



ISOMAG 

The friendly magmeter

DATA SHEET

CS8100



CE

ISOIL 
I N D U S T R I A

INDEX

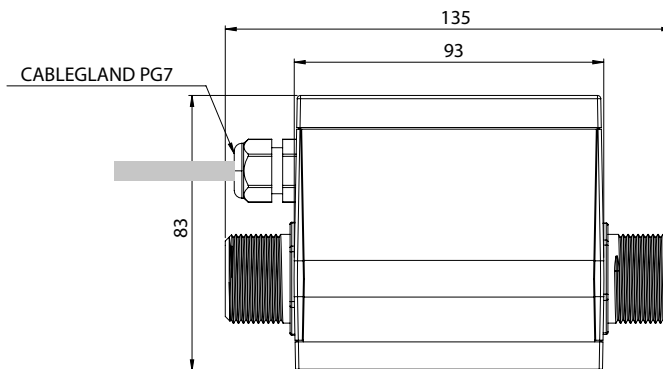
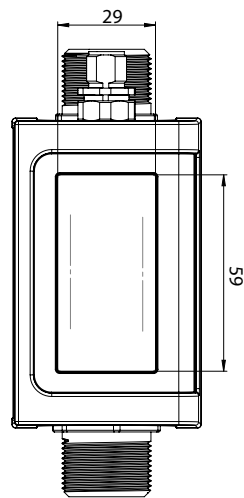
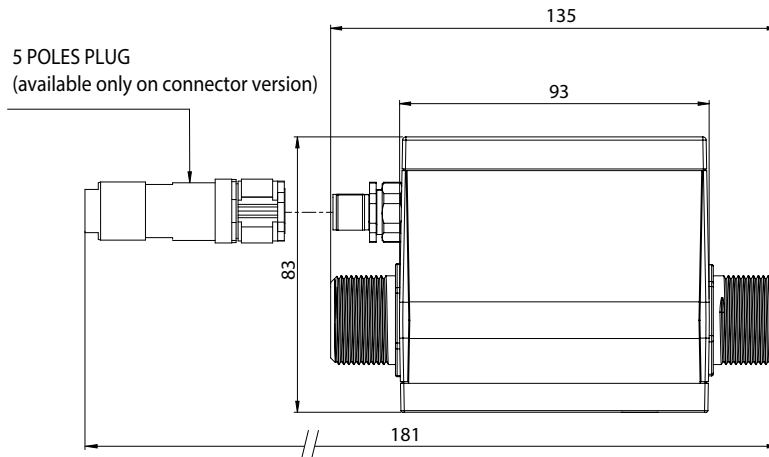
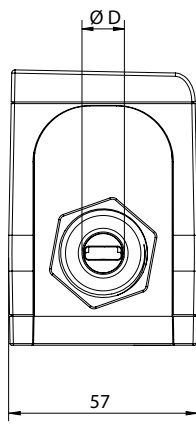
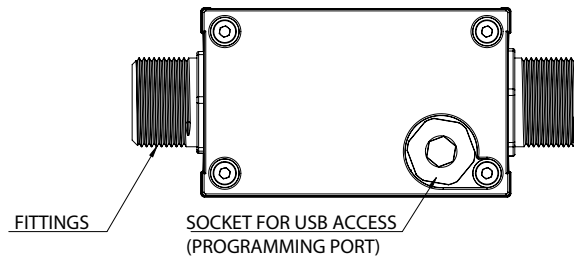
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TECHNICAL DATA

