CERTIFICATE

(1)   EU-Type Examination

(2)   Equipment or protective systems intended for use in potentially explosive atmospheres - Directive 2014/34/EU

(3)   EU-Type Examination Certificate Number: **KEMA 10ATEX0072**   Issue Number: **9**

(4)   Product: **Flowmeters Proline, types**
Promass A 200, E 200 and F 200
Promag H 200, P 200, E 200 and W 200
Prosonic Flow B 200
Prowirl C 200, D 200, F 200, R 200 and O 200

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

(6)   Address: **Kägenstrasse 7, 4153 Reinach BL1, Switzerland**

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

(8)   DEKRA Certification B.V., Notified Body number 0344 in accordance with Article 17 of 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 confidential test report number NL/DEK/ExTR12.0029/06.

(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 60079-7: 2015 + A1 : 2018
EN 60079-11 : 2012	EN 60079-26 : 2015	EN 60079-31 : 2014

except in respect of those requirements listed at item 18 of 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 specified in the schedule to this certificate.

(11)   This EU-Type Examination Certificate relates only to the design and construction of the specified product. 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:

Promass see Annex 2
Promag see Annex 3
Prosonic see Annex 4
Prowirl see Annex 5

Date of certification: 6 August 2021
DEKRA Certification B.V.

R. Schuller
Certification Manager

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(13) **SCHEDULE**

(14) **to EU-Type Examination Certificate KEMA 10ATEX0072**   Issue No. **9**

(15) **Description**

See Annex 2 for the Promass description.
See Annex 3 for the Promag description.
See Annex 4 for the Prosonic description.
See Annex 5 for the Prowirl description.

Electrical data

See Annex 1 for the electrical data.

Installation instructions

The instructions provided with the product shall be followed in detail to assure safe operation.

(16) **Report Number**

No. NL/DEK/ExTR12.0029/06.

(17) **Specific conditions of use**

None, except for Prowirl refer to Marking section in Annex 5.

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at item (9).

(19) **Test documentation**

As listed in Report No. NL/DEK/ExTR12.0029/06.

(13) **SCHEDULE**

(14) **to EU-Type Examination Certificate KEMA 10ATEX0072**   Issue No. **9**

(20) **Certificate history**

Issue 1   - 213234300   - initial certificate
Issue 2   - 213234300   - Added Flowmeters Proline Promass E 200 with identical construction and order code;
                                     - minor changes to the electrical circuit.
Issue 3   - 215428300   - Updated and extended Model code range, thermal specifications and electrical specifications
Issue 4   - 216240100   - Added I/O interface option D
                                       - Added Display options L, M
                                       - Updated electrical and thermal data
Issue 5   - 217052400   - increased maximum medium temperature for Promass F 200 to 205°C
                                       - additional version of Promass E (type 8E2C andO8E2C)
                                       - changes to type designation
                                       - updated thermal data
                                         - drawing revision to previous certification
Issue 6   - 218301700   - Increased maximum medium temperature for Promass F 200 to 205°C.
                                       - New version of Promass E.
                                       - Minor product updates, including changes to type designation.
                                       - Update to IEC60079-26 Ed 3 and IEC6079-31 Ed 2.
Issue 7   - 219708300   - Change of model code for Promass E 200
Issue 8   - 221778700   - Integrating of Promag, Prosonic and Prowirl which previously had individual certificates based on the same report.
                                       - Introduction of a Promass A 200
                                       - Introduction of a new pressure sensor for Prowirl 200
                                       - Update EN 60079-1:2007 to EN 60079-1: 2014
                                       - Introduction of Ex ec per EN 60079-7:2015 as alternative to Ex nA per EN 60079-15:2010
Issue 9   - 225622000   - Type of protection Ex nA as well as [ia Da] are no longer in scope.
                                       - Assessed per latest EN IEC 60079-0 and EN 60079-7.
                                       - Minor constructional changes.

Annex 1 to EU-Type Examination Certificate KEMA 10ATEX0072, issue 9

This annex is applicable for flowmeters type
  Proline Promass A/E/F 200,
  Proline Promag H/P/E/W 200
  Proline Prosonic Flow B 200
  Proline Prowirl C/D/F/R/O 200

Electrical data
For assignment of approval code and I/O code to type of flowmeter refer to type designation of Annex 2 to Annex 5.

Flowmeter with Approval codes cc = BA, BB, BJ, B2, B5 and I/O code d = A

Supply/output circuit (terminals 1 and 2):
in type of protection intrinsic safety Ex ia IIC, only for connection to a certified intrinsically safe circuit, with following maximum values:
U_i = 30 V; I_i = 300 mA; P_i = 1 W; C_i = 5 nF; L_i = 0 mH.

Service connector:
in type of protection intrinsic safety Ex ia IIC, for connection of E+H Service Interface FXA291 or any other certified interface, with following maximum values:
U_o = 7.3 V; I_o = 100 mA; P_o = 160 mW; C_i = 0 nF; L_i = 0 mH.

Flowmeter with Approval codes cc = BA, BB, BJ, B2, B5 and I/O code d = B

Supply/output circuit (terminals 1 and 2):
in type of protection intrinsic safety Ex ia IIC, only for connection to a certified intrinsically safe circuit, with following maximum values:
U_i = 30 V; I_i = 300 mA; P_i = 1 W; C_i = 5 nF; L_i = 0 mH;

Supply/output circuit (terminals 3 and 4):
in type of protection intrinsic safety Ex ia IIC, only for connection to a certified intrinsically safe circuit, with following maximum values:
U_i = 30 V; I_i = 300 mA; P_i = 1 W; C_i = 6 nF; L_i = 0 mH.

Service connector:
in type of protection intrinsic safety Ex ia IIC, for connection of E+H Service Interface FXA291 or any other certified interface, with following maximum values:
U_o = 7.3 V; I_o = 100 mA; P_o = 160 mW; C_i = 0 nF; L_i = 0 mH.

