Product Data Sheet
January 2014
00813-0100-4750, Rev FA

Rosemount 8750WA Magnetic Flowmeter System For Water and Wastewater Industries

THE 8750WA MAGNETIC FLOWMETER

- Rosemount reliability in a customized offering specific to the Water and Wastewater industries
- Available in flanged and wafer styles
- Polyurethane, PTFE and Neoprene Liners
- Line sizes 1/2-in. to 48-in. available in North America
- Line sizes 42-in. (1050 mm) and 48-in. (1200 mm) available Globally
- Line sizes > 48-in. (1200 mm) available Consult Factory
- Options for:
  - Diagnostic Suite for improved maintenance practices
  - Diagnostic Suite for simplified meter verification
  - Submersible to IP68
  - NSF Drinking Water Certification

ROSEMOUNT

EMERSON. Process Management

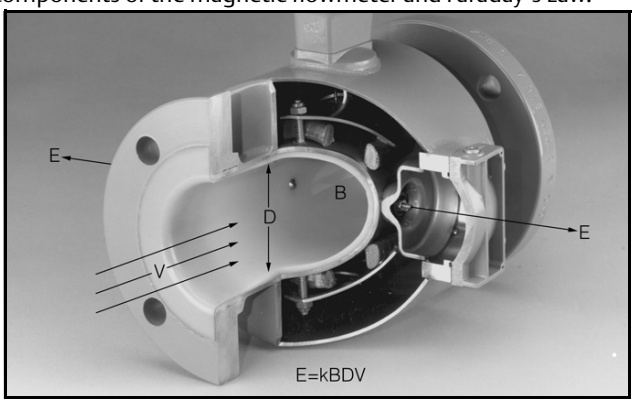
The Rosemount 8750WA Magmeter Sensor delivers reliability for water and wastewater industries

Operation

The operating principle of the magnetic flowmeter system is based upon Faraday's Law of electromagnetic induction, which states that a *voltage will be induced in a conductor moving through a magnetic field*.

Faraday's Law: E=kBDV

The magnitude of the induced voltage E is directly proportional to the velocity of the conductor V, conductor width D, and the strength of the magnetic field B. The figure below of a Model 8750WA sensor illustrates the relationship between the physical components of the magnetic flowmeter and Faraday's Law.



Magnetic field coils placed on opposite sides of the pipe generate a magnetic field. As the conductive process liquid moves through the field with average velocity V, electrodes sense the induced voltage. The width of the conductor is represented by the distance between electrodes. An insulating liner prevents the induced voltage signal from shorting to the pipe wall.

The only variable in this application of Faraday's Law is the velocity of the conductive liquid V because field strength is controlled constant and electrode spacing is fixed. Therefore, the induced voltage E is directly proportional to liquid velocity, resulting in the inherently linear output of a Rosemount Magnetic Flowmeter.

Field mount transmitter

The field mount Rosemount 32ES transmitter has a die cast aluminum housing for excellent reliability. With an optional backlit 2 line by 16 character local operator interface, the transmitter can be configured by optical switches to simplify adjustments without removing the cover.

Wall mount transmitter

The wall mount Rosemount 12ES transmitter features an easy to use operator interface and the Rosemount magmeter diagnostics. The intuitive 15 button keypad provides instant access to the most commonly used functions, and the 2 line by 20 character display provide clear indication. Together they provide fast, intuitive, and easy configuration.

Content

Flanged sensors

Flanged sensors are fabricated from stainless and carbon steel and welded to provide a hermetic seal that protects against moisture and other contaminants. Sizes range from 1/2-in. (15 mm) to 48-in. (1200 mm) standard (larger sizes available - consult factory). The sealed housing ensures maximum sensor reliability by protecting all internal components and wiring from the most hostile environments.

Wafer sensors

The flangeless design of the wafer sensor makes it an economical, compact, and lightweight alternative to flanged magnetic flowmeters. Alignment spacers provided with every sensor assist with centering the sensor in the process line making installation easier.

Rosemount Magmeter Diagnostics reduce costs & improve output

Rosemount Magmeters provide device diagnostics that informs the user of abnormal situations throughout the life of the meter - from Installation to Maintenance and Meter Verification.

With Rosemount Magmeter diagnostics enabled, users can change their practices to improve plant availability and output, and reduce costs through simplified installation, maintenance and troubleshooting.

Diagnostics	Mag user practice	32E	12E
Basic (default)			
Empty Pipe	Process Management	•	•
Electronics Temperature	Maintenance	•	
Coil Fault	Maintenance	•	•
Transmitter Fault	Maintenance	•	•
Reverse Flow	Process Management	•	
Advanced Diagnostic (DA1)			
High Process Noise	Process Management	•	•
Grounding/Wiring Fault	Installation	•	•
Advanced Diagnostic (DA2)			
Smart Meter Verification	Meter Verification	•	•
4 - 20mA Loop Verification	Maintenance	•	

Options for accessing diagnostics

Rosemount Magmeter Diagnostics can be accessed through the Local Operator Interface (LOI), a HART Field Communicator, or AMS Device Manager.

Access Diagnostics through the LOI for quicker installation, maintenance, and meter verification

Rosemount Magmeter Diagnostics are available through the LOI to make maintenance of every magmeter easier.

Access Diagnostics through AMS™ Suite: Intelligent Device Manager for the Ultimate Value

The value of the Diagnostics increases significantly when AMS Device Manager is used. AMS Device Manager provides a simplified screen flow and procedures for how to respond to the Diagnostic messages.

Optional Rosemount Mag Diagnostics

SMART meter verification

Verifying magmeter calibration has traditionally required the flowmeter to be removed from the line and re-calibrated in a flow lab or with a prover. More recently, verification using a field calibrator has become a popular solution, but it still requires extra equipment and is a time consuming process.

Now the Rosemount SMART Meter Verification diagnostic allows users to verify the flowmeter without additional equipment. Initiated directly through the meter Local Operator Interface (LOI), a HART Field Communicator or AMS™ Suite: Intelligent Device Manager, SMART Meter Verification verifies both the transmitter and sensor calibration. The displayed results can be used to fill out the verification form, or simply print the results when using AMS Device Manager.

SMART Meter Verification delivers a fast and cost-effective approach to meter verification with no additional equipment. This diagnostic is one of the optional advanced diagnostic options (DA2) in the Rosemount 8750WA Magnetic Flowmeter model number.

High process noise detection

Loop control in many chemical and slurry applications can be difficult due to “noisy” output from the flowmeter. The historic practice was to add damping to the flowmeter’s output to stabilize the flow signal. This adds deadtime to the control loop resulting in additional process variability that drives up operating costs.

Only Rosemount 8750WA Magmeters have a comprehensive solution to optimize installed performance and signal stability in even the noisiest applications, without additional damping. The high process noise diagnostic alerts you when variability is caused by process noise and not actual flow variation. This allows you to adjust to a higher coil drive frequency to stabilize the output without adding damping. By taking advantage of the high process noise diagnostic and scalable coil drive capability you improve process control, increase product quality and reduce scrap. This diagnostic is one of the optional advanced diagnostic options (DA1) in the Rosemount 8750WA Magnetic Flowmeter model number.

Grounding/wiring fault detection

Rosemount technology provides a grounding and wiring fault detection diagnostic to dramatically reduce the time and cost of installing magmeters. One of the most common installation issues with magmeters is the lack of a proper ground. Without a proper ground, the meter will not read flow correctly. By continually monitoring the line noise voltage across the frequency spectrum, Rosemount technology can detect and alert you immediately if the meter wiring or grounding needs to be fixed. This saves commissioning time, reduces installation costs, and can help prevent inaccurate measurements. This diagnostic is one of the optional advanced diagnostic options (DA1) in the Rosemount 8750WA Magnetic Flowmeter model number.

SMART meter verification improves magnetic flowmeter verification practice

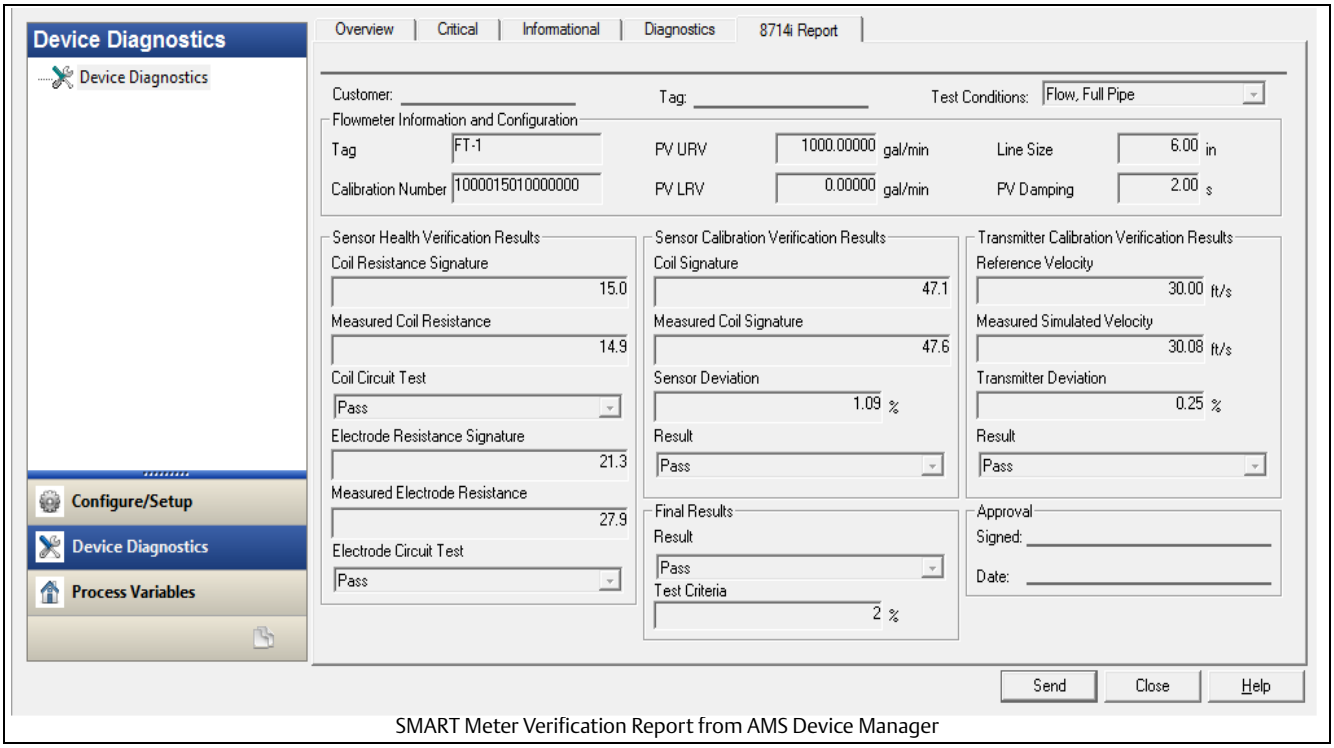
Diagnostic in LOI

SMART Meter Verification checks transmitter and sensor characteristics.

