



ISOMAG®

The friendly magmeter

DATA SHEET

CS3795



Certified to
NSF/ANSI/CAN 61



ISOIL

I N D U S T R I A



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TECHNICAL DATA

OVERALL FEATURES

Size for pipe line Ø	☐ Size 1 Ø ≤ 500mm ☐ Size 2 Ø ≤ 1000mm ☐ Size 3 Ø ≤ 2000mm
Minimum conductivity	☐ 20 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 via USB integrate
Output	☐ N° 1 channel freely programmable OUTPUT for volume pulses/alarms
Data Storage	☐ Eeprom values storing system in case of power failure
Programming Plug In	☐ Protected plug for PC connection
Bi-Directional	☐ Yes
Body material	☐ Stainless steel AISI 316
Nominal pressure	☐ 1600 kPa
Process connection	☐ 1"Threaded end
Version – protection rating	☐ Compact IP67
Connection material	☐ Stainless steel AISI 304
Lining material/gasket	☐ PEEK/FPM
Liquid temperature	☐ -10°C ÷ 100°C compact version
Electrodes material	☐ Hastelloy C276

OPTIONAL FEATURES

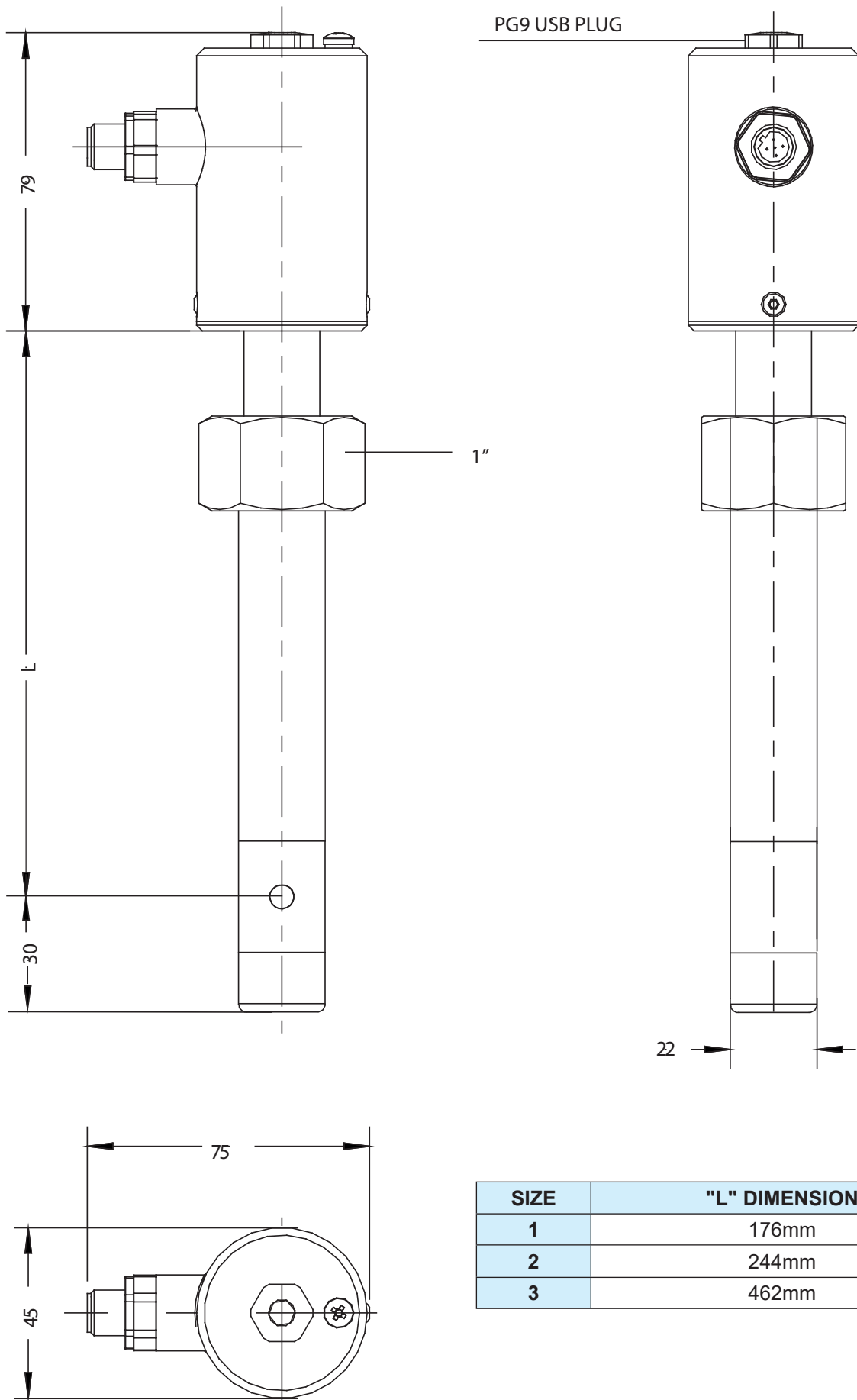
(CHECK FOR MORE DETAILS 'HOW TO ORDER' ON LAST PAGE)

