

MACM CORIOLIS MASS FLOW METER

The mass Coriolis flowmeters MACM allow both density and mass flow readings, in process control with difficult liquids and gases containing solid particles. There are no moving parts and measuring tubes in stainless steel AISI316 are smooth for easy cleaning (3A certification for medical uses).

The measuring principle has universal applications: from the systems in industrial paints, sanitation and food. Also suitable for all non-Newtonian fluids that may contain solid particles.

In addition to the mass flow and density, these devices may also measure temperature and volumetric flow.

The instrument consists of two parts: one flow sensor liner and one its electronics converter unit with display, also available in ATEX explosion version, which can be mounted compact on board body or remotely.



Models	LIQUID Flow Range Kg/h	GAS Nominal Flow Range Max Kg/min	GAS Nominal Flow Range Max Nm ³ /h	Number Pipe x Inner diameter	Tube material	Housing material	Process connections	Max Pressure
MACM0325	325	78	109	2 x 4 (ser.*)	1.4404 / AISI316L	AISI316L	Female thread 1/2" adaptors for flanges, tri-clamp	200 bar std, option 345 bar
MACM0650	650	177	247	2 x 4 (par.*)				
MACM1550	1550	333	464	2 x 8 (ser.*)				
MACM3100	3100	740	1031	2 x 8 (par.*)				
MACM5500	5500	910	1268	2 x 7 (par.*)		AISI304 opz. AISI316L	Flanges EN1092, ANSI B16.5, DIN2512, threaded tri-clamp	100 bar
MACM7900	7900	1430	1993	2 x 9 (par.*)				
MACM028K	28000	5100	7109	2 x 16 (par.*)				
MACM065K	65000	15650	21813	2 x 28 (par.*)				
MACM230K	230000	48900	68157	2 x 43 (par.*)		AISI316L		

*Tube arrangement: ser = serial; par = parallel

TECHNICAL SPECIFICATIONS

Models	MACM0325 ...MACM230k							
Basic Accuracy	+/- 0.1 liquids; +/- 0.5 gas							
Zero Stability	liquids: +/- 0.01; gas see table (value kg/h):							
MACM0325	MACM0650	MACM1550	MACM3100	MACM5500	MACM7900	MACM028K	MACM065K	MACM230K
0.0325	0.065	0.155	0.31	0.55	0.79	2.8	6.5	23
Repeatability % o.r.	+/- 0.05 liquids; 0.25 gas							
Density Range	liquids: 0...2500 kg/m ³ , 2.5 g/cm ³ on request.; gas: flow rate and pressure drop for individual sensor sizes are dependent on operating temperature, pressure and fluid composition							
Density Accuracy	liquids: +/- 1.0 kg/m ³ , 0.001 g/cm ³ on request.; gas: +/- 2 kg/m ³ , 0.002 g/cm ³ on request							
Density Repeatability	liquids: +/- 0.5 kg/m ³ , +/- 0.0005 g/cm ³ ; gas: +/- 1 kg/m ³ , 0.001 g/cm ³							
Temperature Accuracy	+/- 1°C +/- 0.5% of reading							
Temperature Repeatability	+/- 0.2°C							
Process Temperature	Non Ex: -40...+100°C std; opt. -40...+150°C e -60...+200°C; 40...+70°C std; opt. -40...+135°C e -60...+200°C only remote version							
Ambient temperature	-40...+70°C							
Storage temperature	-40...+100°C							
Pressure Drop	at max flow, for detail information please contact us							
Class Protection	IP65, on request IP66/IP67							
Electrical Connection	remote version: screw type terminals; compact version: internally							



