

FLOW 38 MID

FLOW 38 MID for billing purpose for water only

Its application is wherever there is a supply of liquids between two entities for a fee. The FLOW 38 MID then serves as a sensing element forming the basis for the calculation of the invoiced amount. It is characterized by high reliability, accuracy and stability of metrological parameters. The output of the flow meter is a pulse output or a 4...20 mA current output.

The device can also communicate via the RS485 interface with the M-BUS or Mod-Bus protocols. The display shows the instantaneous flow rate, volume flow rate, back flow volume, user-resettable volume counter, date and time, and in the event of a failure, its description and more.

MAIN BENEFITS

- high measurement accuracy over the entire flow range
- long-term stability of metrological parameters
- remote and local total data readout
- simple, trouble-free operation and maintenance
- it doesn't cause pressure losses
- high abrasion resistance
- possibility of data transmission via GSM

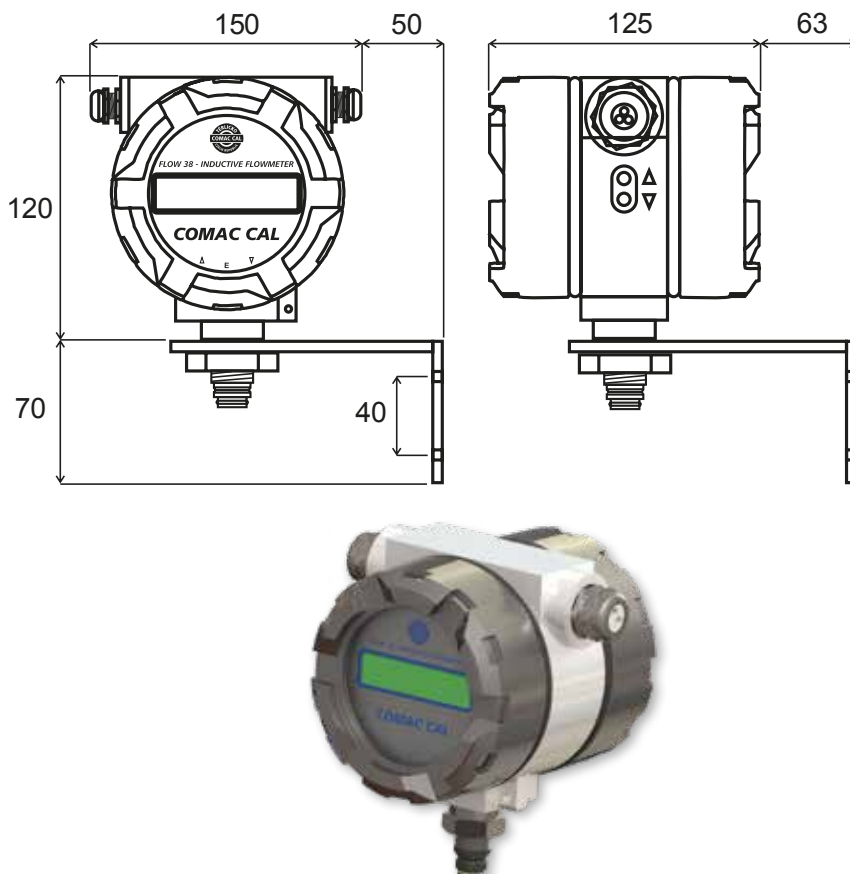
**COMAC CAL**

TECHNICAL DATA

Power	230 VAC / 50 Hz, 24 V DC
Input power	4,6 VA
Type of electronics	Standard (H – head)
Design	Compact, separated (standard cable length 3 m)
Diameter nominal	DN 10...400
Lining material	Rubber (hard, soft, with potable water test certificate): DN25...DN400 (T_{max} 70 °C)
(maximal temperature of lining material)	fluoroplast (PTFE: DN 15...DN 80 (T_{max} 150 °C) ETFE: DN 100...DN 400 (T_{max} 150 °C) PFA: upon agreement with the manufacturer
Electrode material	CrNi steel DIN 1.4571, Hastelloy C4, Titanium, Tantalum
Frame	All-welded
Sensor material	Stainless steel and structural steel with polyurethane coating
Process connections	Flanged DIN (EN1092) Threaded (EN 10226-1)
Pressure	PN10, PN16
Min. conductivity of the measured fluid	20 μ S/cm (at a lower conductivity, upon agreement with the manufacturer)
Flow meter measuring range (Q_3/Q_1)	R40, R50
Flow meter accuracy	accuracy class 2 (accuracy up to 0,5%, repeatability up to 0,2%)
Pressure loss class	Δp 10
Additional electrodes	Grounding and detection electrodes for empty piping (DN 10...DN 400)
Empty piping detection	DN 10...DN 400
Display unit	LCD 2x16 characters
Controls	2x external button (viewing values) 3x internal button (viewing + parameter changing)
Outputs	2x Impulse/flow switch (max. 400 Hz), 4...20 mA, Interface RS485 (protocols M-BUS/Mod-Bus)
Max. ambient temperature	50 °C
Flow sensor degree of protection	IP65, IP67, IP68
Electronics degree of protection	Standard unit (H – head) – IP65

ELECTRONICS

STANDARD UNIT (HEAD)



THREADED SENSOR



DISPLAY UNIT OPERATION

The meter is equipped with two external buttons on the electronics housing side and three internal buttons accessible after removing the front cover with glass. Using the external buttons, it is possible to scroll individual quantities and settings. After removing the cover, it is possible to change settings as well.

The unit can be swivelled within 350° for more comfortable reading of values on the display both in compact and separated designs.



