

- Range of diameter 10 to 2000 mm
- Compact version IP67, remote version sensor IP67 (optionally IP68)
- Power supply 220, 110VAC, 24VDC or Battery supply
- Empty pipe alarm
- Electrodes in Hastelloy B, Hastelloy C, Titanium, Tantalum, 316SS or others on request.
- Lining in PTFE, PFA, F46 or Rubber CR or PU
- Remote control HART or RS485, RS232 (Modbus)
- GPRS (Battery supply only)
- Frequency, pulse and analog output 4-20mA
- Pipe and electronic self diagnostic
- LCD-indicator

DESCRIPTION

Inductive flow meter BFM980 is a device designed for measuring, indicating flow and passed through volume data of conductive liquids. Flow meter BFM-980 records both positive and negative flow. As there are neither moving nor mechanical parts in the flow profile the device can be applied to measure extremely polluted liquids containing even solid pollution. The only limitation is that the device can be used solely with conductive liquids.

Range of applications. Inductive flow meter BFM980 is designed to be used in the chemical industry, paper industry, waterworks maintenance, waste-water maintenance etc.

Features. Inductive flow meter BFM980 is a highly accurate and stable device. The construction of the BFM980 indicator uses components with a long-term time and temperature stability. Configuration data is backed up and can be recovered after a power failure. The back-up structure enables data recovery in case of a partial loss of data (as a result of e.g. high level electrostatic discharge or high noise of power supplying). Internal CPU provides all functions usually built in electronic flow meters, incl. low flow rate correction, frequency response setting, bandwidth of sensitivity setting at low flow rates, etc.

Inputs / Outputs. Flow meter BFM980 is equipped with isolated outputs a Digital outputs (frequency, pulse, alarm) are user configurable. Current output 4-20 mA can be used as passive or active type. For communication are available HART or RS232 and RS485 (Modbus). GPRS only for battery powered flow meter.

Application:

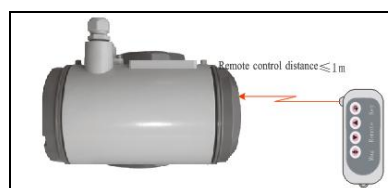
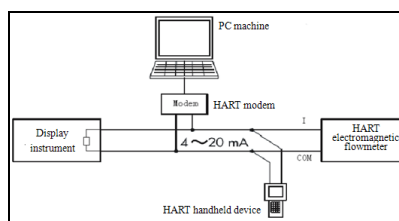
Water and wastewater flowrate and total volume measuring
Chemical industry (acids, alkaline solutions)

TECHNICAL DATA

Process	: Conductive liquids
Flowrange	: 0,03 to 15m/s (0,01 to 6000 l/s)
Output	: 4-20mA, Frequency 0 to 12kHz, Pulse 0 to 50Hz
Communication:	HART, RS485 and RS232 (Modbus) (GPRS)
Power Supply	: 110/220 VAC 50/60Hz, 24VDC, Battery
Load	: 0 - 600Ω vid 24VDC (4-20mA utgång)
Display	: Flowrate (m ³ /h, l/s, US. Gal/min, user) Volume (m ³ , l, US. Gal, user) Positive, total, negative and auxiliary (clearable, daily) volume
Protection	: IP67 (IP68 option)
Liner	: Hard rubber CR,PU or PTFE, PFA, F46
Temp.measure	: -10 till +160°C
Processtemp	: -10 till +60 °C (Teflon liner -10 till +160°C with remote electronic).
Storage.temp	: -20 till 90°C
Nominal pressure	: PN 6 to PN40
Nominal size	: DN 10 to DN 2000
Configuration	: Keyboard, Remote controller, HART RS232 or RS485


