



Level



Pressure



Flow



Temperature



Liquid
Analysis



Registration



Systems
Components



Services



Solutions

Safety Instructions

Proline Prosonic Flow 92F

HART, PROFIBUS PA, FOUNDATION Fieldbus
IS (Ex-i Intrinsically safe version)

Division 1

Documentation for hazardous location Cl.I Div.1



Safety instructions for electrical apparatus for explosion-hazardous areas according to
FACTORY MUTUAL standards → **Page 3**



Safety instructions for electrical apparatus for explosion-hazardous areas according to
CANADIAN STANDARDS ASSOCIATION → **Page 11**

Examples for markings according to FM and CSA:



Temperature Class

	Maximum surface temperature	
T1	842 °F	450 °C
T2	572 °F	300 °C
T2A	536 °F	280 °C
T2B	500 °F	260 °C
T2C	446 °F	230 °C
T2D	419 °F	215 °C
T3	392 °F	200 °C
T3A	356 °F	180 °C
T3B	329 °F	165 °C
T3C	320 °F	160 °C
T4	275 °F	135 °C
T4A	248 °F	120 °C
T5	212 °F	100 °C
T6	185 °F	85 °C

FM APPROVALS

Type of Protection

XP	Explosionproof
IS	Intrinsically Safe Apparatus
AIS	Associated Apparatus with Intrinsically Safe Connections
ANI	Associated Nonincendive Field Wiring Apparatus
PX, PY, PZ	Pressurized
APX, APY, APZ	Associated Pressurization Systems/Components
NI	Nonincendive
DIP	Dust-Ignitionproof
S	Special Protection

Example: **XP / I / 1 / ABCD**

Class

I	Class I (Gas)
II	Class II (Dust)
III	Class III (Fibre)

Division

1	Division 1
2	Division 2

Group

FM /NEC	Gases, vapours and dust examples	Min. ignition temperature [μJ]
A	Acetylene, carbon disulfide (Class I)	0.02
B	Hydrogen, ethyl nitrate (Class I)	0.02
C	Ethylene, isoprene (Class I)	0.06
D	Acetone, ethane, benzene, ethanoic acid, gasolines, diesel oil, aircraft fuel, methane, heating oil, crude oil, hexane, ether (Class I)	0.18
E	Metallic powder (Class II)	
F	Coal dust (Class II)	
G	Mill dust (Class II)	
	Textile fibres (Class III)	



Temperature Class

	Maximum surface temperature	
T1	450 °C	842 °F
T2	300 °C	572 °F
T2A	280 °C	536 °F
T2B	260 °C	500 °F
T2C	230 °C	446 °F
T2D	215 °C	419 °F
T3	200 °C	392 °F
T3A	180 °C	356 °F
T3B	165 °C	329 °F
T3C	160 °C	320 °F
T4	135 °C	275 °F
T4A	120 °C	248 °F
T5	100 °C	212 °F
T6	85 °C	185 °F

Canadian Standards Association

Class

I	Class I (Gas)
II	Class II (Dust)
III	Class III (Fibre)

Example: **Class I, Division 1, Group ABCD**

Division

1	Division 1
2	Division 2

Group

CSC /NEC	Gases, vapours and dust examples	Min. ignition temperature [μJ]
A	Acetylene, carbon disulfide (Class I)	0.02
B	Hydrogen, ethyl nitrate (Class I)	0.02
C	Ethylene, isoprene (Class I)	0.06
D	Acetone, ethane, benzene (Class I)	0.18
E	Metallic powder (Class II)	
F	Coal dust (Class II)	
G	Mill dust (Class II)	
	Textile fibres (Class III)	

Type of Protection

Explosionproof
 Intrinsically Safe Apparatus
 Associated Apparatus with Intrinsically Safe Connections
 Associated Nonincendive Field Wiring Apparatus
 Pressurized
 Associated Pressurization Systems/Components
 Nonincendive
 Dust-Ignitionproof
 Special Protection



Level



Pressure



Flow



Temperature



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Systems
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Services



Solutions

Safety Instructions

Proline Prosonic Flow 92F

HART, PROFIBUS PA, FOUNDATION Fieldbus
IS (Ex-i Intrinsically safe version)

Division 1



Documentation for hazardous location Cl.I Div.1

This document is an integral part of the following Operating Instructions:

- BA121D, Proline Prosonic Flow 92F HART
- BA122D, Proline Prosonic Flow 92F PROFIBUS PA
- BA128D, Proline Prosonic Flow 92F FOUNDATION Fieldbus

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General warnings

- Any national regulations pertaining to the installation of devices in hazardous areas must be observed.
- Mounting, electrical installation, commissioning and maintenance of the devices may only be performed by technical staff trained in the area of explosion protection.
- Compliance with all of the technical data of the device (see nameplate) is mandatory.
- Substitution of components may impair intrinsic safety.

