IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

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

Certificate No.:	**IECEx KEM 10.0032**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 8	Issue 7 (2017-09-20) Issue 6 (2016-09-23) Issue 5 (2016-06-28) Issue 4 (2014-03-25) Issue 3 (2013-07-19) Issue 2 (2012-07-03) Issue 1 (2010-11-19) Issue 0 (2010-05-11)
Date of Issue:	2021-08-06		
Applicant:	**Endress+Hauser Flowtec AG** Kägenstrasse 7 4153 Reinach BL1 **Switzerland**		
Equipment:	**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**		
Optional accessory:			
Type of Protection:	**Ex db, Ex ec, Ex ia, Ex ic, Ex tb**		
Marking:	Marking as listed in the Annexes to this certificate, not repeated here because of the many variations.		

Approved for issue on behalf of the IECEx Certification Body: **R. Schuller**

Position: **Certification Manager**

Signature: (for printed version)

Date: 2021-08-06

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.

Certificate issued by:

DEKRA Certification B.V.
Meander 1051
6825 MJ Arnhem
Netherlands

IECEx Certificate of Conformity

Certificate No.: **IECEx KEM 10.0032** Page 2 of 4

Date of issue: 2021-08-06 Issue No: 8

Manufacturer: **Endress+Hauser Flowtec AG**
Kägenstrasse 7
4153 Reinach BL1
Switzerland

Additional manufacturing locations: Refer to Annex 6

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

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

IEC 60079-0:2017 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-1:2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11:2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26:2014-10 Edition:3.0	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
IEC 60079-31:2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7:2017 Edition:5.1	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

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

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

Test Report:

NL/DEK/ExTR12.0029/06

Quality Assessment Report:

DE/TUN/QAR06.0004/09

IECEx Certificate of Conformity

EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

Description
Coriolis Massflow Transmitters series Proline Promass, for measurement of the mass flow of gases and liquids, based on controlled Coriolis forces.
See Annex 2 for more details of the Promass description.

Magnetic-inductive flowmeters series Proline Promag H 200, Proline Promag P 200, Proline Promag E 200 and Proline Promag W 200 are intended for measurement of flow of conductive fluids, based on Faraday's law.
See Annex 3 for more details of the Promag description.

Ultrasonic Flowmeter Proline Prosonic Flow B 200 is used for measurement of a gas flow.
See Annex 4 for more details of the Prosonic description.

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.
See Annex 5 for more details of the Prowirl description.

Electrical data

See Annex 1 for the electrical data.

SPECIFIC CONDITIONS OF USE: NO

IECEx Certificate of Conformity

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

1. Type of protection Ex nA as well as [ia Da] are no longer in scope
2. Assessed per IEC 60079-0 Ed. 7 and IEC 60079-7 Ed. 5.1
3. Minor constructional changes.

Annexes:

225622000-Annex1 to ExTR12.0029.06(Promass_Promag_Prosonic_Prowirl).pdf
225622000-Annex2 to ExTR12.0029.06(Promass).pdf
225622000-Annex3 to ExTR12.0029.06(Promag).pdf
225622000-Annex4 to ExTR12.0029.06(Prosonic).pdf
225622000-Annex5 to ExTR12.0029.06(Prowirl).pdf
225622000-Annex6-to IECEx KEM 10.0032.pdf

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 = IA, IB, IJ, I4, I6 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 = IA, IB, IJ, I4, I6 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;

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 = IA, IB, IJ, I4, I6 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;

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 = IA, IB, IJ, I4, I6 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;

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 = IA, IB, IJ, I4, I6 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.

Flowmeter with Approval codes cc = IC, IG, IK, I5, I7, 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 = IC, IG, IK, I5, I7, TC and I/O code d = B

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
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 = IC, IG, IK, I5, I7, 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 = IC, IG, IK, I5, I7, 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.

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 = IC, IG, IK, I5, I7, 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 = ID, IH 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 = ID, IH 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.

Flowmeter with Approval codes cc = ID, IH 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 = ID, IH 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 = ID, IH 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.

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 $L_c/R_c \leq 38.2$ 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.

