VIRTEC INSTRUMENTS INC

Electromagnetic Flow Meter

VIR DATA SHEET

Version Number: 26122022 REV.E

High Accuracy Electro Magnetic Heat Meter and Flow Meter

Virtec VIR-800 series Flanged and Insertion magnetic flow meter provide long-lasting, reliable performance in even the most challenging applications. An all-welded construction provides a hermetic seal that protects against moisture and other contaminants. The sealed housing ensures maximum sensor reliability by protecting all internal components and wiring from even the most aggressive environments. A removable and replaceable terminal block enables easy repair in the field without the need to replace the entire meter.

- Accuracy: Standard: 0.5% and Optional 0.2%
- Min. Flow Cutoff: Upto 1% of calibrated flow
- Line Sizes: (15-1000 mm)
- Liner Materials: PTFE-Hard Rubber
- Electrode Materials: 316L Stainless Steel, Nickel Alloy, Platinum, Tantalum, Titanium
- Flange Ratings: ASME B16.5 Class 150
- Protection Class: IP67 (Recommended with sealed cable glands)
- Interchangeability: Compatible with all VIR-800 Series transmitters.
  Analog O/P; 4-20mA for flow output.

VIR-800-IN LINE

VIR-800-INSRT-
INSERTION TYPE

2. TECHNICAL DATA

Measuring System

Measuring Principle	**Faraday's Law**
Application range	Application range
Measured Value	
Primary measured value	Flow velocity
Secondary measured value	Volume flow

Design

Features	Fully welded maintenance-free sensor
	Flange version with full bore flow tube
	Standard as well as higher pressure ratings
	Large diameter range from DN25 to DN 3000 with rugged liners approved for drinking water
	Industry specific insertion lengths
Modular Construction	The measurement system consists of a flow sensor and a signal converter. It is available as compact and as remote version.
Compact Version	With 511B converter: 110-240V AC Power
	With 521B converter: 18-36V DC Power
	With W800L/W800W: Battery Power
Remote Version	In wall mount version with 211B converter (110-240V AC) or 221B converter (18-36V DC)
	With W800F converter: Battery Power
Measurement Range	0.3...+10 m/s

Measuring Conditions

Reference Conditions	Flow conditions similar to EN 29104
	Medium: Water
	Electrical conductivity: ≥20 µs/cm
	Temperature: +10...+50°C (+50°F... +120°F)
	Inlet section: ≥ 5DN
	Operating pressure: Min 1 bar(14.5 psig)
Flow Meter Accuracy	Standard: ±0.5% of rate @1.6 ft/sec to 33 ft/sec
	Optional: ±0.2% of rate@1.6 ft/sec to 33 ft/sec

Operating Conditions

Temperature	
Process Temperature	Hard rubber liner: -5°C...+60°C or 90°C
	Polypropylene liner: -5°C..+90°C
	PTFE liner: -5°C...+120°C; PFA: 180°C
Ambient Temperature (all versions)	Standard (with aluminum converter housing)
	-20°C...+60°C (Protect electronics against self-heating with ambient temperatures above 55
Storage Temperature	-20°C...+70°C
Pressure	
EN 1092-1	DN2200...DN3000: PN2.5
	DN1200...DN2000: PN 6
	DN200...DN1000: PN10
	DN65...DN150: PN 16
	DN10...DN50: PN 40
	Other pressures on request
Pressure Drop	Negligible

Fluid	
Physical condition	Conductive liquids
Electrical conductivity	220µs/cm
Permissible gas content (volume)	≤5%
Permissible solid content (volume)	≤ 30%

Installation Conditions

Installation	Take care that flow sensor is always fully filled
	For detailed information see chapter "Cautions for Installation"
Flow Direction	Forward and reverse
	Arrow on flow sensor indicates positive flow direction
Inlet Run	5 DN
Outlet Run	2 DN

Materials

Sensor Housing	Sheet steel, Polyurethane coated
	Other materials on request
Measuring Tube	Austenitic stainless steel
Flanges	Carbon steel; Polyurethane coated
	Other materials on request
Liner	Standard
	DN10 to DN40: PTFE
	DN50 to DN300: PTFE or Hard Rubber
	DN300 to DN2200 Hard Rubber or PTFE Option
Connection Box (only remote versions)	Standard: Polyurethane coated die-cast aluminum
Measuring Electrodes	Standard: Stainless steel 316L
	Option: Hastelloy C, Titanium, Tantalum
	Other materials on request
Grounding Rings	Standard: Stainless steel
Grounding Electrodes (option)	Same material as measuring electrodes

