output Ex ia and/or output Ex ia for sensor circuit
db	-> electronic and terminal of the transmitter enclosure compartments
ia	-> sensor, display
tb	-> transmitter enclosures
[ia Ga]	-> electronic with input/output Ex ia and/or output Ex ia for sensor circuit
[ia Da]	-> electronic with input/output Ex ia and/or output Ex ia for sensor circuit
ec	-> transmitter enclosures, electronic, display, antenna bushing
nC	-> electronic
ic	-> sensor
[ic]	-> electronic with input/output Ex ic and/or output Ex ic for sensor circuit

1) Sensors type C-200-A and I-100-A are only available for group IIB



5. Conditions of Certification

- All equipment of the measurement system shall be included in the equipotential bonding. Along the intrinsically safe sensor circuits potential equalization must exist.
- The sensors may only be used for those process media, for which the wetted parts are known to be suitable.
- For the Proline Prosonic Flow P 500 and Proline Prosonic Flow G 500 Digital flowmeters, which use a flat gasket within the sensor terminal enclosure, the end user shall ensure that flat cover seals are not bent before securing the cover. Any seals that are not flat or are damaged shall be replaced prior to reassembly.
- If the Proline Prosonic Flow G 300 flowmeter is connected to a Remote Display type DKX001 or ODKX001, the order code “Approval dd” of the flowmeter shall be paired to the order code “Approval bb” of the Remote Display as follows:

Proline Prosonic Flow G 300 with order code “Approval dd” =	Remote Display DKX001 or ODKX001 (covered by IECEx DEK 15.0024) with order code “Approval bb” =
BB, BD	BE, BF or BG
BS	BS

- The equipment may have non-conductive surfaces which are a potential electrostatic charging hazard – see instructions for guidance.
- The flameproof joints are not intended to be repaired.
- For the Proline Prosonic Flow G 300 and Proline Prosonic Flow P 500 (ISEM in transmitter) flowmeters with order code “Approval dd” = BB in combination with “Power supply” code e = D (24 V version) and intrinsically safe input/outputs (I/O1, I/O2, I/O3): the Ex eb terminal compartment of the transmitter may be opened for a short period to access intrinsically safe terminals of the inputs/outputs. This option is limited to I/Os in gas application only.
- Parallel operation of I/O1 (Terminal 26, 27 or Port 1 (RJ45)) and Service Interface (CDI) / Port 2 (RJ45) is not permitted in hazardous locations.

Applicable to Antenna bushing H337 when used with Proline 300/500 transmitter enclosure:

- Antenna supplied by Endress+Hauser shall be used only. As an alternate, any passive omni-directional RF antenna with or without cable is permitted to be connected when meeting the following parameters:
 - a) The antenna shall have an impedance of at least 50 Ω
 - b) The rated frequency range of the antenna shall not exceed 1710 MHz ... 6000 MHz
 - c) The RF antenna or the RF antenna cable shall be fitted with a Type N connector plug (MIL-STD-348)
- The antenna bushing type H337 shall be mounted wrench tight to the transmitter enclosure to maintain the ingress protection of the enclosure.
- The coupling nut of the Type N plug connector shall be hand tightened only.
- The metal enclosure of the Antenna Bushing H337 shall be securely connected to local earth, typically via the enclosure to which it is connected.



Annex D

This Annex is applicable for flowmeters type Proline t-mass 300/500

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1. Description

The Proline t-mass 300/500 flowmeters are available in two versions, a compact version (Proline 300) and a remote version (Proline 500). The Proline 500 remote version is available as a version with ISEM electronic in sensor only (i.e. Proline 500 Digital) where the sensor is connected by a digital circuit to the transmitter with additional electronics located at the sensor for assessment of the sensor signals.

The Proline t-mass 300/500 flowmeters consist of various components, including electronics, enclosures with factory-assembled cable entry devices (e.g. blanking elements and thread adapters), sensors, antenna bushing, and displays. Each component has been tested and certified separately as an Ex component, with the objective to ensure its suitability for integration within the intended Proline 300/500 end product application.

The Proline t-mass 300 flowmeters can be paired with an additional Remote Display, type DKX001 or ODKX001, which is certified separately as Ex equipment. The Remote Display can be ordered as a separate equipment or as part of the flowmeter.

The Proline t-mass 300/500 flowmeters are available with three different power supply options: DC 19.2...28.8 V, or AC 85...264 V, or DC 19.2...28.8 V / AC 85...264 V. Electronics are designed to provide intrinsically safe IO's (Ex ia for EPL Ga / Zone 0 or Ex ic for EPL Gc / Zone 2) or with non-intrinsically safe IO's. A combination of intrinsically safe and non-intrinsically safe IO's is not allowed.

The Proline t-mass 300/500 flowmeters are available for an ambient temperature range from -50°C to +60°C and for use in a medium (process) temperature range from -50°C to +180°C. These temperature ranges are limited by various parameters including, but not limited to, models, sensor types, maximum assigned surface temperature, operating temperature range of the components, sealing materials and liner materials. Refer to Control drawings "Thermal Parameters" as applicable to each model.

The Proline t-mass 300/500 flowmeters are rated IP54 (gas) and IP6X (dust) according to the requirements of IEC 60079-0. They also meet the requirements of IP66, IP67 and IP68 (optional) according to IEC 60529.

The Proline t-mass 300/500 flowmeters are equipped with factory-mounted metallic thread adapter and/or thread blanking elements. These thread adapters and thread blanking elements have been evaluated as part of the certification for the complete Proline t-mass 300/500 flowmeters.



2. Order Code

2.1. Proline t-mass 300/500

Extended order code Proline t-mass 300:

- 6F3bcc – ddeffghjlpstttvww + ###
- 6I3bcc – ddeffghjlpstttuuvww + ###
- O6F3bcc – ddeffghjlpstttvwwyy + ### for OEM-version
- O6I3bcc – ddeffghjlpstttuuvwwyy + ### for OEM-version
- 6x3bxx – ddeffghjlpssww + ### for replacement transmitter
- O6x3bxx – ddeffghjlpsswwyy + ### for replacement transmitter OEM

Extended order code Proline t-mass 500:

- 6F5bcc – ddeffghijkmnopsstttvww + ###
- 6I5bcc – ddeffghijkmnopsstttuuvww + ###
- O6F5bcc – ddeffghijkmnopsstttvwwyy + ### for OEM-version
- O6I5bcc – ddeffghijkmnopsstttuuvwwyy + ### for OEM-version
- 6x5bxx – ddeffghijkmopssww + ### for replacement transmitter
- O6x5bxx – ddeffghijkmopsswwyy + ### for replacement transmitter OEM

- b = Generation**
B = Generation of Flowmeter
- cc = Size**
any combination of number and/or letter up to size = DN100 (t-mass F) / 1500mm (t-mass I)
- dd = Approval**
Proline t-mass 300:
 BB = Ex db eb [ia] IIC T4...T1 Gb
 Ex tb IIIC T** Db
 BD = Ex db [ia] IIC T4...T1 Gb
 Ex tb IIIC T** Db
 BS = Ex ec IIC T4...T1 Gc

Proline t-mass 500:
 BJ = [Ex ia] IIC (transmitter)
 Ex ia IIC T4...T1 Gb (sensor)
 Ex tb IIIC T** Db (sensor)
 BL = non-Ex (transmitter)
 Ex ec IIC T4...T1 Gc (sensor)
 BN = Ex ec [ia Ga] IIC T5...T4 Gc (transmitter)
 Ex ia IIC T4...T1 Gb (sensor)
 Ex tb IIIC T** Db (sensor)
 BS = Ex ec IIC T4...T1 Gc (transmitter + sensor)
- e = Power Supply**
 D = 24Vdc
 E = 100-230Vac
 I = 100-230Vac / 24Vdc
 X = sensor only