Pulses/ Alarm Output	☐ N°1 Digital Output
Current Output	☐ N°1 , 0/4...20mA – RL=500 Ω
Size for pipe line Ø	☐ Other on request
Nominal pressure	☐ Others on request
Process connection	☐ Others on request
Electrodes material	☐ Others on request

ACCURACY

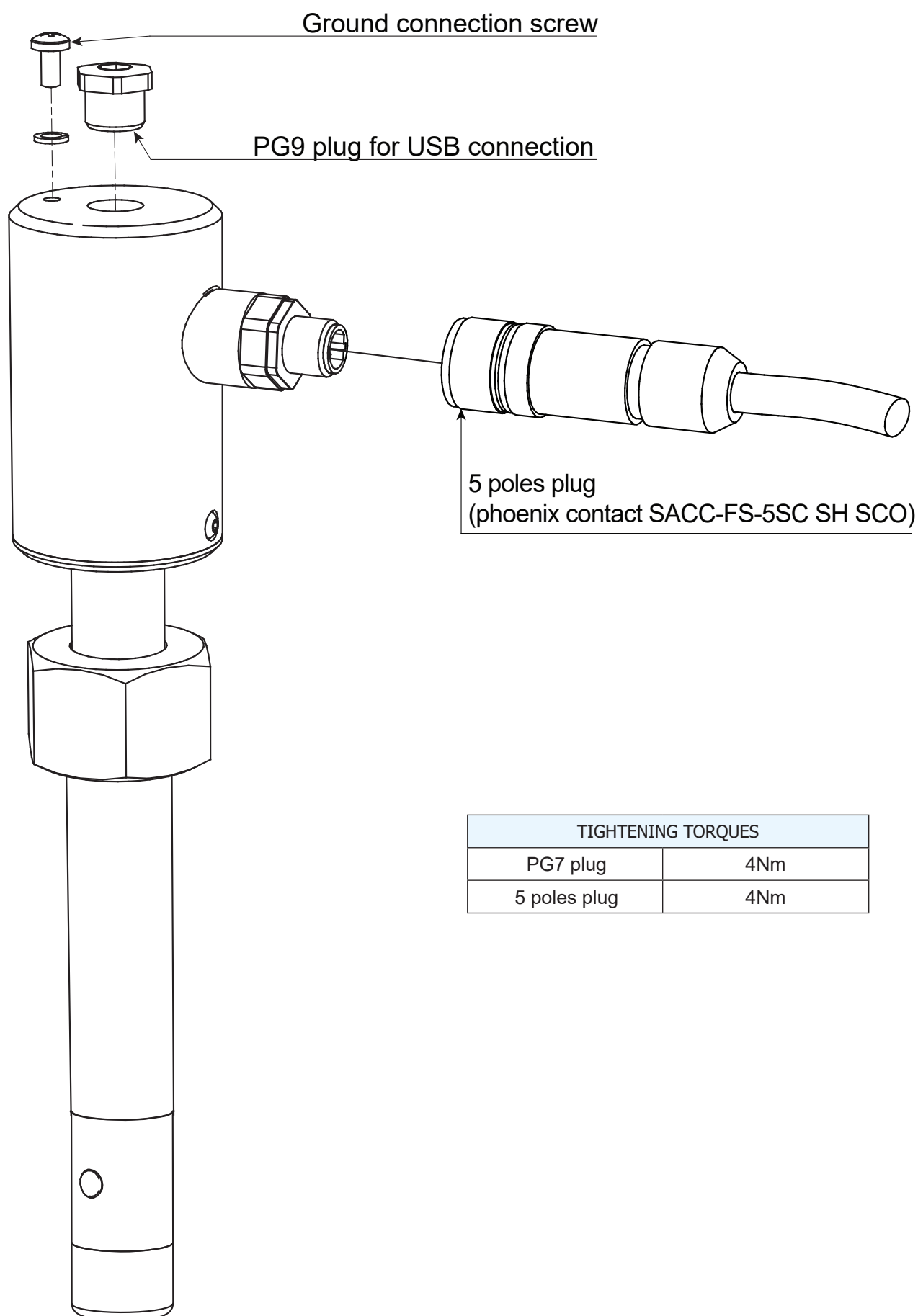
Measurements tolerance (board)	☐ Volume = ±0,2% v.l. ☐ Out 4/20 mA = ± 0,2 % v.l.
Accuracy (whole system)	☐ See table below