Special conditions

- The device must be integrated into the potential equalization system. Potential must be equalized along the intrinsically safe sensor circuits. Further information can be found in the "Potential equalization" chapter on Page 7.

Installation instructions

- The cable entries and openings not used must be sealed tight with suitable components.
- The measuring device must only be used in the permitted temperature class. The values of the individual temperature classes can be found in the temperature tables on Page 6.
- The manufacturer's specifications for all devices connected to the intrinsically safe sensor circuit must be taken into consideration.
- To rotate the transmitter housing, please follow the same procedure as for non-Ex versions. The transmitter housing may also be rotated during operation.
- The continuous service temperature of the cable must correspond at least to the temperature range of -40 °F and up to $+18\text{ °F}$ above the ambient temperature present (-40 °F to $(T_a + 18\text{ °F})$).
- All equipment of the measuring system must be included in potential matching (see Page 7).
- The devices may only be used for fluids against which the wetted materials are sufficiently resistant.
- The service connector may not be connected in a potentially explosive atmosphere.
- Install per National Electrical Code. Install intrinsically safe circuits per NEC ANSI/ NFPA 70 and ISA RP 12.6 respecting the explosionproof integrity of the enclosure.

Approvals
General

The system meets the basic safety and health requirements for the design and construction of devices and protection systems designated for use in hazardous areas in accordance with the National Electrical Code.

Certification number

I.D. 3026261

Inspection authority

FM: Factory Mutual Research

Identification

The system identification must contain the following information:

Compact version and remote version (transmitter and sensor)	
Prosonic Flow 92F**_*****N*****A Prosonic Flow 92F**_*****N*****W	Cl. I, Groups ABCD Cl. II, Groups EFG Cl. III Cl. I, Zone 0, AEx/Ex ia IIC T6-T1
Prosonic Flow 92F**_*****N*****H Prosonic Flow 92F**_*****N*****K	Cl. I, Groups ABCD Cl. II, Groups EFG Cl. III Cl. I, Zone 0, AEx/Ex ia IIC T4-T1

 Caution!

The installation instructions for the safe use and application of the system must be observed → Page 4.

Description of the measuring system

The measuring system consists of a transmitter and a sensor. Two versions are available:

- Compact version:
The transmitter and sensor form a mechanical unit.
- Remote version:
The transmitter and sensor are mounted separate from one another and interconnected by means of a connecting cable (see also "Electrical connections" (→ Page 7) and "Cable specifications for connecting cable" (→ Page 7)).

Device identification

The nameplates, which are provided on the transmitter and sensor in a manner in which they are clearly visible, contain all the relevant information on the measuring system.

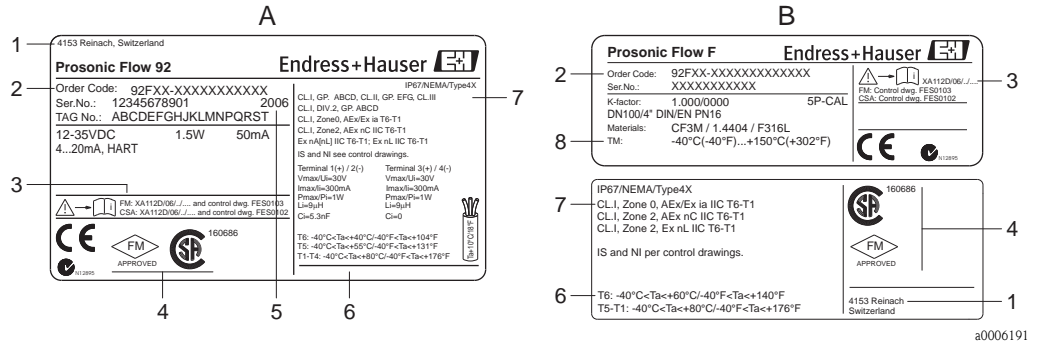
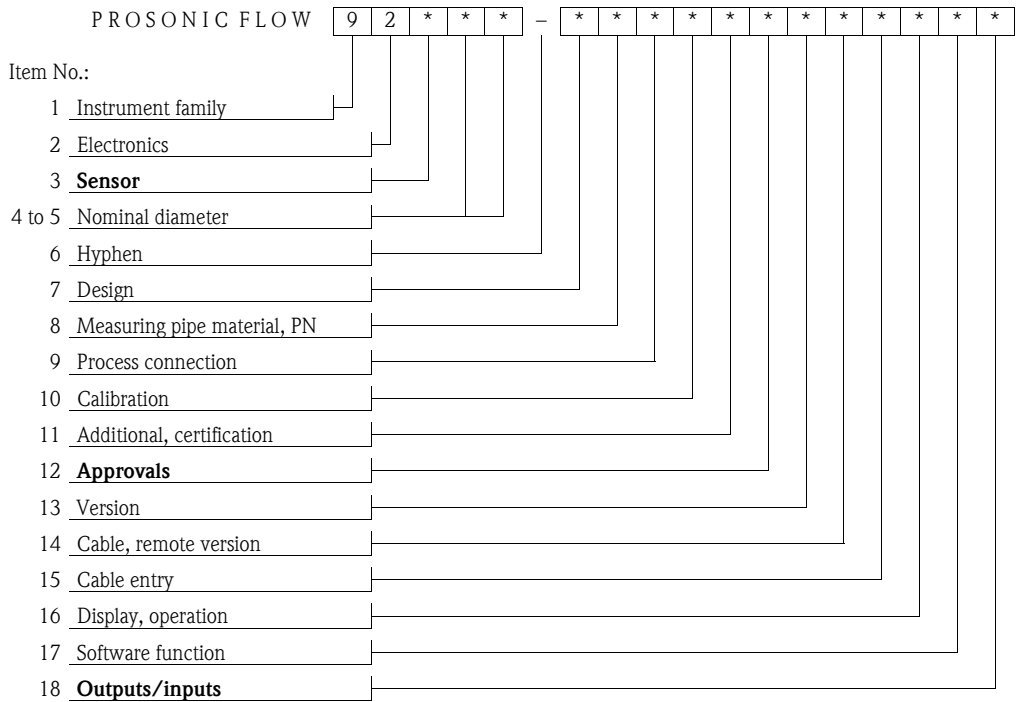