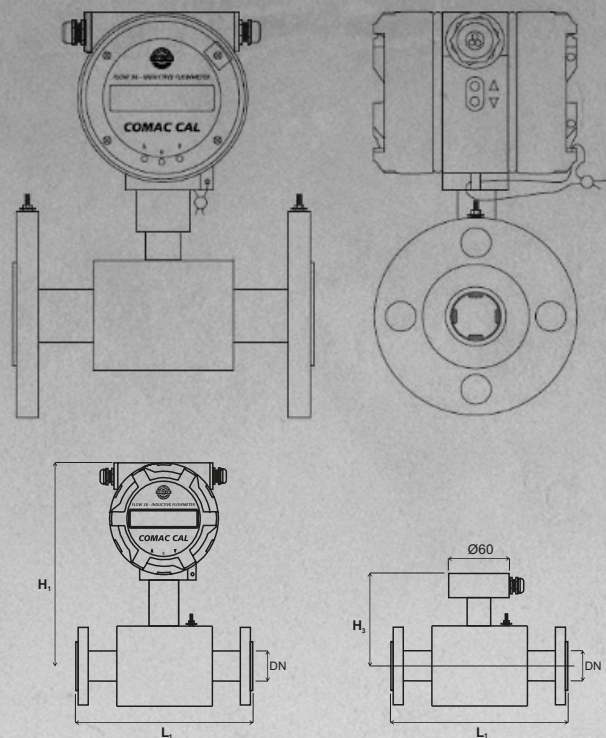
FLOW RANGES

Table with flow ranges for individual DN size

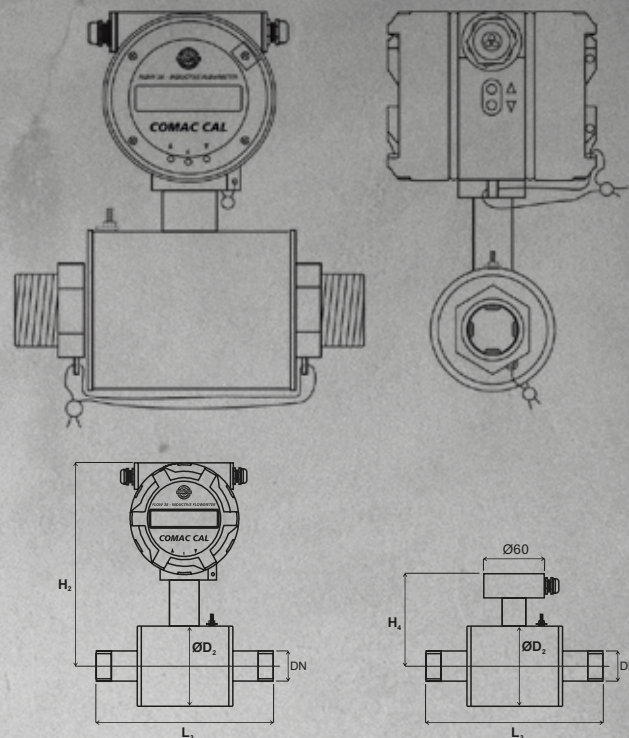
DN [mm]	Q_3	R50 (Ht) Q_1	R40 (Ht Vt) Q_1	Q_4
DN 10	1,6	0,03	0,04	2,0
DN 15	4,0	0,08	0,10	5,0
DN 20	6,3	0,13	0,16	7,9
DN 25	10,0	0,20	0,25	12,5
DN 32	16,0	0,32	0,40	20,0
DN 40	25,0	0,50	0,63	31,3
DN 50	40,0	0,80	1,00	50,0
DN 65	63,0	1,26	1,58	78,8
DN 80	100,0	2,00	2,50	125,0
DN 100	160,0	3,20	4,00	200,0
DN 125	250,0	5,00	6,25	315,5
DN 150	400,0	8,00	10,00	500,0
DN 200	630,0	12,60	15,75	787,5
DN 250	1000,0	20,00	25,00	1250,00
DN 300	1600,0	32,00	40,00	2000,00
DN 350	1600,0	32,00	40,00	2000,00
DN 400	1600,0	32,00	40,00	2000,00

FLOW 38 MID

FLANGE (EN 1092)



THREAD (EN 10226-1)



DIMENSIONAL TABLE

Connection [mm]	Constructional length [mm]		Outside diameter [mm]	Total height of [mm]			
			Sensor body	Compact design		Separated design	
	Flanged	Threaded (connection)	Threaded	Flanged	Threaded	Flanged	Threaded
DN	L1	L3	D2	H1	H2	H3	H4
