ISOMAG

The friendly magmeter

DATA SHEET

CS3900

CE

ISOIL

INDEX

TECHNICAL DATA

OVERALL FEATURES	
Size for pipe line Ø	❑ 10 / 15 /20 / 25 / 32 / 40 / 50
Minimum conductivity	❑ 50 µS/cm
Altitude	❑ -200m up to 4000 m
Humidity Range	❑ 0÷100% (IP 67)
CE Certification	❑ Yes

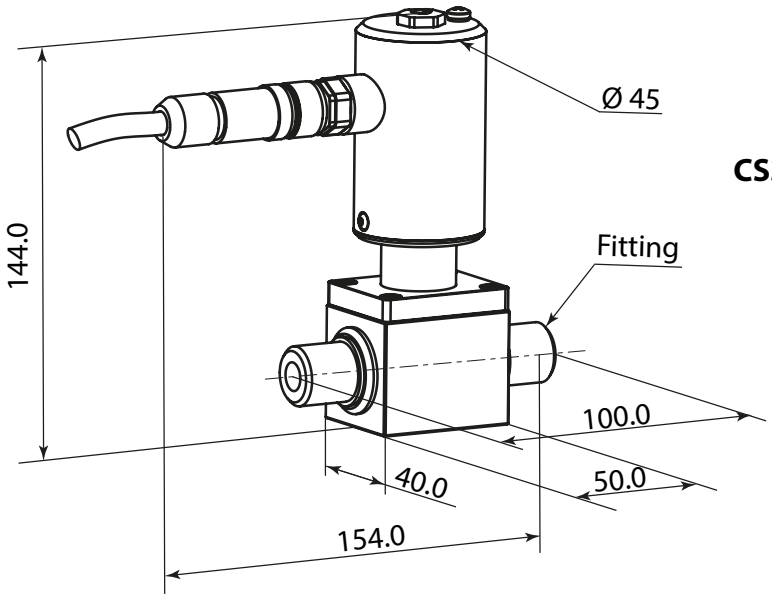
STANDARD FEATURES	
Protection Rate	❑ IP 67
Power Supply/Consumption	❑ min10 / max30 V ⎓ - 1W
Electrical connections	❑ 5 pins connector M12X1 complete with plug/2 m of 5 poles cable Already Connected
Full scale value	❑ 0,4…10m/s
Protocols	❑ MCP
Output	❑ N° 1 channel freely programmable OUTPUT for volume pulses/alarms
Data Storage	❑ F-ram not volatile
Programming Plug In	❑ Mini USB
Temperature measure	❑ measure of temperature -10 .. +100 (it can be set as analog out on 4-20 mA)
Bi-Directional	❑ Yes
Nominal pressure	❑ 1600 kPa
Process connection	❑ Threaded end
Version – protection rating	❑ Compact IP67
Lining material/gasket	❑ Ptfe/FPM
Liquid temperature	❑ -10°C° ÷ 100°C compact version
Electrodes material	❑ Aisi 316

OPTIONAL FEATURES *(CHECK FOR MORE DETAILS 'HOW TO ORDER' ON LAST PAGE)*	
Pulses/ Alarm Output	❑ N°1 Digital Output
Current Output	❑ N°1 , 0/4…20mA – RL=500 Ω
Process connection	❑ Others on request
Electrodes material	❑ Others on request