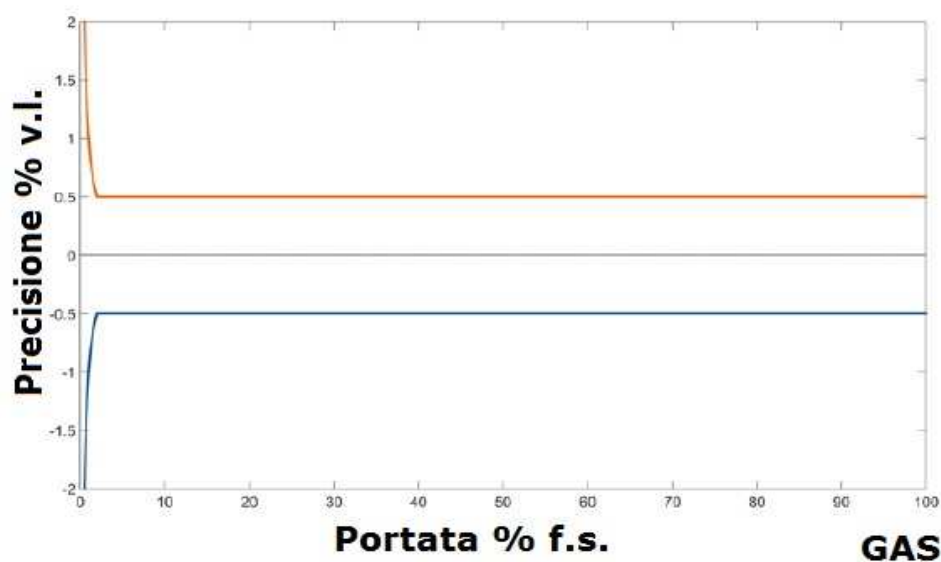
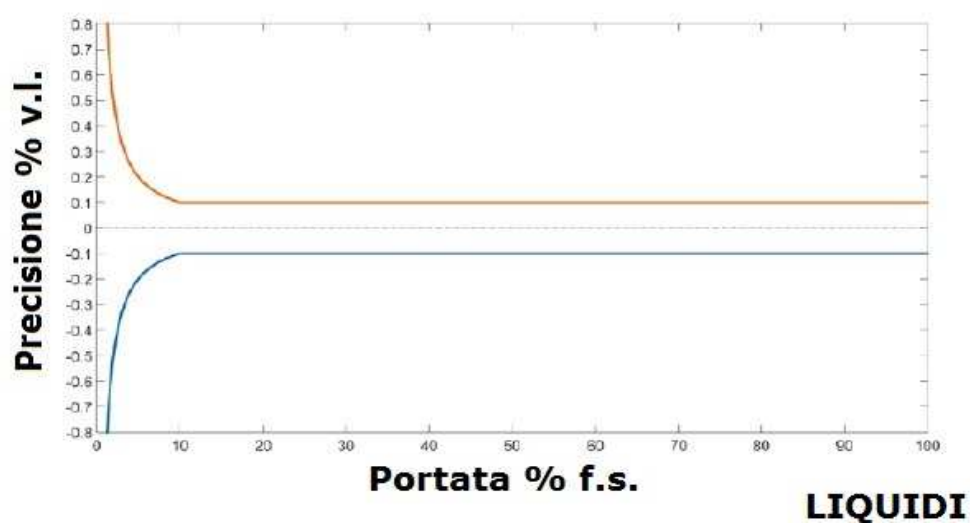
SATEMA

13856 VIGLIANO B.SE - Via Milano, 395

Tel. +39 015811102 - Fax 0158853029

Mail: info@satema.it <http://www.satema.it>

TECHNICAL SPECIFICATIONS



Flow rate of full scale	Accuracy
(Zero Point / Basic Accuracy) * 100	+/- Basic Accuracy
(Zero Point / Basic Accuracy) * 100	+/- (Zero Point / Measured Value) * 100

Example for a MACM0325:

LIQUIDS	GAS
325 kg/h * Zero Point (0,01%) = 0.0325 kg/h	325 kg/h * Zero Point (0,01%) = 0.0325 kg/h
325 kg/h Basic Accuracy (0.1%) = 0.325 kg/h	325 kg/h Basic Accuracy (0.5%) = 1.6325 kg/h
Result: $(0.0325 / 0.325) * 100 = 10\%$ (32.5 kg/h)	Result: $(0.0325 / 1.6325) * 100 = 2\%$ (6.5 kg/h)



SATEMA

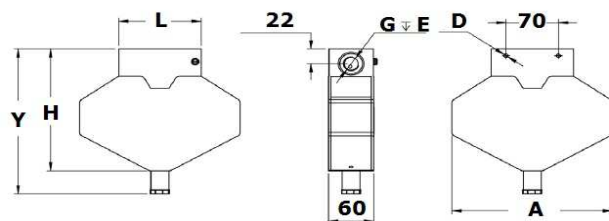
13856 VIGLIANO B.SE - Via Milano, 395

Tel. +39 015811102 - Fax 0158853029

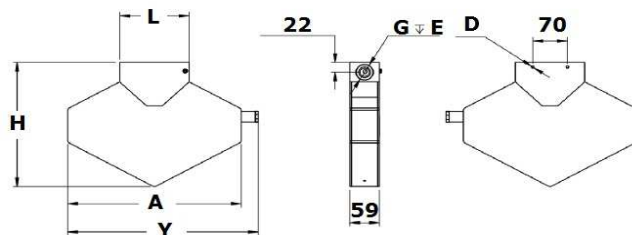
Mail: info@satema.it <http://www.satema.it>