Fig. 1: Nameplates for transmitter (A) and sensor (B), Example

- 1 Production location
- 2 Type code (for an exact explanation of the type code, see the following section)
- 3 Associated Ex documentation
- 4 Label of the inspection authority: Factory Mutual Research and Canadian Standards Association
- 5 Year of manufacture
- 6 Ambient temperature range
- 7 Code for the explosion protection and explosion group
- 8 Maximum fluid temperature

Type code

The type code describes the exact design and equipment level of the measuring system. It can be read off the nameplate of the transmitter and sensor and is structured as follows:



Sensor (Item No. 3 in type code)

*	Sensor
F	Sensor F
X	only transmitter (as spare part)

Approvals (Item No. 12 in type code)

*	Approval
N	Cl. I, Groups ABCD Cl. II, Groups EFG Cl. III Cl. I, Zone 0, AEx/Ex ia IIC

Outputs/inputs (Item No. 18 in type code)

*	Approval
A, W	Cl. I, Groups ABCD Cl. II, Groups EFG Cl. III Cl. I, Zone 0, AEx/Ex ia IIC T6-T1
H, K	Cl. I, Groups ABCD Cl. II, Groups EFG Cl. III Cl. I, Zone 0, AEx/Ex ia IIC T4-T1

Note!

A detailed explanation of these values with regard to the inputs and outputs available, as well as a description of the associated terminal assignments and connection data is provided on Page 7 onwards.

Compact version temperature table

Medium temperature range T_{med} [°C] depending on the device version (see Page 5) and the ambient temperature range T_a :

	T_a	T_{med}					
	[°F]	T6 (185 °F)	T5 (212 °F)	T4 (275 °F)	T3 (392 °F)	T2 (572 °F)	T1 (842 °F)
Prosonic 92F**_*****N*****A/W	-40 to +104	-40 to 176	-40 to 203	-40 to 266	-40 to 383	-40 to 392	-40 to 392
	-40 to +131	-	-40 to 203	-40 to 266	-40 to 383	-40 to 392	-40 to 392
	-40 to +140	-	-	-40 to 266	-40 to 383	-40 to 392	-40 to 392
Prosonic 92F**_*****N*****H/K	-40 to +140	-	-	-40 to 266	-40 to 383	-40 to 392	-40 to 392

Remote version temperature table
Sensor

Medium temperature range T_{med} [°C] depending on the device version (see Page 5) and the ambient temperature range T_a :

	T_a	T_{med}					
	[°F]	T6 (185 °F)	T5 (212 °F)	T4 (275 °F)	T3 (392 °F)	T2 (572 °F)	T1 (842 °F)
Prosonic 92F**_*****N*****A/W	-40 to +140	-40 to 176	-40 to 203	-40 to 266	-40 to 383	-40 to 392	-40 to 392
	-40 to +176	-	-40 to 203	-40 to 266	-40 to 383	-40 to 392	-40 to 392
Prosonic 92F**_*****N*****H/K	-40 to +176	-	-	-40 to 266	-40 to 383	-40 to 392	-40 to 392

Transmitter

Ambient temperature range T_a [°C] depending on the device version (see Page 5):

	T_{med}					
	T6 (185 °F)	T5 (212 °F)	T4 (275 °F)	T3 (392 °F)	T2 (572 °F)	T1 (842 °F)
Prosonic 92F**_*****N*****A/W	-40 to 104	-40 to 131	-40 to 176	-40 to 176	-40 to 176	-40 to 176
Prosonic 92F**_*****N*****H/K	-	-	-40 to 176	-40 to 176	-40 to 176	-40 to 176