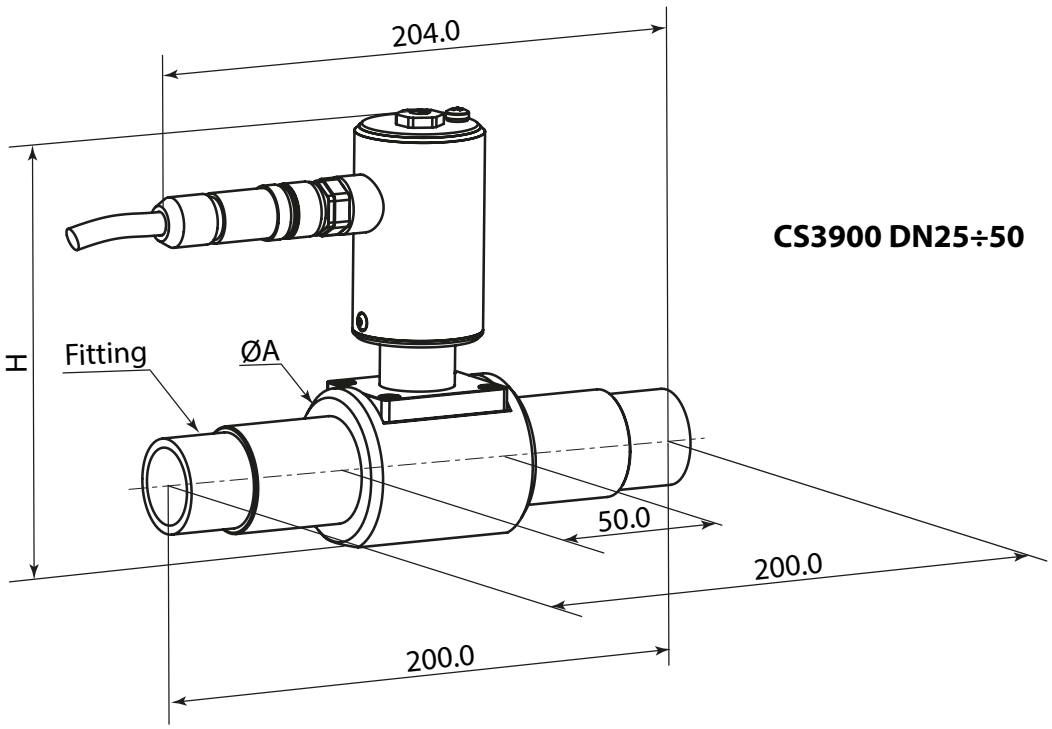
ACCURACY	
Measurements tolerance (board)	❑ Volume = ±0,2% v.l. ❑ Out 4/20 mA = ± 0,2 % v.l.
Accuracy (whole system)	❑ FLOW RATE/VOLUME +/- 1 % r.v. (UP TO 0,5% ON REQUEST) ❑ TEMPERATURE : +/- 2°C