- ff = Input / Output 1**
- BA = 4-20mA HART
 - BB = 4-20mA WHART
 - CA = 4-20mA HART Ex i (passive)
 - CB = 4-20mA WHART Ex i (passive)
 - CC = 4-20mA HART Ex i (active)
 - CD = 4-20mA WHART Ex i (active)
 - GA = Profibus PA
 - HA = Profibus PA Ex i
 - LA = Profibus DP
 - MA = Modbus RS485
 - MB = Modbus TCP
 - MC = Modbus TCP Ex i
 - NA = EtherNet/IP
 - RA = Profinet IO
 - RB = Profinet
 - RC = Profinet Ex i
 - SA = Foundation Fieldbus
 - TA = Foundation Fieldbus Ex i
 - XX = sensor only
- g = Input / Output 2**
- A = without Input/Output 2
 - B = 4-20mA
 - C = 4-20mA Ex i (passive)
 - D = Configurable IO
 - E = Pulse/Frequency/Switch output
 - F = Pulse output phase-shifted
 - G = Pulse/Frequency/Switch output Ex i
 - H = Relay
 - I = 4-20mA input
 - J = Status input
 - K = Pulse output Ex i
 - L = Pulse output
 - X = sensor only
- h = Input / Output 3**
- A = without Input/Output 3
 - B = 4-20mA
 - C = 4-20mA Ex i (passive)
 - D = Configurable IO
 - E = Pulse/Frequency/Switch output
 - F = Pulse output phase-shifted
 - G = Pulse/Frequency/Switch output Ex i
 - H = Relay
 - I = 4-20mA input
 - J = Status input
 - K = Pulse output Ex i
 - L = Pulse output
 - X = sensor only



- i** = **Input / Output 4** (Proline 500 only)
 - A = without Input/Output 4
 - B = 4-20mA
 - C = 4-20mA Ex i (passive)
 - D = Configurable IO
 - E = Pulse/Frequency/Switch output
 - F = Pulse output phase-shifted
 - G = Pulse/Frequency/Switch output Ex i
 - H = Relay
 - I = 4-20mA input
 - J = Status input
 - K = Pulse output Ex i
 - L = Pulse output
 - X = sensor only
- j** = **Display / Operation**
 - with remote Display : O
 - without remote Display : any single number or letter except O
- k** = **Integrated ISEM electronic** (Proline 500 only)
 - A = Sensor
- l** = **Housing** (Proline 300 only)
 - any single number or letter
- m** = **Transmitter Housing** (Proline 500 only)
 - any single number or letter
- n** = **Sensor Housing** (Proline 500 only)
 - any single number or letter
- o** = **Cable Sensor Connection** (Proline 500 only)
 - any single number or letter
- p** = **Cable Entry**
 - any single number or letter
- ss** = **Material sensor**
 - any double digits with combination of number or letter
- ttt** = **Process connection**
 - any triple digits with combination of number or letter
- uu** = **Gasket**
 - any double number or letter
- v** = **Calibration**
 - any single number or letter
- ww** = **Device model (two digit)** (refer to assignment of flowmeter to replacement transmitter)
 - A1 = product version 1
 - A2 = product version 2
- yy** = **Customer version (two digits)**
 - any double digits with combination of number or letter
- **** = **Option in two digits (none, two or multiple of two digits)**
 - any combination of number and/or letter
- #, +** = **Signs used as indicator for optional abbreviation of extended order code**

2.2. Assignment of Replacement Transmitter

The replacement transmitters are assigned to the flowmeter Proline t-mass 300/500 as follows:

Product flowmeters			Replacement transmitter type			
Order code	Generation code b =	Device model code ww =	Order code	Generation code b =	Existing product rr =	Device model code ww =
6F*b**-...ww, O6F*b**-...ww	B	A1 / A2	6x*bxx...ww, O6x*bxx-...ww	B	n.a.	A1 / A2
6I*b**-...ww, O6I*b**-...ww	B	A1 / A2	6x*bxx-...ww, O6x*bxx-...ww	B	n.a.	A1 / A2

3. Parameters

3.1. Electrical Parameters

3.1.1. Power supply

Order code "Power supply" e =	Terminal no.	Values
D ¹⁾	1(L+/L), 2(L-/N)	U _N = DC 19.2...28.8 V U _M = AC 250 V
E ¹⁾	1(L+/L), 2(L-/N)	U _N = AC 85...264 V U _M = AC 250 V
I ²⁾	1(L+/L), 2(L-/N)	U _N = DC 19.2...28.8 V / AC 85...264 V U _M = AC 250 V

1) applicable for Proline 300/500 flowmeters with order code "Approval dd" = BB, BD

2) applicable for Proline 300/500 flowmeters with order code "Approval dd" = BS, BJ, BL, BN

3.1.2. Input/Outputs

Input/Output 1 (Note 4)			
Order code "Input/Output 1" ff =	Terminal no.	Type of protection	Values
BA, BB, MA	I/O1 (Terminal 26, 27)	Non-intrinsically safe	U _N = DC 30 V U _M = AC 250 V
LA, GA, SA	I/O1 (Terminal 26, 27)	Non-intrinsically safe	U _N = DC 32 V U _M = AC 250 V
CA, CB	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	U _i = 30 V I _i = 100 mA P _i = 1.25 W L _i = 0 C _i = 6 nF



Input/Output 1 (Note 4)					
Order code "Input/Output 1" ff =	Terminal no.	Type of protection	Values		
CC, CD	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	<table border="0"> <tr> <td> (Note 1) $U_o = 21.8 \text{ V}$ $I_o = 90 \text{ mA}$ $P_o = 491 \text{ mW}$ $L_o = 4.1 \text{ mH (IIC) /}$ 15 mH (IIB) $C_o = 160 \text{ nF (IIC) /}$ 1160 nF (IIB) $U_i = 30 \text{ V}$ $I_i = 10 \text{ mA}$ $P_i = 0.3 \text{ W}$ $C_i = 6 \text{ nF}$ $L_i = 5 \text{ } \mu\text{H}$ </td> <td> (Note 2) $U_o = 21.8 \text{ V}$ $I_o = 90 \text{ mA}$ $P_o = 491 \text{ mW}$ $L_o = 9 \text{ mH (IIC) /}$ 39 mH (IIB) $C_o = 600 \text{ nF (IIC) /}$ 4000 nF (IIB) $U_i = 30 \text{ V}$ $I_i = 10 \text{ mA}$ $P_i = 0.3 \text{ W}$ $C_i = 6 \text{ nF}$ $L_i = 5 \text{ } \mu\text{H}$ </td> </tr> </table>	(Note 1) $U_o = 21.8 \text{ V}$ $I_o = 90 \text{ mA}$ $P_o = 491 \text{ mW}$ $L_o = 4.1 \text{ mH (IIC) /}$ 15 mH (IIB) $C_o = 160 \text{ nF (IIC) /}$ 1160 nF (IIB) $U_i = 30 \text{ V}$ $I_i = 10 \text{ mA}$ $P_i = 0.3 \text{ W}$ $C_i = 6 \text{ nF}$ $L_i = 5 \text{ } \mu\text{H}$	(Note 2) $U_o = 21.8 \text{ V}$ $I_o = 90 \text{ mA}$ $P_o = 491 \text{ mW}$ $L_o = 9 \text{ mH (IIC) /}$ 39 mH (IIB) $C_o = 600 \text{ nF (IIC) /}$ 4000 nF (IIB) $U_i = 30 \text{ V}$ $I_i = 10 \text{ mA}$ $P_i = 0.3 \text{ W}$ $C_i = 6 \text{ nF}$ $L_i = 5 \text{ } \mu\text{H}$
(Note 1) $U_o = 21.8 \text{ V}$ $I_o = 90 \text{ mA}$ $P_o = 491 \text{ mW}$ $L_o = 4.1 \text{ mH (IIC) /}$ 15 mH (IIB) $C_o = 160 \text{ nF (IIC) /}$ 1160 nF (IIB) $U_i = 30 \text{ V}$ $I_i = 10 \text{ mA}$ $P_i = 0.3 \text{ W}$ $C_i = 6 \text{ nF}$ $L_i = 5 \text{ } \mu\text{H}$	(Note 2) $U_o = 21.8 \text{ V}$ $I_o = 90 \text{ mA}$ $P_o = 491 \text{ mW}$ $L_o = 9 \text{ mH (IIC) /}$ 39 mH (IIB) $C_o = 600 \text{ nF (IIC) /}$ 4000 nF (IIB) $U_i = 30 \text{ V}$ $I_i = 10 \text{ mA}$ $P_i = 0.3 \text{ W}$ $C_i = 6 \text{ nF}$ $L_i = 5 \text{ } \mu\text{H}$				
HA, TA	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	<table border="0"> <tr> <td> (Note 1) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> $U_i = 30 \text{ V}$ $I_i = 570 \text{ mA}$ $P_i = 8.5 \text{ W}$ $L_i = 10 \text{ } \mu\text{H}$ $C_i = 5 \text{ nF}$ </td> <td> (Note 2) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> $U_i = 32 \text{ V}$ $I_i = 570 \text{ mA}$ $P_i = 8.5 \text{ W}$ $L_i = 10 \text{ } \mu\text{H}$ $C_i = 5 \text{ nF}$ </td> </tr> </table>	(Note 1) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> $U_i = 30 \text{ V}$ $I_i = 570 \text{ mA}$ $P_i = 8.5 \text{ W}$ $L_i = 10 \text{ } \mu\text{H}$ $C_i = 5 \text{ nF}$	(Note 2) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> $U_i = 32 \text{ V}$ $I_i = 570 \text{ mA}$ $P_i = 8.5 \text{ W}$ $L_i = 10 \text{ } \mu\text{H}$ $C_i = 5 \text{ nF}$
(Note 1) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> $U_i = 30 \text{ V}$ $I_i = 570 \text{ mA}$ $P_i = 8.5 \text{ W}$ $L_i = 10 \text{ } \mu\text{H}$ $C_i = 5 \text{ nF}$	(Note 2) <u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> $U_i = 32 \text{ V}$ $I_i = 570 \text{ mA}$ $P_i = 8.5 \text{ W}$ $L_i = 10 \text{ } \mu\text{H}$ $C_i = 5 \text{ nF}$				
MB, RB	I/O1 (Terminal 26, 27)	Non-intrinsically safe	<u>APL port profile SLAX / SPE PoDL classes 10, 11, 12</u> $U_N = \text{AC } 3.3 \text{ V}$ $U_M = \text{AC } 250 \text{ V}$		
MC, RC	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	<table border="0"> <tr> <td> (Note 1), (Note 3) <u>2-WISE power load</u> <u>APL port profile SLAA</u> $U_i = 17.5 \text{ V}$ $I_i = 380 \text{ mA}$ $P_i = 5.32 \text{ W}$ $L_i = 10 \text{ } \mu\text{H}$ $C_i = 5 \text{ nF}$ </td> <td> (Note 2), (Note 3) <u>2-WISE power load</u> <u>APL port profile SLAC</u> $U_i = 17.5 \text{ V}$ $I_i = 380 \text{ mA}$ $P_i = 5.32 \text{ W}$ $L_i = 10 \text{ } \mu\text{H}$ $C_i = 5 \text{ nF}$ </td> </tr> </table>	(Note 1), (Note 3) <u>2-WISE power load</u> <u>APL port profile SLAA</u> $U_i = 17.5 \text{ V}$ $I_i = 380 \text{ mA}$ $P_i = 5.32 \text{ W}$ $L_i = 10 \text{ } \mu\text{H}$ $C_i = 5 \text{ nF}$	(Note 2), (Note 3) <u>2-WISE power load</u> <u>APL port profile SLAC</u> $U_i = 17.5 \text{ V}$ $I_i = 380 \text{ mA}$ $P_i = 5.32 \text{ W}$ $L_i = 10 \text{ } \mu\text{H}$ $C_i = 5 \text{ nF}$
(Note 1), (Note 3) <u>2-WISE power load</u> <u>APL port profile SLAA</u> $U_i = 17.5 \text{ V}$ $I_i = 380 \text{ mA}$ $P_i = 5.32 \text{ W}$ $L_i = 10 \text{ } \mu\text{H}$ $C_i = 5 \text{ nF}$	(Note 2), (Note 3) <u>2-WISE power load</u> <u>APL port profile SLAC</u> $U_i = 17.5 \text{ V}$ $I_i = 380 \text{ mA}$ $P_i = 5.32 \text{ W}$ $L_i = 10 \text{ } \mu\text{H}$ $C_i = 5 \text{ nF}$				
NA, RA	I/O1 (Port 1 (RJ45))	Non-intrinsically safe	$U_N = \text{AC } 3.3 \text{ V}$ $U_M = \text{AC } 250 \text{ V}$		