Flowmeter with Approval codes cc = BA, BB, BJ, B2, B5 and I/O code d = C

Supply/output circuit (terminals 1 and 2):
in type of protection intrinsic safety Ex ia IIC, only for connection to a certified intrinsically safe circuit, with following maximum values:
U_i = 30 V; I_i = 300 mA; P_i = 1 W; C_i = 30 nF; L_i = 0 mH;

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Supply/output circuit (terminals 3 and 4):
in type of protection intrinsic safety Ex ia IIC, only for connection to a certified intrinsically safe circuit, with following maximum values:
$U_i = 30$ V; $I_i = 300$ mA; $P_i = 1$ W; $C_i = 30$ nF; $L_i = 0$ mH.

Service connector:
in type of protection intrinsic safety Ex ia IIC, for connection of E+H Service Interface FXA291 or any other certified interface, with following maximum values:
$U_o = 7.3$ V; $I_o = 100$ mA; $P_o = 160$ mW; $C_i = 0$ nF; $L_i = 0$ mH.

Flowmeter with Approval codes cc = BA, BB, BJ, B2, B5 and I/O code d = D

Supply/output circuit (terminals 1 and 2):
in type of protection intrinsic safety Ex ia IIC, only for connection to a certified intrinsically safe circuit, with following maximum values:
$U_i = 30$ V; $I_i = 300$ mA; $P_i = 1$ W; $C_i = 5$ nF; $L_i = 0$ mH;

Supply/output circuit (terminals 3 and 4):
in type of protection intrinsic safety Ex ia IIC, only for connection to a certified intrinsically safe circuit, with following maximum values:
$U_i = 30$ V; $I_i = 300$ mA; $P_i = 1$ W; $C_i = 6$ nF; $L_i = 0$ mH;

Input circuit (terminals 5 and 6):
in type of protection intrinsic safety Ex ia IIC, only for connection to a certified intrinsically safe circuit, with following maximum values:
$U_i = 30$ V; $I_i = 300$ mA; $P_i = 1$ W; $C_i = 5$ nF; $L_i = 0$ mH.

Service connector:
in type of protection intrinsic safety Ex ia IIC, for connection of E+H Service Interface FXA291 or any other certified interface, with following maximum values:
$U_o = 7.3$ V; $I_o = 100$ mA; $P_o = 160$ mW; $C_i = 0$ nF; $L_i = 0$ mH.

Flowmeter with Approval codes cc = BA, BB, BJ, B2, B5 and I/O codes d = E, G

Supply/output circuit (terminals 1 and 2):
in type of protection intrinsic safety Ex ia IIC, only for connection to a certified intrinsically safe circuit, with following maximum values:
$U_i = 30$ V; $I_i = 300$ mA; $P_i = 1.2$ W; $C_i = 5$ nF; $L_i = 10$ µH;

or in accordance with FISCO, with following maximum values:
$U_i = 17.5$ V; $I_i = 550$ mA; $P_i = 5.5$ W; $C_i = 5$ nF; $L_i = 10$ µH;

Supply/output circuit (terminals 3 and 4):
in type of protection intrinsic safety Ex ia IIC, only for connection to a certified intrinsically safe circuit, with following maximum values:
$U_i = 30$ V; $I_i = 300$ mA; $P_i = 1$ W; $C_i = 6$ nF; $L_i = 0$ mH.

Service connector:
in type of protection intrinsic safety Ex ia IIC, for connection of E+H Service Interface FXA291 or any other certified interface, with following maximum values:
$U_o = 7.3$ V; $I_o = 100$ mA; $P_o = 160$ mW; $C_i = 0$ nF; $L_i = 0$ mH.

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Flowmeter with Approval codes cc = BC, BG, BK, B3, B6, TC and I/O code d = A

Supply/output circuit (terminals 1 and 2):
U_N = 35 V dc
U_m = 250 V.

Service connector:
in type of protection intrinsic safety Ex ia IIC, for connection of E+H Service Interface FXA291 or any other certified interface, with following maximum values:
U_o = 7.3 V; I_o = 100 mA; P_o = 160 mW; C_i = 0 nF; L_i = 0 mH.

Flowmeter with Approval codes cc = BC, BG, BK, B3, B6, TC and I/O code d = B

Supply/output circuit (terminals 1 and 2):
U_N = 35 V dc
U_m = 250 V.

Output circuit (terminals 3 and 4):
U_N = 35 V dc
U_m = 250 V
P_{max} = 1 W
NOTE: this circuit is functionally limited by an internal resistance of 760.5 Ω; herewith P_{max} may be determined

Service connector:
in type of protection intrinsic safety Ex ia IIC, for connection of E+H Service Interface FXA291 or any other certified interface, with following maximum values:
U_o = 7.3 V; I_o = 100 mA; P_o = 160 mW; C_i = 0 nF; L_i = 0 mH.

Flowmeter with Approval codes cc = BC, BG, BK, B3, B6, TC and I/O code d = C

Supply/output circuits (terminals 1 and 2; 3 and 4):
U_N = 30 V dc
U_m = 250 V.

Service connector:
in type of protection intrinsic safety Ex ia IIC, for connection of E+H Service Interface FXA291 or any other certified interface, with following maximum values:
U_o = 7.3 V; I_o = 100 mA; P_o = 160 mW; C_i = 0 nF; L_i = 0 mH.

Flowmeter with Approval codes cc = BC, BG, BK, B3, B6, TC and I/O code d = D

Supply/output circuit (terminals 1 and 2):
U_N = 35 V dc
U_m = 250 V.

Supply/output circuit (terminals 3 and 4):
U_N = 35 V dc
U_m = 250 V

Input circuit (terminals 5 and 6):
U_N = 35 V dc
U_m = 250 V.

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Service connector:
in type of protection intrinsic safety Ex ia IIC, for connection of E+H Service Interface FXA291 or any other certified interface, with following maximum values:
U_o = 7.3 V; I_o = 100 mA; P_o = 160 mW; C_i = 0 nF; L_i = 0 mH.

Flowmeter with Approval codes cc = BC, BG, BK, B3, B6, TC and I/O codes d = E, G

Supply/output circuit (terminals 1 and 2):
U_N = 32 V dc
U_m = 250 V
P_{max} = 0.88 W

Supply/output circuit (terminals 3 and 4):
U_N = 35 V dc
U_m = 250 V
P_{max} = 1 W
NOTE: this circuit is functionally limited by an internal resistance of 760.5 Ω; herewith P_{max} may be determined.

