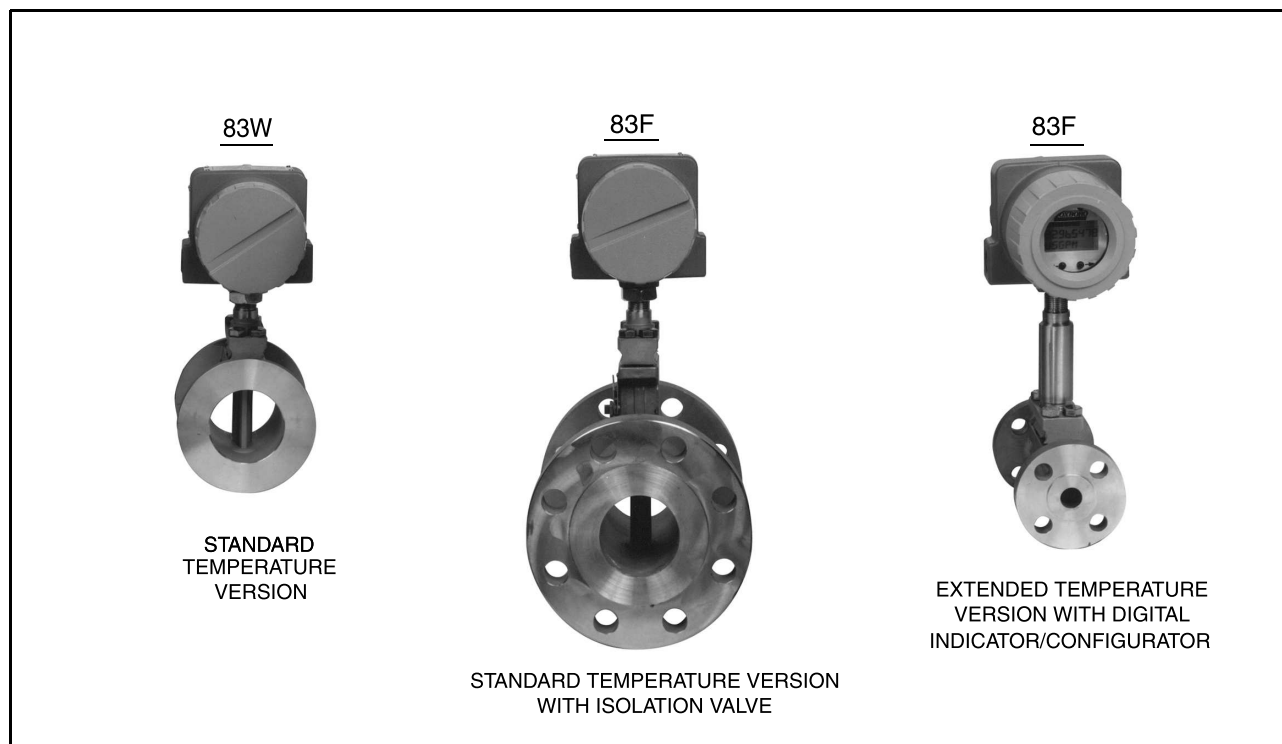




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Foxboro Model 83F Flanged Body Vortex Flowmeters Foxboro Model 83W Wafer Body Vortex Flowmeters with 4 to 20 mA Analog and Pulse Outputs



The Models 83F-A and 83W-A are part of a family of high performance, flanged and wafer body vortex flowmeters. They transmit a user-selectable 4 to 20 mA analog or a pulse output signal. An on-board flowrate indicator is provided with a selection of scales for either the analog or pulse output.

FEATURES

- Used on liquids, gases, and steam.
- 4 to 20 mA and pulse flowmeter outputs; user-selectable.
- Outputs compatible with all types of totalizing and control loops.
- Rangeability up to 100:1.
- Wide temperature range up to 800°F (430°C).
- Field adjustable low flow cut-in selections.
- Pulse train smoothing enhances low flow measurement.
- Isolation valve offered to allow sensor replacement without interrupting flow in pipe.
- Rapid response time.
- Temperature K-factor correction.
- Flow rate indicator with a selection of scales for both 4 to 20 mA and pulse output.
- Dual measurement capability (83F only).
- Hastelloy C or stainless steel bodies and flanges.
- FlowExpertPro™ sizing program greatly simplifies flowmeter selection.
- Can be used in hazardous area locations.
- A very wide selection of sizes:
 - Flanged Body: 3/4 to 12 in (DN 15 to DN 300)
 - Water Body: 3/4 to 8 in (DN 15 to DN 200)
- Conforms to applicable European Union directives (including PED).

