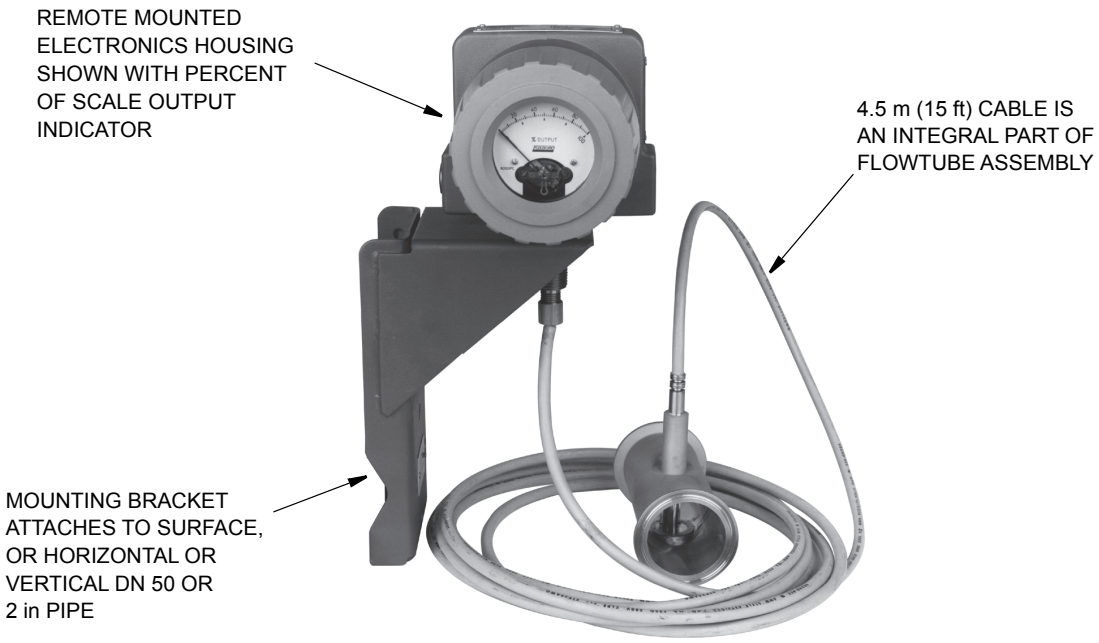
Foxboro®
by Schneider Electric

Model 83S-A
I/A Series® Analog Sanitary Vortex Flowmeter with 4 to 20 mA and Pulse Output



The Foxboro® brand Model 83S-A is a high-performance vortex flowmeter used for 3-A compliant sanitary and general sanitary liquid service. It transmits a 4 to 20 mA analog and pulse output signal. For intelligent Model 83S digital output sanitary flowmeter, refer to PSS 1-8A2D.

FEATURES

- Designed for sanitary service; also used in nonsanitary service where absence of pinch points is essential.
- Complies with 3-A sanitary standards.
- Clean-In-Place (CIP) construction.
- A complete line of 3-A sanitary end connections.
- 25 micro-inch root mean square finish.
- 4 to 20 mA analog and pulse outputs.
- Difficult fluids, such as slurries, can also be measured.
- In-Line cleaning at process temperatures up to 177°C (350°F) is allowed.
- Flow rate indicator with a selection of scales for both 4 to 20 mA and pulse outputs.
- Stainless steel flowtube in DN 50 and DN 80 mm (2 and 3 in) line sizes.
- 316L low carbon stainless steel construction.
- Can be used in hazardous area locations.
- Conforms to applicable European Union Directives (product marked with “CE” logo).

DESIGNED FOR SANITARY SERVICE

The 83S-A is designed for either general sanitary applications or in CIP (Clean-In-Place) 3-A compliant sanitary service. The process-wetted parts are manufactured from 316 stainless steel and finished to 25 μin sanitary standards. The flowmeter body (with integral shedding element/detector assembly) is free from internal crevices. The design allows for in-line cleaning using various combinations of cleaning solutions, air purging, or saturated steam at temperatures up to 177°C (350°F).

HIGH PERFORMANCE AT LOWER COST

This sanitary vortex flowmeter has the excellent accuracy, reproducibility, and wide rangeability previously found only with such devices as positive displacement and turbine flowmeters. Yet, unlike a positive displacement or turbine flowmeter, the 83S-A has no moving parts. This simplicity, and the fact that field calibrations are not required, provides a high-performance, durable, flow measuring instrument of low initial cost, low maintenance and operating costs, and therefore contributing to an overall low cost of ownership.

COMPACT, EFFICIENT, AND DURABLE DESIGN

The 83S-A is offered in the most common sanitary line sizes, and has the same electronics housing as the general purpose Models 83F and 83W Flanged and Wafer Body Vortex Flowmeters. The electronics housing is of durable construction and provides environmental protection to the enclosed parts, such as the environmentally protected amplifier, integral flow rate indicator, and terminal block. The plug-in amplifier can be calibrated in place and can be replaced without interrupting the flow in the pipe.

SIMPLIFIED FLOW START-UP

This flowmeter requires no primary device calculations or mechanical calibrations. Simply install the flowmeter, connect wiring to the proper power source and readout, ticket printer, or control instrumentation, and the 83S-A is ready to measure flow.

