



Certificate of Compliance

Certificate: 1185210 (LR 82598)

Master Contract: 160686

Project: 2567318

Date Issued: November 5, 2012

Issued to: Endress + Hauser Flowtec AG

Kagenstrasse 7
Reinach, Basel Land 4153
Switzerland
Attention: Utz Dette

The products listed below are eligible to bear the CSA Mark shown



Aisha Sreenath

Issued by: Aisha Sreenath

PRODUCTS

CLASS 2258 04 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - For Hazardous Locations

Class I, Zone 1, Group IIC:

Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III; Type 4X Enclosure:

• “PROline Prosonic” Flow Measurement System Consisting of a Prosonic Flow 9aPb-cdefghNiklmn Transmitter (Explosion-Proof, Type 4X Enclosure) and Prosonic Flow 9aPb-cdefghNiklmn Sensor (Type 6P Enclosure), Prosonic Flow DDU 18-abcd Sensor (Type 6P Enclosure) or Prosonic Flow DDU 19-abcd Sensor (Type 4X Enclosure). Transmitter supply rated 85-260Vac 50/60Hz 18VA, 20-55Vac 50/60Hz 15VA or 16-62Vdc, 15W; relay contacts rated 30Vac / 0.5A or 42Vdc / 0.1A. Explosion-proof with Intrinsically Safe Electronics, Sensors and connections per Control Drawing No. FES0062 (includes Entity Parameters, Temperature Codes and Maximum Ambient Temperatures). Temp. Code T1 – T6 at Ta = - 40°C to + 60°C.

Note: a,b,c,d,e,f,g,h,i,l,m & n in the Model Nos. may be any character or numeral representing specific options.

Class I, Zone 1, Group IIB + H2:

Class I, Groups B, C and D; Class II, Groups E, F and G; Class III; Type 4X Enclosure:



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Note: a,b,c,d,e,f,g,h,i,l,m & n in the Model Nos. may be any character or numeral representing specific options.

CLASS 2258 03 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe and Non-Incendive Systems - For Hazardous Locations

Class I, Zone 2, Group IIC:

Class I, Div. 2, Groups A, B, C and D; Class II, Groups E, F and G; Class III; Type 4X Enclosure:

- “PROline Prosonic” Flow Measurement System Consisting of a Prosonic Flow 9abc-defghiRklmno Transmitter (Type 4X Enclosure) and Prosonic Flow 9aP**-bcdefgRhiklm sensor (Type 6P), 9aW**-bcdefgRhiklm sensor (Type 4X or 6P, as indicated on nameplate), 9aU**-bcdefgRhiklm (only Certified for use in Class I, Division 2, Groups A, B, C and D), 9aC**-bcdefgRhiklm, Prosonic Flow DDU 18-abcd Sensor (Type 6P Enclosure), Prosonic Flow DDU 19-abcd Sensor (Type 4X Enclosure). Transmitter supply rated 85-260Vac 50/60Hz 18VA, 20-55Vac 50/60Hz 15VA or 16-62Vdc, 15W; relay contacts rated 30Vac / 0.5A or 42Vdc / 0.1A. Dust-tight / suitable for Class I, Div. 2 with non-incendive sensors and sensor circuits for Class I, Div. 2 per Control Drawing No. FES0064 (includes Temperature Codes and Maximum Ambient Temperatures). Temp. Code T1 – T6 at Ta = - 40°C to + 60°C.

Note: *,a,b,c,d,e,f,g,h,i,k,m,n & o in the Model Nos. may be any character or numeral representing specific options.

APPLICABLE REQUIREMENTS

CAN/CSA C22.2 No. 0-M91 (R2001) - General Requirements - Canadian Electrical Code, Part II

CSA Std C22.2 No. 25-1966 - Enclosures for Use in Class II, Groups E, F and G Hazardous Locations

CSA Std C22.2 No. 30-M1986 - Explosion-Proof Enclosures for Use in Class I Hazardous Locations

CAN/CSA-C22.2 No. 94-M91 - Special Purpose Enclosures

CSA Std C22.2 No. 142-M1987 - Process Control Equipment

CAN/CSA-C22.2 No. 157-92 - Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations

CSA Std C22.2 No. 213-M1987 - Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations



Supplement to Certificate of Compliance

Certificate: 1185210

Master Contract: 160686

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
2567318	November 5, 2012	Update to cover minor revision to connector pin assignment on Control Drawing.
2120235	February 4, 2009	Update to include new P Sensor, alternative V16 Amplifier Board and revised Drawings.
1860375	February 9, 2007	Addition of Commoduls C10, C13 & C14, G02 Feed-through, and minor report revisions
1849730	November 22, 2006	Update to cover alternative sensors feed-through
1475971	September 30, 2003	UPDATE TO REPORT 1185210 TO COVER REVISED CONSTRUCTION

