ISOMAG

The friendly magmeter

DATA SHEET

CS8100

CE

ISOIL INDUSTRIA

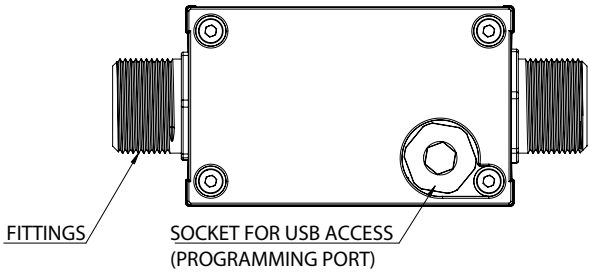
INDEX

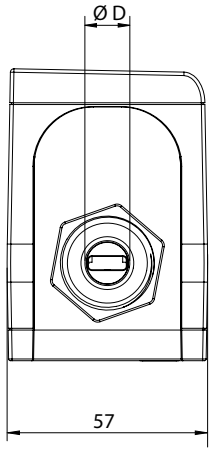
TECHNICAL DATA

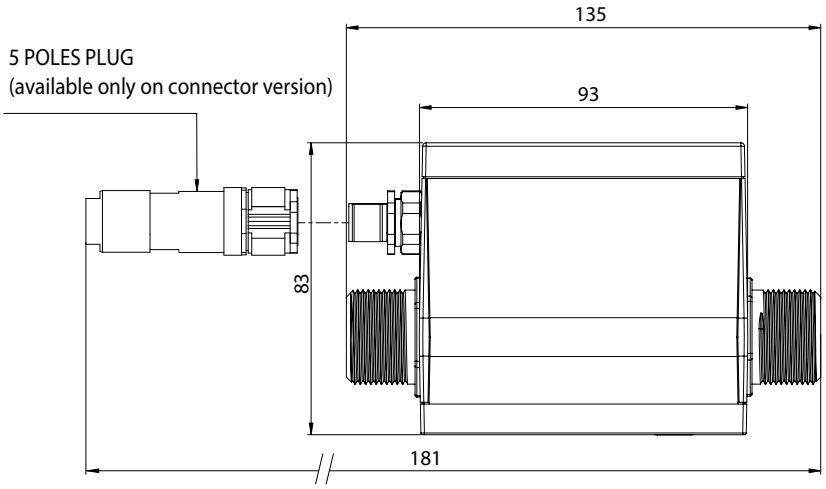
OVERALL FEATURES	
Minimum Fluid Conductivity	❑ 20 µS/cm
Ambient Temperature	❑ -10… +50°C / 14… +122 °F
Liquid Temperature Range	❑ -20 °C to 85 °C / -4 ...+ 185 °F
Protection Rate	❑ IP 67
Pressure Rating	❑ 1.000 kPa
Sensor Material	❑ NORYL™ + 30% of Fiber Glass
Electrodes Material	❑ Hastelloy® C276
Process Connection	❑ Male Threaded End (GAS/NPT)
Electrical connections	❑ 5 Pins Connector M12X1 Complete Of Plug ❑ 5 Poles Cable Already Connected of 2 Meters Lenght
Measurement Range	❑ Bi-Directional From 50 to 2.400 l/h
Power Supply/Power Consumption	❑ 18-30VDC - 1W
Gasket Material	❑ FPM (O-Ring) ❑ EPDM (Optional)
Altitude	❑ -200 m Up To 4000 m
Data Storage	❑ EEprom, Battery Backup RAM
Programming Plug In	❑ Protected USB Plug
Communications/Protocols	❑ MCP protocol Via USB Interface
Pulses/Alarm Outputs	❑ N°2 Outputs On/Off For Pulses Of Volume Or Alarms
Analog Output	❑ N°1 Output 4/20 mA
Accuracy	❑ ±1,0% o.r.v. + 0,5% of Full Range (From 0,5 to 5 m/s)
Diagnostic Functions	❑ Yes

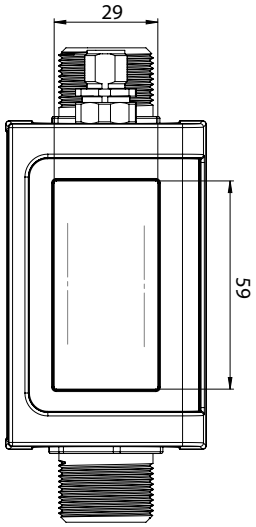
OVERALL DIMENSIONS WITH CONNECTORS

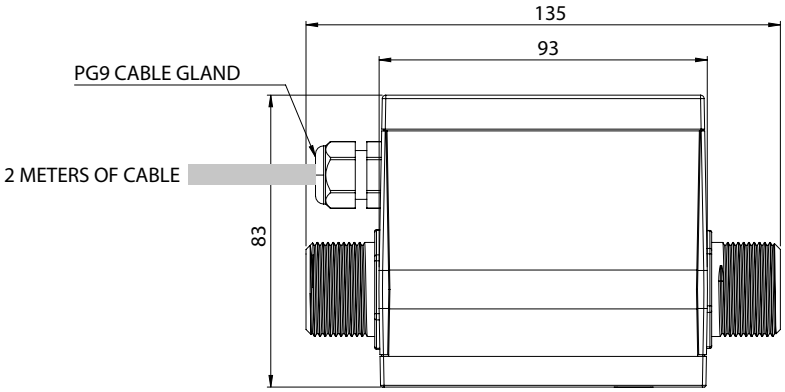
Ø D	FITTINGS
12	1/2" GAS UNI338/NPT
15	3/4" GAS UNI338/NPT