ISOIL INDUSTRIA

OVERALL DIMENSIONS



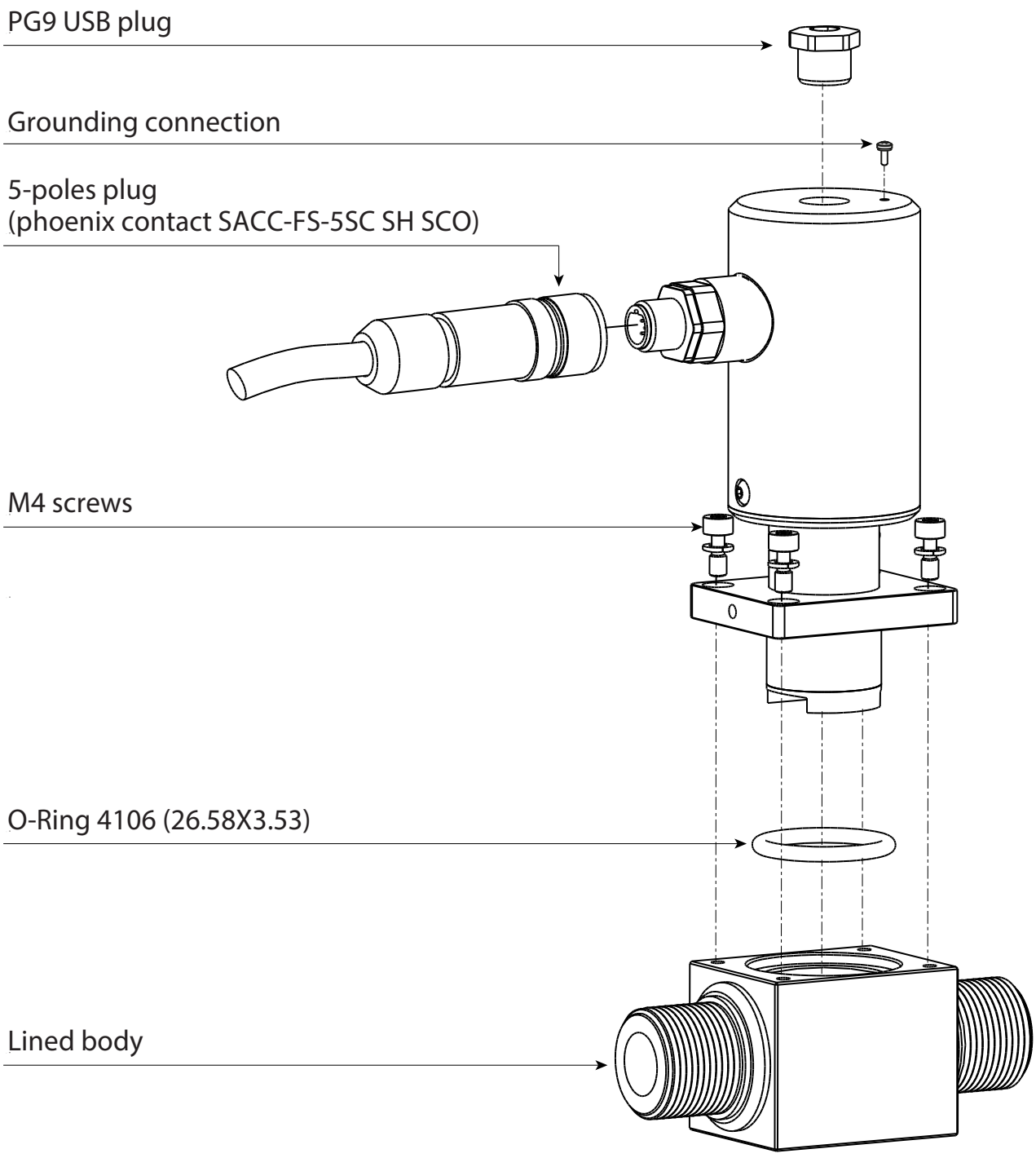
CS3900 DN10÷20



CS3900 DN25÷50

DN	FITTINGS	A	H
10	1/2"	---	---
15	3/4"	---	---
20	1"	---	---
25	1"	56	148
32	1"1/4	56	148
40	1"1/2	62	156
50	2"	69	164