Input/Output 2 (Note 4)			
Order code "Input/Output 2" g =	Terminal no.	Type of protection	Values
C, G, K	I/O2 (Terminal 24, 25)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 1.25 \text{ W}$ $L_i = 0$ $C_i = 0$
B, D, E, F, I, J, L	I/O2 (Terminal 24, 25)	Non-intrinsically safe	$U_N = \text{DC } 30 \text{ V}$ $U_M = \text{AC } 250 \text{ V}$
H	I/O2 (Terminal 24, 25)	Non-intrinsically safe	$U_N = \text{DC } 30 \text{ V}$ $I_N = \text{DC } 100 \text{ mA} / \text{AC } 500 \text{ mA}$ $U_M = \text{AC } 250 \text{ V}$

Input/Output 3 (Note 4)			
Order code "Input/Output 3" h =	Terminal no.	Type of protection	Values
C, G, K	I/O3 (Terminal 22, 23)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 1.25 \text{ W}$ $L_i = 0$ $C_i = 0$
B, D, E, F, I, J, L	I/O3 (Terminal 22, 23)	Non-intrinsically safe	$U_N = \text{DC } 30 \text{ V}$ $U_M = \text{AC } 250 \text{ V}$
H	I/O3 (Terminal 22, 23)	Non-intrinsically safe	$U_N = \text{DC } 30 \text{ V}$ $I_N = \text{AC } 100 \text{ mA} / \text{AC } 500 \text{ mA}$ $U_M = \text{AC } 250 \text{ V}$

Input/Output 4 (Proline 500 only) (Note 4)			
Order code "Input/Output 4" i =	Terminal no.	Type of protection	Values
C, G, K	I/O4 (Terminal 20, 21)	Intrinsically safe Ex ia (Note 1) or Ex ic (Note 2)	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 1.25 \text{ W}$ $L_i = 0$ $C_i = 0$
B, D, E, F, I, J, L	I/O4 (Terminal 20, 21)	Non-intrinsically safe	$U_N = \text{DC } 30 \text{ V}$ $U_M = \text{AC } 250 \text{ V}$
H	I/O4 (Terminal 20, 21)	Non-intrinsically safe	$U_N = \text{DC } 30 \text{ V}$ $I_N = \text{DC } 100 \text{ mA} / \text{AC } 500 \text{ mA}$ $U_M = \text{AC } 250 \text{ V}$

(1) applicable for Proline 300/500 flowmeters with order code "Approval dd" = BB, BD

(2) applicable for Proline 300/500 flowmeters with order code "Approval dd" = BS, BL, BN

(3) no additional internal capacitances are effective to the output value (refer to note 1 of drawing "Ethernet-APL Installation Drawing - Device Vendors v1.0, March 8th 2022")

(4) it is not permitted to combine a non-intrinsically safe I/Os with intrinsically safe I/Os between I/O1, I/O2, I/O3, and I/O4 within the same system or device

3.1.3. Service interface / Port 2 (RJ45)

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BB	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	$U_N = AC\ 3.3\ V$, $U_M = AC\ 250\ V$ Service Interface shall only be connected to a non- intrinsically safe circuit in areas which are known to be non-hazardous
		Intrinsically safe Ex ia	$U_i = 10\ V$, $I_i = n.a.$, $P_i = n.a.$, $C_i = 200\ nF$, $L_i = 0$
BD	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	$U_N = AC\ 3.3\ V$, $U_M = AC\ 250\ V$
		Intrinsically safe Ex ia	$U_i = 10\ V$, $I_i = n.a.$, $P_i = na.$, $C_i = 200\ nF$, $L_i = 0$
BS, BJ, BL, BN	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	$U_N = AC\ 3.3\ V$, $U_M = AC\ 250\ V$

3.1.4. Output for external antenna (via Antenna Bushing)

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BB, BN, BS BJ, BL	Type N connector	Intrinsically safe Ex ia Intrinsically safe Ex ic Non-intrinsically safe	See conditions of certification

3.1.5. Output for Remote Display DKX001 or ODKX001

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BB, BD	81, 82, 83, 84	Intrinsically safe Ex ia	$U_o = 3.9\ V$ $I_o = 1.5\ A$ (spark) 200 mA (power) $P_o = 600\ mW$ $R_i = 2.6\ \Omega$ $C_o = 670\ \mu F$ $L_o = 0$ Note: a connection cable with a ratio $L_{cable}/R_{cable} \leq 0.024\ mH/\Omega$ and $C_{cable} \leq 600\ \mu F$ shall be used when connecting the Remote Display type DKX001 or ODKX001
BS	81, 82, 83, 84	Non-intrinsically safe	$U_N = 3.3\ V$ $I_N = 150\ mA$
BJ, BL, BN	Remote Display type DKX001 or ODKX001 is not intended to be connected to the Proline 300 devices		