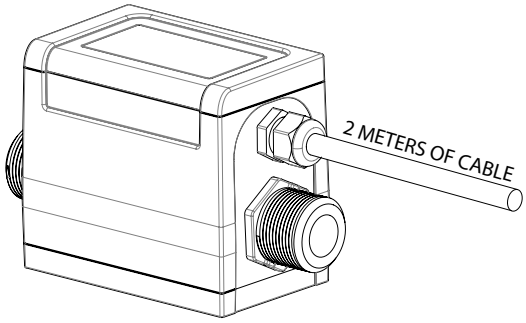




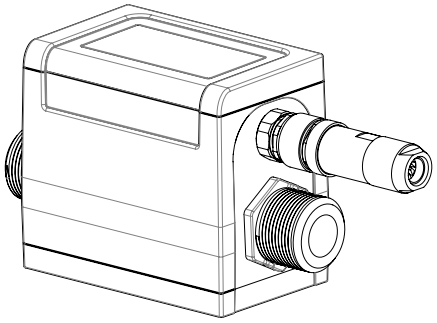




5 POLES CABLE VERSION

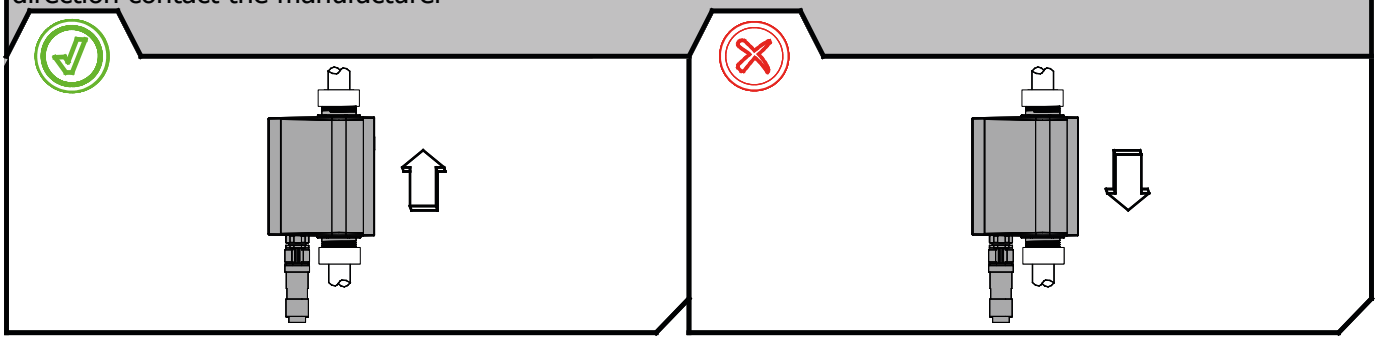


5 POLES CONNECTOR VERSION

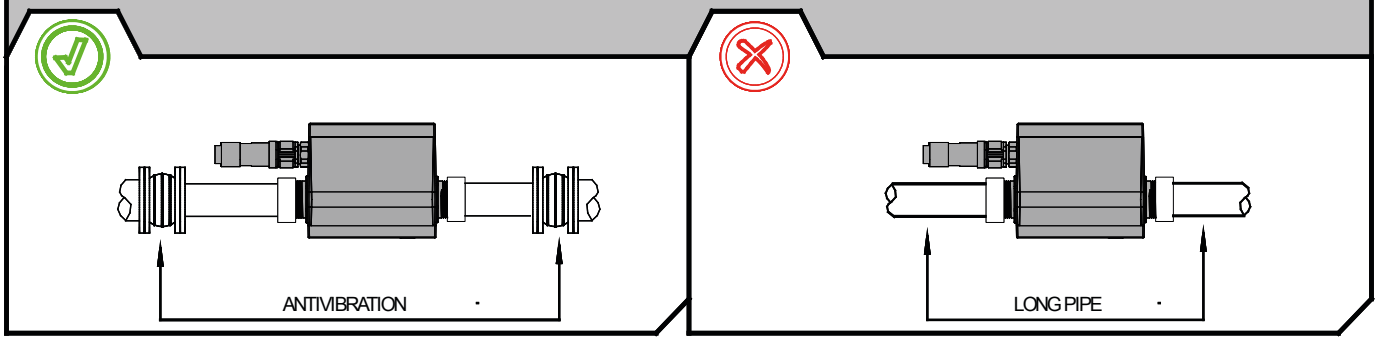


INSTALLATION RECOMMENDATIONS

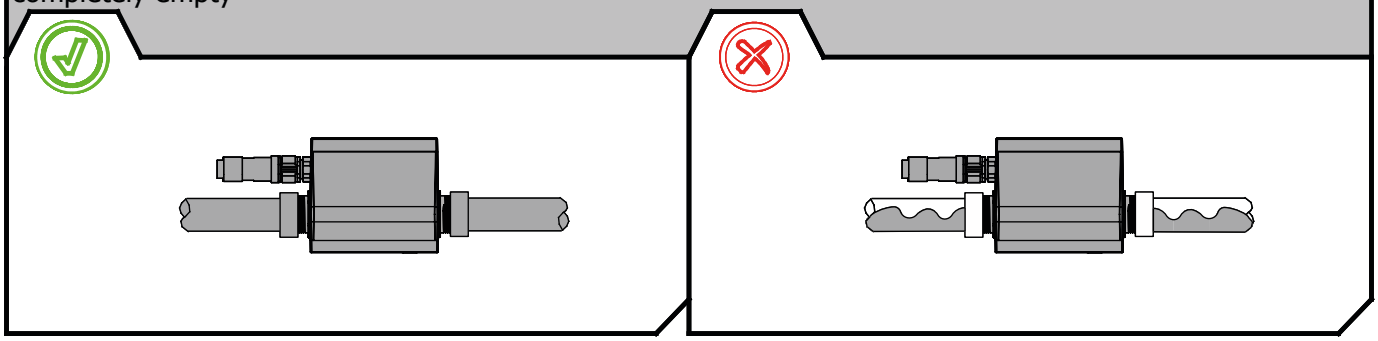