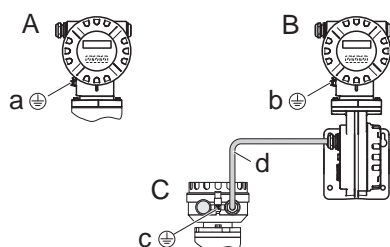
Design of the measuring system
Compact/remote version design


Fig. 2

A0006026

- A Transmitter housing (compact version)
- a Screw terminal for connecting to potential matching system
- B Connection housing transmitter (remote version)
- b Screw terminal for connecting to potential matching system
- C Connection housing sensor (remote version)
- c Screw terminal for connecting to potential matching system
- d Remote version connecting cable

- Connecting cable cable specifications → Page 7
- Cable entries → Page 7
- Terminal assignment and connection data → Page 8

Potential matching



Caution!

- There must be potential matching along the circuits (inside and outside the hazardous area).
- The transmitter must be safely included in the potential matching system by means of the screw terminal (c) on the outside of the transmitter housing or by means of the corresponding ground terminal in the connection compartment (f).
- Alternatively, the sensor and the transmitter (compact version) or the connection housing of the sensor can be included in the potential matching system by means of the pipeline if a ground connection, performed as per the specifications, is ensured.

Cable entries

Thread for cable entry M20x1.5 or 1/2"-NPT or G 1/2", as required.

Connecting cable cable specifications

The sensor cable connection between the sensor and the transmitter has intrinsically safe explosion protection.

The maximum permitted capacitance per unit length of the cable connection is 1 µF/km.

The maximum permitted inductance of the cable is 1 mH/km.

The cable supplied by Endress+Hauser (max. 98 ft (30 m)) complies with these values.

Electrical connections

Terminal/electronics compartment cover (terminal assignment, see tables below)

4 to 20 mA HART
(connection with a cable)

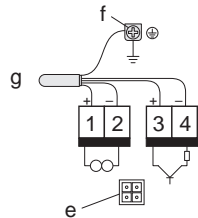


Fig. 3

A0004027

4 to 20 mA HART
(connection with two cables)

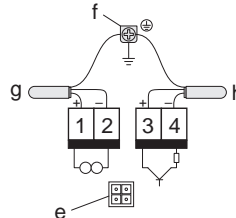


Fig. 4

A0004028

4 to 20 mA HART
(PFM connection)

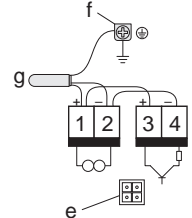


Fig. 5

A0004029

PROFIBUS PA

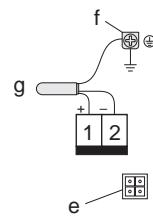


Fig. 6

A0004030

FOUNDATION Fieldbus

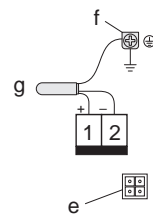


Fig. 7

A0004030

e Service connector (see also Page 9)

f HART ground terminal: if the potential matching is routed via the cable and if two cables are used, both cables must be connected to the potential matching system if a connection is not already established externally.

PROFIBUS PA and FOUNDATION Fieldbus: between the stripped fieldbus cable and the ground terminal, the cable shielding must not exceed 5 mm in length

g HART (Fig. 3): cable for supply voltage and/or pulse output

HART (Fig. 4): cable for supply voltage

PFM (Fig. 5): Optional pulse/frequency output, can also be operated as a status output (not for PROFIBUS PA and FOUNDATION Fieldbus)

PROFIBUS PA (Fig. 6): cable of input and output circuits

FOUNDATION Fieldbus (Fig. 7): cable of input and output circuits

Note!

PFM output (pulse/frequency modulation): connection as illustrated in Fig. 5.

Connecting the supply voltage or signal cable

The terminal assignment and the connection data for the supply voltage are identical for all devices, regardless of the device version (type code).

 Note!

A graphic illustration of the electrical connections is provided on Page 7.

Terminal assignment /connection data

Terminals	1 (+)	2 (-)
Prosonic 92F**_*****W	Transmitter power supply / 4 to 20 mA HART	
Intr. safe circuit	IS	
Safety-related values	U_{max}	30 V
	I_{max}	300 mA
	P_i	1 W
	L_i	9 μ H
	C_i	5.28 nF

Terminals	1 (+)	2 (-)	3 (+)	4 (-)
Prosonic 92F**_*****A	Transmitter power supply / 4 to 20 mA HART		Optional pulse/status output	
Intr. safe circuit	IS		IS	
Safety-related values	U_{max}	30 V	30 V	
	I_{max}	300 mA	300 mA	
	P_i	1 W	1 W	
	L_i	9 μ H	9 μ H	
	C_i	5.25 nF	0	

