ISOMAG

The friendly magmeter

DATA SHEET
MV800

CE

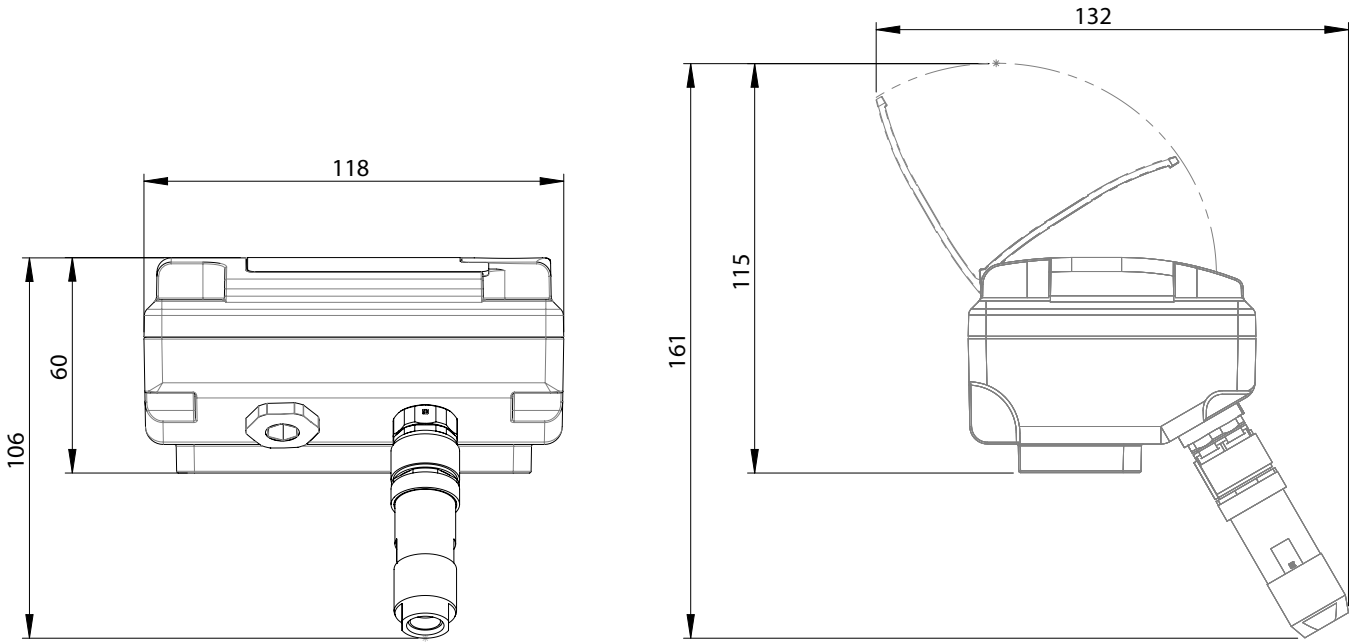
ISOIL INDUSTRIA

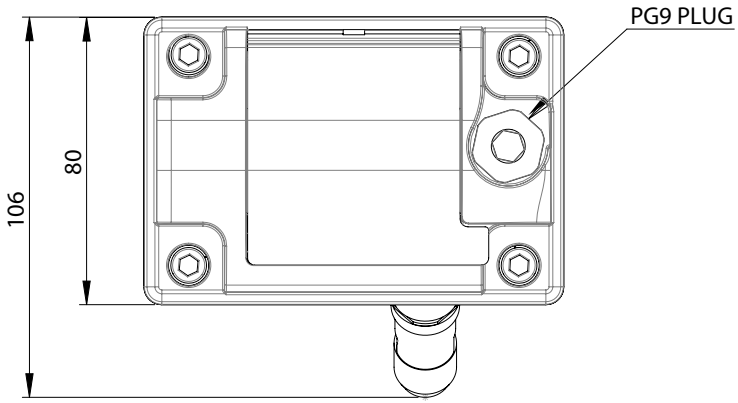
INDEX

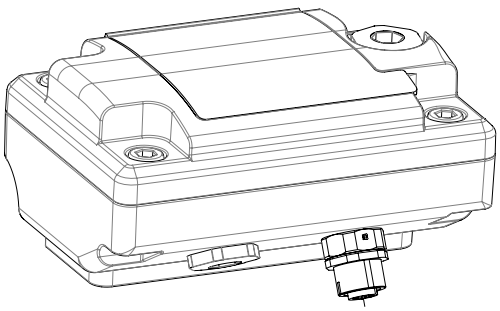
TECHNICAL DATA

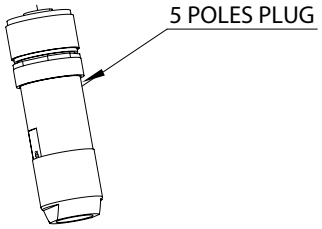
OVERALL FEATURES	
Suitable For	❑ All ISOMAG® sensors (MS1000-2500 up to ND 400)
Minimum conductivity	❑ 20 µS/cm
Altitude	❑ -200 m up to 2000 m
Ambient Temperature	❑ -20… +60°C / -4… +140 °F
Humidity Range	❑ 0÷100% (IP 67)
STANDARD FEATURES	
Housing materials	❑ Painted Aluminium die casting (Cover in PA6 with Display)
Protection Rate	❑ IP 67
Power Supply/Consumption	❑ min10 / max30 V ⎓ - 1W
Electrical connections	❑ 5 pins connector M12X1 complete of plug/Cable
Full scale value	❑ 0,4…10m/s
Protocols	❑ MCP protocol Via USB Interface
Digital Input/Outputs	❑ N° 1 channel OUTPUT for volume pulses/alarms
Data Storage	❑ Eeprom values storing system in case of power failure
Programming Plug In	❑ Protected plug in for the connection to PC
Bidirectional	❑ Yes
CE Certification	❑ Yes
OPTIONAL FEATURES (CHECK HOW TO ORDER, AT LAST PAGE, FOR MORE DETAILS)	
Display	❑ Display LCD Custom dimensions 60 x 40 mm
Housing materials	❑ Housing in AISI 304 JB RAW/POLISHED (Cover in PA6 woth Display)
Pulses/ Alarm Outputs	❑ N° 1 channel OUTPUT for volume pulses/alarms
Current Output	❑ N°1 , 0/4…20mA – RL= 500 Ohm (according to main power supply)
ACCURACY	
Measurements tolerance (board)	❑ Volume = ±0,2% v.l. ❑ Out 4/20 mA = ± 0,2 % v.l.
Accuracy (whole system converter+sensor)	❑ See table below