Deviation from baseline values are reported.

Meter Calibration is verified.

Diagnostic in AMS Device Manager



SMART Meter Verification Report from AMS Device Manager

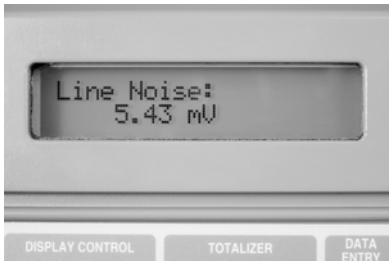
Verification report

A verification report that can be filled out manually is available on Rosemount.com.

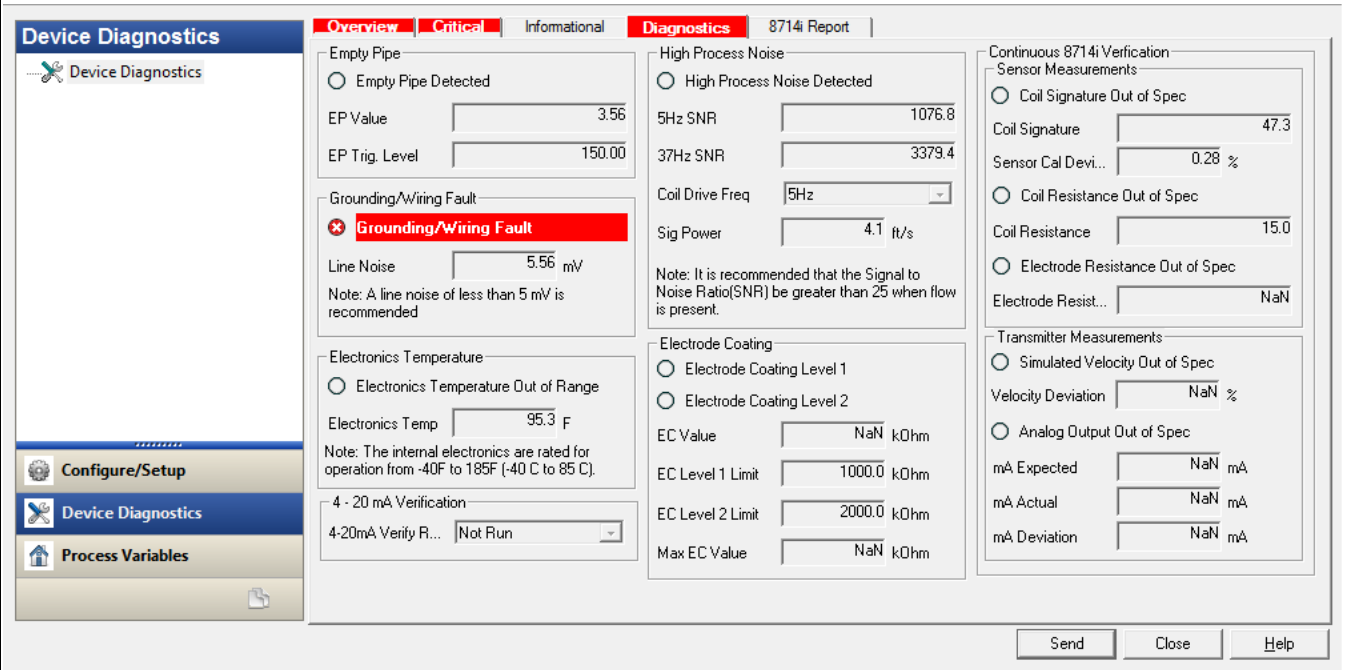
http://www2.emersonprocess.com/siteadmincenter/PM%20Rosemount%20Documents/00816-0200-4727.pdf

Grounding/wiring diagnostic improves installation practices

Diagnostic in LOI

		
Grounding and wiring fault displays on LOI.	Error messages under Diagnostic menu.	Line noise value can be viewed. If line noise is > 5 mV, Diagnostic is tripped.

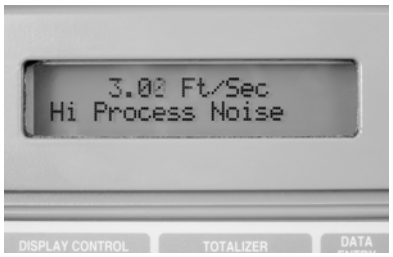
Diagnostic in AMS Device Manager



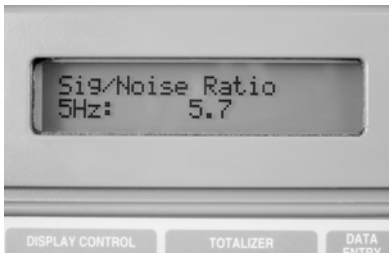
Grounding and wiring is tripped and shown in AMS status screen.

High process noise diagnostic improves process management

Diagnostic in LOI



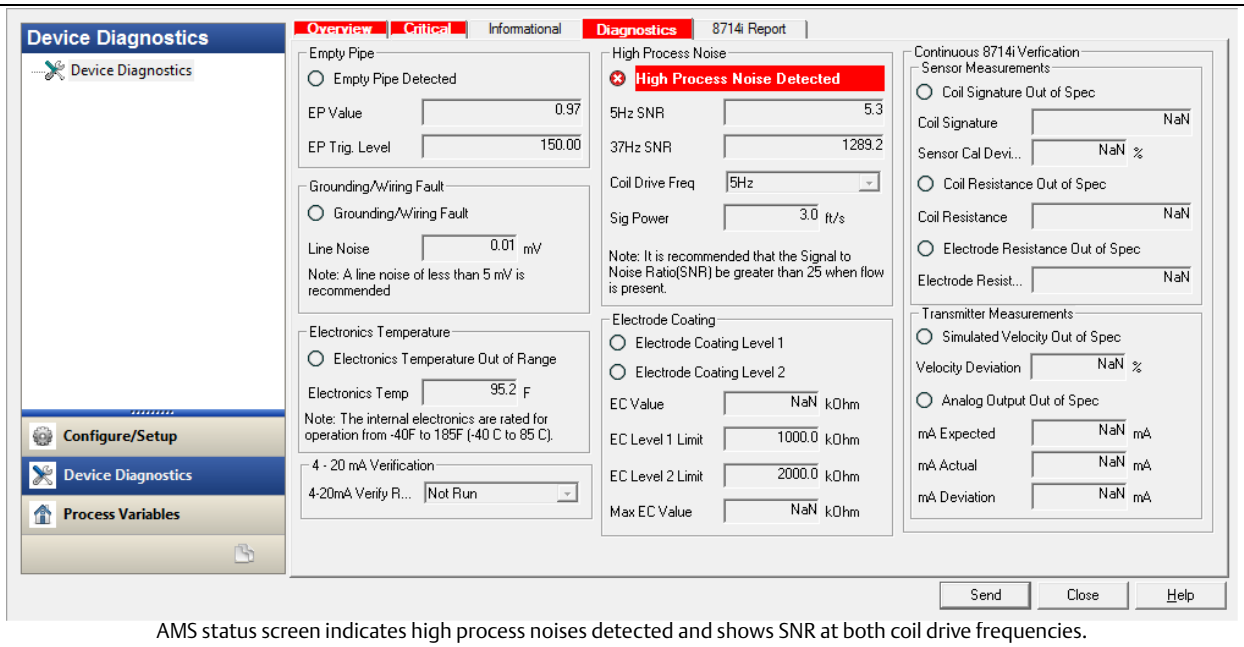
LOI indicates high process noise is detected.



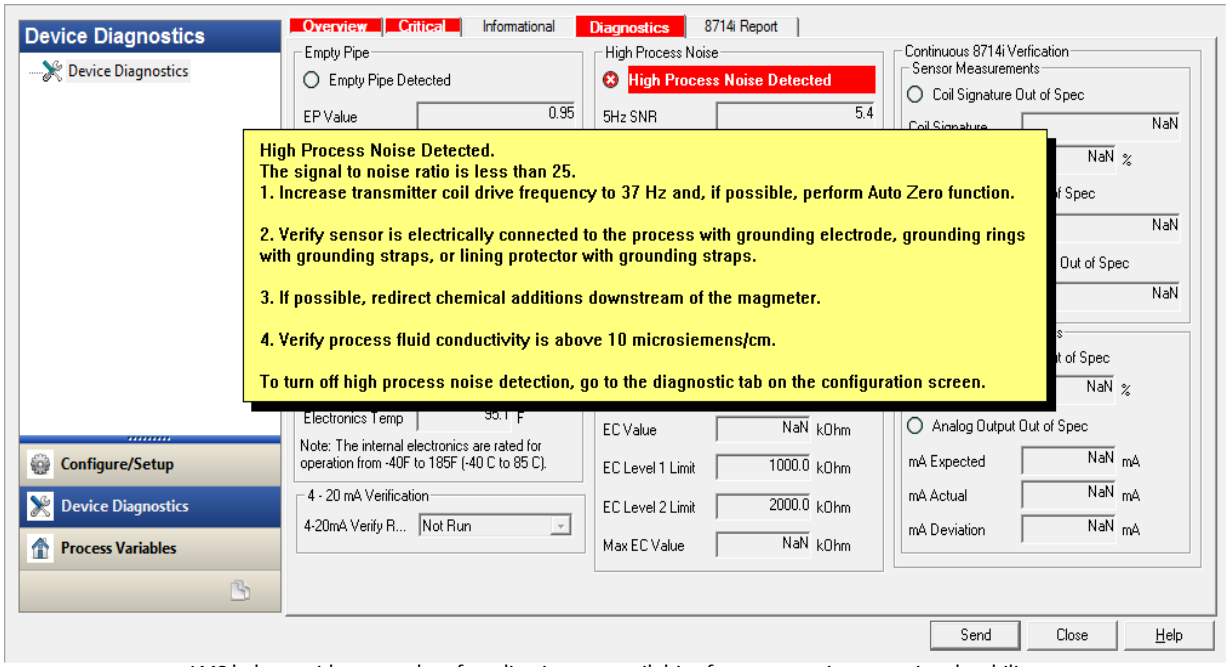
Signal-to-noise ratio (SNR) is viewed in Diagnostic menu. If the SNR <25, Diagnostic is tripped.

Improved SNR and signal stability by moving coil drive frequency from 5 Hz to 37 Hz.