Terminals	1 (+)	2 (-)
Prosonic 92F**_*****H	PROFIBUS PA	
Intr. safe circuit	IS	
Functional values	U_B	9 to 32 V DC
	I_B	16 mA
	P	≤ 1 W
Safety-related values	U_{max}	17.5 V
	I_{max}	600 mA
	P_i	8.5 W
	L_i	≤ 10 μ F
C_i	≤ 5 nF	

or

1 (+)	2 (-)
PROFIBUS PA	
IS	
9 to 32 V DC	
16 mA	
≤ 1 W	
24 V	
250 mA	
1.2 W	
≤ 10 μ F	
≤ 5 nF	

Terminals	1 (+)	2 (-)
Prosonic 92F**_*****K	FOUNDATION Fieldbus	
Intr. safe circuit	IS	
Functional values	U_B	9 to 32 V DC
	I_B	16 mA
	P	≤ 1 W
Safety-related values	U_{max}	17.5 V
	I_{max}	600 mA
	P_i	8.5 W
	L_i	≤ 10 μ F
C_i	≤ 5 nF	

or

1 (+)	2 (-)
FOUNDATION Fieldbus	
IS	
9 to 32 V DC	
16 mA	
≤ 1 W	
24 V	
250 mA	
1.2 W	
≤ 10 μ F	
≤ 5 nF	

Service connector

The service connector (for connection, see Fig. 3 to Fig. 7, e) is only used to connect service interfaces approved by Endress+Hauser.

⚠ Warning!

The service connector may not be connected in a potentially explosive atmosphere.

Technical data**Dimensions**

The dimensions of the Ex transmitter housing and the sensor correspond to the standard versions. Please refer to the Technical Information for these dimensions.

📎 Note!

Associated "Technical Information":
Proline Prosonic Flow 92F → TI073D/06/...

Control drawings

Endress+Hauser Reinach hereby declares that the product is in conformity with the requirements of the FACTORY MUTUAL standards.

📎 Note!

The "Documentation/Important Information" folder provided with the measuring device contains a CD-ROM with all the Control Drawings.





Level



Pressure



Flow



Temperature



Liquid
Analysis



Registration



Systems
Components



Services



Solutions

Safety Instructions

Proline Prosonic Flow 92F

HART, PROFIBUS PA, FOUNDATION Fieldbus
IS (Ex-i Intrinsically safe version)

Division 1

 Documentation for hazardous location Cl.I Div.1

This document is an integral part of the following Operating Instructions:

- BA121D, Proline Prosonic Flow 92F HART
- BA122D, Proline Prosonic Flow 92F PROFIBUS PA
- BA128D, Proline Prosonic Flow 92F FOUNDATION Fieldbus

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General warnings

- Any national regulations pertaining to the installation of devices in hazardous areas must be observed.
- Mounting, electrical installation, commissioning and maintenance of the devices may only be performed by technical staff trained in the area of explosion protection.
- Compliance with all of the technical data of the device (see nameplate) is mandatory.
- Substitution of components may impair intrinsic safety.

Special conditions

- The device must be integrated into the potential equalization system. Potential must be equalized along the intrinsically safe sensor circuits. Further information can be found in the "Potential equalization" chapter on Page 15.

Installation instructions

- The cable entries and openings not used must be sealed tight with suitable components.
- The measuring device must only be used in the permitted temperature class. The values of the individual temperature classes can be found in the temperature tables on Page 14.
- The manufacturer's specifications for all devices connected to the intrinsically safe sensor circuit must be taken into consideration.
- To rotate the transmitter housing, please follow the same procedure as for non-Ex versions. The transmitter housing may also be rotated during operation.
- The continuous service temperature of the cable must correspond at least to the temperature range of -40 °C to $+10\text{ °C}$ above the ambient temperature present (-40 °C to $(T_a + 10\text{ °C})$).
- All equipment of the measuring system must be included in potential matching (see Page 15).
- The devices may only be used for fluids against which the wetted materials are sufficiently resistant.
- The service connector may not be connected in a potentially explosive atmosphere.
- Install per National Electrical Code. Install intrinsically safe circuits per CEC and ISA RP 12.6 respecting the explosionproof integrity of the enclosure.

Approvals
General

The system meets the basic safety and health requirements for the design and construction of devices and protection systems designated for use in hazardous areas in accordance with the Canadian Electrical Code.

Certification number

160686-1767247

Inspection authority

CSA: Canadian Standards Association

Identification

The system identification must contain the following information:

Compact version and remote version (transmitter and sensor)	
Prosonic Flow 92F**_*****N*****A Prosonic Flow 92F**_*****N*****W	Cl. I, Groups ABCD Cl. II, Groups EFG Cl. III Cl. I, Zone 0, AEx/Ex ia IIC T6-T1
Prosonic Flow 92F**_*****N*****H Prosonic Flow 92F**_*****N*****K	Cl. I, Groups ABCD Cl. II, Groups EFG Cl. III Cl. I, Zone 0, AEx/Ex ia IIC T4-T1



Caution!