LIFETIME WARRANTY

Sensor Warranty against workmanship and material defects for lifetime of flowmeter – contact Invensys Foxboro.

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MODEL CODES

Model 83F Vortex Flowmeters – Flanged Body

Description

83F = Vortex Flowmeter – Flanged Body

Electronics Type

-A = 4 to 20 mA Analog and Pulse Electronics

Nominal Line Size

3Q = 3/4 in (DN 15) Line Size
01 = 1 in (DN 25) Line Size
1H = 1 1/2 in (DN 40) Line Size
02 = 2 in (DN 50) Line Size
03 = 3 in (DN 80) Line Size
04 = 4 in (DN 100) Line Size
06 = 6 in (DN 150) Line Size
08 = 8 in (DN 200) Line Size
10 = 10 in (DN 250) Line Size
12 = 12 in (DN 300) Line Size

Body and Flange Material

S = Sizes 3Q to 04: Cast Body/Flange and Shedder (except Code 04S1); CF8M Material
Size 04S1: Fabricated from 316 ss Tubing and Flanges
Sizes 06 to 12: Body Fabricated from 304 ss Tubing with 304 ss Flanges
K = Sizes 06 to 12: Body Fabricated from 304 ss Tubing with Carbon Steel (A105) Flanges

End Connections and Flange Rating

<u>Description</u>	<u>Used with Line Sizes</u>
1 = ANSI Class 150 Flange, RF, per ASME B16.5	All line sizes
2 = ANSI Class 300 Flange, RF, per ASME B16.5	All line sizes
3 = ANSI Class 600 Flange, RF, per ASME B16.5	Sizes 3Q through 08 only
4 = Metric PN 16 Flange, RF, Finish Form D, per ASME B16.5	Sizes 06 through 08 only
5 = Metric PN 40 Flange, RF, Finish Form D, per DIN 2501	All line sizes
6 = Metric PN 64 Flange, RF, Finish Form E, per DIN 2501	Sizes 02 through 12 only
7 = Metric PN 100 Flange, RF, Finish Form E, per DIN 2501	Sizes 3Q through 08 only
8 = Metric PN 40 Flange, RF, Finish Form C, per DIN 2501	Sizes 3Q through 04 only
A = Metric PN 40 Flange, RF, Finish Form N, per DIN 2501	All line sizes
B = Metric PN 64 Flange, RF, Finish Form N, per DIN 2501	Sizes 02 through 12 only
C = Metric PN 100 Flange, RF, Finish Form N, per DIN 2501	Sizes 3Q through 08 only
D = Metric PN 16 Flange, RF, Finish Type B1, per EN 1092-1	Sizes 06 through 08 only (e)
F = Metric PN 40 Flange, RF, Finish Type B1, per EN 1092-1	All line sizes (e)
H = Metric PN 100 Flange, RF, Finish Type B1, per EN 1092-1	All line sizes (e)

Single or Dual Measurement and Isolation Valve

S = Single Measurement; No Isolation Valve
D = Dual Measurement; Manifold with No Isolation Valve
K = Single Measurement; Manifold with one Isolation Valve; CF8M Stainless Steel
L = Dual Measurement; Manifold with two Isolation Valves; CF8M Stainless Steel

Sensor Fill, Temperature Range, and Material

Standard Temperature Range (with Fill Fluid)

D = Fluorolube Fill, 0 to 200 °F (–20 to +90 °C) Hastelloy Type CW2M
F = Fluorolube Fill, 0 to 200 °F (–20 to +90 °C) Stainless Steel Type CF3M
R = Silicone Fill, 0 to 400 °F (–20 to +200 °C) Hastelloy Type CW2M
S = Silicone Fill, 0 to 400 °F (–20 to +200 °C) Stainless Steel Type CF3M

High Temperature Range (No Fill Fluid) (d)

C = Unfilled, 400 to 800 °F (200 to 430 °C) Hastelloy Type CW2M
T = Unfilled, 400 to 800 °F (200 to 430 °C) Stainless Steel Type CF3M

Model 83F Code continued on next page



MODEL CODES

Model 83F Vortex Flowmeters - Flanged Body (Cont.)

