



Coriolis Flow Meter - User Manual



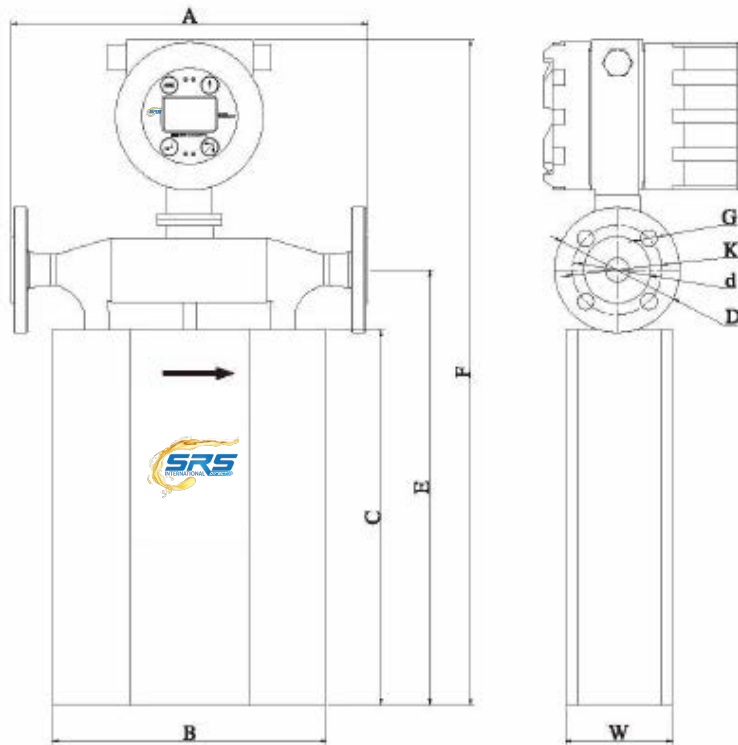
Flow Meter General Specifications

Features LARGE LCD display, shows the Instantaneous (Instant) Flow Rate, Total Flow, Temperature, and Density in user selectable units.

- CORIOLIS MASS FLOW METER SPECIFICATIONS.
- Wetted Materials all 316 SS
- Flows from 100 kg/h to 200,000 kg/h relative to water
- Accuracy: +/- 0.2% of reading in gas or water. 0.1% available on special order.
- Repeatability of +/- 0.02% of reading
- 1/2" to 4" 150# ANSI Flange Connections, up to 6" available custom.
- LCD Display
- Temperature Accuracy +/- 1 Deg C
- Temperature:
 - Gas: -58°F (-50°C) to 257°F (125°C)
 - Ambient: -40°F (-40°C) to 131°F (55°C)

- Power Requirement: 24 VDC or 85-220 VAC, 15 Watts maximum;
- Output signals: Modbus RTU, 4–20 mA, and 0-10 KHz for flow rate indication
- Digital communications: Modbus RTU
- Proof Pressure 4.0 MPa, 580 PSIG.
- Display: Flow rate, Total flow, Temperature, and Density
- Wiring connection to enclosure size: M20 x 1.5
- Factory Final QC Test Certificate
- Integral Electronics installation
- Explosion Proof Rating: ExdiblICT5Gb
- Electronics Enclosure NEMA 4X / IP67

