

GOVERNMENT APPROVED TEST LABORATORY
 IN TERMS OF ARP 0108: "REGULATORY REQUIREMENTS FOR EXPLOSION PROTECTED APPARATUS"

IA CERTIFICATE

Date Issued: **17 Apr 2018**
 *Expiry date: **17 Apr 2021**
Page 1 of 14
Issue: 1

Ex – Type Examination Certificate

Certificate Number: **S-XPL/15.0446**
 Equipment: **Vortex Flowmeter**
 Model / Type: **Proline Prowirl C/D/F/R/O 200**
 Applicant: **Endress + Hauser (Pty) Ltd**
PO Box 783996
Sandton
2146

Manufacturer: **Endress+Hauser Flowtec AG**
 Serial No: All serial numbers imported between issued- and expire date and all serial numbers covered by a valid report or acceptable product certification mark.

Supplied by
Endress + Hauser (Pty) Ltd
 Identified by Inspection Authority number
S-XPL/15.0446

And as described in the Explolabs file number **XPL/16208/15.0446** is hereby certified "Explosion Protected (Refer to clause 1, for Ex Rating)", having been examined and inspected in accordance with the relevant requirements of South African Standards.

- | | |
|---|---|
| <p>SANS 60079-0: 2012 Ed 5
IEC 60079-0: 2011 Ed 6</p> <p>SANS 60079-1: 2009 Ed 4
IEC 60079-1: 2007 Ed 6</p> <p>SANS 60079-11: 2012 Ed 4
IEC 60079-11: 2011 Ed 6</p> <p>SANS 60079-15: 2010 Ed 4
IEC 60079-15: 2010 Ed 4</p> <p>IEC/SANS 60079-26: 2014</p> <p>SANS 60079-31: 2014 Ed 2
IEC 60079-31: 2013 Ed 2</p> | <p>Explosive atmospheres Part 0: Equipment — General requirements</p> <p>Explosive atmospheres Part 1: Equipment protection by flameproof enclosures "d"</p> <p>Explosive atmospheres Part 11: Equipment protection by intrinsic safety "i"</p> <p>Explosive atmospheres Part 15: Equipment protection by type of protection "n"</p> <p>Explosive atmospheres – Part 26: Equipment with equipment protection level (EPL) Ga</p> <p>Explosive atmospheres Part 31: Equipment dust ignition protection by enclosure "t"</p> |
|---|---|

Risk of ignition provided:

Protection afforded	Equipment Protection Level (EPL)	Performance of protection	Conditions of operation	T class or Max Surface Temp (°C)
	Group			
Very high	Ga Group II	Two independent means of protection or safe even when two faults occur independently of each other	Equipment remains functioning in zones 0, 1 and 2	T6 (85°C) T1 (450°C)
High	Gb Group II	Suitable for normal operation and frequently occurring disturbances or equipment where faults are normally taken into account	Equipment remains functioning in zones 1 and 2	T6 (85°C) T1 (450°C)
High	Db Group III		Equipment remains functioning in zones 21 and 22	Txx°C
Enhanced	Gc Group II	Suitable for normal operation	Equipment remains functioning in zone 2	T6 (85°C) T1 (450°C)

1. GENERAL

The marking of the Vortex Flowmeter shall include the following:

Ex ia IIC T6 - T1 Ga
Ex ia IIC T6 - T1 Ga/Gb
Ex d [ia] IIC T6 - T1 Ga/Gb
Ex ic [ia] IIC T6 - T1 Ga/Gc
Ex ia IIC T6 - T1 Gb
Ex d [ia] IIC T6 - T1 Gb
Ex nA [ia Ga] IIC T6 - T1 Gc
Ex ic [ia Ga] IIC T6 - T1 Gc
Ex ic IIC T6 - T1 Gc
Ex nA IIC T6 - T1 Gc
Ex tb III C Txx °C Db
Ex tb [ia Da] III C Txx °C Db

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.

Depending on the applied interface, the sensor measurement signal is converted into an electrical output signal. All sensors of Flowmeters Proline Prowirl C 200, Prowirl D 200, Prowirl F 200, Prowirl R 200 and Prowirl O 200 are providing a connection facility for pressure measurement as an option.

On Flowmeters Proline Prowirl C/D/F/R/O 200, model codes 7*2B**-IA ... and O7*2B**-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*2B**- ... and O7*2B**- ... 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, Da or Db is required.

Equipment

Vortex Flowmeters series Proline Prowirl, for measurement of the volume flow of gases and liquids, based on the Vortex principle.

