

Technical Information

VersaFlow Mag 100 Electromagnetic Flow Sensor Specifications, 34-VF-03-08, March 2022



The Economical Solution

The VersaFlow Mag 100 flow sensor is an economical solution for a wide range of applications. VersaFlow Mag 100 can be used in applications (including various aqueous solutions), where other measurement techniques e.g., turbines, venturi, etc. were previously used.

VersaFlow is suitable for even the most demanding applications and is recognized as an industry standard.

Highlights

- Basic and fully functional wafer design flow sensor
- Quick and easy to install and operate
- Available in sizes 3/8" - 6"
- Excellent price-performance ratio
- Excellent chemical resistance
- Maintenance free
- Sandwich (wafer) design
- Bi-directional measurements
- Insensitive to vibrations

Industries

- Water and Wastewater
- Chemicals & Petrochemicals
- Mineral and Mining
- Oil and Gas
- Pharmaceuticals
- Power plants
- Iron, Steel and Metals
- Automotive
- Pulp and Paper



Figure 1 – VersaFlow Magnetic Flow sensor VersaFlow Electromagnetic Flow Converters

VersaFlow converters are compatible with all sensors TWM900.

All meters consist of a sensor and converter, which may be mounted integral to the sensor, or remotely mounted with a field mount kit, wall mount housing or 19" rack mount module.



TWM9000 Integral Mounted



TWM9000 Remote mounted



TWM9000 Wall Mounted



TWM1000

See specification 34-VF-03-02 or 34-VF-03-24 for converter details.

Applications

- Water circulation, distribution, and treatment e.g., in swimming pools and recreation facilities.
- Sprinkler irrigation systems.
- Fertilizer distribution.
- Water circuits of buildings and offices.
- Mud, slurry, sludge, manure.
- Water including raw water, process water, wastewater, salt water, heated and cooled water.

Technical Data

Table 1

ASME [inch]	3/8"	1/2"	1"	1 1/2"	2"	3"	4"	6"
DN [mm]	10	15	25	40	50	80	100	150

Process Flange Standard

EN 1092-1 -PN40								
EN 1092-1 -PN 16								
ASME B16.5- 150 lbs RF								
ASME B16.5-300 lbs RF								
JIS20 K								
JIS10 K								
Pressure limits in separate table.								
Note: DN 10 (3/8") requires DN 15 (1/2") process flanges.								

Liner

PFA								
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Electrodes

Hastelloy C22								
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Grounding Rings

Integrated St. DIN 1.4404 – 316L SS								
Separate St. DIN 1.4404 – 316L SS								

Stud Bolts and Nuts

Rubber sleeves								
Stainless Steel A2 / Rubber sleeves								
steel, galv. / Rubber sleeves								
Gaskets not included								

Table 1 (cont'd)

ASME [inch]	3/8"	1/2"	1"	1 1/2"	2"	3"	4"	6"
DN [mm]	10	15	25	40	50	80	100	150

Materials Used

Measuring tube, austenitic stainless steel								
Housing malleable iron (GTW-S 38-12)								
Housing sheet steel								
Connection box, die-cast aluminum								
Other materials on request.								

Protection Category

IP 66/67 eq. NEMA 4/4X / 6								
IP 68 eq. NEMA 6								

Approvals

Non-Ex								
	Approval for flow sensor only							

standard
 optional
 on request

Technical Data**Table 2**

Measuring System		
Measuring principle	Faraday's Law	
Application range	Electrically conductive fluids	
Conductivity		
Non-water	Min, 5 μ S/cm	
Water	min. 20 μ S/cm	
Measured value		
Primary value	Flow velocity	
Secondary value	Volume flow	
Design		
Features	Sandwich design	
	PFA liner and Hastelloy electrodes	
	Lightweight and compact	
Construction	The measurement system consists of a flow sensor and a signal converter. Signal converter is available as compact or separate version.	
Compact version	With signal converter TWM1000 & TWM9000	
Housing Remote version	Wall mount (W) with TWM1000	
	Field (F), wall (W) or rack (R) mount with TWM9000	
Performance specifications		
Measuring accuracy		
Sensor diameter	Signal converter type	Accuracy
DN10...150 / 3/8...6"	TWM9000	$\pm 0.3\%$ of mv + 1 mm/s
DN10...150 / 3/8...6"	TWM1000	$\pm 0.4\%$ of mv + 1 mm/s
Repeatability	$\pm 0.1\%$ of measured value, minimum 1 mm/s	
Stability	$\pm 0.1\%$ of measured value	
Calibration	Standard: 2-point calibration by direct volume comparison	
Measuring range	-12...+12 m/s / -40...+40 ft/s	
Pressure loss	Negligible	
Permissible gas and solid content		
Gas content(volume)	TWM9000: $\leq 5\%$	
	TWM1000: $\leq 3\%$	
Solid content(volume)	TWM9000: $\leq 70\%$	
	TWM1000: $\leq 10\%$	
Vacuum Load	0 mbar/psi absolute	
Versions		
Configuration	Compact	Separate
VersaFlow MAG 4000	TWM 9000C TWM 1000C	TWM9000F, R, W TWM1000W

