1 # EU-TYPE EXAMINATION CERTIFICATE

2 Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014

3 EU-Type Examination Certificate Number: **Sira 16ATEX2219X** Issue: **10**

4 Equipment: **Proline Promass 300/500, Proline Cubemass 300/500 and Proline Promag 300/500**

5 Manufacturer: **Endress+Hauser Flowtec AG**

6 Address:
Endress+Hauser Flowtec AG Kägenstrasse 7, CH-4153, Reinach BL, Switzerland
Endress+Hauser Flow France S.A.S.U, 35 rue de l'Europe, 68700 Cernay, France
Endress+Hauser Flowtec (India) Pvt. Ltd., M-171-176, MIDC, Waluj, Chhatrapati Sambhajinagar, 431136, India
Endress+Hauser Flow USA Inc., 2330 Endress Place, Greenwood, Indiana 46143, USA
Endress+Hauser Flowtec (China) Co. Ltd., China-Singapore Industrial Park (SIP), Su-Hong-Zhong-Lu No. 465, Suzhou 215021, China
Endress+Hauser Flowtec (China) Co. Ltd., Suzhou Industrial Park (SIP), Jiang-Tian-Li-Lu No. 31, Suzhou 215021, China
Endress+Hauser Flowtec (Brasil) Fluxômetros Ltda., Estrada Municipal Antonio Sesti, 600-A Recreio Costa Verde, Itatiba SP-13254-085, Brazil

7 This product and any acceptable variation thereto, is specified in the schedule to this certificate and the documents therein referred to.

8 CSA Group Netherlands B.V., Notified Body No. 2813 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in item 16.2.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018	EN 60079-1:2014	EN IEC 60079-7:2015+A1:2018	EN 60079-11:2012
EN 60079-26:2015	EN 60079-31:2014	IEC TS 60079:47:2021	

Where additional criteria beyond those given here have been used, they are listed in item 18 in the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the "Specific Conditions of Use" listed in item 17 of this certificate.

11 This EU-Type Examination Certificate relates only to the technical design of the specified product in accordance with the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product, these are not covered by this certificate.

12 The marking of the product shall include the following (additional marking is provided in the Schedule as a part of item 15, if applicable):

See annexe

Signed: M Halliwell
Title: Senior Director of Operations
Date 06 January 2026

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SCHEDULE

EU-Type Examination Certificate Number: **Sira 16ATEX2219X** Issue: **10**

Description:

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 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) electronics 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 this certificate), is changed to "Proline 500".

- Proline 500 Digital: a version with ISEM electronics 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)

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°C/-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 EN IEC 60079-0. The devices also meet the requirements of IP66, IP67, IP68 (optional) according to EN/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.

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 Proline Cubemass 300	BA, BB, BC, BD	FES0258	FES0263	FES0259
Proline Promass 500 Proline Cubemass 500	BA, BB, BC, BD			
Proline Promass 500 Digital Proline Cubemass 500 Digital	BI, BJ, BM, BN			
Proline Promag 300	BB, BD	FES0256	FES0260	
Proline Promag 500	BB, BD, B7, B8			
Proline Promag 500 Digital	BJ, BN			
Proline Prosonic Flow G 300	BB, BD	FES0256	FES0321	
Proline Prosonic Flow G 500 Digital	BJ, BN			
Proline Prosonic Flow P 500	BB, BD		FES0351	
Proline t-mass 300	BB, BD	FES0258	FES0331	
Proline t-mass 500 Digital	BJ, BN			

Variation 1 - This variation introduced the following changes:

i. Minor changes to product order codes of Promag W500.
ii. Minor corrections to product markings.
iii. Introduction of remote display as part of the flowmeter.
iv. Minor corrections to the product drawings

Variation 2 - This variation introduced the following changes:

i. The addition of model code for replacement transmitter OEM version and new assignment table of replacement transmitter to product of flowmeter.
ii. The addition of a new, certified sensor" Promass A" sensor with changes to model code.
iii. Update in the ambient temperature reduced optionally to -60°C for sensors of Promass F/Q/X 500 with code for integrated ISEM electronic k = "B" as described in the technical description document
iv. All the corresponding drawings were updated to recognise minor administrative amendments.
v. The introduction of the Proline Promass 300/500 and Proline Cubemass 300/500 flowmeters. These devices were previously covered by certificate Sira 16ATEX2177X using EN 60079-26:2015 as an assessment standard; therefore, this document needs to be recognised in the list of supporting documents. (Note: As a result of this change, Sira 16ATEX2177X is no longer required and will

therefore be suspended.) Previously, EN 60079-15 was specified as a supporting document, this was an error and therefore this standard was removed.

Variation 3 – This variation introduced the following changes:

i. The recognition of minor drawings amendments, none of which affect compliance with the applicable standards.
ii. Minor correction of ATEX marking nameplate to separate the ATEX markings from IECEx.

Variation 4 – This variation introduced the following changes:

i. Introduction of new model version Proline Prosonic Flow G 300/500
ii. Introduction of new model version Proline t-mass 300/500
iii. Introduction of new Antenna bushing model H337 for external antenna connection with the Proline 300/500 transmitter
iv. Addition of new order codes for IO1 current output (active) with I/O code dd = "CC" and "CD"
v. 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 non Ex i
vi. Addition of new product order codes to include for Promag W300 and Promag W500
vii. Revised standard IEC 60079-0, Edition 6 to IEC60079-0, Edition 7.0
viii. The recognition of drawings amendments, none of which affect compliance with the applicable standards

Variation 5 – This variation introduced the following changes:

i. Addition of product order code "ww = A2" for model Proline Promag 300/500, Proline Prosonic 300/500 and Proline t-mass 300/500. See Certificate Annexe for order code details
ii. Correction of entity parameter for IO1 order codes: CA, CB (Ci= 0, changed to Ci =6nF) in the applicable drawings
iii. The recognition of drawings amendments, none of which affect compliance with the applicable standards.

Variation 6 – This variation introduced the following changes:

i. Changes in nomenclature ("Digital" is now referred as ISEM integrated in sensor, "Analog" is now referred to as ISEM integrated in transmitter)
ii. Introduction of new flange sizes for Proline Promass 300/500 for High Temperature (HT) flowmeters.
iii. Update of related product documentation
iv. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2012/A11:2013 was replaced by EN IEC 60079-0:2018.
v. The description was amended to reflect the above changes
vi. Addition of two manufacturing locations in China as shown on TÜV QAN, TÜV 98 ATEX 1348Q

Variation 7 – This variation introduced the following changes:

i. Introduction of additional sensor sizes DN150/200/250 for Proline Promass Q
ii. Introduction of additional sensor type CH-050-A, CH-100-A for Proline Prosonic Flow P500 with process temperature up to 435°C
iii. Introduction of additional IO's with IO-1 order code ff = MB, MC for Modbus and ff = RB, RC for Profinet
iv. Revision to order codes for Proline Prosonic Flow G300/500 and P500 replacement transmitter
v. Introduction of new type of liner ETFE for Proline Promag sensors
vi. Proline Promag P500/W500, when used with sensor enclosure G300, is now available with rating IP68 in addition to IP67
vii. Update of related product documentation

viii. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-7:2015 is replaced by EN IEC 60079-7:2015/A1:2018.
ix. Introduction of new technical specification standard IEC TS 60079-47 for 2-WISE concept, with technical assessment based on the compliance requirements of intrinsic safety standard EN 60079-11:2012

Variation 8 – This variation introduced the following changes:

i. Correction to product order code and marking of Proline Promag 500 and Proline Prosonic Flow 500
ii. Update references of component certificates as applicable.
iii. Introduction of additional combination of existing certified enclosures for Proline Promag 300, Proline Promag 500, Proline Promass 500, Proline Flow G 500 and Proline t-mass 500.
iv. 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.
v. Introduction of additional sensor size DN15 for Promag W.
vi. Revision of technical documentation for the above changes.

Variation 9 – This variation introduced the following changes:

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

16 Drawings and documents:

16.1 Technical documents:

Refer to Certificate Annex.

16.2 Associated reports and certificate history:

Issue	Date	Report number	Comment
0	19 July 2016	R70084415A	The release of the prime certificate.
1	23 February 2017	R70110427A	The introduction of Variation 1.
2	26 September 2017	R70140398A	The introduction of Variation 2.
3	12 January 2018	R70162908A	The introduction of Variation 3
4	25 March 2019	R70214610A	The introduction of Variation 4
5	23 August 2019	R80012315A	The introduction of Variation 5
6	15 October 2019	0626	Transfer of certificate Sira 16ATEX2219X from Sira Certification Service to CSA Group Netherlands B.V.
7	11 August 2020	R80036352A	The introduction of Variation 6.
8	18 May 2022	R80114022A	The introduction of Variation 7.
9	17 October 2023	R80174205A	The introduction of Variation 8.
10	06 January 2026	R80267438A	The introduction of Variation 9.

17 **Specific conditions of use** (denoted by "X" after the certificate number):

Applicable to Proline Promag 300/500, Proline Promass 300/500 and Proline Cubemass 300/500, Proline Prosonic Flow G 300/500, Proline Prosonic Flow P 500 and Proline t-mass 300/500:

17.1 All equipment of the measurement system shall be included in the equipotential bonding. Along the intrinsically safe sensor circuits potential equalization must exist.

17.2 The sensors may only be used for those process media, for which the wetted parts are known to be suitable.

17.3 For the Proline 500 (ISEM in transmitter) and Proline 500 Digital (ISEM in sensor) 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.

17.4 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, Proline Promag 300, Proline Prosonic Flow G 300 and Proline t-mass 300 with order code "Approval dd" =	Remote Display DKX001 or ODKX001 (as covered by IECEx DEK 15.0024) with order code "Approval bb" =
BA, BB, BC, BD, B7 or B8	BE, BF or BG

17.5 The equipment has non-conductive surfaces which are a potential electrostatic charging hazard - see instructions for guidance.

17.6 Only use battery Renata type lithium CR1632, 3V.

17.7 The flameproof joints are not intended to be repaired.

17.8 For Proline Promass 300/500 and Proline Cubemass 300/500 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.

17.9 For Proline t-mass 300/500 with order code "Approval dd" = BB, BD, BJ & 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.