A VARIETY OF APPLICATIONS

This sanitary flowmeter is available in nominal DN 50 and DN 80 (2 and 3 in) sizes, with a large selection of sanitary end connections to satisfy a variety of applications. Influences on flow measurement due to changes in density and/or viscosity will be within the limits of the accuracy specified. It is ideally suited for the Pharmaceutical, Food, and Dairy Industries. Difficult fluids, such as slurries, can also be measured. It can also be configured, for example, to measure the flow of liquids in a batch process without measuring the inert gas following the batch, thereby providing an accurate measurement of the process liquid only.

OUTPUT IS COMPATIBLE WITH ALL TYPES OF TOTALIZING, BATCHING, AND CONTROL LOOPS

The 83S-A transmits two different types of output signals that are linearly proportional to volumetric flow rate. It produces a pulse rate signal for totalizing and batching, or an electronic analog 4 to 20 mA dc signal for recording and control of flow rate.

FLOW RATE INDICATOR

A Flow Rate Indicator is available for both the analog (4 to 20 mA) and pulse output flowmeters. Linear indicator scales, either 0 to 100% or with ten equally spaced divisions, are offered for both output versions. The Flow Rate Indicator is a Model Code Selection.

"CE" COMPLIANCE

The 83S-A Series of Vortex Flowmeters displays on the product the "CE" designation (logo) indicating conformance to the applicable new European Community Standards for immunity to sources of electromagnetic interference. This compliance with European Community Standards also includes conformance to a maximum level of self-generated electromagnetic energy.

DESIGNED FOR USE IN HAZARDOUS LOCATIONS

These flowmeters have been designed to meet the certification and approval requirements of CSA and FM for use in hazardous area locations. Refer to "Product Safety Specifications" section.

OPERATING CONDITIONS (a)

Influence	Calibrated Operating Conditions (b)	Normal Operating Condition Limits	Operative Limits
Process Fluid	Clear Water	Liquid	Liquid
Process Temperature	20 to 30°C (70 to 85°F)	-18 and +200°C (0 and 400°F)	-18 and +177°C (0 and 350°F)
Ambient Temperature (Electronics Housing)	20 to 30°C (70 to 85°F)	-40 and +85°C (-40 and +185°F)	-40 and +85°C (-40 and +185°F)
Relative Humidity	50 to 90% RH	0 and 100%	0 and 100%
Supply Voltage: • Pulse • Analog (c)	 24 V dc 24 V dc	 10.5 and 50 V dc 10.5 and 50 V dc	 10.5 and 50 V dc 10.5 and 50 V dc
Loop Load: • Pulse • Analog (c)	 R = 100 kΩ, C = 0 μF 300 Ω (c)	 R = 100 kΩ, C = 0.05 μF 0 and 1925 Ω (c)	 R = 10 kΩ, C = 0.05 μF 0 and 1925 Ω (c)

(a) Limited to nonflashing, noncavitating conditions. Flow rate and temperature of process may induce flashing and cavitation which is dependent on pressure drop and process vapor pressure. A minimum positive back-pressure is required for proper operation.
(b) Assumes compatible process piping and fittings; gaskets not protruding into process line; a minimum of thirty pipe diameters of straight pipe upstream of flowmeter and eight pipe diameters downstream; clear water free of air or particles.
(c) The loop load can vary as listed, depending on the supply voltage used. See Figure 3 for a plot of supply voltage vs. loop load.

PERFORMANCE SPECIFICATIONS

(Under Calibrated Operating Conditions unless Otherwise Specified)

Factory Calibrated Flow Ranges

Nominal Meter Size	Nominal Mean K-Factor in Pulses/ft³ (Pulses/L)	Factory Calibrated Flow Range for Water		
		Range in USgpm	Range in L/s	Reynolds Number Range
2 in (50 mm)	282 (9.96)	58 to 210	3.6 to 14	100 000 to 380 000
3 in (80 mm)	78.0 (2.75)	34 to 500	2.1 to 32	38 000 to 570 000

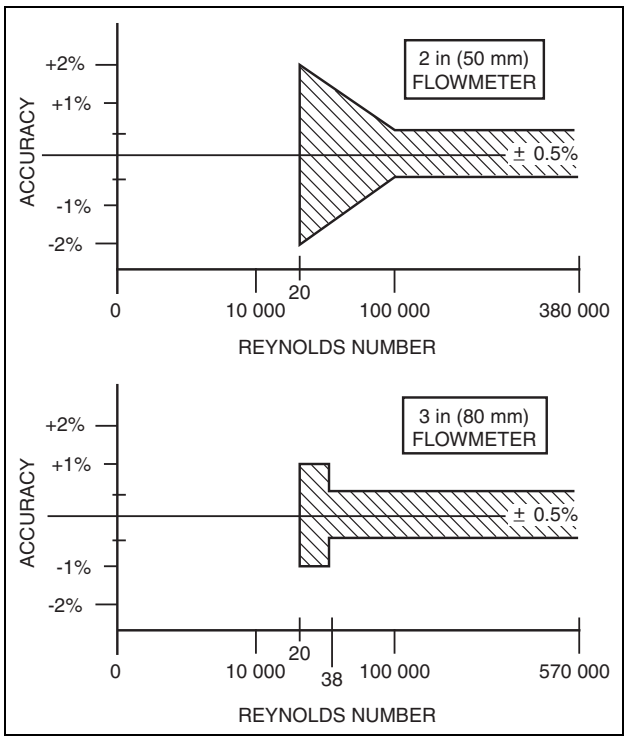
Note: The K-factor is the relationship between input (volumetric flow rate) and the output (pulse rate).
Reference K-factor: the arithmetic mean value of K-factor over a designated flow rate range (calibration operating conditions).

