

Electromagnetic flow Sensor TYPE MI01 | MI02



description:

Electromagnetic flow Sensors are ideal for the linear flow measurement of all electrically conductive liquids. The sensor converts the flow (flow velocity) into a proportional electrical voltage.

product features:

- Suitable for electrically conductive **liquid media, including sludge, pulp and paste**
- Flow speeds up to 10 m/s
- Minimum conductivity of >20 µS/cm with clocked constant field
- Robust and interference-free design

connection:
DN15 - DN600

temperature:
-10°C to +180°C – depending on design

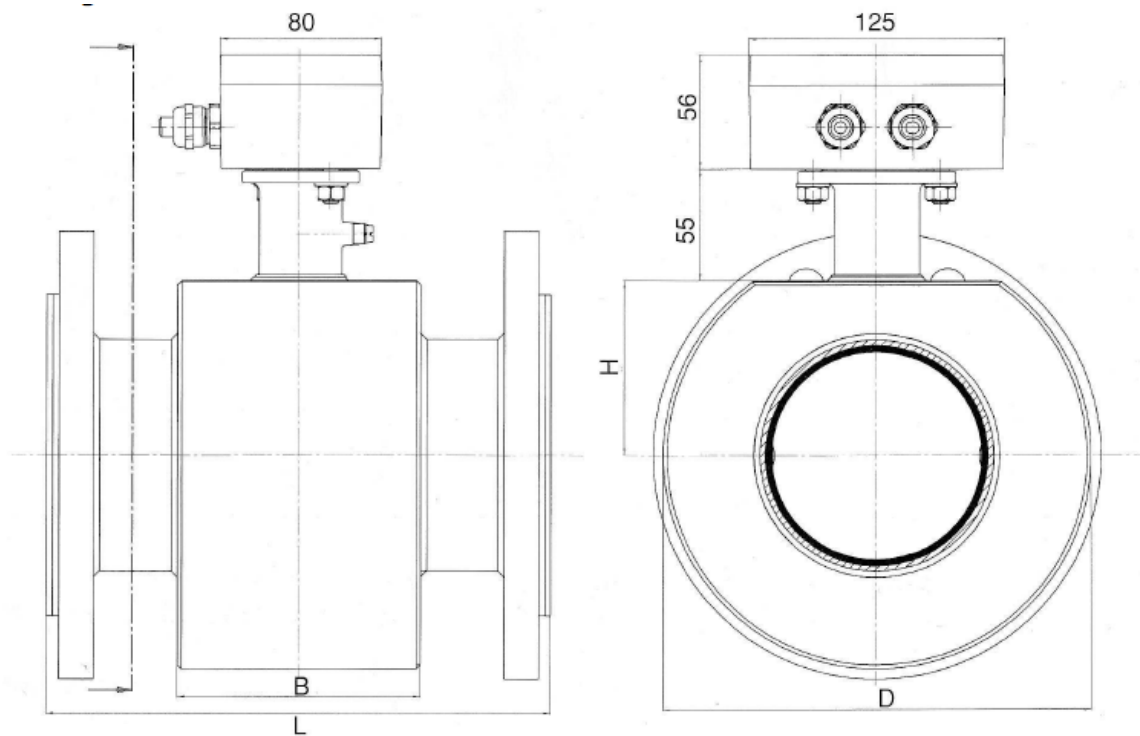
pressure:
Up to 16,0 bar – depending on design

Type MI01 separate design, with 5 m cable and operating module

Type MI02 compact design with mounted operating module (with display)

type:	fully welded steel valve
measuring tube:	Stainless steel at least 1.4301
coil space:	steel
flange:	Steel C22.8
coating:	Primer: layer thickness: min. 50 µm Top coat: layer thickness: min. 120 µm
measuring tube lining:	Hard rubber VHE/102 PTFE
electrode:	Stainless steel 1.4571
electrode sealing:	Viton (with rubber lining)
flange:	DIN 2501 ANSI 150
error of measurement:	+/- 0.5% of reading from 0.25 m/s to 10 m/s
repeat accuracy:	+/- 0.15% of reading from 0.25 m/s to 10 m/s
temperature:	+90°C with rubber lining +180°C with PTFE (Teflon) lining
protection class:	IP67
minimum conductivity:	> 20 µS/cm
max. flow rate:	10m/s
flow rate final value:	0.25 - 10m/s
Cable entry:	2 x M16 x 1,5