OVERALL DIMENSIONS



SIZE	"L" DIMENSION
1	176mm
2	244mm
3	462mm

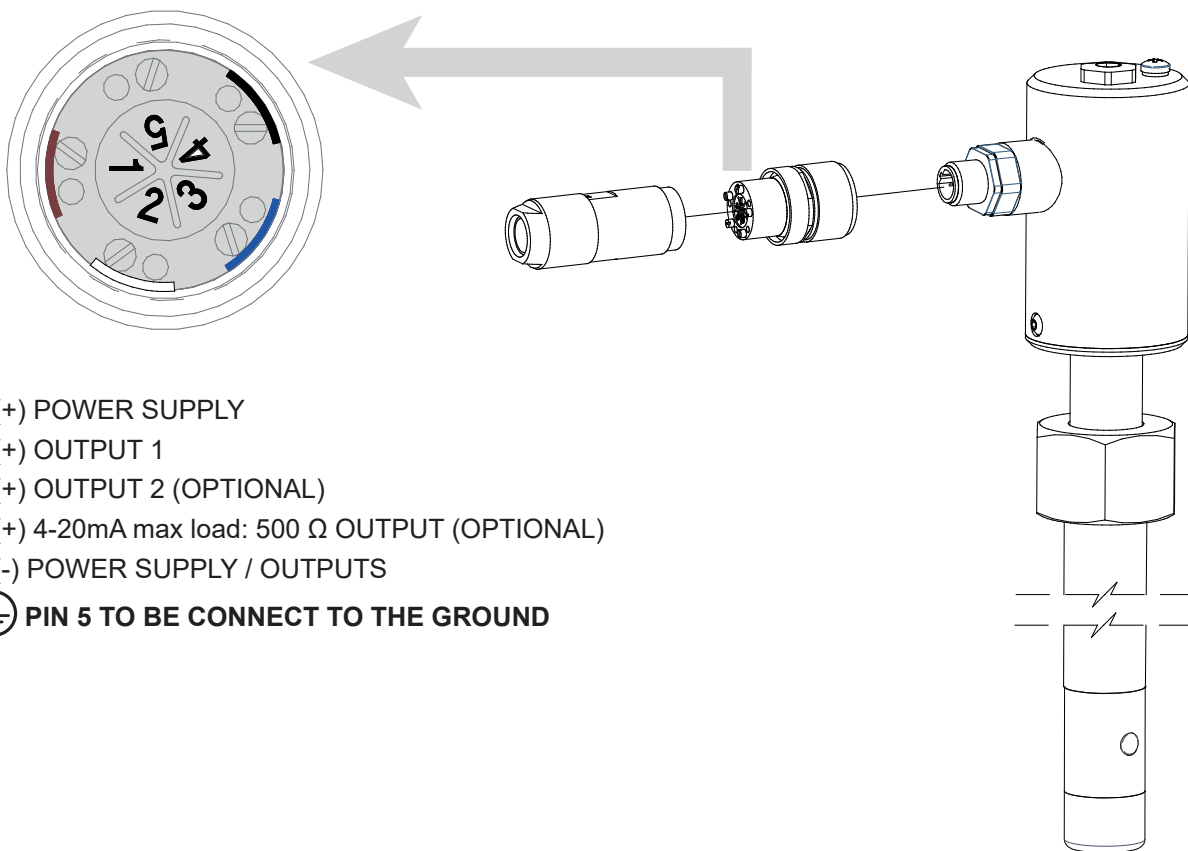
EXPLODED LAYOUT



TIGHTENING TORQUES	
PG7 plug	4Nm
5 poles plug	4Nm

ELECTRICAL CONNECTIONS

OUTPUTS (CONNECTOR)