Process Connections

Flange	
EN 1092-1	DN40 to DN300 IN PN6...40
	Other sizes or pressure ratings on request

Materials

Model	Diameter		Flow Rate (m³/h)		
			V=0.3m/s	V=6m/s	V=10m/s
"Type No."	(mm)	(Inch)	(Min)	(Calibrated)	(Max)
65-EM-1-VIR-800	6	1/4"	0.0306	0.611	1.018
65-EM-2-VIR-800	10	3/8"	0.0849	1.696	2.827
65-EM-3-VIR-800	15	1/2"	0.1909	3.817	6.362
65-EM-4-VIR-800	20	3/4"	0.3393	6.786	11.31
65-EM-5-VIR-800	25	1"	0.5301	10.60	17.67
65-EM-6-VIR-800	32	1-1/4"	0.8686	17.37	28.95
65-EM-7-VIR-800	40	1-1/2"	1.357	27.14	45.24
65-EM-8-VIR-800	50	2"	2.121	42.14	70.69
65-EM-9-VIR-800	65	2-1/2"	3.584	71.68	119.5
65-EM-10-VIR-800	80	3"	5.429	108.6	181.0
65-EM-11-VIR-800	100	4"	8.482	169.6	282.7
65-EM-VIR-800	125	5"	13.25	265.1	441.8
65-EM-A-VIR-800	150	6"	19.09	381.7	636.2
65-EM-B-VIR-800	200	8"	33.93	678.6	1131
65-EM-C-VIR-800	250	10"	53.01	1060	1767
65-EM-D-VIR-800	300	12"	76.34	1527	2545
65-EM-E-VIR-800	350	14"	103.9	2078	3465
65-EM-F-VIR-800	400	16"	135.7	2714	4524
65-EM-G-VIR-800	450	18"	171.8	3435	5726
65-EM-H-VIR-800	500	20"	212.1	4241	7069
65-EM-I-VIR-800	600	24"	305.4	6107	10179
65-EM-J-VIR-800	700	28"	415.6	8310	13850
65-EM-K-VIR-800	800	32"	542.9	10860	18100
65-EM-L-VIR-800	900	36"	662.8	13740	22900
65-EM-M-VIR-800	1000	40"	848.2	16962	28270

4.5 Dimensions Details

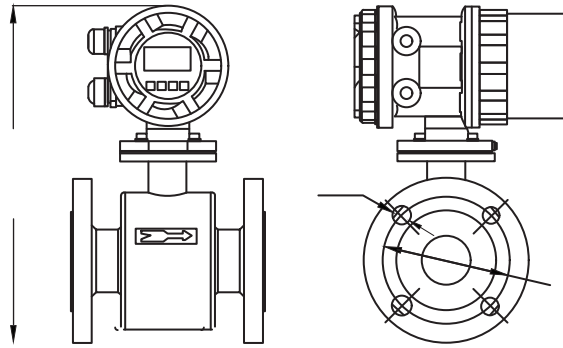

Table 1. Dimensions (DIN PN16, Unit: mm)

2.1 Flange: DIN PN16

DIA (mm)	L (mm)	D (mm)	K (mm)	H (mm)	H* (mm)	n*d (mm)
10	200	90	60	300	215	4*Φ14
15	200	95	65	310	225	4*Φ14
20	200	105	75	315	230	4*Φ14
25	200	115	85	325	240	4*Φ14
32	200	140	100	340	255	4*Φ18
40	200	150	110	345	260	4*Φ18
50	200	165	125	365	275	4*Φ18
65	200	185	145	375	290	8*Φ18
80	200	200	160	390	305	8*Φ18
100	250	220	180	410	325	8*Φ18
125	250	250	210	440	355	8*Φ18
150	300	285	240	465	380	8*Φ22
200	350	340	295	525	440	12 *Φ22
250	450	405	355	590	505	12 *Φ26
300	500	460	410	635	550	12 *Φ26
350	550	520	470	690	605	16 *Φ26
400	600	580	525	750	670	16 *Φ30
450	600	640	585	800	715	20*Φ30
500	600	715	650	865	780	20*Φ33
600	600	840	770	980	895	20*Φ36
700	700	910	840	1065	980	24*Φ36
800	800	1025	950	1175	1090	24*Φ39
900	900	1125	1050	1275	1190	28*Φ39
1000	1000	1255	1170	1390	1305	28*Φ42

Setting Trends

Virtec is one of the global leaders providing Heat & Flow management solutions in HVAC & Water applications. The solutions are based on two measuring technologies, Ultrasonic & Electromagnetic principle. Our high-end services and cutting-edge product solutions in this field have made us the leading providers of technologically advanced Heat and Fow measuring instruments.

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