3.1.6. Sensor circuits for Proline t-mass 500 Digital (ISEM in sensor)

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BJ, BN	Transmitter terminal board (in the sensor connection compartment of transmitter):		
	61, 62, 63, 64	Intrinsically safe Ex ia	$U_o = 13.8 \text{ V}$, $I_o = 1.156 \text{ A}$, $P_o = 3.3 \text{ W}$
	Sensor terminal board (in the sensor terminal enclosure):		
	61, 62, 63, 64	Intrinsically safe Ex ia	$U_i = 14 \text{ V}$, $I_i = 1.2 \text{ A}$, $P_i = 3.4 \text{ W}$

The cable used to connect the transmitter to the remote sensor must fulfill the following requirements:

- For Group IIC: $L_{\text{cable}}/R_{\text{cable}} \leq 0.0089 \text{ mH}/\Omega$ or $L_{\text{cable}} \leq 26 \mu\text{H}$ and $C_{\text{cable}} \leq 760 \text{ nF}$
- For Group IIB: $L_{\text{cable}}/R_{\text{cable}} \leq 0.0356 \text{ mH}/\Omega$ or $L_{\text{cable}} \leq 104 \mu\text{H}$ and $C_{\text{cable}} \leq 4.2 \mu\text{F}$

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BL, BS	Transmitter terminal board (in the sensor connection compartment of transmitter):		
	61, 62	Non-intrinsically safe	$U_N = 32 \text{ V}$
	63, 64	Non-intrinsically safe	$U_N = 3.3 \text{ V}$
	Sensor terminal board (in the sensor terminal enclosure):		
	61, 62	Non-intrinsically safe	$U_N = 32 \text{ V}$
	63, 64	Non-intrinsically safe	$U_N = 3.3 \text{ V}$

3.2. Thermal Parameters (Zone 1)

1. Proline t-mass 300

Notes: The chapter 1 applies to versions with extended order code covering:

- 6*3B** – dd... (flowmeter)
- O6*3B** – dd... (flowmeter OEM version)
- 6x3Bxx – dd... (replacement transmitter)
- O6x3Bxx – dd... (replacement transmitter OEM)
- with "Approval" dd = CD, CE, C2, C4 (cCSAus / CSA)
- dd = BB, BD (IECEx / ATEX)

1.1. Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

1.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate and is limited by factors such as the sensor flange type, size, maximum working pressure and specific option selected. Depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

1.3. Proline t-mass 300 without thermal insulation or with thermal insulation in accordance with E-H's specifications

Note: for thermal insulation specifications, refer to E+H's manuals.

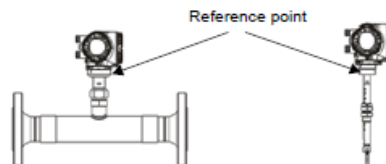
Temperature class vs. Max. ambient temperature ($T_{a, max}$) and Max. permitted medium temperature ($T_{m, max permitted}$)										
Size / DN	Medium range T_m ⁽²⁾		Ambient range T_a ⁽¹⁾		$T_{m, max permitted}$ ($^{\circ}C$)					
	min ($^{\circ}C$)	max. ($^{\circ}C$)	min ($^{\circ}C$)	max. ($^{\circ}C$)	T6 (85 $^{\circ}C$)	T5 (100 $^{\circ}C$)	T4 (135 $^{\circ}C$)	T3 (200 $^{\circ}C$)	T2 (300 $^{\circ}C$)	T1 (450 $^{\circ}C$)
all	-50	180	-50 / -40	50	---	---	115	155	180	180
				55	---	---	115	155	160 (180) ⁽²⁾	160 (180) ⁽²⁾
				60	---	---	100 (115) ⁽²⁾	100 (130) ⁽²⁾	100 (130) ⁽²⁾	100 (130) ⁽²⁾

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

1.4. Proline t-mass 300 with thermal insulation NOT in accordance with E+H's specifications

Temperature class vs. Max. ambient temperature ($T_{a, max}$) and Max. permitted medium temperature ($T_{m, max permitted}$)										
Size / DN	Medium range T_m ⁽²⁾		Ambient range T_a ⁽¹⁾		Reference temperature $T_{ref, max permitted}$ ⁽²⁾ ($^{\circ}C$)					
	min ($^{\circ}C$)	max. ($^{\circ}C$)	min ($^{\circ}C$)	max. ($^{\circ}C$)	T6 (85 $^{\circ}C$)	T5 (100 $^{\circ}C$)	T4 (135 $^{\circ}C$)	T3 (200 $^{\circ}C$)	T2 (300 $^{\circ}C$)	T1 (450 $^{\circ}C$)
all	-50	180	-50 / -40	60	---	---	73	76	77	77

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) $T_{ref, max permitted}$: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref, max permitted}$ shall not exceed the values given in this table.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).



Endress+Hauser People for Process Automation Endress+Hauser Flow Kägenstrasse 7, 4153 Reinach, Basel-Landschaft, Switzerland	Control Drawing - IECEx, ATEX, CSA, cCSAus	Document No.:	FES0331
	Proline t-mass 300/500	Rev.:	B
	Thermal Parameter	Date:	15.04.2025
	EPL Gb (Zone 1); EPL Db (Zone 21); Cl. I Div. 1, Cl. II Div. 1, Cl. III; Cl. I Zone 1, Zone 21	Page:	1/3

2. Proline t-mass 500 Digital (ISEM in sensor, defined by the order code "ISEM electronic" k = A)

Notes: The chapter 2 applies to versions with extended order code covering:

6*5B** – dd*****A...	(flowmeter)
O6*5B** – dd*****A ...	(flowmeter OEM version)
6x5Bxx – dd*****A ...	(replacement transmitter)
O6x5Bxx – dd*****A ...	(replacement transmitter OEM)
with "Approval" dd = CN, C6	(cCSAus / CSA)
dd = BJ, BN	(IECEX / ATEX)

2.1. Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

2.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate and is limited by factors such as the sensor flange type, size, maximum working pressure and specific option selected. Depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

2.3. Proline t-mass 500 Digital without thermal insulation or with thermal insulation in accordance with E+H's specifications

Note: for thermal insulation specifications, refer to E+H's manuals.

Transmitter temperature class vs. Maximum ambient temperature ($T_{a,max}$)				
Transmitter	Type of enclosure	$T_{a,min}$ (°C)	$T_{a,max}$ (°C)	Temperature class
Proline t-mass 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
			45	T5 (100°C)

Notes: (1) $T_{a,min}$ = -50°C for aluminium enclosure, $T_{a,min}$ = -40°C for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BJ): $T_{a,max}$ = 60°C. Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted medium temperature ($T_{m,max}$ permitted)										
Size / DN	Medium range T_m ⁽²⁾		Ambient range T_a ⁽¹⁾		$T_{m,max}$ permitted (°C)					
	min (°C)	max. (°C)	min (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
all	-50	180	-50 / -40	55	---	---	115	155	180	180
				60	---	---	115	130	130	130

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

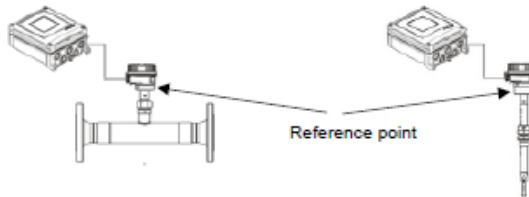
2.4. Proline t-mass 500 Digital with thermal insulation NOT in accordance with E+H's specifications

Transmitter temperature class vs. Maximum ambient temperature ($T_{a,max}$)				
Transmitter	Type of enclosure	$T_{a,min}$ (°C)	$T_{a,max}$ (°C)	Temperature class
Proline t-mass 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
			45	T5 (100°C)

Notes: (1) $T_{a,min} = -50^{\circ}\text{C}$ for aluminium enclosure, $T_{a,min} = -40^{\circ}\text{C}$ for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BJ):
 $T_{a,max} = 60^{\circ}\text{C}$. Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted reference temperature $T_{ref,max}$ permitted										
Size / DN	Medium range T_m ⁽³⁾		Ambient range T_a ⁽¹⁾		Reference temperature $T_{ref,max}$ permitted ⁽²⁾ (°C)					
	min (°C)	max. (°C)	min (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
all	-50	180	-50 / -40	60	---	---	76	78	82	82

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) $T_{ref,max}$ permitted: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref,max}$ permitted shall not exceed the values given in this table.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).