The mean K-factor is derived as:
Mean K-factor = (KMAX + KMIN)/2
Where KMAX is the maximum K-factor and KMIN is the minimum K-factor over the calibrated flow range.

Accuracy – General

Meter accuracy is under calibrated operating conditions (see Operating Conditions table). Installation parameters such as location of valves, proximity to elbows, etc., will affect the accuracy of the flow measurement. Data is presented in MI 019-190 to correct the measurement for these effects. As a result of the K-factor deviating from its reference value at low flows, the accuracy below 20 000 R_D is not specified. For these applications the Intelligent Model 83S is recommended. See PSS 1-8A2 D.

Figure 1. Flowmeter Accuracy for Liquids



Accuracy for Liquids (Figure 1)

2 in (50 mm) FLOWMETER

Accuracy within the Reynolds Number (R_D) range of 100 000 to 380 000 is ±0.5% of reading. The K-factor deviates from the reference value below an R_D of 100 000. This results in an error that increases as the R_D decreases, reaching a value of about +2% at R_D equal to 20 000.

3 in (80 mm) FLOWMETER

Accuracy within the calibrated R_D range is ±0.5% of reading. Outside the calibrated range, the accuracy is ±1% of reading for flow rates with R_D of 20 000 or greater.

Accuracy for Gases and Steam

2 in (50 mm) FLOWMETER

Accuracy within the Reynolds Number R_D range of 100 000 to 380 000 is ±1% of reading. The K-factor deviates from the reference value below an R_D of 100 000. This results in an error that increases as the R_D decreases, reaching a value of about +2% at R_D equal to 20 000.

3 in (80 mm) FLOWMETER

Accuracy is ±1% of reading for flow rates with an R_D of 20 000 or greater

Reproducibility (over a 24-hour period)

0.2% of actual flow rate, over specified RD range.

Rangeability

Up to 40 to 1.

Supply Voltage Effect

(Within Stated Limits)

WITH PULSE OUTPUT

No known effect on accuracy.

WITH ANALOG OUTPUT

Less than 0.01% per 1.0% voltage change.

Flow Overrange Effect

WITH PULSE OUTPUT

No significant effect on accuracy or signal loss.

WITH ANALOG OUTPUT

Analog signal is limited to 20 mA dc maximum, and, therefore may not reproduce flow rate measurement above 20 mA.

Overranges beyond 20% of the maximum velocity could result in equipment damage with subsequent loss of signal.

Process Temperature Effect on K-Factor

The effect on the reference K-factor due to a diameter change of the flowtube bore with temperature is minus 0.3% of flow rate for a 55°C (or 100°F) increase in process temperature from reference operating conditions.

Ambient Temperature Effect

WITH PULSE OUTPUT

No pulse rate change above low flow cut-in.

WITH ANALOG OUTPUT

For a 55°C (or 100°F) change in ambient temperature within operative limits

Zero (4 mA); ±0.25% of span, maximum

Span (16 mA); ±0.25% of span, maximum

Position Effect (Filled Pipe Conditions)

For most applications, the flowmeter can be mounted in a pipeline which may run from the vertical (upwards flow) to the horizontal with no effect on performance. Positioning the flowmeter so that pipeline vibrations are parallel to the sensor diaphragm will minimize the effects of vibration.

Process Viscosity Effect

Performance is not affected (within accuracy limits) by viscosity for flowing conditions where the pipe Reynolds Numbers are greater than those specified (by size) in Note (a) of the Accuracy table under Performance Specifications. The minimum linear flow rate for each size flowmeter will be the flow rate which results in the specified minimum pipe Reynolds Numbers at the flowing viscosity.

Relative Humidity Effect

There is no effect due to Relative Humidity as long as the covers and seals are properly installed.

Electromagnetic Compatibility (RFI)

Output error from RFI at frequencies ranging from 27 to 1 000 MHz is less than ±1% of span at a field intensity of 10 V/m; and less than ±2% of span at a field intensity of 30 V/m. This applies only when the electronics housing is properly earthed (grounded).

FUNCTIONAL SPECIFICATIONS

Output Signal

PULSE OUTPUT

Square wave voltage equals supply voltage minus two volts. Maximum current is 10 mA (sink or source). Shielded and twisted cable is recommended.

ANALOG OUTPUT

4 to 20 mA dc into a maximum resistance of 1925 W depending on power supply (Figure 3).

High Voltage Protection

A power zener diode (transient voltage suppressor) is included in the terminal compartment of the electronics housing to protect against a voltage surge of up to 2500 V.

Static Pressure Limits

MINIMUM STATIC PRESSURE

The minimum static pressure is that pressure which is sufficient to prevent flashing and meet the pressure drop requirements to attain maximum flow rate. Refer to FlowExpertPro sizing program.