1 (+) POWER SUPPLY

2 (+) OUTPUT 1

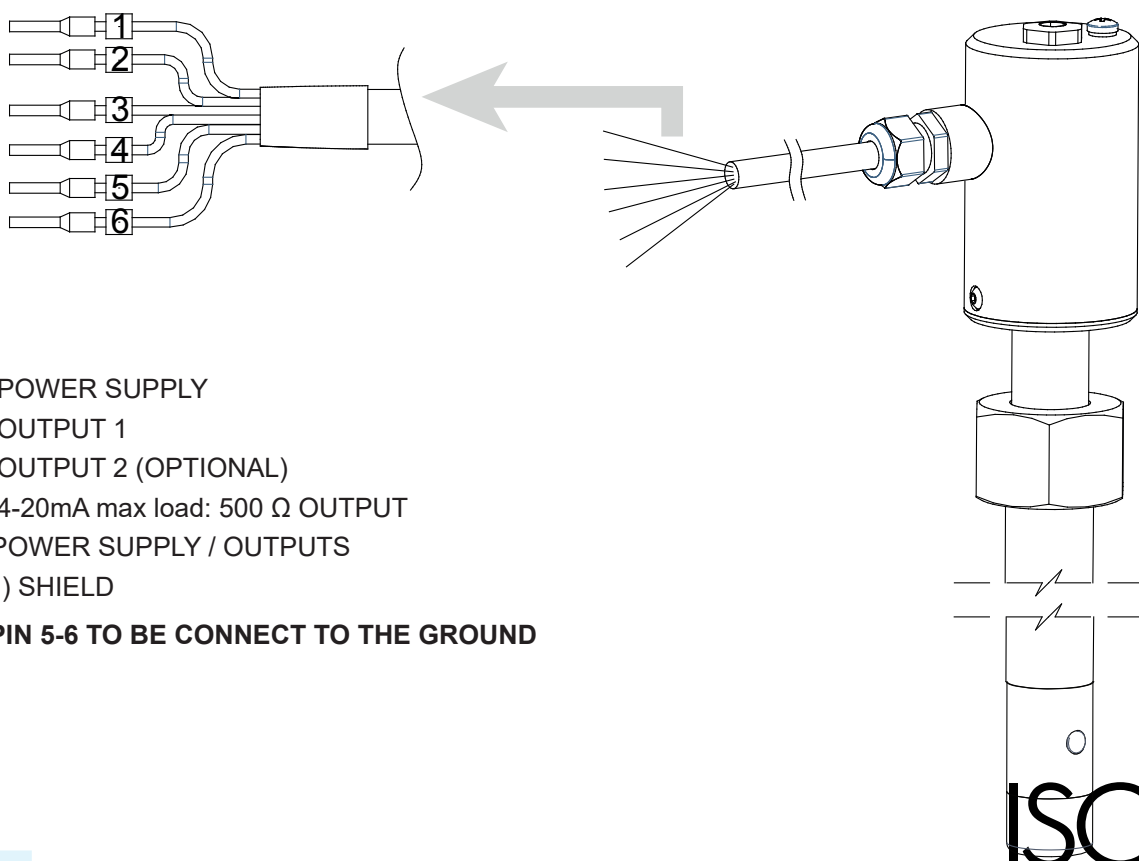
3 (+) OUTPUT 2 (OPTIONAL)