Service connector:
in type of protection intrinsic safety Ex ia IIC, for connection of E+H Service Interface FXA291 or any other certified interface, with following maximum values:
U_o = 7.3 V; I_o = 100 mA; P_o = 160 mW; C_i = 0 nF; L_i = 0 mH.

Flowmeter with Approval codes cc = BD, BH and I/O code d = A

Supply/output circuit (terminals 1 and 2):
in type of protection intrinsic safety Ex ic IIC, only for connection to an intrinsically safe circuit, with following maximum values:
U_i = 35 V; I_i = N/A; P_i = 1 W; C_i = 5 nF; L_i = 0 mH.

Service connector:
in type of protection intrinsic safety Ex ia IIC, for connection of E+H Service Interface FXA291 or any other certified interface, with following maximum values:
U_o = 7.3 V; I_o = 100 mA; P_o = 160 mW; C_i = 0 nF; L_i = 0 mH.

Flowmeter with Approval codes cc = BD, BH and I/O code d = B

Supply/output circuit (terminals 1 and 2):
in type of protection intrinsic safety Ex ic IIC, only for connection to an intrinsically safe circuit, with following maximum values:
U_i = 35 V; I_i = N/A; P_i = 1 W; C_i = 5 nF; L_i = 0 mH.

Supply/output circuit (terminals 3 and 4):
in type of protection intrinsic safety Ex ic IIC, only for connection to an intrinsically safe circuit, with following maximum values:
U_i = 35 V; I_i = N/A; P_i = 1 W; C_i = 6 nF; L_i = 0 mH.

Service connector:
in type of protection intrinsic safety Ex ia IIC, for connection of E+H Service Interface FXA291 or any other certified interface, with following maximum values:
U_o = 7.3 V; I_o = 100 mA; P_o = 160 mW; C_i = 0 nF; L_i = 0 mH.

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Flowmeter with Approval codes cc = BD, BH and I/O code d = C

Supply/output circuit (terminals 1 and 2):
in type of protection intrinsic safety Ex ic IIC, only for connection to an intrinsically safe circuit, with following maximum values:
U_i = 30 V; I_i = N/A; P_i = 1 W; C_i = 30 nF; L_i = 0 mH;

Supply/output circuit (terminals 3 and 4):
in type of protection intrinsic safety Ex ic IIC, only for connection to an intrinsically safe circuit, with following maximum values:
U_i = 30 V; I_i = N/A; P_i = 1 W; C_i = 30 nF; L_i = 0 mH.

Service connector:
in type of protection intrinsic safety Ex ia IIC, for connection of E+H Service Interface FXA291 or any other certified interface, with following maximum values:
U_o = 7.3 V; I_o = 100 mA; P_o = 160 mW; C_i = 0 nF; L_i = 0 mH.

Flowmeter with Approval codes cc = BD, BH and I/O code d = D

Supply/output circuit (terminals 1 and 2):
in type of protection intrinsic safety Ex ic IIC, only for connection to an intrinsically safe circuit, with following maximum values:
U_i = 35 V; I_i = N/A; P_i = 1 W; C_i = 5 nF; L_i = 0 mH;

Supply/output circuit (terminals 3 and 4):
in type of protection intrinsic safety Ex ic IIC, only for connection to an intrinsically safe circuit, with following maximum values:
U_i = 35 V; I_i = N/A; P_i = 1 W; C_i = 6 nF; L_i = 0 mH;

Input circuit (terminals 5 and 6):
in type of protection intrinsic safety Ex ic IIC, only for connection to an intrinsically safe circuit, with following maximum values:
U_i = 35 V; I_i = N/A; P_i = 1 W; C_i = 5 nF; L_i = 0 mH;

Service connector:
in type of protection intrinsic safety Ex ia IIC, for connection of E+H Service Interface FXA291 or any other certified interface, with following maximum values:
U_o = 7.3 V; I_o = 100 mA; P_o = 160 mW; C_i = 0 nF; L_i = 0 mH.

Flowmeter with Approval codes cc = BD, BH and I/O codes d = E, G

Supply/output circuit (terminals 1 and 2):
in type of protection intrinsic safety Ex ic IIC, only for connection to a certified intrinsically safe circuit, with following maximum values:
U_i = 32 V; I_i = 300 mA; P_i = N/A; C_i = 5 nF; L_i = 10 µH;

or in accordance with FISCO, with following maximum values:
U_i = 17.5 V; I_i = N/A; P_i = N/A; C_i = 5 nF; L_i = 10 µH;

Supply/output circuit (terminals 3 and 4):
in type of protection intrinsic safety Ex ic IIC, only for connection to a certified intrinsically safe circuit, with following maximum values:
U_i = 35 V; I_i = 300 mA; P_i = 1 W; C_i = 6 nF; L_i = 0 mH.

Annex 1 to EU-Type Examination Certificate KEMA 10ATEX0072, issue 9

Service connector:
in type of protection intrinsic safety Ex ia IIC, for connection of E+H Service Interface FXA291 or any other certified interface, with following maximum values:
U_o = 7.3 V; I_o = 100 mA; P_o = 160 mW; C_i = 0 nF; L_i = 0 mH.

All models

Interconnection cable for remote versions of Proline Prowirl C/D/F/R/O 200

When the interconnection between Transmitter and Sensor of the Remote versions of the Flowmeter is in type of protection intrinsic safety Ex ia IIC/IIIC or Ex ic IIC/IIIC, then the interconnecting cable shall have an L_c/R_c ≤ 38.2 µH/Ω.

External display connector

The type of protection of the external display connector depends on the Approval code of the equipment.

For transmitter models with Display codes e = M or L, prepared for connection of the external display of Endress+Hauser, Type FHX50, or any other suitable display in type of protection intrinsic safety Ex ia IIC/IIIC, the following maximum values apply:
U_o = 7.3 V; I_o = 157 mA; P_o = 362 mW; C_o = 388 nF; L_o = 149 µH;
maximum allowed cable capacitance C_c = 125 nF; maximum allowed cable inductance L_c = 149 µH.