3.3. Thermal Parameters (Zone 2)

1. Proline t-mass 300

Notes: The chapter 1 applies to Proline t-mass 300 versions with extended order code covering:

6*3B** – dd...	(flowmeter)
06*3B** – dd ...	(flowmeter OEM version)
6x3Bxx – dd...	(replacement transmitter)
06x3Bxx – dd...	(replacement transmitter OEM)
with "Approval"	dd = CS, CZ (cCSAus / CSA)
	dd = BS (IECEX / ATEX)

1.1. Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, this range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

1.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

1.3. Proline t-mass 300 without thermal insulation or with thermal insulation in accordance with E-H's specifications

Note: for thermal insulation specifications, refer to E+H's manuals.

Temperature class vs. Max. ambient temperature ($T_{a, max}$) and Max. permitted medium temperature ($T_{m, max}$ permitted)										
Size / DN	Medium range T_m ⁽⁴⁾		Ambient range T_a ⁽¹⁾		$T_{m, max}$ permitted (°C)					
	min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
All ⁽³⁾	-50	180	-50 / -40	50	---	---	115	155	180	180
				55	---	---	115	155	160 (180) ⁽²⁾	160 (180) ⁽²⁾
				60	---	---	100 (115) ⁽²⁾	100 (130) ⁽²⁾	100 (130) ⁽²⁾	100 (130) ⁽²⁾

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
 (3) For the Proline t-mass 300 versions using a stainless steel hygienic enclosure, the transmitter shall not be installed vertically above the sensor.
 (4) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

1.4. Proline t-mass 300 with thermal insulation NOT in accordance with E+H's specifications

Temperature class vs. Max. ambient temperature ($T_{a, max}$) and Max. permitted medium temperature ($T_{m, max}$ permitted)										
Size / DN	Medium range T_m ⁽³⁾		Ambient range T_a ⁽¹⁾		Reference temperature $T_{ref, max}$ permitted ⁽²⁾ (°C)					
	min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
all	-50	180	-50 / -40	60	---	---	73	76	77	77

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) $T_{ref, max}$ permitted: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref, max}$ permitted shall not exceed the values given in this table.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

2. Proline t-mass 500 Digital (ISEM in sensor, defined by the order code "ISEM electronic" k = A)

Notes: The chapter 2 applies to Proline t-mass 500 Digital versions with extended order code covering:

6*5B** – dd*****A... (flowmeter)
 O6*5B** – dd*****A ... (flowmeter OEM version)
 6x5Bxx – dd*****A ... (replacement transmitter)
 O6x5Bxx – dd*****A ... (replacement transmitter OEM)
 with "Approval" dd = CS, CZ (cCSAus / CSA)
 dd = BL, BS (IECEX / ATEX)

2.1. Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, this range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

2.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

2.3. Proline t-mass 500 Digital without thermal insulation or with thermal insulation in accordance with E+H's specifications

Note: for thermal insulation specifications, refer to E+H's manuals.

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)				
Transmitter	Type of enclosure	$T_{a, min}$ (°C)	$T_{a, max}$ (°C)	Temperature class
Proline t-mass 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
			45	T5 (100°C)

Notes: (1) $T_{a, min}$ = -50°C for aluminium enclosure, $T_{a, min}$ = -40°C for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BL): $T_{a, max}$ = 60°C. Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted medium temperature ($T_{m, max}$ permitted)										
Size / DN	Medium range T_m ⁽²⁾		Ambient range T_a ⁽¹⁾		$T_{m, max}$ permitted (°C)					
	min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
all	-50	180	-50 / -40	55	---	---	115	155	180	180
				60	---	---	115	130	130	130

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).

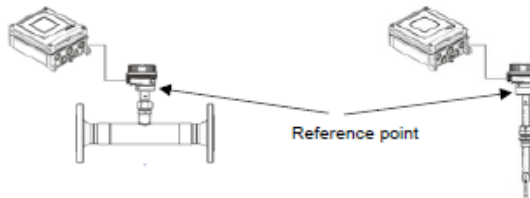
2.4. Proline t-mass 500 Digital with thermal insulation NOT in accordance with E+H's specifications

Transmitter temperature class vs. Maximum ambient temperature ($T_{a,max}$)				
Transmitter	Type of enclosure	$T_{a,min}$ (°C)	$T_{a,max}$ (°C)	Temperature class
Proline t-mass 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
			45	T5 (100°C)

Notes: (1) $T_{a,min} = -50^{\circ}\text{C}$ for aluminium enclosure, $T_{a,min} = -40^{\circ}\text{C}$ for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BL): $T_{a,max} = 60^{\circ}\text{C}$. Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a,max}$) & Max. permitted reference temperature ($T_{ref,max}$ permitted)										
Size / DN	Medium range T_m ⁽³⁾		Ambient range T_a ⁽¹⁾		Reference temperature $T_{ref,max}$ permitted ⁽²⁾ (°C)					
	min. (°C)	max (°C)	min. (°C)	max (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
all	-50	180	-50 / -40	60	---	---	76	78	82	82

Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
 (2) $T_{ref,max}$ permitted: the maximum temperature measured at the reference point at the sensor neck. To maintain the assigned temperature class rating, the $T_{ref,max}$ permitted shall not exceed the values given in this table.
 (3) Applicable medium temperature range may be further limited (see the nameplate on the sensor housing).





4. Marking

4.1. Proline t-mass 300

Order Code: 6F3*** – dd*ff*****+### 6I3*** – dd*ff*****+### O6F3*** – dd*ff*****+### O6I3*** – dd*ff*****+###				
Approval dd =	I/O1 ff =	Marking of Ex protection		Information: Marking of protection representative for ...
BB	CA, CB, CC, CD, HA, TA, MC, RC	Ex db eb ia [ia Ga] IIC T4...T1 Gb or Ex db eb ia [ia Ga] IIC T4...T1 Ga/Gb and/or Ex tb [ia Da] IIIC T** °C Db		db -> electronic compartment of the transmitter enclosure eb -> terminal compartment of the transmitter enclosure ia -> sensor, display, electronic, antenna bushing tb -> transmitter enclosure [ia Ga] -> electronic with input/output Ex ia [ia Da] -> electronic with input/output Ex ia
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex db eb ia IIC T4...T1 Gb or Ex db eb ia IIC T4...T1 Ga/Gb and/or Ex tb IIIC T** °C Db		
BD	CA, CB, CC, CD, HA, TA, MC, RC	Ex db ia [ia Ga] IIC T4...T1 Gb or Ex db ia [ia Ga] IIC T4...T1 Ga/Gb and/or Ex tb [ia Da] IIIC T** °C Db		db -> electronic and terminal compartments of the transmitter enclosure ia -> sensor, display, electronic tb -> transmitter enclosure [ia Ga] -> electronic with input/output Ex ia [ia Da] -> electronic with input/output Ex ia
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex db ia IIC T4...T1 Gb or Ex db ia IIC T4...T1 Ga/Gb and/or Ex tb IIIC T** °C Db		
BS	CA, CB, CC, CD, HA, TA, MC, RC	Ex ec nC [ic] IIC T4...T1 Gc		ec -> transmitter enclosure, sensor, electronic, display, antenna bushing nC -> electronic [ic] -> electronic with input/output Ex ic
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex ec nC IIC T4...T1 Gc		

4.2. Proline t-mass 500 Digital (with ISEM integrated in sensor)

Order Code: 6F5*** – dd*ff***A*****+### 6I5*** – dd*ff***A*****+### O6F5*** – dd*ff***A*****+### O6I5*** – dd*ff***A*****+###				
Approval dd =	I/O1 ff =	Parts of Device	Marking of Ex protection	Information: Marking of protection representative for ...
BJ	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	[Ex ia Ga] IIC and/or [Ex ia Da] IIIC	[Ex ia] -> electronic with output Ex ia for sensor circuit
		Sensor	Ex db ia IIC T4...T1 Gb or Ex db ia IIC T4...T1 Ga/Gb and/or Ex ia tb IIIC T** °C Db	db -> sensor terminal enclosure ia -> sensor tb -> sensor terminal enclosure Note: I/O signals from the transmitter are non-IS
BL	BA, BB, GA, LA, NA, RA,	Transmitter	n.a. (non-Ex)	ec -> sensor , sensor terminal enclosure, electronic