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

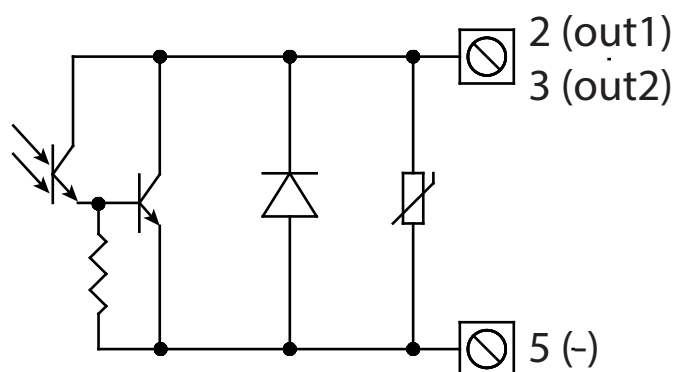
5 (-) POWER SUPPLY / OUTPUTS

6 (SH) SHIELD

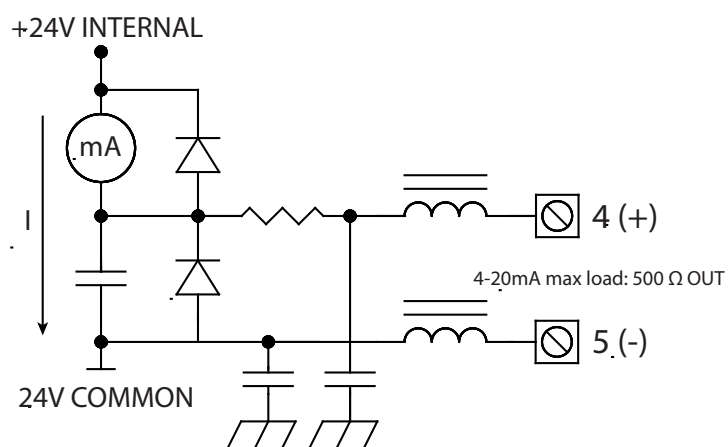
 PIN 5-6 TO BE CONNECT TO THE GROUND

OUTPUTS:

DIGITAL OUTPUTS

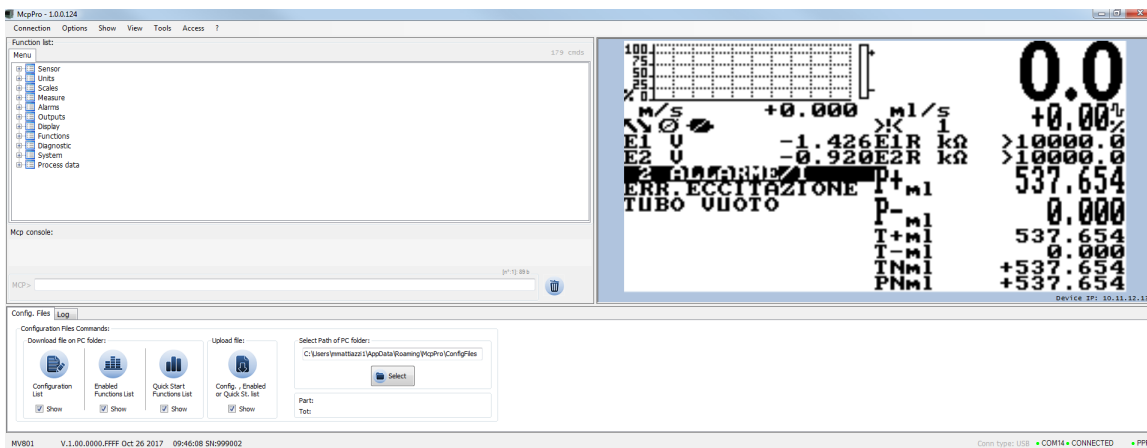


ANALOG OUTPUT

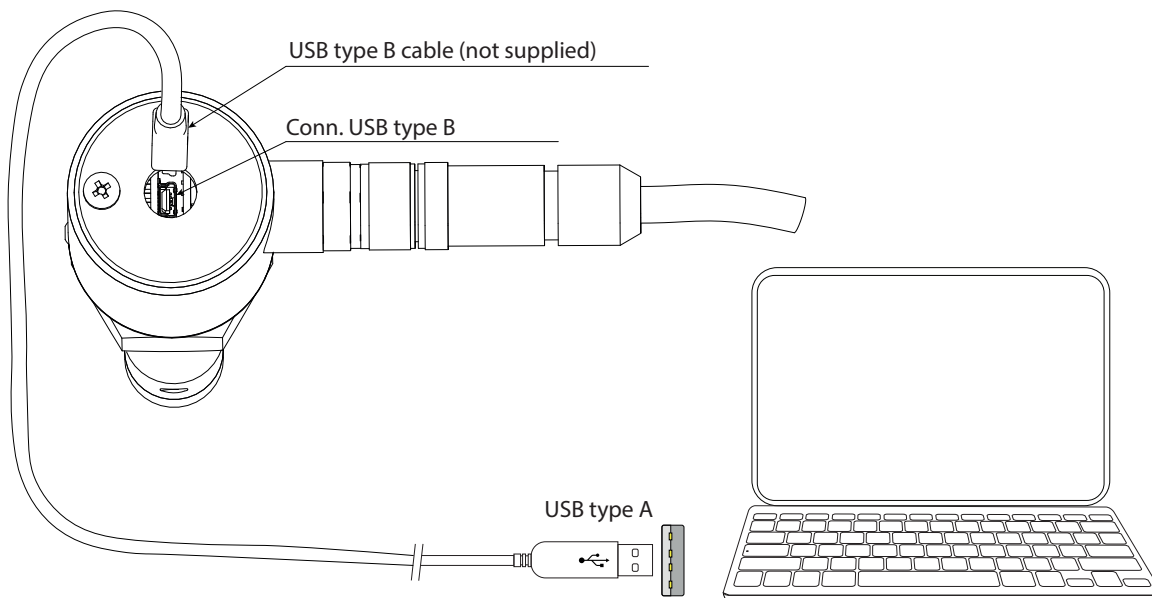


USER INTERFACE

CS3795 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

MAIN MENU		
1-Sensor		
2-SENSOR		
3-S.model=	000	1.1 Sensors model: Enter the first two characters of the serial number of the sensor
4-Lining=	UNSPEC.	1.2 Flow sensor lining material type
5-S.type=	F.BORE	1.3 Type of sensor: fullbore or insertion
6-U.type=	METRICHE	1.4 Type of measure units for sensor parameter: metric or imperial
7-Diam.=mm	25	1.5 Insert ND of sensor (0-2500)
8-KA=	+00.7771	1.6 Calibration data of sensor
9-KA=	01.0000	1.7 Calibration data of sensor
10-KZ=	+00000000	1.8 Sensor coefficient KZ (zero point)
11-KD=	+000000	1.9 Sensor coefficient KD
12-Ins.position=	0	1.10 Insertion position
13-KP dynamic=	OFF	1.11 KP dynamic, coefficient for insertion
Ki=	+01.8727	1.12 Sensor coefficient Ki
Kp=	+01.0000	1.13 Sensor coefficient Kp
KC=	1.000000	1.14 Sensor coefficient KC
C.Curr.=mA	025.0	1.15 Sensor excitation current
C.Reg.PB=	010	1.16 Current regulator proportional band
C.Reg.DK=	025	1.17 Current regulator derivation constant
S.Freq.=Hz	10	1.18 Measure sampling frequency
E.P.Detect=	ON	1.19 Enables the empty pipe detection feature
R.max=kohm	0500	1.20 Empty pipe detection threshold
S.err.delay=	010	1.21 Signal error delay (n. sample)
Sens.verify=	OFF	1.22 Automatic sensor verify enable
Zero point cal.		1.23 Pipe hydraulic zero calibration
KL=00 -000000001		1.24 Linearization coefficient

UNITS

MAIN MENU		
1-Sensor		
2-Units		
3-UNITS		
4-Diam.=	MM	2.1 Nominal diameter measure unit
5-Flowrate type	METRIC	2.2 Flowrate type measure unit: metric or imperial
6-Pulse 1 type	METRIC	2.3 Pulse 1 type measure unit: metric or not metric
7-Pulse 2 type	METRIC	2.4 Pulse 2 type measure unit: metric or not metric
8-T+ unit=	METRIC	2.5 Total direct totalizer measure unit type: metric or imperial
9-T+ unit=	g	2.6 Total direct totalizer measure unit
10-T+ D.P.=	3	2.7 Total direct totalizer decimal point position
11-P+ unit=	METRIC	2.8 Partial direct totalizer measure unit type: metric or not metric
12-P+ unit=	g	2.9 Partial direct totalizer measure unit
13-P+ D.P.=	3	2.10 Partial direct totalizer decimal point position
T- unit=	METRIC	2.11 Total reverse totalizer measure unit type: metric or not metric
T- unit=	g	2.12 Total reverse totalizer measure unit
T- D.P.=	3	2.13 Total reverse totalizer decimal point position
P- unit=	METRIC	2.14 Partial reverse totalizer measure unit type: metric or not metric
P- unit=	g	2.15 Partial reverse totalizer measure unit
P- D.P.=	3	2.16 Partial reverse totalizer decimal point position
Temp.unit=	°C	2.17 Temperature measure unit
Mass units=	ON	2.18 Enable/disable the selection of mass units on full scale set
Sg=kg/dm³	1.0000	2.19 Specific gravity coefficient