Remote versions, sensor

Temp class (Txx)	Max. process temperature					
	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)	T3 (200 °C)	T2 (300 °C)	T1 (450 °C)
T _{amb} (max)						
55 °C	80 °C	95 °C	130 °C	195 °C	290 °C ¹⁾	450 °C ¹⁾
70 °C	--	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

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

Temp class (Txx)	Max. process temperature					
	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 Pi = 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 Pi = 0.7 W; for other sensors, the maximum ambient temperature is applicable if for the PFS circuit Pi = 0.85 W

Remote versions, transmitter

Temp class (Txx)	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)
T _{amb} (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 Pi = 0.85 W

Remote versions, sensor

Temp class (Txx)	Max. process temperature					
	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	--	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

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

Compact versions

Temp class (Txx)	Max. process temperature					
	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)	T3 (200 °C)	T2 (300 °C)	T1 (450 °C)
T _{amb} (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 $T_m \leq 280$ °C

Note 2: For versions with sensor specified for $T_m \leq 280$ °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 $T_m \leq 280$ °C, the maximum ambient temperature is applicable only if for the PFS circuit $P_{max} = 0.85$ W

Remote versions, transmitter

Temp class (Txx)	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)
T _{amb} (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

Temp class (Txx)	Max. process temperature					
	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)	T3 (200 °C)	T2 (300 °C)	T1 (450 °C)
T _{amb} (max)						
55 °C	80 °C	95 °C	130 °C	195 °C	290 °C ¹⁾	450 °C ¹⁾
70 °C	--	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 $T_m \leq 280$ °C

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

Temp class (Txx)	Max. process temperature					
	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)	T3 (200 °C)	T2 (300 °C)	T1 (450 °C)
T _{amb} (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 $T_m \leq 280$ °C

Note 3: For versions with sensor specified for $T_m \leq 280$ °C, the maximum ambient temperature is 70 °C for a maximum process temperature of 130 °C

ANNEX TO CERTIFICATE NO S-XPL/15.0446

Note 4: For versions with sensor specified for $T_m \leq 280 \text{ }^\circ\text{C}$, the maximum ambient temperature is $65 \text{ }^\circ\text{C}$ if supply/output circuit at terminals 3 and 4 is not used ($P_i = 0 \text{ W}$ or $P_{\text{max}} = 0 \text{ W}$)

Note 5: For versions with sensor not restricted to $T_m \leq 280 \text{ }^\circ\text{C}$, the maximum ambient temperature is $70 \text{ }^\circ\text{C}$ if the supply/output circuit at terminals 3 and 4 is not used ($P_i = 0 \text{ W}$ or $P_{\text{max}} = 0 \text{ W}$)

Remote versions, transmitter

Temp class (Txx)	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)
T _{amb} (max)	40 °C	55 °C ¹⁾	75 °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 $75 \text{ }^\circ\text{C}$ if the supply/output circuit at terminals 3 and 4 is not used ($P_i = 0 \text{ W}$ or $P_{\text{max}} = 0 \text{ W}$)

Remote versions, sensor

Temp class (Txx)	Max. process temperature					
	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)	T3 (200 °C)	T2 (300 °C)	T1 (450 °C)
T _{amb} (max)						
55 °C	80 °C	95 °C	130 °C	195 °C	290 °C ¹⁾	450 °C ¹⁾
70 °C	--	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 $\leq 280 \text{ }^\circ\text{C}$ for versions with sensor specified for $T_m \leq 280 \text{ }^\circ\text{C}$

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

Temp class (Txx)	Max. process temperature					
	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)	T3 (200 °C)	T2 (300 °C)	T1 (450 °C)
T _{amb} (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⁾	--

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 $\leq 280 \text{ }^\circ\text{C}$ for versions with sensor specified for $T_m \leq 280 \text{ }^\circ\text{C}$

Note 3: T1, T2 not applicable for versions with sensor specified for $T_m \leq 280 \text{ }^\circ\text{C}$

Remote versions, transmitter

Temp class (Txx)	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)
T _{amb} (max)	35 °C ¹⁾	50 °C ¹⁾	65 °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

Remote versions, sensor

Temp class (Txx)	Max. process temperature					
	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)	T3 (200 °C)	T2 (300 °C)	T1 (450 °C)
T _{amb} (max)						
55 °C	80 °C	95 °C	130 °C	195 °C	290 °C ¹⁾	450 °C ¹⁾
70 °C	--	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 $T_m \leq 280$ °C