The installation instructions for the safe use and application of the system must be observed → Page 12.

Description of the measuring system

The measuring system consists of a transmitter and a sensor. Two versions are available:

- Compact version:
The transmitter and sensor form a mechanical unit.
- Remote version:
The transmitter and sensor are mounted separate from one another and interconnected by means of a connecting cable (see also Operating Instructions, "Electrical connections" (Page 11) and "Cable specifications for connecting cable" (Page 13)).

Device identification

The nameplates, which are provided on the transmitter and sensor in a manner in which they are clearly visible, contain all the relevant information on the measuring system.

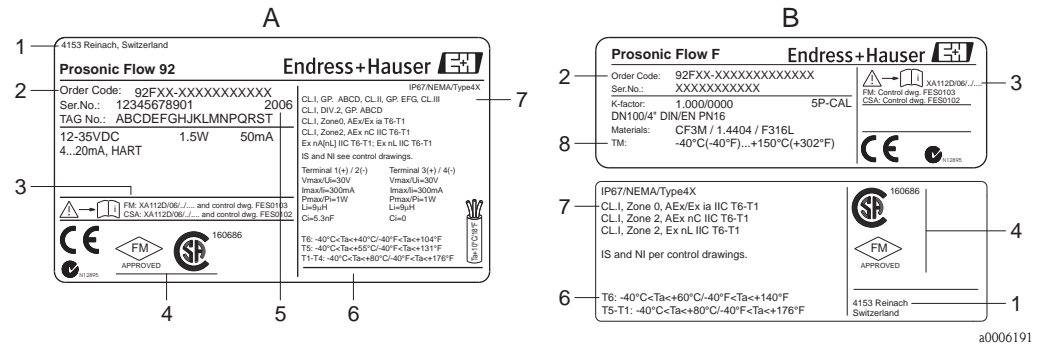
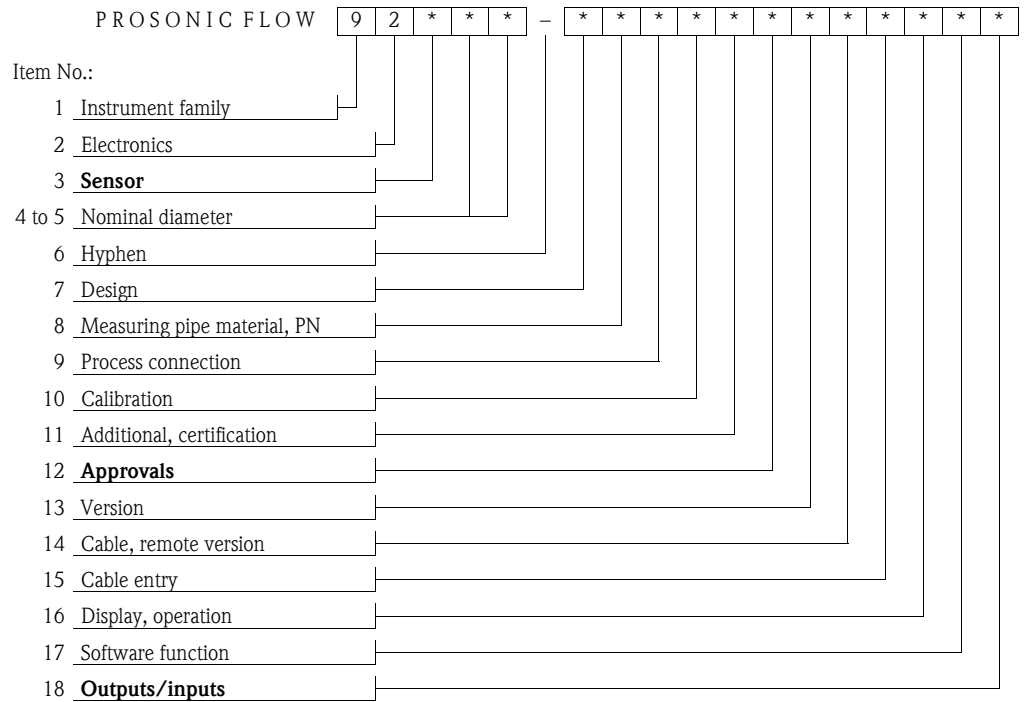


Fig. 1: Nameplates for transmitter (A) and sensor (B), Example

- 1 Production location
- 2 Type code (for an exact explanation of the type code, see the following section)
- 3 Associated Ex documentation
- 4 Label of the inspection authority: Factory Mutual Research and Canadian Standards Association
- 5 Year of manufacture
- 6 Ambient temperature range
- 7 Code for the explosion protection and explosion group
- 8 Maximum fluid temperature

Type code

The type code describes the exact design and equipment level of the measuring system. It can be read off the nameplate of the transmitter and sensor and is structured as follows:



Sensor (Item No. 3 in type code)

*	Sensor
F	Sensor F
X	only transmitter (as spare part)

Approvals (Item No. 12 in type code)

*	Approval
N	Cl. I, Groups ABCD Cl. II, Groups EFG Cl. III Cl. I, Zone 0, AEx/Ex ia IIC

Outputs/inputs (Item No. 18 in type code)

*	Approval
A, W	Cl. I, Groups ABCD Cl. II, Groups EFG Cl. III Cl. I, Zone 0, AEx/Ex ia IIC T6-T1
H, K	Cl. I, Groups ABCD Cl. II, Groups EFG Cl. III Cl. I, Zone 0, AEx/Ex ia IIC T4-T1

Note!