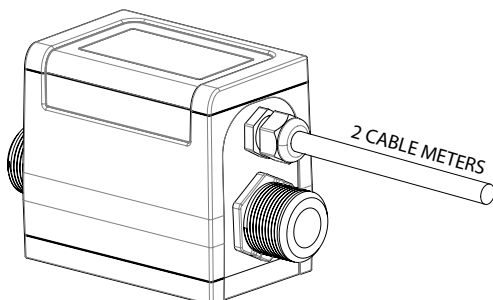
OVERALL FEATURES	
Minimum Fluid Conductivity	<input type="checkbox"/> 20 μ S/cm
Ambient Temperature	<input type="checkbox"/> -10... +50°C / 14... +122 °F
Liquid Temperature Range	<input type="checkbox"/> -20 °C to 85 °C / -4 ...+ 185 °F
Protection Rate	<input type="checkbox"/> IP 67
Pressure Rating	<input type="checkbox"/> 1.000 kPa
Sensor Material	<input type="checkbox"/> NORYL™ + 30% of Fiber Glass
Electrodes Material	<input type="checkbox"/> Hastelloy® C276
Process Connection	<input type="checkbox"/> Male Threaded End (GAS/NPT)
Electrical Connections	<input type="checkbox"/> 5 Pins Connector M12X1 Complete Of Plug <input type="checkbox"/> 5 Poles Cable Already Connected of 2 Meters Lenght
Measurement Range	<input type="checkbox"/> Bi-Directional From 50 to 2.400 l/h
Power Supply/Power Consumption	<input type="checkbox"/> min10 / max30 V - 1W
Gasket Material	<input type="checkbox"/> FPM (O-Ring) <input type="checkbox"/> EPDM (Optional)
Altitude	<input type="checkbox"/> -200 m Up To 4000 m
Data Storage	<input type="checkbox"/> EEprom, Battery Backup RAM
Programming Plug In	<input type="checkbox"/> Protected USB Plug
Communications/Protocols	<input type="checkbox"/> MCP protocol Via USB Interface
Pulses/Alarm Outputs	<input type="checkbox"/> N°2 Outputs On/Off For Pulses Of Volume Or Alarms
Analog Output	<input type="checkbox"/> N°1 Output 4/20 mA
Accuracy	<input type="checkbox"/> \pm 1,0% o.r.v. + 0,5% of Full Range (From 0,5 to 5 m/s)
Diagnostic Functions	<input type="checkbox"/> Yes

OVERALL DIMENSIONS

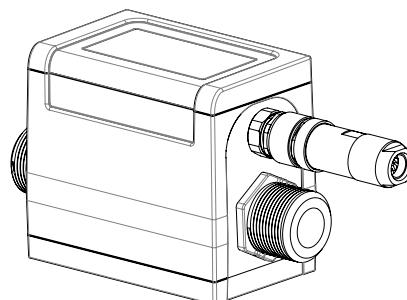
Ø D	FITTINGS
12	1/2" GAS UNI338/NPT
15	3/4" GAS UNI338/NPT