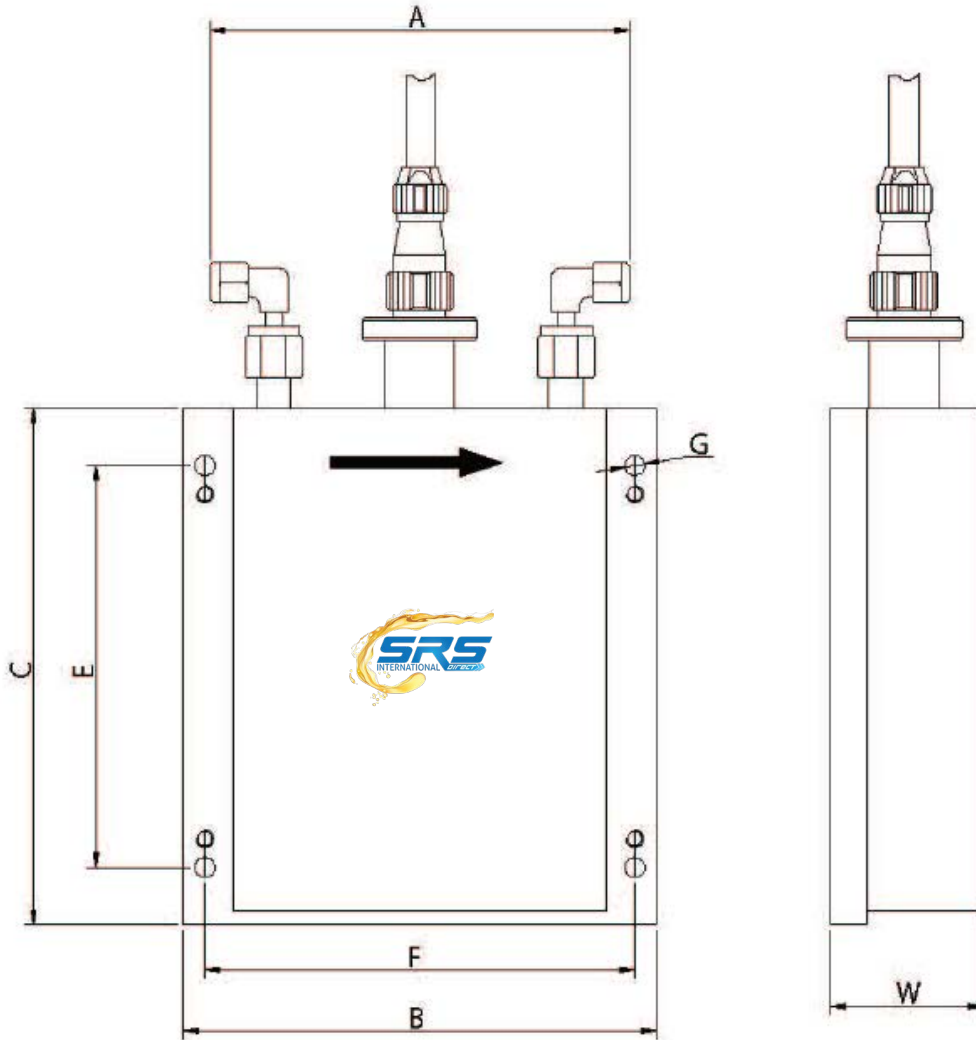
Coriolis Mass Flow Meter Dimensions



ANSI Size	DN Size	A		b		K-Dia		G	F		D	
		A (Pipe length)		C (flange thick)		Flange Bolt Dia		N (# Bolts)/ Dia mm	F Meter height		Flange OD	
		inches	mm	inches	mm	inches	mm		inches	mm	inches	mm
½" 300Lb	15	11.024	280	0.551	14	2.620	66.55	4/15.7	20.669	525	3.740	95
¾" 300Lb	20	11.417	290	0.630	16	3.248	82.5	4/19	22.638	575	4.134	105
1" 300 Lb	25	16.142	410	0.630	16	3.500	88.9	4/19	27.402	696	4.528	115
1 ½"300 Lb	40	20.472	520	0.709	18	4.500	114.3	4/22.3	31.102	790	5.906	150
2"150 Lb	50	21.654	550	0.787	20	4.752	120.7	4/19.1	34.449	875	6.496	165
2 ½"150 Lb	65	22.047	560	0.787	20	5.500	139.7	6/19.1	36.850	936	7.283	185
3"150 Lb	80	23.622	600	0.787	20	6.000	152.4	6/19.1	38.898	988	7.874	200