A detailed explanation of these values with regard to the inputs and outputs available, as well as a description of the associated terminal assignments and connection data is provided on Page 15 onwards.

Compact version temperature table

Medium temperature range T_{med} [°C] depending on the device version (see Page 13) and the ambient temperature range T_a :

	T_a	T_{med}					
	[°C]	T6 (185 °C)	T5 (212 °C)	T4 (275 °C)	T3 (392 °C)	T2 (572 °C)	T1 (842 °C)
Prosonic 92F**_*****N*****A/W	-40 to +40	-40 to 80	-40 to 95	-40 to 130	-40 to 195	-40 to 200	-40 to 200
	-40 to +55	-	-40 to 95	-40 to 130	-40 to 195	-40 to 200	-40 to 200
	-40 to +60	-	-	-40 to 130	-40 to 195	-40 to 200	-40 to 200
Prosonic 92F**_*****N*****H/K	-40 to +60	-	-	-40 to 130	-40 to 195	-40 to 200	-40 to 200

Remote version temperature table
Sensor

Medium temperature range T_{med} [°C] depending on the device version (see Page 13) and the ambient temperature range T_a :

	T_a	T_{med}					
	[°C]	T6 (185 °C)	T5 (212 °C)	T4 (275 °C)	T3 (392 °C)	T2 (572 °C)	T1 (842 °C)
Prosonic 92F**_*****N*****A/W	-40 to +60	-40 to 80	-40 to 95	-40 to 130	-40 to 195	-40 to 200	-40 to 200
	-40 to +80	-	-40 to 95	-40 to 130	-40 to 195	-40 to 200	-40 to 200
Prosonic 92F**_*****N*****H/K	-40 to +80	-	-	-40 to 130	-40 to 195	-40 to 200	-40 to 200

Transmitter

Ambient temperature range T_a [°C] depending on the device version (see Page 13):

	T_{med}					
	T6 (185 °C)	T5 (212 °C)	T4 (275 °C)	T3 (392 °C)	T2 (572 °C)	T1 (842 °C)
Prosonic 92F**_*****N*****A/W	104	-40 to 131	-40 to 80	-40 to 80	-40 to 80	-40 to 80
Prosonic 92F**_*****N*****H/K	-	-	-40 to 80	-40 to 80	-40 to 80	-40 to 80

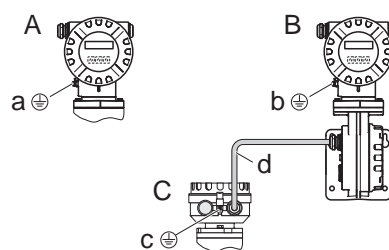
Design of the measuring system
Compact/remote version design


Fig. 2

A0006026

- A Transmitter housing (compact version)
- a Screw terminal for connecting to potential matching system
- B Connection housing transmitter (remote version)
- b Screw terminal for connecting to potential matching system
- C Connection housing sensor (remote version)
- c Screw terminal for connecting to potential matching system
- d Remote version connecting cable

- Connecting cable cable specifications → Page 15
- Cable entries → Page 15
- Terminal assignment and connection data → Page 16

Potential matching



Caution!

- There must be potential matching along the circuits (inside and outside the hazardous area).
- The transmitter must be safely included in the potential matching system by means of the screw terminal (c) on the outside of the transmitter housing or by means of the corresponding ground terminal in the connection compartment (f).
- Alternatively, the sensor and the transmitter (compact version) or the connection housing of the sensor can be included in the potential matching system by means of the pipeline if a ground connection, performed as per the specifications, is ensured.

Cable entries

Thread for cable entry M20x1.5 or 1/2"-NPT or G 1/2", as required.

Connecting cable cable specifications

The sensor cable connection between the sensor and the transmitter has EEx ia explosion protection.

The maximum permitted capacitance per unit length of the cable connection is 1 µF/km.

The maximum permitted inductance of the cable is 1 mH/km.

The cable supplied by Endress+Hauser (max. 30 m) complies with these values.