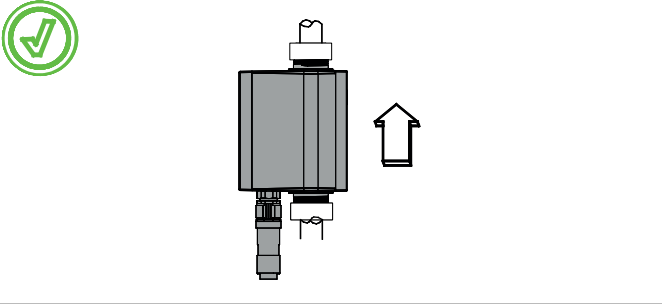
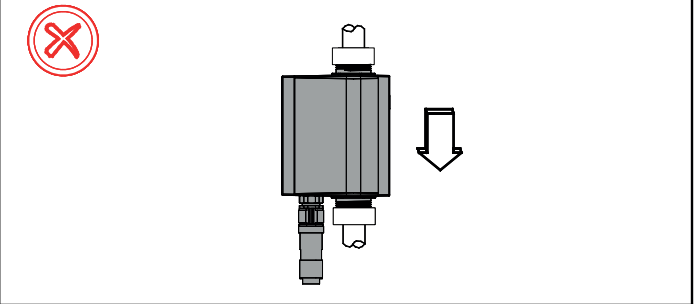
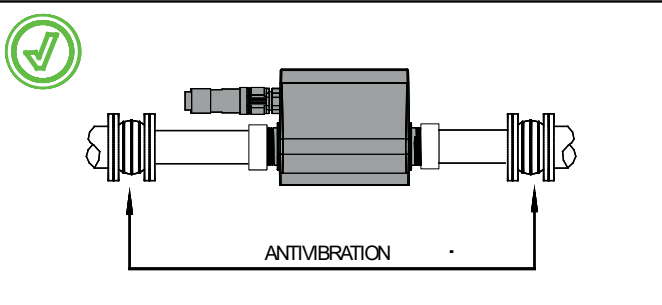
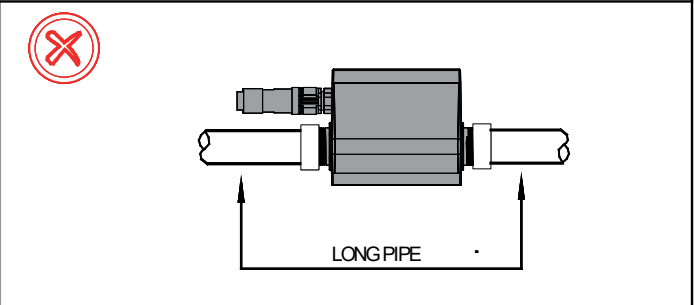
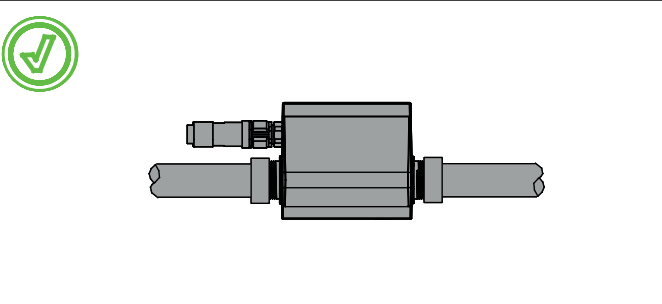
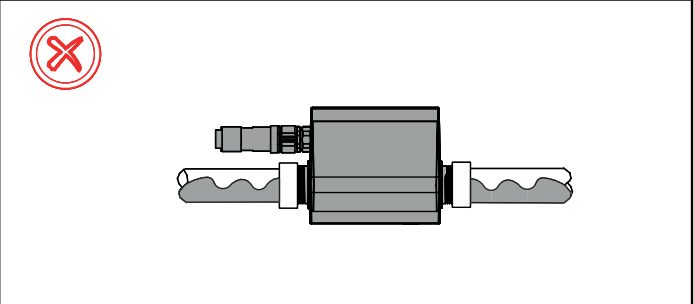
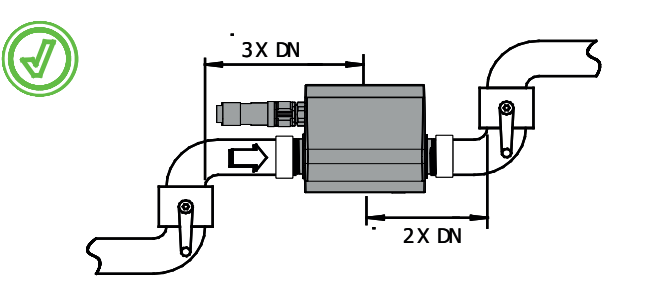
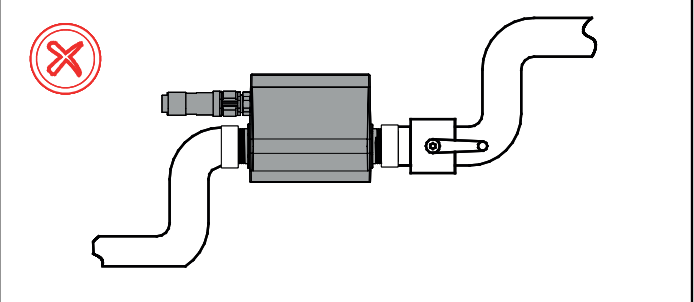
5 POLES CABLE VERSION



