

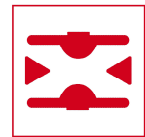


# Magnetic Inductive Flowmeter

## EP / UMF2 (B)



- High accuracy 0.3 % of reading
- No maintenance required
- no pressure drop
- different lining materials
- different electrode materials
- inexpensive earthing electrode available instead of earthing rings, also available special materials like e. g. tantalum



## Function

An electrically conductive medium induces a voltage while flowing through an arranged magnetic field in accordance to the Faraday's induction law. A magnetic inductive flowmeter consist of an isolated lining tube, flown through by a conductive liquid, a magnetic field coil and two electrodes. The electrode measuring-circuit voltage is proportional to the flow velocity and therewith to the volume flow. The electrode voltage is detected by a transmitter and converted into standard electrical signals as 4-20 mA or pulses. The sensor EP can be used in combination with all types of Heinrichs Messtechnik MID-transmitters. The transmitter can be mounted integrally or separately.

## Application

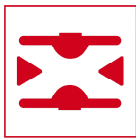
The magnetic-inductive flow sensor EP is used to measure the volume flow of liquids, slurries, pastes and other electrically conductive media without any pressure drop. Pressure, temperature, density and viscosity do not affect the volume measurements. Portions of solid particles and small gas bubbles should be avoided.

The EP has the following significant characteristics:

- Wide variety of lining materials
- Electrodes in Hastelloy C4, Tantalum, Platinum
- Wide variety of process connections
- Applicable at harsh environments

## TECHNICAL DATA Sensor : Model EP

<b>Meter Body:</b>	Steel coated / painted	
	Stainless steel on connections DIN11851, Tri-Clamp®	
<b>Diameters:</b>	6 / 8 / 10 mm inner diameter with DN10 or ½ " ANSI DN 15 to DN 1200 / ½" up to 48" ANSI, (other diameters on request)	
<b>Process connection:</b>	Steel or stainless steel (1.4301) flanges, PVDF (DN10), (EN1092 und ASME B16.5), flangeless connection (wafer), food connection DIN11851, Tri-Clamp®, (others connections on request)	
<b>Lining:</b>	Hard rubber, soft rubber, PTFE (PFA), Rilsan, Wagunit	
<b>Measuring and earthing electrodes:</b>	Stainless steel 1.4571 (316TI), Hastelloy C4, Tantalum and Platinum (on request), earthing rings (on request),	
<b>Nominal pressure:</b>	PN 40, (40 bar) PN 16, (16 bar) PN 10, (10 bar) PN 6, (6 bar) (higher pressures on request)	DN 15-300 (½"-12") DN 10-600 (½"-24") DN 200-600 DN 700-1200
<b>Process temperature:</b>	0 °C to +80° C -20 °C to +150 °C -20 °C to +130 °C 0 °C to +80 °C	(hard rubber, soft rubber) (PTFE (PFA)) (E-CTFE (DN300 and bigger)) (Rilsan, Wagunit)

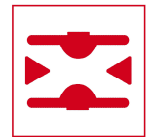


<b>Ambient temperature:</b>	-20 °C to +60 °C, depending on process temperature
<b>Conductivity:</b>	$\geq 5 \mu\text{S/cm}$ $\geq 20 \mu\text{S/cm}$ with demineralized water
<b>Allowed upper measuring ranges:</b>	0.5 m/s – 10 m/s
<b>Accuracy:</b>	$\pm 0.3 \%$ of measured value $\pm 0.01 \%$ * (Q at 10 m/s) (under reference conditions)
<b>Repeatability:</b>	$\pm 0.15 \%$ of measured value $\pm 0.005 \%$ * (Q at 10 m/s) (under reference conditions)
<b>Degrees of protection:</b>	IP 67 (EN60529), IP68 on request