In other cases, if used as interface in type of protection intrinsic safety Ex ia IIC/IIIC, the following maximum values apply:
U_o = 7.3 V; I_o = 327 mA; P_o = 800 mW; U_i = 7.3 V; C_i = 0 nF; L_i = 0 mH.
If used as non-intrinsically safe interface, U_N = 6.5 V.

Interface pressure sensor (only for Proline Prowirl)

in type of protection intrinsic safety Ex ia IIC, for connection of sensor DPC21, with following maximum values:
U_o = 4.1 V; I_o = 450 mA; P_o = 150 mW; C_o = 99.3 µF; L_o = 84 µH.

Annex 5 to EU-Type Examination Certificate KEMA 10ATEX0072, issue 9

This annex is applicable for flowmeters type Proline Prowirl C/D/F/R/O 200

Equipment

Vortex Flowmeters Proline Prowirl C 200, Prowirl D 200, Prowirl F 200, Prowirl R 200 and Prowirl O 200 are used for the measurement of the volume flow of gases, liquids or steam.
The transmitter consists of an electronics enclosure (the transmitter) and an integral or remote mounted sensor.

Proline Prowirl F/R/O 200 provide a version with pressure measurement as an option.

For detailed information regarding the ambient temperature range, the process temperature range and their relation to temperature class and maximum surface temperature, see thermal data below.

On Flowmeters Proline Prowirl C/D/F/R/O 200, model codes 7*2***-BA… and O7*2***-BA… with an enclosure or sensor made of aluminium, the certificate reference number on the marking plate shall be followed by an "X", or the equipment marking shall include a warning mark. The instructions shall include specific conditions of use that allow safe use of the transmitters in an area where the application of equipment of Equipment Protection Level (EPL) Ga is required.

On Flowmeters Proline Prowirl C/D/F/R/O 200, model codes 7*2***-BA… and O7*2***-BA… with an enclosure or sensor made of material containing by mass more than 7.5% of magnesium, titanium and zirconium, the certificate reference number on the marking plate shall be followed by an "X", or the equipment marking shall include a warning mark. The instructions shall include specific conditions of use that allow safe use of the transmitters in an area where the application of equipment of Equipment Protection Level (EPL) Ga, Gb or Db is required.

The maximum surface temperature Txx °C is referred to the enclosures at the maximum ambient temperature without a dust layer.

Marking

	II 1 G	**Ex ia IIC T6…T1 Ga** or
	II 1/2 G	**Ex ia IIC T6…T1 Ga/Gb** or **Ex d [ia] IIC T6…T1 Ga/Gb** or
	II 2 G	**Ex ia IIC T6…T1 Gb** or **Ex d [ia] IIC T6…T1 Gb** or
	II 3 (1) G	**Ex ic [ia Ga] IIC T6…T1 Ga** or
	II 3 (1) G	**Ex ec [ia Ga] IIC T6…T1 Gc** or
	II 1/3 (1) G	**Ex ic [ia Ga] IIC T6…T1 Ga/Gc** or
	II 2 D	**Ex tb IIIC Txx °C Db**

Type designation

Proline Prowirl C 200:
      code 7C2Bbb - ccdefhimmmn + #**#;
      code O7C2Bbb - ccdefhimmmnpp + #**#

Proline Prowirl D 200:
      code 7D2Bbb - ccdefhimmmn + #**#;
      code 7D2Cbb – ccdefghiikmmmnoo + #**#;
      code O7D2Bbb - ccdefhimmmnpp + #**#;
      code O7D2Cbb – ccdefghiikmmmnoopp + #**#

Proline Prowirl F 200:

     code 7F2Bbb - ccdefhimmmn + #**#;
     code 7F2Cbb – ccdefghiiklmmmnoo + #**#;
     code O7F2Bbb - ccdefhimmmnpp + #**#;
     code O7F2Cbb – ccdefghiiklmmmnoopp + #**#

Proline Prowirl R 200:
     code 7R2Bbb - ccdefhimmmn + #**#;
     code 7R2Cbb – ccdefghiiklmmmnoo + #**#;
     code O7R2Bbb - ccdefhimmmnpp + #**#;
     code O7R2Cbb – ccdefghiiklmmmnoopp + #**#

Proline Prowirl O 200:
     code 7O2Bbb - ccdefhimmmn + #**#;
     code 7O2Cbb – ccdefghiiklmmmnoo + #**#;
     code O7O2Bbb - ccdefhimmmnpp + #**#;
     code O7O2Cbb – ccdefghiiklmmmnoopp + #**#

Proline Prowirl 200 transmitter only:
     code 7X2Bbb - ccdefh + #**#;
     code 7X2Cbb – ccdefghioo + #**#;
     code O7X2Bbb – ccdefhpp + #**#
     code O7X2Cbb – ccdefghioopp + #**#

bb	=	Size	
		combination of number(s) and letter(s) for sizes up to DN300 (2 digits)	
cc	=	Approval code	
		BA	= Ex ia IIC T6...T1 Ga [2]
		BB	= Ex ia IIC T6...T1 Ga/Gb
		BC, TC	= Ex db [ia] IIC T6...T1 Ga/Gb
		BD	= Ex ic [ia] IIC T6...T1 Ga/Gc
		BG	= Ex ec IIC T6...T1 Gc or [2]
			Ex ec [ia Ga] IIC T6...T1 Gc [1] [2] or
		BH	= Ex ic IIC T6...T1 Gc or
			Ex ic [ia Ga] IIC T6...T1 Gc [1]
		BJ	= Ex ia IIC T6...T1 Gb
		BK	= Ex db [ia] IIC T6...T1 Gb
		B2	= Ex ia IIC T6...T1 Ga/Gb
			Ex tb IIIC T** °C Db [2]
		B3	= Ex db [ia] IIC T6...T1 Ga/Gb
			Ex tb IIIC T** °C Db [2]
d	=	I/O - interface	
		A	= 4 - 20 mA HART
		B	= 4 - 20 mA HART + pulse/frequency/switch output
		C	= 4 - 20 mA HART + 4 - 20 mA
		D	= 4 - 20 mA HART + pulse/frequency/switch output + 4 - 20 mA input
		E	= Foundation Fieldbus + pulse/frequency/switch output
		G	= Profibus PA + pulse/frequency/switch output
		X	= Sensor only
e	=	Display, operation	
		L, M = prepared for FHX50	
		any other single number or letter	
f	=	Enclosure	
		any single number or letter	
g	=	Cable, Remote version (for 7*2C**-… and O7*2C**-… only)	