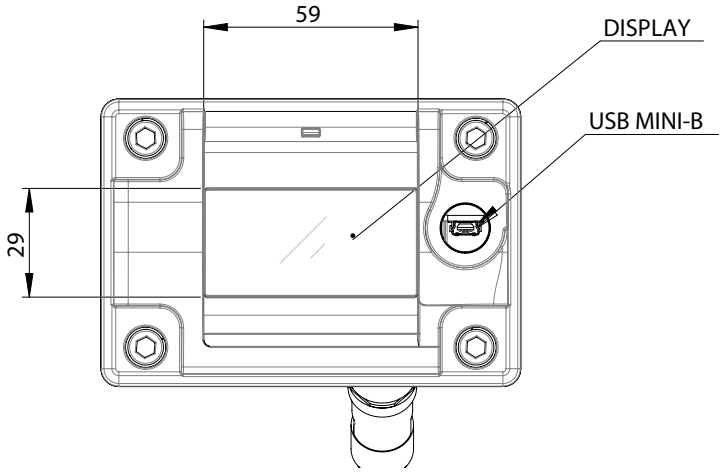
OVERALL DIMENSIONS WITH CONNECTOR



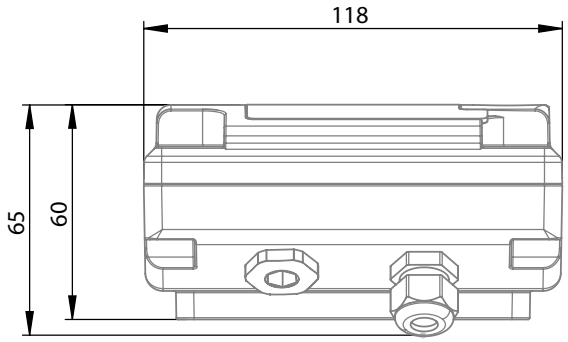


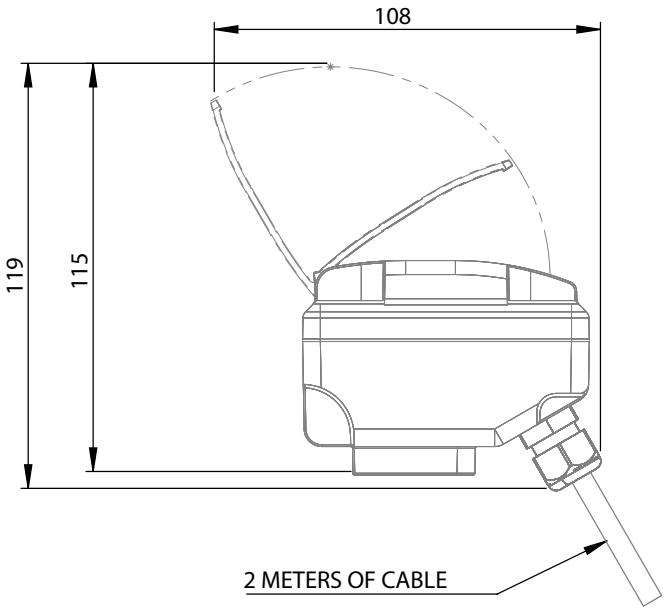


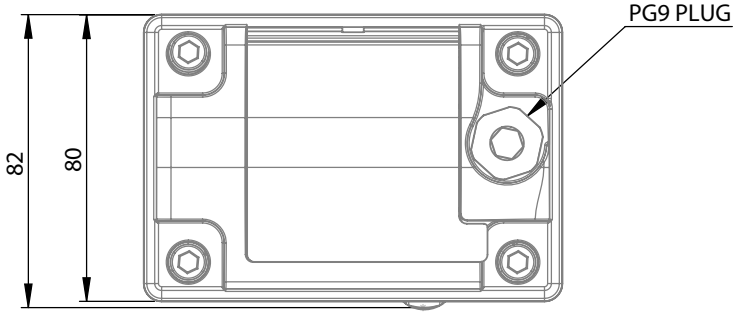


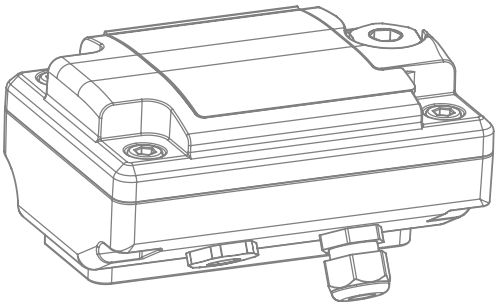


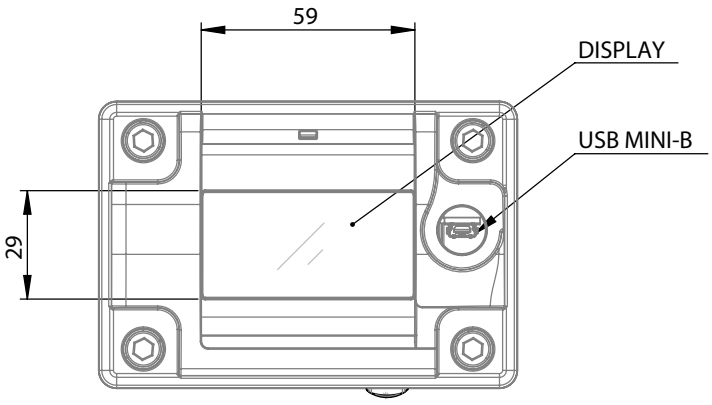
OVERALL DIMENSIONS WITH CABLE GLAND