PERFORMANCE

Accuracy	: 0.2% (DN10-200) 0,5% DN250-2000
Time constant	: setable 1 to 20s
Testfunctions	: Empty pipe detection, internal temperature measurement, Status of pipe, excitation coils, and electronic unit. Diagnostic of internal temp,
Electric connection	: Pg. 13.5
Process connection	: Flange to DN10 till DN2000 (EN1092)
ANSI (BS16.5), Sanitary (DIN11851 or Tir Clamp, Wafer style)	
Measuring tube	: Hard rubber or PTFE, PFA, F46
Electrodes	: SS316, Hastelloy C or B Titanium or Tantalum
Indicationsplate	: 316 SST
Mounting	: Directly in pipe or electronic separated from measuring pipe



Flowrate versus diameter

The choice of flowrate for an electromagnetic flowmeter depends on the diameter of the sensor. The higher pipe diameter, the higher flowrate can be measured. A determining parameter for flowrates is maximum velocity of the liquid. Maximum velocity is the speed, where the flow of liquid inside pipe is still laminar. In BM980 it is limited to 10m/s (with 125% overload). Speed over 10 m/s is usually too high for industrial applications. Such diameter of pipe is usually selected, where expected flowrate is between $Q_{5\%}$ and $Q_{50\%}$.

In the table below applicable flowrates for various diameters is displayed in units l/s and m³/hr.

DN	Flowrates [l/s]						Flowrates [m ³ /h]					
	$Q_{1\%}$	$Q_{5\%}$	Q_N	$Q_{50\%}$	$Q_{100\%}$	Q_{MAX}	$Q_{1\%}$	$Q_{5\%}$	Q_N	$Q_{50\%}$	$Q_{100\%}$	Q_{MAX}
10	0,01	0,04	0,20	0,39	0,79	0,98	0,03	0,14	0,80	1,41	2,83	3,53
15	0,02	0,09	0,50	0,88	1,77	2,21	0,06	0,32	2,00	3,18	6,36	7,95
20	0,03	0,16	0,90	1,57	3,14	3,93	0,11	0,57	3,20	5,65	11,31	14,14
25	0,05	0,25	1,40	2,45	4,91	6,14	0,18	0,88	5,00	8,84	17,67	22,09
32	0,08	0,40	2,20	4,02	8,04	10,05	0,3	1,5	8,00	14,5	29,0	36,2
40	0,1	0,6	4,0	6,3	12,6	15,7	0,5	2,3	13,0	22,6	45,2	56,6
50	0,2	1,0	6,0	9,8	19,6	24,5	0,7	3,5	20,0	35,3	70,7	88,4
65	0,3	1,7	9,0	16,6	33,2	41,5	1,2	6,0	35,0	59,7	119,5	149,3
80	0,5	2,5	14,0	25,1	50,3	62,8	1,8	9,0	50,0	90,5	181,0	226,2
100	0,8	3,9	20,0	39,3	78,5	98,2	3	14	80	141	283	353
125	1	6	30,0	61	123	153	4	22	150	221	442	552
150	2	9	50,0	88	177	221	6	32	200	318	636	795
200	3	16	100	157	314	393	11	57	300	565	1131	1414
250	5	25	150	245	491	614	18	88	500	884	1767	2209
300	7	35	200	353	707	884	25	127	800	1272	2545	3181
350	10	48	300	481	962	1203	35	173	1000	1732	3464	4330
400	13	63	400	628	1257	1571	45	226	1300	2262	4524	5655
500	20	98	600	982	1963	2454	71	353	2000	3534	7069	8836
600	28	141	800	1414	2827	3534	102	509	3000	5089	10179	12723
700	38	192	1000	1924	3848	4811	139	693	4000	6927	13854	17318
800	50	251	1200	2513	5027	6283	181	905	5000	9048	18096	22620
900	64	318	1500	3181	6362	7952	229	1145	6000	11451	22902	28630
1000	79	393	2000	3927	7854	9817	283	1414	8000	14137	28274	35340

- $Q_{1\%}$ - minimum applicable flowrate (minimum flowrate with guaranteed accuracy)
- $Q_{5\%}$ - recommended minimum flowrate (minimum flowrate with best accuracy)
- Q_N - recommended nominal flowrate (expected working flowrate)
- $Q_{50\%}$ - recommended maximum flowrate (maximum flowrate for industrial use)
- $Q_{100\%}$ - maximum applicable flowrate (maximum flowrate with guaranteed accuracy)
- Q_{MAX} - maximum applicable overload ($Q_{125\%}$) (flowmeter is still measuring)