5 POLES CONNECTOR VERSION

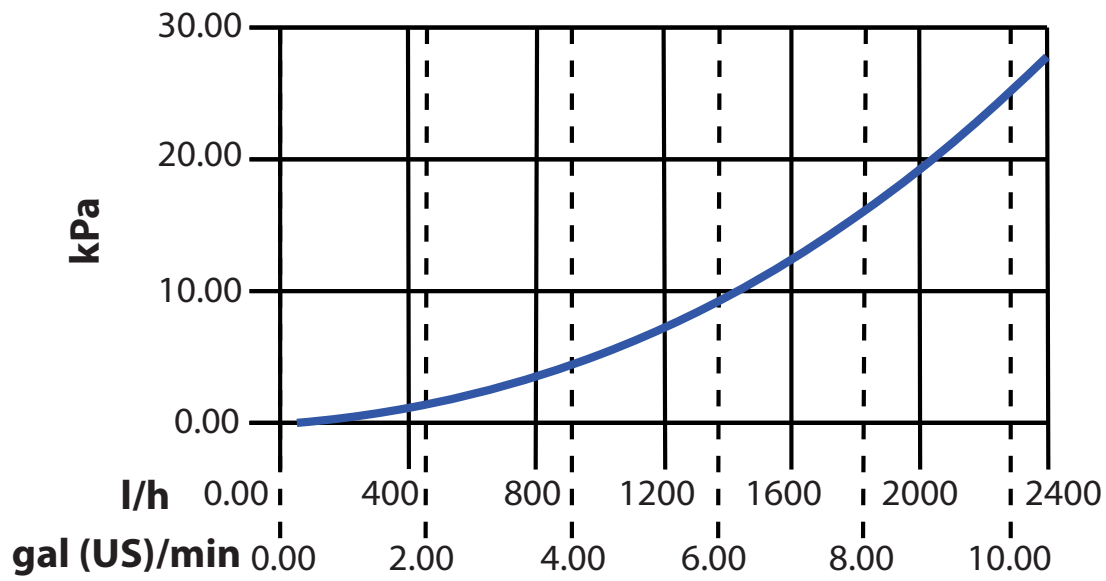


INSTALLATION REQUIREMENTS







<p>In vertical installations an ascending flow is preferable. For vertical installations with descending flow direction contact the manufacturer</p>	
	
<p>For installations in long pipe lines, please use anti vibration joints</p>	
	
<p>Avoid a partially empty pipe, during operation the pipe must be either completely full of liquid or completely empty</p>	
	
<p>Install the sensor away from bends and hydraulic accessories</p>	
	

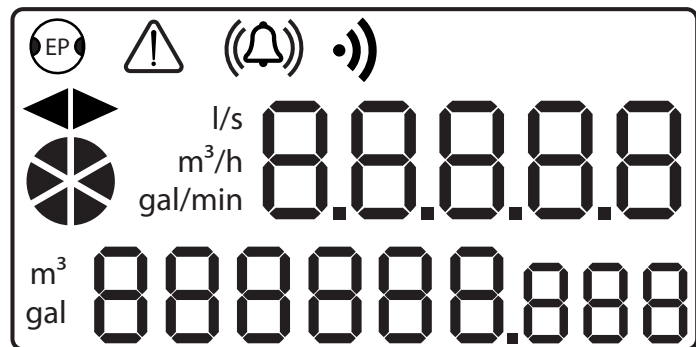
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PRESSURE LOSS