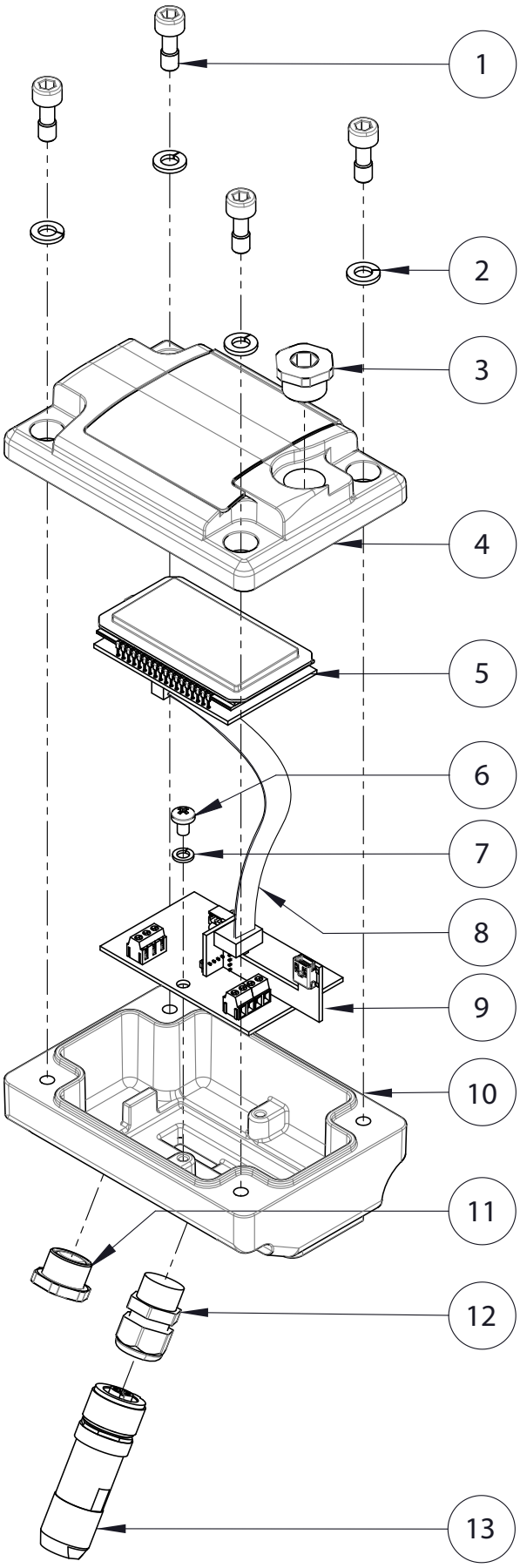








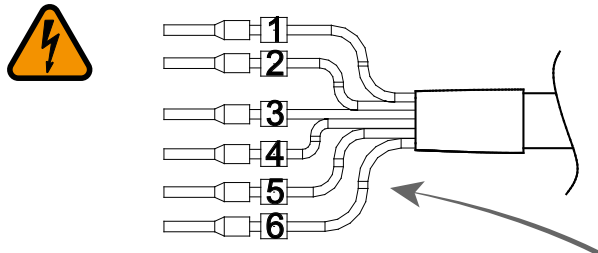
MV800 LAYOUT

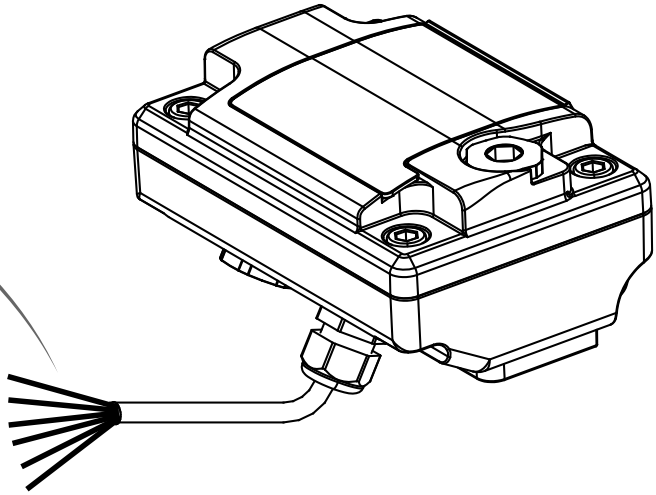


POS.	DESCRIPTION
1	SCREWS M6x16
2	GROWERS Ø6
3	PG9 PLUG
4	COVER PA06
5	DISPLAY
6	SCREWS M4X6 TC
7	GROWERS Ø 4
8	FLAT CABLE
9	MV800 PCB
10	HOUSING IN PA06/AISI 304 JB RAW OR POLISCHED
11	PG9 PLUG
12	CABLE GLANDS