		any single number or letter
h	=	Cable gland any single number or letter
i, ii	=	Sensor version i: 7*2B**-… and O7*2B**-… : any single number or letter 7X2BXX-… and O7X2BXX-… : any single number or letter ii: 7*2C**-… and O7*2C**-… : any combination of double number and/or letter
k	=	Sealing (for 7*2C**-… and O7*2C**-… only) any single number or letter
l	=	Pressure sensor any single number or letter
mmm	=	Process connection any triple numbers or letters
n	=	Calibration any single number or letter
oo	=	Device model (for 7*2C**-… and O7*2C**-… only) A1 = product version 1
pp	=	Customer version any combination of double number and/or letter
**	=	Option (no, two or multiples of two digits) any combination of numbers and letters
#	=	Additional options, not relevant for safety

Note 1: Approval code for Flowmeters with Display code e = L or M only
Note 2: Approval code BA, BG, B2, B3 not available for versions with pressure sensor

Assignment of Vortex Flowmeters series Proline Prowirl to replacement transmitter

Product flowmeters		Replacement transmitter type	
model code	device model code oo =	model code	device model code oo =
7 (C/D/F/R/O) 2B**… O7 (C/D/F/R/O) 2B**…	n.a.	7X2BXX-… O7X2BXX-…	n.a.
7 (D/F/R/O) 2C**…oo… O7 (D/F/R/O) 2C**…oo…	A1	7X2CXX-…oo O7X2CXX-…oo…	A1

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Thermal data

Ambient temperature range: -50 ℃ to +70 ℃ [1), 2)] - compact Flowmeters
-50 ℃ to +75 ℃ [1), 2)] - remote Flowmeters, Transmitter
-60 ℃ to +85 ℃   - remote Flowmeters, Sensor
Process temperature range: -200℃ to +450 ℃ [4)]

Note 1:   Minimum temperature -60 ℃ for Flowmeter wi th approval code cc = IG in combination with I/O interface codes d = A, d = B and d = D;
Note 2:   Maximum temperature restricted to +65 ℃ fo r transmitters with I/O code d = D
Note 3:   For ambient temperatures below -40 ℃, only enclosu re-variants without breathing element are allowed.
Note 4:   For process temperature T_m > 440℃ additional heat of source shall be observe d so that ignition temperature of T1 will not be exceeded

The relation between ambient temperature, process temperature and temperature class and maximum surface temperature T for the different models of Flowmeters is listed in the following tables:

Prowirl C/D/F/R/O 200 with I/O code d = A and Approval codes cc = BA, BB, BC, BD, BG, BH, BJ, BK, B2, B3, TC
Compact versions

Temp class (Txx)	Max. process temperature					
	T6 (85 ℃)	T5 (100 ℃)	T4 (135 ℃)	T3 (200 ℃)	T2 (300 ℃)	T1 (450 ℃)
Tamb (max)						
40 ℃ [1)]	80 ℃	95 ℃	130 ℃	195 ℃	290 ℃ [2)]	450 ℃ [2]
60 ℃ [1), 4)]	--	95 ℃	130 ℃	195 ℃	290 ℃ [2)]	450 ℃ [2]
65 ℃	--	--	130 ℃	195 ℃	290 ℃ [2)]	450 ℃ [2]
70 ℃	--	--	130 ℃	195 ℃ [3)]	290 ℃ [3)]	450 ℃ [3)]

Note 1: For versions with approval code BA, BB, BD, BH, BJ, B2 and provided with option OVP or TRM,
for   temperature class T6 and T5, the maximum ambient temperature decreases by 2 K
Note 2: Process temperature ≤ 280 ℃ for versions with sensor specified for T_m ≤ 280 ℃
Note 3: Process temperature > 130 ℃ not allowed fo r versions with sensor specified for T_m ≤ 280 ℃ at Tamb > 65 ℃
Note 4: For versions with pressure tapping Tamb (max) is limited for T5 to 55℃
Note 5: For versions with pressure tapping installed straight to Prowirl sensor, the maximum process temperature is limited for T6 and T5 to 40℃ and fo r T4 to 90℃.
For process temperatures > 90℃ the pressure senso r type DPC21 has to be installed using a distance tube between pressure sensor and sensor of Prowirl F/R/O. The minimum length of the tube shall not be less than 50cm

Remote versions, transmitter

Temp class (Txx)	T6 (85 ℃)	T5 (100 ℃)	T4 (135 ℃)
Tamb (max)	40 ℃ [1)]	60 ℃ [1)]	75 ℃

Note 1: For versions with approval code BA, BB, BD, BH, BJ, B2 and provided with option OVP or TRM, for temperature class T6 and T5, the maximum ambient temperature decreases by 2 K

Remote versions, sensor

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Temp class (Txx)	Max. process temperature					
	T6 (85 ℃)	T5 (100 ℃)	T4 (135 ℃)	T3 (200 ℃)	T2 (300 ℃)	T1 (450 ℃)
Tamb (max)						
55 ℃ [2]	80 ℃	95 ℃	130 ℃	195 ℃	290 ℃ [1]	450 ℃ [1]
70 ℃ [2]	--	95 ℃	130 ℃	195 ℃	290 ℃ [1]	450 ℃ [1]
85 ℃	--	--	130 ℃	195 ℃	290 ℃ [1]	450 ℃ [1]