Electronics Housing Mounting, Material, and Conduit Connections

- T = Mounted to Flowtube; Aluminum Housing; 1/2 NPT Conduit Connections (a)
- R = Remote Mounted; Aluminum Housing; 1/2 NPT Conduit Connections (a)
Also must select Cable Length in Options Section.

Output Indicator

- N = No Output Indicator (Blind Unit)
- A = Analog Output Indicator, 4 to 20 mA, 0 to 100% Scale
- B = Analog Output Indicator, Ten Equally Spaced Division
- E = Pulse Output Indicator, 0 to 100% Scale
- D = Pulse Output Indicator, Ten Equally Spaced Divisions

Electrical Safety (See Electrical Safety Specifications Section for further details)

- A = CSA intrinsically safe, Division 1.
CSA explosionproof, Division 1.
CSA suitable for Class I, II, and III, Division 2.
FM intrinsically safe, Division 1.
FM explosionproof, Division 1.
FM nonincendive, Class I, II, and III, Division 2.
- E = ATEX intrinsically safe, II 2 G, EEx ib IIC.
- N = ATEX protection n, II 3 G, EEx nL IIC
- Z = No Approval/Certification Required

Optional Selections

Cable Length Selection for Remote Electronics Housing

- B = 20 ft (6 m) Cable to Connect to Remote Electronics Housing
- D = 30 ft (9 m) Cable to Connect to Remote Electronics Housing
- E = 40 ft (12 m) Cable to Connect to Remote Electronics Housing
- G = 50 ft (15 m) Cable to Connect to Remote Electronics Housing

Calibration Cable

- C = Cable used to Check Amplifier Calibration

Cleaning for Oxygen or Chlorine Service

- H = Cleaning of Process Wetted Parts for Oxygen/Chlorine Service per CGA G-4.1 and ASTM G93 (Not with Measurement/Isolation Valve Codes "D", "K", and "L", Extended Temperature Sensor Codes "C" and "T", or Size Codes "10" and "12")

Sensor Plating

- J = Gold Plated Sensor

Invensys Foxboro Certificates of Compliance/Conformance

- L = Standard Certificate of Compliance (ISO 9001)
- M = Foxboro Material Certification of Process Wetted Metal (Conforms to BS EN 10204.3.1)
- Q = Process Wetted Parts Conform to NACE MR-01

Invensys Foxboro Certified Calibration Certificate

- N = Foxboro Calibration and Pressure Test Certification

Cable Connections - with Electrical Housing Codes T and R (1/2 NPT)

- P = Hawke-Type Cable Gland (with Electrical Safety Codes E and Z only)
- R = PG11 Trumpet Gland (not with flameproof/explosionproof certifications)
- S = PG13.5 Trumpet Gland (not with flameproof/explosionproof certifications)

Welding Certificate (Size Codes 06 through 12 only) (b)(c)

- F = Welding Certified to the ASME Boiler Code
- V = Radiographic Examination of Flange Welds (except ANSI 150 and Metric PN 16)
- X = Welding Certified to the ASME Boiler Code; includes Radiographic Examination

Examples: 83F-D02S1SDTNA-X; 83F-T06K7DCRJE-GQNX

- (a) ATEX intrinsically safe certifications not available with 1/2 NPT openings.
- (b) Select one certificate only. Note that Certificate -X includes both -F and -V certifications.
- (c) Not available when Size Code 06 or 08 is combined with End Connection Code 1 or 4.
- (d) Application ALERT: for Extended Temperature Range sensors used in hazardous or volatile gas applications, there is the potential of fugitive emissions to occur through the sensor vented restrictor if the sensor diaphragm were to fail.
- (e) Contact Invensys Foxboro if metric flanges per EN 1092-1 are selected.



MODEL CODES (Cont.)

Model 83W Vortex Flowmeters – Wafer Body

Description

83W = Vortex Flowmeter – Wafer Body

Electronics Type

-A = 4 to 20 mA Analog and Pulse Electronics

Nominal Line Size

3Q = 3/4 in (DN 15) Line Size
01 = 1 in (DN 25) Line Size
1H = 1 1/2 in (DN 40) Line Size
02 = 2 in (DN 50) Line Size
03 = 3 in (DN 80) Line Size
04 = 4 in (DN 100) Line Size
06 = 6 in (DN 150) Line Size
08 = 8 in (DN 200) Line Size

Body Material

S = ASTM A351-CF8M (316 ss) Cast Body and Shedder
H = ASTM A494-CW2M (Hastelloy C) Cast Body and Shedder; with Size Codes 3Q to 04 only.

