

Digital display flow-meter with orifice plate

DDM-EM



- For liquids and gases
- From ND50 to ND200, or BSP 1/4" up to 2"
- Mounting: Vertical or horizontal piping
- Output 4-20 mA (0-10 V on request)
- 2 Adjustable contacts, NO / NC
- LED display (remote unit: on request)

APPLICATIONS

These differential pressure flow-meters are used for monitoring gas and liquids.

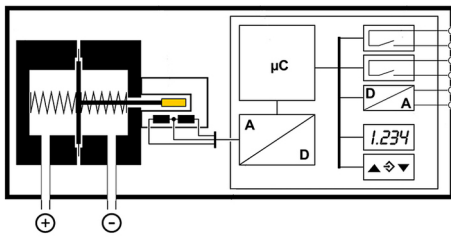
DESCRIPTION

The device works according to the principle of differential pressure which is proportional to the square of the volume rate of flow through the pipeline. The DDM series integrates an orifice plate inside an armature for wafer mounting or with threaded fittings.

The transmitter EM contains a diaphragm system. The differential pressure generates a force which moves the diaphragm system against the measuring spring. The resulting movement is transmitted to the inductive transducer via a piston. The electronics convert the signal into a direct display, switching contact and output signal.

The reliability of the measurement depends of the flow behaviour at the measuring point. The region of steady flow should covers piping distances of 6 ND upstream and 4 ND downstream.

Several versions in steel, stainless steel or brass are available:



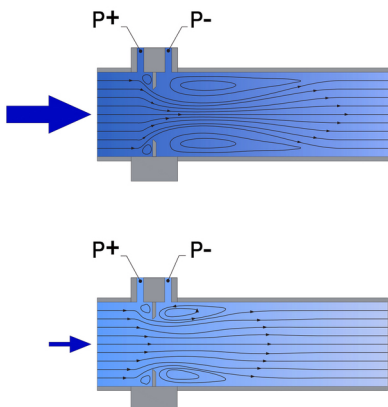
Differential pressure transducer

DDM-DN	Wafer for flanges acc. DIN EN 1092-1
DDM-Gi	Female threads acc. DIN EN ISO 228
DDM-Ga	Male threads acc. DIN EN ISO 228
DDM-Rp	Unions DIN EN 10226-1 (ISO 7-1)

- Every BAMO Kirchner instrument is tested in conformity with EC directives.
- The corresponding declaration of conformity is available on request.
- The current version in force is available on our WEB site.
- Our production center Kirchner, is certified DIN EN ISO 9001: 2015

TECHNICAL FEATURES

Measurement principle	Differential pressure of an orifice plate
Differential pressure	Air: from 5 up to 1000 mbar H ₂ O: From 100 up to 1000 mbar
Ambient temperature	-10...+70 °C
Pressure drop	≈30...60 % of differential pressure
Nominal pressure	PN 16
Fluid temperature	Standard: -10 ... +70 °C -- With thermic isolation: 130 °C The fluid must not freeze. Option "HT": above 130 °C
Protection	IP 65, according DIN EN 60529
Accuracy	5 % F. S.



Orifice plate principle

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Fittings:

Wafer mounting (ND)	PN10 or PN16 according DIN EN 1092-1, shape A & B
Unions (Rp)	Two pieces - Female thread DIN EN 10226-1 (ISO 7-1) cylindrical
Female threads (Gi)	Cylindrical BSP DIN EN ISO 228 (BSP)
Male threads (Ga)	Cylindrical BSP DIN EN ISO 228 T1

Materials:

DMM-EM-DN	Body: S355 (Option AISI 316 Ti) Corrosion protection: Epoxy powder coating, traffic blue (RAL 5017) glossy Corrosion class: C2 Orifice plate: AISI 316 Ti (1.4571)
DMM-EM- Rp, Gi, Ga	Fittings: Malleable cast iron; Option for Rp only: zinc plated Orifice plate: Brass Seals: NBR (other on request)
Connection between orifice and transmitter	Ducts, straight, to screw on, 1/4": Nickel plated brass (On request: AISI 316 Ti) BSP fittings 1/4" / Ø 8: Nickel plated brass (On request: AISI 316 Ti) Couplings, nuts: zinc plated steel (On request AISI 316 Ti) Sealing: Gland, steel zinc plated with NBR seal
Display unit EM	Wet parts: FPM, NBR, brass Diaphragm: NBR Housing: Polyamide PA 6.6

DISPLAY UNIT FEATURES

Nominal voltage	24 V AC/DC
Power supply	12...32 V AC/DC
Analogue output	0/4-20 mA, 2-wire (On request 0-10 V, 3-wire)
Consumption	2 VA / 2 W
Protection	IP 65 according EN 60529
Relay outputs	2 contacts N.O. / N.C. 2 A ; 32 V AC/DC ; maxi 64 W / 64 VA
Display	3.5 digit, LED (4 digits LCD back-lighted)
Setting	Front key pad, key code secured
Filter	0.0 ... 100 s
Range	Zero adjustment, and output signal scalable Output: Linear/ square root/ linearization on 3 to 30 points
Output signal	Adjustable within the F.S. (Ratio max. 4:1)
Zero stability	0... 1/3 F. S.
Zero correction	± 1/3 F. S.
Connections	power and signal: M12 connecteur, male, 5-pin Relays: M12 connector, male, 4-pin