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

Temp class (Txx)	Max. process temperature					
	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)	T3 (200 °C)	T2 (300 °C)	T1 (450 °C)
T _{amb} (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 $T_m \leq 280$ °C

Note 3: Maximum ambient temperature is 60 °C if PFS circuit not used Note 4: For versions with sensor specified for $T_m \leq 280$ °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

Remote versions, transmitter

Temp class (Txx)	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)
T _{amb} (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

Temp class (Txx)	Max. process temperature					
	T6 (85 °C)	T5 (100 °C)	T4 (135 °C)	T3 (200 °C)	T2 (300 °C)	T1 (450 °C)
T _{amb} (max)						
55 °C	80 °C	95 °C	130 °C	195 °C	290 °C ¹⁾	450 °C ¹⁾
70 °C	--	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 $T_m \leq 280$ °C

Electrical data

Prowirl C/D/F/R/O 200 with Approval codes cc = IA, IB, IJ, I4 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:

$U_i = 30 \text{ V}$; $I_i = 300 \text{ mA}$; $P_i = 1 \text{ W}$; $C_i = 5 \text{ nF}$; $L_i = 0 \text{ mH}$.

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:

$U_o = 7.3 \text{ V}$; $I_o = 100 \text{ mA}$; $P_o = 160 \text{ mW}$; $C_i = 0 \text{ nF}$; $L_i = 0 \text{ mH}$.

Prowirl C/D/F/R/O 200 with Approval codes cc = IA, IB, IJ, I4 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:

$U_i = 30 \text{ V}$; $I_i = 300 \text{ mA}$; $P_i = 1 \text{ W}$; $C_i = 5 \text{ nF}$; $L_i = 0 \text{ mH}$;

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:

$U_i = 30 \text{ V}$; $I_i = 300 \text{ mA}$; $P_i = 1 \text{ W}$; $C_i = 6 \text{ nF}$; $L_i = 0 \text{ mH}$.

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:

$U_o = 7.3 \text{ V}$; $I_o = 100 \text{ mA}$; $P_o = 160 \text{ mW}$; $C_i = 0 \text{ nF}$; $L_i = 0 \text{ mH}$.

Prowirl C/D/F/R/O 200 with Approval codes cc = IA, IB, IJ, I4 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:

$U_i = 30 \text{ V}$; $I_i = 300 \text{ mA}$; $P_i = 1 \text{ W}$; $C_i = 30 \text{ nF}$; $L_i = 0 \text{ mH}$;

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:

$U_i = 30 \text{ V}$; $I_i = 300 \text{ mA}$; $P_i = 1 \text{ W}$; $C_i = 30 \text{ nF}$; $L_i = 0 \text{ mH}$.

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:

$U_o = 7.3 \text{ V}$; $I_o = 100 \text{ mA}$; $P_o = 160 \text{ mW}$; $C_i = 0 \text{ nF}$; $L_i = 0 \text{ mH}$.

Prowirl C/D/F/R/O 200 with Approval codes cc = IA, IB, IJ, I4 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:

$U_i = 30 \text{ V}$; $I_i = 300 \text{ mA}$; $P_i = 1 \text{ W}$; $C_i = 5 \text{ nF}$; $L_i = 0 \text{ mH}$;

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:

$U_i = 30 \text{ V}$; $I_i = 300 \text{ mA}$; $P_i = 1 \text{ W}$; $C_i = 6 \text{ nF}$; $L_i = 0 \text{ mH}$;

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:

$U_i = 30 \text{ V}$; $I_i = 300 \text{ mA}$; $P_i = 1 \text{ W}$; $C_i = 5 \text{ nF}$; $L_i = 0 \text{ mH}$.

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:
 $U_o = 7.3 \text{ V}$; $I_o = 100 \text{ mA}$; $P_o = 160 \text{ mW}$; $C_i = 0 \text{ nF}$; $L_i = 0 \text{ mH}$.

Prowirl C/D/F/R/O 200 with Approval codes cc = IA, IB, IJ, I4 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:
 $U_i = 30 \text{ V}$; $I_i = 300 \text{ mA}$; $P_i = 1.2 \text{ W}$; $C_i = 5 \text{ nF}$; $L_i = 10 \text{ } \mu\text{H}$;

or in accordance with FISCO, with following maximum values:

$U_i = 17.5 \text{ V}$; $I_i = 550 \text{ mA}$; $P_i = 5.5 \text{ W}$; $C_i = 5 \text{ nF}$; $L_i = 10 \text{ } \mu\text{H}$;

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:
 $U_i = 30 \text{ V}$; $I_i = 300 \text{ mA}$; $P_i = 1 \text{ W}$; $C_i = 6 \text{ nF}$; $L_i = 0 \text{ mH}$.