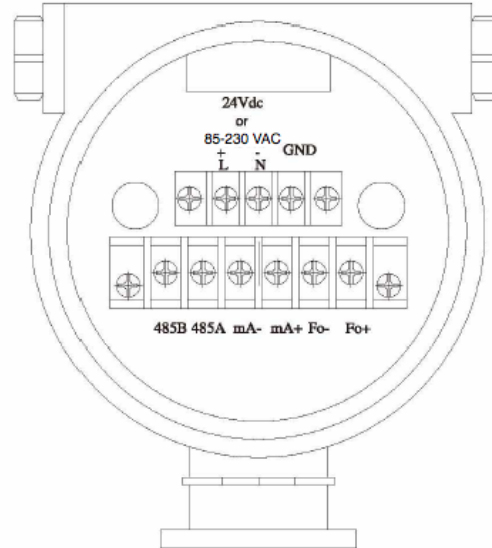


Coriolis Meter



Nominal Tube Size inches	DN Size	A		Flow Range		Maximum Pressure		W		B		F		E		C		Meter Weight	
		End to End Tubing		Nominal min/max		Max Pressure		Meter Thickness		Sensor Width		Mounting Width		Mounting Height		Sensor height		Approx Weight	
		inches	mm	lbs/min	kg/h	PSIG	MPa	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	Pounds	Kg
0.24	6	6.30	160	1.5	40	3626	25	2.09	53	6.5	165	5.9	150	5.5	140	7.1	180	13.2	6
0.31	8	6.30	160	3.7	100	3626	25	2.09	53	6.5	165	5.9	150	5.5	140	7.1	180	13.2	6
0.31	8	6.89	175	7.3	200	3626	25	2.09	53	6.9	175	7.4	188	7.3	185	9.6	245	26.4	12

Wiring guidelines:



DISCONNECT POWER BEFORE CONNECTING ANY WIRING !!!

The voltage must match that indicated in the “Power Supply” nameplate on the enclosure of the transmitter. The ground wire must be well grounded to comply with electrical safety standards.

Standard power is 24 VDC requiring 500 mA max.

Safety Grounding

Both the sensor and the transmitter must be grounded correctly or measurement errors will occur and the Coriolis Flowmeter may not properly indicate flow. If the pipeline is grounded, the transmitter can be grounded through the pipeline; if the pipeline is not grounded, the transmitter should be grounded independently.

The transmitter is configured to operate on 24VDC (Standard) unless specially ordered with a universal AC Power Supply. Hook the + of the 24 VDC to the + L terminal and the Ground of the 24 VDC to the - N terminal and the Safety Ground to the GND Terminal.

Terminal names

24V	+ \-	24VDC Power Supply (500mA max)
Fo	+ \-	Frequency Output (Mass Flow or Volume Flow)
mA	+ \-	Current Output (Flow Rate or Density)
485A \485B		ModBus RTU (Baud Rate: “9600”, Address: “1” Default)
GND		Signal Shielding

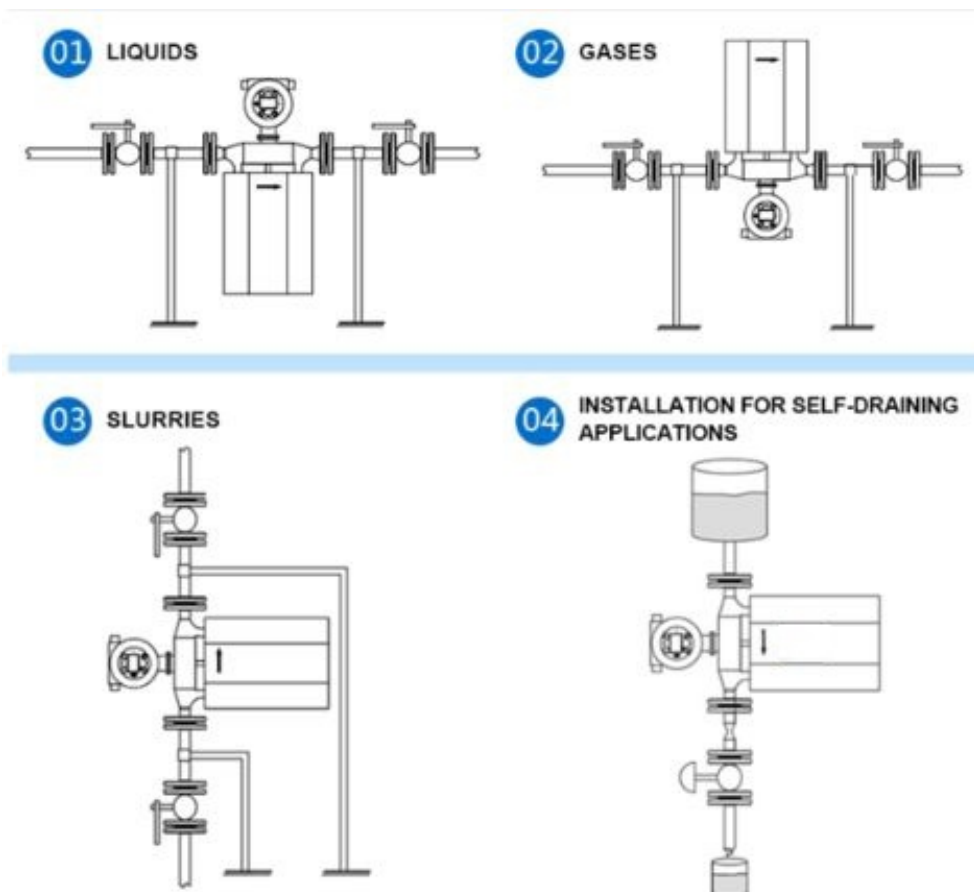
Installation guidelines:

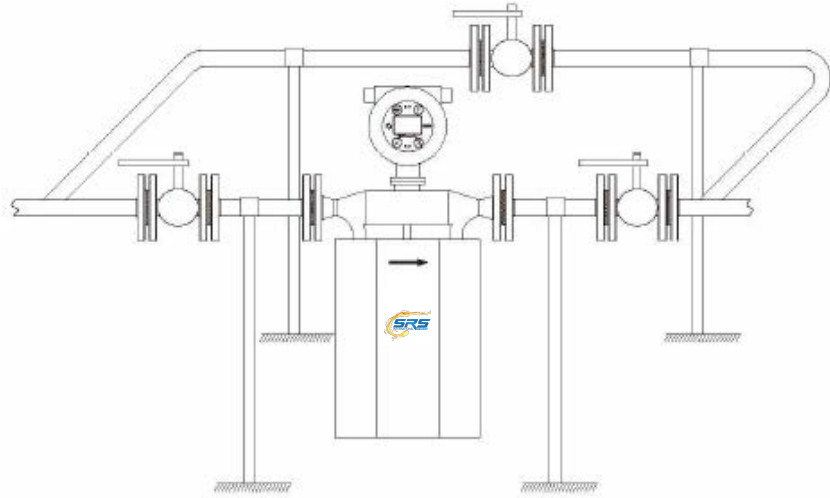
Since the Coriolis mass flow meter consists of a resonant structure to measure the mass flow it is important to mount the Coriolis meter using a vibration isolator if there are significant vibration energies transmitted to the connecting flow pipe. Most small vibrations are easily compensated for using advanced Digital Signal Processing methods to remove such vibrations. Notice the rigid connections to solid ground in instances where pumps or grinders may be directly attached to the Coriolis mass flow meter.

The general guidelines are to keep the sensor tubes filled with the fluid the meter is installed to measure. This keeps the sensing tubes fully immersed and capable of determining the mass of the fluid within the tubes. It is the rate of change of the fluid that the Coriolis meter excels at indicating. Follows are some guidelines to assist in understanding the mounting configurations.

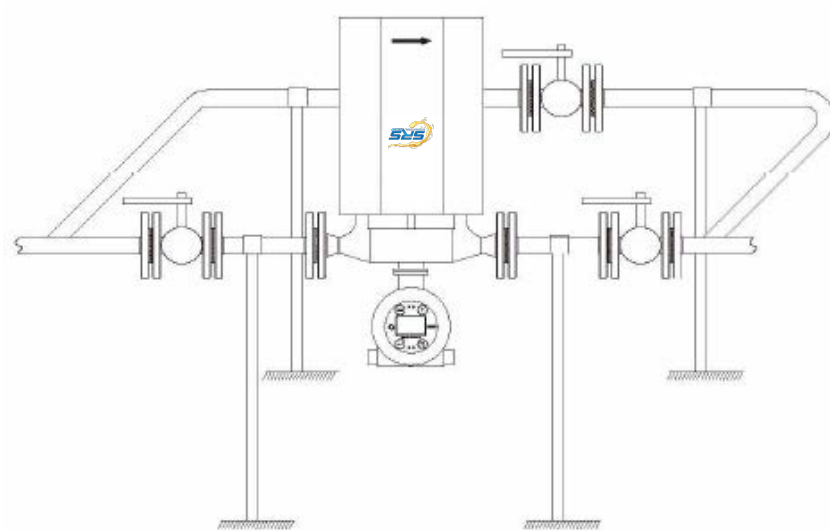
For horizontal installations, the measuring tube should be installed under the pipeline and when the process medium is liquid or slurry and above the pipeline when the process medium is gas as this keeps out any condensation that may have settled in the tubing..