MAXIMUM STATIC PRESSURE

DN 50 or 2 in SIZE: 1725 kPa (250 psi) at 38°C (100°F), or that imposed by the process piping.

DN 80 or 3 in SIZE: 1035 kPa (150 psi) at 38°C (100°F), or that imposed by the process piping.

Minimum Back Pressure

Any condition that tends to contribute to the release of vapor from the liquid (flashing, which may also induce cavitation) shall be avoided by proper system design and operation of the flowmeter within the rated flow rate range. Location of the flowmeter should determine the need for incorporating or considering a back-pressure valve, or for increasing inlet pressure. To avoid flashing and to ensure stable vortex generation, minimum back pressure should be:

PG = (3)(DP) + (1.25)(pv) - (patm)

where,

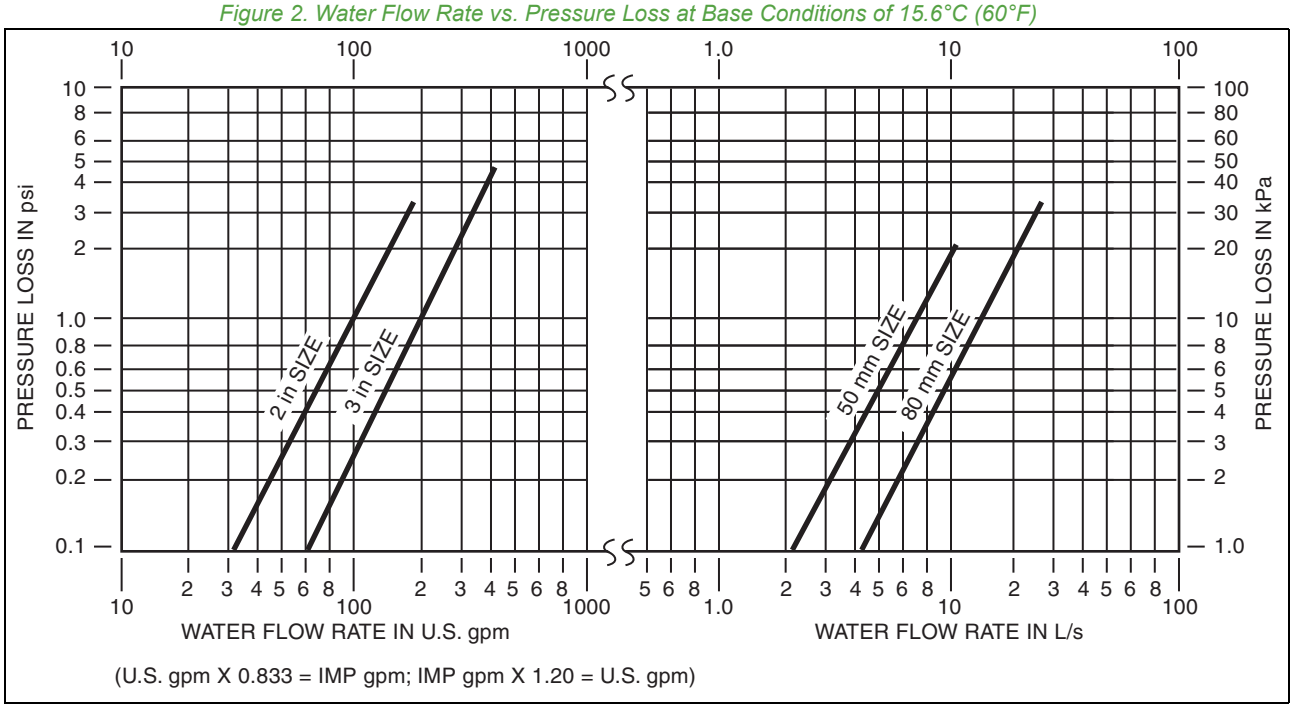
P_G	=	Gauge pressure in kPa or psi five pipe diameters downstream of the flowmeter
ΔP	=	Calculated pressure loss in kPa or psi (see "Approximate Pressure Loss" section)
p_v	=	Vapor pressure at line conditions in kPa or psi absolute.
p_{atm}	=	Atmospheric pressure in kPa or psi absolute.

Approximate Pressure Loss

Maximum pressure loss at maximum flow for every flowmeter with any fluid is 55 kPa (8 psi).

Sample plots for water are shown in Figure 2. Note that for many flow conditions, the actual pressure loss is much less than 55 kPa (8 psi). Use the Foxboro FlowExpert Pro™ flowmeter configurator to determine the actual pressure loss for a given set of conditions. See FlowExpert Pro paragraph that follows.

Figure 2. Water Flow Rate vs. Pressure Loss at Base Conditions of 15.6°C (60°F)



FlowExpert Pro™

FlowExpert Pro is a software program primarily used to size Foxboro flowmeters. It also ensures that the user has selected the proper flowmeter type for his measurement application. We provide this flowmeter configurator as a free web site to all users, without the need for registration. In addition to flowmeter selection and sizing, FlowExpert Pro includes the following features:

- Incorporates a large library of the physical properties of typical process fluids.
- Displays results in tabular or graphic format.
- Allows user to save, print, or E-mail results.
- Provides reference to applicable flowmeter PSS and other related flowmeter documentation.