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:
 $U_o = 7.3 \text{ V}$; $I_o = 100 \text{ mA}$; $P_o = 160 \text{ mW}$; $C_i = 0 \text{ nF}$; $L_i = 0 \text{ mH}$.

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

Supply/output circuit (terminals 1 and 2):

$U_N = 35 \text{ V dc}$ $U_m = 250 \text{ V}$.

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:
 $U_o = 7.3 \text{ V}$; $I_o = 100 \text{ mA}$; $P_o = 160 \text{ mW}$; $C_i = 0 \text{ nF}$; $L_i = 0 \text{ mH}$.

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

Supply/output circuit (terminals 1 and 2):

$U_N = 35 \text{ V dc}$

$U_m = 250 \text{ V}$.

Output circuit (terminals 3 and 4):

$U_N = 35 \text{ V dc}$

$U_m = 250 \text{ V}$

$P_{\max} = 1 \text{ W}$

NOTE: this circuit is functionally limited by an internal resistance of $760.5 \text{ } \Omega$; 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:
 $U_o = 7.3 \text{ V}$; $I_o = 100 \text{ mA}$; $P_o = 160 \text{ mW}$; $C_i = 0 \text{ nF}$; $L_i = 0 \text{ mH}$.

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

Supply/output circuits (terminals 1 and 2; 3 and 4):

$U_N = 30 \text{ V dc}$ $U_m = 250 \text{ V}$.

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:
 $U_o = 7.3 \text{ V}$; $I_o = 100 \text{ mA}$; $P_o = 160 \text{ mW}$; $C_i = 0 \text{ nF}$; $L_i = 0 \text{ mH}$.

Prowirl C/D/F/R/O 200 with Approval codes cc = IC, IG, IK, IS, TC and I/O code d = D
 Supply/output circuit (terminals 1 and 2):
 $U_N = 35 \text{ V dc}$ $U_m = 250 \text{ V}$.

Output circuit (terminals 3 and 4):

$U_N = 35 \text{ V dc}$
 $U_m = 250 \text{ V}$
 $P_{\max} = 1 \text{ W}$.

NOTE: this circuit is functionally limited by an internal resistance of 760.5Ω ; herewith P_{\max} may be determined

Input circuit (terminals 5 and 6):

$U_N = 35 \text{ V dc}$
 $U_m = 250 \text{ V}$.

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:

$U_o = 7.3 \text{ V}$; $I_o = 100 \text{ mA}$; $P_o = 160 \text{ mW}$; $C_i = 0 \text{ nF}$; $L_i = 0 \text{ mH}$.

Prowirl C/D/F/R/O 200 with Approval codes cc = IC, IG, IK, IS, TC and I/O codes d = E, G

Supply/output circuit (terminals 1 and 2):

$U_N = 32 \text{ V dc}$
 $U_m = 250 \text{ V}$
 $P_{\max} = 0.88 \text{ W}$

Supply/output circuit (terminals 3 and 4):

$U_N = 35 \text{ V dc}$
 $U_m = 250 \text{ V}$
 $P_{\max} = 1 \text{ W}$

NOTE: this circuit is functionally limited by an internal resistance of 760.5Ω ; 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:

$U_o = 7.3 \text{ V}$; $I_o = 100 \text{ mA}$; $P_o = 160 \text{ mW}$; $C_i = 0 \text{ nF}$; $L_i = 0 \text{ mH}$.

Prowirl C/D/F/R/O 200 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:

$U_i = 35 \text{ V}$; $I_i = \text{N/A}$; $P_i = 1 \text{ W}$; $C_i = 5 \text{ nF}$; $L_i = 0 \text{ mH}$.

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:

$U_o = 7.3 \text{ V}$; $I_o = 100 \text{ mA}$; $P_o = 160 \text{ mW}$; $C_i = 0 \text{ nF}$; $L_i = 0 \text{ mH}$.

Prowirl C/D/F/R/O 200 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:

$U_i = 35 \text{ V}$; $I_i = \text{N/A}$; $P_i = 1 \text{ W}$; $C_i = 5 \text{ nF}$; $L_i = 0 \text{ mH}$.