Diagnostic in AMS Device Manager



AMS status screen indicates high process noises detected and shows SNR at both coil drive frequencies.



AMS help provides procedure for adjusting mag coil drive frequency to improve signal stability.

Rosemount 8750WA specifications

Functional specifications

Service

Water and water-based fluids

Line sizes

1/2 -in. to 48-in. (15 mm to 1200 mm)

Sensor compensation

Rosemount sensors are flow-calibrated and assigned a calibration factor at the factory. The calibration factor is entered into the transmitter, enabling interchangeability of sensors without calculations or a compromise in accuracy.

Conductivity limits

Process liquid must have a conductivity of 5 microsiemens/cm (5 micro-mhos/cm) or greater.

Pressure limits

Per ASME B16.5 and ASME B16.47 for the flange selected.

Sensor coil resistance

flanged: 7 - 16 V

wafer: 10 - 18 V

Flow rate range

Capable of processing signals from fluids that are traveling between 0.04 and 30 ft/s (0.01 to 10 m/s) for both forward and reverse flow in all sensor sizes. Full scale continuously adjustable between –30 and 30 ft/s (–10 to 10 m/s).

Sensor ambient temperature limits

–20 to 140 °F (–29 to 60 °C)

Process temperature limits

Polyurethane lining

0 to 140 °F (-18 to 60 °C)

Neoprene lining

0 to 185 °F (-18 to 85 °C)

PTFE lining

-20 to 248 °F (-29 to 120 °C)

Table 1. Temperature vs. pressure limits(1)

Process temperature vs. Pressure limits for ASME B16.5 Class Flanges (1/2-in to 48-in. line sizes) (2)				
		Pressure		
Flange Material	**Flange Rating**	**@ -20 to 100 °F (-29 to 38 °C)**	**@ 200 °F (93 °C)**	**@ 300 °F (149 °C)**
Carbon Steel	Class 150	285 psi	260 psi	230 psi
	Class 300	740 psi	675 psi	655 psi
304 Stainless Steel	Class 150	275 psi	235 psi	205 psi
	Class 300	720 psi	600 psi	530 psi

(1) Liner temperature limits must also be considered.

(2) 30- to 48-in. AWWA C207 Class D and Class E are rated to 150 psi at atmospheric temperature.

Optional discrete output function (AX)

Externally powered at 5 to 24 VDC, transistor switch closure up to indicate either:

Reverse flow:
Activates switch closure output when reverse flow is detected. The reverse flow rate is displayed.

Zero flow:
Activates switch closure output when flow goes to 0 ft/s.

Empty pipe:
Activates switch closure output when an empty pipe condition is detected.

Transmitter faults:
Activates switch closure output when a transmitter fault is detected.

Flow limits (2):
Activates switch closure output when the transmitter measures a flow rate that meets the conditions established for this alert. There are two independent flow limit alerts that can be configured as discrete outputs.

Totalizer limit:
Activates switch closure output when the transmitter measures a total flow that meets the conditions established for this alert.

Diagnostic status:
Activates switch closure output when the transmitter detects a condition that meets the configured criteria of this output.

Optional digital input function

Externally powered at 5 to 24 VDC, transistor switch closure up to indicate either:

Net total reset:
Resets the net totalizer value to zero.

Positive Zero Return (PZR):
Simulates zero-flow condition.

Output testing

Analog output test
Transmitter may be commanded to supply a specified current between 3.5 and 23 mA.

Pulse output test
Transmitter may be commanded to supply a specified frequency between 1 and 10,000 Hz.

Security lockout

Security lockout switch on the electronics board can be set to deactivate all LOI and HART-based communicator functions to protect configuration variables from unwanted or accidental change.

8732 LOI lockout

All optical switches on the display can be locked locally from the display layout configuration screen by holding the upper right optical switch for 10 seconds. The display can be reactivated holding the same switch for 10 seconds.

Submergence protection (sensor) - SA/SB/SC/SD/SE/SF options

IP68. Continuous submergence to 30 ft. (10 m). Requires conduit entries of the sensor remote junction box be properly sealed to prevent water ingress. This requires the user to install sealed IP68 approved cable glands, conduit connections, or conduit plugs.

Option Codes SA, SB, SC, SD, SE, and SF provide a pre-wired potted and sealed junction box to prevent the ingress of water. These options still require the use of sealed conduits to meet IP68 protection requirements.

Example of a protection category:

Identity letters - IP
First identity number - 6(1)
Second identity number - 8(2)

(1) Protection against the entry of dust (dust-proof). Complete contact prevention.

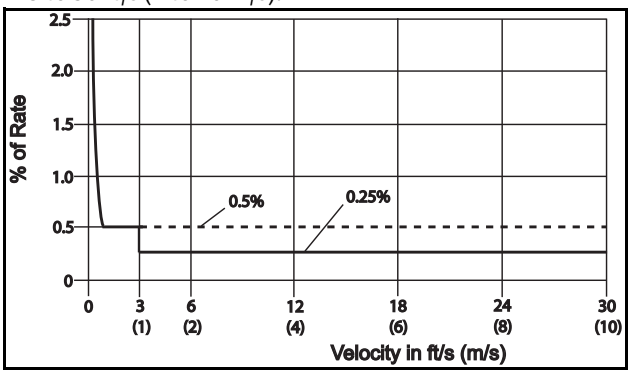
(2) The enclosure is suitable for constant submersion in water under given conditions which are determined by the manufacturer (submersion).

Performance specifications

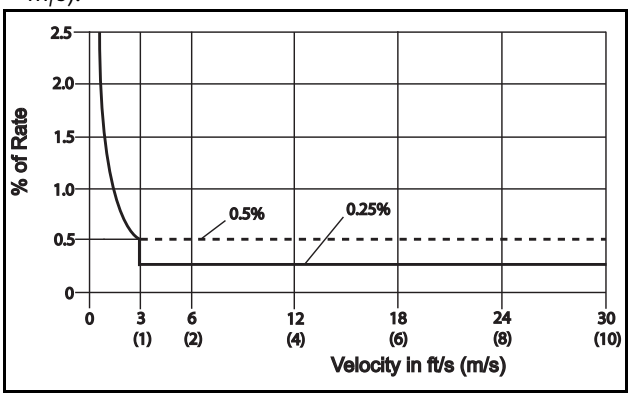
(System specifications are given using the frequency output and with the unit at referenced conditions).

Flanged sensor accuracy
The standard System Accuracy is 0.5% of rate from 1 to 30 ft/s (0.3 to 10 m/s). Includes combined effects of linearity, hysteresis, and repeatability. Accuracy is.005 ft/s (.0015 m/s) from low flow cutoff to 1.0 ft/s (0.3 m/s).

The (D1) optional high system accuracy is 0.25% of rate from 3 to 30 ft/s (1 to 10 m/s).



Wafer sensor accuracy
System accuracy is ±0.5% of rate from 3 to 30 ft/s (1 to 10 m/s); between 0.04 and 3.0 ft/s (0.01 and 0.3 m/s), the system has an accuracy of ±0.015 ft/s (0.005 m/s). Optional high accuracy is ±0.25% of rate from 3 to 30 ft/s (1 to 10 m/s).



Repeatability

±0.1% of reading

Response time (analog output)

50 ms seconds maximum response to step change in input

Stability

±0.25% of rate over six months

Ambient temperature effect

±1% per 100 °F (37.8 °C)

Mounting position effect

None when installed to ensure sensor remains full.

Physical specifications

Flanged sensors

Non-wetted materials

Sensor pipe
AISI Type 304 SST

Flanges
Carbon steel, AISI Type 304/304L SST

Housing
Welded carbon steel

Paint
Polyurethane

Process wetted materials

Lining
Polyurethane, Neoprene, and PTFE

Electrodes
316L SST and Nickel Alloy 276 (UNS N10276)

Process connections

ASME B16.5
1/2-in. to 24-in. (Class 150)
1/2-in. to 24-in. (Class 300)

AWWA C207
30-in. to 48-in. (Class D)
42-in. to 48-in. (Class E)

EN 1092-1

48-in. (1200 mm) PN6, PN10

AS2129

48-in. (1200 mm) Table D, Table E

AS4087

48-in. (1200 mm) PN16, PN21

Wafer sensors

Non-wetted materials

Sensor body
303 SST (ASTM A-743)

Coil housing
ASTM A732 Grade 1A

CS 1026 per ASTM A519

CS 1020, 1026 per ASTM A513, A519

ASTM A53 Grade B

ASTM A1011, Grade A,B,C

Paint
Polyurethane

Process-wetted materials

Lining
PTFE

Electrodes
316L SST, Nickel Alloy 276 (UNS N10276)

Process connections

Mounts between these Flange Configurations
ASME B16.5: 1/2-in. to 8-in. Class 150, 300

Studs, nuts, and washers
ASME B16.5

1/2-in. and 1-in. (15 mm and 25 mm):
316 SST, ASTM A193, Grade B8M, Class 1 threaded mounting studs; ASTM A194, Grade 8M heavy hex nuts; SAE per ANSI B18.2.1, Type A, Series N flat washers.

1/2-in. to 8-in. (40 mm to 200 mm):
CS, ASTM A193, Grade B7, Class 1 threaded mounting studs; ASTM A194, Grade 2H heavy hex nuts;
SAE per ANSI B18.2.1, Type A, Series N flat washers; all items clear, chromate zinc-plated.

Electrical connections

Two 1/2–14 NPT connections with number 8 screw terminals are provided in the terminal enclosure for electrical wiring.

Process reference electrode

A process reference electrode is installed similarly to the measurement electrodes through the lining of the sensor. It will be made of the same material as the measurement electrodes.

Grounding rings - (optional)

Grounding rings are installed between the flange and the sensor face on both ends of the sensor. Single ground rings can be installed on either end of the sensor. They have an I.D. slightly larger than the sensor I.D. and an external tab to attach ground wiring. Grounding rings are available in 316L SST and Nickel Alloy 276 (UNS N10276).

Lining protectors - (optional)

Lining protectors are installed on the flanges at both ends of the sensor. The leading edge of lining material is protected by the lining protector; lining protectors cannot be removed once they are installed. Lining protectors are available in 316L SST and Nickel Alloy 276 (UNS N10276).

Dimensions

See Figure 8, Figure 9, and Table 3.