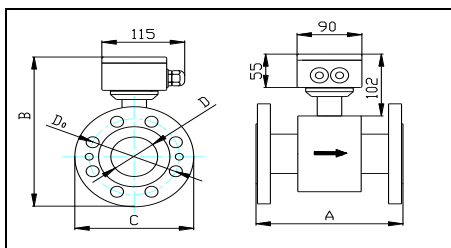
BFM980 flowrates

A sensor diameter should be chosen to keep real flowrate between $Q_{5\%}$ and $Q_{50\%}$, because in this range the flowmeter has the best accuracy.

PIPE MECHANICAL DIMENSIONS

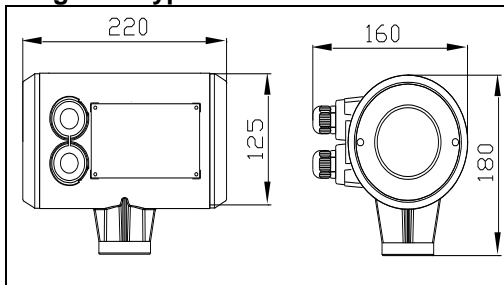
In the table below are the dimensions of the sensor for compact version. In case of remote version add 180 millimetres to dimension "A" for cable gland and cable. Flanges in DIN version meet standard EN1092. Flanges in ANSI version meet requirements of ANSI B 16.5 standard

Aperture (mm)	Rated pressure (Mpa)	Instrument outline dimension (mm)			Flange connection dimension (mm)			Weight (kg)
		A	B	C	D	D ₀	n×Φ	
10	4.0	200	187	90	10	60	4 × 14	4
15	4.0	200	189	95	15	65	4 × 14	4
20	4.0	200	194	105	20	75	4 × 14	4
25	4.0	200	204	115	25	85	4 × 14	5
32	4.0	200	216	140	32	100	4 × 18	7
40	4.0	200	221	150	40	110	4 × 18	8
50	4.0	200	243	165	50	125	4 × 18	10
65	4.0	200	253	185	65	145	4 × 18	15
80	4.0	200	278	200	80	160	8 × 18	15
100	1.6	250	298	220	100	180	8 × 18	20
125	1.6	250	318	250	125	210	8 × 18	22
150	1.6	300	358	285	150	240	8 × 22	33
200	1.0	350	416	340	200	295	8 × 22	43
250	1.0	400	490	395	250	350	12 × 22	82
300	1.0	500	510	445	300	400	12 × 22	100
350	1.0	500	571	505	350	460	16 × 22	121
400	1.0	600	631	565	400	515	16 × 26	145
450	1.0	600	681	615	450	565	20 × 26	210
500	1.0	600	730	670	500	620	20 × 26	207
600	1.0	600	836	780	600	725	20 × 30	250
700	1.0	700	944	895	700	840	24 × 30	350
800	1.0	800	1055	1015	800	950	24 × 35	460
900	1.0	900	1170	1115	900	1050	28 × 35	550
1000	1.0	1000	1280	1230	1000	1160	28 × 35	680
1200	0.6	1200	1460	1405	1200	1340	32 × 35	770
1400	0.6	1400	1823	1524	1400	1560	36 × 36	1230
1600	0.6	1600	2033	1726	1600	1760	40 × 36	1550
1800	0.6	1800	2227	1926	1800	1970	44 × 39	2080
2000	0.6	2000	2428	2170	2000	2180	48 × 42	2600