Table 2 (cont'd)

Process flange standard	Operating pressure	
	min. – max. [bar]	min. – max. [psig]
ASME B16.5 – 150 lbs RF	0-16	0-232
ASME B16.5 – 300 lbs RF	0-16	0-232
EN 1092-1 – PN 16	0-16	0-232
EN 1092-1 – PN 40	0-16	0-232
JIS 10 K	0-10	0-145
JIS20K	0-16	0-232

Measuring Accuracy

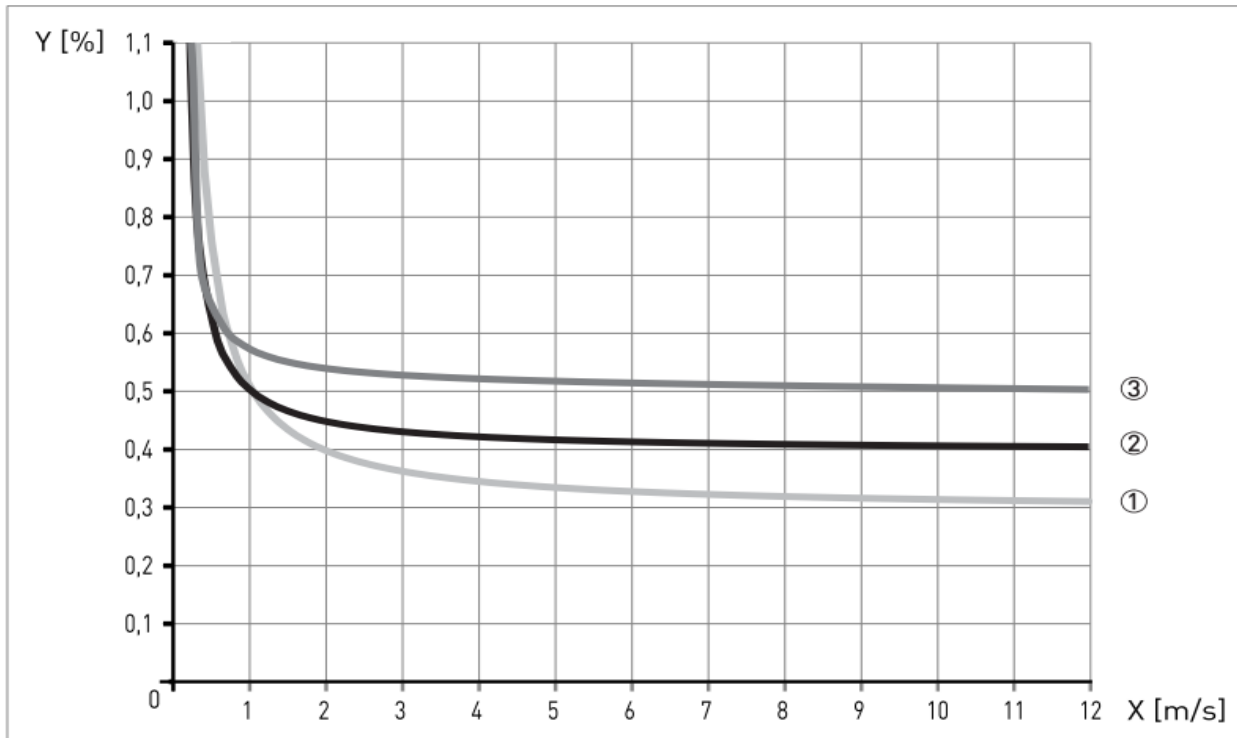


Figure 2 – Flow velocity vs. accuracy

X [m/s] : flow velocity

Y [%] : deviation from the actual measured value (mv)

Table 3

Flow Sensor diameter	Signal Converter type	Accuracy	Curve
DN10...150 (3/8...6")	TWM 1000	0.4% of mv + 1 mm/s	(2)
DN10...150 (3/8...6")	TWM 9000	0.3% of mv + 2 mm/s	(1)

Measuring error

The measuring error is obtained from the combined effects of accuracy and zero stability.