13	5 POLES CONNECTOR COMPLETE OF PLUG

ELECTRICAL CONNECTIONS

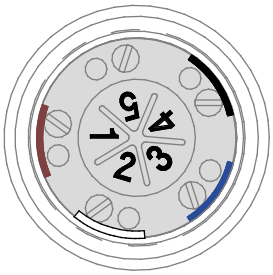
VERSION WITH CABLE

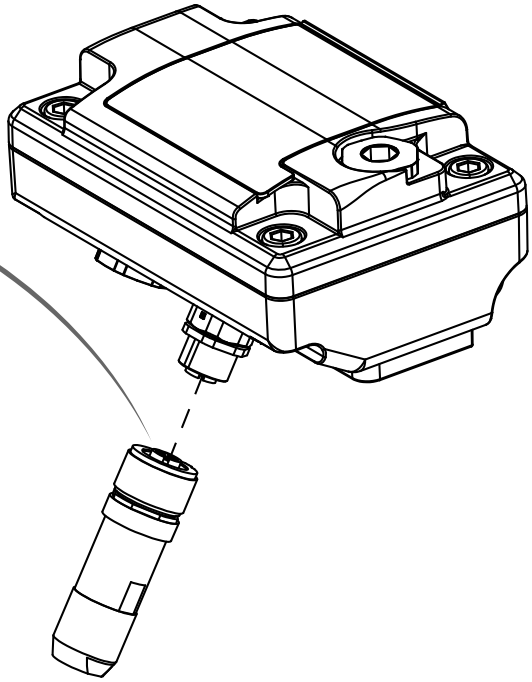




1 (+) POWER SUPPLY
2 (+) OUTPUT 1
3 (+) OUTPUT 2 (OPTIONAL)
4 (+) 4-20mA max load: 500 Ω OUTPUT (OPTIONAL)
5 (-) POWER SUPPLY / OUTPUTS
6 SHIELD (CONNECT TO GROUND)
⏚ PIN 5-6 TO BE CONNECT TO THE GROUND