In vertical installations an ascending flow is preferable. For vertical installations with descending flow direction contact the manufacturer



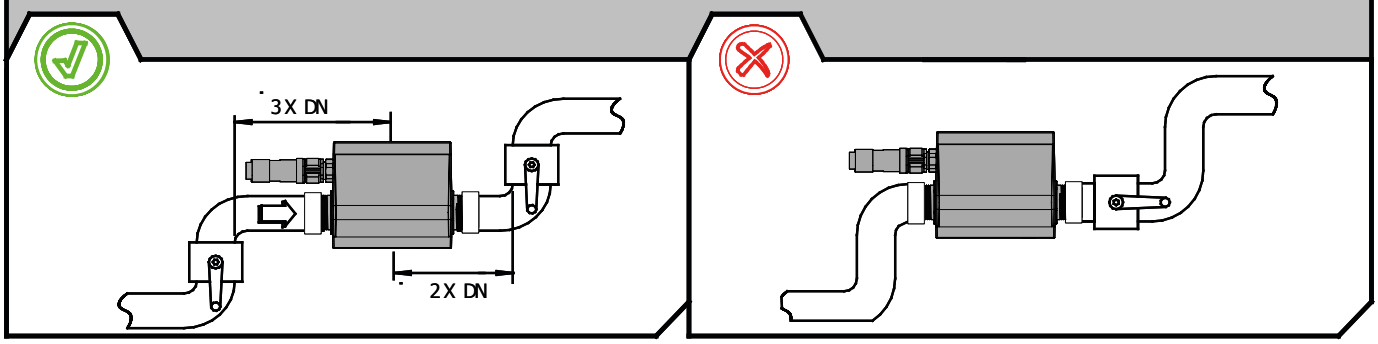
For installations in long pipe lines, please use anti vibration joints