Note 1: Process temperature ≤ 280 ℃ for versions with sensor specified for T_m ≤ 280 ℃
Note 2: For versions with pressure tapping Tamb (max) is limited for T6 to 40 ℃ and for T5 to 55℃
Note 3: For versions with pressure tapping installed straight to Prowirl sensor, the maximum process
temperature is limited for T6 and T5 to 40℃ and fo r T4 to 90℃.
For process temperatures > 90℃ the pressure senso r type DPC21 has to be installed using a
distance tube between pressure sensor and sensor of Prowirl F/R/O. The minimum length of the
tube shall not be less than 50cm

Prowirl C/D/F/R/O 200 with I/O code d = B and Approval codes cc = BA, BB, BD, BH, BJ, B2

Compact versions

Temp class (Txx)	Max. process temperature					
	T6 (85 ℃)	T5 (100 ℃)	T4 (135 ℃)	T3 (200 ℃)	T2 (300 ℃)	T1 (450 ℃)
Tamb (max)						
35 ℃ [1] [2]	80 ℃	95 ℃	130 ℃	195 ℃	290 ℃ [3]	450 ℃ [3]
50 ℃ [1] [2]	--	95 ℃	130 ℃	195 ℃	290 ℃ [3]	450 ℃ [3]
60 ℃	--	--	130 ℃	195 ℃	290 ℃ [3]	450 ℃ [3]
65 ℃	--	--	130 ℃	195 ℃	290 ℃ [3][4]	450 ℃ [3]
70 ℃	--	--	130 ℃	195 ℃ [4]	290 ℃ [3][4]	450 ℃ [3][4]

Note 1: For versions provided with option OVP or TRM, for temperature class T6 and T5, the
maximum ambient temperature decreases by 2 K
Note 2: For PFS circuit with P_i = 0.85 W, the maximum ambient temperature increases by 5 K
Note 3: Process temperature ≤ 280 ℃ for versions with sensor specified for T_m ≤ 280 ℃
Note 4: For versions with sensor specified for T_m ≤ 280 ℃, the indicated maximum ambient
temperature is applicable only if for the PFS circuit P_i = 0.7 W; for other sensors, the maximum
ambient temperature is applicable if for the PFS circuit P_i = 0.85 W
Note 5: For versions with pressure tapping installed straight to Prowirl sensor, the maximum process
temperature is limited for T6 and T5 to 40℃ and fo r T4 to 90℃.
For process temperatures > 90℃ the pressure sensor type DPC21 has to be installed using a
distance tube between pressure sensor and sensor of Prowirl F/R/O. The minimum length of
the tube shall not be less than 50cm

Remote versions, transmitter

Temp class (Txx)	T6 (85 ℃)	T5 (100 ℃)	T4 (135 ℃)
Tamb (max)	35 ℃ [1]	50 ℃ [1]	70 ℃
	40 ℃ [1][2]	60 ℃ [1][2]	75 ℃ [2]

Note 1: For versions provided with option OVP or TRM, for temperature class T6 and T5, the
maximum ambient temperature decreases by 2 K
Note 2: Maximum ambient temperature applicable only if for the PFS circuit P_i = 0.85 W

Remote versions, sensor

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Temp class	Max. process temperature					
(Txx)	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)	T3 (200 °C)	T2 (300 °C)	T1 (450 °C)
Tamb (max)						
55 °C	80 °C	95 °C	130 °C	195 °C	290 °C [1]	450 °C [1]
70 °C [2]	--	95 °C	130 °C	195 °C	290 °C [1]	450 °C [1]
85 °C	--	--	130 °C	195 °C	290 °C [1]	450 °C [1]

Note 1: Process temperature ≤ 280 °C for versions with sensor specified for T_m ≤ 280 °C
Note 2: For versions with pressure tapping Tamb (max) is limited for T6 to 40 °C and for T5 to 55°C
Note 3: For versions with pressure tapping installed straight to Prowirl sensor, the maximum process temperature is limited for T6 and T5 to 40°C and fo r T4 to 90°C.
For process temperatures > 90°C the pressure senso r type DPC21 has to be installed using a distance tube between pressure sensor and sensor of Prowirl F/R/O. The minimum length of the tube shall not be less than 50cm

Prowirl C/D/F/R/O 200 with I/O code d = B and Approval codes cc = BC, BG, BK, B3, TC

Compact versions

Temp class	Max. process temperature					
(Txx)	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)	T3 (200 °C)	T2 (300 °C)	T1 (450 °C)
Tamb (max)						
40 °C	80 °C	95 °C	130 °C	195 °C	290 °C [1]	450 °C [1]
55 °C	--	95 °C	130 °C	195 °C	290 °C [1]	450 °C [1]
65 °C	--	--	130 °C	195 °C	290 °C [1)2]	450 °C [1]
70 °C	--	--	130 °C	195 °C [2)3]	290 °C [1)2)3]	450 °C [1)3]

Note 1: Process temperature ≤ 280 °C for versions with sensor specified for T_m ≤ 280 °C
Note 2: For versions with sensor specified for T_m ≤ 280 °C, the indicated maximum ambient temperature is applicable only if for the PFS circuit P_{max} = 0.7 W
Note 3: For sensors not restricted to T_m ≤ 280 °C, the maximum ambient temperature is applica ble only if for the PFS circuit P_{max} = 0.85 W
Note 4: For versions with pressure tapping installed straight to Prowirl sensor, the maximum process temperature is limited for T6 and T5 to 40°C and fo r T4 to 90°C.
For process temperatures > 90°C the pressure sensor type DPC21 has to be installed using a distance tube between pressure sensor and sensor of Prowirl F/R/O. The minimum length of the tube shall not be less than 50cm

Remote versions, transmitter

Temp class	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)
(Txx)			
Tamb (max)	40 °C	55 °C	70 °C [1]

Note 1: Maximum ambient temperature 75 °C if for th e PFS circuit P_{max} = 0.85 W

Remote versions, sensor

Temp class	Max. process temperature					
(Txx)	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)	T3 (200 °C)	T2 (300 °C)	T1 (450 °C)
Tamb (max)						
55 °C [2]	80 °C	95 °C	130 °C	195 °C	290 °C [1]	450 °C [1]
70 °C [2]	--	95 °C	130 °C	195 °C	290 °C [1]	450 °C [1]