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***-IA… and O7*2***-IA… 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***-IA… and O7*2***-IA… 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

Ex ia IIC T6...T1 Ga	or
Ex ia IIC T6...T1 Ga/Gb	or
Ex db [ia] IIC T6...T1 Ga/Gb	or
Ex ic [ia] IIC T6...T1 Ga/Gc	or
Ex ec IIC T6...T1 Gc	or
Ex ec [ia Ga] IIC T6...T1 Gc	or
Ex ic IIC T6...T1 Gc	or
Ex ic [ia Ga] IIC T6...T1 Gc	or
Ex ia IIC T6...T1 Gb	or
Ex db [ia] IIC T6...T1 Gb	or
Ex ia IIC T6...T1 Ga/Gb	or
Ex tb IIIC T** °C Db	or
Ex db [ia] IIC T6...T1 Ga/Gb	or
Ex tb IIIC T** °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

IA	=	Ex ia IIC T6...T1 Ga	2)
IB	=	Ex ia IIC T6...T1 Ga/Gb	
IC, TC	=	Ex db [ia] IIC T6...T1 Ga/Gb	
ID	=	Ex ic [ia] IIC T6...T1 Ga/Gc	
IG	=	Ex ec IIC T6...T1 Gc or	2)
		Ex ec [ia Ga] IIC T6...T1 Gc	1), 2) or
IH	=	Ex ic IIC T6...T1 Gc or	
		Ex ic [ia Ga] IIC T6...T1 Gc	1)
IJ	=	Ex ia IIC T6...T1 Gb	
IK	=	Ex db [ia] IIC T6...T1 Gb	
I4	=	Ex ia IIC T6...T1 Ga/Gb	
		Ex tb IIIC T** °C Db	2)
I5	=	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 IA, IG, I4, I5 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

Thermal data

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

Note 1: Minimum temperature -60 °C for Flowmeter with 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 °C for transmitters with I/O code d = D
Note 3: For ambient temperatures below -40 °C, only enclosure-variants without breathing element are allowed.
Note 4: For process temperature T_m > 440°C additional heat of source shall be observed 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 = IA, IB, IC, ID, IG, IH, IJ, IK, I4, I5, TC Compact versions

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

Note 1: For versions with approval code IA, IB, ID, IH, IJ, I4 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 °C for versions with sensor specified for T_m ≤ 280 °C
Note 3: Process temperature > 130 °C not allowed for versions with sensor specified for T_m ≤ 280 °C at Tamb > 65 °C
Note 4: For versions with pressure tapping Tamb (max) is limited for T5 to 55°C
Note 5: For versions with pressure tapping installed straight to Prowirl sensor, the maximum process temperature is limited for T6 and T5 to 40°C and for 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 (Txx)	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)
Tamb (max)	40 °C 1)	60 °C 1)	75 °C

Note 1: For versions with approval code IA, IB, ID, IH, IJ, I4 and provided with option OVP or TRM, for temperature class T6 and T5, the maximum ambient temperature decreases by 2 K

Remote versions, sensor

	Max. process temperature					
Temp class (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 °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 for 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

Prowirl C/D/F/R/O 200 with I/O code d = B and Approval codes cc = IA, IB, ID, IH, IJ, I4

Compact versions

	Max. process temperature					
Temp class (Txx)	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)	T3 (200 °C)	T2 (300 °C)	T1 (450 °C)
Tamb (max)						
35 °C 1) 2)	80 °C	95 °C	130 °C	195 °C	290 °C 3)	450 °C 3)
50 °C 1) 2)	--	95 °C	130 °C	195 °C	290 °C 3)	450 °C 3)
60 °C	--	--	130 °C	195 °C	290 °C 3)	450 °C 3)
65 °C	--	--	130 °C	195 °C	290 °C 3)4)	450 °C 3)
70 °C	--	--	130 °C	195 °C 4)	290 °C 3)4)	450 °C 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 °C for versions with sensor specified for T_m ≤ 280 °C
Note 4: For versions with sensor specified for T_m ≤ 280 °C, 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°C and for 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 (Txx)	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)
Tamb (max)	35 °C 1)	50 °C 1)	70 °C
	40 °C 1)2)	60 °C 1)2)	75 °C 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