Reference conditions

Product: Water

Temperature: +5...35°C / +41...95°F

Operating pressure: 0.1...5 barg / 1.5...72.5 psig

Inlet section: > 5 DN

Outlet section: > 2 DN

Temperature Range**Table 4**

Temperature	Process		Ambient	
	min. [°C]	max. [°C]	min. [°C]	max. [°C]
Remote Converter TWM 1000 or TWM 9000	-25	120	-25	60
Compact with TWM 1000 or TWM 9000	-25	120	-25	50

Table 5

Temperature	Process		Ambient	
	min. [°F]	max. [°F]	min. [°F]	max. [°F]
Remote Converter TWM 1000 or TWM 9000	-13	248	-13	140
Compact with TWM 1000 or TWM 9000	-13	248	-13	122

Dimensions and Weights**Table 6**

Nominal size	Dimensions [mm]						Approx. weight [kg]*
	DN	L	H	W	T _{box}	T ₀₁₀	
10	68	137	47	214	242	292	1,7
15	68	137	47	214	242	292	1,7
25	54	147	66	224	252	302	1,7
40	78	162	82	239	267	317	2,6
50	100	151	101	228	256	306	4,2
80	150	180	130	257	285	335	5,7
100	200	207	156	284	312	362	10,5
150	200	271	219	348	376	426	15

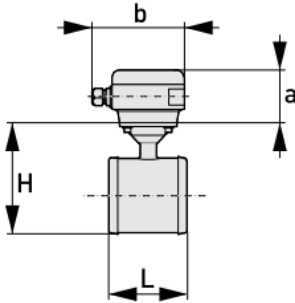
Table 7

Nominal size	Dimensions [inches]						Approx. weight [lbs]*
	ASME	L	H	W	T _{box}	T ₀₁₀	
3/8"	2,68	5,39	1,85	8,43	9,53	11,5	3,7
1/2"	2,68	5,39	1,85	8,43	9,53	11,5	3,7
1"	2,13	5,79	2,6	8,82	9,92	11,89	3,7
1 1/2"	3,07	6,38	3,23	9,41	10,51	12,48	5,7
2"	3,94	5,94	3,98	8,98	10,08	12,05	9,3
3"	5,91	7,08	5,12	10,12	11,22	13,19	12,6
4"	7,87	8,15	6,14	11,18	12,28	14,25	23,1
6"	7,87	10,67	8,62	13,7	14,8	16,77	33,1

* Approx. weight of meter body

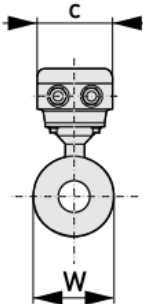
Dimensions and Weights

Front view VersaFlow (w/TWM9000F)



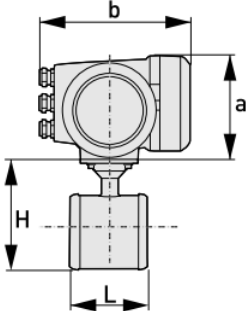
a = 88 mm / 3.5"
b = 139 mm / 5.5"

Side view VersaFlow (w/TWM9000F)



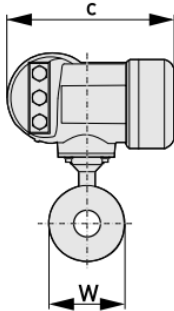
c = 106 mm / 4.2"

Front view VersaFlow (w/TWM9000C)



a = 155 mm / 3.5"
b = 230 mm / 5.5"

Sideview VersaFlow (w/TWM9000C)



c = 106 mm / 4.2"

Figure 3 – Dimensions and weights

Note: For Sensor with TWM1000 Converter refer to Specification 36-VF-03-24.

Sales and Service

For application assistance, current specifications, ordering, pricing, and name of the nearest Authorized Distributor, contact one of the offices below.

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Specifications are subject to change without notice.

For more information

To learn more about VersaFlow,
visit <https://process.honeywell.com>
Or contact your Honeywell Account Manager

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