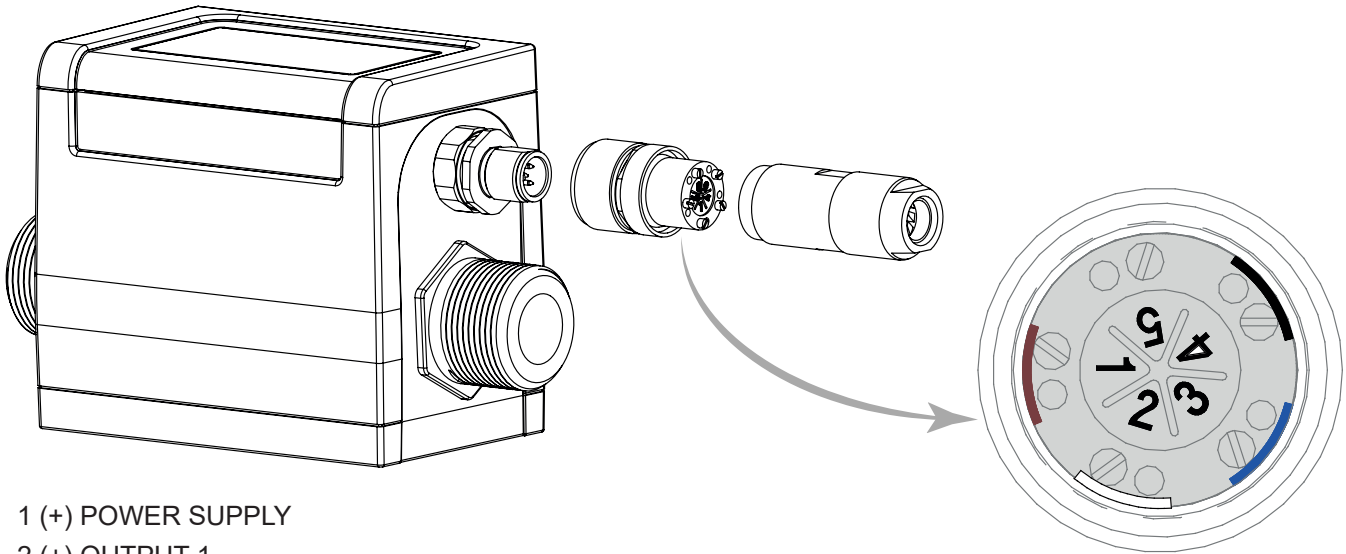
DISPLAY VISUALIZATION


	EMPTY PIPE WARNING
	ALARM WARNING
	PROCESS ALARM
	DATA TRANSMISSION
	FLOW DIRECTION
	ACTIVE FLOW RATE
l/s m ³ /h gal/min	FLOW RATE MEASURE UNIT
m ³ gal	TOTALIZER MEASURE UNIT



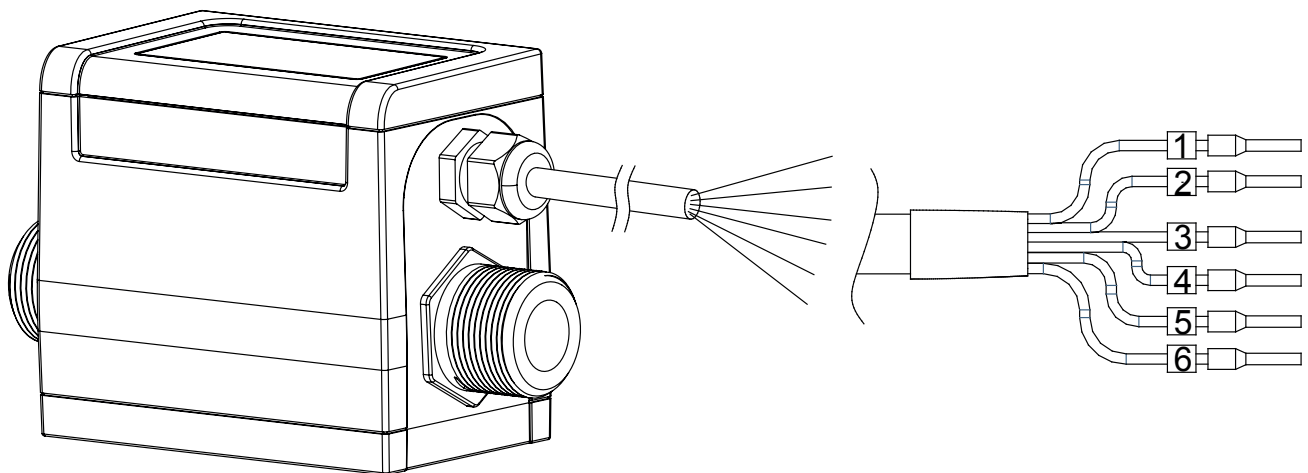
ELECTRICAL CONNECTIONS


Outputs (connector)



- 1 (+) POWER SUPPLY
 - 2 (+) OUTPUT 1
 - 3 (+) OUTPUT 2 (OPTIONAL)
 - 4 (+) 4-20mA max load: 500 Ω OUTPUT (OPTIONAL)
 - 5 (-) POWER SUPPLY / OUTPUTS
-  **PIN 5 TO BE CONNECT TO THE GROUND**

Outputs (cable)

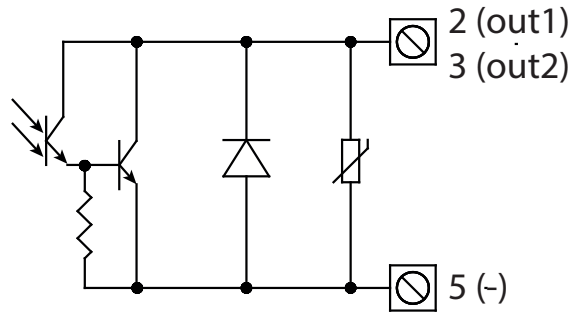


- 1 (+) POWER SUPPLY
 - 2 (+) OUTPUT 1
 - 3 (+) OUTPUT 2 (OPTIONAL)
 - 4 (+) 4-20mA max load: 500 Ω OUTPUT (OPTIONAL)
 - 5 (-) POWER SUPPLY / OUTPUTS
 - 6 SHIELD (CONNECT TO GROUND)
-  **PIN 5-6 TO BE CONNECT TO THE GROUND**