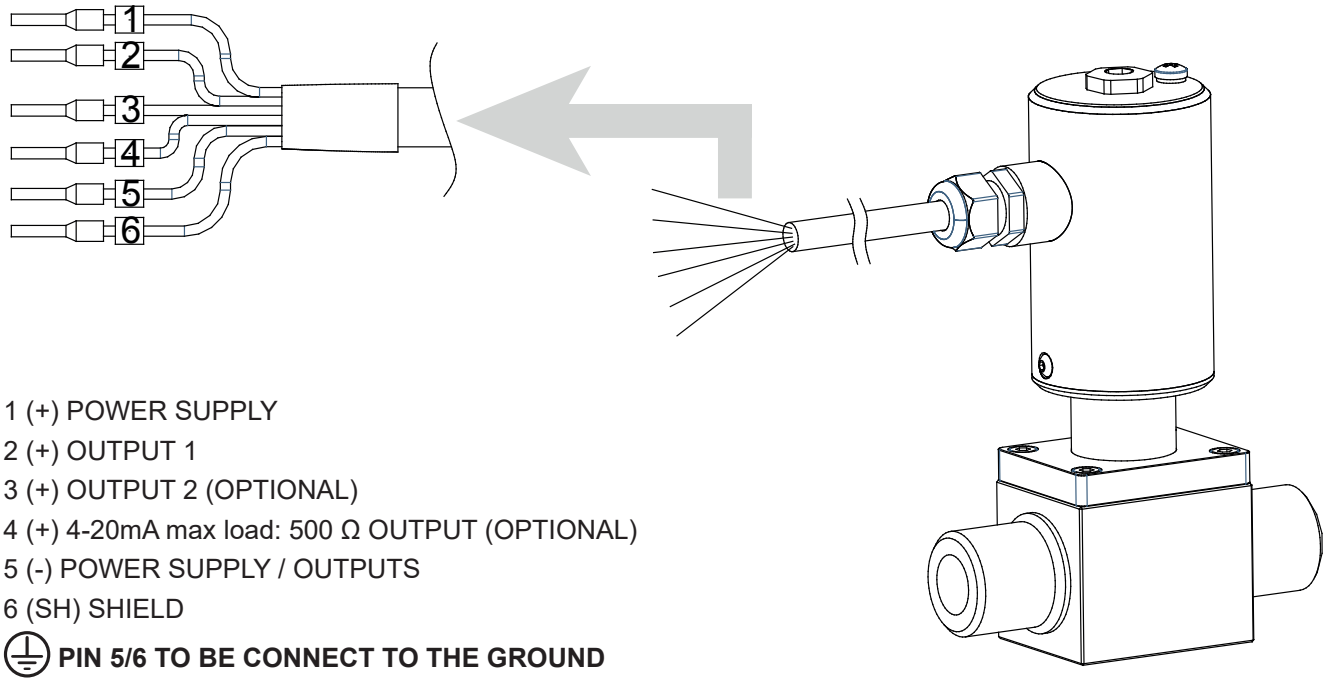
EXPLODED LAYOUT



TORQUES	
PG9 plug	4Nm
5 poles conn./cablegland PG9	4Nm
M4 screws	3Nm

ELECTRICAL CONNECTIONS

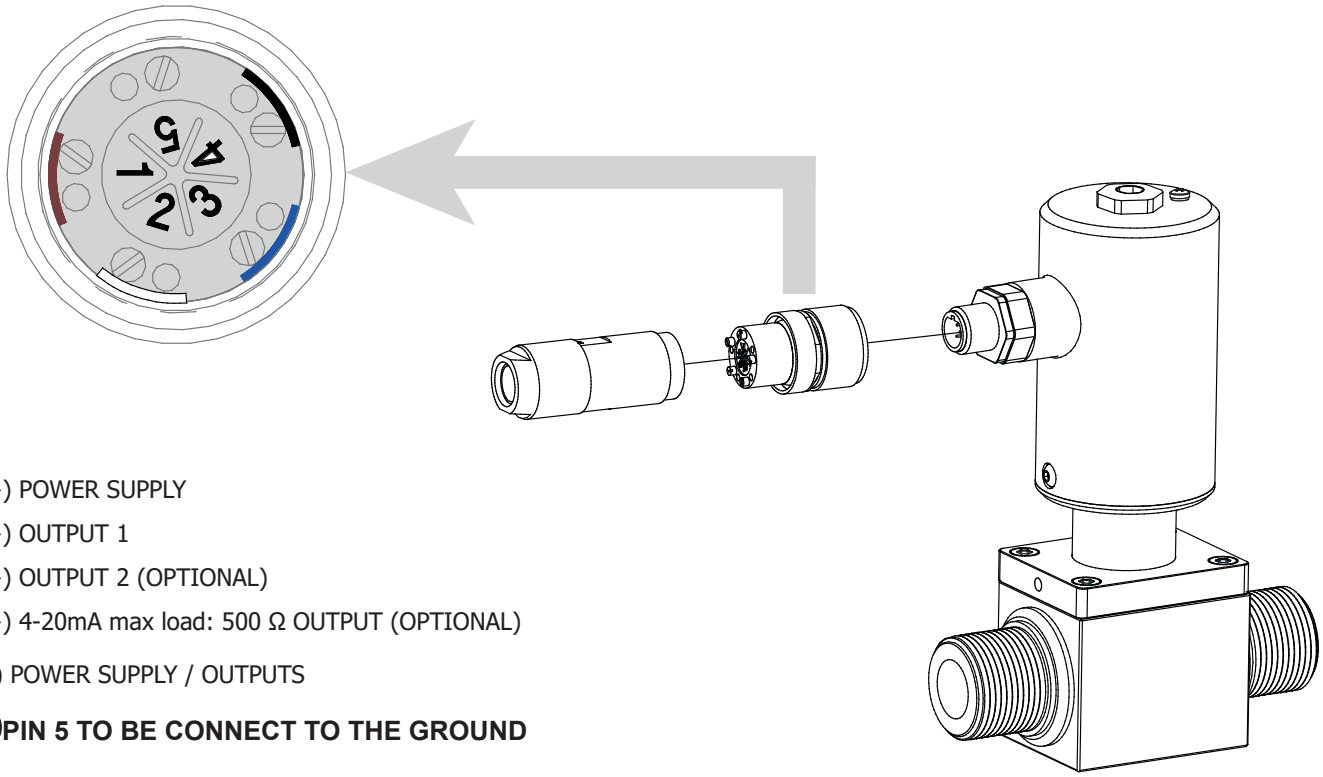
POWER SUPPLY/OUTPUTS (CONNECTOR)