SCALES

MAIN MENU		
1-Sensor		
2-Units		
3-Scales		
4-SCALES		
5-FS1=	g/s 4908.7	3.1 Full scale flow rate 1
6-FS2=	g/s 4908.7	3.2 Full scale flow rate 2
7-Pulse1=	1000.0	3.3 Pulse value on channel 1
8-Tp1sigms	1000.00	3.4 Duration of the pulse generated on channel 1
9-Frq1=Hz	0050.0	3.5 Full scale frequency for channel 1 (0.1Hz-1000.0Hz)
10-Pulse2=	1000.0	3.6 Duration of the pulse generated on channel 2
11-Tp1s2=ms	1000.00	3.7 Pulse value on channel 2
12-Frq2=Hz	0050.0	3.8 Full scale frequency for channel 2 (0.1Hz-1000.0Hz)

MEASURE

MAIN MENU		
1-Sensor		
2-Units		
3-Scales		
4-Measure		
5-MEASURE		
6-Damping=	SMART	4.1 Measure filter
7-Cut-off=%	00.0	4.2 Low flow zero threshold: 0-25% of full scale value
8-Cal.verify=	ON	4.3 Automatic calibration verify
9-Autorange=	ON	4.4 Automatic change of measurement range

ALARMS

```

MAIN MENU
1-Sensor
2-Units
3-Scales
4-Measure
5-ALARMS
6-Functions
7-Outputs
8-Display
9-System
10-Factory
11-Reset
12-Diagnostic
13-System

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 Scelta di portata massima per la portata inversa
- 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

```

MAIN MENU
1-Sensor
2-Units
3-Scales
4-Measure
5-ALARMS
6-Functions
7-Outputs
8-Display
9-System
10-Factory
11-Reset
12-Diagnostic
13-System

OUTPUTS
Out1= FREQ.-
Out2= PULSES+/-
Out mA1=4.22 -0+
A1S= g/s 4908.7
    
```

- 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

```

MAIN MENU
1-Sensor
2-Units
3-Scales
4-Measure
5-ALARMS
6-Functions
7-Outputs
8-Display
9-System
10-Factory
11-Reset
12-Diagnostic
13-System

DISPLAY
Language= GB
D.rate=Hz 1
Part.tot.= ON
Neg.tot.= ON
Net tot.= ON
Quick start= ON
    
```

- 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

```

MAIN MENU
1-Sensor
2-Units
3-Scales
4-Measure
5-ALARMS
6-Functions
7-Outputs
8-Display
9-System
10-Factory
11-Reset
12-Diagnostic
13-System

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

```

MA 1
2
3
4
5
6
7
8
9
10
11
12-Diagnostic
13-System
DIAGNOSTIC
Self test
Sens.verify
Flow sim.= OFF
Display measures
Disp.comm.vars
Display graphs
Firmware info
S/N=
WT=