17.10 For the Proline 300 and Proline 500 (ISEM in transmitter) flowmeters with order code "Approval dd" = BA, 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.

17.11 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:

17.12 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 50Ω
b) The rated frequency range of the antenna shall not exceed 1710MHz ... 6000MHz
c) The RF antenna or the RF antenna cable shall be fitted with a Type N connector plug (MIL-STD-348)

17.13 The antenna bushing type H337 shall be mounted wrench tight to the transmitter enclosure to maintain the ingress protection of the enclosure.

17.14 The coupling nut of the Type N plug connector shall be hand tightened only.

17.15 The metal enclosure of the Antenna Bushing H337 shall be securely connected to local earth, typically via the enclosure to which it is connected.

18 **Essential health and safety requirements of Annex II** (EHSRs):

The relevant EHSRs that are not addressed by the standards listed in item 9 of this certificate have been identified and conformity of the product demonstrated in the reports listed in item 16.2.

19 **Remarks and additional information:**

The use of this certificate is subject to the regulations applicable to holders of CSA Group Netherlands B.V. certificates.

Compliance of the product with the applicable safety requirements of the relevant industrial standards has not been verified and is not covered by this certificate.

19.1 **Conditions of manufacture:**

19.1.1 The Proline 300/500 final product shall be subjected to a dielectric test according to industrial standard requirements.

Certificate Annexe

Document History

Issue 0: See Cover Sheet of IECEx Test Report CA/CSA/ExTR16.0031/00 for a full list of drawings covered by this issue.

Issue 1: See Cover Sheet of IECEx Test Report CA/CSA/ExTR16.0031/01 for a full list of drawings covered by this issue.

Issue 2: See Cover Sheet of IECEx Test Report CA/CSA/ExTR16.0031/02 for a full list of drawings covered by this issue. These drawings were rationalised and supersede those detailed in Issues 0 and 1

Issue 3: See Cover Sheet of IECEx Test Report CA/CSA/ExTR16.0031/03 for a full list of drawings covered by this issue. These drawings were rationalised and supersede those detailed in Issue 2 and earlier.

Issue 4: See Cover Sheet of IECEx Test Report CA/CSA/ExTR16.0031/04 for a full list of drawings covered by this issue. These drawings were rationalised and supersede those detailed in Issue 3 and earlier.

Issue 5: See Cover Sheet of IECEx Test Report CA/CSA/ExTR16.0031/05 for a full list of drawings covered by this issue. These drawings were rationalised and supersede those detailed in Issue 4 and earlier.

Issue 6: No new drawings were introduced.

Issue 7: See Cover Sheet of IECEx Test Report CA/CSA/ExTR16.0031/06 for a full list of drawings covered by this issue. These drawings were rationalised and supersede those detailed in Issue 5 and earlier.

Issue 8: See Cover Sheet of IECEx Test Report CA/CSA/ExTR16.0031/08 for a full list of drawings covered by this issue. These drawings were rationalised and supersede those detailed in Issue 7 and earlier.

Issue – 9

Documents Introduced or Revised

Drawing	Sheets	Rev.	Date (Stamp)	Title
323518-0001ZAA	1 of 1	A	10 Oct 23	Assembly Drawing Promass sensors
323577-0000ZAD	1 to 2	D	10 Oct 23	Nameplate sensor Promass A,F,H,I,O,P,Q,S,X 500 analog/digital
323578-0000ZAD	1 to 2	D	10 Oct 23	Nameplate sensor Promass E 500 analog/digital
323579-0000ZAE	1 to 2	E	10 Oct 23	Nameplate sensor Cubemass sensor C 500 analog/digital
340884-0002ZHA	1 of 1	A	10 Oct 23	Assembly Drawing Connection Board L319 Ex Promag
340884-0003ZAA	1 of 1	A	10 Oct 23	Assembly Drawing Housing G350
340950-0000ZFA	1 of 1	A	10 Oct 23	Assembly Drawing Connector PL3 Promag
340950-0001ZFA	1 of 1	A	10 Oct 23	Socket housing 14Pin PL3 Promag
341017-0000ZEA	1 of 1	A	10 Oct 23	Assembly Drawing Connection Board L339
341211-0002ZAA	1 of 1	A	10 Oct 23	Assembly Drawing L308 Ex Promag
341475-0000ZAC	1 of 1	C	10 Oct 23	Assembly Drawing Connection Board L312
341541-0001ZAA	1 of 1	A	10 Oct 23	Assembly Drawing extended sensor neck Promag
341541-1000ZBB	1 of 1	B	10 Oct 23	Assembly Drawing Promag W/P Class I Division 1
341561-0001ZAA	1 of 1	A	10 Oct 23	Assembly Drawing transmitter G320 500 analog Alu Ex d

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Drawing	Sheets	Rev.	Date (Stamp)	Title
341562-0001ZAA	1 of 1	A	10 Oct 23	Assembly Drawing transmitter G321 500 analog SS Ex d
341568-0001ZAA	1 of 1	A	10 Oct 23	Assembly Drawing Promag H G04
341568-0002ZAA	1 of 1	A	10 Oct 23	Assembly Drawing Connection Board L349 Ex
341594-0000ZAD	1 to 2	D	10 Oct 23	Nameplate sensor Promag H 500 analog/digital
341595-0000ZAE	1 to 2	E	10 Oct 23	Nameplate sensor Promag P, W 500 analog/digital
370168-0001ZAA	1 of 1	A	10 Oct 23	Nameplate sensor Prosonic Flow P ATEX/IECEx
380308-0000ZAA	1 of 1	A	10 Oct 23	Nameplate sensor t-mass 300/500 digital
961001814-E	1 to 8	E	10 Oct 23	Assembly Drawing Sensor PL3 500 digital / analog
961001825-B	1 to 2	B	10 Oct 23	Assembly Drawing Transmitter enclosure G306
961002020-F	1 to 2	F	10 Oct 23	Assembly Drawing Transmitter PL3 300 enclosure G304
961002023-D	1 to 2	D	10 Oct 23	Assembly Drawing Transmitter enclosure G305/G307
961002082-B	1 to 2	B	10 Oct 23	Assembly Transmitter Aluminium Enclosure G324
961002895-A	1 of 1	A	10 Oct 23	Assembly Drawing Prosonic Flow G sensor
961003164-A	1 of 1	A	10 Oct 23	Assembly Drawing t-mass 300/500
961004078-A	1 of 1	A	10 Oct 23	Assembly Drawing Prosonic Flow P sensors
961004082-A	1 of 1	A	10 Oct 23	Assembly Drawing transmitter terminal box Prosonic Flow P500
961005648-A	1 of 1	A	10 Oct 23	Enclosure G300 IP68 / Type 6P
FEK3682-0003ZAE	1 of 1	E	10 Oct 23	Addendum to name plate DKX001
FEK3730-0001ZAH	1 to 4	H	10 Oct 23	Nameplate Electronic Proline 300 / 500 analog
FEK3731-0001ZAI	1 to 2	I	10 Oct 23	Nameplate Electronic Proline 500 digital
FEK3969-0000ZAB	1 of 1	B	10 Oct 23	Nameplate sensor Prosonic Flow G digital
FEK4020-0000ZAA	1 of 1	A	10 Oct 23	Warning label electrostatic
FES0256F	1 to 4	F	10 Oct 23	Installation Drawing IECEx / ATEX, Zone 1, 2, 21, General Requirements Proline Promag 300/500 and Proline Prosonic Flow 300/500
FES0257A	1 to 6	A	10 Oct 23	Temperature assessment Promag 300/500
FES0258F	1 to 3	F	10 Oct 23	Installation Drawing IECEx / ATEX, Zone 1, 2, 21, General Requirements Proline Promass 300/500, Proline t-mass 300/500 and Proline Teqwave M 300/500
FES0259F	1 to 3	F	10 Oct 23	Control Drawing CSA, IECEx, ATEX Electrical Parameter Transmitter Proline 300/500
FES0260F	1 to 3	F	10 Oct 23	Control Drawing CSA, IECEx, ATEX Zone1, Zone 21, Cl.I Div. 1, Cl. I Zone 1 Thermal Parameters Proline Promag 300/500
FES0262C	1 to 30	C	10 Oct 23	Temperature assessment for Proline Promass 300/500
FES0263G	1 to 6	G	10 Oct 23	Control Drawing CSA, IECEx, ATEX Zone 1, Zone 21, Cl.I Div. 1, Cl. I Zone 1

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Drawing	Sheets	Rev.	Date (Stamp)	Title
				Thermal Parameters Proline Promass/Cubemass 300/500
FES0321A	1 to 2	A	10 Oct 23	Control Drawing CSA, IECEx, ATEX Zone 1, Zone 21, Cl.I Div. 1, Cl. I Zone 1 Thermal Parameters Proline Prosonic G 300/500
FES0324A	1 to 4	A	10 Oct 23	Temperature assessment Prosonic Flow 300/500
FES0331A	1 to 2	A	10 Oct 23	Control Drawing CSA, IECEx, ATEX Zone 1, Zone 21, Cl.I Div. 1, Cl. I Zone 1 Thermal Parameters Proline t-mass 300/500
FES0333A	1 to 4	A	10 Oct 23	Temperature assessment t-mass 300/500
FES0351C	1 of 1	C	10 Oct 23	Control Drawing CSA, IECEx, ATEX Zone 1, Zone 21, Cl.I Div. 1, Cl. I Zone 1 Thermal Parameters Proline Prosonic P 500

