

HYDRAMAG

Electromagnetic Flowmeter

Revolutionizing Flow



The HYDRAMAG electromagnetic flowmeters are solely suitable for measuring volumetric flow rates of electrically conductive liquids with a minimum conductivity of 20 $\mu\text{S}/\text{cm}$.

350° SWIVEL
DISPLAY



VARIOUS
COMMUNICATION
OPTIONS



IP68 PROTECTION



WIDE CHOICE OF
LINING &
ELECTRODES



FEATURES

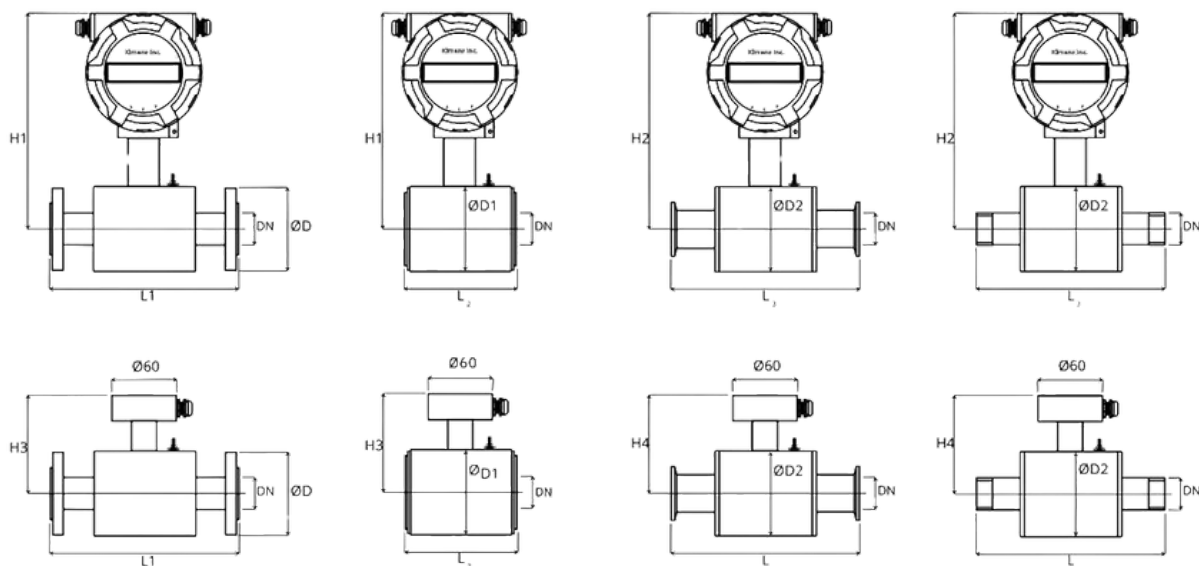
TECHNICAL DATA

Power	110...230 VAC (50/60 Hz), 24 VAC/VDC with polarity reversal protection
Input power	4.6 VA
Transmitter mount	Meter mount (H – standard), Tmax 90 °C, Remote mount (F), Panel mount (P) versions, standard cable length 3 m
Diameter nominal	DN 4...800 (other DN upon agreement)
Lining material	Rubber (hard, soft, with potable water test certificate): DN 25...DN 800 (Tmax 70 °C) PTFE: DN 10...DN 80 (Tmax 150 °C for separate version), PVDF: DN 4...DN 20 Rilsan: DN 25...DN 800 (Tmax 70 °C for separate version) ETFE: DN 100...DN 800 (Tmax 150 °C), PFA, Ceramics (upon agreement)
Electrode material	CrNi steel DIN 1.4571, Hastelloy C4, Titanium, Tantalum
Frame	All-welded
Sensor material	Flanged– stainless steel and structural steel with polyurethane coating Wafer, Threaded, Food grade – stainless steel
Process connections	Wafer (PN25 only) Flanged DIN (EN1092) – carbon or stainless steel Threaded (EN 10226-1) Food grade (DIN 11851 fitting, clamp)
Pressure	PN10 (DIN), PN16 (DIN), PN25 (DIN), PN40 (DIN), PN64 (DIN), PN100 (DIN) 10K (JIS), 20K (JIS), 40K (JIS) 150lb (ANSI), 300lb (ANSI)
Min. conductivity of the measured fluid	20 µS/cm (lower conductivity, upon agreement)
Flow meter measuring range (Qmin/Qmax)	Bi-directional for 0.2 to 12 m/s (1/60); 0.12 to 12 m/s (1/100); 0.06 to 12 m/s (1/200)
Flow meter accuracy	Accuracy up to 0.5 % (0.25% on request), Repeatability up to 0.2 %
Pressure loss	Negligible
Additional electrodes	Grounding and detection electrodes for empty piping (DN 10...DN 800)
Empty piping detection	DN 10...DN 800
Display unit	LCD 2×16 characters
Controls	2× external button (viewing values) 3× internal button (viewing + parameter changing)
Outputs	2x Impulse/flow switch (max. 400 Hz), 4...20 mA, Interface RS485 (protocols M-BUS/Mod-Bus), M-BUS, HART*, micro SD* (Impulse and current outputs are passive with a possibility of being powered from internal power supply of the meter)
Max. ambient temperature	55 °C
Flow sensor degree of protection	IP65, IP67, IP68
Electronics degree of protection	Meter mount (H – head) , Remote mount (F) -IP65 / IP67 and Panel mount (P) – IP54