	SA, MA, MB, RB	Sensor	Ex ec IIC T4...T1 Gc	Note: I/O signals from the transmitter are non-IS db -> sensor terminal enclosure ia -> sensor [ia Ga] -> electronic with output Ex ia for sensor circuit [Ex ia] -> electronic with output Ex ia for sensor circuit ec -> transmitter enclosure, electronic boards, display, antenna bushing nC -> electronic [ic] -> electronic with input/output Ex ic tb -> sensor terminal enclosure ec -> transmitter enclosure, sensor terminal enclosure, electronic, display, sensor, antenna bushing nC -> electronic [ic] -> electronic with input/output Ex ic
BN	CA, CB, CC, CD, HA, TA, MC, RC	Transmitter	Ex ec nC [ic] [ia Ga] IIC T5...T4 Gc and/or [Ex ia Da] IIIC	
		Sensor	Ex db ia IIC T4...T1 Gb or Ex db ia IIC T4...T1 Ga/Gb and/or Ex ia tb IIIC T** °C Db	
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	Ex ec nC [ia Ga] IIC T5...T4 Gc and/or [Ex ia Da] IIIC	
		Sensor	Ex db ia IIC T4...T1 Gb or Ex db ia IIC T4...T1 Ga/Gb and/or Ex ia tb IIIC T** °C Db	
BS	CA, CB, CC, CD, HA, TA, MC, RC	Transmitter	Ex ec nC [ic] IIC T5...T4 Gc	
		Sensor	Ex ec IIC T4...T1 Gc	
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	Ex ec nC IIC T5...T4 Gc	
		Sensor	Ex ec IIC T4...T1 Gc	

5. Conditions of Certification

- All equipment of the measurement system shall be included in the equipotential bonding. Along the intrinsically safe sensor circuits potential equalization must exist.
- The sensors may only be used for those process media, for which the wetted parts are known to be suitable.
- For the Proline t-mass 500 Digital flowmeters, which use a flat gasket within the sensor terminal enclosure, the end user shall ensure that the flat cover seals are not bent before securing the cover. Any seals that are not flat or are damaged shall be replaced prior to reassembly.
- If the Proline t-mass 300 flowmeter is connected to a Remote Display type DKX001 or ODKX001, the order code "Approval dd" of the flowmeter shall be paired to the order code "Approval bb" of the Remote Display as follows:

Proline t-mass 300 with order code "Approval dd" =	Remote Display DKX001 or ODKX001 (covered by IECEx DEK 15.0024) with order code "Approval bb" =
BB, BD	BE, BF or BG
BS	BS

- The equipment may have non-conductive surfaces which are a potential electrostatic charging hazard – see instructions for guidance.
- The flameproof joints are not intended to be repaired.
- For the Proline t-mass 300 and Proline t-mass 500 Digital with order code "Approval dd" = BB, BD, BJ & BN, which are marked with zone separation Ga/Gb: EPI Ga (Zone 0) is only applicable to sensors with process medium in the measuring tube.
- For the Proline t-mass 300 flowmeters with order code "Approval dd" = BB in combination with "Power supply" code e = D (24 V version) and intrinsically safe input/outputs (I/O1, I/O2, I/O3): the Ex eb terminal compartment



of the transmitter may be opened for a short period to access intrinsically safe terminals of the inputs/outputs. This option is limited to I/Os in gas application only.

- Parallel operation of I/O1 (Terminal 26, 27 or Port 1 (RJ45)) and Service Interface (CDI) / Port 2 (RJ45) is not permitted in hazardous locations.

Applicable to Antenna bushing H337 when used with Proline 300/500 transmitter enclosure:

- Antenna supplied by Endress+Hauser shall be used only. As an alternate, any passive omni-directional RF antenna with or without cable is permitted to be connected when meeting the following parameters:
 - a) The antenna shall have an impedance of at least 50 Ω
 - b) The rated frequency range of the antenna shall not exceed 1710 MHz ... 6000 MHz
 - c) The RF antenna or the RF antenna cable shall be fitted with a Type N connector plug (MIL-STD-348)
- The antenna bushing type H337 shall be mounted wrench tight to the transmitter enclosure to maintain the ingress protection of the enclosure.
- The coupling nut of the Type N plug connector shall be hand tightened only.
- The metal enclosure of the Antenna Bushing H337 shall be securely connected to local earth, typically via the enclosure to which it is connected.



Annex E

This Annex is applicable for flowmeters type Proline Teqwave M 300/500

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IECEX Certificate of Conformity
Certificate No.: IECEx CSA 16.0034X Issue 10
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1. Description

The Proline Teqwave M 300/500 flowmeters are available in two versions, a compact version (Proline 300) and a remote version (Proline 500). The Proline 500 remote version is available as a version with ISEM electronic in sensor only (i.e. Proline 500 Digital) where the sensor is connected by a digital circuit to the transmitter with additional electronics located at the sensor for assessment of the sensor signals.

The Proline Teqwave M 300/500 flowmeters consist of various components, including electronics, enclosures with factory-assembled cable entry devices (e.g. blanking elements and thread adapters), sensors, antenna bushing, and displays. Each component has been tested and certified separately as an Ex component, with the objective to ensure its suitability for integration within the intended Proline 300/500 end product application.

The Proline Teqwave M 300 can be paired with an additional Remote Display, type DKX001 or ODKX001, which is certified separately as Ex equipment. The Remote display can be ordered as a separate equipment or as part of the flowmeter.

The Proline Teqwave M 300/500 flowmeters are available with one power supply option: DC 19.2...28.8 V / AC 85...264 V. Electronics are designed to provide intrinsically safe IO's (Ex ic for EPL Gc / Zone 2) or with non-intrinsically safe IO's. A combination of intrinsically safe and non-intrinsically safe IO's is not allowed.

The Proline Teqwave M 300/500 flowmeters are available for an ambient temperature range from -20°C to +60°C and for used in a medium (process) temperature range from 0 to +80°C. These temperature ranges are limited by various parameters including, but not limited to, models, sensor types, maximum assigned surface temperature, operating temperature range of the components, sealing materials and liner materials. Refer to Control drawings "Thermal Parameters" as applicable to each model.

The Proline Teqwave M 300/500 flowmeter are rated IP54 (gas) and IP6X (dust) according to the requirements of IEC 60079-0. They also meet the requirements of IP66, IP67 according to IEC 60529.

The Proline Teqwave M 300/500 flowmeters are equipped with factory-mounted metallic thread adapter and/or thread blanking elements. These thread adapters and thread blanking elements have been evaluated as part of the certification for the complete Proline Teqwave M 300/500 flowmeters.



2. Order Code

2.1. Proline Teqwave M 300/500

Extended order code Proline Teqwave M 300:

- | | |
|---|---------------------------------|
| 4a3bcc – ddeffghjlpstttww + ### | |
| O4a3bcc – ddeffghjlpstttwwyy + ### | for OEM-version |
| 4x3bxx – ddeffghjlpww + ### | for replacement transmitter |
| O4x3bxx – ddeffghjlpwwyy + ### | for replacement transmitter OEM |

Extended order code Proline Teqwave M 500:

- | | |
|--|---------------------------------|
| 4a5bcc – ddeffghjkmnopstttww + ### | |
| O4a5bcc – ddeffghjkmnopstttwwyy + ### | for OEM-version |
| 4x5bxx – ddeffghjkmopww + ### | for replacement transmitter |
| O4x5bxx – ddeffghjkmopwwyy + ### | for replacement transmitter OEM |

- a = Type of sensor**
W = Teqwave MW
- b = Generation**
B = Generation of Flowmeter
- cc = Size**
any combination of number and/or letter up to size = DN300
- dd = Approval**
Proline Teqwave M 300:
 BS = Ex ec IIC T5...T1 Gc

- Proline Teqwave M 500:
 BL = non-Ex (transmitter)
 Ex ec IIC T6...T1 Gc (sensor)
 BS = Ex ec IIC T5...T4 Gc (transmitter)
 Ex ec IIC T6...T1 Gc (sensor)
- e = Power Supply**
 I = 100-230Vac / 24Vdc
 X = sensor only



ff = Input / Output 1

- BA = 4-20mA HART
- BB = 4-20mA WHART
- CA = 4-20mA HART Ex i (passive)
- CB = 4-20mA WHART Ex i (passive)
- CC = 4-20mA HART Ex i (active)
- CD = 4-20mA WHART Ex i (active)
- GA = Profibus PA
- HA = Profibus PA Ex i
- LA = Profibus DP
- MA = Modbus RS485
- MB = Modbus TCP
- MC = Modbus TCP Ex i
- NA = EtherNet/IP
- RA = Profinet IO
- RB = Profinet
- RC = Profinet Ex i
- SA = Foundation Fieldbus
- TA = Foundation Fieldbus Ex i
- XX = sensor only

g = Input / Output 2

- A = without Input/Output 2
- B = 4-20mA
- C = 4-20mA Ex i (passive)
- D = Configurable IO
- E = Pulse/Frequency/Switch output
- F = Pulse output phase-shifted
- G = Pulse/Frequency/Switch output Ex i
- H = Relay
- I = 4-20mA input
- J = Status input
- K = Pulse output Ex i
- L = Pulse output
- X = sensor only

h = Input / Output 3

- A = without Input/Output 3
- B = 4-20mA
- C = 4-20mA Ex i (passive)
- D = Configurable IO
- E = Pulse/Frequency/Switch output
- F = Pulse output phase-shifted
- G = Pulse/Frequency/Switch output Ex i
- H = Relay
- I = 4-20mA input
- J = Status input
- K = Pulse output Ex i
- L = Pulse output
- X = sensor only