OUTPUTS

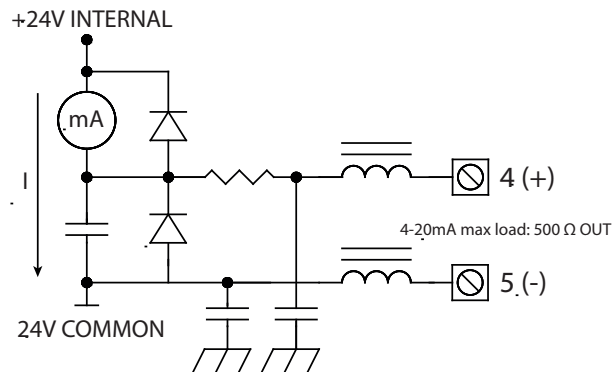
DIGITAL OUTPUTS

- ❑ Maximum switching voltage:: 30VDC ---
- ❑ Maximum switching current:: 50mA



ANALOG OUTPUT

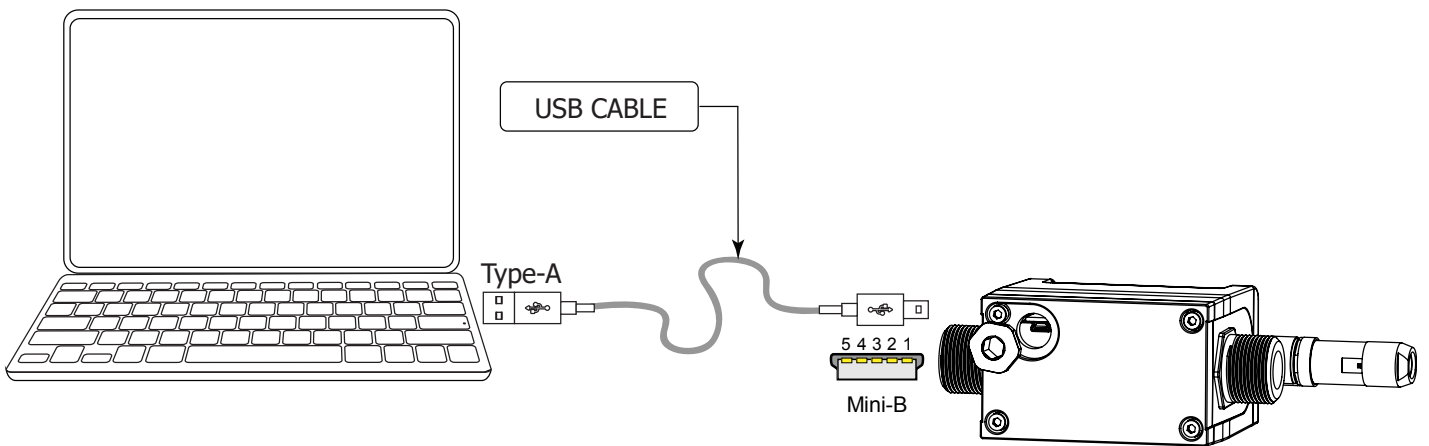
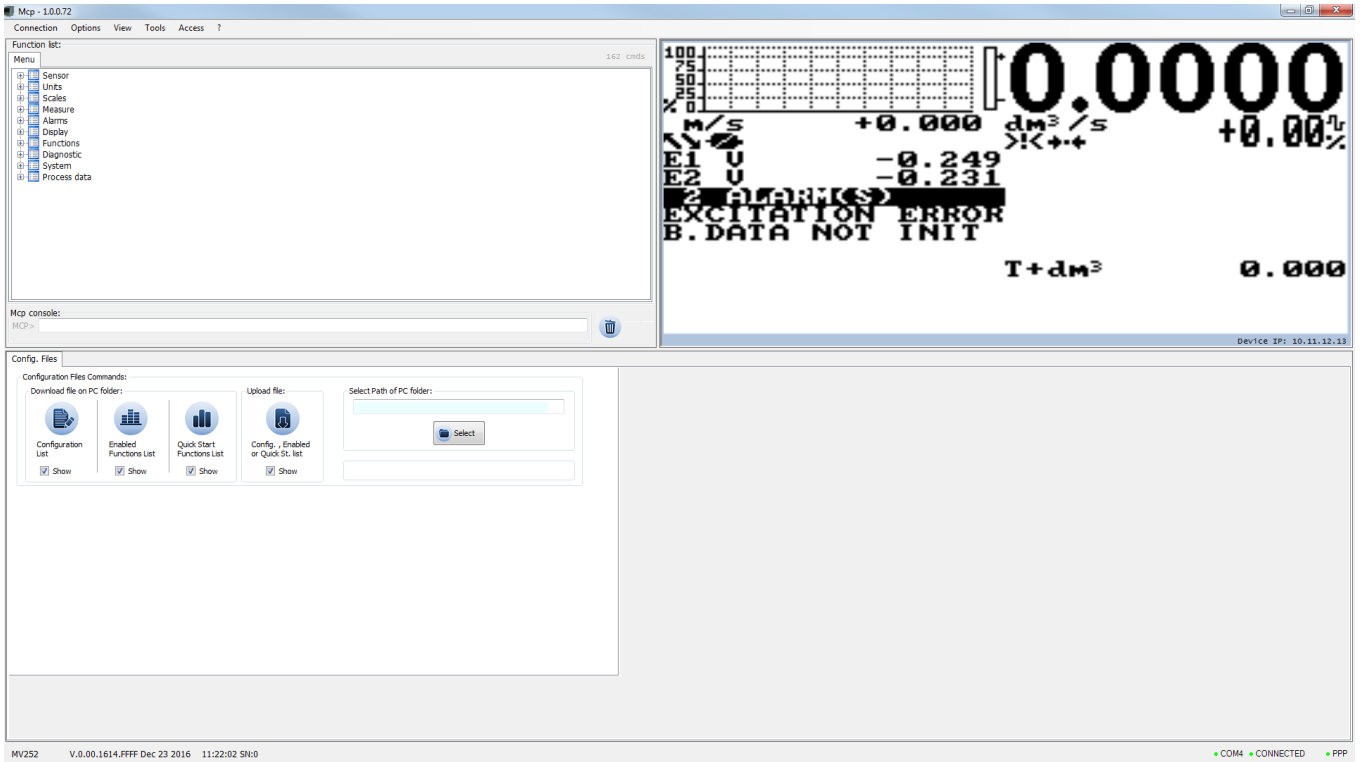
- ❑ Opto-insulated output
- ❑ The maximum load depends on the supply voltage and the values are as follows:
 - 1000 ohm @30Vdc
 - 800 ohm @24Vdc
 - 500 ohm @18Vdc
 - 300 ohm @12Vdc
- ❑ The maximum load depends on the supply voltage and the values are as follows.