Issue – 10

Documents Introduced or Revised

Drawing	Sheets	Rev.	Date (Stamp)	Title
323518-0001ZAA	1 of 1	A	10 Dec 25	ADW assembly part Promass sensors
323577-0000ZAE	1 to 2	E	10 Dec 25	Nameplate sensor Promass A,F,H,I,O,P,S,X 500 analog, digital
323578-0000ZAE	1 to 2	E	10 Dec 25	Nameplate sensor layout Promass E 500 analog, digital
323579-0000ZAF	1 to 2	F	10 Dec 25	Nameplate sensor Cubemass sensor C 500 analog, digital
340884-0002ZHA	1 of 1	A	10 Dec 25	Assembly housing G350 Connection Board L319 Ex
340884-0003ZAA	1 of 1	A	10 Dec 25	Assembly housing G350
340950-0001ZFA	1 of 1	A	10 Dec 25	ADW connector PL3 Promag Socket housing
340950-0000ZFA	1 of 1	A	10 Dec 25	ADW connector PL3 Promag Plug
341017-0000ZEA	1 of 1	A	10 Dec 25	Assembly drawing connection board L339
341211-0002ZAA	1 of 1	A	10 Dec 25	Assembly drawing L308 Ex
341475-0000ZAC	1 of 1	C	10 Dec 25	ADW Connection Cabletree L312
341541-0001ZAA	1 of 1	A	10 Dec 25	ADW extended sensor neck Pmag Zone1, Zone2, Division2
341541-1000ZBB	1 of 1	B	10 Dec 25	ADW Assembly Pmag W/P Class I Division 1
341561-0001ZAA	1 of 1	A	10 Dec 25	ADW ass. trans. G320 500Ana Alu Exd*
341562-0001ZAA	1 of 1	A	10 Dec 25	ADW Assy part tra. 500Ana G321SS Exd*
341568-0001ZAA	1 of 1	A	10 Dec 25	ADW Sensor Promag H G04
341568-0002ZAA	1 of 1	A	10 Dec 25	Assembly drawing L349 Ex
341594-0000ZAE	1 to 2	E	10 Dec 25	Nameplate Sensor IECEx / ATEX / cCSAus Promag H 500 analog, digital
341595-0000ZAF	1 to 2	F	10 Dec 25	Nameplate Sensor IECEx / ATEX / cCSAus Promag P, W 500 analog, digital
342598-0000ZAA	1 of 1	A	10 Dec 25	Label IP30 cover Proline 300/500
370168-0001ZAA	1 of 1	A	10 Dec 25	Nameplate sensor Prosonic Flow P ATEX/IECEx

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Drawing	Sheets	Rev.	Date (Stamp)	Title
380308-0000ZAA	1 of 1	A	10 Dec 25	Nameplate sensor IECEx / ATEX / cCSAus t-mass F,I digital
961001814	1 to 8	E	10 Dec 25	Assembly Drawing Sensor PL3 500 digital/analog
961001825	1 to 2	B	10 Dec 25	ADW Transmitter PL3 300 G306 Zone 2, Div2
961002020	1 to 2	F	10 Dec 25	ADW Transmitter PL3 300 G304 Zone 2, Div2
961002023	1 to 2	D	10 Dec 25	ADW Transmitter G305/G307Exd* Zone1, Div.1
961002082	1 to 2	B	10 Dec 25	Aluminium Enclosure Assembly Transmitter G324
961002895	1 of 1	A	10 Dec 25	ADW assembly parts Prosonic Flow G sensor
961003164	1 of 1	A	10 Dec 25	ADW assembly parts t-mass 300/500
961004078	1 of 1	A	10 Dec 25	Assembly Drawing Prosonic Flow P sensors
961004082	1 of 1	A	10 Dec 25	ADW ass. transmitter terminal box Prosonic Flow P500
961005648	1 of 1	A	10 Dec 25	Enclosure G300 IP68 / Type 6P
FEK3682-0003ZAE	1 of 1	E	10 Dec 25	Addendum to Nameplate DKX001 IECEx / ATEX / cCSAus
FEK3730-0001ZAI	1 to 4	I	10 Dec 25	Nameplate electronic IECEx/ATEX Proline 300 / 500 Analog
FEK3731-0001ZAJ	1 of 2	J	10 Dec 25	Nameplate electronic IECEx/ATEX Proline 500 Digital
FEK3969-0000ZAB	1 of 1	B	10 Dec 25	Nameplate sensor IECEx / ATEX / cCSAus Prosonic Flow G digital
FEK4020-0000ZAA	1 of 1	A	10 Dec 25	Warning label electrostatic
FES0256	1 to 5	G	10 Dec 25	Installation Drawing - IECEx / ATEX, Proline Promag 300/500, Proline Prosonic Flow 300/500, General Requirements, EPL Gb (Zone 1), EPL Gc (Zone 2), EPL Db (Zone 21)
FES0257A	1 to 6	A	10 Dec 25	Temperature assessment Promag 300/500
FES0258	1 to 5	G	10 Dec 25	Installation Drawing - IECEx / ATEX, Proline Promass 300/500, Proline Cubemass 300/500, Proline t-mass 300/500, Proline Teqwave M 300/500, General Requirements EPL Gb (Zone 1), EPL Gc (Zone 2), EPL Db (Zone 21)
FES0259	1 to 11	G	10 Dec 25	Control Drawing - IECEx, ATEX, CSA, cCSAus, Proline 300/500, Electrical Parameters, EPL Gb (Zone 1), EPL Gc (Zone 2), EPL Db (Zone 21); Cl. I Div. 1, Div. 2, Cl. I Zone 1; Zone 2, Cl. II, III, Zone 21
FES0260	1 to 9	G	10 Dec 25	Control Drawing - IECEx, ATEX, CSA, cCSAus, Proline Promag 300/500, Thermal Parameter, EPL Gb (Zone 1), EPL Db (Zone 21), Cl. I Div. 1, Div. 2, Cl. I Zone 1, Zone 2, Cl. II, III, Zone 21
FES0262C	1 to 30	C	10 Dec 25	Temperature assessment Promass 300/500
FES0263	1 to 11	H	10 Dec 25	Control Drawing - IECEx, ATEX, CSA, cCSAus, Thermal Parameter, Proline Promass 300/500, Proline Cubemass 300/500, EPL Gb (Zone 1), EPL Db (Zone 21), Cl. I Div. 1, CL. II Div. 1, Cl. III, Cl. I Zone 1, Zone 21
FES0321	1 to 3	B	10 Dec 25	Control Drawing - IECEx, ATEX, CSA, cCSAus. Proline Prosonic Flow G 300/500, Thermal Parameter, EPL Gb (Zone 1), EPL Db (Zone 21), Cl. I Div. 1, Cl. II Div. 1, Cl. III, Cl. I Zone 1, Zone 21
FES0324A	1 to 4	A	10 Dec 25	Temperature assessment Prosonic Flow 300/500

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Drawing	Sheets	Rev.	Date (Stamp)	Title
FES0331	1 to 3	B	10 Dec 25	Control Drawing - IECEx, ATEX, CSA, cCSAus, Proline t-mass 300/500, Thermal Parameter, EPL Gb (Zone 1), EPL Db (Zone 21), Cl. I Div. 1, Cl. II Div. 1, Cl. III, Cl. I Zone 1, Zone 21
FES0333A	1 to 4	A	10 Dec 25	Temperature assessment t-mass 300/500
FES0351	1 of 1	D	10 Dec 25	Control Drawing - IECEx, ATEX, CSA, cCSAus, Proline Prosonic Flow P 500, Thermal Parameter, EPL Gb (Zone 1), EPL Db (Zone 21), Cl. I Div. 1, Cl. II Div. 1, Cl. III, Cl. I Zone 1, Zone 21

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Certificate Annexe

Certificate Number: **Sira 16ATEX2219X**

Equipment: **Proline Promag 300/500, Proline Promass 300/500, Proline Cubemass 300/500, Proline Prosonic Flow 300/500, Proline t-mass 300/500**

Applicant: **Endress+Hauser Flowtec AG**

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

1.1. Marking

1.1.1. Proline Promass 300, Proline Cubemass 300

Order Code:
8*3*** – dd*ff**********+#**#
O8*3*** – dd*ff**********+#**#

Approval dd =	I/O1 ff =	ATEX marking	Marking of Ex protection	Information: Marking of protection representative for
BA	CA, CB, CC, CD, HA, TA, MC, RC	Ex II 1/2(1)G Ex II 2(1)G Ex II 2(1)D	Ex db eb ia [ia Ga] IIB T6...T1 Ga/Gb [1)] or Ex db eb ia [ia Ga] IIB T6...T1 Gb 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, sensor [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 II 1/2G Ex II 2G Ex II 2D	Ex db eb ia IIB T6...T1 Ga/Gb [1)] or Ex db eb ia IIB T6...T1 Gb Ex tb IIIC T** °C Db	
BB	CA, CB, CC, CD, HA, TA, MC, RC	Ex II 1/2(1)G Ex II 2(1)G Ex II 2(1)D	Ex db eb ia [ia Ga] IIC T6...T1 Ga/Gb [1)] or Ex db eb ia [ia Ga] IIC T6...T1 Gb Ex tb [ia Da] IIIC T** °C Db	
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex II 1/2G Ex II 2G Ex II 2D	Ex db eb ia IIC T6...T1 Ga/Gb [1)] or Ex db eb ia IIC T6...T1 Gb [1)] Ex tb IIIC T** °C Db	
BC	CA, CB, CC, CD, HA, TA, MC, RC	Ex II 1/2(1)G Ex II 2(1)G Ex II 2(1)D	Ex db ia [ia Ga] IIB T6...T1 Ga/Gb [1)] or Ex db ia [ia Ga] IIB T6...T1 Gb Ex tb [ia Da] IIIC T** °C Db	db -> electronic and terminal compartments ia -> sensor, display tb -> transmitter enclosure, sensor [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 II 1/2G Ex II 2G Ex II 2D	Ex db ia IIB T6...T1 Ga/Gb [1)] or Ex db ia IIB T6...T1 Gb Ex tb IIIC T** °C Db	
BD	CA, CB, CC, CD, HA, TA, MC, RC	Ex II 1/2(1)G Ex II 2(1)G Ex II 2(1)D	Ex db ia [ia Ga] IIC T6...T1 Ga/Gb [1)] or Ex db ia [ia Ga] IIC T6...T1 Gb Ex tb [ia Da] IIIC T** °C Db	
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	II 1/2G Ex II 2G Ex II 2D	Ex db ia IIC T6...T1 Ga/Gb [1)] or Ex db ia IIC T6...T1 Gb Ex tb IIIC T** °C Db	