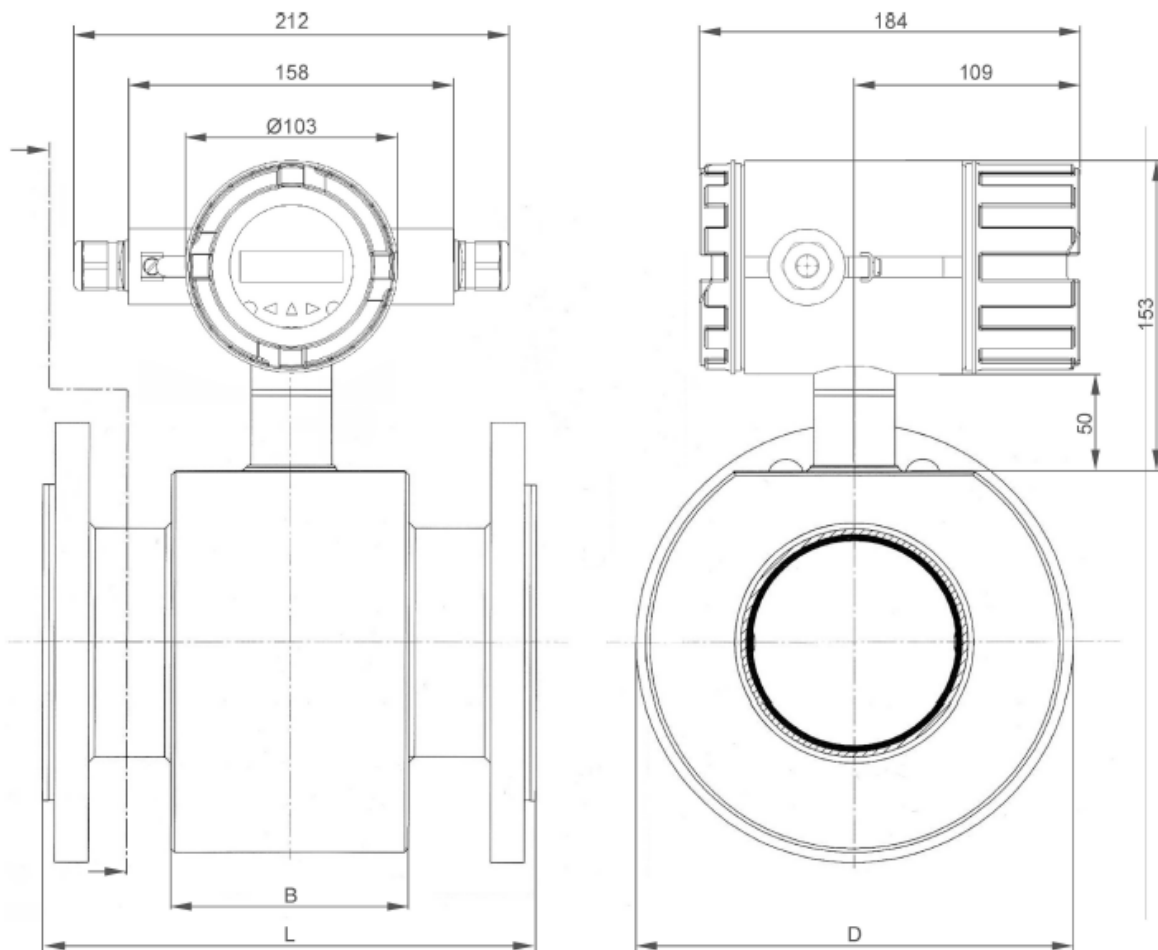
Dimensions of type MI01 separate design:



Dimension				Installation length L				B	D	H	kg
DIN		ANSI		gummed	PTFE	guard ring	tolerance				
DN15	PN40	1/2"	150 RF	200	200	206	+0 / -3	80	130	53	5
DN25	PN40	1"	150 RF	200	200	206	+0 / -3	80	130	53	6
DN32	PN40	1 1/4"	150 RF	200	200	206	+0 / -3	80	130	53	7
DN40	PN40	1 1/2"	150 RF	200	200	206	+0 / -3	80	130	53	7,5
DN50	PN40	2"	150 RF	200	200	206	+0 / -3	80	140	57	9
DN65	PN16	2 1/2"	150 RF	200	200	206	+0 / -3	80	155	63	10
DN80	PN16	3"	150 RF	200	200	206	+0 / -3	80	170	70	13
DN100	PN16	4"	150 RF	250	250	256	+0 / -3	120	210	86	15
DN125	PN16	5"	150 RF	250	250	256	+0 / -3	120	240	98	19
DN150	PN16	6"	150 RF	300	300	306	+0 / -3	120	285	117	23
DN200	PN10	8"	150 RF	350	350	360	+0 / -3	200	350	143	36
DN250	PN10	10"	150 RF	450	450	460	+0 / -4	200	440	180	52
DN300	PN10	12"	150 RF	500	500	510	+0 / -4	200	520	213	62
DN350	PN10	14"	150 RF	550	550	560	+0 / -5	225	474	237	95
DN400	PN10	16"	150 RF	600	600	610	+0 / -5	250	524	262	115
DN450	PN10	18"	150 RF	600	600	610	+0 / -5	270	584	292	135
DN500	PN10	20"	150 RF	600	600	610	+0 / -5	300	629	315	150
DN600	PN10	24"	150 RF	600	600	610	+0 / -5	360	734	367	182