DIMENSIONS

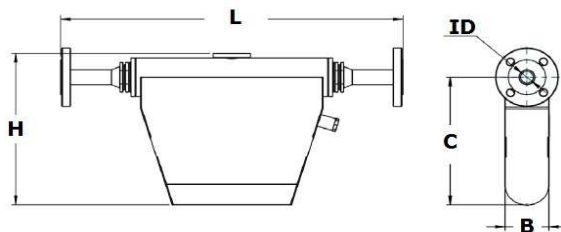
MACM 0325 -0650



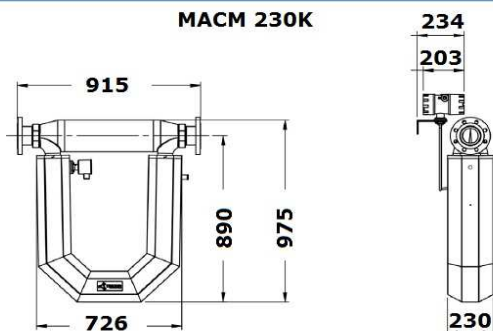
MACM 1550 - 3100



MACM 5500 - 7900 - 028K - 065K



MACM 230K



MACM	325	650	1550	3100	5500-7900	028K	065K
A	214	214	350	350			
B					61	80	151
C					204	253	387
D	M6 ↓ 10	M6 ↓ 10	M6 ↓ 10	M6 ↓ 10			
E	15	15	18	18			
G	G 1/2"	G 1/2"	G 1/2"	G 1/2"			
H	182	182	280	280	260	315	480
L	110	110	140	140	460	625	830
Y	216	216	384	384			
I.D. Ø					13	23	40



SATEMA

13856 VIGLIANO B.SE - Via Milano, 395

Tel. +39 015811102 - Fax 0158853029

Mail: info@satema.it <http://www.satema.it>

TRF8000/8100 TRANSMITTER

Versioni

TRF8000	Aluminium diecast housing, compact mounting
TRF8100	AISI 316L housing, compact mounting
TRF8000W	Aluminium diecast housing, wall mounting, electrical NPT
TRF8100W	AISI316L housing, wall mounting, electrical NPT
TRF8000I	Aluminium diecast housing, wall mounting, electrical M20x1,5
TRF8100I	AISI316L housing, wall mounting, electrical M20x1,5
TRF8000*Ex	Compact/wall mounting, Ex version - aluminium housing only



TRF8000L Panel mounting - Exd housing

Connections	internal clamp terminal, cable gland for 7-13 mm cables
Material	Aluminum diecast
Protection	IP65 (IP66/67 on request)
Weight	Aluminium housing: 3.8 kg with 3 m cable; AISI316L housing: 6.15 kg
Temperature	operating -40 up to 70°C, storage -40 up to 80°C

TRF8000S Panel Mounting

Dimensions HxWxD	96x96x83 mm standard, Ex version 96x144x83
Connections	rear clamp terminal
Material	Noril
Protection	front IP50, rear IP30
Weight	0,4 kg
Temperature	operating 0 up to 60°C, storage -20 up to 70°C

TECHNICAL SPECIFICATIONS

Display:	Graphic, 132 x 32 dot
Power supply:	24Vdc +/-20% and/or 100...240Vac
Programming:	via front keyboard
Interface:	RS485 Modbus-RTU, Option HART, other options on request
EMC:	according to EN61000-6-4 and 61000-6-2
Power consumption:	max 6W
Output:	2 x 4/20 mA passive, two wire isolated, <620 Ohm @ 24V, 14 bit
Option Output:	2 x 4-20 mA active for two-wire passive pressure sensor, 12 bit, >20V @ 20 mA sensor
Linearity:	+/-0.05% f.s.
Temperature Drift:	+/-0.04% per 10 k
Output read out :	programmable as flow, total, density or temperature
Pulse output:	Frequency range 0.5-10.000 Hz
Output signal:	active push pull output for flow rate
Status Output:	push pull programmable, (in TOTAL mode: 0.5-100 Hz; in FREQUENCY mode: 0.5-10000 Hz)
Input control:	

Ex Certifications

ATEX (Ex)	Ex	Zone 1 Group IIC or IIB, T2...T4 (TRF8000Ex compact mounting, T4 only)
ATEX (Exn)	Exn	Zone 2 II 3G Ex Na IIC, T2...T4
ATEX+IECEX+cCSAus (Ex3)		Zone 1 Group IIC or IIB, T2...T4, Class 1, Division 1: Group A, B, C, D or C, T2...T4
EAC (TR-CU)	ExR	Group IIC or IIB, T2...T4