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

1.1.2. 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	ATEX marking	Marking of Ex protection	Information: Marking of protection representative for
BA	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ⓔx II 2(1)G Ⓔx II 2(1)D	Ex db eb ia [ia Ga] IIB T6…T5 Gb Ex tb [ia Da] IIIC T85°C Db	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 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
		Sensor	Ⓔx II 1/2G Ⓔx II 2G Ⓔx II 2D	Ex ia IIB T6...T1 Ga/Gb [1] or Ex ia IIB T6...T1 Gb 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	Ⓔx II 2(1)G Ⓔx II 2(1)D	Ex db eb ia [ia Ga] IIC T6… T5 Gb Ex tb [ia Da] IIIC T85°C Db	
		Sensor	Ⓔx II 1/2G Ⓔx II 2G Ⓔx II 2D	Ex ia IIC T6...T1 Ga/Gb [1] or Ex ia IIC T6...T1 Gb 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	Ⓔx II 2(1)G Ⓔx II 2(1)D	Ex db ia [ia Ga] IIB T6… T5 Gb Ex tb [ia Da] IIIC T85°C Db	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
		Sensor	Ⓔx II 1/2G Ⓔx II 2G Ⓔx II 2D	Ex ia IIB T6...T1 Ga/Gb [1] or Ex ia IIB T6...T1 Gb 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	Ⓔx II 2(1)G Ⓔx II 2(1)D	Ex db ia [ia Ga] IIC T6… T5 Gb Ex tb [ia Da] IIIC T85°C Db	
		Sensor	Ⓔx II 1/2G Ⓔx II 2G II 2D	Ex ia IIC T6...T1 Ga/Gb [1] or Ex ia IIC T6...T1 Gb Ex tb IIIC T** °C Db	

1) The marking with zone separation Ga/Gb does not apply to Proline Promass/Cubemass 500 devices using the following sensors: Promass A DN1, Promass H DN8…50, Promass I DN8…80

1.1.3. 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	ATEX marking	Marking of Ex protection	Information: Marking of protection representative for
BI	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	Ⓔx II (1)G Ⓔx II (1)D	[Ex ia Ga] IIC [Ex ia Da] IIIC	[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
		Sensor	Ⓔx II 1/2G Ⓔx II 2G Ⓔx II 2D	Ex ia IIB T6...T1 Ga/Gb [1)] or Ex ia IIB T6...T1 Gb Ex tb IIIC T** °C Db	
BJ	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	Ⓔx II (1)G Ⓔx II (1)D	[Ex ia Ga] IIC [Ex ia Da] IIIC	[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
		Sensor	Ⓔx II 1/2G Ⓔx II 2G Ⓔx II 2D	Ex ia IIC T6...T1 Ga/Gb [1)] or Ex ia IIC T6...T1 Gb Ex tb IIIC T** °C Db	
BM	CA, CB, CC, CD, HA, TA, MC, RC	Transmitter	Ⓔx II (1)G Ⓔx II (1)D	[Ex ia Ga] IIC [Ex ia Da] IIIC	[Ex ia] -> electronic with output Ex ia for sensor circuit ia -> sensor tb -> sensor terminal enclosure, sensor
		Sensor	Ⓔx II 1/2G Ⓔx II 2G Ⓔx II 2D	Ex ia IIB T6...T1 Ga/Gb [1)] or Ex ia IIB T6...T1 Gb Ex tb IIIC T** °C Db	
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	Ⓔx II (1)G Ⓔx II (1)D	[Ex ia Ga] IIC [Ex ia Da] IIIC	
		Sensor	Ⓔx II 1/2G Ⓔx II 2G Ⓔx II 2D	Ex ia IIB T6...T1 Ga/Gb [1)] or Ex ia IIB T6...T1 Gb Ex tb IIIC T** °C Db	
BN	CA, CB, CC, CD, HA, TA, MC, RC	Transmitter	Ⓔx II (1)G Ⓔx II (1)D	[Ex ia Ga] IIC [Ex ia Da] IIIC	[Ex ia] -> electronic with output Ex ia for sensor circuit ia -> sensor tb -> sensor terminal enclosure, sensor
		Sensor	Ⓔx II 1/2G Ⓔx II 2G Ⓔx II 2D	Ex ia IIC T6...T1 Ga/Gb [1)] or Ex ia IIC T6...T1 Gb Ex tb IIIC T** °C Db	
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Transmitter	Ⓔx II (1)G Ⓔx II (1)D	[Ex ia Ga] IIC [Ex ia Da] IIIC	
		Sensor	Ⓔx II 1/2G Ⓔx II 2G II 2D	Ex ia IIC T6...T1 Ga/Gb [1)] or Ex ia IIC T6...T1 Gb Ex tb IIIC T** °C Db	

[1)] The marking with zone separation Ga/Gb does not applz to Proline Promass/Cubmass 500 Digital devices using the following sensors: Promass A DN1, Promass H DN8…50, Promass I DN8…80

1.2. Order Code

Extended order code Proline Promass 300 and Proline Cubemass 300:

8a3bcc – ddeffghjlpsstttvww + ##**	
O8a3bcc – ddeffghjlpsstttvwwyy + ##**	for OEM-version
8x3bxx – ddeffghjlprrssww + ##**	for replacement transmitter
O8x3bxx – ddeffghjlprrsswwyy + ##**	for replacement transmitter OEM

Extended order code Proline Promass 500 and Proline Cubemass 500:

8a5bcc – ddeffghijkmnopsstttvww + ##**	
O8a5bcc – ddeffghijkmnopsstttvwwyy + ##**	for OEM-version
8x5bxx – ddeffghijkmopqqrrssww + ##**	for replacement transmitter
O8x5bxx – ddeffghijkmopqqrrsswwyy + ##**	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

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)
	BM =	[Ex ia] IIC	(transmitter)
		Ex ia IIB T6…T1 Gb	(sensor)
		Ex tb IIIC T** Db	(sensor)
	BN =	[Ex ia] IIC	(transmitter)
		Ex ia IIC T6…T1 Gb	(sensor)
		Ex tb IIIC T** Db	(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 section 1.2 for assignment table 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 digits)** (refer to section 1.2 for assignment table 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**

1.3. Assignment of Replacement Transmitter

The replacement transmitters are assigned to the flowmeter Proline Promass 300/500 and Proline 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***b**xx-…**rr**…**ww**, O8x***b**xx-…**rr**…**ww**	B	AA (all sizes)	A1 / A2
8A***b****-…**ww**, O8A***b****-…**ww**	C	A1 / A2	8x***b**xx-…**rr**…**ww**, O8x***b**xx-…**rr**…**ww**	B	AB (all sizes)	A1 / A2
8C***b****-…**ww**, O8C***b****-…**ww**	B	A1 / A2	8x***b**xx-…**rr**…**ww**, O8x***b**xx-…**rr** …**ww**	B	CA (all sizes)	A1 / A2
8E***b****-…**ww**, O8E***b****-…**ww**	B	A1 / A2	8x***b**xx-…**rr**…**ww**, O8x***b**xx-…**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***b**xx-…**rr**…**ww**, O8x***b**xx-…**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***b**xx-…**rr**…**ww**, O8x***b**xx-…**rr**…**ww**	B	HA (DN8…40)	A1 / A2
					HB (DN50)	A1 / A2
8I***b****-…**ww**, O8I***b****-…**ww**	B	A1 / A2	8x***b**xx-…**rr**…**ww**, O8x***b**xx-…**rr**…**ww**	B	IA (DN8…40)	A1 / A2
					IB (DN40FB…80)	A1 / A2
8O***b****-…**ww**, O8O***b****-…**ww**	B	A1 / A2	8x***b**xx-…**rr**…**ww**, O8x***b**xx-…**rr**…**ww**	B	OA (all sizes)	A1 / A2
8P***b****-…**ww**, O8P***b****-…**ww**	B	A1 / A2	8x***b**xx-…**rr**…**ww**, O8x***b**xx-…**rr**…**ww**	B	PA (DN8…40)	A1 / A2
					PB (DN50)	A1 / A2
8Q***b****-…**ww**, O8Q***b****-…**ww**	B	A1 / A2	8x***b**xx-…**rr**…**ww**, O8x***b**xx-…**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***b**xx-…**rr**…**ww**, O8x***b**xx-…**rr**…**ww**	B	SA (DN8…40)	A1 / A2
					SB (DN50)	A1 / A2

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 =**
8X***b****-…**ww**, O8X***b****-…**ww**	B	A1 / A2	8x***b**xx-…**rr**…**ww**, O8x***b**xx-…**rr**…**ww**	B	XA (all sizes)	A1 / A2

1.4. Sensor Group

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

Sensor Group	Type of sensor	Size of sensor (DN)	Group	$T_{med, min}$	EPL (2)
	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.

1.5. Parameters

1.5.1. Electrical Parameters

1.5.1.1. 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" = BI, BJ, BM, BN

1.5.1.2. 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)	**(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	**(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

Input/Output 1 (Note 4)				
Order code "Input/Output 1" ff =	**Terminal no.**	**Type of protection**	**Values**	
			L_i = 5 µH	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)	**(Note 1)** Profibus PA (Fisco Field Device) / Foundation Fieldbus U_i = 30 V I_i = 570 mA P_i = 8.5 W L_i = 10 µH C_i = 5 nF	**(Note 2)** Profibus PA (Fisco Field Device) / Foundation Fieldbus U_i = 32 V I_i = 570 mA P_i = 8.5 W L_i = 10 µH C_i = 5 nF
MB, RB	I/O1 (Terminal 26, 27)	Non-intrinsically safe	APL port profile SLAX / SPE PoDL classes 10, 11, 12 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)	**(Note 1), (Note 3)** 2-WISE power load APL port profile SLAA U_i = 17.5 V I_i = 380 mA P_i = 5.32 W L_i = 10 µH C_i = 5 nF	**(Note 2), (Note 3)** 2-WISE power load APL port profile SLAC U_i = 17.5 V I_i = 380 mA P_i = 5.32 W L_i = 10 µH 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" = 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

1.5.1.3. 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., Pi = 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., Pi = na., C_i = 200 nF, L_i = 0
BI, BJ, BM, BN	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	U_N = AC 3.3 V, U_M = AC 250 V