History

1368365 November 11, 2002 Update to cover:1. New W-Insertion Sensor2. New C-Sensor3. New Model Code4. Changes to Control Drawing5. New Fieldbus Connector for Class I, Division 26. Revised Connection Plate

1321269 June 26, 2002 Update to cover minor alternate construction and use of 9aU series of sensor

1309556 April 8, 2002 Update to cover revised control drawings FES0062.

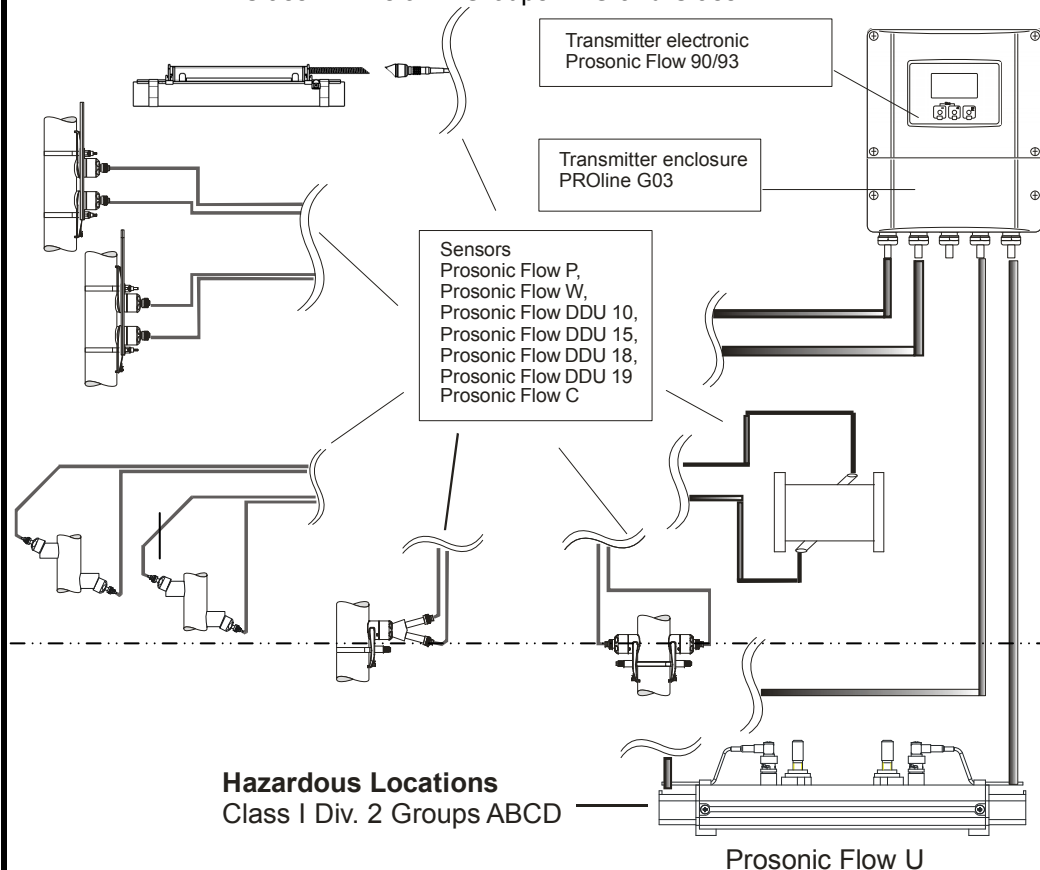
1224446 September 4, 2002 Update to cover increase in voltage of pulse outputs.