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:

$U_i = 35 \text{ V}$; $I_i = \text{N/A}$; $P_i = 1 \text{ W}$; $C_i = 6 \text{ nF}$; $L_i = 0 \text{ mH}$.

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:
 $U_o = 7.3 \text{ V}$; $I_o = 100 \text{ mA}$; $P_o = 160 \text{ mW}$; $C_i = 0 \text{ nF}$; $L_i = 0 \text{ mH}$.

Prowirl C/D/F/R/O 200 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:
 $U_i = 30 \text{ V}$; $I_i = \text{N/A}$; $P_i = 1 \text{ W}$; $C_i = 30 \text{ nF}$; $L_i = 0 \text{ mH}$;

supply/output circuit (terminals 3 and 4):

in type of protection intrinsic safety Ex ia IIC, only for connection to an intrinsically safe circuit, with following maximum values:
 $U_i = 30 \text{ V}$; $I_i = \text{N/A}$; $P_i = 1 \text{ W}$; $C_i = 30 \text{ nF}$; $L_i = 0 \text{ mH}$.

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:
 $U_o = 7.3 \text{ V}$; $I_o = 100 \text{ mA}$; $P_o = 160 \text{ mW}$; $C_i = 0 \text{ nF}$; $L_i = 0 \text{ mH}$.

Prowirl C/D/F/R/O 200 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:
 $U_i = 35 \text{ V}$; $I_i = \text{N/A}$; $P_i = 1 \text{ W}$; $C_i = 5 \text{ nF}$; $L_i = 0 \text{ mH}$;

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:
 $U_i = 35 \text{ V}$; $I_i = \text{N/A}$; $P_i = 1 \text{ W}$; $C_i = 6 \text{ nF}$; $L_i = 0 \text{ mH}$;

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:
 $U_i = 35 \text{ V}$; $I_i = \text{N/A}$; $P_i = 1 \text{ W}$; $C_i = 5 \text{ nF}$; $L_i = 0 \text{ mH}$;

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:
 $U_o = 7.3 \text{ V}$; $I_o = 100 \text{ mA}$; $P_o = 160 \text{ mW}$; $C_i = 0 \text{ nF}$; $L_i = 0 \text{ mH}$.

Prowirl C/D/F/R/O 200 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:
 $U_i = 32 \text{ V}$; $I_i = 300 \text{ mA}$; $P_i = \text{N/A}$; $C_i = 5 \text{ nF}$; $L_i = 10 \text{ }\mu\text{H}$;

or in accordance with FISCO, with following maximum values:

$U_i = 17.5 \text{ V}$; $I_i = \text{N/A}$; $P_i = \text{N/A}$; $C_i = 5 \text{ nF}$; $L_i = 10 \text{ }\mu\text{H}$;

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:
 $U_i = 35 \text{ V}$; $I_i = 300 \text{ mA}$; $P_i = 1 \text{ W}$; $C_i = 6 \text{ nF}$; $L_i = 0 \text{ mH}$.

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:
Uo = 7.3 V; Io = 100 mA; Po = 160 mW; Ci = 0 nF; Li = 0 mH

All models

Interconnection cable

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 Lc/Rc ≤ 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 transmitters Models (.)7.2B.-...L..., (.)7.2B.-...M..., 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: Uo = 7.3 V; Io = 157 mA; Po = 362 mW; Co = 388 nF; Lo = 149 μH; maximum allowed cable capacitance Cc = 125 nF; maximum allowed cable inductance Lc = 149 μH.

In other cases, if used as interface in type of protection intrinsic safety Ex ia IIC/IIIC, the following maximum values apply: Uo = 7.3 V; Io = 327 mA; Po = 800 mW; Ui = 7.3 V; Ci = 0 nF; Li = 0 mH. If used as non-intrinsically safe interface, UN = 6.5 V

Based on the following documentation: IECEx DEK 13.0022 issue No.: 2

2. **INSTALLATION INSTRUCTIONS**

It is the manufacturer's responsibility to supply installation instructions with each unit offered for sale as required by IEC/SANS 60079-0 Clause 30.

3. **SPECIAL CONDITIONS FOR SAFE USE** (denoted by "X" after certificate number)

None.

4. **SCHEDULE OF LIMITATIONS** (denoted by "U" after certificate number)

None.

5. **CONDITIONS OF CERTIFICATION**

All production units must be covered by a QAN (Quality Assurance Notification), Product Mark Scheme or batch evaluation.