1.5.1.4. 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		Intrinsically safe Ex ic	
BI, BJ		Non-intrinsically safe	

1.5.1.5. 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 Ω C_o = 670 µF L_o = 0 Note: a connection cable with a ratio L_{cable}/R_{cable} ≤ 0.024 mH/Ω and C_{cable} ≤ 600 µF shall be used when connecting the Remote Display type DKX001 or ODKX001
BI, BJ, BM, BN	Remote Display type DKX001 or ODKX001 is not intended to be connected to the Proline 300 devices		

1.5.1.6. 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 V, I_o = 129 mA, P_o = 484 mW (sensor group A1/C1/E1) or U_o = 15 V, I_o = 46 mA, P_o = 173 mW (sensor group B1/D1/H1)
	9, 10, 11, 12, X3, X4 (temperature circuit)	Intrinsically safe Ex ia	U_o = 15 V, I_o = 18.2 mA, P_o = 68.3 mW
	4, 5, 6, 7 (sensor coil circuit)	Intrinsically safe Ex ia	U_o = 15 V, I_o = 15.2 mA, P_o = 57 mW
	Only for Promass Q DN ≥ 150 (Dual ISEM):		
	41, 42, X1, X2 (exciter coil circuit)	Intrinsically safe Ex ia	U_o = 15 V, I_o = 129 mA, P_o = 484 mW (sensor group E1) or U_o = 15 V, I_o = 46 mA, P_o = 173 mW (sensor group B1/D1/H1)
	9, 10, 11, 12, X3, X4 (temperature circuit)	Intrinsically safe Ex ia	U_o = 15 V, I_o = 18.2 mA, P_o = 68.3 mW
	4, 5, 6, 7, X5, X6, X7, X8 (sensor coil circuit)	Intrinsically safe Ex ia	U_o = 15 V, I_o = 15.2 mA, P_o = 57 mW

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

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

- Cable inductance ≤ 0.5 mH/km
- Cable capacitance ≤ 0.5 µF/km
- Cable length ≤ 120 m

1.5.1.7. 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 V, I_o = 1.156 A, P_o = 3.3 W
	Sensor terminal board (in the sensor terminal enclosure):		
	61, 62, 63, 64	Intrinsically safe Ex ia	U_i = 14 V, I_i = 1.2 A, P_i = 3.4 W

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

- For Group IIC: L_{cable}/R_{cable} ≤ 0.0089 mH/Ω or L_{cable} ≤ 26 µH and C_{cable} ≤ 760 nF
- For Group IIB: L_{cable}/R_{cable} ≤ 0.0356 mH/Ω or L_{cable} ≤ 104 µH and C_{cable} ≤ 4.2 µF

1.5.2. 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 Proline Cubemass 300	8*3*** – **dd**…	O8*3*** – **dd**…	8x3xxx – **dd**…	O8x3xxx – **dd**…

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		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	160	240	240
					60	---	95	130	160	(240) (2)	(240) (2)
		-200 (4)	240	-40 / -50	50	50	95	100	160	240	240
					60	---	95	100	160	(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	160	240	240
					60	---	95	130	160	(240) (2)	(240) (2)
		-200 (4)	240		50	50	95	100	160	240	240
					60	---	95	100	160	(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

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	65	100	160	205	205
					60	---	65	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	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…50	-50	150		50	50	75	115	150	150	150
					60	---	75	115	150	150	150
		-50	205		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)
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)
Promass X	350	-50	205		50	50	90	120	170	205	205
					55	---	90	120	170	205	205
					60	---	(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
					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…06	-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
					55	---	(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	110	(150) (2)	(150) (2)	(150) (2)
		-50 / -200 (4)	240		50	50	95	130	160	240	240
					55	---	95	(130) (2)	(160) (2)	(240) (2)	(240) (2)
					60	---	95	110	110	110	110

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 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)
					60	---	95	110	110	110	110
	50	-50	150		50	50	95	130	150	150	150
					60	---	95	110	(150) (2)	(150) (2)	(150) (2)
		-50 / -200 (4)	240		50	50	95	130	160	240	240
					55	---	95	(130) (2)	(160) (2)	(240) (2)	(240) (2)
					60	---	95	110	110	110	110
	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
	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
Promass H	08	-50 / -200 (4)	205		50	50	65	100	160	205	205
					55	---	65	100	(160) (2)	(205) (2)	(205) (2)
					60	---	65	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
Promass S, P	08	-50	150		45	45	65	100	150	150	150
					50	---	65	100	150	150	150
					60	---	65	100	125	(150) (2)	(150) (2)
		-50	205		45	45	65	100	160	205	205
					50	---	65	100	160	205	205
					60	---	65	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)
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

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)	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	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								

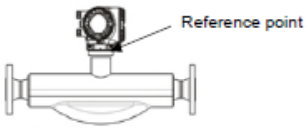
Notes:

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

Transmitter temperature class vs. Maximum ambient temperature ($T_{a,max}$)		
Transmitter	$T_{a,max}$ (°C)	Temperature class
Proline Promass 500 &	60	T5 (100°C)
Proline Cubemass 500	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	60	95	130	150	205	205
Promass A (type 8A5C)	01…04	-50	205		55	55	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
					60	---	100	130	130	205	205
	80	-50	205		60	60	75	110	170	205	205
Promass F	08…15	-50 / -60	150		55	50	95	130	150	150	150
					60	---	95	130	150	150	150
		-50 / -60 / -200	240		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
					60	---	95	130	150	150	150
		-50 / -60 / -200	240		55	55	95	130	170	240	240
					60	---	95	130	170	240	240
	50	-50 / -60	150		55	55	95	130	150	150	150
					60	---	95	130	150	150	150
		-50 / -60 / -200	240		60	60	95	130	170	240	240
	80…250	-50 / -60	150		55	55	75	110	150	150	150
					60	---	75	110	150	150	150
		-50 / -60 / -200	240		60	60	75	110	170	240	240
	15…25	-50 / -200	350		60	70	95	130	175	265	350
	50…250	-50 / -200	350		60	70	85	120	175	265	350
Promass H	08	-50 / -200	205		50	50	65	100	160	205	205
					60	---	65	100	160	205	205
	15…50	-50 / -200	205		60	60	75	115	180	205	205

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	205		50	50	75	115	180	205	205
					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 (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	-50	205	-40 / -50 / -60	50	60	95	130	150	(180) (2)	(180) (2)
					60	60	95	130	150	150	150
Promass A (type 8A5C)	01…04	-50	205		50	60	95	130	150	(180)	(180)
					55	55	95	130	150	150	150
					60	---	95	130	150	150	150
Cubemass C	01…06	-50	205		50	60	95	130	150	(180) (2)	(180) (2)
					60	---	95	130	150	150	150
Promass E	08…50	-50	205		50	50	100	130	130	205	205
					60	---	100	130	130	205	205
	80	-50	205		60	60	75	110	170	205	205
Promass F	08…15	-50 / -60	150		55	50	95	130	150	150	150
					60	---	95	130	150	150	150
		-50 / -60 / -200	240		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
					60	---	95	130	150	150	150
		-50 / -60 / -200	240		55	55	95	130	170	240	240
					60	---	95	130	170	240	240
	50	-50 / -60	150		55	55	95	130	150	150	150
					60	---	95	130	150	150	150
		-50 / -60 / -200	240		60	60	95	130	170	240	240
	80…250	-50 / -60	150		55	55	75	110	150	150	150
					60	---	75	110	150	150	150
		-50 / -60 / -200	240		60	60	75	110	170	240	240
	15…25	-50 / -200	350		60	70	95	130	175	265	350
	50…250	-50 / -200	350		60	70	85	120	175	265	350

Endress+Hauser People for Process Automation	Control Drawing - IECEx, ATEX, CSA, $_cCSA_{us}$	Document No.:	FES0263
Endress+Hauser Flow	Proline Promass 300/500, Proline Cubemass 300/500	Rev.:	H
	Thermal Parameter	Date:	15.04.2025

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 H	08	-50 / -200	205	-40 / -50 / -60	50	50	65	100	160	205	205
					60	---	65	100	160	205	205
	15…50	-50 / -200	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
		-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	205		50	50	75	115	180	205	205
					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) 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 ($T_{a,\,max}$)

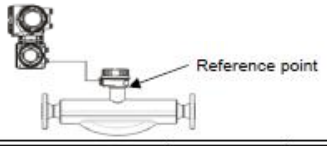
Transmitter	$T_{a,\,max}$ (°C)	Temperature class
Proline Promass 500 & Proline Cubemass 500	60	T5 (100°C)
	55	T6 (85°C)

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 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, 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 Proline Cubemass 500 Digital	8*5*** – **dd*******A…	O8*5*** – **dd*******A…	8x5xxx – **dd*******A…	O8x5xxx – **dd*******A…

with "Approval" **dd** = CM, CN, C5, C6 (cCSAus / CSA)
dd = BI, BJ, BM, BN (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)	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 (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	-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
					60	---	---	130	150	190	190
Cubemass C	01…06	-50	205		35	40	75	130	150	205	205
					50	---	75	130	150	205	205
					55	---	---	130	150	205	205
					60	---	---	130	150	160	160
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

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 (275) (2)	240 (350) (2)
	80…250	-50	150		35	40	65	110	150	150	150
					50	---	65	110	150	150	150
					60	---	---	110	130	130	130
		-50 / -200	240		35	40	65	110	170	240	240
					50	---	65	110	170	240	240
					60	---	---	110	170	240	240
	50…250	-50 / -200	350		35	40	80	120	175	275	350
					50	---	80	120	175	275	350
					60	---	---	120	175	240 (275) (2)	240 (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
		-50	205		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
		-50	205		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
	15…50	-50 / -200	205		35	40	65	115	180	205	205
					50	---	65	115	180	205	205
					60	---	---	115	180	205	205
Promass I	08…80	-50	150		35	45	70	115	140	140	150
					50	---	70	115	140	140	150
					55	---	---	115	140	140	150
					60	---	---	115	140	140	140
Promass O	80…250	-50	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
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).