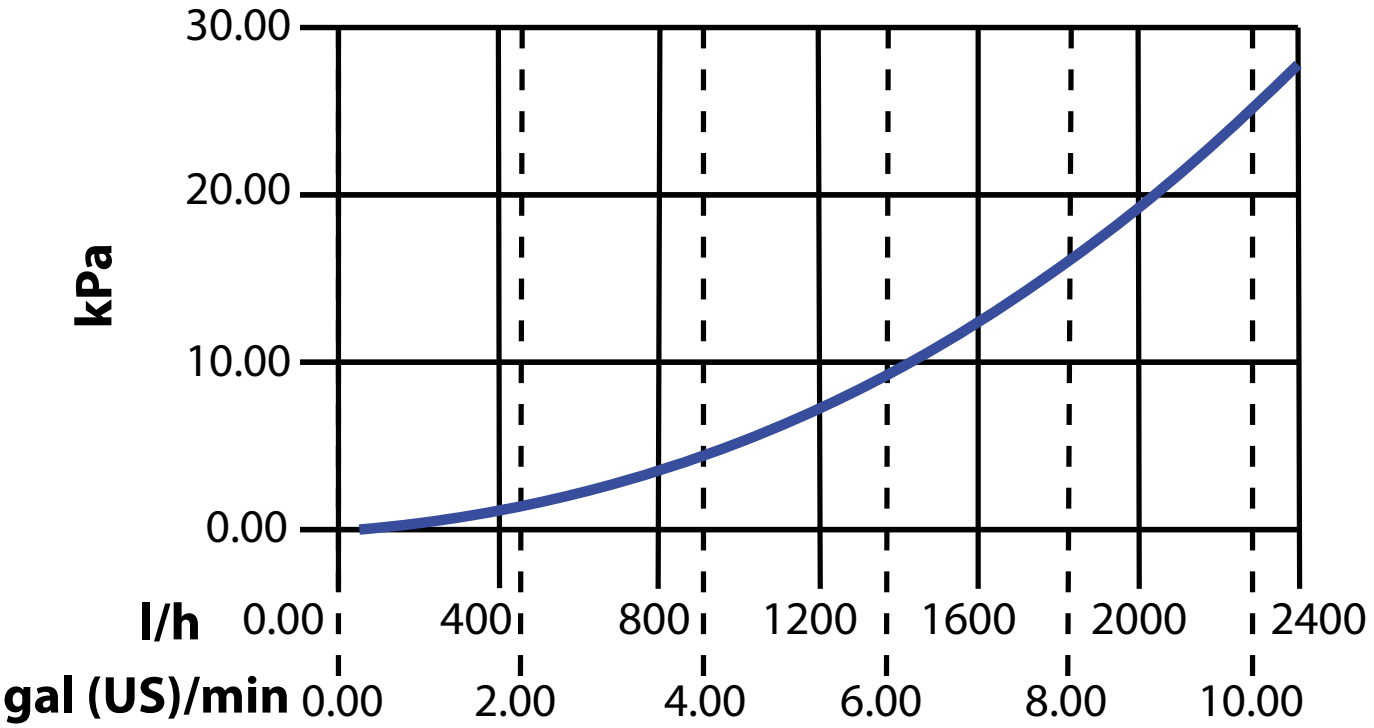
Avoid a partially empty pipe, during operation the pipe must be either completely full of liquid or completely empty



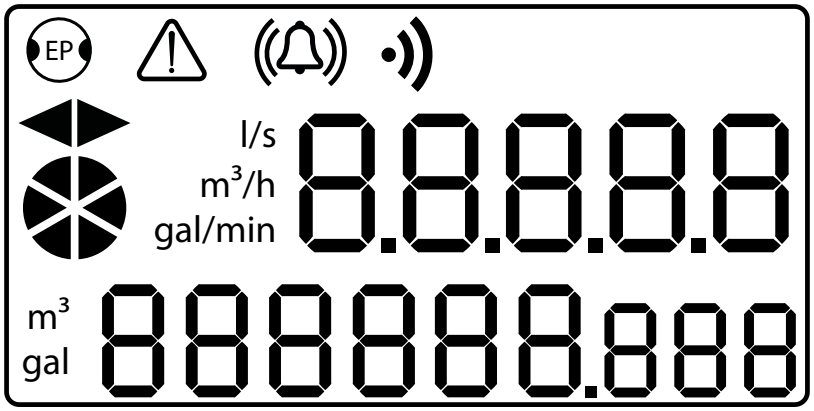
Install the sensor away from bends and hydraulic accessories