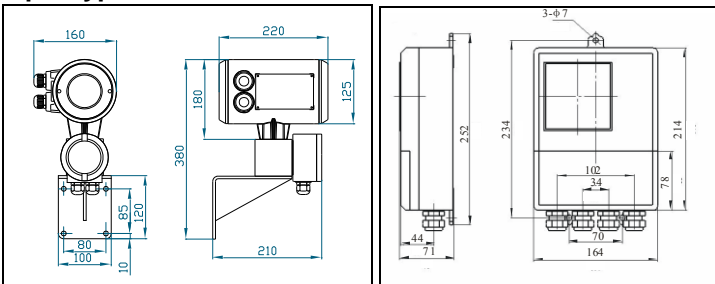


Converter outline dimension

Integrated-type



Split-type





ORDER INFORMATION

BFM980-A/B flanged-type electromagnetic flow meter Order Information

Model														Explanation	
BFM980	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Structure form	A														Integrated flanged-type electromagnetic flow meter
	B														Split flanged-type electromagnetic flow meter (with ex-factory standard configuration cable 10m)
Aperture		()													Aperture from DN10~DN2000
Electrode		1													316 stainless steel
		2													Halloy B (HB)
		3													Halloy C (HC)
		4													Pt (not provide temporarily)
		5													Ti
		6													Ta
		9													Others
Lining material		A													Chloroprene rubber (CR)
		B													Polyurethane rubber (PU)
		C													Polytetrafluoroethylene (PTEE, F4)
		D													Solubility Polytetrafluoroethylene(PFA)
		E													F46
		G													Solubility Polytetrafluoroethylene (withstand negative pressure) (PFA)
		H													F46 (withstand negative pressure)
Working pressure		1													4.0MPa (aperture DN10~DN80)
		2													1.6MPa (aperture DN100~DN150)
		3													1.0MPa (aperture DN200~DN1000)
		4													0.6MPa (aperture DN1200~DN2000)
Earth ring		A													None
		B													General earth ring (316L)
		C													Earth ring with neck (316L)
		Y													Others
Protection grade		B													IP67
		C													IP68 (split type)
Output mode													1		4~20mA frequency/pulse
Communication mode														1	RS485
														2	RS232C
														3	HART
														4	GPRS (battery use only)
Power supply													T		220V AC



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INTELLIGENT ELECTROMAGNETIC FLOWMETER BFM980

No. DS 45:2-E Issue: 5 30/11/15

		W				24V DC
Accuracy			4			0.2%
			5			0.5 %
			6			1.0 %
Converter type			2			Integrated type
			3			Split I type
			6			Split III type
Flame-proof type						General type
			D			Flame-proof type (Exd II CT 6)
Max. flow				()		In the bracket give clear indication of max. flow, unit m ³ /h

BFM980-C/D gripping-type electromagnetic flow meter Order Information

Model													Explanation
BFM980	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Structure form	C												Integrated gripping-type electromagnetic flow meter
	D												Split gripping-type electromagnetic flow meter(with ex-factory standard configuration cable 10m)
Aperture	()												Aperture from DN40~DN200
Electrode		1											316 stainless steel
		2											Halloy B (HB)
		3											Halloy C (HC)
		4											Pt (not provide temporarily)
		5											Ti
		6											Ta
		9											Other
Lining material		D											Solubility Polytetrafluoroethylene (PFA)
		E											F46
		G											Solubility Polytetrafluoroethylene (withstand negative pressure) (PFA)
		H											F46 (withstand negative pressure)
Working pressure		1											4.0MPa (aperture DN40~DN80)
		2											1.6MPa (aperture DN100~DN150)
		3											1.0MPa (aperture DN200)
		4											Others
Earth ring		A											None
		B											General earth ring (316L)
		C											Earth ring with neck (316L)
		Y											Others
Protection grade										B			IP67

		C								IP68
Output mode		0								Without output
		1								4~20mA frequency/pulse
Communication mode		1								RS485 (standard)
		2								RS232C
		3								HART
		4								GPRS (battery use only)
Power supply		T								220V AC
		W								24V DC
		B								Battery power supply
Accuracy		4								0.2%
		5								0.5 %
		6								1.0 %
Converter type		2								Integrated type
		3								Split I type
		6								Split III type
Flame-proof type		S								General type
		D								Flame-proof type (Exd II CT 6)
Max. flow								()		In the bracket give clear indication of max. flow, unit m ³ /h

For example: BFM980-C 1001D2AB10T52D (80)