SATEMA

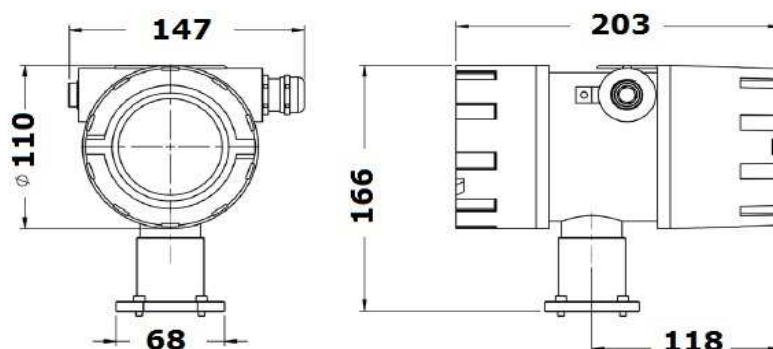
13856 VIGLIANO B.SE - Via Milano, 395

Tel. +39 015811102 - Fax 0158853029

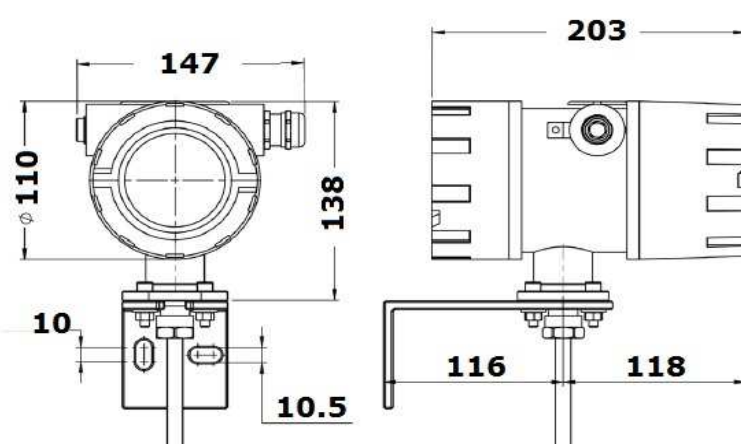
Mail: info@satema.it <http://www.satema.it>

TRF8000/8100 TRANSMITTER

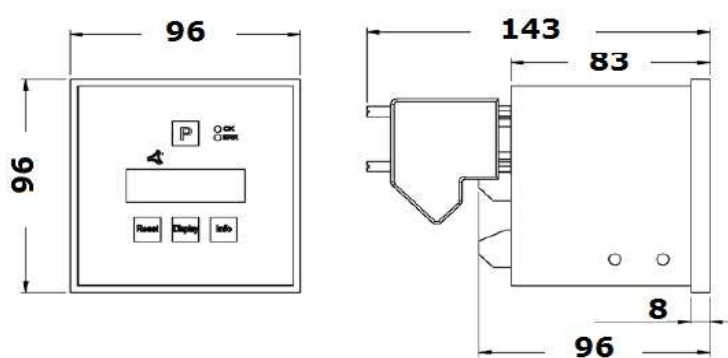
TRF 8000 - 8100 MONTAGGIO COMPATTO



TRF 8000 - 8100 (W) MONTAGGIO A PARETE



TRF8000I MONTAGGIO A PANNELLO



SATEMA

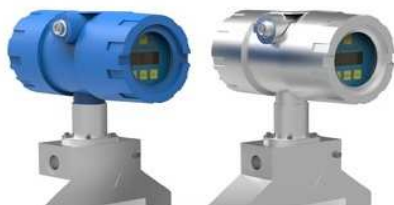
13856 VIGLIANO B.SE - Via Milano, 395

Tel. +39 015811102 - Fax 0158853029

Mail: info@satema.it <http://www.satema.it>

TRF8000/8100 TRANSMITTER

COMPACT VERSION



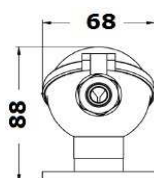
METER MOUNT

REMOTE VERSION

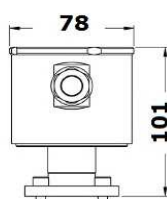
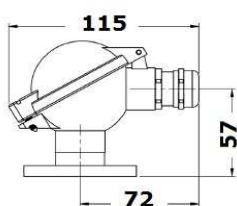


PANEL MOUNT

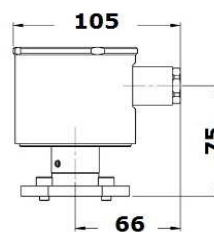
WALL MOUNT



Testa di connessione standard



Testa di connessione H.T.



SATEMA

13856 VIGLIANO B.SE - Via Milano, 395

Tel. +39 015811102 - Fax 0158853029

Mail: info@satema.it <http://www.satema.it>