PRESSURE LOSS



DISPLAY VISUALIZATION



EP — EMPTY PIPE WARNING

ALARM WARNING

XXXXXXXXXXXXX

DATA TRASMISSION

FLOW DIRECTION

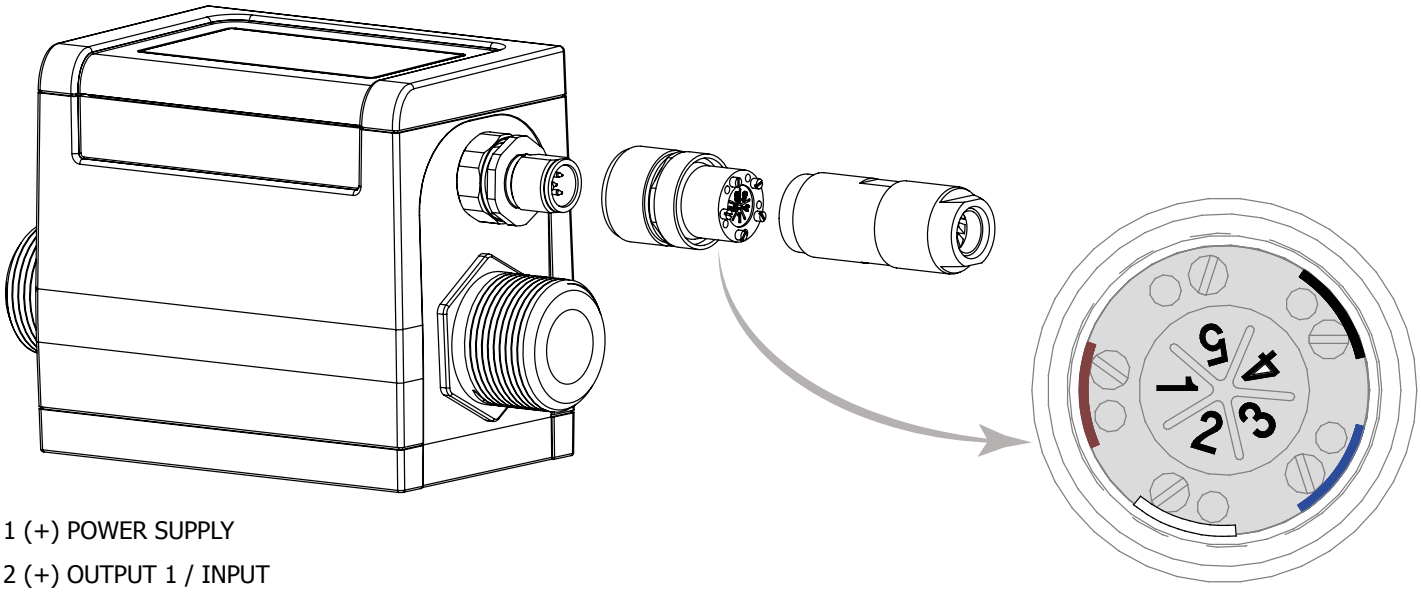
ACTIVE FLOW RATE

l/s
m³/h
gal/min
FLOW RATE MEASURE UNIT

m³
gal
TOTALIZER MEASURE UNIT

ELECTRICAL CONNECTIONS

INPUT/OUTPUTS (CONNECTOR)



1 (+) POWER SUPPLY

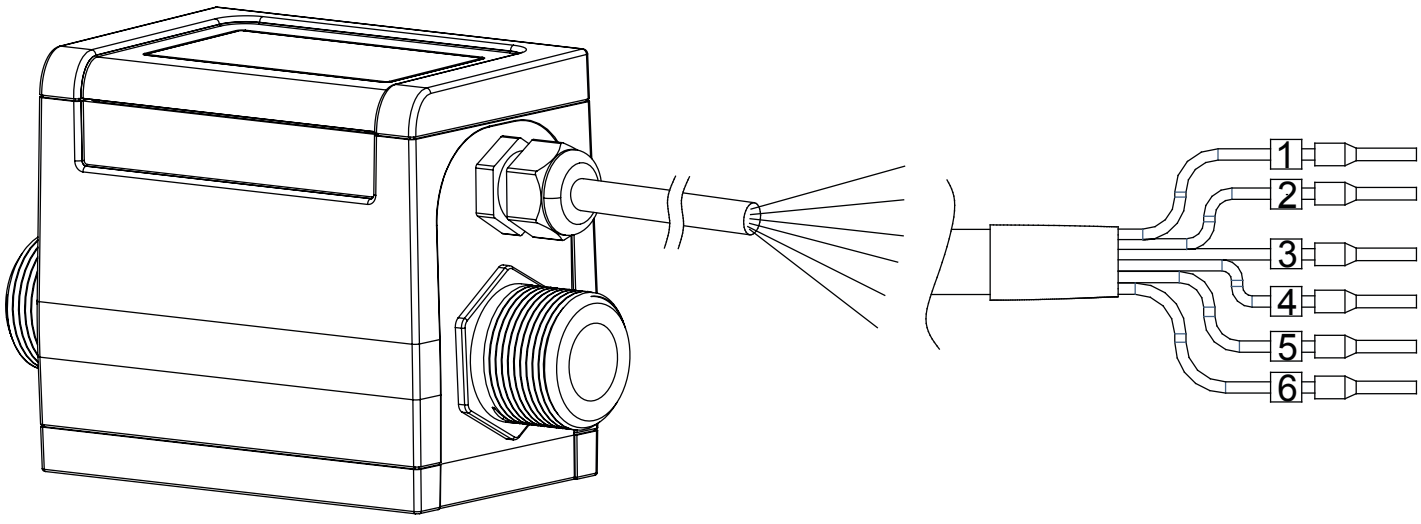
2 (+) OUTPUT 1 / INPUT

3 (+) OUTPUT 2 (OPTIONAL)\

4 (+) 4-20mA OUTPUT

5 (-) POWER SUPPLY / OUTPUTS / INPUT **(TO BE CONNECTED TO THE GROUND)**

INPUT/OUTPUTS (CABLE)