Electrical connections

Terminal/electronics compartment cover (terminal assignment, see tables below)

4 to 20 mA HART
(connection with a cable)

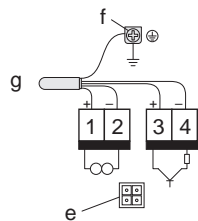


Fig. 3

A0004027

4 to 20 mA HART
(connection with two cables)

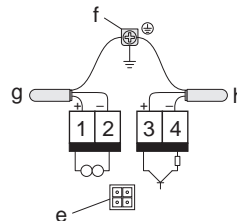


Fig. 4

A0004028

4 to 20 mA HART
(PFM connection)

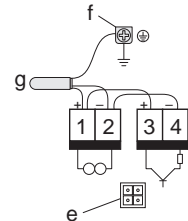


Fig. 5

A0004029

PROFIBUS PA

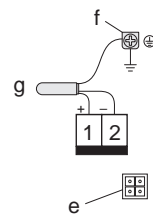


Fig. 6

A0004030

FOUNDATION Fieldbus

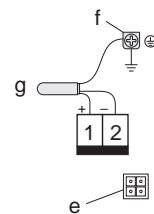


Fig. 7

A0004030

e Service connector (see also Page 17)

f HART ground terminal: if the potential matching is routed via the cable and if two cables are used, both cables must be connected to the potential matching system if a connection is not already established externally.

PROFIBUS PA and FOUNDATION Fieldbus: between the stripped fieldbus cable and the ground terminal, the cable shielding must not exceed 5 mm in length

g HART (Fig. 3): cable for supply voltage and/or pulse output

HART (Fig. 4): cable for supply voltage

PFM (Fig. 5): Optional pulse/frequency output, can also be operated as a status output (not for PROFIBUS PA and FOUNDATION Fieldbus)

PROFIBUS PA (Fig. 6): cable of input and output circuits

FOUNDATION Fieldbus (Fig. 7): cable of input and output circuits

Note!

PFM output (pulse/frequency modulation): connection as illustrated in Fig. 5.

Connecting the supply voltage or signal cable

The terminal assignment and the connection data for the supply voltage are identical for all devices, regardless of the device version (type code).

Note!

A graphic illustration of the electrical connections is provided on Page 15.

Terminal assignment /connection data

Terminals	1 (+)	2 (-)
Prosonic 92F**_*****W	Transmitter power supply / 4 to 20 mA HART	
Intr. safe circuit	IS	
Safety-related values	U_{max}	30 V
	I_{max}	300 mA
	P_i	1 W
	L_i	9 μ H
	C_i	5.28 nF

Terminals	1 (+)	2 (-)	3 (+)	4 (-)
Prosonic 92F**_*****A	Transmitter power supply / 4 to 20 mA HART		Optional pulse/status output	
Intr. safe circuit	IS		IS	
Safety-related values	U_{max}	30 V	30 V	
	I_{max}	300 mA	300 mA	
	P_i	1 W	1 W	
	L_i	9 μ H	9 μ H	
	C_i	5.25 nF	0	

Terminals	1 (+)	2 (-)
Prosonic 92F**_*****H	PROFIBUS PA	
Intr. safe circuit	IS	
Functional values	U_B	9 to 32 V DC
	I_B	16 mA
	P	≤ 1 W
Safety-related values	U_{max}	17.5 V
	I_{max}	600 mA
	P_i	8.5 W
	L_i	≤ 10 μ F
	C_i	≤ 5 nF

or

1 (+)	2 (-)
PROFIBUS PA	
IS	
9 to 32 V DC	
16 mA	
≤ 1 W	
24 V	
250 mA	
1.2 W	
≤ 10 μ F	
≤ 5 nF	

Terminals	1 (+)	2 (-)
Prosonic 92F**_*****K	FOUNDATION Fieldbus	
Intr. safe circuit	IS	
Functional values	U_B	9 to 32 V DC
	I_B	16 mA
	P	≤ 1 W
Safety-related values	U_{max}	17.5 V
	I_{max}	600 mA
	P_i	8.5 W
	L_i	≤ 10 μ F
	C_i	≤ 5 nF

or

1 (+)	2 (-)
FOUNDATION Fieldbus	
IS	
9 to 32 V DC	
16 mA	
≤ 1 W	
24 V	
250 mA	
1.2 W	
≤ 10 μ F	
≤ 5 nF	

Service connector

The service connector (for connection, see Fig. 3 to Fig. 7, e) is only used to connect service interfaces approved by Endress+Hauser.

 Warning!

The service connector may not be connected in a potentially explosive atmosphere.

Technical data**Dimensions**

The dimensions of the Ex transmitter housing and the sensor correspond to the standard versions. Please refer to the Technical Information for these dimensions.

 Note!

Associated "Technical Information":
Proline Prosonic Flow 92F → TI073D/06/...

Control drawings

Endress+Hauser Reinach hereby declares that the product is in conformity with the requirements of the CANADIAN STANDARDS ASSOCIATION.

 Note!

The "Documentation/Important Information" folder provided with the measuring device contains a CD-ROM with all the Control Drawings.



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