```

- 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

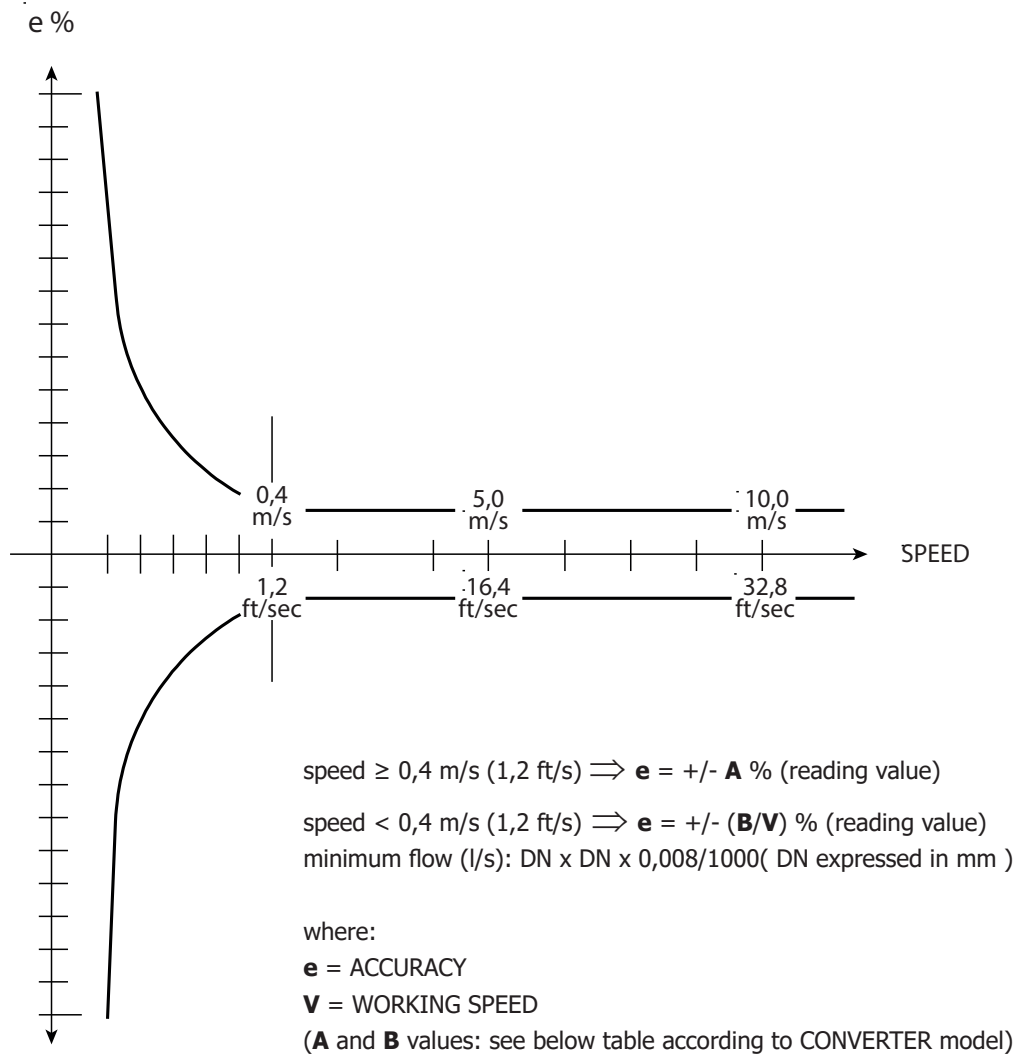
```

MA 1
2
3
4
5
6
7
8
9
10
11
12
13-System
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= 1.00000
KS= 1.00000
KR= 1.00000
DAC1 4mA= 02460
DAC1 20mA= 11050
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 DAC1 out 4mA calibration point
- 13.15 DAC1 out 20mA calibration point
- 13.16 firmware update

ACCURACY TABLE



A	B (speed m/s)	B (speed ft/s)
2	0,8	0,24

Reference conditions:

- Constant flow rate during the test
- Pressure: > 30 kPa
- Flow condition : fully developed flow profile
- Zero stability +/- 0,005 %
- ID accuracy: mean value better than 1%, IDmin/IDmax>0,98

HOW TO ORDER

EXAMPLE CODE		CODE / DESCRIPTION
DN		
A	A	Suitable for diameter ≤ 500 mm ; with MV801 board, Complete of n° 1 freely programmable digital Out
	B	Suitable for diameter ≤ 1000 mm ; with MV801 board, Complete of n° 1 freely programmable digital Out
	C	Suitable for diameter ≤ 2000 mm ; with MV801 board, Complete of n° 1 freely programmable digital Out
Sensor and electrodes material / lining / internal gasket		
1	1	Materials : Sensor housing in AISI316 (head in PEEK), electrodes in HC276 , gasket in FKM
	2	Sensor material: to be specified
Connection type		
A	A	1" UNI 338 (GAS) female threaded connection
	B	1" NPT female threaded connection
	C	Connection: to be specified
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
Electrical Connections		
1	1	5 poles connectors
	2	2 meters of N° 5 poles cable ALREADY CONNECTED

Complete code
example for
order

CS3795-A1A0A1

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