For vertical installations, the measuring tube should be installed parallel to the pipeline when the process medium is either a liquid or slurry or even a gas

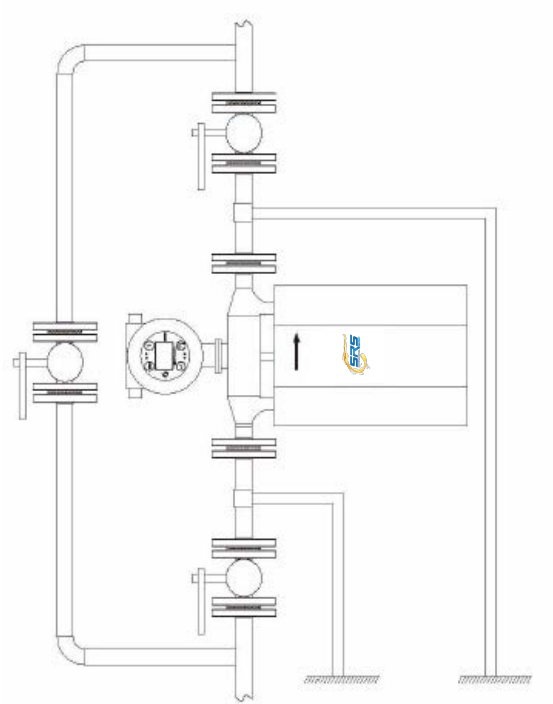




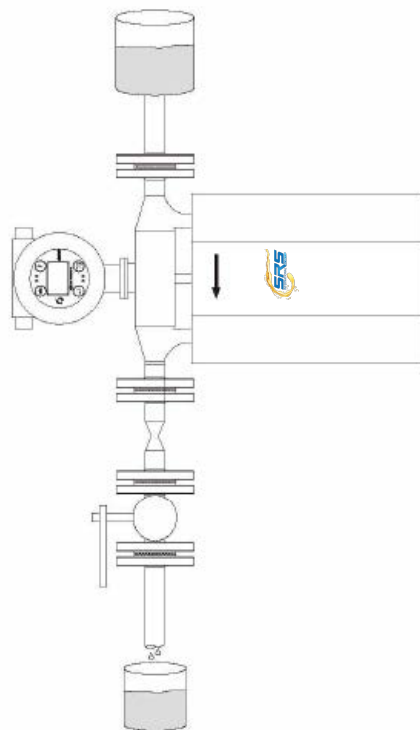
Note solid ground connections on this liquid example.



Notice solid ground connections on this gas installation example.



Note solid ground connections on this gas example.



Note solid ground connections on this self draining liquid example.



ModBus RTU Registers.

Register	Address	Definition	Description	Type
41001	0x03E8 / 1000	Mass Flow Rate	Range: 0 - full range	IEEE752 ABCD
41003	0x03EA / 1002	Total Mass Flow	Range: 0-4000000	IEEE752 ABCD
41005	0x03EC / 1004	Instant Volume	Range: 0 - full range	IEEE752 ABCD
41007	0x03EE / 1006	Total Volume	Range: 0-4000000	IEEE752 ABCD
41009	0x03F0 / 1008	Density	Density lower limit to Density Upper limit	IEEE752 ABCD
41011	0x03F2 / 1010	Temperature	Range: -50 to 200°C	IEEE752 ABCD
41013	0x03F4 / 1012	Subject A Percentage	Range :0-100%	IEEE752 ABCD
41015	0x03F6 / 1014	Sensor Resonant Frequency	80-150 Hz Related to Sensor	IEEE752 ABCD