1 (+) POWER SUPPLY

2 (+) OUTPUT 1 / INPUT

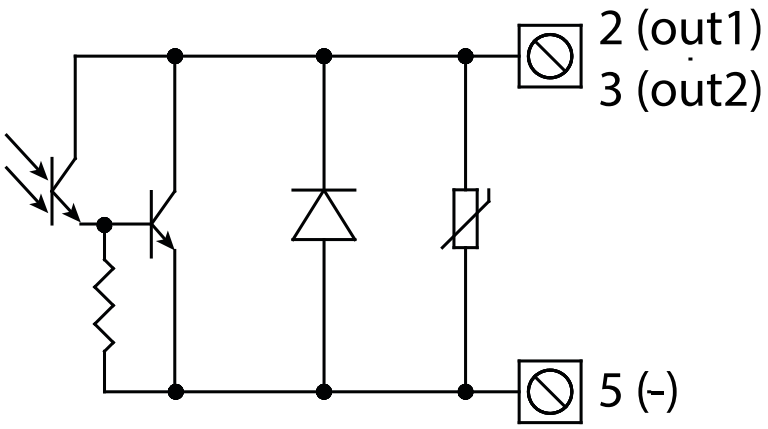
3 (+) OUTPUT 2 (OPTIONAL)

4 (+) 4-20mA OUTPUT

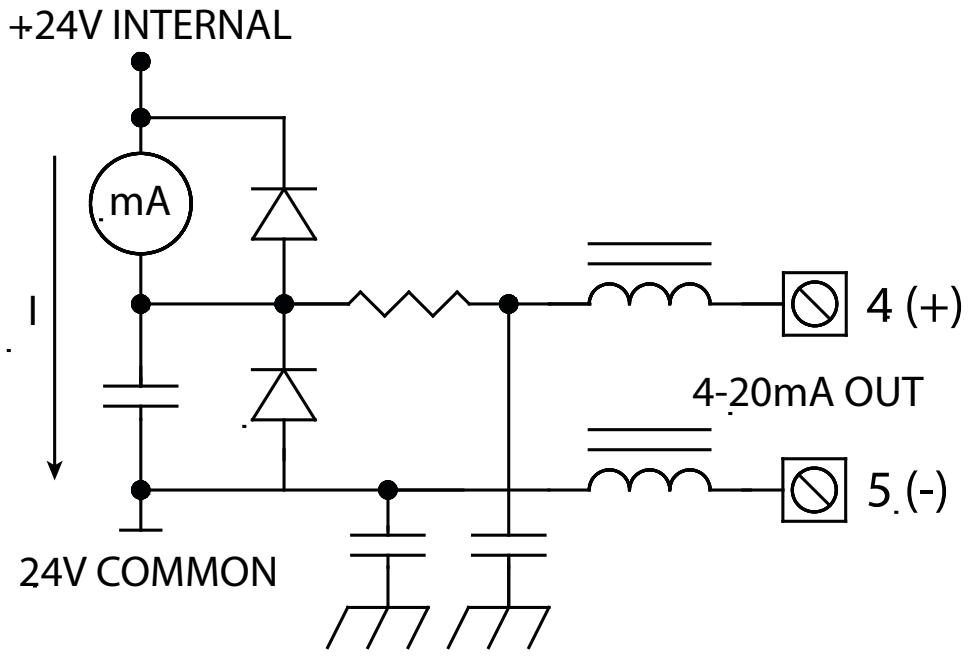
5 (-) POWER SUPPLY / OUTPUTS / INPUT **(TO BE CONNECTED TO THE GROUND)**

6 (SH) SHIELD (CONNECT TO GROUND)

OUTPUTS: SCHEMATICS



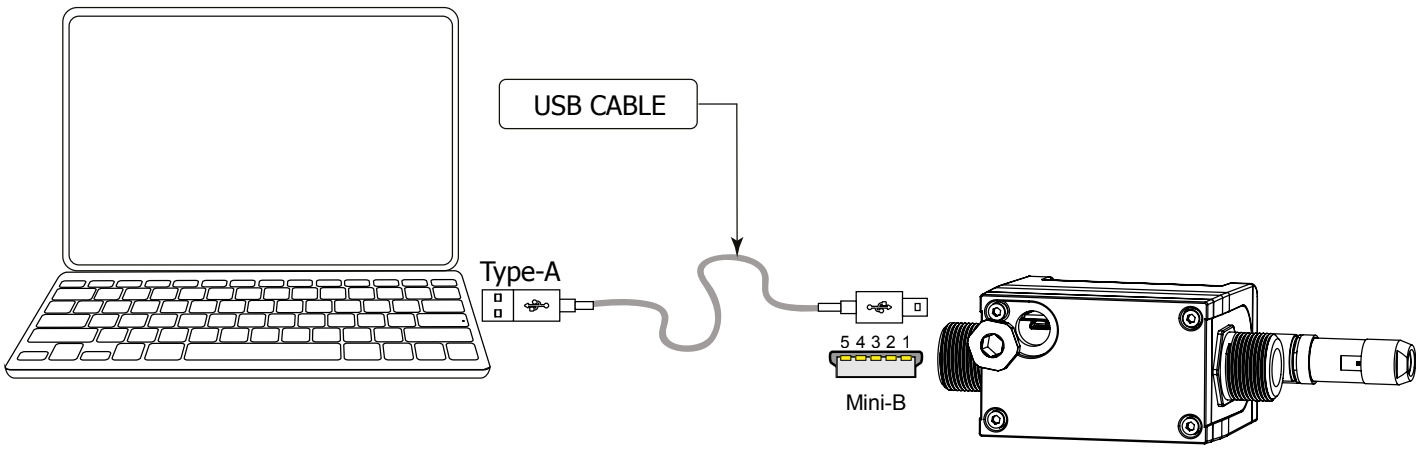
DIGITAL OUTPUTS



ANALOG OUTPUT

USER INTERFACE

MCP is a Windows® software that allows to set all the converter functions and personalize the menu. To use MCP interface consult the relevant user manual.