Weight

See Table 2 and Table 3

Transmitters

Power supply

90-250 VAC, 50–60 Hz or 12-42 VDC

Figure 1. AC power supply requirements

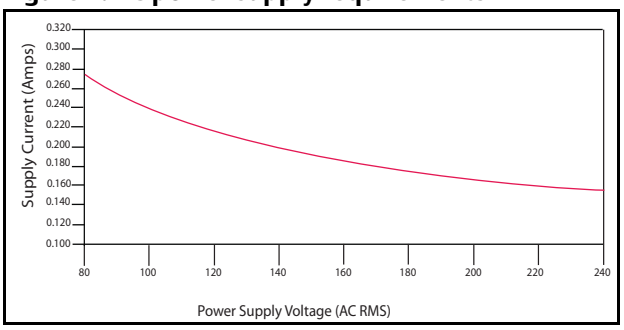
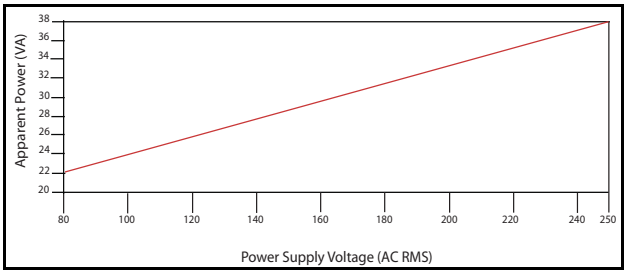


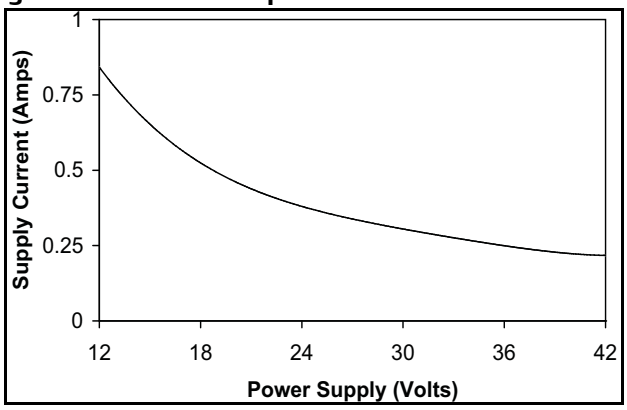
Figure 2. Apparent power



DC supply current requirements

Units powered by 12 VDC power supply may draw up to 1 amp of current steady state.

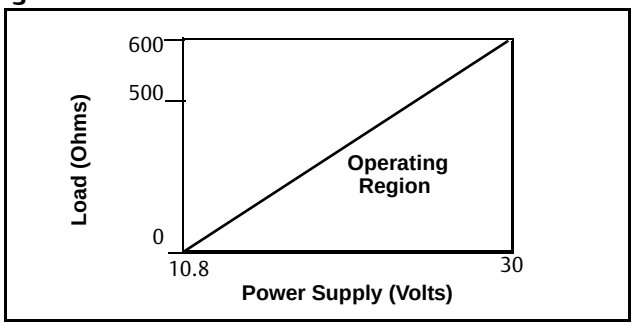
Figure 3. DC current requirements



DC load limitations (Analog output)

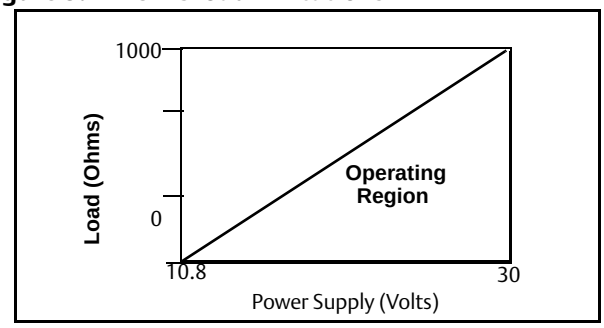
Maximum loop resistance is determined by the voltage level of the external power supply, as described by:

Figure 4. 32E DC load limitations



R_{max} = 31.25 (V_{ps} – 10.8)
V_{ps} = Power Supply Voltage (Volts)
R_{max} = Maximum Loop Resistance (Ohms)

Figure 5. 12ES DC load limitations



R_{max} = 52.08 (V_{ps} – 10.8)
V_{ps} = Power Supply Voltage (Volts)
R_{max} = Maximum Loop Resistance (Ohms)

Note
HART Communication requires a minimum loop resistance of 250 ohms.

Power consumption

15 watts maximum

Switch-on current
AC: Maximum 35.7 A (< 5 ms) at 250 VAC

DC: Maximum 42 A (< 5 ms) at 42 VDC

32ES

Materials of construction

Housing
Low-copper aluminum
Nema 4X and IEC 60529 IP66

Paint
Polyurethane

Cover gasket
Buna-N

Electrical connections

Two or three 1/2–14 NPT with number 8 screw terminal connections are provided for electrical wiring. CM20 adapters are available. Screw terminals provided for all connections. Power wiring connected to transmitter only. Integrally mounted transmitters are factory wired to the sensor.

Mounting

Integrally mounted transmitters do not require additional remote cables. The local display and transmitter can be rotated in 90° increments. Remote mounted transmitters require only a single conduit connection to the sensor.

Transmitter weight

Approximately 7 pounds (3.2 kg). Add 0.5 pounds (0.5 kg) for local display.

12ES

Materials of construction

Housing
Low-copper aluminum, NEMA 4X and IEC 60529 IP66

Paint
Polyurethane

Cover gasket
Silicone Rubber

Electrical connections

Four 1/2–14 NPT connections provided on the base of the transmitter. Screw terminals provided for all of the connections. Power wiring connected to the transmitter only. Remote mounted transmitters require only a single conduit connection to the sensor.

Line power fuses 12ES

90–250 VAC systems
2 amp, Quick-acting Bussman AGC2 or equivalent

12–42 VDC systems
3 amp, Quick-acting Bussman AGC3 or equivalent

Transmitter weight

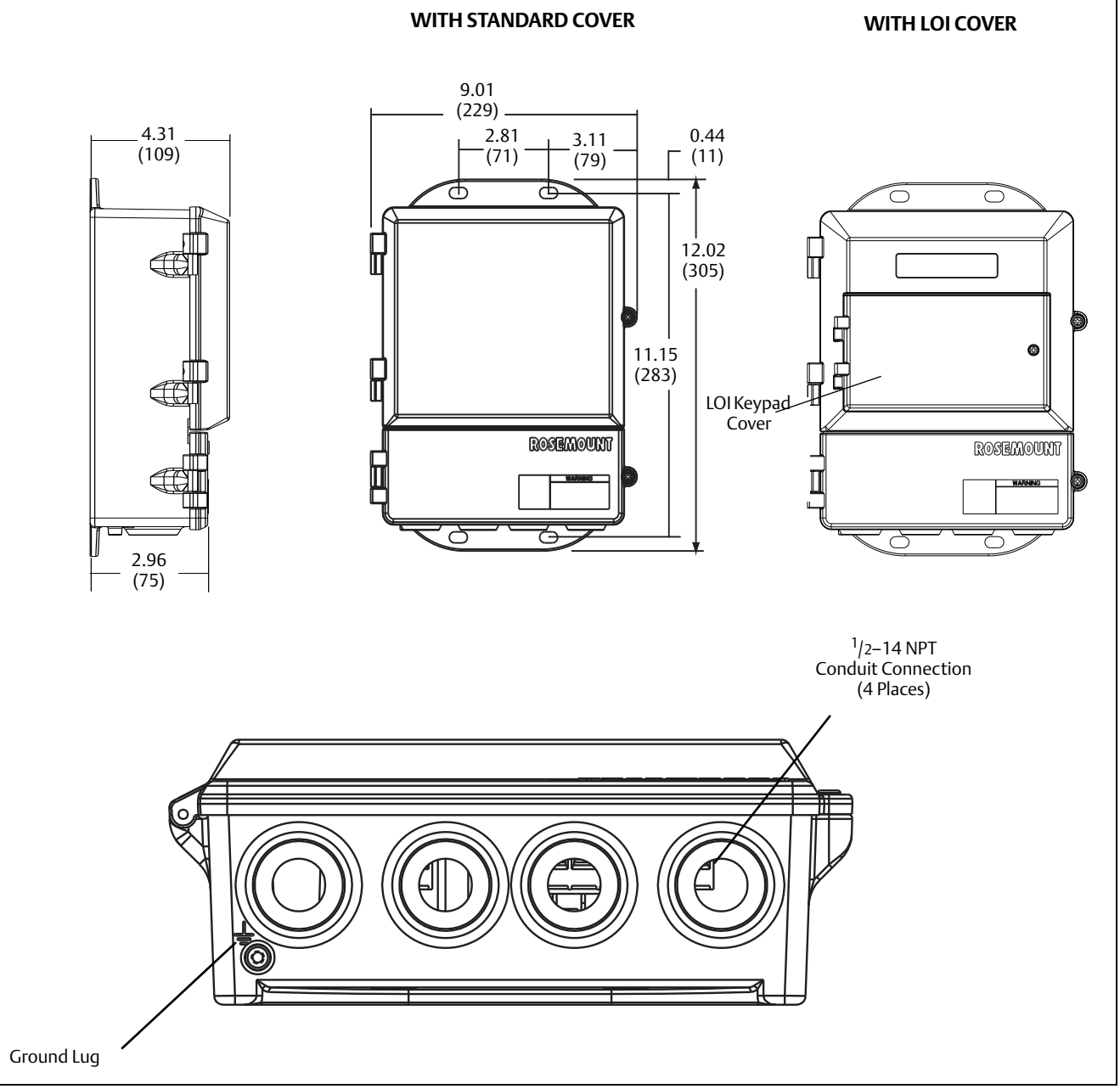
Transmitter approximately 9 lb (4 kg). Add 1 lb (0.5 kg) for local operator interface.