	Max. process temperature					
Temp class (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 for 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

Prowirl C/D/F/R/O 200 with I/O code d = B and Approval codes cc = IC, IG, IK, I5, TC

Compact versions

	Max. process temperature					
Temp class (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 applicable 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 for 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 (Txx)	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)
Tamb (max)	40 °C	55 °C	70 °C [1)]

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

Remote versions, sensor

	Max. process temperature					
Temp class (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 °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 for 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

Prowirl C/D/F/R/O 200 with I/O code d = C and Approval codes cc = IA, IB, IC, ID, IG, IH, IJ, IK, I4, I5, TC

Compact versions

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

Note 1: For versions with approval code IA, IB, ID, IH, IJ, I4 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 °C for versions with sensor specified for T_m ≤ 280 °C
Note 3: For versions with sensor specified for T_m ≤ 280 °C, the maximum ambient temperature is 70 °C for a maximum process temperature of 130 °C
Note 4: For versions with sensor specified for T_m ≤ 280 °C, the maximum ambient temperature is 65 °C 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 °C, the maximum ambient temperature is 70 °C if the suppy/output circuit at terminals 3 and 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°C and for 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 (Txx)	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)
Tamb (max)	40 °C [1)]	55 °C [1)]	70 °C [2)]

Note 1: For versions with approval code IA, IB, ID, IH, IJ, I4 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 °C 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

	Max. process temperature					
Temp class (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 °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 for 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

Prowirl C/D/F/R/O 200 with I/O code d = D and Approval codes cc = IA, IB, IC, ID, IG, IH, IJ, IK, I4, I5, TC

Compact versions

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

Note 1: For versions with approval code IA, IB, ID, IH, IJ, I4 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 °C for versions with sensor specified for T_m ≤ 280 °C
Note 3: T1, T2 not applicable for versions with sensor specified for T_m ≤ 280 °C
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 for 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 (Txx)	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)
Tamb (max)	35 °C 1)	50 °C 1)	65 °C

Note 1: For versions with approval code IA, IB, ID, IH, IJ, I4 and provided with option OVP or TRM, for temperature class T6 and T5, the maximum ambient temperature decreases by 2 K

Remote versions, sensor

	Max. process temperature T_m					
Temp class (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 °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 for 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

Prowirl C/D/F/R/O 200 with I/O codes d = E and G and Approval codes cc = IA, IB, IC, ID, IG, IH, IJ, IK, I4, I5, TC

Compact versions

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

Note 1: For versions with approval code IA, IB, ID, IH, IJ, I4 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 °C for versions with sensor specified for T_m ≤ 280 °C
Note 3: Maximum ambient temperature is 60 °C if PFS circuit not used
Note 4: For versions with sensor specified for T_m ≤ 280 °C, the maximum ambient temperature is 65 °C if PFS circuit not used
Note 5: Maximum ambient temperature is 70 °C 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°C and for 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 (Txx)	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)
Tamb (max)	40 °C [1)]	55 °C [1)]	70 °C [2)]

Note 1: For versions with approval code IA, IB, ID, IH, IJ, I4 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 °C if PFS circuit not used

Remote versions, sensor

	Max. process temperature					
Temp class (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 °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 for 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

Annex 6 to Certificate of Conformity IECEx KEM 10.0032

Manufacturing locations

1. Endress+Hauser Flowtec AG
   Kägenstrasse 7
   4153 Reinach BL
   Switzerland

2. Endress+Hauser Flowtec AG
   35, rue de l'Europe
   68700 Cernay
   France

3. Endress+Hauser Flowtec AG, Division USA
   2330 Endress Place
   Greenwood, Indiana 46143
   USA

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

5. Endress+Hauser Flowtec (India) Pvt. Ltd.
   M-171-176 Waluj MIDC, Industrial Area
   Aurangabad 431136, Maharashtra State
   India

6. Endress+Hauser Flowtec (Brasil) Fluxômetros Ltda.
   Estrada Municipal Antonio Sesti, 600-A - Recreio Costa Verde
   Itatiba - SP 13254-085
   Brazil