Mounting and Centering System

1 = Centering for the following Flanges:
ANSI Class 150 and ANSI Class 300
ANSI Class 600 with Sizes 3Q to 04 only
Metric PN 16 with Sizes 01 to 03 only
Metric PN 40 with Sizes 01 to 03, and 06, and 08
Metric PN 64 and Metric PN 100

Isolation Valve

S = No Isolation Valve
K = Isolation Valve, Type CF8M Stainless Steel

Sensor Fill, Temperature Range, and Material

Standard Temperature Range (with Fill Fluid)

D = Fluorolube Fill, 0 to 200 °F (-20 to +90 °C) Hastelloy Type CW2M
F = Fluorolube Fill, 0 to 200 °F (-20 to +90 °C) Stainless Steel Type CF3M
R = Silicone Fill, 0 to 400 °F (-20 to +200 °C) Hastelloy Type CW2M
S = Silicone Fill, 0 to 400 °F (-20 to +200 °C) Stainless Steel Type CF3M

High Temperature Range (No Fill Fluid) (b)

C = Unfilled, 400 to 800 °F (200 to 430 °C) Hastelloy Type CW2M
T = Unfilled, 400 to 800 °F (200 to 430 °C) Stainless Steel Type CF3M

Mounting for Electronics Housing

T = Mounted to Flowtube; Aluminum Housing; 1/2 NPT Conduit Connections (a)
R = Remote Mounted; Aluminum Housing; 1/2 NPT Conduit Connections (a)
Also must select Cable Length in Options Section.

Model 83W Code continued on next page

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MODEL CODES (Cont.)

Model 83W Vortex Flowmeters - Wafer Body (Cont.)

Local Digital Display/Configurator

- N = No Output Indicator (Blind Unit)
- A = Analog Output Indicator, 4 to 20 mA, 0 to 100% Scale
- B = Analog Output Indicator, Ten Equally Spaced Divisions
- E = Pulse Output Indicator, 0 to 100% Scale
- D = Pulse Output Indicator, Ten Equally Spaced Divisions

Electrical Safety (See Electrical Safety Specifications Section for further details)

- A = CSA intrinsically safe, Division 1.
CSA explosionproof, Division 1.
CSA suitable for Class I, II, and III, Division 2.
FM intrinsically safe, Division 1.
FM explosionproof, Division 1.
FM nonincendive, Class I, II, and III, Division 2.
- E = ATEX intrinsically safe, II 2 G, EEx ib IIC.
- N = ATEX protection n, II 3 G, EEx nL IIC
- Z = No Approval/Certification Required

Optional Selections

Cable Length Selection for Remote Electronics Housing

- B = 20 ft (6 m) Cable to Connect to Remote Electronics Housing
- D = 30 ft (9 m) Cable to Connect to Remote Electronics Housing
- E = 40 ft (12 m) Cable to Connect to Remote Electronics Housing
- G = 50 ft (15 m) Cable to Connect to Remote Electronics Housing

Calibration Cable

- C = Cable used to Check Amplifier Calibration

Cleaning for Oxygen or Chlorine Service

- H = Cleaning Process Wetted Parts per CGA G-4.1 and ASTM G93
(Not available with Isolation Valve, Code K or Extended Temperature Sensor Codes "C" and "T")

Sensor Plating

- J = Gold Plated Sensor

Invensys Foxboro Certificates of Compliance/Conformance

- L = Standard Certificate of Compliance
- M = Invensys Foxboro Material Certification of Process Wetted Metal
(Conforms to BS EN 10204-3.1)
- Q = Process Wetted Parts Conform to NACE MR-01

Invensys Foxboro Calibration Certificate

- N = Invensys Foxboro Calibration and Pressure Test Certification

Cable Connections - with Electrical Housing Codes T and R (1/2 NPT)

- P = Hawke Cable Gland
- R = PG11 Trumpet Gland

Examples: 83W-D02S1KFTJA-Q; 83W-T06S4SDRJA-GNP

(a) ATEX intrinsically safe certification not available with 1/2 NPT openings.

(b) Application ALERT: for Extended Temperature Range sensors used in hazardous or volatile gas applications, there is the potential of fugitive emissions to occur through the sensor vented restrictor if the sensor diaphragm were to fail.

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