85 ℃	--	--	130 ℃	195 ℃	290 ℃ [1]	450 ℃ [1]

Note 1: Process temperature ≤ 280 ℃ for versions with sensor specified for T $_m$ ≤ 280 ℃
Note 2: For versions with pressure tapping Tamb (max) is limited for T6 to 40 ℃ and for T5 to 55℃
Note 3: For versions with pressure tapping installed straight to Prowirl sensor, the maximum process
temperature is limited for T6 and T5 to 40℃ and fo r T4 to 90℃.
For process temperatures > 90℃ the pressure senso r type DPC21 has to be installed using a
distance tube between pressure sensor and sensor of Prowirl F/R/O. The minimum length of the
tube shall not be less than 50cm

<u>Prowirl C/D/F/R/O 200 with I/O code d = C and Approval codes cc = BA, BB, BC, BD, BG, BH, BJ, BK, B2
B3, TC</u>

<u>Compact versions</u>

Temp class (Txx)	Max. process temperature					
	T6 (85 ℃)	T5 (100 ℃)	T4 (135 ℃)	T3 (200 ℃)	T2 (300 ℃)	T1 (450 ℃)
Tamb (max)						
40 ℃ [1]	80 ℃	95 ℃	130 ℃	195 ℃	290 ℃ [2]	450 ℃ [2]
55 ℃ [1]	--	95 ℃	130 ℃	195 ℃	290 ℃ [2]	450 ℃ [2]
60 ℃	--	--	130 ℃	195 ℃	290 ℃ [2]	450 ℃ [2]
65 ℃	--	--	130 ℃	195 ℃	290 ℃ [2,4]	450 ℃ [2,4]
70 ℃	--	--	130 ℃	195 ℃ [3,5]	290 ℃ [3,5]	450 ℃ [3,5]

Note 1: For versions with approval code BA, BB, BD, BH, BJ, B2 and provided with option OVP or
TRM, for temperature class T6 and T5, the maximum ambient temperature decreases by 2 K
Note 2: Process temperature ≤ 280 ℃ for versions with sensor specified for T $_m$ ≤ 280 ℃
Note 3: For versions with sensor specified for T $_m$ ≤ 280 ℃, the maximum ambient temperature is
70 ℃ for a maximum process temperature of 130 ℃
Note 4: For versions with sensor specified for T $_m$ ≤ 280 ℃, the maximum ambient temperature is
65 ℃ if suppy/output circuit at terminals 3 and 4 is not used (P_i = 0 W or P_{max} = 0 W)
Note 5: For versions with sensor not restricted to T $_m$ ≤ 280 ℃, the maximum ambient temperature is
70 ℃ if the suppy/output circuit at terminals 3 an d 4 is not used (P_i = 0 W or P_{max} = 0 W)
Note 6: For versions with pressure tapping installed straight to Prowirl sensor, the maximum process
temperature is limited for T6 and T5 to 40℃ and fo r T4 to 90℃.
For process temperatures > 90℃ the pressure sensor type DPC21 has to be installed using a
distance tube between pressure sensor and sensor of Prowirl F/R/O. The minimum length of
the tube shall not be less than 50cm

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Remote versions, transmitter

Temp class (Txx)	T6 (85 ℃)	T5 (100 ℃)	T4 (135 ℃)
Tamb (max)	40 ℃ [1]	55 ℃ [1]	70 ℃ [2]

Note 1: For versions with approval code BA, BB, BD, BH, BJ, B2 and provided with option OVP or TRM, for temperature class T6 and T5, the maximum ambient temperature decreases by 2 K

Note 2 The maximum ambient temperature is 75 ℃ if the suppy/output circuit at terminals 3 and 4 is not used (P_i = 0 W or P_{max} = 0 W)

Remote versions, sensor

Temp class (Txx)						
Tamb (max)	Max. process temperature					
	T6 (85 ℃)	T5 (100 ℃)	T4 (135 ℃)	T3 (200 ℃)	T2 (300 ℃)	T1 (450 ℃)
55 ℃ [2]	80 ℃	95 ℃	130 ℃	195 ℃	290 ℃ [1]	450 ℃ [1]
70 ℃ [2]	--	95 ℃	130 ℃	195 ℃	290 ℃ [1]	450 ℃ [1]
85 ℃	--	--	130 ℃	195 ℃	290 ℃ [1]	450 ℃ [1]

Note 1: Process temperature ≤ 280 ℃ for versions with sensor specified for T_m ≤ 280 ℃

Note 2: For versions with pressure tapping Tamb (max) is limited for T6 to 40 ℃ and for T5 to 55 ℃

Note 3: For versions with pressure tapping installed straight to Prowirl sensor, the maximum process temperature is limited for T6 and T5 to 40℃ and fo r T4 to 90℃.
For process temperatures > 90℃ the pressure sensor type DPC21 has to be installed using a distance tube between pressure sensor and sensor of Prowirl F/R/O. The minimum length of the tube shall not be less than 50cm

Prowirl C/D/F/R/O 200 with I/O code d = D and Approval codes cc = BA, BB, BC, BD, BG, BH, BJ, BK, B2, B3, TC

Compact versions

Temp class (Txx)						
Tamb (max)	Max. process temperature T_m					
	T6 (85 ℃)	T5 (100 ℃)	T4 (135 ℃)	T3 (200 ℃)	T2 (300 ℃)	T1 (450 ℃)
35 ℃ [1]	80 ℃	95 ℃	130 ℃	195 ℃	290 ℃ [2]	450 ℃ [3]
50 ℃ [1]	--	95 ℃	130 ℃	195 ℃	290 ℃ [2]	450 ℃ [3]
55 ℃	--	--	--	195 ℃	290 ℃ [2]	450 ℃ [3]
60 ℃	--	--	--	195 ℃	290 ℃ [3]	450 ℃ [3]
65 ℃	--	--	--	--	290 ℃ [3]	450 ℃ [3]