Table 2. Flanged sensor (ASME unless otherwise noted)

	Sensor flange rating	
Nominal line size inches (mm)	**ASME B16.5**	**Sensor weight in lb (kg)**
½ (15) ½ (15)	150 300	20 (9) 22 (10)
1 (25) 1 (25)	150 300	20 (9) 22 (10)
1½ (40) 1½ (40)	150 300	22 (10) 24 (11)
2 (50) 2 (50)	150 300	26 (12) 28 (13)
3 (80) 3 (80)	150 300	40 (18) 47 (21)
4 (100) 4 (100)	150 300	48 (22) 65 (30)
6 (150) 6 (150)	150 300	81 (37) 93 (42)
8 (200) 8 (200)	150 300	110 (50) 162 (74)
10 (250) 10 (250)	150 300	220 (98) 300 (136)
12 (300) 12 (300)	150 300	330 (150) 435 (197)
14 (350) 14 (350)	150 300	370 (168) 573 (261)
16 (400) 16 (400)	150 300	500 (227) 755 (343)
18 (450) 18 (450)	150 300	600 (272) 1010 (459)
20 (500) 20 (500)	150 300	680 (308) 1180 (536)
24 (600)	150	1000 (454)
24 (600)	300	1865 (848)
30 (750)	AWWA Class D	897 (407)
36 (900)	AWWA Class D	1267 (575)
42 (1050) 42 (1050)	AWWA Class D AWWA Class E	1550 (708) 2400 (1089)
48 (1200) 48 (1200)	AWWA Class D AWWA Class E	1892 (858) 3152 (1430)
48 (1200) 48 (1200) 48 (1200) 48 (1200) 48 (1200) 48 (1200)	EN1092-1 PN6 EN1092-1 PN10 AS2129 Table D AS2129 Table E AS4087 PN16 AS4087 PN21	1539 (380) 1949 (585) 2068 (938) 2680 (1216) 2703 (1226) 3152 (1430)

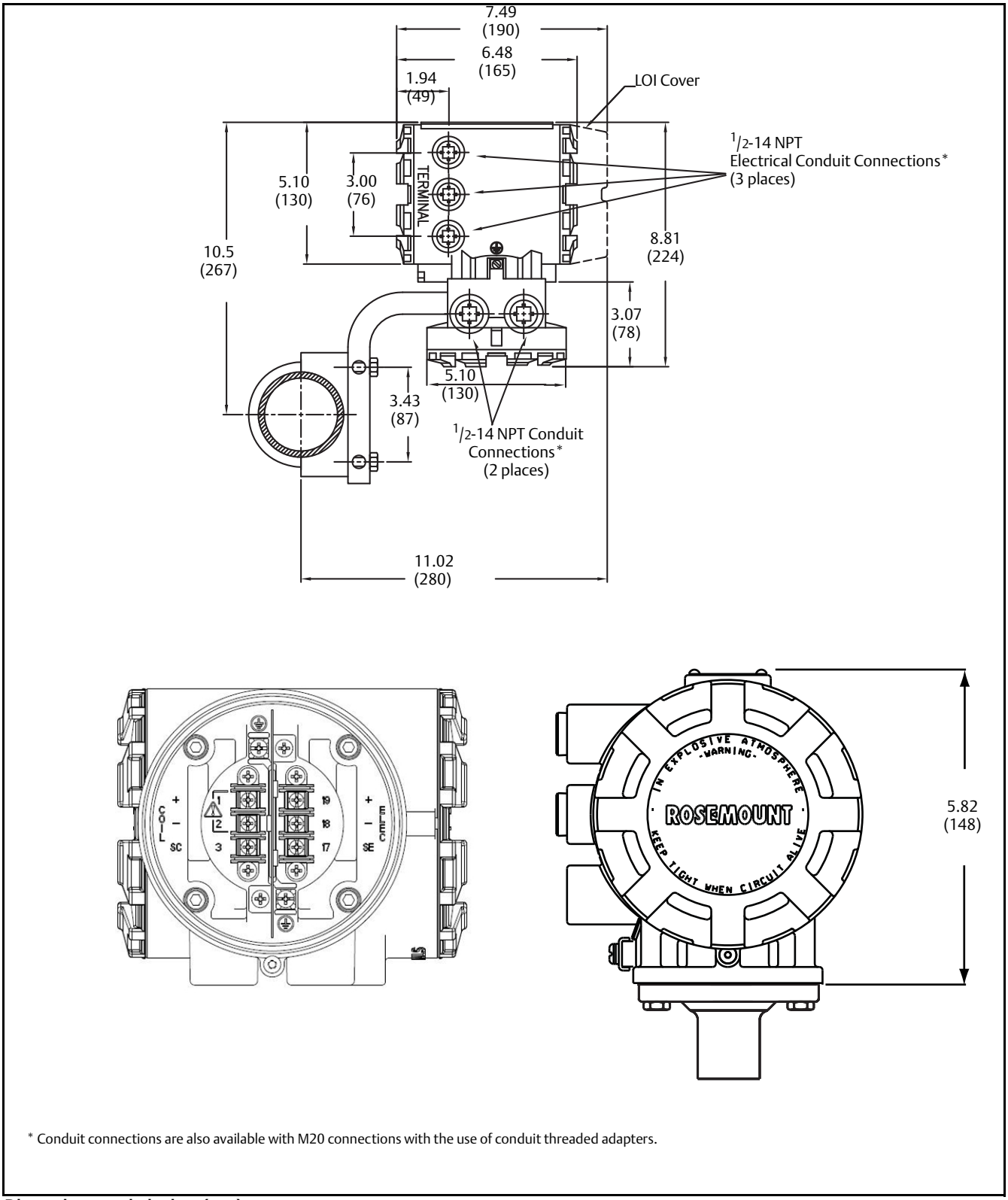
Dimensional drawings

Figure 6. Rosemount 12ES Transmitter



Dimensions are in inches (mm).

Figure 7. Rosemount 32ES Transmitter



* Conduit connections are also available with M20 connections with the use of conduit threaded adapters.

Dimensions are in inches (mm).

Figure 8. Rosemount Flanged Sensors, typical of 1/2-in. to 4-in. (15 mm to 100 mm) line sizes

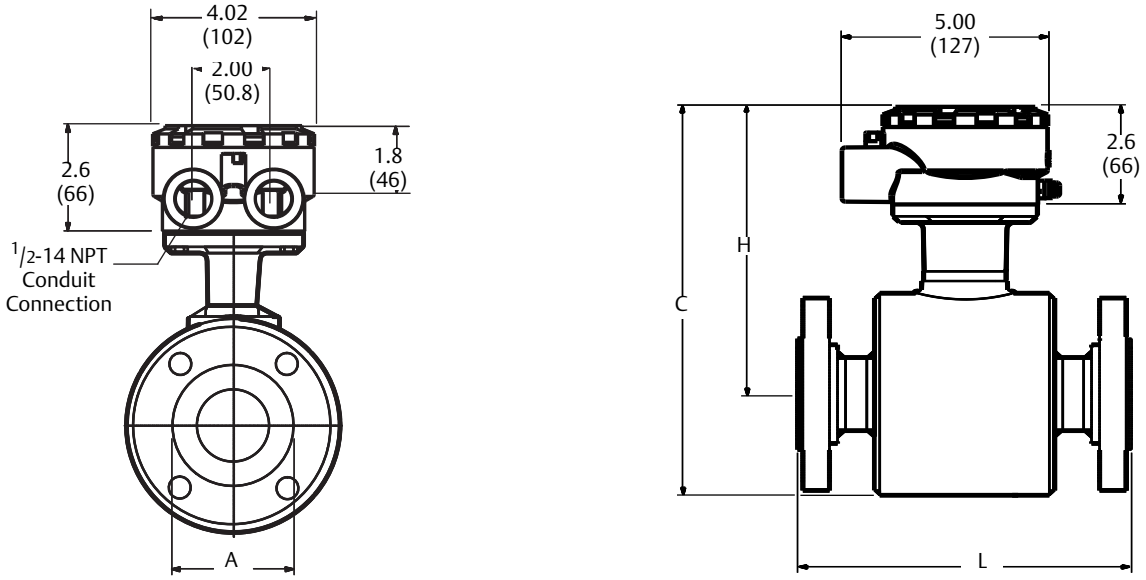
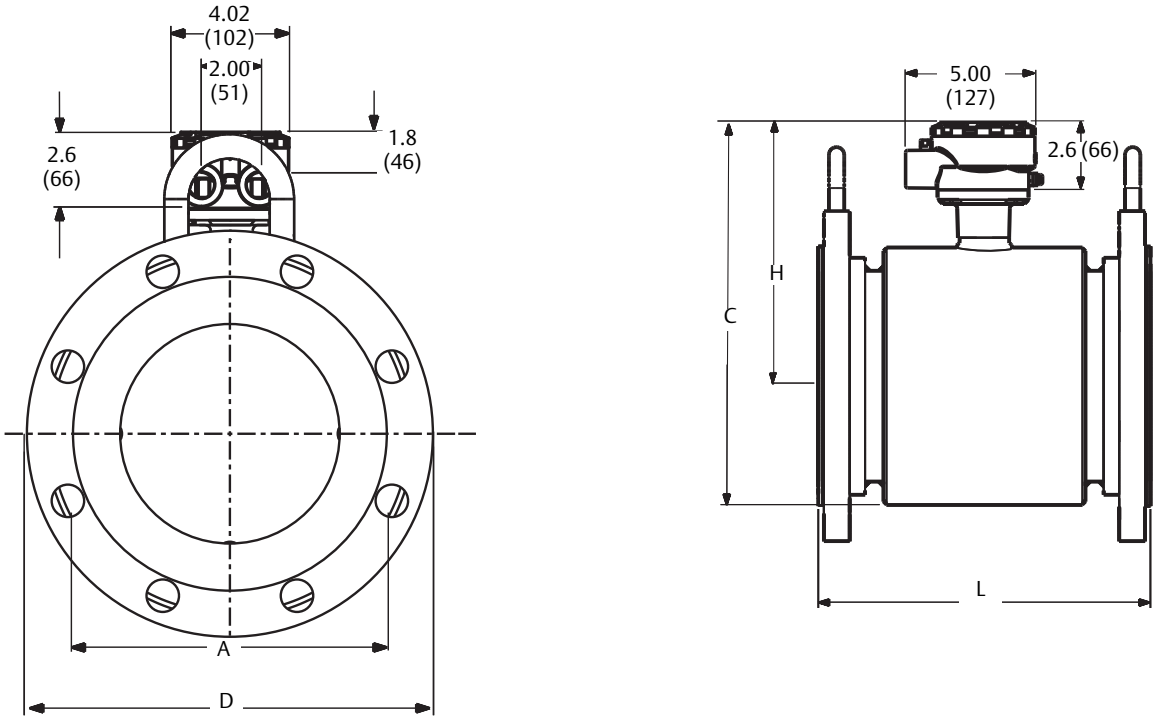


Figure 9. Rosemount Flanged Sensors, typical of 6-in. to 48-in. (150 mm to 1200 mm) line sizes



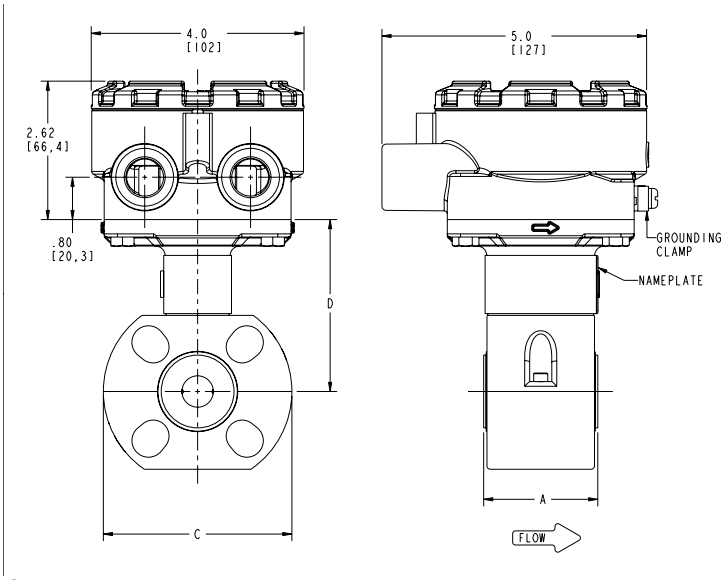
Dimensions are in inches (mm).