### **Transmitter: Model UMF2 (B)**

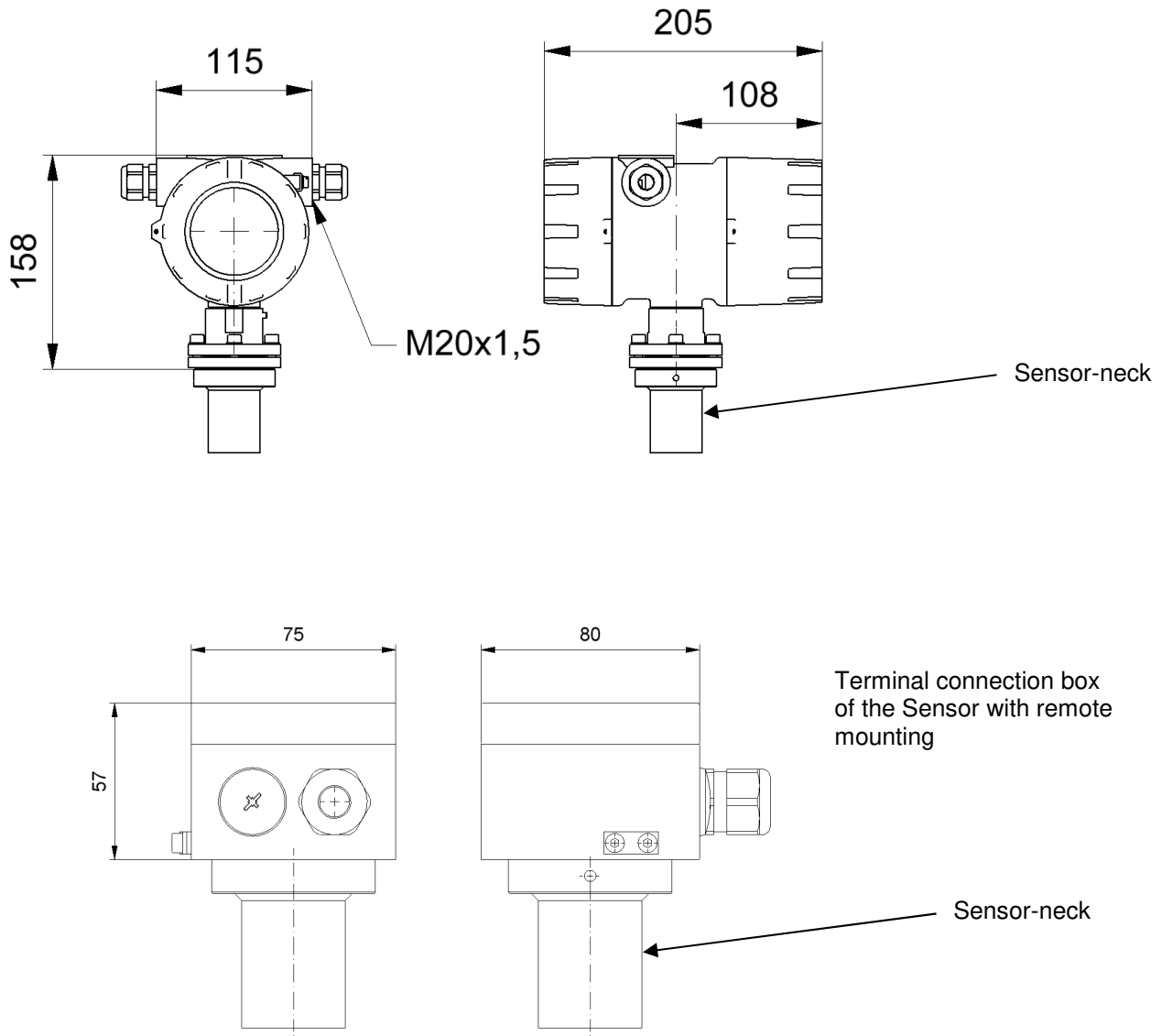


<b>Mounting:</b>	integral or remote
<b>Housing:</b>	Die-cast aluminum, painted
<b>Power supply:</b>	115 / 230 VAC 50/60Hz 10VA 24 VDC 10W
<b>Outputs:</b>	
<b>Analog:</b>	1 x 0/4-20 mA active, galvanically isolated
<b>Pulse:</b>	passive, galvanically isolated, 24V, 60mA
<b>Status:</b>	passive, galvanically isolated, 24V, 60mA
<b>Ambient temperature:</b>	-20 °C to +60 °C, depending on process temperature (when integral mount)
<b>Ingress protection:</b>	IP68 (EN60529)
<b>Communication:</b>	HART®
<b>Diagnosis functions:</b>	Empty pipe detection, coil current monitoring
<b>Electromagnetic compatibility:</b>	EMC Directive 2004/108/EG



## Dimensions: Transmitter UMF2 (B)

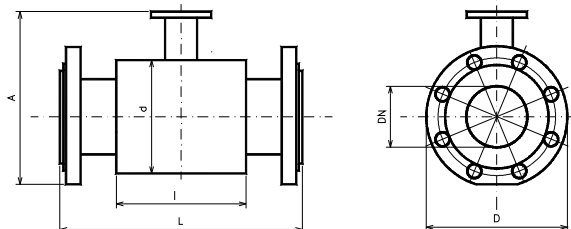
(All dimensions in mm)