* HART communication and SD card is available only in meter mount design (type H)

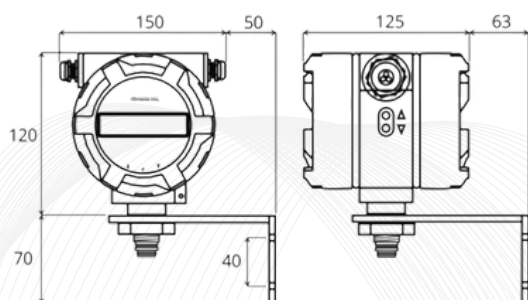
FLOW RANGES				
Diameter (DN) mm	Qmin/Qmax Qmin [m3/h]			Qmax [m3/h]
	1/60 (0,2 m/s)	1/100 (0,12 m/s)	1/200 (0,06 m/s)	- (12 m/s)
DN 4	0.01	-	-	0.6
DN 6	0.02	-	-	1.2
DN 8	0.04	-	-	2.2
DN 10	0.06	0.034	-	3.4
DN 15	0.13	0.076	0.038	7.6
DN 20	0.24	0.142	0.071	14.2
DN 25	0.35	0.21	0.105	21
DN 32	0.6	0.34	0.17	34
DN 40	0.9	0.54	0.27	54
DN 50	1.4	0.84	0.42	84
DN 65	2.4	1.44	0.72	144
DN 80	3.6	2.2	1.1	220
DN 100	5.6	3.4	1.7	340
DN 125	8.9	5.34	2.67	534
DN 150	13	7.6	3.8	760
DN 200	23	13.5	6.75	1350
DN 250	35	21.1	-	2115
DN 300	51	30	-	3050
DN 350	70	41	-	4150
DN 400	90	54	-	5426
DN 500	141	-	-	8480
DN 600	203	-	-	12200