1 (+) POWER SUPPLY
2 (+) OUTPUT 1
3 (+) OUTPUT 2 (OPTIONAL)
4 (+) 4-20mA max load: 500 Ω OUTPUT (OPTIONAL)
5 (-) POWER SUPPLY / OUTPUTS
6 (SH) SHIELD

PIN 5/6 TO BE CONNECT TO THE GROUND

POWER SUPPLY/OUTPUTS (CABLE)

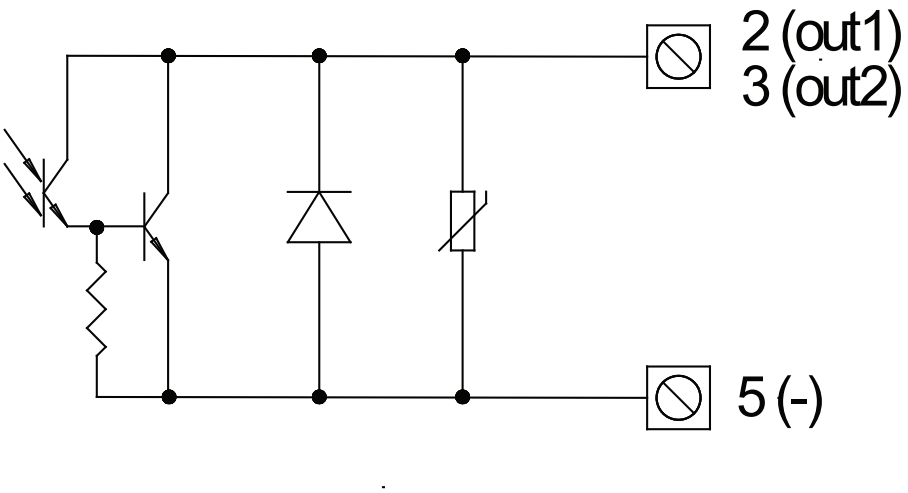


1 (+) POWER SUPPLY
2 (+) OUTPUT 1
3 (+) OUTPUT 2 (OPTIONAL)
4 (+) 4-20mA max load: 500 Ω OUTPUT (OPTIONAL)
5 (-) POWER SUPPLY / OUTPUTS