Basically, the program calculates minimum and maximum flow rates, rangeability, pressure loss, and Reynolds Number, using established flow equations. It also allows for material and flange selection. You are invited to visit www.FlowExpertPro.com to access this program, or contact Global Customer Support for further information.

For many applications, Table 2 can be used (in lieu of FlowExpert Pro) as a quick guide to flowmeter sizing. This table lists operating flow rate limits for water for each line size. Note that flowmeter must operate within flow velocity limits previously defined.

Reference K-Factor

The reference K-factor is a coefficient that specifies the flowmeter calibration and is expressed as the ratio of pulses per unit volume, where pulses/unit volume = pulses per second divided by volume flow per second. Refer to Table 1 for the reference K-factor for each flowmeter size. The reference K-factor is the arithmetic mean value of K over the factory-calibrated flow range.

Reference K-Factor Determination

The reference K-factor is determined at the factory flow facility by actual flow calibration with water by comparison to a master flowmeter calibration or by actual static weight. Both calibrations are traceable to NIST (National Institute of Standards and Technology). The reference K-factor is stamped on the data plate.

Flow Rate Limits

Refer to Table 2 for operating flow rate limits for water at selected base conditions of 15.6°C (60°F) and 101.3 kPa (14.7 psia). The minimum flow rates shown are with the low flow cut-in switch set at MIN. The maximum flow rates shown apply to continuous operation. Overranges beyond 25% of the maximum flow rate could result in equipment damage with subsequent loss of signal. The minimum and maximum flow rates listed in Table 2 are based on the flow velocity limitations defined in the paragraph below.

Table 1. Nominal Reference K-Factors

Nominal Line Size		Nominal Reference K-Factor		
mm	in	p/L	p/U.S. gal	p/ft³
50	2	10.0	37.7	282
80	3	2.75	10.4	78

Nominal Flow Velocity Limits

These limits can be calculated using the table below. In the table, ρ_f is the process fluid density at flowing conditions in kg/m³ or lb/ft³, as applicable. The specifications apply for most applications, but can deviate slightly for some combinations of density and line size.

Range Limit	Flow Velocity Limit	
	m/s	ft/s
Lower	$6/\sqrt{\rho_f}$	$5/\sqrt{\rho_f}$
Upper	$240/\sqrt{\rho_f}$	$200/\sqrt{\rho_f}$

Table 2. Water Flow Rates at Selected Base Conditions of 15.6°C (60°F) and 101.3 kPa (14.7 psia)

Nominal Line Size		Minimum and Maximum Operating Flow Rates (a)		Analog Output and Pulse Output with Indicator Minimum and Maximum Upper Range Values (Adjustable Between Values Listed)(b)	
mm	in	L/s	U.S. gpm	L/s	U. S. gpm
50	2	0.433 and 17.3	6.87 and 275	1.3 and 17.3	21 and 275
80	3	1.02 and 40.8	16.2 and 648	4.6 and 40.8	74 and 648

(a) Below minimum operating flow rate, pulse output will be zero and analog output will be 4 mA.
(b) Any upper range value between the minimum and maximum limits shown can correspond to an analog maximum output of 20 mA, or full scale reading on pulse output with indicator.

Input Frequency Range

Amplifier can accept a wide range of pulse rates. Vortex frequency limits are 0.5 and 3 000 Hz for both pulse and analog output modes. Use the FlowExpertPro Sizing Program to determine the nominal shedding frequency for any flow rate for a given line size.

Response Time

PULSE OUTPUT

Equal to the vortex shedding period.

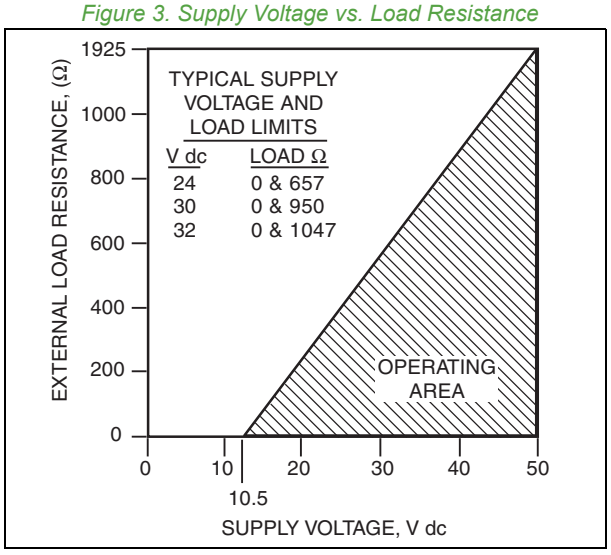
ANALOG OUTPUT

0.25 s (rise time) plus the vortex shedding period, where rise time is 90% recovery time to an 80% input step with zero output damping.

Supply Voltage vs. External Load

Refer to Figure 3.

Figure 3. Supply Voltage vs. Load Resistance



PHYSICAL SPECIFICATIONS

Mounting

Flowmeter body can be located in pipeline which may run in any direction from the vertical (flow in upward direction) to the horizontal. The electronics housing is mounted (remotely) to a bracket, which in turn is attached to a surface, or DN 50 or 2 in pipe. The body and housing are electrically connected by a 4.5 m (15 ft) cable. The cable is an integral part of the flowmeter body assembly. During operation, the flow line must remain full.