DIMENSIONS

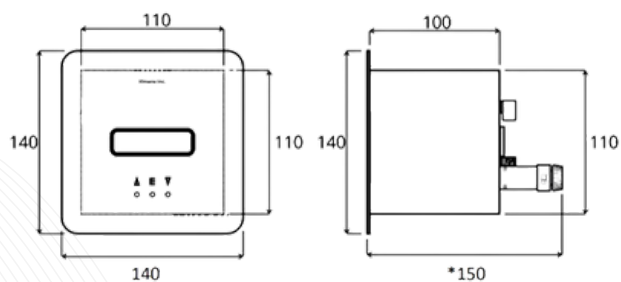


ELECTRONICS

METER / REMOTE MOUNT



PANEL MOUNT

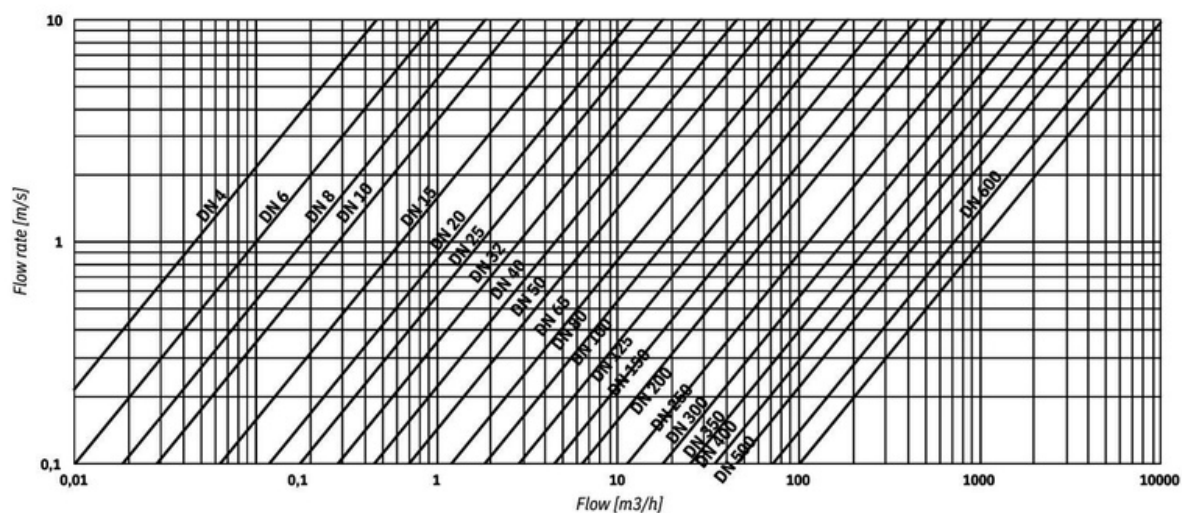


DIMENSIONS

Connection (mm)	Constructional length (mm)					Outside diameter (mm) Sensor body		Total (mm)			
								Compact design		Separated design	
	Flanged	Wafer (PN25)	Threaded connection	Food thread	Food clamp	Wafer (PN25)	Threaded Food thread Food clamp	Flanged Wafer (PN25)	Threaded Food thread Food clamp	Flanged Wafer (PN25)	Threaded Food thread Food clamp
DN	L1	L2	L3	L3	L3	D1	D2	H1	H2	H3	H4
DN 4	-	-	157 (1/2")	-	-	-	70/-/-	-/-	182/-/-	-/-	92/-/-
DN 6	-	-	157 (1/2")	-	-	-	70/-/-	-/-	182/-/-	-/-	92/-/-
DN 8	-	-	157 (1/2")	-	-	-	70/-/-	-/-	182/-/-	-/-	92/-/-
DN 10	200	90	186 (3/8")	173	180	51	70	173	177	86	90
DN 15	200	90	190 (1/2")	165	175	51	70	173	177	86	90
DN 20	200	90	200 (3/4")	170	175	61	80	173	182	86	95
DN 25	200	90	200 (1")	180	175	71	90	178	187	91	100
DN 32	200	90	228 (1 1/4")	192	175	82	100	183	192	96	105
DN 40	200	110	248 (1 1/2")	215	203	92	116	188	200	101	113
DN 50	200	110	258 (2")	228	211	107	136	196	210	109	123
DN 65	200	130	upon agreement	upon agreement	upon agreement	127	151	206	218	119	131
DN 80	200	130	upon agreement	upon agreement	upon agreement	142	177	213	231	126	144
DN 100	250	200	-	-	-	168	-	226	-	139	-
DN 125	250	200	-	-	-	194	-	239	-	152	-
150	300	200	-	-	-	224	-	254	-	167	-
200	350	200	-	-	-	284	-	284	-	197	-
250	450	-	-	-	-	-	-	327 / -	-	240 / -	-
300	500	-	-	-	-	-	-	352 / -	-	265 / -	-
350	550	-	-	-	-	-	-	382 / -	-	295 / -	-
400	600	-	-	-	-	-	-	412 / -	-	325 / -	-
500	600	-	-	-	-	-	-	892/-	-	797/-	-
600	600	-	-	-	-	-	-	1025-	-	930/-	-

Note: D - The outside diameter corresponds to the required pressure class and standards