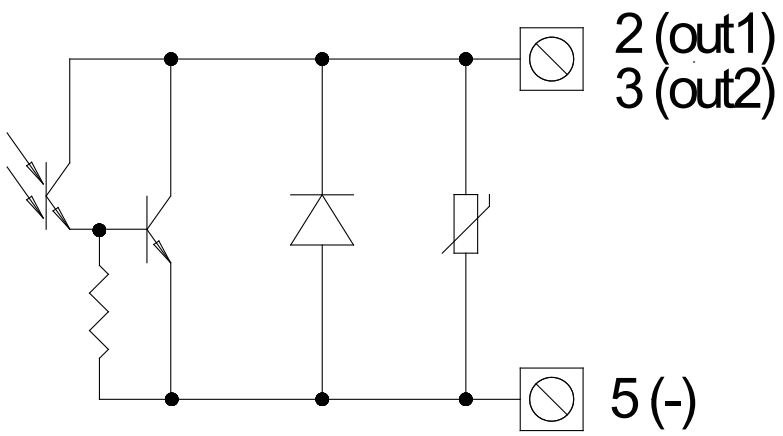
VERSION WITH CONNECTOR



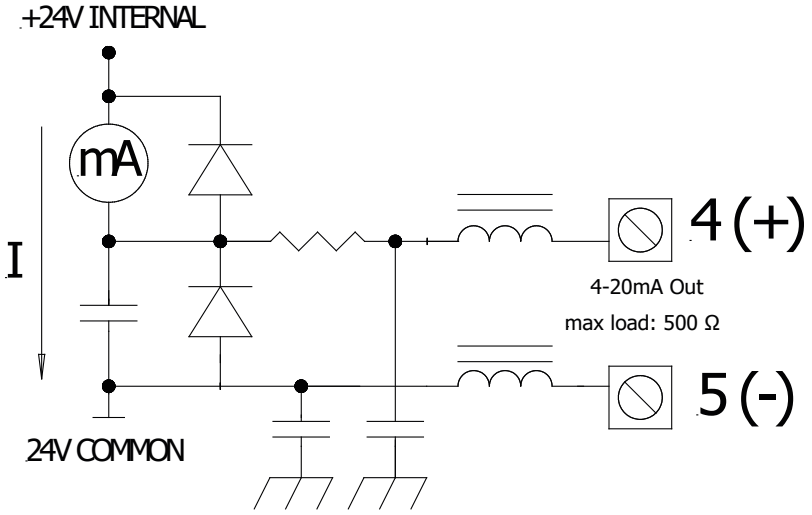


1 (+) POWER SUPPLY
2 (+) OUTPUT 1
3 (+) OUTPUT 2 (OPTIONAL)
4 (+) 4-20mA max load: 500 Ω OUTPUT (OPTIONAL)
5 (-) POWER SUPPLY / OUTPUTS
⏚ PIN 5 TO BE CONNECT TO THE GROUND