Table 3. Rosemount Flanged Sensor Dimensions in Inches (mm). Refer to dimensional drawings, Figure 8, and Figure 9.

Line size and flange rating	Body height "H"	Liner face diameter "A"	Overall sensor length "L"(1)			Flange diameter "D"	Liner thickness	Inside diameter
			PTFE	Neoprene	Poly			
1/2–150	6.75 (171)	1.38 (35)	7.88 (200)	7.88 (200)	7.88 (200)	3.50 (89)	0.09 (2.3)	0.49 (12.5)
1/2–300	6.75 (171)	1.38 (35)	7.88 (200)	7.88 (200)	7.88 (200)	3.75 (95)	0.09 (2.3)	0.49 (12.5)
1–150	6.75 (171)	2.00 (51)	7.88 (200)	7.88 (200)	7.88 (200)	4.25 (108)	0.09 (2.3)	0.91 (23)
1–300	6.75 (171)	2.00 (51)	7.88 (200)	7.88 (200)	7.88 (200)	4.88 (124)	0.09 (2.3)	0.91 (23)
1 1/2–150	7.10 (180)	2.88 (73)	7.88 (200)	7.88 (200)	7.88 (200)	5.00 (127)	0.12 (3.1)	1.44 (37)
1 1/2–300	7.10 (180)	2.88 (73)	7.88 (200)	7.88 (200)	7.88 (200)	6.12 (155)	0.12 (3.1)	1.44 (37)
2–150	7.10 (180)	3.62 (92)	7.88 (200)	7.88 (200)	7.88 (200)	6.00 (152)	0.12 (3.1)	1.91 (49)
2–300	7.10 (180)	3.62 (92)	7.88 (200)	7.88 (200)	7.88 (200)	6.50 (165)	0.12 (3.1)	1.91 (49)
3–150	8.10 (206)	5.00 (127)	7.88 (200)	7.88 (200)	7.88 (200)	7.50 (191)	0.15 (3.8)	2.96 (75)
3–300	8.10 (206)	5.00 (127)	8.63 (219)	8.54 (217)	8.63 (219)	8.25 (210)	0.15 (3.8)	2.96 (75)
4–150	8.45 (215)	6.19 (157)	9.84 (250)	9.76 (248)	9.84 (250)	9.00 (229)	0.15 (3.8)	3.96 (101)
4–300	8.45 (215)	6.19 (157)	10.88 (276)	10.79 (274)	10.88 (276)	10.00 (254)	0.15 (3.8)	3.96 (101)
6–150	9.45 (240)	8.50 (216)	11.81 (300)	11.71 (297)	11.83 (300)	11.00 (279)	0.19 (4.8)	5.98 (152)
6–300	9.45 (240)	8.50 (216)	13.06 (332)	12.96 (329)	13.08 (332)	12.50 (318)	0.19 (4.8)	5.69 (144)
8–150	10.42 (265)	10.62 (270)	13.78 (350)	13.65 (347)	13.77 (350)	13.50 (343)	0.19 (4.8)	7.94 (202)
8–300	10.42 (265)	10.62 (270)	15.60 (396)	15.46 (393)	15.58 (396)	15.00 (381)	0.17 (4.3)	7.64 (194)
10–150	11.78 (299)	12.75 (324)	15.00 (381)	14.68 (373)	14.80 (376)	16.00 (406)	0.26 (6.5)	9.87 (251)
10–300	11.78 (299)	12.75 (324)	17.13 (435)	16.81 (427)	16.93 (430)	17.50 (444)	0.26 (6.5)	9.48 (241)
12–150	12.86 (327)	15.00 (381)	18.00 (457)	17.68 (449)	17.80 (452)	19.00 (483)	0.26 (6.7)	11.87 (301)
12–300	12.86 (327)	15.00 (381)	20.14 (512)	19.81 (503)	19.93 (506)	20.50 (52)	0.26 (6.7)	11.48 (292)
14–150	13.92 (354)	16.25 (413)	20.91 (531)	20.71 (526)	20.83 (529)	21.00 (533)	0.19 (4.8)	13.16 (334)
14–300	13.92 (354)	16.25 (413)	23.16 (588)	22.96 (583)	23.08 (586)	23.00 (584)	0.19 (4.8)	12.79 (325)
16–150	14.93 (379)	18.50 (470)	23.88 (607)	23.68 (601)	23.80 (605)	23.50 (597)	0.19 (4.8)	15.12 (384)
16–300	14.93 (379)	18.50 (470)	26.13 (664)	25.93 (659)	26.05 (662)	25.50 (648)	0.19 (4.8)	14.75 (375)
18–150	16.19 (411)	21.00 (533)	26.85 (682)	26.65 (677)	26.77 (680)	25.00 (635)	0.19 (4.8)	17.09 (434)
18–300	16.19 (411)	21.00 (533)	29.97 (761)	29.77 (756)	29.89 (759)	28.00 (711)	0.19 (4.8)	16.35 (415)
20–150	17.20 (437)	23.00 (584)	29.78 (756)	29.58 (751)	29.70 (754)	27.50 (698)	0.19 (4.8)	18.96 (482)
20–300	17.20 (437)	23.00 (584)	33.04 (839)	32.84 (834)	32.96 (837)	30.50 (774)	0.19 (4.8)	18.21 (463)
24–150	19.48 (495)	27.25 (692)	35.75 (908)	35.55 (903)	35.67 (906)	32.00 (813)	0.19 (4.8)	22.94 (583)
24–300	19.48 (495)	27.25 (692)	39.38 (1000)	39.18 (995)	39.30 (998)	36.00 (914)	0.19 (4.8)	22.06 (560)
30-AWWA Class D	22.71 (577)	38.75 (984)	NA	36.81 (935)	36.93 (938	38.75 (984)	0.19 (4.8)	28.99 (736)
36-AWWA Class D	26.61 (676)	46.00 (1168)	NA	40.43 (1027)	40.55 (1030)	46.00 (1168)	0.19 (4.8)	34.65 (880)
42 AWWA Class D	28.52 (724)	53.00 (1346)	NA	42.00 (1067)	NA	53.00 (1346)	0.24 (6.1)	41.02 (1045)
42 AWWA Class E	28.52 (724)	53.00 (1346)	NA	42.00 (1067)	NA	53.00 (1346)	0.24 (6.1)	40.64 (1032)
48 AWWA Class D	32.52 (826)	59.50 (1511)	NA	47.20 (1200)	NA	59.50 (1511)	0.24 (6.1)	47.02 (1194)
48 AWWA Class E	32.52 (826)	59.50 (1511)	NA	47.20 (1200)	NA	59.50 (1511)	0.24 (6.1)	46.64 (1185)
48 EN 1092-1 PN6	32.52 (826)	50.98 (1295)	NA	47.20 (1200)	NA	55.32 (1405)	0.24 (6.1)	47.02 (1194)
48 EN 1092-1 PN10	32.52 (826)	52.36 (1330)	NA	47.20 (1200)	NA	57.28 (1455)	0.24 (6.1)	47.02 (1194)
48 AS2129 Table D	32.52 (826)	53.86 (1368)	NA	47.20 (1200)	NA	58.66 (1490)	0.24 (6.1)	47.02 (1194)
48 AS2129 Table E	32.52 (826)	53.74 (1365)	NA	47.20 (1200)	NA	58.66 (1490)	0.24 (6.1)	47.02 (1194)
48 AS4087 PN16	32.52 (826)	53.86 (1368)	NA	47.20 (1200)	NA	58.66 (1490)	0.24 (6.1)	46.77 (1188)
48 AS4087 PN21	32.52 (826)	54.53 (1385)	NA	47.20 (1200)	NA	60.24 (1530)	0.24 (6.1)	46.64 (1185)

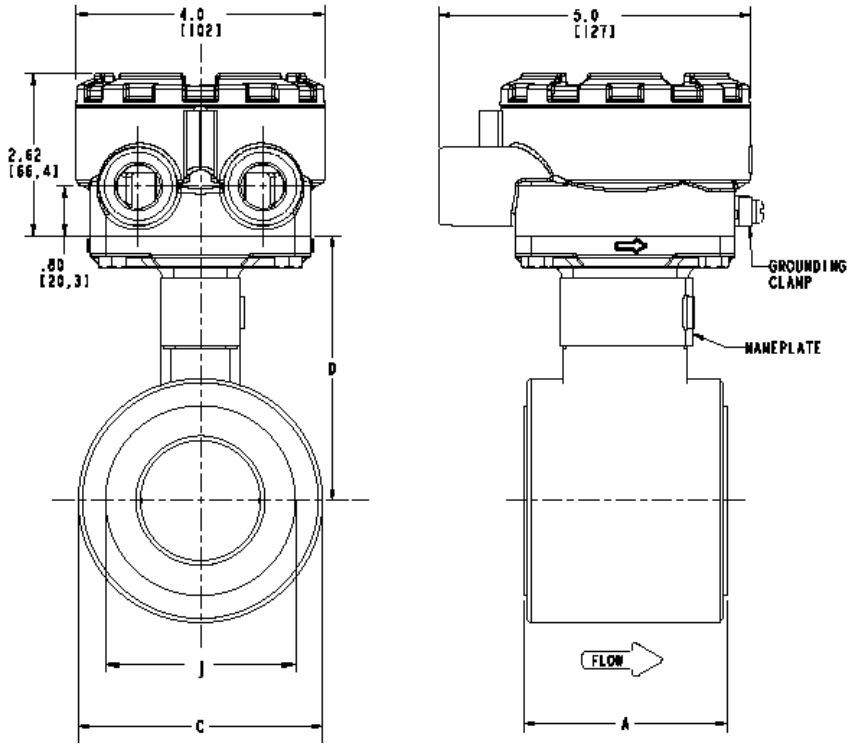
(1) When 2 grounding rings are specified, add 0.25-in. (6.35 mm) for 1/2-in. to 14-in. (15 mm to 350 mm) sensors, add 0.50-in. (12.7 mm) for 16-in. (400 mm) and larger. When lining protectors are specified, add 0.25- in. (6.35 mm) for ½-in to 12-in. (15 mm to 300 mm) sensors, add 0.50- in. (12.7 mm) for 14-in. to 36-in. (350 mm to 900 mm) sensors.

