



Member of the FM Global Group

FM Approvals
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CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

Prosonic Flow 91W aa-bcdefghiklmn. Ultrasonic Flow Measuring System

NI / I / 2 / ABCD / T* — FES0101 Type 4X, Type 6P;
DIP/ II, III / 1 / EFG / T* — FES0101 Type 4X, Type 6P;
NI / I / 2 / IIC / T* — FES0101 Type 4X, Type 6P

*Refer to control drawing for temperature class.

*Ta = 60°C (transmitter) and Ta = 80°C (sensor)

aa = Mounting type: (double number and/or letter)

b = Flow Sensor:

- 1 = DN15...65, -20°C...80°C, 6MHz
- 2 = DN15...65, 0°C...130°C, 6MHz
- A = DN100...4000, -20°C...80°C, 1MHz
- B = DN50...300, -20°C...80°C, 2MHz
- R = DN300...4000, -20°C...80°C, 0.5MHz
- P = DN100...4000, 0°C...130°C, 1MHz
- S = DN50...300, 0°C...130°C, 2MHz
- X = Transmitter only

c = Sensor holder: (any single number or letter)

d = Installation set: (any single number or letter)

e = Sensor cable sensor: (any single number or letter)

f = Cable entry:

- 1 = gland + conduit adapter M20
- 2 = gland + conduit adapter NPT 1/2"
- 3 = gland + conduit adapter G1/2"

g = Calibration: (any single number or letter)

h = Approvals: R

i = Housing:

- C = Transmitter + Sensor IP67 / Nema 4X
- K = Transmitter IP67 / Nema 4X; Sensor IP68 / Nema 6P
- X = Sensor only

k = Cable entry:

- B = Thread NPT 1/2"
- C = Thread G 1/2"
- X = Sensor only



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- I = Power supply, Display:
 - 0 = 85-250V, without display
 - 1 = 20-28V, with display
 - 4 = 85-250V, with display
 - 5 = 20-28V, with display
 - X = sensor only
- m = software: (any single number or letter)
- n = output/input:
 - A = 4-20mA HART + Impulse passive
 - X = sensor only

Equipment Ratings:

Nonincendive for use in a Class I, Division 2, Group A, B, C & D and Class I, Zone 2, Group IIC, indoor/ outdoor hazardous (classified) locations, utilizing Type 4X and Type 6P enclosure; Dust-Ignitionproof for use in Class II, III, Division 1, Group E, F and G indoor/ outdoor hazardous (classified) locations, utilizing Type 4X and Type 6P enclosure. The installation of the products should be in accordance with Control Drawing FES0101.

Temperature Class T4, Ta = 60°C (transmitter) - Refer to control drawing for additional information
Temperature Class T6, Ta = 80°C (sensor) - Refer to control drawing for additional information

FM Approved for:

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



This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

Class 3600	1998
Class 3810	1989
Class 3611	2004

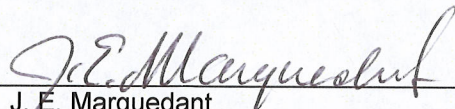
Original Project ID: 3025777

Approval Granted: March 13, 2006

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
110815	January 12, 2012		

FM Approvals LLC



J. E. Marquedant
Group Manager, Electrical

12 January 2012
Date

Hazardous Locations
 Class I Div. 2 Groups ABCD
 Class I Zone 2 Group IIC
 and Class II and III Division 1 Groups EFG

PROSONIC FLOW 91

Notes:

- Control room equipment shall not use or generate more than 250 V rms.
- Caution: Use supply wires suitable for 10 °C / 18°F above ambient temperature, but at least for 70 °C / 158°F.
- Class II Group G: The surface temperature of the apparatus cannot exceed 165 °C / 329°F.
- Install of transmitter circuit wiring according to NEC using threaded conduit or other wiring methods in accordance with article 500 to 510
- Sensor circuits are Nonincendive
- WARNING: EXPLOSION HAZARD! DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS
- WARNING: SUBSTITUTION OF COMPONENTS MY IMPAIR SUITABILITY FOR CL. I, DIV. 2
- Temperature table of remote version

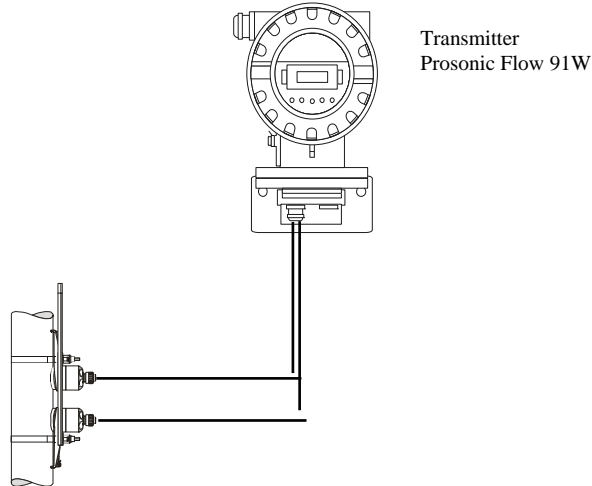
Sensor:

	Medium temperature minimum	Max. medium temperature depending temperature classes			
		T6	T5	T4A	T4 ... T1
91W**-1/A/B/R*****	-20°C / -4°F	80°C / 176°F	80°C / 176°F	80°C / 176°F	80°C / 176°F
91W**-2/P/S*****	0°C / -4°F	80°C / 176°F	95°C / 203°F	115°C / 239°F	130°C / 266°F

Range of ambient temperature: -20°C ... 60°C

Transmitter:

Temperature class for transmitter in remote version is T4 to T1 at 60°C / 140°F ambient temperature. The minimum ambient temperature is -25°C / -13°F



Transmitter
Prosonic Flow 91W

Sensor Prosonic Flow 91W

9. Functional Rating

These ratings do not supersede Hazardous Location values.

Terminals 26 and 27, Hart current output

$U_{nom} \leq 35V$ $I_{nom} = 4...20mA$

Terminals 24 and 25, Pulse output

$U_{nom} \leq 35V$ $I_{nom} \leq 250mA$

Aenderungen:	A	27.05.2011 / PAM	F		Ersteller: FES / ID 1157 FILE: M:\ZEICHNG\FES0101\A\110527A .DOC		
	B		G				
	C		H				
	D		J				
	E		K				
FM Control Drawing Class I Division 2					Gezeichnet	27.05.11	PAM
PROSONIC FLOW 91					Geprüft		
					Ex-geprüft	27.05.11	PAM
					Gesehen		
 Endress+Hauser Flowtec AG, CH-4153 Reinach					FES0101A		
					page 1/1		