1185210 April 12, 2002 Original Certification.

Hazardous Locations

Class I Div. 2 Groups ABCD or Class I Zone 2 Groups IIC

Class II Division 1 Groups EFG and Class III



Temperature table

Sensors	maximum medium temperature in °C									
	T6	T5	T4A	T4	T3C	T3B	T3A	T3	T2	T1
at Ta = 60°C										
Pros. Flow 9*PA* - A*****	80	80	80	80	80	80	80	80	80	80
Pros. Flow 9*PA* - B*****	80	80	80	80	80	80	80	80	80	80
Pros. Flow 9*W** - *****	80	80	80	80	80	80	80	80	80	80
Pros. Flow DDU 10 - A*****	80	80	80	80	80	80	80	80	80	80
Pros. Flow DDU 10 - C*****	80	80	80	80	80	80	80	80	80	80
Pros. Flow DDU 15* - *****	80	80	80	80	80	80	80	80	80	80
Prosonic Flow DDU18-A****	80	80	80	80	80	80	80	80	80	80
Prosonic Flow DDU19-*****	80	80	80	80	80	80	80	80	80	80
Prosonic Flow 9*U** - *****	80	80	80	80	80	80	80	80	80	80
at Ta = 60°C										
Pros. Flow 9*PA* - 1*****	80	95	100	100	100	100	100	100	100	100
Pros. Flow 9*PA* - 2*****	80	95	115	130	150	150	150	150	150	150
Pros. Flow 9*PA* - E*****	80	95	115	130	155	160	170	170	170	170
Pros. Flow 9*PA* - F*****	80	95	115	130	155	160	170	170	170	170
Pros. Flow DDU 10 - B*****	80	95	115	130	155	160	170	170	170	170
Pros. Flow DDU 10 - D*****	80	95	115	130	155	160	170	170	170	170
Prosonic Flow DDU18-B****	80	95	115	130	155	160	170	170	170	170

Temperature class sensor:

T6 – T1

Range of ambient temperature:

–40 °C ... +80°C / –40°F ... +180°F (depending version)

Minimum medium temperature:

–40 °C. (depending version)

Transmitter:

Temperature class : T5

Range of ambient temperature:

–40...+60°C (depending version)

Notes:

1. Installation of Transmitter circuit wiring according to Canadian Electrical Code using threaded conduit or other wiring methods in accordance with rule 18
2. Caution: Use supply wires suitable for 5°C above ambient temperature, but at least for 80°C / 176°F.
3. Class II Group G: The surface temperature of the apparatus cannot exceed 165°C / 329°F. The user must limit the process temperature for group G to 160°C.
4. For Class II installation use techniques such as conduit.
5. Fieldbus cable connectors are suitable for Class I, Div.2, Groups A,B,C,D and Class II, Group G and Coal Dust and Class III, if non-incendive circuits are connected.
6. Sensor Circuits are non-incendive.
7. For installation of Fieldbus communication circuits of PROline Prosonic Flow 9****_*****H/K see page 2

Aenderungen:

A	22.03.02/MDI	F
B	02.09.02/MDI	G
C	06.08.07/Bn	H
D	13.11.08/SCHK	J
E	08.08.12/BIF	K

Ersteller: FES / ID 1100

FILE: FES0064E.doc

CSA Control Drawing Class I Division 2
Class I Zone 2

PROSONIC FLOW 9.



Flowtec AG, Kaegenstrasse 7, CH-4153 Reinach BL1, Postfach

Gezeichnet	10.03.01	UD
Geprüft		
Ex-geprüft	08.08.12	BIF
Gesehen		

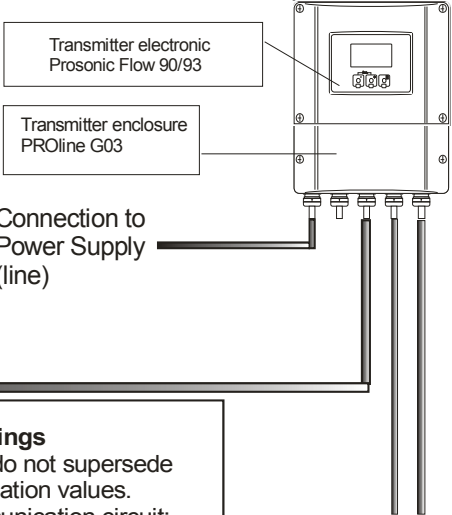
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PROline Prosonic Flow 9****_*****H
PROline Prosonic Flow 9****_*****K

Non-Hazardous Classified Location

Hazardous Classified Location
Class I Div. 2 Groups ABCD or
Class I Zone 2 Groups IIC



CSA approved
ANII/2/ABCD or
AIS/1/ABCD
equipment

Functional ratings

These ratings do not supersede
Hazardous Location values.
Fieldbus communication circuit:
Terminals 26/27
Unom = 9...32V Inom = 12mA

Connection to Prosonic
Flow sensor

Notes:

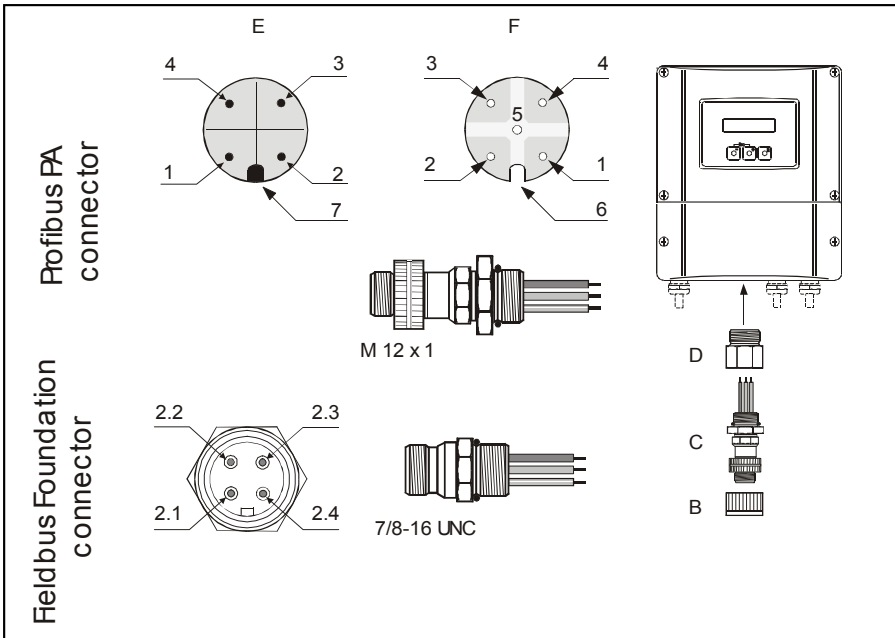
1. Fieldbus cable connectors are suitable for Class I Div.2 Groups A, B, C, D if connected to associated nonincendive or associated intrinsically safe equipment.
2. The Nonincendive Field Wiring Circuit Concept allows interconnection of nonincendive field wiring apparatus with associated nonincendive field wiring apparatus or associated apparatus not specifically examined in combination as a system using any of the wiring methods permitted for unclassified locations, when:

$$V_{\max} \geq V_{oc} \text{ or } V_t, C_a \geq C_i + C_{\text{cable}}, L_a \geq L_i + L_{\text{cable}}$$

Fieldbus communication circuit Terminals 26/27 (current controlled circuit)

$U_{\max}$	$I_{\max}$	C_i	L_i
35V	See note 3	5nF	10μH

3. For this current controlled circuit, the parameter $I_{\max}$ is not required and need not to be aligned with parameter I_{SC} and I_t of the associated non-incendive field wiring or associated apparatus.
4. Fieldbus communication circuits (terminals 26/27) are suitable for connection according to Fieldbus Nonincendive Concept (FNICO) see page 3.



B = Protection cap for connector, C = Fieldbus connector, D = Thread adapter
E = Connector on housing (male), F = Connector (female)

Pin assignment:

Profibus PA

- 1 = Brown wire, PA+ (terminal 26)
- 2 = Not connected
- 3 = Blue wire, PA- (terminal 27)
- 4 = Black wire, ground
- 5 = Female connector not assigned
- 6 = Positioning groove
- 7 = Positioning key

Fieldbus Foundation

- 2.1 = Brown wire, FF+ (terminal 26)
- 2.2 = Blue wire, FF- (terminal 27)
- 2.3 = Grey wire, ground
- 2.4 = Not assigned

Änderungen:

A	22.03.02/MDI	F	
B	02.09.02/MDI	G	
C	06.08.07/Bn	H	
D	13.11.08/SCHK	J	
E	08.08.12/BIF	K	

Ersteller: FES / ID 1100
FILE: FES0064E.doc

CSA Control Drawing Class I Division 2
Fieldbus communication circuits

PROSONIC FLOW 9.



Flowtec AG, Kaegenstrasse 7, CH-4153 Reinach BL1, Postfach

Gezeichnet	10.03.01	UD
Geprüft		
Ex-geprüft	08.08.12	BIF
Gesehen		

FES0064 E

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FNICO CONCEPT

The FNICO-concept allows interconnection of nonincendive apparatus to associated apparatus not specially examined in such combination. The criteria for interconnection is that the voltage (U_i or V_{max}) which nonincendive apparatus can receive and remain nonincendive, must be equal or greater than the voltage (U_o , V_o or V_t) levels which can be delivered by the associated apparatus. In addition, the maximum unprotected capacitance (C_i) and inductance (L_i) of each apparatus (other than the termination) connected to the fieldbus must be less than or equal to 5 nF and 10 μ H respectively.