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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

Sensor

```

MAIN MENU
1-Sensor
SENSOR
S.model=      000
U.type=      METRIC
KA=          +01.3000
KA-=         -04.4904
KZ=          +00000000
KD=          +00000000
KC=          1.00000
C.Curr.=mA   025.0
C.Reg.PB=    005
C.Reg.DK=    010
S.Freq.=Hz   50
E.P.Detect=  ON
Z.max=kohm   0500
KL= 00.0000000000
S.err.delay= 010
    
```

- 1.1 Sensors model: Enter the first two characters of the serial number of the sensor
- 1.2 Type of measure units for sensor parameter: metric or imperial
- 1.3 Calibration data of sensor visualized on sensor's label
- 1.4 Sensor coefficient KZ (zero point)
- 1.5 Sensor coefficient KD
- 1.6 Sensor coefficient KC
- 1.7 Sensor excitation current
- 1.8 Current regulator proportional band
- 1.9 Current regulator derivation constant
- 1.10 Measure sampling frequency
- 1.11 Enables the empty pipe detection feature
- 1.12 Maximum input impedance threshold
- 1.13 Signal error delay (n. sample)

Units

```

MAIN MENU
1-Sensor
2-Units
UNITS
Q1 unit= METRIC
P11 unit=
P12 unit=
T+ unit= METRIC
T- unit= M³
P+ unit= METRIC
P- unit= M³
T+ unit= METRIC
T- unit= M³
P+ unit= METRIC
P- unit= M³
    
```

- 2.1 Flowrate type measure unit: metric or imperial
- 2.2 Pulse 1 type measure unit: metric or imperial
- 2.3 Pulse 2 type measure unit: metric or imperial
- 2.4 Total direct totalizer measure unit type: metric or imperial
- 2.5 Total direct totalizer measure unit
- 2.6 Partial direct totalizer measure unit type: metric or imperial
- 2.7 Partial direct totalizer measure unit
- 2.8 Total reverse totalizer measure unit type: metric or imperial
- 2.9 Total reverse totalizer measure unit
- 2.10 Partial reverse totalizer measure unit type: metric or imperial
- 2.11 Partial reverse totalizer measure unit

The physical display provides the following units of measurement: l/s, m³/h, gal/mln, m³, gal. Other units available at menus, selectable by MCP interface, they will not be displayed on the physical display, but will only display their numeric values.