Figure 10. Rosemount Wafer Sensors, typical of 1/2-in. and 1-in. (15 mm and 25 mm) line sizes



Dimensions are in inches (mm).

Figure 11. Rosemount Wafer Sensors, typical of 1 1/2-in. to 8-in. (40 mm to 200 mm) line sizes



Dimensions are in inches (mm).

Table 4. Rosemount Wafer Sensor dimensions - inches

Size, description	Overall length DIM "A"	Body Ø DIM "C"	CL to TUBE adapter DIM "D"	Linear Ø on Face DIM "J"	Sensor weight (lbs)
1/2 (15) WAFER UP TO ASME - 300#	2.21	3.56	3.25	1.38	4
1 (25) WAFER UP TO ASME - 300#	2.26	4.5	3.56	1.94	5
1 1/2 (40) WAFER UP TO ASME - 300#	2.88	3.29	4.00	2.42	5
2 (20) WAFER UP TO ASME - 300#	3.32	3.92	4.32	3.05	7
3 (80) WAFER UP TO ASME - 300#	4.82	5.17	4.95	4.41	13
4 (100) WAFER UP TO ASME - 300#	6.03	6.39	5.56	5.8	22
6 (150) WAFER UP TO ASME - 300#	7.08	8.57	6.22	7.86	35
8 (200) WAFER UP TO ASME - 300#	9.06	10.63	7.25	9.86	60

Table 5. Rosemount wafer sensor dimensions - millimeters

Size, description	Overall length DIM "A"	Body Ø DIM "C"	CL to TUBE adapter DIM "D"	Linear Ø on face DIM "J"	Sensor weight (Kg)
1/2 (15) WAFER UP TO ASME - 300#	56	90	83	35	2
1 (25) WAFER UP TO ASME - 300#	57	114	90	49	2
1 1/2 (40) WAFER UP TO ASME - 300#	73	84	102	61	2
2 (20) WAFER UP TO ASME - 300#	84	100	109	77	3
3 (80) WAFER UP TO ASME - 300#	122	131	126	112	6
4 (100) WAFER UP TO ASME - 300#	15	162	141	147	10
6 (150) WAFER UP TO ASME - 300#	180	218	158	200	16
8 (200) WAFER UP TO ASME - 300#	230	270	184	250	27

Magnetic Flowmeter sizing

Flowmeter sizing

Because of its effect on flow velocity, sensor size is an important consideration. It may be necessary to select a magnetic flowmeter that is larger or smaller than the adjacent piping to ensure the fluid velocity is in the specified measuring range of the sensor. Suggested guidelines and examples for sizing normal velocities in different applications are listed in Table 6, Table 7, and Table 8. Operation outside these guidelines may also give acceptable performance.

Table 6. Sizing guidelines

Application	Velocity range (ft/s)	Velocity range (m/s)
Normal Service	2–20	0.6–6.1
Abrasive Slurries	3–10	0.9–3.1
Non-Abrasive Slurries	5–15	1.5–4.6

To convert flow rate to velocity, use the appropriate factor listed in Table 7 and the following equation:

$$\text{Velocity} = \frac{\text{Flow Rate}}{\text{Factor}}$$

Example: SI units

Magmeter Size: 100 mm (factor from Table 7 = 492.78)
Normal Flow Rate: 800 L/min

$$\text{Velocity} = \frac{800\ (\text{L/min})}{492.78}$$

Velocity = 1.62 m/s

Example: English units

Magmeter Size: 4 in. (factor from Table 7 = 39.679)
Normal Flow Rate: 300 GPM

$$\text{Velocity} = \frac{300\ (\text{gpm})}{39.679}$$

Velocity = 7.56 ft/s

Table 7. Line size vs. conversion factor

Nominal line size Inches (mm)	Gallons per minute factor	Liters per minute factor
½ (15)	0.947	11.762
1 (25)	2.694	33.455
1½ (40)	6.345	78.806
2 (50)	10.459	129.89
3 (80)	23.042	289.17
4 (100)	39.679	492.78
6 (150)	90.048	1,118.3
8 (200)	155.93	1,936.5
10 (250)	245.78	3,052.4
12 (300)	352.51	4,378.0
14 (350)	421.70	5,237.3
16 (400)	550.80	6,840.6
18 (450)	697.19	8,658.6
20 (500)	866.51	10,761
24 (600)	1,253.2	15,564
30 (750)	2,006.0	24,913
36 (900)	2,935.0	36,451
42 (1050)	4,115.1	51,107
48 (1200)	5,407.6	67,159

Table 8. Line size vs. velocity/rate

Nominal line size in inches (mm)	Minimum/maximum flow rate							
	Gallons per minute				Liters per minute			
	at 0.04 ft/s (low-flow cutoff)	at 1 ft/s (min range setting)	at 3 ft/s	at 39 ft/s (max range setting)	at 0.012 m/s (low-flow cutoff)	at 0.3 m/s (min range setting)	at 1 m/s	at 12 m/s (max range setting)
1/2 (15)	0.038	0.947	2.841	37.287	0.141	3.529	11.76	141.15
1 (25)	0.108	2.694	8.081	106.05	0.401	10.04	33.45	401.46
1 1/2 (40)	0.254	6.345	19.04	249.82	0.946	23.64	78.81	945.67
2 (50)	0.418	10.459	31.38	411.77	1.559	38.97	129.89	1,558.7
3 (80)	0.922	23.042	69.13	907.17	3.434	85.85	286.17	3,434.0
4 (100)	1.587	39.679	119.04	1,562.2	5.913	147.84	492.78	5,913.4
6 (150)	3.602	90.048	270.14	3,545.2	13.42	335.50	1,118.3	13,420
8 (200)	6.237	155.93	467.79	6,138.9	23.24	580.96	1,936.5	23,238
10 (250)	9.831	245.78	737.34	9,676.3	36.63	915.73	3,052.4	36,629
12 (300)	14.10	352.51	1,057.5	13,878	52.54	1,313.4	4,378.0	52,535
14 (350)	16.87	421.71	1,265.1	16,603	62.85	1,571.2	5,237.3	62,848
16 (400)	22.03	550.80	1,652.4	21,685	82.09	2,052.2	6,840.6	82,087
18 (450)	27.89	697.19	2,091.6	27,448	103.90	2,597.6	8,658.6	103,903
20 (500)	34.66	866.51	2,599.5	34,114	129.14	3,228.4	10,761	129,137
24 (600)	50.13	1,253.2	3,759.6	49,339	186.77	4,669.2	15,564	186,769
30 (750)	80.24	2,006.0	6,018.0	78,976	298.96	7,474.0	24,913	298,959
36 (900)	117.40	2,935.0	8,805.1	115,553	437.42	10,935	36,451	437,416
42 (1050)	164.60	4,115.1	12,345	162,011	613.28	15,332	51,107	613,278
48 (1200)	216.30	5,407.6	16,223	212,898	805.91	20,148	67,159	805,908

North American certifications

Note
For the 32E transmitters with a Local Operator Interface (LOI), the lower ambient temperature limit is -20 °C.

Factory Mutual (FM)

NH FM Ordinary Locations
General Purpose Fire and Shock
Safety Requirements - ANSI/ISA 61010-1 (FM/US)
Enclosure Type 4X, IP66
12ES (-40 °C ≤ Ta ≤ 40 °C)
32ES (-50 °C ≤ Ta ≤ 60 °C)

N0 Non-Incendive for Class I, Division 2 for Non-Flammable Fluids
Groups A, B, C, D: T4
Dust-Ignition Proof Class II/III, Division 1
Groups E, F and G: T5
12ES (-40 °C ≤ Ta ≤ 40 °C)
32ES (-50 °C ≤ Ta ≤ 60 °C)
Reference Rosemount Installation Drawing 08732-1052
Enclosure Type 4X, IP66

Canadian Standards Association (CSA)

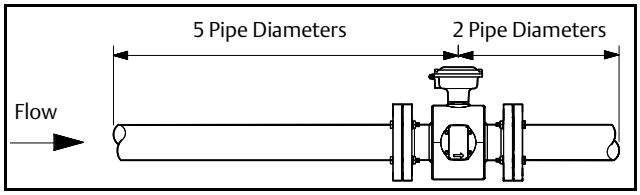
NH CSA Ordinary Locations
General Purpose Fire and Shock
Safety Requirements - CAN/CSA-C22.2 No.61010-1 (CSA/CA)
Enclosure Type 4X, IP66
12ES (-40 °C ≤ Ta ≤ 40 °C)
32ES (-50 °C ≤ Ta ≤ 60 °C)

N0 Non-Incendive for Class I, Division 2 for Non-Flammable Fluids
Groups A, B, C, D: T4
Dust-Ignition Proof Class II/III, Division 1
Groups E, F and G: T5
12ES (-40 °C ≤ Ta ≤ 40 °C)
32ES (-50 °C ≤ Ta ≤ 60 °C)
Reference Rosemount Installation Drawing 08732-1051
Enclosure Type 4X, IP66

Upstream/downstream piping length

To ensure specification accuracy over widely varying process conditions, install the sensor with a minimum of five straight pipe diameters upstream and two straight pipe diameters downstream from the electrode plane. See Figure 12. This procedure should adequately allow for disturbances created by elbows, valves, and reducers.

Figure 12. Upstream and downstream straight pipe diameters



Consult the factory for performance in applications with less than ideal straight runs. Sensors can be installed with as few as zero diameters of straight run.

Sensor grounding

A reliable ground path is required between the sensor and the process fluid. Optional grounding rings, process reference electrode, and lining protectors are available with 8750WA sensors to ensure proper grounding. See Table 9 and Table 10.

Table 9. Process reference options

Grounding options	General characteristics
Grounding Straps	■ Acceptable for conductive unlined pipe ■ Grounding straps provided by Rosemount Inc. ■ Pipe must be grounded
Process Reference Electrode	■ Same material as measurement electrodes ■ Sufficient grounding option when process fluid conductivity is greater than 100 microsiemens/cm ■ Not recommended in electrolysis or galvanic corrosion applications
Grounding Rings	■ Low conductivity process fluids ■ Cathodic or electrolysis applications that may have stray currents in or around the process ■ Variety of materials for process fluid compatibility
Lining Protectors	■ Protects upstream edge of sensor from abrasive fluids ■ Permanently installed on sensor ■ Protects liner material from over torquing of flange bolts ■ Provides ground path and eliminates need for grounding ring or reference electrode

Table 10. Process reference installation

Type of pipe	Process reference options			
	No grounding options	Grounding rings	Reference electrodes	Lining protectors
Conductive Unlined Pipe	Acceptable	Not Required	Not Required	Acceptable
Conductive Lined Pipe	Not Acceptable	Acceptable	Acceptable	Acceptable
Non-Conductive Pipe	Not Acceptable	Acceptable	Not Acceptable	Acceptable

Material selection

See Table 11 for information on Liner types, Table 12 for information on Electrode Materials, and Table 13 for information on Electrode Types.