FUNCTIONS MENU

The main menu is selected from the Quick start menu by pressing enter in your key board and entering the access code. Note: Functions in grey here below are displayed only with other functions active, or with optional modules.

```
MAIN MENU
 1-Sensor
```

Display	No.	Description
SENSOR		
S.model= 000	1.1	Sensors model: Enter the first two characters of the serial number of the sensor
U.type= METRIC	1.2	Type of measure units for sensor parameter: metric or imperial
KA= +01.3000	1.3	Calibration data of sensor visualized on sensor's label
KZ= +0000000	1.4	Sensor coefficient KZ (zero point)
KD= +0000000	1.5	Sensor coefficient KD
KC= 1.00000	1.6	Sensor coefficient KC
C.Curr.=mA 025.0	1.7	Sensor excitation current
C.Reg.PB= 005	1.8	Current regulator proportional band
C.Reg.DK= 010	1.9	Current regulator derivation constant
S.Freq.=Hz 50	1.10	Measure sampling frequency
E.P.Detect= ON	1.11	Enables the empty pipe detection feature
Z max=kohm 0500	1.12	Maximum input impedance threshold
S.err.delay= 010	1.13	Signal error delay (n. sample)

```
MAIN MENU
 1-Sensor
 2-Units
```

Display	No.	Description
UNITS		
FR.unit= METRIC	2.1	Flowrate type measure unit: metric or imperial
Pl1 unit=	2.2	Pulse 1 type measure unit: metric or imperial
Pl2 unit=	2.3	Pulse 2 type measure unit: metric or imperial
T+ unit= METRIC	2.4	Total direct totalizer measure unit type: metric or imperial
T+ unit= m³	2.5	Total direct totalizer measure unit
P+ unit= METRIC	2.6	Partial direct totalizer measure unit type: metric or imperial
P+ unit= m³	2.7	Partial direct totalizer measure unit
T- unit= METRIC	2.8	Total reverse totalizer measure unit type: metric or imperial
T- unit= m³	2.9	Total reverse totalizer measure unit
P- unit= METRIC	2.10	Partial reverse totalizer measure unit type: metric or imperial
P- unit= m³	2.11	Partial reverse totalizer measure unit

```
MAIN MENU
 1-Sensor
 2-Units
 3-Scales
```

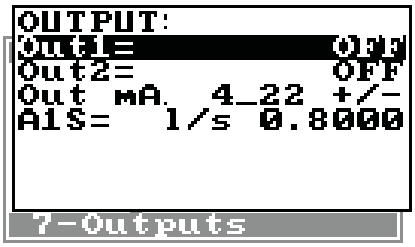
Display	No.	Description
SCALES		
FS1= l/s 0.8000	3.1	Valore di fondo scala per la scala 1
Frq1=H 1000.0	3.2	Full scale frequency for channel 1 (0.1Hz-1000.0Hz)
Frq2=H 1000.0	3.3	Full scale frequency for channel 2 (0.1Hz-1000.0Hz)
Pls1=	3.4	Pulse value on channel 1
Tpls1=ms	3.5	Duration of the pulse generated on channel 1
Pls2=	3.6	Pulse value on channel 2
Tpls2=ms	3.7	Duration of the pulse generated on channel 2

```
MAIN MENU
 1-Sensor
 2-Units
 3-Scales
 4-Measure
```

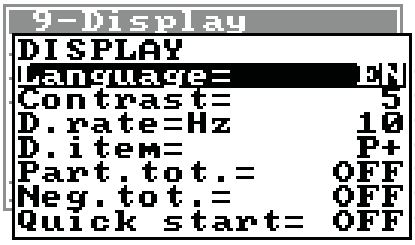
Display	No.	Description
MEASURE		
Damping= OFF	4.1	Measure filter
Cut-off=% 00.0	4.2	Low flow zero threshold: 0-25% of full scale value
Cal.verify= OFF	4.3	Automatic calibration verify

```
MAIN MENU
 1-Sensor
 2-Units
 3-Scales
 4-Measure
 5-Alarms
```