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		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		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		35	40	60	130	130	130	130
					45	---	60	130	130	130	130
					50	---	---	130	130	130	130
		-50 / -200	240		35	40	60	130	170	240	240
					45	---	60	130	170	240	240
					50	---	---	130	170	240	240
	50	-50	150		35	40	60	130	130	130	130
					45	---	60	130	130	130	130
					50	---	---	130	130	130	130
		-50 / -200	240		35	40	60	130	160	240	240
					45	---	60	130	160	240	240
					50	---	---	130	160	240	240
	15...25	-50 / -200	350		35	40	80	130	175	275	350
					50	---	80	130	175	275	350
					60	---	---	130	175	240 (275) (3)	240 (350) (3)
	80...250	-50	150		35	40	60	110	130	130	130
					45	---	60	110	130	130	130
					50	---	---	110	130	130	130
		-50 / -200	240		35	40	60	110	170	240	240
					45	---	60	110	170	240	240
					50	---	---	110	170	240	240
	80...250	-50 / -200	350		35	40	80	120	175	275	350
					50	---	80	120	175	275	350
					60	---	---	120	175	240 (275) (3)	240 (350) (3)
Promass S, P	08	-50	150		35	40	55	100	150	150	150
					45	---	55	100	150	150	150
					50	---	---	100	120	120	120
		-50	205		35	40	55	100	160	205	205
					50	---	55	100	160	205	205
					55	---	---	100	160	205	205
	15...50	-50	150		35	40	55	110	150	150	150
					45	---	55	110	150	150	150
					50	---	---	110	120	120	120
		-50	205		35	40	55	100	180	205	205
					50	---	55	100	180	205	205
					55	---	---	100	180	205	205

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 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
					55	---	---	120	170	205	205
Promass Q	25...250	-50 / -200	240		35	40	55	100	160	240	240
					50	---	55	100	160	240	240
Promass H	08	-50 / -200	205		35	40	65	100	160	205	205
					45	---	65	100	160	205	205
					55	---	---	100	160	205	205
	15...50	-50 / -200	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 ($T_{a,\,max}$)

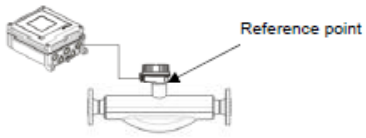
Transmitter	Type of enclosure	$T_{a,\,min}$ (°C)	$T_{a,\,max}$ (°C)	Temperature class
Proline Promass 500 Digital & Proline Cubemass 500 Digital	Aluminium or Plastic	-50 / -40 (1)	60	T4 (135°C)
			45	T5 (100°C)

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 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	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).



2. Proline Promag 300/500

2.1. Marking

2.1.1. Proline Promag 300

Order Code:
5*3*** – dd*ff**********+#**#
O5*3*** – dd*ff**********+#**#

Approval dd =	I/O1 ff =	ATEX marking	Marking of Ex protection	Information: Marking of protection representative for
BB	CA, CB, CC, CD, HA, TA, MC, RC	Ex II 2(1)G Ex II 2(1)D	Ex db eb ia [ia Ga] IIC T6...T1 Gb Ex tb [ia Da] IIIC T** °C Db	db -> electronic compartment of the transmitter enclosure 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
	BA, BB, GA, LA, NA, RA, SA, MA, MB, RB	Ex II 2G Ex II 2D	Ex db eb ia IIC T6...T1 Gb Ex tb IIIC T** °C Db	
BD	CA, CB, CC, CD, HA, TA, MC, RC	Ex II 2(1)G Ex II 2(1)D	Ex db eb ia [ia Ga] IIC T6...T1 Gb Ex tb [ia Da] IIIC T** °C Db	db -> electronic and terminal compartments of the transmitter enclosure eb -> sensor, electronic for sensor circuit Ex eb ia -> sensor, display tb -> transmitter enclosure and sensor [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 II 2G Ex II 2D	Ex db eb ia IIC T6...T1 Gb Ex tb IIIC T** °C Db	

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

Order Code:
5*5*** – dd*ff****B**********+#**#
O5*5*** – dd*ff****B**********+#**#

Approval dd =	I/O1 ff =	Parts of Device	ATEX marking	Marking of Ex protection	Information: Marking of protection representative for
BB	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ex II 2(1)G Ex II 2(1)D	Ex db eb [ia Ga] IIC T6…T5 Gb Ex tb [ia Da] IIIC T85°C Db	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 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 and/or output Ex ia for sensor circuit
		Sensor	Ex II 2G II 2D	Ex eb ia IIC T6...T1 Gb Ex tb IIIC T** °C Db	

Order Code: 5*5*** – dd*ff****B**********+#**# O5*5*** – dd*ff****B**********+#**#					
BD	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ex II 2(1)G Ex II 2(1)D	Ex db eb [ia Ga] IIC T6…T5 Gb 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 eb, 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 and/or output Ex ia for sensor circuit
		Sensor	Ex II 2G Ex II 2D	Ex eb ia IIC T6...T1 Gb Ex tb IIIC T** °C Db	
B7	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ex II 2(1)G	Ex db eb [ia Ga] IIC T6… T5 Gb	db -> electronic compartment eb -> terminal compartment, sensor, wall mounted terminal box, sensor terminal box, electronic for sensor circuit Ex eb ia -> sensor, display [ia Ga]-> electronic with input/output Ex ia and/or output for sensor circuit
		Sensor	Ex II 2G	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 II 2(1)G	Ex db eb [ia Ga] IIC T6… T5 Gb	db -> electronic and terminal compartments eb -> sensor, wall mounted terminal box, electronic for sensor circuit Ex eb ia -> sensor, display [ia Ga]-> electronic with input/output Ex ia and/or output for sensor circuit
		Sensor	Ex II 2G	Ex eb ia IIC T6...T1 Gb	

2.1.3. 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	ATEX marking	Marking of Ex protection	Information: Marking of protection representative for
BN and BJ	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	---	---	db -> sensor terminal enclosure ia -> sensor, electronic tb -> sensor, sensor terminal enclosure
		Sensor	Ex II 2G II 2D	Ex db ia IIC T6...T1 Gb Ex tb IIIC T** °C Db	

2.2. Order Code

Extended order code Proline Promag 300:

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

Extended order code Proline Promag 500:

5a5bcc – ddzeffghijkmnopstttuvww + ##**	
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

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	=	Ex db ia IIC T6…T1 Gb	(sensor)
		Ex ia tb IIIC T** Db	(sensor)
BN	=	Ex db ia IIC T5…T4 Gb	(sensor)
		Ex ia tb IIIC T* Db	(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 Kid
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 section 1.2 for assignment table 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

2.3. 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

2.4. Parameters

2.4.1. Electrical Parameters

2.4.1.1. 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" = BJ, BN

2.4.1.2. 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)**	**(Note 1)** U_o = 21.8 V I_o = 90 mA P_o = 491 mW L_o = 4.1 mH (IIC)	**(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

Input/Output 1 (Note 4)				
Order code "Input/Output 1" ff =	**Terminal no.**	**Type of protection**	**Values**	
			/ 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	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)**	**(Note 1)** Profibus PA (Fisco Field Device) / Foundation Fieldbus U_i = 30 V I_i = 570 mA P_i = 8.5 W L_i = 10 µH C_i = 5 nF	**(Note 2)** Profibus PA (Fisco Field Device) / Foundation Fieldbus U_i = 32 V I_i = 570 mA P_i = 8.5 W L_i = 10 µH C_i = 5 nF
MB, RB	I/O1 (Terminal 26, 27)	Non-intrinsically safe	APL port profile SLAX / SPE PoDL classes 10, 11, 12 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)**	**(Note 1), (Note 3)** 2-WISE power load APL port profile SLAA U_i = 17.5 V I_i = 380 mA P_i = 5.32 W L_i = 10 µH C_i = 5 nF	**(Note 2), (Note 3)** 2-WISE power load APL port profile SLAC U_i = 17.5 V I_i = 380 mA P_i = 5.32 W L_i = 10 µH 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)**	U_i = 30 V I_i = 100 mA

Input/Output 2 (Note 4)			
Order code "Input/Output 2" g =	**Terminal no.**	**Type of protection**	**Values**
		or Ex ic (Note 2)	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" = BB, BD, B7, B8
(2) applicable for Proline 300/500 flowmeters with order code "Approval dd" = 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

2.4.1.3. Service interface / Port 2 (RJ45)

Order code "Approval" dd =	**Terminal no.**	**Type of protection**	**Values**
BB, B7		Non-intrinsically safe	U_N = AC 3.3 V, U_M = AC 250 V

Order code "Approval" dd =	Terminal no.	Type of protection	Values
	Service Interface (CDI) or Port 2 (RJ45)		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., Pi = 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., Pi = na., C_i = 200 nF, L_i = 0
BJ, BN	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	U_N = AC 3.3 V, U_M = AC 250 V

2.4.1.4. 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		Intrinsically safe Ex ic	
BJ		Non-intrinsically safe	

2.4.1.5. 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 V I_o = 1.5 A (spark) 200 mA (power) P_o = 600 mW R_i = 2.6 Ω C_o = 670 µF L_o = 0 Note: a connection cable with a ratio $L_{cable}/R_{cable} \leq 0.024$ mH/Ω and $C_{cable} \leq 600$ µF shall be used when connecting the Remote Display type DKX001 or ODKX001
BJ, BN	Remote Display type DKX001 or ODKX001 is not intended to be connected to the Proline 300 devices		

2.4.1.6. 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 V, I_o = 19.2 mA, P_o = 128 mW, L_o = 20 mH, C_o = 94 nF and U_o = 13.3 V, I_o = 39.2 mA, P_o = 131 mW, L_o = 20 mH, C_o = 94 nF
	41, 42	Non-intrinsically safe	U_N = 60 V, I_N = 90 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 V, I_i = n.a., P_i = n.a., L_i = 0, C_i = 0
	41, 42	Non-intrinsically safe	U_N = 60 V, I_N = 90 mA

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

- Cable inductance ≤ 1 mH/km
- Cable capacitance ≤ 0.42 µF/km
- Cable length ≤ 200 m

2.4.1.7. 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 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 = 35 V
	63, 64	Non-intrinsically safe	U_N = 3.3 V

2.4.2. 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 (cCSAus / CSA)
dd = BB, BD (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	45	80	90	130	130	130	130
						50	60	90	130	130	130	130
						55	---	---	130	130	130	130
						60	---	---	100	100	100	100
	25…200	PFA	-40	180		40	80	95	130	150	150	150
						45	80	95	130	130	130	130
						50	60	90	130	130	130	130
						60	---	---	100	100	100	100
	50…3000	HG (Hard rubber)	-20	80		50	60	80	80	80	80	80
						60	---	---	80	80	80	80
	25…1000	PU	-20	50		50	50	50	50	50	50	50
	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
	25…3000	PE	-40	60		50	60	60	60	60	60	60
						60	---	60	60	60	60	60
Promag H	2…150	PFA	-40	180		50	80 (3)	95	130	150	150	150
						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°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).