- i = Input / Output 4** (Proline 500 only)
 - A = without Input/Output 4
 - B = 4-20mA
 - C = 4-20mA Ex i (passive)
 - D = Configurable IO
 - E = Pulse/Frequency/Switch output
 - F = Pulse output phase-shifted
 - G = Pulse/Frequency/Switch output Ex i
 - H = Relay
 - I = 4-20mA input
 - J = Status input
 - K = Pulse output Ex i
 - L = Pulse output
 - X = sensor only
- j = Display / Operation**
 - with remote Display : O
 - without remote Display : any single number or letter except O
- k = Integrated ISEM electronic** (Proline 500 only)
 - A = sensor
- l = Housing** (Proline 300 only)
 - any single number or letter
- m = Transmitter Housing** (Proline 500 only)
 - any single number or letter
- n = Sensor Housing** (Proline 500 only)
 - any single number or letter
- o = Cable Sensor Connection** (Proline 500 only)
 - any single number or letter
- p = Cable Entry**
 - any single number or letter
- s = Design**
 - any single number or letter
- ttt = Process connection**
 - any triple digits with combination of number or letter
- ww = Device Model (two digits)** (see assignment of flowmeter to replacement transmitter)
 - A2 = product version 2
- yy = Customer version (two digits)**
 - any double digits with combination of number or letter
- ** = Option in two digits (none, two or multiple of two digits)**
 - any combination of number and/or letter
- #, + = Signs used as indicator for optional abbreviation of extended order code**

2.2. Assignment of Replacement Transmitter

The replacement transmitters are assigned to the flowmeter Proline Teqwave M 300/500 as follows:

Product flowmeters			Replacement transmitter type		
Order code	Generation code b =	Device model code ww =	Order code	Generation code b =	Device model code ww =
4W*b**-...ww, O4W*b**-...ww	B	A2	4x*bxx-...ww, O4x*bxx-...ww	B	A2

3. Parameters

3.1. Electrical Parameters

3.1.1. Power supply

Order code "Power supply" e =	Terminal No.	Values
I	1(L+/L), 2(L-/N)	U _N = DC 19.2...28.8 V / AC 85...264 V U _M = AC 250 V

3.1.2. Input/Outputs

Input/Output 1 (Note 2)			
Order code "Input/Output 1" ff =	Terminal No.	Type of protection	Values
BA, BB, MA	I/O1 (Terminal 26, 27)	Non-intrinsically safe	U _N = DC 30 V U _M = AC 250 V
LA, GA, SA	I/O1 (Terminal 26, 27)	Non-intrinsically safe	U _N = DC 32 V U _M = AC 250 V
CA, CB	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ic	U _i = 30 V I _i = 100 mA P _i = 1.25 W L _i = 0 C _i = 6 nF
CC, CD	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ic	U _o = 21.8 V I _o = 90 mA P _o = 491 mW L _o = 9 mH (IIC) / 39 mH (IIB) C _o = 600 nF (IIC) / 4000 nF (IIB) U _i = 30 V I _i = 10 mA P _i = 0.3 W C _i = 6 nF L _i = 5 μH



Input/Output 1 (Note 2)			
Order code “Input/Output 1” ff =	Terminal No.	Type of protection	Values
HA, TA	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ic	<u>Profibus PA (Fisco Field Device) / Foundation Fieldbus</u> $U_i = 32 \text{ V}$ $I_i = 570 \text{ mA}$ $P_i = 8.5 \text{ W}$ $L_i = 10 \mu\text{H}$ $C_i = 5 \text{ nF}$
MB, RB	I/O1 (Terminal 26, 27)	Non-intrinsically safe	<u>APL port profile SLAX / SPE PoDL classes 10, 11, 12</u> $U_N = \text{AC } 3.3 \text{ V}$ $U_M = \text{AC } 250 \text{ V}$
MC, RC	I/O1 (Terminal 26, 27)	Intrinsically safe Ex ic	(Note 1) <u>2-WISE power load</u> <u>APL port profile SLAC</u> $U_i = 17.5 \text{ V}$ $I_i = 380 \text{ mA}$ $P_i = 5.32 \text{ W}$ $L_i = 10 \mu\text{H}$ $C_i = 5 \text{ nF}$
NA, RA	I/O1 (Port 1 (RJ45))	Non-intrinsically safe	$U_N = \text{AC } 3.3 \text{ V}$ $U_M = \text{AC } 250 \text{ V}$

Input/Output 2 (Note 2)			
Order code “Input/Output 2” g =	Terminal No.	Type of protection	Values
C, G, K	I/O2 (Terminal 24, 25)	Intrinsically safe Ex ic	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 1.25 \text{ W}$ $L_i = 0$ $C_i = 0$
B, D, E, F, I, J, L	I/O2 (Terminal 24, 25)	Non-intrinsically safe	$U_N = \text{DC } 30 \text{ V}$ $U_M = \text{AC } 250 \text{ V}$
H	I/O2 (Terminal 24, 25)	Non-intrinsically safe	$U_N = \text{DC } 30 \text{ V}$ $I_N = \text{DC } 100 \text{ mA} / \text{AC } 500 \text{ mA}$ $U_M = \text{AC } 250 \text{ V}$



Input/Output 3 (Note 2)			
Order code “Input/Output 3” h =	Terminal No.	Type of protection	Values
C, G, K	I/O3 (Terminal 22, 23)	Intrinsically safe Ex ic	U _i = 30 V I _i = 100 mA P _i = 1.25 W L _i = 0 C _i = 0
B, D, E, F, I, J, L	I/O3 (Terminal 22, 23)	Non-intrinsically safe	U _N = DC 30 V U _M = AC 250 V
H	I/O3 (Terminal 22, 23)	Non-intrinsically safe	U _N = DC 30 V I _N = DC 100 mA / AC 500 mA U _M = AC 250 V

Input/Output 4 (Note 2) (for Proline 500 only)			
Order code “Input/Output 4” i =	Terminal No.	Type of protection	Values
C, G, K	I/O4 (Terminal 20, 21)	Intrinsically safe Ex ic	U _i = 30 V I _i = 100 mA P _i = 1.25 W L _i = 0 C _i = 0
B, D, E, F, I, J, L	I/O4 (Terminal 20, 21)	Non-intrinsically safe	U _N = DC 30 V U _M = AC 250 V
H	I/O4 (Terminal 20, 21)	Non-intrinsically safe	U _N = DC 30 V I _N = DC 100 mA / AC 500 mA U _M = AC 250 V

(1) no additional internal capacitances are effective to the output value (refer to note 1 of drawing “Ethernet-APL Installation Drawing - Device Vendors v1.0, March 8th 2022”).

(2) it is not permitted to combine a non-intrinsically safe I/Os with intrinsically safe I/Os between I/O1, I/O2, I/O3, and I/O4 within the same system or device.