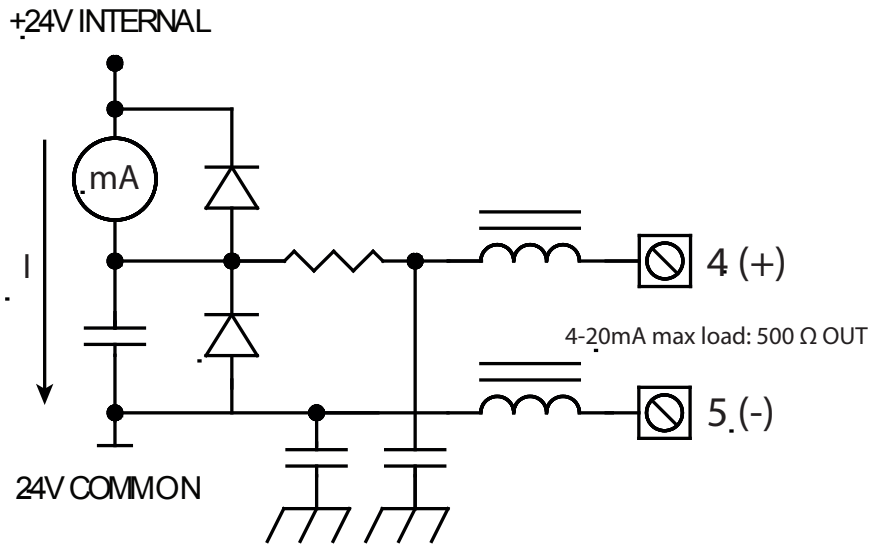
PIN 5 TO BE CONNECT TO THE GROUND

OUTPUTS: SCHEMATICS

Digital Outputs

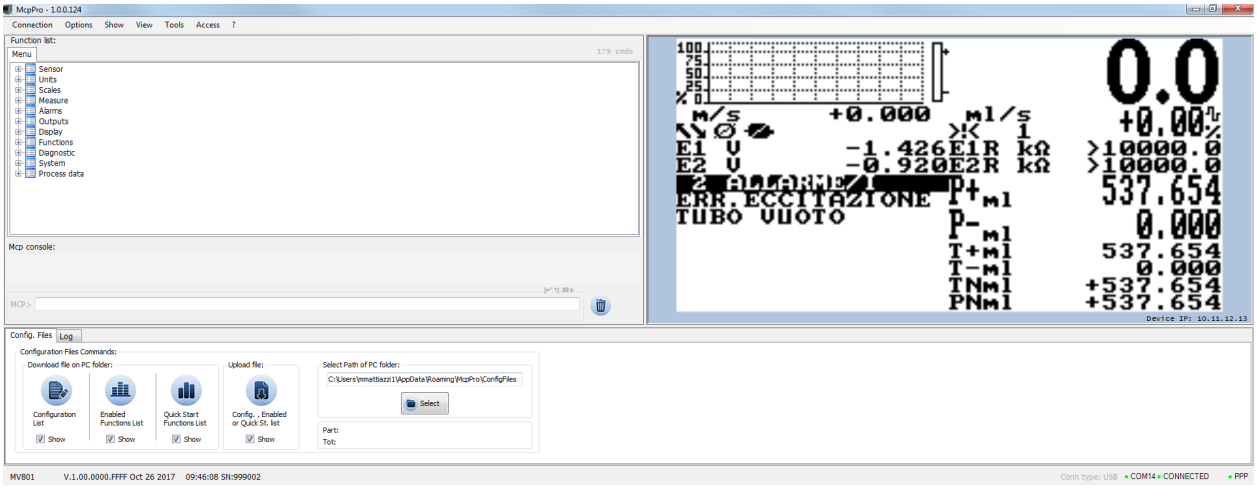


Analog Output

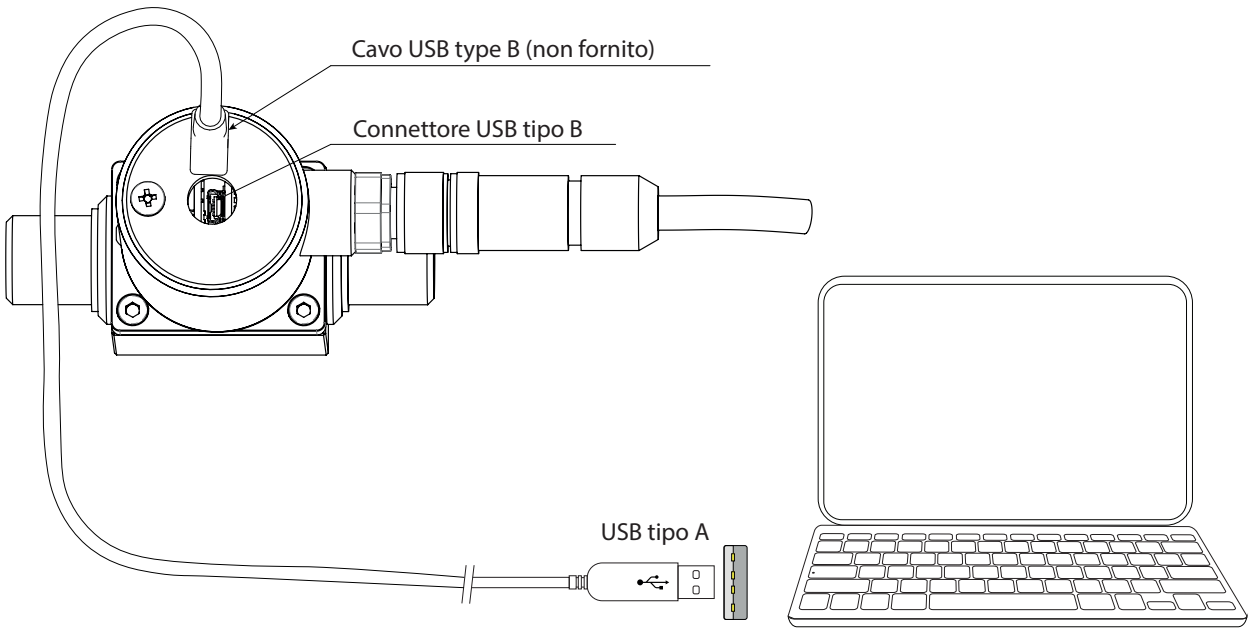


USER INTERFACE

CS3900 can be programmed by MCP interface (USB cable is required see below)

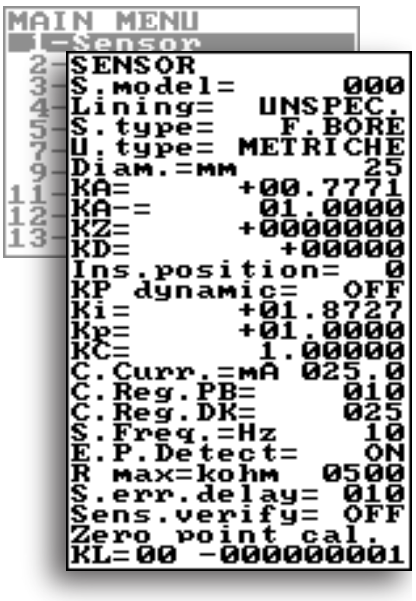


Make the USB connection as shown in the following picture.



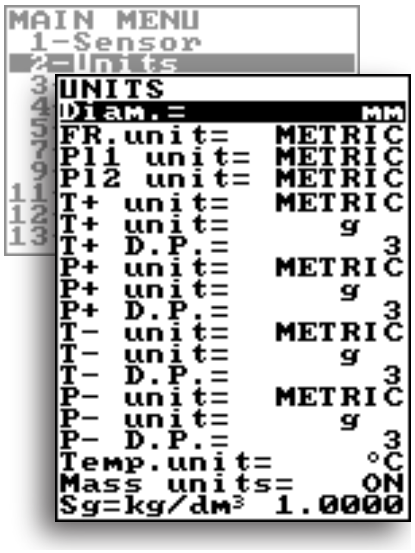
PROGRAMMING FUNCTIONS

Sensor



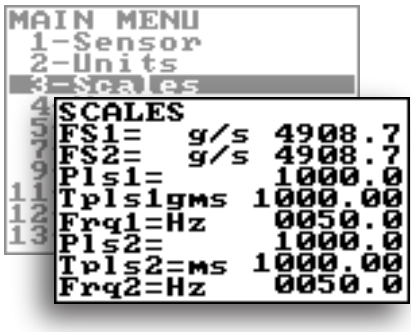
1.1 Sensors model: Enter the first two characters of the serial number of the sensor
1.2 Flow sensor lining material type
1.3 Type of sensor: fullbore or insertion
1.4 Type of measure units for sensor parameter: metric or imperial
1.5 Insert ND of sensor (0-2500)
1.6 Calibration data of sensor
1.7 Calibration data of sensor
1.8 Sensor coefficient KZ (zero point)
1.9 Sensor coefficient KD
1.10 Insertion position
1.11 KP dynamic, coefficient for insertion
1.12 Sensor coefficient Ki
1.13 Sensor coefficient Kp
1.14 Sensor coefficient KC
1.15 Sensor excitation current
1.16 Current regulator proportional band
1.17 Current regulator derivation constant
1.18 Measure sampling frequency
1.19 Enables the empty pipe detection feature
1.20 Empty pipe detection threshold
1.21 Signal error delay (n. sample)
1.22 Automatic sensor verify enable
1.23 Pipe hydraulic zero calibration
1.24 Linearization coefficient