Endress+Hauser People for Process Automation	Control Drawing - IECEx, ATEX, CSA, cCSAus	Document No.:	FES0260
	Proline Promag 300/500	Rev.:	G
	Thermal Parameter	Date:	15.04.2025
Endress+Hauser Flow Kägenstrasse 7, 4153 Reinach, Basel-Landschaft, Switzerland	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:	1/9

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
						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
						60	---	80	80	80	80	80
	25…1000	PU	-20	50		50	50	50	50	50	50	50
	25…3000	ETFE	-40	120 (3)		45	80	95	120	120	120	120
						55	---	95	120	120	120	120
						60	---	95	100	100	100	100
	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
						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
						60	---	80	80	80	80	80
	25…1000	PU	-20	50		50	50	50	50	50	50	50
	25…3000	ETFE	-40	120 (3)		45	80	95	120	120	120	120
						55	---	95	120	120	120	120
						60	---	95	100	100	100	100
	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 Promag W	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
	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

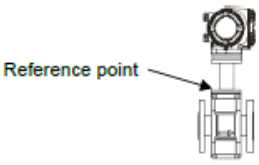
Notes:

(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°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 Proline Promag H	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	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
						60	80	95	130	130	130	130
	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 (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	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).

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°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		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°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°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		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
						60	75	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°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 ($T_{ref,\,max\,permitted}$)												
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

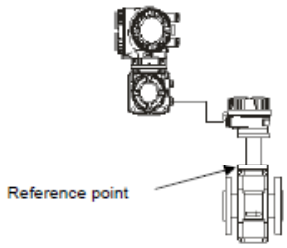
Notes:

(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 Proline Promag W 500 Digital Proline Promag H 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 ($T_{m,\,max\,permitted}$)

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		50	80	95	130	150	150	150
						60	80	95	130	130	130	130
	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 (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		35	80 (3)	95	130	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 Proline Promag W 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 ($T_{m,\,max\,permitted}$)

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		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: $T_{med,\,max}$ = 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 Proline Promag W 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 ($T_{m,\,max\,permitted}$)

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		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)		60	70	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: $T_{med,\,max}$ = 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°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 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

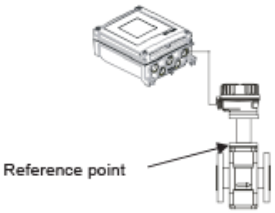
Notes:

(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°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 Prosonic Flow G300/500 and Proline Prosonic Flow P 500

3.1. Marking

3.1.1. Proline Prosonic Flow G 300

Order Code:
9*3*** – dd*ff**********+#**#
O9*3*** – dd*ff**********+#**#

Approval dd =	I/O1 ff =	ATEX marking	Marking of Ex protection	Information: Marking of protection representative for
BB	HA, TA, CA, CB, CC, CD, MC, RC	Ex II 2(1)G Ex II 2(1)D	Ex db eb ia [ia Ga] IIC T6...T1 Gb 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 II 2G Ex II 2D	Ex db eb ia IIC T6...T1 Gb Ex tb IIIC T** °C Db	
BD	HA, TA, CA, CB, CC, CD, MC, RC	Ex II 2(1)G Ex II 2(1)D	Ex db ia [ia Ga] IIC T6...T1 Gb Ex tb [ia Da] IIIC T** °C Db	db -> electronic and terminal compartments of the transmitter enclosure ia -> sensor, display, electronic tb -> transmitter enclosures [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 II 2G Ex II 2D	Ex db ia IIC T6...T1 Gb Ex tb IIIC T** °C Db	

3.1.2. 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	ATEX marking	Marking of Ex protection	Information: Marking of protection representative for
BJ and BN	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	---	---	db -> sensor terminal enclosure ia -> sensor, electronic tb -> sensor, sensor terminal enclosure
		Sensor	Ex II 2G Ex II 2D	Ex db ia IIC T6...T1 Gb Ex ia tb IIIC T** °C Db	

3.1.3. 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 =	Device	ATEX marking	Marking of Ex protection	Information: Marking of protection representative for
BB	CA, CB, CC, CD, HA, TA,	Transmitter	Ex II 2(1)G II 2(1)D	Ex db eb ia [ia Ga] IIC T6… T5 Gb Ex tb [ia Da] IIIC T85°C Db	

	BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Sensor	Ex II 2G Ex II 2D	Ex ia IIC T6...T1 Gb Ex ia 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 and/or output Ex ia for sensor circuit [ia Da] -> electronic with input/output Ex ia and/or output Ex ia for sensor circuit
BD	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ex II 2(1)G Ex II 2(1)D	Ex db ia [ia Ga] IIC T6… T5 Gb Ex tb [ia Da] IIIC T85°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 and/or output Ex ia for sensor circuit [ia Da] -> electronic with input/output Ex ia and/or output Ex ia for sensor circuit
		Sensor	Ex II 2G II 2D	Ex ia IIC T6...T1 Gb Ex ia IIIC T** °C Db	

3.2. Order Code

Extended order code Proline Prosonic Flow G 300:

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

Extended order code Proline Prosonic Flow G 500:

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

Proline Prosonic Flow G 500:

BJ	=	Ex ia IIC T6…T1 Gb	(sensor)
		Ex tb IIIC T** Db	(sensor)
BN	=	Ex ia IIC T6…T1 Gb	(sensor)
		Ex tb IIIC T** Db	(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 section 1.2 for assignment table 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 section 1.2 for assignment table 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**

Extended order code Proline Prosonic Flow P 500:

9P5bcc – ddeffghjkmosstuuvvww + ##**
O9P5bcc – ddeffghjkmosstuuvvwwyy + ##** for OEM-version
9x5bxx – ddeffghijkmnopprrssww + ##** for replacement transmitter
O9x5bxx – ddeffghijkmnopprrsswwyy + ##** 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)

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 500
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**
Proline Prosonic Flow P 500
BB = Ex ia IIC T6…T1 Gb
Ex ia IIIC T** Db
BD = Ex ia IIC T6…T1 Gb
Ex ia IIIC T** Db

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

3.3. 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

3.4. Parameters

3.4.1. Electrical Parameters

3.4.1.1. 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" = BJ, BN

3.4.1.2. 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)**	**(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)	**(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)

Input/Output 1 (Note 4)				
Order code "Input/Output 1" ff =	**Terminal no.**	**Type of protection**	**Values**	
			U_i = 30 V I_i = 10 mA P_i = 0.3 W C_i = 6 nF L_i = 5 µH	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)	**(Note 1)** Profibus PA (Fisco Field Device) / Foundation Fieldbus U_i = 30 V I_i = 570 mA P_i = 8.5 W L_i = 10 µH C_i = 5 nF	**(Note 2)** Profibus PA (Fisco Field Device) / Foundation Fieldbus U_i = 32 V I_i = 570 mA P_i = 8.5 W L_i = 10 µH C_i = 5 nF
MB, RB	I/O1 (Terminal 26, 27)	Non-intrinsically safe	APL port profile SLAX / SPE PoDL classes 10, 11, 12 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)	**(Note 1), (Note 3)** 2-WISE power load APL port profile SLAA U_i = 17.5 V I_i = 380 mA P_i = 5.32 W L_i = 10 µH C_i = 5 nF	**(Note 2), (Note 3)** 2-WISE power load APL port profile SLAC U_i = 17.5 V I_i = 380 mA P_i = 5.32 W L_i = 10 µH 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	U_i = 30 V

Input/Output 3 (Note 4)			
Order code "Input/Output 3" h =	**Terminal no.**	**Type of protection**	**Values**
		Ex ia (Note 1) or Ex ic (Note 2)	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" = BB, BD
(2) applicable for Proline 300/500 flowmeters with order code "Approval dd" = 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

3.4.1.3. 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., Pi = 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., Pi = na., C_i = 200 nF, L_i = 0
BJ, BN	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	U_N = AC 3.3 V, U_M = AC 250 V

3.4.1.4. 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		Intrinsically safe Ex ic	
BJ		Non-intrinsically safe	

3.4.1.5. 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 Ω C_o = 670 µF L_o = 0 Note: a connection cable with a ratio L_{cable}/R_{cable} ≤ 0.024 mH/Ω and C_{cable} ≤ 600 µF shall be used when connecting the Remote Display type DKX001 or ODKX001
BJ, BN	Remote Display type DKX001 or ODKX001 is not intended to be connected to the Proline 300 devices		

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

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

3.4.1.7. 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 V, I_o = 36.7 mA, P_o =459 mW, L_o = n.a., C_o = n.a.
	Sensor terminal board (in the sensor terminal enclosure):		
	Connector	Intrinsically safe Ex ia	U_i = 40 V, I_i = n.a., P_i = n.a., L_i = n.a., C_i = n.a.

3.4.2. Thermal Parameters (Zone 1)

3.4.2.1. 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 (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)
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)

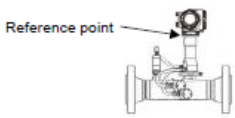
Notes: (1) Applicable ambient temperature may be further limited (see the nameplate on the sensor housing).
(2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
(3) Applicable medium temperature range may be further limited (see the nameplate on the sensor 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 (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	55	69	72	74	74	74
Without integrated pressure sensor:										
25...300	-50	150	-40 / -50	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).