OUTPUTS: DIGITAL /ANALOG



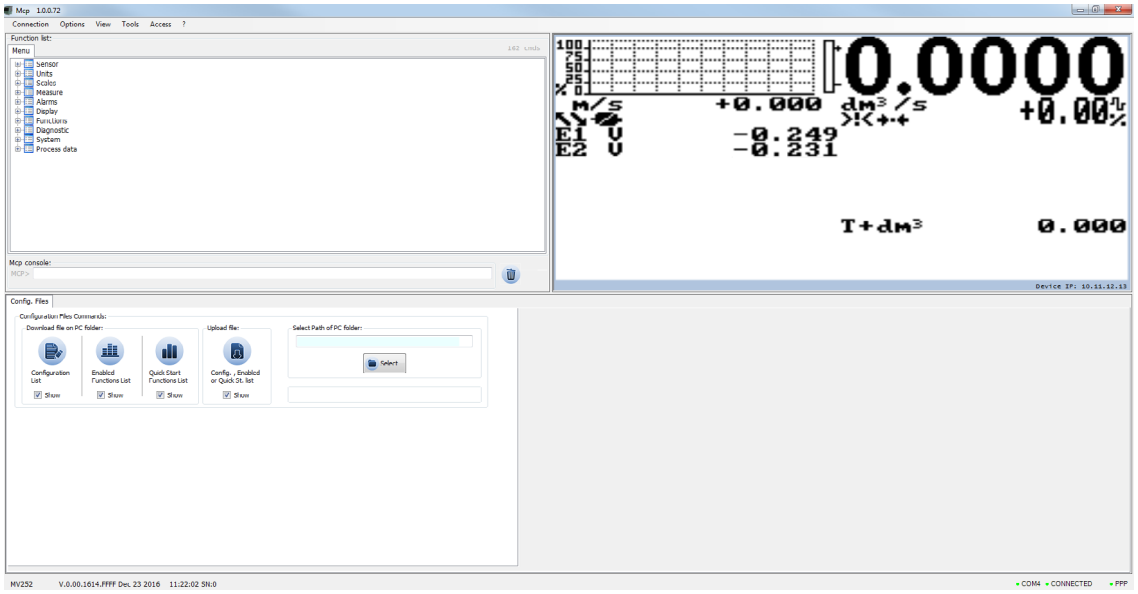
DIGITAL OUTPUTS



ANALOG OUTPUT

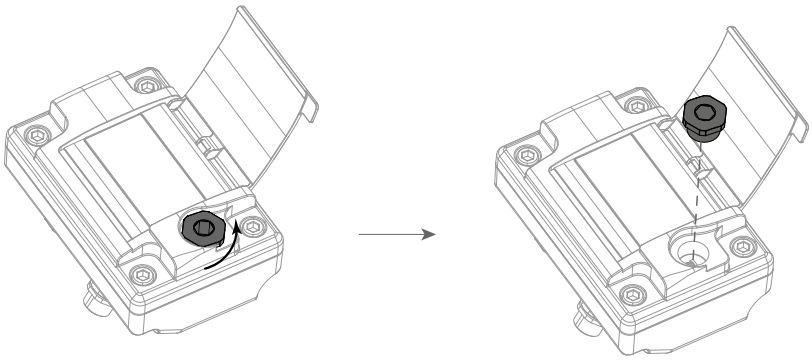
USER INTERFACE

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.

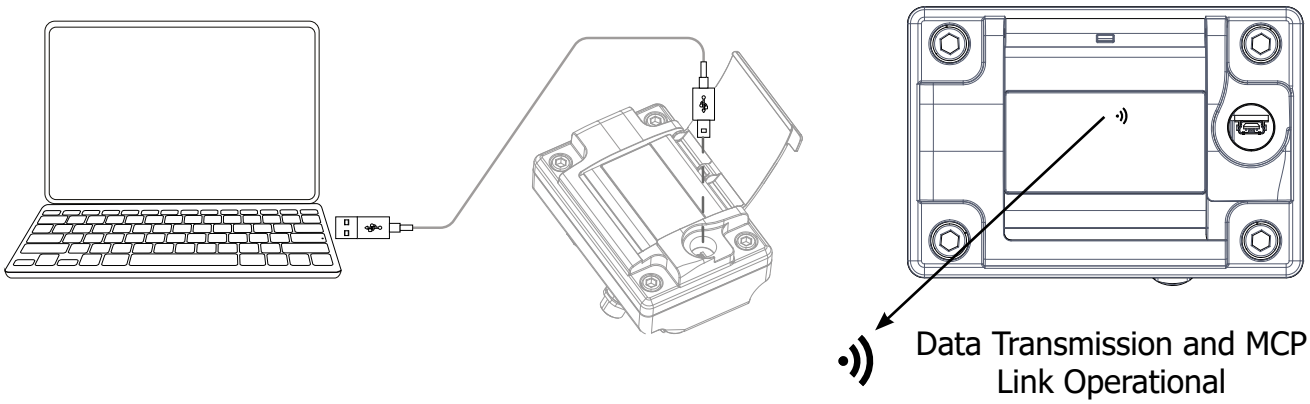


To connect the converter to the computer, connect the USB cable as shown below.