Note 1: For versions with approval code BA, BB, BD, BH, BJ, B2 and provided with option OVP or TRM, for temperature class T6 and T5, the maximum ambient temperature decreases by 2 K

Note 2: Process temperature ≤ 280 ℃ for versions with sensor specified for T_m ≤ 280 ℃

Note 3: T1, T2 not applicable for versions with sensor specified for T_m ≤ 280 ℃

Note 4: For versions with pressure tapping installed straight to Prowirl sensor, the maximum process temperature is limited for T6 and T5 to 40℃ and fo r T4 to 90℃.
For process temperatures > 90℃ the pressure senso r type DPC21 has to be installed using a distance tube between pressure sensor and sensor of Prowirl F/R/O. The minimum length of the tube shall not be less than 50cm

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Remote versions, transmitter

Temp class (Txx)	T6 (85 ℃)	T5 (100 ℃)	T4 (135 ℃)
Tamb (max)	35 ℃ [1]	50 ℃ [1]	65 ℃

Note 1: For versions with approval code BA, BB, BD, BH, BJ, B2 and provided with option OVP or TRM, for temperature class T6 and T5, the maximum ambient temperature decreases by 2 K

Remote versions, sensor

Temp class (Txx)	Max. process temperature T_m					
	T6 (85 ℃)	T5 (100 ℃)	T4 (135 ℃)	T3 (200 ℃)	T2 (300 ℃)	T1 (450 ℃)
Tamb (max)						
55 ℃ [2]	80 ℃	95 ℃	130 ℃	195 ℃	290 ℃ [1]	450 ℃ [1]
70 ℃ [2]	--	95 ℃	130 ℃	195 ℃	290 ℃ [1]	450 ℃ [1]
85 ℃	--	--	130 ℃	195 ℃	290 ℃ [1]	450 ℃ [1]

Note 1: Process temperature ≤ 280 ℃ for versions with sensor specified for T_m ≤ 280 ℃
Note 2: For versions with pressure tapping Tamb (max) is limited for T6 to 40 ℃ and for T5 to 55 ℃
Note 3: For versions with pressure tapping installed straight to Prowirl sensor, the maximum process temperature is limited for T6 and T5 to 40℃ and fo r T4 to 90℃.
For process temperatures > 90℃ the pressure sensor type DPC21 has to be installed using a distance tube between pressure sensor and sensor of Prowirl F/R/O. The minimum length of the tube shall not be less than 50cm

Prowirl C/D/F/R/O 200 with I/O codes d = E and G and Approval codes cc = BA, BB, BC, BD, BG, BH, BJ, BK, B2, B3, TC

Compact versions

Temp class (Txx)	Max. process temperature T_m					
	T6 (85 ℃)	T5 (100 ℃)	T4 (135 ℃)	T3 (200 ℃)	T2 (300 ℃)	T1 (450 ℃)
Tamb (max)						
40 ℃ [1]	80 ℃	95 ℃	130 ℃	195 ℃	290 ℃ [2]	450 ℃ [2]
50 ℃ [1)3)]	--	95 ℃	130 ℃	195 ℃	290 ℃ [2]	450 ℃ [2]
60 ℃	--	--	130 ℃	195 ℃	290 ℃ [2]	450 ℃ [2]
65 ℃	--	--	130 ℃	195 ℃	290 ℃ [2)4)]	450 ℃ [2)4)]
70 ℃	--	--	130 ℃	195 ℃ [5]	290 ℃ [2)5)]	450 ℃ [2)5)]

Note 1: For versions with approval code BA, BB, BD, BH, BJ, B2 and provided with option OVP or TRM, for temperature class T6 and T5, the maximum ambient temperature decreases by 2 K
Note 2: Process temperature ≤ 280 ℃ for versions with sensor specified for T_m ≤ 280 ℃
Note 3: Maximum ambient temperature is 60 ℃ if PFS circuit not used
Note 4: For versions with sensor specified for T_m ≤ 280 ℃, the maximum ambient temperature is 65 ℃ if PFS circuit not used
Note 5: Maximum ambient temperature is 70 ℃ if PFS circuit not used
Note 6: For versions with pressure tapping installed straight to Prowirl sensor, the maximum process temperature is limited for T6 and T5 to 40℃ and fo r T4 to 90℃.
For process temperatures > 90℃ the pressure sensor type DPC21 has to be installed using a distance tube between pressure sensor and sensor of Prowirl F/R/O. The minimum length of the tube shall not be less than 50cm

Remote versions, transmitter

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Temp class (Txx)	T6 (85 ℃)	T5 (100 ℃)	T4 (135 ℃)
Tamb (max)	40 ℃ [1]	55 ℃ [1]	70 ℃ [2]

Note 1: For versions with approval code BA, BB, BD, BH, BJ, B2 and provided with option OVP or TRM, for temperature class T6 and T5, the maximum ambient temperature decreases by 2 K
Note 2   The maximum ambient temperature is 75 ℃ if PFS circuit not used

Remote versions, sensor

Temp class (Txx)	Max. process temperature					
	T6 (85 ℃)	T5 (100 ℃)	T4 (135 ℃)	T3 (200 ℃)	T2 (300 ℃)	T1 (450 ℃)
Tamb (max)						
55 ℃ [2]	80 ℃	95 ℃	130 ℃	195 ℃	290 ℃ [1]	450 ℃ [1]
70 ℃ [2]	--	95 ℃	130 ℃	195 ℃	290 ℃ [1]	450 ℃ [1]
85 ℃	--	--	130 ℃	195 ℃	290 ℃ [1]	450 ℃ [1]

Note 1: Process temperature ≤ 280 ℃ for versions with sensor specified for T_m ≤ 280 ℃
Note 2: For versions with pressure tapping Tamb (max) is limited for T6 to 40 ℃ and for T5 to 55 ℃
Note 3: For versions with pressure tapping installed straight to Prowirl sensor, the maximum process temperature is limited for T6 and T5 to 40℃ and fo r T4 to 90℃.
For process temperatures > 90℃ the pressure sensor type DPC21 has to be installed using a distance tube between pressure sensor and sensor of Prowirl F/R/O. The minimum length of the tube shall not be less than 50cm