PLAGES DE MESURE

*): Ranges for AIR at standard conditions 0 °C and 1013 mbar

DMM-EM DN	H ₂ O [m ³ /h] wafer version		*) AIR [m ³ /h] wafer version	
	Minimum	Maximum	Minimum	Maximum
40	0.5 - 5	5.35 - 32	5.8 - 35	25 - 150
50	1.75 - 17	13 - 52	13.5 - 54	67.5 - 270
65	3 - 12	19.5 - 78	20.35 - 81	125 - 500
80	4.5 - 18	29.5 - 118	30 - 120	187.5 - 750
100	7 - 28	46 - 184	52.5 - 210	212.5 - 1080
125	11 - 44	72 - 288	90 - 360	437.5 - 1750
150	16 - 64	103.25 - 413	112.5 - 450	650 - 2600
200	28.25 - 113	183.75 - 735	187.5 - 750	1000 - 4000

DMM-EM Rp, Ga, Gi	H ₂ O [m ³ /h]		*) AIR [m ³ /h]	
	Minimum	Maximum	Minimum	Maximum
1/4"	0.075 - 0.3	0.3 - 1.2	0.75 - 3	2 - 8
3/8"	0.1 - 0.4	0.575 - 2.3	1.25 - 5	3.5 - 14
1/2"	0.175 - 0.7	1.125 - 4.5	1.5 - 6	5.25 - 21
3/4"	0.325 - 1.3	2.125 - 8.5	2 - 8	11.25 - 45
1"	0.5 - 2	3.375 - 13.5	3 - 12	13.5 - 54
1 1/4"	0.875 - 3.5	6 - 24	6 - 24	27 - 108
1 1/2"	1.25 - 5	8 - 32	8.75 - 35	37.5 - 150
2"	1.875 - 7.5	13 - 52	12.5 - 50	67.5 - 270


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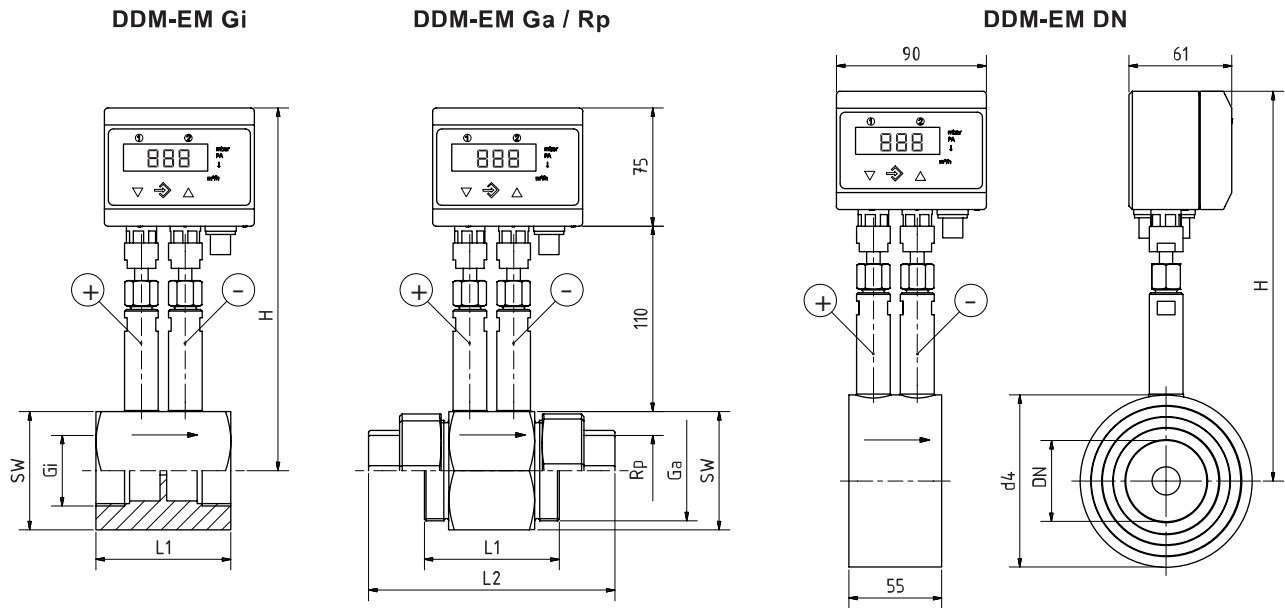
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DIMENSIONS



DDM-EM DN			DDM-EM-Rp					DDM-EM- Gi, Ga			
DN	d4	H	Rp	L1	L2	SW	H	Gi, Ga	L	SW	H
40	88	≈ 280	1/4"	80	124	41	200	1/4"	80	41	200
50	102	282	3/8"	80	128	46	203	3/8"	80	46	203
65	122	302	1/2"	80	128	46	203	1/2"	80	46	203
80	138	318	3/4"	80	128	50	205	3/4"	80	50	205
100	158	338	1"	80	136	60	210	1"	80	60	210
125	188	368	1 1/4"	80	146	70	215	1 1/4"	80	70	215
150	212	392	1 1/2"	80	149	70	215	1 1/2"	80	70	215
200	268	448	2"	90	164	85	222	2"	90	85	222

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