Endress+Hauser People for Process Automation	Control Drawing - IECEx, ATEX, CSA, cCSAus	Document No.:	FES0321
	Proline Prosonic Flow G 300/500	Rev.:	B
Endress+Hauser Flow	Thermal Parameter	Date:	15.04.2025

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)

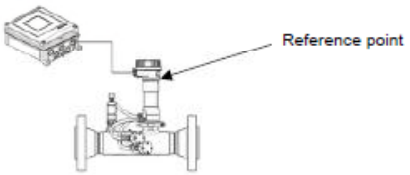
Notes: (1) $T_{a,\,min}$ = -50°C for aluminium enclosure, $T_{a,\,min}$ = -40°C for plastic enclosure. For versions with the transmitter installed in non-hazardous areas (with order code "Approval" dd = BJ): $T_{a,\,max}$ = 60°C. Applicable ambient temperature range may be further limited (see the nameplate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

Sensor temperature class vs. Max. ambient temperature ($T_{a,\,max}$) & Max. permitted 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).



Endress+Hauser People for Process Automation	Control Drawing - IECEx, ATEX, CSA, $_cCSA_{us}$	Document No.:	FES0321
	Proline Prosonic Flow G 300/500	Rev.:	B
Endress+Hauser Flow Kägenstrasse 7, 4153 Reinach, Basel-Landschaft,	Thermal Parameter	Date:	15.04.2025
	EPL Gb (Zone 1); EPL Db (Zone 21); Cl. I Div. 1, Cl. II Div. 1, Cl. III;		

3.4.2.2. 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 insulat ion 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)		

Sensor temperature class vs. Max. ambient temperature ($T_{a,\,max}$) & Max. permitted medium temperature ($T_{m,\,max\,permitted}$)										
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	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	Control Drawing - IECEx, ATEX, CSA, $_c$CSA$_{us}$	Document No.:	FES0351
	Proline Prosonic Flow P 500	Rev.:	D
	Thermal Parameter	Date:	15.04.2025
Endress+Hauser Flow Kägenstrasse 7, 4153 Reinach, Basel-Landschaft, Switzerland	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

4. Proline t-mass 300/500

4.1. Marking

4.1.1. Proline t-mass 300

Order Code:
6F3*** – dd*ff**********+#**#
O6F3*** – dd*ff**********+#**#
6I3*** – dd*ff**********+#**#
O6I3*** – dd*ff**********+#**#

Approval dd =	I/O1 ff =	ATEX marking	Marking of Ex protection	Information: Marking of protection representative for
BB	CA, CB, CC, CD, HA, TA, MC, RC	Ⓔx II 2(1)G Ⓔx II 1/2(1)G Ⓔx II 2(1)D	Ex db eb ia [ia Ga] IIC T4...T1 Gb or Ex db eb ia [ia Ga] IIC T4...T1 Ga/Gb 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	Ⓔx II 2G Ⓔx II 1/2G Ⓔx II 2D	Ex db eb ia IIC T4...T1 Gb or Ex db eb ia IIC T4...T1 Ga/Gb Ex tb IIIC T** °C Db	
BD	CA, CB, CC, CD, HA, TA, MC, RC	Ⓔx II 2(1)G Ⓔx II 1/2(1)G Ⓔx II 2(1)D	Ex db ia [ia Ga] IIC T4...T1 Gb or Ex db ia [ia Ga] IIC T4...T1 Ga/Gb 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	Ⓔx II 2G Ⓔx II 1/2G Ⓔx II 2D	Ex db ia IIC T4...T1 Gb or Ex db ia IIC T4...T1 Ga/Gb Ex tb IIIC T** °C Db	

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

Order Code:
6F5*** – dd*ff****A**********+#**#
O6F5*** – dd*ff****A**********+#**#
6I5*** – dd*ff****A**********+#**#
O6I5*** – d*ff****A**********+#**#

Approval dd =	I/O1 ff =	Parts of Device	ATEX marking	Marking of Ex protection	Information: Marking of protection representative for
BJ and BN	CA, CB, CC, CD, HA, TA, BA, BB, GA, LA, NA, RA, RB, RC, SA, MA, MB, MC	Transmitter	Ⓔx II (1)G Ⓔx II (1)D	[Ex ia Ga] IIC [Ex ia Da] IIIC	[Ex ia] -> electronic with output Ex ia for sensor circuit db -> sensor terminal enclosure ia -> sensor tb -> sensor terminal enclosure
		Sensor	Ⓔx II 2G Ⓔx II 1/2G II 2D	Ex db ia IIC T4...T1 Gb or Ex db ia IIC T4...T1 Ga/Gb Ex ia tb IIIC T** °C Db	

4.2. Order Code

Extended order code Proline t-mass 300:

6F3bcc – ddeffghjlpsstttvww + ##**	
6I3bcc – ddeffghjlpsstttuuvww + ##**	
O6F3bcc – ddeffghjlpsstttvwwyy + ##**	for OEM-version
O6I3bcc – ddeffghjlpsstttuuvwwyy + ##**	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	

Proline t-mass 500:

BJ	=	[Ex ia] IIC	(transmitter)
		Ex ia IIC T4…T1 Gb	(sensor)
		Ex tb IIIC T** Db	(sensor)
BN	=	[Ex ia] IIC	(transmitter)
		Ex ia IIC T4…T1 Gb	(sensor)
		Ex tb IIIC T** Db	(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 section 1.2 for assignment table 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**

4.3. 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 =**	**Device model code ww =**
6F***b****-…**ww**, O6F***b****-…**ww**	B	A1 / A2	6x***b**xx…**ww**, O6x***b**xx-…**ww**	B	A1 / A2
6I***b****-…**ww**, O6I***b****-…**ww**	B	A1 / A2	6x***b**xx-…**ww**, O6x***b**xx-…**ww**	B	A1 / A2

4.4. Parameters

4.4.1. Electrical Parameters

4.4.1.1. 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

3) applicable for Proline 300/500 flowmeters with order code "Approval dd" = BB, BD
4) applicable for Proline 300/500 flowmeters with order code "Approval dd" = BJ, BN

4.4.1.2. 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)**	**(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)**	**(Note 1)** Profibus PA (Fisco Field Device) / Foundation Fieldbus U_i = 30 V I_i = 570 mA P_i = 8.5 W	**(Note 2)** Profibus PA (Fisco Field Device) / Foundation Fieldbus U_i = 32 V I_i = 570 mA P_i = 8.5 W

Input/Output 1 (Note 4)				
Order code "Input/Output 1" ff =	**Terminal no.**	**Type of protection**	**Values**	
			L_i = 10 µH C_i = 5 nF	L_i = 10 µH C_i = 5 nF
MB, RB	I/O1 (Terminal 26, 27)	Non-intrinsically safe	APL port profile SLAX / SPE PoDL classes 10, 11, 12 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)	**(Note 1), (Note 3)** 2-WISE power load APL port profile SLAA U_i = 17.5 V I_i = 380 mA P_i = 5.32 W L_i = 10 µH C_i = 5 nF	**(Note 2), (Note 3)** 2-WISE power load APL port profile SLAC U_i = 17.5 V I_i = 380 mA P_i = 5.32 W L_i = 10 µH 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" = BB, BD
(2) applicable for Proline 300/500 flowmeters with order code "Approval dd" = 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

4.4.1.3. 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., Pi = 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., Pi = na., C_i = 200 nF, L_i = 0
BJ, BN	Service Interface (CDI) or Port 2 (RJ45)	Non-intrinsically safe	U_N = AC 3.3 V, U_M = AC 250 V

4.4.1.4. 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		Intrinsically safe Ex ic	
BJ		Non-intrinsically safe	

4.4.1.5. 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

Order code "Approval" dd =	Terminal no.	Type of protection	Values
			R_i = 2.6 Ω C_o = 670 µF L_o = 0 Note: a connection cable with a ratio L_{cable}/R_{cable} ≤ 0.024 mH/Ω and C_{cable} ≤ 600 µF shall be used when connecting the Remote Display type DKX001 or ODKX001
BJ, BN	Remote Display type DKX001 or ODKX001 is not intended to be connected to the Proline 300 devices		

4.4.1.6. 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 V, I_o = 1.156 A, P_o = 3.3 W
	Sensor terminal board (in the sensor terminal enclosure):		
	61, 62, 63, 64	Intrinsically safe Ex ia	U_i = 14 V, I_i = 1.2 A, P_i = 3.4 W

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

- For Group IIC: L_{cable}/R_{cable} ≤ 0.0089 mH/Ω or L_{cable} ≤ 26 µH and C_{cable} ≤ 760 nF
- For Group IIB: L_{cable}/R_{cable} ≤ 0.0356 mH/Ω or L_{cable} ≤ 104 µH and C_{cable} ≤ 4.2 µF

4.4.2. 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 (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)
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)

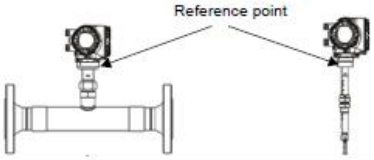
Notes: (1) Applicable ambient temperature range may be further limited (see the nameplate on the sensor housing).
(2) Values in brackets apply to installations where the transmitter is not installed above the sensor.
(3) Applicable medium temperature range may be further limited (see the nameplate on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



Endress+Hauser People for Process Automation	Control Drawing - IECEx, ATEX, CSA, $_c$CSA$_{us}$	Document No.:	FES0331
	Proline t-mass 300/500	Rev.:	B
	Thermal Parameter	Date:	15.04.2025
Endress+Hauser Flow Kägenstrasse 7, 4153 Reinach, Basel-Landschaft, Switzerland	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

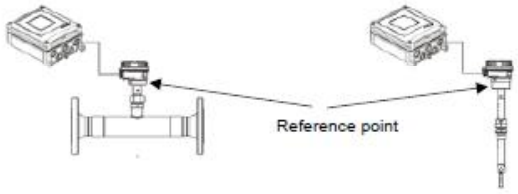
Transmitter temperature class vs. Maximum ambient temperature ($T_{a,\,max}$)				
Transmitter	Type of enclosure	$T_{a,\,min}$ (°C)	$T_{a,\,max}$ (°C)	Temperature class
Proline t-mass 500 Digital	Aluminium or Plastic	-50 / -40 (1)	60	T4 (135°C)
			45	T5 (100°C)

Notes: (1) $T_{a,\,min}$ = -50°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 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).