Table 11. Lining material

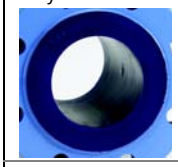
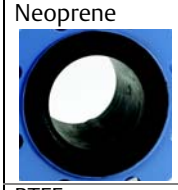
Lining material	General characteristics
Polyurethane 	■ Excellent abrasion resistance for small and medium particles ■ Limited chemical resistance ■ 0 to 140 °F (-18 to 60 °C) ■ Typically applied in clean water
Neoprene 	■ Very good abrasion resistance for small and medium particles ■ Better chemical resistance than polyurethane ■ 0 to 185 °F (-18 to 85 °C) ■ Typically applied in water with chemicals, and sea water
PTFE 	■ Highly chemical resistant ■ Excellent temperature capabilities ■ -20 to 248 °F (-29 to 120 °C)

Table 12. Electrode material

Electrode material	General characteristics
316L Stainless Steel	■ Good corrosion resistance ■ Good abrasion resistance ■ Not recommended for sulfuric or hydrochloric acids
Nickel Alloy 276 (UNS N10276)	■ Better corrosion resistance ■ High strength ■ Good in slurry applications ■ Effective in oxidizing fluids

Table 13. Electrode type

Electrode type	General characteristics
Standard Measurement	■ Lowest cost ■ Good for most applications
Standard Measurement + Grounding (Also see Table 9 for grounding options and installation	■ Low cost grounding option especially for large line sizes ■ Minimum conductivity of 100 microsiemens/cm ■ Not recommended for electrolysis or galvanic corrosion applications
Bulletnose	■ Slightly more expensive ■ Best option for coating processes

Ordering information

Model	Product description
8750WA	Magnetic Flowmeter System for Water Industries
Code	**Transmitter class**
32ES	Traditional Transmitter with Aluminum Housing - 0.5% Ref Acc with Option for 0.25%
12ES	Wall Mount Transmitter with Premier LOI Capabilities - 0.5% Ref Acc with Option for 0.25%
0000	Spare sensor only - Unit shipped without a transmitter.
Code	**Transmitter mount**
T	Integral Mount[(1)]
R	Remote Mount
Code	**Power supply**
1	AC Power Supply (90-250 V AC, 50–60 Hz)
2	DC Power Supply (12–42 V DC)
0	Spare sensor only - Unit shipped without a transmitter.
Code	**Outputs**
A	4-20mA Output with Digital HART Protocol & Scalable Pulse Output
0	Spare sensor only - Unit shipped without a transmitter.
Code	**Conduit entry**
1	1/2-14 NPT, Standard Conduits (12ES,Qty=4; 32ES, Qty=2)
2	CM20, Standard Conduits (12ES,Qty=4; 32ES, Qty=2)
4	1/2-14 NPT, Additional Conduits (12ES,N/A; 32ES, Qty=3)
5	CM20, Additional Conduits (12ES,N/A; 32ES, Qty=3)
0	Spare sensor only - Unit shipped without a transmitter.
Code	**Sensor style**
F	Flanged Style
W	Wafer Style[(2)(3)]
0	Spare transmitter only - Unit shipped without a sensor.
Code	**Lining material**
P	Polyurethane
N	Neoprene
T	PTFE
0	Spare transmitter only - Unit shipped without a sensor.
Code	**Electrode material**
S	316L Stainless Steel
H	Nickel Alloy 276 (UNS N10276)
0	Spare transmitter only - Unit shipped without a sensor.
Code	**Electrode type**
A	2 Measurement Electrodes
B	2 Bulletnose Measurement Electrodes
E	2 Measurement Electrodes plus 1 Reference Electrode
0	Spare transmitter only - Unit shipped without a sensor.

Code	Line size
005	1/2-in. (15 mm) - Only available in PTFE
010	1 -in. (25 mm)
015	1 1/2 -in. (40 mm)
020	2 -in. (50 mm)
030	3 -in. (80 mm)
040	4 -in. (100 mm)
060	6 -in. (150 mm)
080	8 -in. (200 mm)
100	10 -in. (250 mm)
120	12 -in. (300 mm)
140	14 -in. (350 mm)
160	16 -in. (400 mm)
180	18 -in. (450 mm)
200	20 -in. (500 mm)
240	24 -in. (600 mm)
300	30 -in. (750 mm)
360	36 -in. (900 mm)
420	42 -in. (1050 mm) - Only available with Neoprene Liner, AWWA Flanges, and NH approval code
480	48 -in. (1200 mm) - Only available with Neoprene Liner, and NH approval code
000	Spare transmitter only - Unit shipped without a sensor
Code	**Flange material**
C	Carbon Steel[4]
S	304/304L Stainless Steel[4]
W	Wafer Style [5]
0	Spare transmitter only - Unit shipped without a sensor
Code	**Flange rating**
A1	ASME B16.5 RF Class 150[6]
A3	ASME B16.5 RF Class 300[7]
AA	AWWA Class D Flanges (30-in. to 48-in. only)
AE	AWWA Class E (42-in. and 48-in. only)
DC	EN 1092-1 PN6 (48-in. only)
DD	EN 1092-1 PN10 (48-in.only)
TK	AS2129 Table D (48-in. only)
TL	AS2129 Table E (48-in. only)
KU	AS4087, PN16 (48-in. only)
KW	AS4087, PN21 (48-in. only)
Code	**Hazardous area approvals**
NH	Ordinary Locations[8]
N0	FM Class I Division 2 for Non-Flammable Fluids; CSA Class I Division 2 for Non-Flammable Fluids
00	Spare transmitter only - Unit shipped without a sensor.
Code	**Options**
	Diagnostic suite
DA1	Diagnostic Suite 1 - Grounding/Wiring Detection, and High Process Noise
DA2	Diagnostic Suite 2 - SMART Meter Verification
	Auxiliary output
AX	Two Discrete Channels (DI/DO 1, DO 2), see page 10 for more details[9]

Code	Options
	Displays
M4	Local Operator Interface
M5	LCD Display only
	Remote Mounting Options
B6	Stainless Steel 4-Bolt Kit for 2-in. Pipe Mount (Transmitter Class 12ES only)
	Wafer Mounting Kit Options
MK2	Carbon Steel Mounting Studs, and Nuts(5)
	Ground Rings
G1	(2) 316L SST Ground Rings
G2	(2) Ni Alloy C-276 Ground Rings
G5	(1) 316L SST Ground Ring
G6	(1) Ni Alloy C-276 Ground Ring
	Lining Protectors(4)
L1	(2) 316L SST Lining Protectors
	Calibration
D1	High Accuracy (0.25%) -(must order transmitter with sensor)
	Custom Software Configuration
C1	Custom Software Configuration (requires CDS form)
	Tagging
DT	Heavy Duty Tagging
	Paint
V1	Coal Tar Paint (Submersible/Direct Burial), does not meet Type 4x. Remote mount only
	American Recovery and Reinvestment Act
US	ARRA Compliance Certificate
	Other Agency Approvals
DW	NSF Drinking Water Approval(10)
	Submergence Protection (Sensor Only)(11)(12)
SA	Potted Junction Box with 50 feet of Combo Cable
SB	Potted Junction Box with 100 feet of Combo Cable
SC	Potted Junction Box with 150 feet of Combo Cable
SD	Potted Junction Box with 200 feet of Combo Cable
SE	Potted Junction Box with 250 feet of Combo Cable
SF	Potted Junction Box with 300 feet of Combo Cable
	Q Certs
Q4	Calibration Certificate per ISO 10474 3.1B / EN 10204 3.1
Typical Model Number: 8750WA 32ES T A 1 F P S A 030 C A1 NH DA2 M4 DW	

(1) Available with transmitter class 32ES only.

(2) Available with PTFE lining only.

(3) Available up to 8-in. (200 mm).

(4) Available for Flanged sensor only (^{1}/2-in. to 36-in.)

(5) Available with sensor style W only.

(6) Available in line sizes up to 24-in.

(7) Available in line sizes up to 24-in.

(8) FM marked, CSA marked, CE marked, C-tick marked.

(9) Requires conduit entry option 4, 5, or 6 for the 32ES.

(10) Only available with Lining Materials: PTFE (all line sizes) or Polyurethane (4-in. or larger) and Electrode Materials: 316L SST or Ni-Alloy 276.

(11) Available in remote mount configuration for flange units only.

(12) Provides pre-wired potted remote junction box, sealed conduit gland, and conduit plug. Requires the use of sealed conduit to meet IP68 requirements.

Tagging

Transmitter tag character height is 0.125 -in. (3.18 mm). See Configuration Data Sheet for character maximum. Sensor tag: 40 character maximum.

Ordering procedure

To order, select the desired sensor and/or transmitter by specifying model codes from the ordering table.

For remote transmitter applications, note the cable specification requirements.

Sensors and transmitters must be selected from Product Data Sheet 00813-0100-4750.

Standard configuration

The Rosemount transmitters are factory configured with the paired sensor size, appropriate calibration number, desired 4-20 mA set points, and engineering units. Line size default is 3-in.

Additional configurations require the C1 option and a completed Configuration Data Sheet (CDS) for custom configurations. The CDS form can be found on-line at Rosemount.com.

Cable requirements for remote transmitters

Note
To order cable specify length as quantity desired.
25 ft. = Qty (25) 08732-0753-1003

Description	Unit of measure	P/N
Electrode Cable (20 AWG) Belden 8762, Alpha 2411 equivalent	ft. m	08712-0061-0001 08712-0061-0003
Coil Drive Cable (14 AWG) Belden 8720, Alpha 2442 equivalent	ft. m	08712-0060-0001 08712-0060-0003
Combination Cable Electrode Cable (20 AWG) and Coil Drive Cable (18 AWG)(1)	ft. m	08732-0753-1003 08732-0753-2004

(1) For remote mount installations, combination electrode and coil drive cable should be limited to less than 330 ft (100 m).

Remote transmitter installations using individual component cables require equal lengths of electrode and coil drive cables. Integrally mounted transmitters are factory wired and do not require additional cables.

Lengths from 5 ft. to 1000 ft. (1.5 m to 300 m) may be specified and will be shipped with the sensor.

Custom configuration (Option Code C1)

If Option Code C1 is ordered, the Configuration Data Sheet (CDS) must be submitted at the time of order.

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