3.1.3. Service interface / Port 2 (RJ45)

Order code “Approval” dd =	Terminal No.	Type of protection	Values
BS, BL	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	U _N = AC 3.3 V U _M = AC 250 V

3.1.4. Output for external antenna (via Antenna Bushing)

Order code “Approval” dd =	Terminal No.	Type of protection	Values
BL, BS	Type N connector	Non-intrinsically safe	See conditions of certification



3.1.5. Output for Remote Display DKX001 or ODKX001

Order code "Approval" dd =	Terminal No.	Type of protection	Values
BS	81, 82, 83, 84	Non-intrinsically safe	U _N = 3.3 V I _N = 150 mA
BL	Remote Display type DKX001 or ODKX001 is not intended to be connected to the Proline Teqwave M 300		

3.1.6. Sensor circuits for Proline Teqwave M 500 Digital (ISEM in sensor)

Order code "Approval" dd =	Terminal no.	Type of protection	Values
BL, BS	Transmitter terminal board (in the sensor connection compartment of transmitter):		
	61, 62	Non-intrinsically safe	U _N = 32 V
	63, 64	Non-intrinsically safe	U _N = 3.3 V
	Sensor terminal board (in the sensor terminal enclosure):		
	61, 62	Non-intrinsically safe	U _N = 32 V (amplifier supply)
	63, 64	Non-intrinsically safe	U _N = 3.3 V (sensor supply)



3.2. Thermal Parameters (Zone 2)

1. Proline Teqwave M 300

Notes: The chapter 1 applies to Proline Teqwave M 300 versions with extended order code covering:

4*3B** – dd...	(flowmeter)
O4*3B** – dd ...	(flowmeter OEM version)
4x3Bxx – dd...	(replacement transmitter)
O4x3Bxx – dd...	(replacement transmitter OEM)
with "Approval"	dd = CS, CZ (cCSAus / CSA)
	dd = BS (IECEx / ATEX)

1.1. Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, this range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

1.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

1.3. Proline Teqwave M 300 without thermal insulation or with thermal insulation in accordance with E+H's specifications

Note: for thermal insulation specifications, refer to Endress+Hauser's manuals.

Temperature class vs. Max. ambient temperature ($T_{a,max}$) and Max. permitted medium temperature ($T_{m,max,permitted}$)										
Size / DN	Medium range T_m ⁽¹⁾		Ambient range T_a ⁽¹⁾		$T_{m,max,permitted}$ (°C)					
	min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
50...300	0	80	-20°C	50	---	80	80	80	80	80
				55	---	70	80	80	80	80
				60	---	60	80	80	80	80

Notes: (1) Applicable temperature range may be further limited (see the nameplate on the sensor housing).

<p>Endress+Hauser People for Process Automation</p> <p>Endress+Hauser Flow Kägenstrasse 7, 4153 Reinach, Basel-Landschaft, Switzerland</p>	Control Drawing - IECEx, ATEX, CSA, cCSAus	Document No.:	FES0422
	Proline Teqwave M 300/500	Rev.:	B
	Thermal Parameter	Date:	15.04.2025
	EPL Gc (Zone 2); Class I Division 2; Class I Zone 2	Page:	1/2

2. Proline Teqwave M 500 Digital (with ISEM electronics in sensor, order code "ISEM electronic" k = A)

Notes: The chapter 2 applies to Proline Teqwave M 500 Digital versions with extended order code covering:

4*5B** – dd*****A... (flowmeter)
 O4*5B** – dd*****A ... (flowmeter OEM version)
 4x5Bxx – dd*****A ... (replacement transmitter)
 O4x5Bxx – dd*****A ... (replacement transmitter OEM)
 with "Approval" dd = CS, CZ (cCSAus / CSA)
 dd = BL, BS (IECEX / ATEX)

2.1. Ambient temperature range T_a

The rated ambient temperature range is indicated on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, this range may be further limited by the applied medium (process) temperature and temperature class. Refer to the temperature tables below for detailed limitations.

2.2. Medium (process) temperature range T_m

The allowable medium temperature range is specified on the device's nameplate. This range is determined by factors such as sensor type, size, flange, maximum working pressure, and selected options. Additionally, depending on the applied ambient temperature and temperature class, this range may be further limited. Refer to the temperature tables below for detailed limitations.

2.3. Proline Teqwave M 500 Digital without thermal insulation or with thermal insulation in accordance with E+H's specifications

Note: for thermal insulation specifications, refer to Endress+Hauser's manuals.

Transmitter temperature class vs. Maximum ambient temperature ($T_{a, max}$)				
Transmitter	Type of enclosure	$T_{a, min}$ (°C)	$T_{a, max}$ (°C)	Temperature class
Proline Teqwave M 500 Digital	Aluminium or Plastic	-50 / -40 ⁽¹⁾	60	T4 (135°C)
			45	T5 (100°C)

Notes: (1) $T_{a, min}$ = -50°C for aluminium enclosure, $T_{a, min}$ = -40°C for plastic enclosure.
 For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BL):
 $T_{a, max}$ = 60°C. Applicable ambient temperature range may be further limited (see the nameplate on the transmitter housing).

Sensor temperature class vs. Max. ambient temperature ($T_{a, max}$) & Max. permitted medium temperature ($T_{m, max}$ permitted)											
Size / DN	Medium range T_m ⁽¹⁾		Ambient range T_a ⁽¹⁾		$T_{m, max}$ permitted (°C)						
	min. (°C)	max. (°C)	min. (°C)	max. (°C)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (300°C)	T1 (450°C)	
50...300	0	80	-20°C	40	55	80	80	80	80	80	
				45	50	80	80	80	80	80	80
				60	---	80	80	80	80	80	80

Notes: (1) Applicable temperature range may be further limited (see the nameplate on the sensor housing).



4. Marking

4.1. Proline Teqwave M 300

Order Code: 4*3*** – dd*ff*****+## O4*3*** – dd*ff*****+##			Information: Marking of protection representative for ...
Approval dd =	I/O1 ff =	Marking of Ex protection	
BS	CA, CB, CC, CD, HA, TA, MC, RC	Ex ec nC [ic] IIC T5...T1 Gc	ec -> transmitter enclosure, sensor, electronic, display, antenna bushing
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex ec nC IIC T5...T1 Gc	nC -> electronic [ic] -> electronic input/output Ex ic

4.2. Proline Teqwave M 500 (ISEM integrated in sensor)

Order Code: 4*5*** – dd*ff****A*****+## O4*5*** – dd*ff****A*****+##				Information: Marking of protection representative for ...
Approval dd =	I/O1 ff =	Parts of Device	Marking of Ex protection	
BL	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	n.a. (non-Ex)	ec -> sensor, sensor terminal enclosure, electronic
		Sensor	Ex ec IIC T6...T1 Gc	Note: I/O signals from the transmitter are non-IS
BS	CA, CB, CC, CD, HA, TA, MC, RC	Transmitter	Ex ec nC [ic] IIC T5...T4 Gc	ec -> transmitter enclosure, sensor, sensor terminal enclosure, electronic, display, antenna bushing
		Sensor	Ex ec IIC T6...T1 Gc	nC -> electronic
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	Ex ec nC IIC T5...T4 Gc	[ic] -> electronic with input/output Ex ic
		Sensor	Ex ec IIC T6...T1 Gc	[Ex ic] -> electronic with input/output Ex ic



5. Conditions of Certification

- All equipment of the measurement system shall be included in the equipotential bonding. Along the intrinsically safe sensor circuits potential equalization must exist.
- The sensors may only be used for those process media, for which the wetted parts are known to be suitable.
- For the Proline Teqwave M 500 Digital flowmeters, which use a flat gasket within the sensor terminal enclosure, the end user shall ensure that the flat cover seals are not bent before securing the cover. Any seals that are not flat or are damaged shall be replaced prior to reassembly.
- If the Proline Teqwave M 300 flowmeter is connected to a Remote Display type DKX001 or ODKX001, the order code "Approval dd" of the flowmeter shall be paired to the order code "Approval bb" of the Remote Display as follows:

Proline Teqwave 300 with order code "Approval dd" =	Remote Display DKX001 or ODKX001 (as covered by IECEX DEK 15.0024) with order code "Approval bb" =
BS	BS

- The equipment may have non-conductive surfaces which are a potential electrostatic charging hazard – see instructions for guidance.
- Parallel operation of I/O1 (Terminal 26, 27 or Port 1 (RJ45)) and Service Interface (CDI) / Port 2 (RJ45) is not permitted in hazardous locations.

Applicable to Antenna bushing H337 when used with Proline 300/500 transmitter enclosure:

- Antenna supplied by Endress+Hauser shall be used only. As an alternate, any passive omni-directional RF antenna with or without cable is permitted to be connected when meeting the following parameters:
 - a) The antenna shall have an impedance of at least 50 Ω
 - b) The rated frequency range of the antenna shall not exceed 1710 MHz ... 6000 MHz
 - c) The RF antenna or the RF antenna cable shall be fitted with a Type N connector plug (MIL-STD-348)
- The antenna bushing type H337 shall be mounted wrench tight to the transmitter enclosure to maintain the ingress protection of the enclosure.
- The coupling nut of the Type N plug connector shall be hand tightened only
- The metal enclosure of the Antenna Bushing H337 shall be securely connected to local earth, typically via the enclosure to which it is connected