In each segment only one active device, normally the associated apparatus, is allowed to provide the necessary energy for the fieldbus system. The voltage U_o , V_o or V_t of the associated apparatus has to be limited to the range of 14V to 24V. All other equipment connected to the bus cable has to be passive, meaning that they are not allowed to provide energy to the system, except a leakage current of 50 μ A for each connected device. Separately powered equipment needs a galvanic isolation to assure that the nonincendive fieldbus circuit remains passive.

The cable used to interconnect the devices needs to have the parameter in the following range:

Loop Resistance R' :	15...150 Ohm/km
Inductance per unit length L' :	0.4...1 mH/km
Capacitance per unit length C' :	80...200 nF

$C' = C' \text{ line/line} + 0.5 C' \text{ line/screen}$, if both lines are floating, or
 $C' = C' \text{ line/line} + C' \text{ line/screen}$, if the screen is connected to one line

Length of trunk cable:	$\leq 1000 \text{ m}$
Length of spur cable:	$\leq 30 \text{ m}$
Length of splice:	$\leq 1 \text{ m}$

At each end of the trunk cable an approved infallible line termination with following parameters is suitable:

$$R = 90...100 \text{ Ohm} \quad C = 0...2.2 \text{ } \mu\text{F}$$

One of the allowed terminations might already be integrated in the associated apparatus. The associated apparatus has to be installed within 30m from the end of the trunk cable. The number of passive apparatus connected to the bus segment is not limited due to NI reasons. If the above rules are respected, up to a total length of 1000 m (sum of trunk and all spur cables), the inductance and the capacitance of the cable will not impair the safety of the installation.

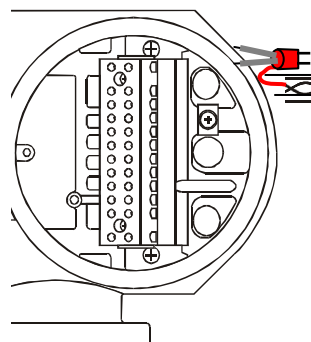
Notes:

- Approved associated apparatus must be installed in accordance with manufacturers instructions.
- Be aware of multiple earthing of the screen. The screen must be connected in accordance with ISA RP 12.06.01
- Caution: Use only supply wires suitable for 5°C above surrounding temperature.
- The polarity for connection terminals 26 (+) and 27 (-) is of no importance due to an internal rectifier.

HAZARDOUS (CLASSIFIED) LOCATION

Class I, Division 2, Groups A,B,C,D
 Class II, Division 2, Groups E,F,G
 Class III, Division 2

PROline Prosonic Flow
 g****_*****H / K



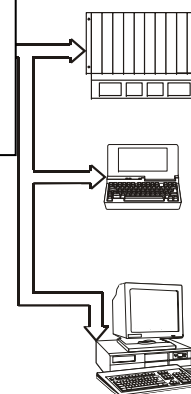
Any CSA Approved nonincendive Apparatus suitable for FNICO

PROline Prosonic Flow g****_*****H/K	
Terminal 26 (+) Terminal 27 (-) (FNICO-Model)	
$U_i (V_{max}) = 35 \text{ V}$	$C_i \leq 5 \text{ nF}$
$I_i (I_{max}) = \text{not relevant}$	$L_i \leq 10 \text{ } \mu\text{H}$
Leakage current : $\leq 50 \mu\text{A}$	
Apparatus provides galvanic isolation up to 250V rms between fieldbus circuit and any other circuit	
Temperature Classification: T5	
Max. ambient Temperature: 60°C / 140°F	

Any CSA Approved Termination with
 $R = 90...100 \Omega$
 $C = 0...2.2 \mu\text{F}$

NONHAZARDOUS LOCATION

Any CSA Approved Associated Nonincendive Field wiring Apparatus Suitable for FNICO



Aenderungen:	A	22.03.02/MD	F	Alle gesetzlichen Urheberrechte vorbehalten. Diese Zeichnung darf ohne unsere Genehmigung weder vervielfältigt werden noch dritten Personen und Konkurrenzfirmen zugänglich gemacht werden.	Ersteller: FES / ID 1100 FILE: FES0064E.doc			
	B	02.09.02/MDI	G					
	C	06.08.07/Bn	H					
	D	13.11.08/SCHK	J					
	E	08.08.12/BIF	K					
CSA Control Drawing Class I Div. 2 / Zone 2 PROFIBUS PA + Foundation Fieldbus FNICO PROSONIC FLOW 9.					Massstab	Gezeichnet	10.03.01	UD
						Geprüft		
						Ex-geprüft	08.08.12	BIF
						Gesehen		
 Flowtec AG, Kaegenstrasse 7, CH-4153 Reinach BL 1, Postfach					FES0064 E		3/3	