Delivery including 5m cable and control module

Dimensions Type MI02 compact design:



Dimension				Installation length L				B	D	H	kg
DIN		ANSI		gummed	PTFE	guard ring	tolerance				
DN15	PN40	1/2"	150 RF	200	200	206	+0 / -3	80	130	53	5
DN25	PN40	1"	150 RF	200	200	206	+0 / -3	80	130	53	6
DN32	PN40	1 1/4"	150 RF	200	200	206	+0 / -3	80	130	53	7
DN40	PN40	1 1/2"	150 RF	200	200	206	+0 / -3	80	130	53	7,5
DN50	PN40	2"	150 RF	200	200	206	+0 / -3	80	140	57	9
DN65	PN16	2 1/2"	150 RF	200	200	206	+0 / -3	80	155	63	10
DN80	PN16	3"	150 RF	200	200	206	+0 / -3	80	170	70	13
DN100	PN16	4"	150 RF	250	250	256	+0 / -3	120	210	86	15
DN125	PN16	5"	150 RF	250	250	256	+0 / -3	120	240	98	19
DN150	PN16	6"	150 RF	300	300	306	+0 / -3	120	285	117	23
DN200	PN10	8"	150 RF	350	350	360	+0 / -3	200	350	143	36
DN250	PN10	10"	150 RF	450	450	460	+0 / -4	200	440	180	52
DN300	PN10	12"	150 RF	500	500	510	+0 / -4	200	520	213	62
DN350	PN10	14"	150 RF	550	550	560	+0 / -5	225	474	237	95
DN400	PN10	16"	150 RF	600	600	610	+0 / -5	250	524	262	115
DN450	PN10	18"	150 RF	600	600	610	+0 / -5	270	584	292	135
DN500	PN10	20"	150 RF	600	600	610	+0 / -5	300	629	315	150
DN600	PN10	24"	150 RF	600	600	610	+0 / -5	360	734	367	182

performance table

mm	Fläche	V in	Qv	V in	Qv	V in	Qv	V in	Qv
	ln dm ²	m/s		m/s		m/s		m/s	
DN		0,25		2,0		5,0		10,0	
2	0,0003	0,25	2,83 l/h	2,0	22,6 l/h	5,0	56,5 l/h	10,0	113,1 l/h
4	0,003	0,25	11,31 l/h	2,0	90,5 l/h	5,0	226,2 l/h	10,0	452,4 l/h
8	0,0050	0,25	45,24 l/h	2,0	361,9 l/h	5,0	904,8 l/h	10,0	1809,6 l/h
12	0,0113	0,25	101,79 l/h	2,0	814,3 l/h	5,0	2,04 m ³ /h	10,0	4,07 m ³ /h
15	0,0177	0,25	159,04 l/h	2,0	1272,3 l/h	5,0	3,18 m ³ /h	10,0	6,36 m ³ /h
20	00314	0,25	282,74 l/h	2,0	2,26 m ³ /h	5,0	5,65 m ³ /h	10,0	11,31 m ³ /h
25	0,0491	0,25	441,79 l/h	2,0	3,52 m ³ /h	5,0	8,84 m ³ /h	10,0	17,67 m ³ /h
32	0,0804	0,25	723,82 l/h	2,0	5,79 m ³ /h	5,0	14,48 m ³ /h	10,0	28,95 m ³ /h
40	0,1257	0,25	1,13 m ³ /h	2,0	9,05 m ³ /h	5,0	22,62 m ³ /h	10,0	45,24 m ³ /h
50	0,1963	0,25	1,77 m ³ /h	2,0	14,14 m ³ /h	5,0	35,34 m ³ /h	10,0	70,69 m ³ /h
65	0,3318	0,25	2,99 m ³ /h	2,0	23,89 m ³ /h	5,0	59,73 m ³ /h	10,0	119,46 m ³ /h
80	0,5027	0,25	4,52 m ³ /h	2,0	36,19 m ³ /h	5,0	90,48 m ³ /h	10,0	180,96 m ³ /h
100	0,7854	0,25	7,07 m ³ /h	2,0	56,55 m ³ /h	5,0	141,3 m ³ /h	10,0	282,74 m ³ /h
125	1,2272	0,25	11,04 m ³ /h	2,0	88,36 m ³ /h	5,0	220,89 m ³ /h	10,0	441,79 m ³ /h
150	1,7671	0,25	15,9 m ³ /h	2,0	127,23 m ³ /h	5,0	318,09 m ³ /h	10,0	636,17 m ³ /h
200	3,1416	0,25	28,27 m ³ /h	2,0	226,19 m ³ /h	5,0	565,49 m ³ /h	10,0	1130,97 m ³ /h
250	4,9087	0,25	44,18 m ³ /h	2,0	353,43 m ³ /h	5,0	883,57 m ³ /h	10,0	1767,15 m ³ /h
300	7,0686	0,25	63,62 m ³ /h	2,0	508,94 m ³ /h	5,0	1272,34 m ³ /h	10,0	2544,69 m ³ /h
350	9,6211	0,25	86,59 m ³ /h	2,0	692,2 m ³ /h	5,0	1731,8 m ³ /h	10,0	3463,61 m ³ /h
400	12,5664	0,25	113,1 m ³ /h	2,0	904,78 m ³ /h	5,0	2261,95 m ³ /h	10,0	4523,89 m ³ /h
450	15,9043	0,25	143,14 m ³ /h	2,0	1145,11 m ³ /h	5,0	2862,78 m ³ /h	10,0	5725,55 m ³ /h
500	19,6350	0,25	176,71 m ³ /h	2,0	1413,72 m ³ /h	5,0	3534,29 m ³ /h	10,0	7068,58 m ³ /h
550	23,7583	0,25	213,82 m ³ /h	2,0	1710,6 m ³ /h	5,0	4276,49 m ³ /h	10,0	8552,98 m ³ /h
600	28,2743	0,25	254,47 m ³ /h	2,0	2035,75 m ³ /h	5,0	5089,38 m ³ /h	10,0	10178,76 m ³ /h