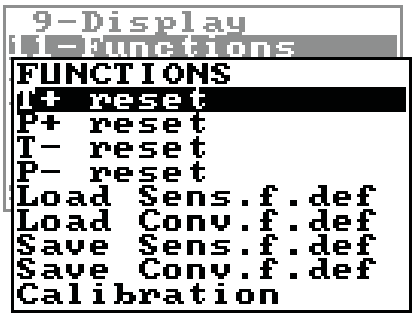
Display	No.	Description
ALARMS		
Max.thr+=% 000	5.1	Maximum value alarm set for direct flow rate
Max.thr-=% 000	5.2	Maximum value alarm set for reverse flow rate
Min.thr+=% 000	5.3	Minimum value alarm set for direct flow rate
Min.thr-=% 000	5.4	Minimum value alarm set for reverse flow rate
Hysteresis=% 03	5.5	Hysteresis threshold set for the minimum and maximum flow rate alarms
mA v.alarm=% 010	5.6	Current output value in case of failure
Hz v.alarm=% 125	5.7	Frequency output value in case of alarms



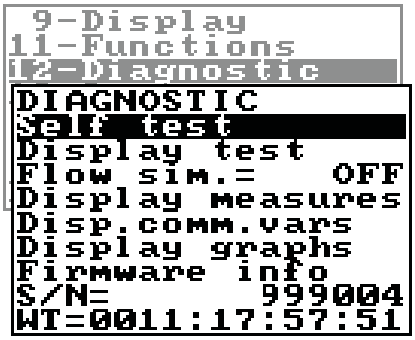
7.1 Output 1 functions
7.2 Output 2 functions
7.3 Choice of the function and the range of current on output
7.4 Full Scale value for analog out



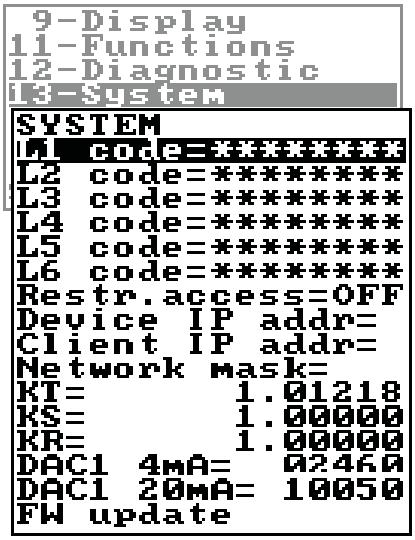
9.1 Choice of the language: E= English, I=italian
9.2 Display contrast
9.3 Display updating frequency: 1-2-5-10 Hz
9.4 Second raw display item choice
9.5 Partial totalizer enable
9.6 Negative totalizer enable
9.7 Quick start menu visualization



11.1 Execute immediate reset of total direct totalizer
11.2 Execute immediate reset of partial direct totalizer
11.3 Execute immediate reset of total reverse totalizer
11.4 Execute immediate reset of partial reverse totalizer
11.5 Load sensor factory default
11.6 Load converter factory default
11.7 Save sensor factory default values
11.8 Save converter factory default values
11.9 Execute immediate internal circuit calibration



12.1 Self test diagnostic function
12.2 Function tests physical display
12.3 Flow rate simulation enabling
12.4 Display internal measured value
12.5 Display comm. diagnostic values
12.6 Display measure as graphs
12.7 Firmware version/revision
12.8 Board serial number
12.9 Total working time



13.1 Access level 1 code
13.2 Access level 2 code
13.3 Access level 3 code
13.4 Access level 4 code
13.5 Access level 5 code
13.6 Access level 6 code
13.7 Restricted access level
13.8 Device IP network address
13.9 Client IP network address
13.10 Network mask
13.11 Calibration coefficient KT
13.12 Calibration coefficient KF
13.13 Calibration coefficient KR
13.14 DAC1 out 4mA calibration point
13.15 DAC1 out 20mA calibration point
13.16 firmware update

HOW TO ORDER

CODE EXAMPLE	Connection Fittings/Max Flow Rate	
1	1	thread 1/2" GAS (UNI 338) - MAX 2.400 l/h
	2	thread 3/4" GAS (UNI 338) - MAX 2.400 l/h
	3	thread 1/2" NPT- MAX 2.400 l/h
	4	thread 3/4" NPT- MAX 2.400 l/h
Materials : body/lining /electrodes/ internal gasket/temperature		
A	A	Materials: Noryl™+ 30% Fiber Glass, electrodes in HC276®, gasket in FKM, Liquid Temperature -20/+85°C
	B	Materials: Noryl™+ 30% Fiber Glass, electrodes in HC276®, gasket in EPDM,Liquid Temperature -20/+85 °C
	Z	material: to be specified
Electronic board / Electrical Connections		
1	1	MV810 (Complete of n° 1 Freely programmable digital OUT);Electrical Connections: 5 poles connectors
	2	MV810 (Complete of n° 1 Freely programmable digital OUT);Electrical Connections: 2 meters of N° 5 poles cable ALREADY CONNECTED
ANALOG Output		
A	A	without Analog Out
	B	with Analog Out
DIGITAL Output		
1	1	without Additional Digital OUT
	2	with n° 1 Additional Digital OUT

CS8100-1A1A1 (Complete code example for order)

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