Units



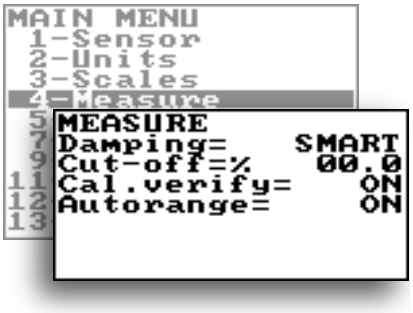
2.1 Nominal diameter measure unit
2.2 Flowrate type measure unit: metric or imperial
2.3 Pulse 1 type measure unit: metric or not metric
2.4 Pulse 2 type measure unit: metric or not metric
2.5 Total direct totalizer measure unit type: metric or imperial
2.6 Total direct totalizer measure unit
2.7 Total direct totalizer decimal point position
2.8 Partial direct totalizer measure unit type: metric or not metric
2.9 Partial direct totalizer measure unit
2.10 Partial direct totalizer decimal point position
2.11 Total reverse totalizer measure unit type: metric or not metric
2.12 Total reverse totalizer measure unit
2.13 Total reverse totalizer decimal point position
2.14 Partial reverse totalizer measure unit type: metric or not metric
2.15 Partial reverse totalizer measure unit
2.16 Partial reverse totalizer decimal point position
2.17 Temperature measure unit
2.18 Enable/disable the selection of mass units on full scale set
2.19 Specific gravity coefficient

Scales



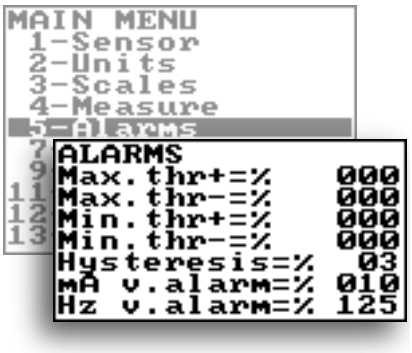
3.1 Full scale flow rate 1
3.2 Full scale flow rate 2
3.3 Pulse value on channel 1
3.4 Duration of the pulse generated on channel 1
3.5 Full scale frequency for channel 1 (0.1Hz-1000.0Hz)
3.6 Duration of the pulse generated on channel 2
3.7 Pulse value on channel 2
3.8 Full scale frequency for channel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

Measure



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

Alarms



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

Outputs

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

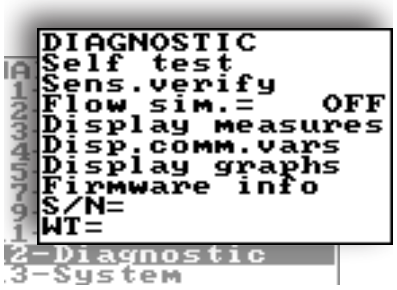
Display

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

Functions

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



12.1 Self test diagnostic function
12.2 Sensor verify diagnostic function
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

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

EXAMPLE CODE	CODE / EXAMPLE	
Size		
1	1	10 mm (thread 1/2")
	2	15 mm (thread 3/4")
	3	20 mm (thread 1")
	4	25 mm (thread 1")
	5	32 mm (thread 1"1/4)
	6	40 mm (thread 1"1/2)
	7	50 mm (thread 2")
Materials : body / lining / electrodes / internal gasket		
A	A	Materials : PTFE coated Steel body, Sensor body in AISI304 (head in PTFE), electrodes in AISI316 , gasket in FKM
	B	Materials : PTFE coated SS AISI 304 body (UP to 1"), Sensor body in AISI304 (head in PTFE), electrodes in AISI316 , gasket in FKM
	Z	Sensor material: to be specified
Mounting		
0	0	UNI 338 (GAS)Thread Male
	1	NPT-Thread Male
	9	Special connection
Electronic board / Electrical Connections		
A	A	MV801 (Complete of n° 1 Freely programmable digital I/O) Electrical Connections : 5 poles connectors
	B	MV801 (Complete of n° 1 Freely programmable digital I/O) Electrical Connections: 2 meters of N° 5 poles cable ALREADY CONNECTED
ANALOG Output		
0	0	without Analog Out
	1	with Analog Out
DIGITAL Output		
A	A	without Additional Digital Out
	B	n° 1 additional digital out

Complete code example for order → CS3900-1A0A0A

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