Remark:

Flow velocities must be between 0.25 and 10.0 m/s.

Installation

Basically, the measuring principle does not depend on the flow profile.

Ideally, the sensor should be installed in a pipeline with a sufficient straight run, both before and after the measuring point. Experience has shown that an inflow path of 5 x DN and an outflow zone of at least 2 x DN is required.

Provided that constant turbulence does not enter the area in which the measurement takes place (e.g. after elbows, during tangential feeds or if the valve in front of the sensor is partially open). However, should this be the case, appropriate actions must be taken to normalize the flow profile. The appropriate steps are:

- increasing the inflow and outflow zones
- using flow conditioners
- reducing the inner diameter of the pipe

The sensors may be installed either horizontally or vertically ; however, it must be ensured, that the axes of the electrodes are running horizontally (see directional arrow on the electrode). This will avoid erroneous measurements due to deposits or air bubbles on the electrodes.

Do not install the sensor in a drainage area of the pipeline (e.g. down pipe). If the sensor must be installed in a down pipe, ensure that portion of the pipeline is always filled 100% with the media.

The sensor must be installed in an area of the pipe which will always be filled with media. If a pipeline is not always filled, or in case of an open channel (drainage), the sensor must be installed in a siphon.

Always maintain the distance of the pipe's straight run. If these distances cannot be maintained, flow conditioners must be installed or pipes with smaller diameter must be used.

If several sensors are installed in series, the distance between each sensor must be equal to the length of one sensor. If two or more sensors are to be installed in parallel, the distance between sensors must be at least 1 m.

Due to possible accumulation of gases, the sensor should not be installed at the highest point of a pipeline.

article number:

type	tube lining	voltage	output	diameter
MI01 – remote * MI02 – compact (with display)**	00 – hard rubber 01 – PTFE	1 – AC 230V 50/60hz 2 – 18-36V	1 – 4-20mA	03 – DN15 05 – DN25 06 – DN32 07 – DN40 08 – DN50 09 – DN65 10 – DN80 11 – DN100 12 – DN125 13 – DN150 14 – DN200 15 – DN250 16 – DN300 17 – DN350 18 – DN400 19 – DN450 20 – DN500 21 – DN600

example No. **MI01011107:**

MI01 | **01** | **1** | **1** | **07**

Article Nr. MI01011107
 Electromagnetic flow Sensor DN40 MI01, PTFE, AC 230V 50/60hz
 Tube lining: PTFE
 type: remote version
 diameter: DN40

* Delivery including 5m cable and operating module (transmitter)

Image similar, subject change without notice.