Enclosure Protection

The electronics housing meets the requirements of IP66 and provides the environmental and corrosion resistant protection of NEMA Type 4X.

Process-Wetted Parts

Flowmeter Body

AISI Type 316 stainless steel (316 ss) tube.

Vortex Shedding Element

316L stainless steel per ASTM 276

Detector Diaphragm

316L ss

End Connections

316 ss

Nonwetted Parts

Electronics Housing and Covers

Low copper aluminum alloy. Gray epoxy powder-coated finish electronics housing and covers.

Cover Gaskets

Buna-N O-ring

Detector Capsule Fill Material

DC 550 silicone oil. Volume is 0.262 cm3 (0.016 in3).

Data Plate

Stainless steel data plate fastened to electronics housing with self-tapping drive screws. Includes space for customer tag data up to a maximum of 32 characters and spaces. This tag also shows the factory calibration factor (K-factor). If additional space is required for tag data, an optional Customer Stainless Steel Tag is offered. See Optional Selections section.

Electrical Connections

Electronics Housing tapped for 1/2 NPT conduit. See “Dimensions-Nominal” section.

Approximate Weight

Nominal Line Size		Flowmeter Description	Approximate Weight with Connections C, M, R, T, U	
mm	in		kg	lb
50	2	Body and Cable	0.72	1.6
		Housing and Bracket	4.1	9
		Total	4.8	10.6
80	3	Body and Cable	1.1	2.5
		Housing and Bracket	4.1	9
		Total	5.2	11.5

PRODUCT SAFETY SPECIFICATIONS

Electrical Safety Specifications

See Electrical Safety Specifications table below.

Pressure Safety

The actual pressure-temperature limits are determined by the selected end connections used.

Personnel and Electrical Fire Safety

This device is designed to be a minimum fire hazard by using low energy power and adequate insulation and separation of electrical circuits. The requirements in the standards of FM and CSA, and the consensus standards adopted by OSHA, have been fulfilled.

Electrical Safety Specifications

Testing Laboratory, Types of Protection and Area Classification	Conditions of Certification	Electrical Safety Design Code
CSA certified intrinsically safe for Class I, Division 1, Groups A, B, C, and D; Class II, Division 1, Groups E, F, and G; and Class III, Division 1.	Temperature Class: Int. Safe: T3C at 85°C and T4A at 40°C maximum ambient.	A
FM approved intrinsically safe for Class I, II, and III, Division 1, Groups A, B, C, D, E, F, and G; nonincendive Class I, II, and III, Division 2, Groups A, B, C, D, F, and G.	Temperature Class: ▸ Int. Safe: T3C at 85°C and T4A at 40°C maximum ambient. ▸ Nonincend: T5 at 85°C maximum ambient.	A

OPTIONAL SELECTIONS AND ACCESSORIES

Option -C: Calibration Cable

A calibration cable that can be plugged into the amplifier is available to connect to a frequency generator to check the frequency-to-analog calibration of amplifier. Select Option -C.

Option -N: Calibration Certificate

Flow calibrated K-factor and pressure test certificate is available by selecting Option -N.

Options -L and -M: Conformance and Compliance Certificates

Two material certificates are offered. Option -L provides a certificate of compliance to specifications. The quality system conforms to ISO 9001. Option -M is a certification of material for process wetted metal (conforms to DIN 50049-3.1b).

Stainless Steel Customer Tag

This optional accessory adds a 40 x 90 mm (1.5 x 3.5 in) stainless steel tag for customer data that does not fit on the standard stainless steel data plate. It is fastened to housing with stainless steel wire. There can be a maximum of 10 lines of data with 40 characters and spaces per line. This tag will also show the K-factor specific to customer application (information with flowing conditions being submitted with the purchase order). Specify AS Code MTS.