Scales

```

MAIN MENU
1-Sensor
2-Units
3-Scales
SCALES
FS1= l/s 0.8000
Frg1=H 1000.0
Frg2=H 1000.0
Pls1= M³0.00100
Tpls1=ms 0050.0
Pls2= M³0.00100
Tpls2=ms 0050.0
    
```

- 3.1 Full scale flow rate 1
- 3.2 Full scale frequency for channel 1 (0.1Hz-1000.0Hz)
- 3.3 Full scale frequency for channel 2 (0.1Hz-1000.0Hz)
- 3.4 Pulse value on channel 1
- 3.5 Duration of the pulse generated on channel 1
- 3.6 Pulse value on channel 2
- 3.7 Duration of the pulse generated on channel 2

Measure

```

MAIN MENU
1-Sensor
2-Units
3-Scales
4-Measure
MEASURE
Damping= OFF
Cut-off=% 00.0
Cal.verif= OFF
    
```

- 4.1 Measure filter
- 4.2 Low flow zero threshold: 0-25% of full scale value
- 4.3 Automatic calibration verify

Alarms

```

MAIN MENU
1-Sensor
2-Units
3-Scales
4-Measure
5-ALARMS
ALARMS
Max.thr+=% 000
Max.thr-=% 000
Min.thr+=% 000
Min.thr-=% 000
Hysteresis=% 03
mA v.alarm=% 010
Hz v.alarm=% 125
    
```

- 5.1 Maximum value alarm set for direct flow rate
- 5.2 Maximum value alarm set for reverse flow rate
- 5.3 Minimum value alarm set for direct flow rate
- 5.4 Minimum value alarm set for reverse flow rate
- 5.5 Hysteresis threshold set for the minimum and maximum flow rate alarms
- 5.6 Current output value in case of failure
- 5.7 Frequency output value in case of alarms

Output

```

OUTPUT:
Out1= OFF
Out2= OFF
Out mA. 4.22 +/-
AlS= 1/s 0.8000
7-Outputs
    
```

- 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

Display

```

9-Display
1 DISPLAY
1 language= EN
1 Contrast= 5
D.rate=Hz 10
D.item= P+
Part.tot.= OFF
Neg.tot.= OFF
Net.tot.= OFF
Quick start= OFF
    
```

- 9.1 Choice of the language
- 9.2 Display contrast
- 9.3 Display updating frequency: 1-2-5-10 Hz
- 9.4 Display item choice
- 9.5 Partial totalizer enable
- 9.6 Negative totalizer enable
- 9.7 Net totalizer enable
- 9.8 Quick start menu visualization

Functions

```

11-Functions
11
11
11
FUNCTIONS
T+ reset
P+ reset
T- reset
P- reset
Load Sens.f.def
Load Conv.f.def
Save Sens.f.def
Save Conv.f.def
Calibration
    
```

- 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

Diagnostic

```

9-Display
11-Functions
12-Diagnostic
12
12
12
DIAGNOSTIC
Self test
Display test
Flow sim.= OFF
Display measures
Disp.comm.vars
Display graphs
Firmware info
S/N= 999004
WT=0011:17:57:51
    
```

- 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

System

```

11-Functions
12-Diagnostic
13-System
13
13
13
SYSTEM
L1 code=*****
L2 code=*****
L3 code=*****
L4 code=*****
L5 code=*****
L6 code=*****
Restr.access=OFF
Device IP addr=
Client IP addr=
Network mask=
KT= 1.01218
KS= 1.00000
KR= 1.00000
DAC2 out 4mA cal
DAC1 4mA=1.02382
DAC1 20mA=10050
FW update
    
```

- 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 Cal DAC value 4mA analogue output 2
- 13.15 DAC1 out 4mA calibration point
- 13.16 DAC1 out 20mA calibration point
- 13.17 firmware update

HOW TO ORDER

CODE EXAMPLE	CODE / DESCRIPTION	
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

Example of
complete code
to order



CS8100-1A1A1

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If you want to find the complete list of our distributors access at the following link:
<http://www.isoil.com/en>



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