## Sensor Dimensions EP

### Flange version

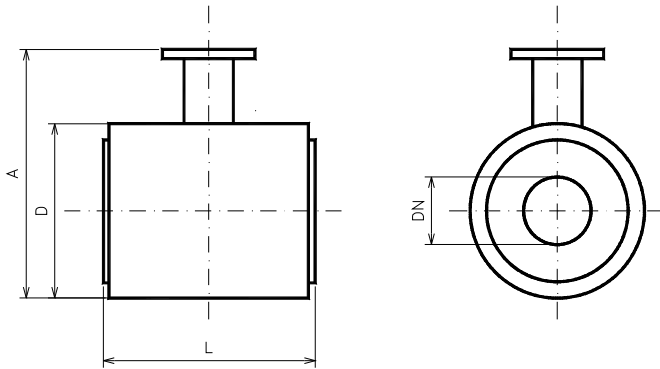


	DN	ASME	D ANSI Flanges	D DIN Flanges	d	A*	L	I	Weight [ kg ]
PN 40	6mm/ DN10	1/2"	90	88.90	77	164	230	100	3
	8mm/ DN10	1/2"	90	88.90	77	164	230	100	3
	10mm/ DN10	1/2"	90	88.90	77	164	230	100	3
	15	1/2"	95	88,9	62	164	200	66	3
	20	3/4"	105	98,4	62	170	200	66	3
	25	1"	115	107,9	72	180	200	96	3
	32	1 1/4"	140	117,5	82	199	200	96	4
PN 16	40	1 1/2"	150	127	92	209	200	96	4
	50	2"	165	152,4	107	223	200	96	6
	65	2 1/2"	185	177,8	127	244	200	96	9
	80	3"	200	190,5	142	260	200	96	14
	100	4"	220	228,6	162	280	250	96	16
	125	5"	250	254	192	310	250	126	19
PN 10	150	6"	285	279,4	218	340	300	126	25
	200	8"	340	342,9	274	398	350	211	41
	250	10"	395	406,4	370	480	450	211	54
	300	12"	445	482,6	420	535	500	320	77
	350	14"	505	533,4	480	584	550	320	92
	400	16"	565	596,9	530	642	600	320	116
	450	18"	615	635	o.r.	o.r.	o.r.	o.r.	o.r.
	500	20"	670	698,5	640	752	600	320	167
PN 6	600	24"	780	812,8	760	870	600	320	315
	700	28	895	927,1	880	990	700	420	o.r.
	800	32	1015	1060	960	1100	800	420	427
	900	36	1115	1075	1040	1185	800	520	o.r.
	1000	40	1230	1230	1140	1290	800	520	500
	1100	44	o.r.	o.r.	o.r.	o.r.	o.r.	o.r.	o.r.
	1200	48	1405	1405	1340	1510	1200	520	680

An additional weight of 2.4 kg (5.3 lbs) must be taken into consideration for the transmitter.  
Weights are seen as approximately.  
o.r. = on request

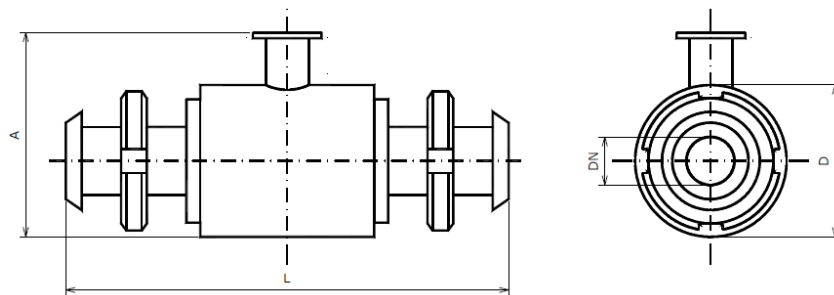


**Wafer version**



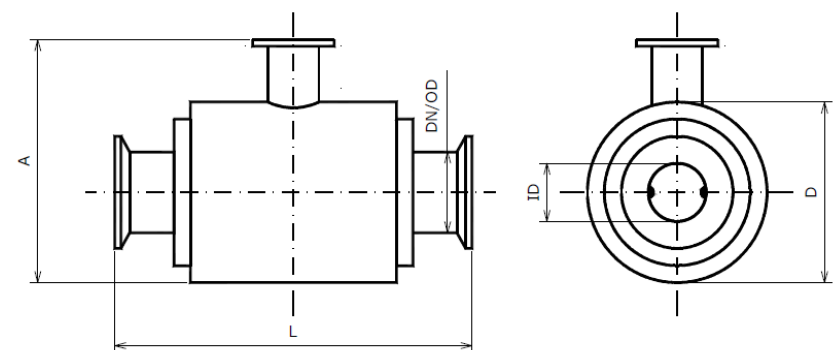
	DN	D	A	L	Weight [kg]
PN 40	20	62	145	74	1,5
	25	72	158	104	2
	32	82	168	104	2
	40	92	179	104	2
	50	107	192	104	3
	65	125	212	104	3
	80	138	227	104	4
PN 16	100	162	247	104	4
	125	192	277	134	6
	150	218	303	134	8
	200	274	359	219	10

**Connection DIN 11851, PN10**



DN	D	A	L
15	74	144	170
20	74	144	170
25	74	144	225
32	84	154	225
40	94	164	225
50	104	174	225
65	129	199	280
80	140	210	280
100	156	226	280

**Connection Tri-Clamp®, PN10**



ASME	D	A	L
1/2"	74	144	137
3/4"	74	144	137
1"	74	144	137
1 1/2"	94	164	137
2"	104	174	137
2 1/2"	129	199	192