10	200	190 (3/8")	70	173	177	86	90
15	200	190 (1/2")	70	173	177	86	90
20	200	200 (3/4")	80	173	182	86	95
25	200	200 (1")	90	178	187	91	100
32	200	230 (1 1/4")	100	183	192	96	105
40	200	245 (1 1/2")	116	188	200	101	113
50	200	254 (2")	136	196	210	109	123
65	200	–	151	206	218	119	131
80	200	–	177	213	231	126	144
100	250	–	–	226	–	139	–
125	250	–	–	239	–	152	–
150	300	–	–	254	–	167	–
200	350	–	–	284	–	197	–
250	450	–	–	327 / –	–	240 / –	–
300	500	–	–	352 / –	–	265 / –	–
350	550	–	–	382 / –	–	295 / –	–
400	600	–	–	412 / –	–	325 / –	–

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

EVALUATION UNIT TERMINAL BOARD WIRING

Standard connection:

- Terminals 1, 2 – current output 4...20 mA
- Terminals 3, 4 – OUT1 (Imp/FlowSwitch)
- Terminals 5, 6 – RS485 communication
- Terminals 7, 8 – OUT2 (Imp/FlowSwitch/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 which does not matter on the polarity of the power connection. (Install as an independent supply circuit with its own protection 0.5...1 A)