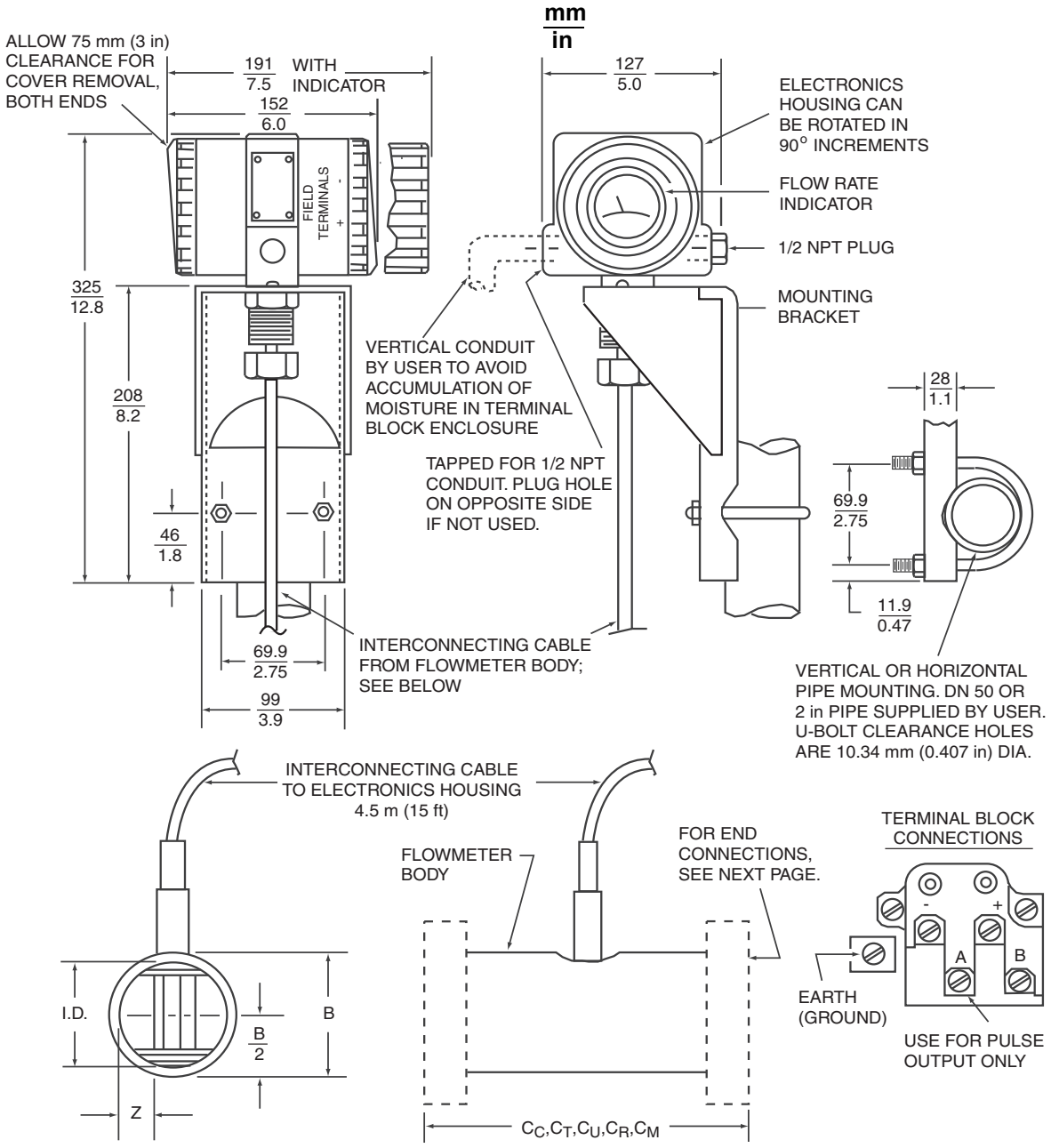
MODEL CODE

83S Sanitary Vortex Flowmeters - Analog Output (a)

Description	Model
Vortex Flowmeter – Sanitary	83S
Electronics Type and Output	
Analog Electronics; 4 to 20 mA and Pulse Output	–A
Nominal Line Size	
2 in (50 mm) Stainless Steel Tubing	02
3 in (80 mm) Stainless Steel Tubing	03
End Connection Type (Welded to Flowmeter Body) (b)	
3-A I-Line Fitting, Mates with Cherry Burrell 15 WI or Equivalent	C
SI (DIN 11851) Coupling with External Knuckle Thread, per DIN 405, Part 1	M
RJT Coupling per BS 1864, with External Whitworth Thread, 6 TPI	R
3-A Tri-Clamp Type Quick-Disconnect Ferrule, Mates with Tri-Clover 14 WMP or equivalent	T
ISS (ISO 2853) Coupling with External Trapezoidal Thread, 8 TPI	U
Local Digital Display/Indicator	
No Local Digital Display/Indicator (Blind Unit)	N
Analog Output Indicator, 4 to 20 mA, 0 to 100% Scale	A
Analog Output Indicator, Ten Equally Spaced Divisions	B
Pulse Output Indicator, 0 to 100% Scale	E
Pulse Output Indicator, Ten Equally Spaced Divisions	D
Electrical Safety (See Electrical Safety Specifications Section for Description)	
CSA and FM Testing Laboratories as Described below: CSA; Intrinsically Safe, Class I, II, and III, Division 1, Groups A, B, C, D, E, F, and G FM; Intrinsically Safe, Class I, II, and III, Division 1, Groups A, B, C, D, E, F, and G FM; Nonincendive, Class I, II, and III, Division 2, Groups A, B, C, D, E, F, and G	A
No Approval/Certification Required	Z
Optional Selections	
Calibration Cable Option	
Calibration Cable, 4.5 m (15 ft)	-C
Certificates of Compliance/Conformance Options	
Standard Certificate of Compliance	–L
Material Certification of Process Wetted Metal (Conforms to DIN 50049-3.1b)	–M
Calibration Certificate Option	
Calibration and Pressure Test Certification	–N
Examples: 83S–A02CAA–CN; 83S–A03TEA–M; 83S–A02FAA	

(a) See PSS 1-8A2 D for I/A Series Intelligent Sanitary Vortex Flowmeters with Digital, 4 to 20 mA, and Scaled Pulse Outputs.
(b) Mating end connections, gaskets, and clamps to be supplied by the user.