VOLUMETRIC FLOW vs INSTANTANEOUS FLOW RATE DIAGRAM



OTHER SENSOR TYPES

WAFER SENSOR



FOOD GRADE SENSOR



THREADED SENSOR



EVALUATION UNIT TERMINAL BOARD ELECTRICAL CONNECTION

Standard connections:

Terminals 1, 2 – current output 4...20 mA

Terminals 3, 4 – Out1(Imp/Flow Switch)

Terminals 5, 6 – RS 485 communication

Terminals 7, 8 – Out2 (Imp/Flow Switch/Status)

Terminals 9, 10 – reset Total V register (resettable counter) by external button

Terminals 11, 12 – output voltage 16 V/100 mA (power supply for changing to active current

and impulse outputs)

Terminals L, N, PE – mains voltage 230 VAC (standard), available also in 24 VAC/VDC version

(Install as an independent supply circuit with its own protection 0.5...1 A)



FLOW SENSOR TERMINAL BOARD CONNECTION FOR SEPERATED VERSION

Terminal 1 – coil 1 (black)

Terminal 2 – coil 2 (white)

Terminal 3 – shading (not connected)

Terminal 4 – electrode 1 (red)

Terminal 5 – electrode GDN (shading of violet)

Terminal 6 – electrode 2 (blue)

Terminal 7 – PE (shading red – blue – white and black)

Terminal 8 – electrode TEST (violet)

Note: Connection of terminal is always described on DPS.



The meter has two external buttons on the electronic housing and three internal buttons accessible after removing the front glass cover.

Using the external buttons scrolling through the menu can be done. With the internal buttons meter settings can be changed.

The unit also allows 350° swiveling for a more comfortable meter reading.

ORDERING CODE

HYDRAMAG	X	DN	XXX	/	A	X	CI	/	B	X	/	C	X	/	D	X	/	E	X	F	X	/	G	X	/	H	X	/	I	X					
ELECTRONICS TYPE																																			
HEAD MOUNT		H																												I1		1/60			
PANEL MOUNT		P																												I2		1/100			
																														I3		1/200			
DN (NOMINAL DIAMETER)																																			
4 to 600*																																			
DN																																			
A (DESIGN)																																			
Compact																														A1					
Separated cable length 3 to 30m , Tmax 150 °C																														A2					
Separated cable length 3 to 30m , Tmax 80 °C																														A3					
B (CONNECTION)																																			
Flanged			B1																		Clamp			B5											
Wafer			B2			Stainless Steel Flange SS304															B6														
Threaded			B3			Stainless Steel Flange SS316															B7														
Dairy Fitting			B4																																
C (PRESSURE)																																			
PN10 (DIN)			C1			PN64 (DIN)															C5			40K (JIS)			C9								
PN16 (DIN)			C2			PN100 (DIN)															C6			150lb (ANSI)			C10								
PN25 (DIN)			C3			10K (JIS)															C7			300lb (ANSI)			C11								
PN40 (DIN)			C4			20K (JIS)															C8														
D (LINNING)																																			
Hard Rubber			D1			PFA															D5						PVDF			D8					
Soft Rubber			D2			Creamics															D6						RILSAN			D9					
Rubber with potable water certificate			D3			ETFE															D7														
PTFE			D4																																
I (MEASURING RANGE QMIN/QMAX)																																			
H (POWER)																																			
H1																																			
110 to 230 VAC																																			
H2																																			
24 VAC / VDC																																			
G (OUTPUT)																																			
G1																																			
Impulse / OW Switch																																			
G2																																			
imp. / SW + 4-20 mA																																			
G3																																			
imp. / SW + RS485																																			
G4																																			
imp. / SW + 4-20 mA + RS485																																			
G5																																			
imp. / SW + 4-20 mA + HART																																			
G6																																			
imp. / SW + 4-20 mA + HART+RS485																																			
(RS485, M-BUS / MODBUS RTU)																																			
F (SENSOR DEGREE PROTECTION)																																			
F1																																			
IP65																																			
F2																																			
IP66																																			
F3																																			
IP68																																			
E (ELECTRODES)																																			
E1																																			
Stainless Steel 316 Ti																																			
E2																																			
Hastelloy C4																																			
E3																																			
Titanium																																			
E4																																			
Tantalum																																			

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