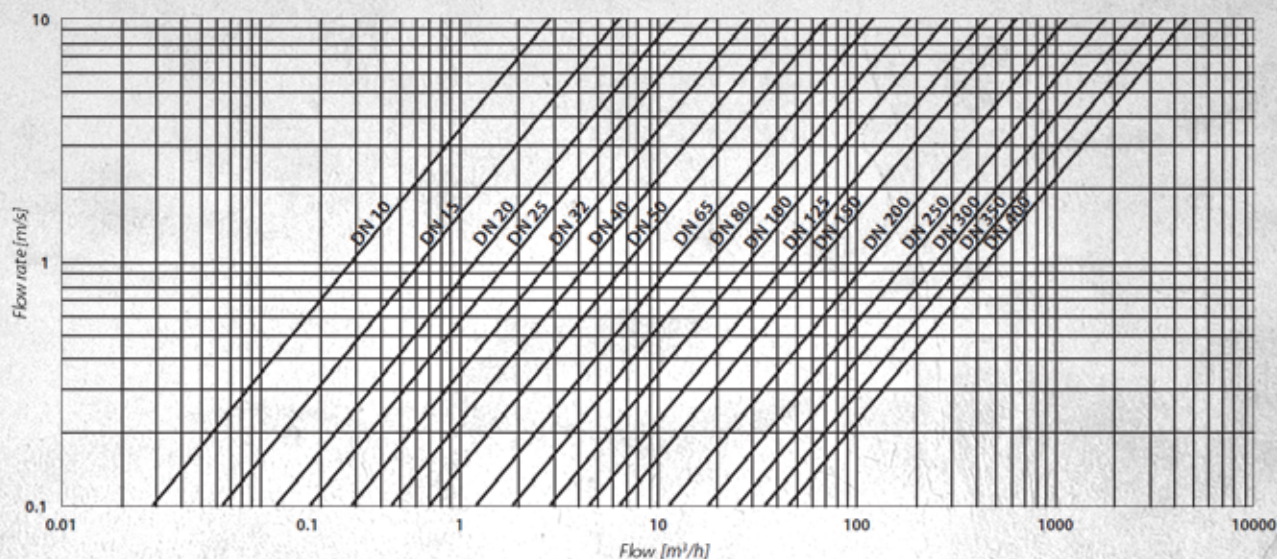
FLOW SENSOR TERMINAL BOARD CONNECTION FOR SEPARATED VERSION

- 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.



VOLUMETRIC FLOW VERSUS INSTANTANEOUS FLOW VELOCITY DIAGRAM



PRODUCT ORDERING CODE



COMACAL s.r.o.

Czech Republic, 735 42 Těrlicko

tel.: +420 596 423 264

e-mail: sales@comacal.com

WWW.COMACAL.COM



Exclusive partner:

Errata and technical changes reserved. The figures and photographs shown are only for illustration purposes.

FLOW 38 MID

FL38H/DNxxx/Ax(dk)/Bx/Cx/Dx/Ex/Fx/Gx/Hx/Ix

FLOW38 (type)

H... head

DN (diameter nominal)

DN... 10...400

A (design)

A1... compact

A2... separated (cabel length min. 3 m)

B (connection)

B1... flanged

B3... threaded

B6... stainless steel flange SS304

B7... stainless steel flange SS316

C (pressure)

C1... PN10 (DIN)

C2... PN16 (DIN)

D (lining)

D1... hard rubber

D2... soft rubber

D3... rubber with potable water test certificate

D4... PTFE

D5... PFA

D7... ETFE

I (measuring range Q_3/Q_1)

I4... R40

I5... R50

H (power)

H1... 110...230 VAC

H2... 24 VAC/VDC

G (output)

G1... impulse/flow 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 protocol M-BUS/MOD-BUS RTU)

F (sensor degree protection)

F1... IP65

F2... IP67

F3... IP68

E (electrodes)

E1... nerez 316 Ti

E2... hastelloy C4

E3... titan

E4... tantal