DIMENSIONS–NOMINAL

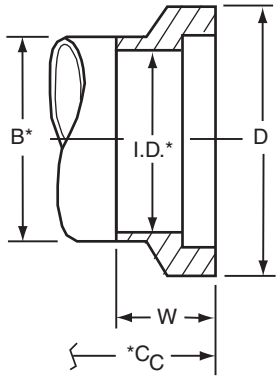


NOMINAL LINE SIZE		FLOWMETER BODY DIMENSIONS (a)							
mm	in	I.D.	B	C_C	C_T	C_U	C_R	C_M	Z
50	2	47.50 (1.870)	50.8 (2.00)	155 (6.1)	127 (5.0)	145 (5.7)	160 (6.3)	173 (6.8)	17.3 (0.68)
80	3	72.90 (2.870)	76.2 (3.00)	213 (8.4)	178 (7.0)	196 (7.7)	211 (8.3)	334 (9.2)	26.4 (1.04)

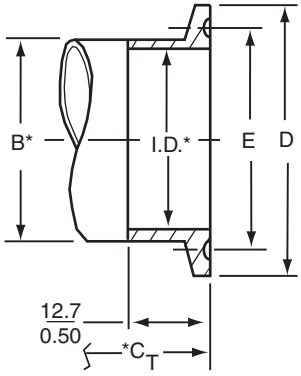
(a) C_T = TUBE LENGTH WITH END CONNECTION "T"; ETC.

mm
in

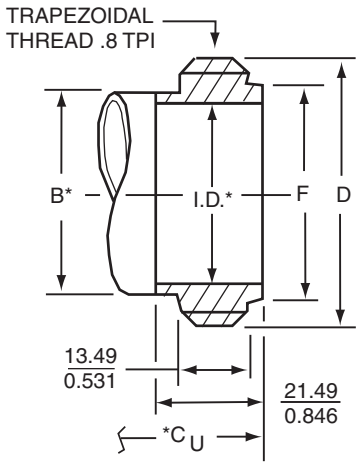
3A I-LINE FITTING (CODE C)



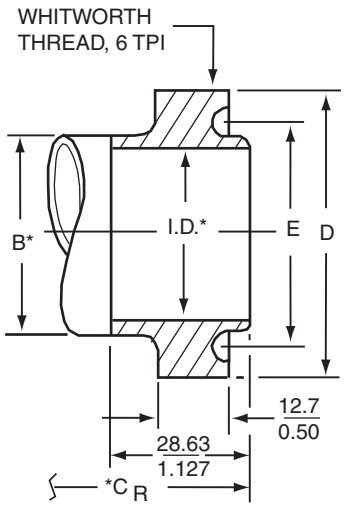
3A TRI-CLAMP (CODE T)



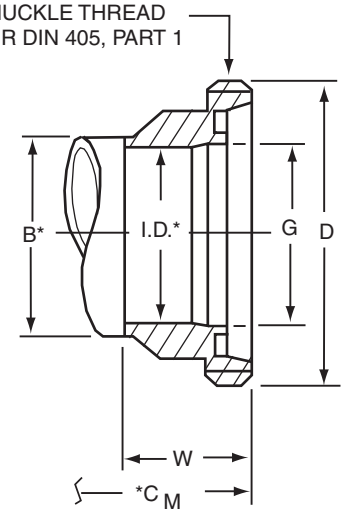
ISS COUPLING (CODE U)



RJT COUPLING (CODE R)



SI COUPLING (CODE M)



NOMINAL LINE SIZE		END CONNECTION DIMENSIONS (a)										
		CODE C		CODE T		CODE U		CODE R		CODE M		
mm	in	D	W	D	E	D	F	D	E	D	G	W
50	2	67.06 (2.640)	26.19 (1.031)	64.0 (2.52)	56.4 (2.22)	64.08 (2.523)	56.21 (2.213)	72.72 (2.863)	58.67 (2.310)	78 (3.1)	50 (2.0)	35 (1.4)
80	3	98.30 (3.870)	30.96 (1.219)	90.9 (3.58)	83.3 (3.28)	91.11 (3.587)	82.60 (3.252)	98.12 (3.863)	84.07 (3.310)	110 (4.3)	81 (3.2)	40 (1.6)

(a) REFER TO PREVIOUS PAGE FOR END-TO-END DIMENSION C, INSIDE DIAMETER I.D., AND BODY DIAMETER B.

NOTES

ORDERING INSTRUCTIONS

1. Model Number
2. Flow Data:
    a. Maximum, minimum, and normal flow rate
    b. Fluid composition and viscosity at operating temperatures
    c. Density or relative density (specific gravity)
    d. Maximum, minimum, and normal operating temperatures
    e. Maximum, minimum, and normal operating pressures
3. Accessories
4. Customer Tag and Application

NOTE

1. The Analog Output will be Calibrated for the Maximum Flow Rate Specified in Item 2a, above. If meter is not to be calibrated, then add note “Calibration not Required.”
2. If meter is to be used in the European Countries, then meter must have P.E.D. certification.

OTHER FOXBORO PRODUCTS

The Foxboro product lines offer a broad range of measurement and instrument products, including solutions for pressure, flow, analytical, temperature, positioning, controlling, and recording. For a list of these offerings, visit our web site at:

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