Remove the PG9 PLUG.

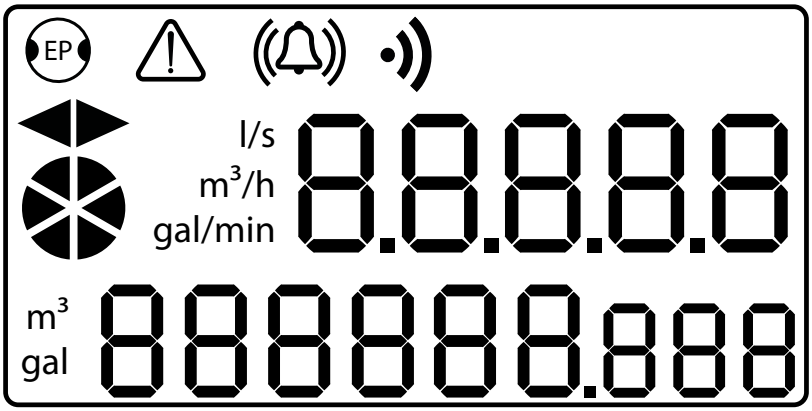


Connect USB cable type mini B. Verify connection by symbol on display



Data Transmission and MCP Link Operational

DISPLAY VISUALIZATION



EP — EMPTY PIPE WARNING

ALARM WARNING

PROCESS ALARM

DATA TRANSMISSION

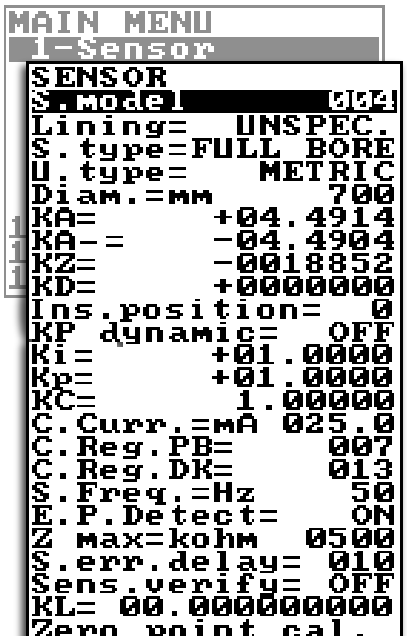
FLOW DIRECTION

ACTIVE FLOW RATE

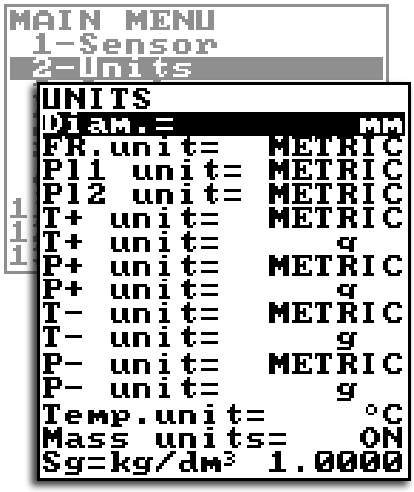
l/s
m³/h
gal/min
— FLOW RATE MEASURE UNIT

m³
gal
— TOTALIZER MEASURE UNIT

AVAILABLE FUNCTIONS

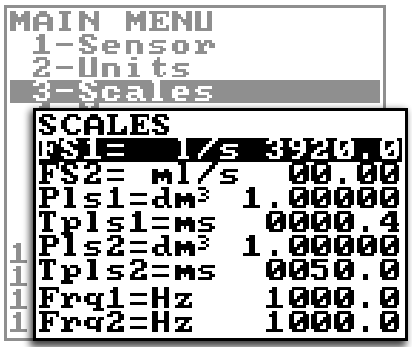


1.1 Sensors model: Enter the first two characters of the serial number of the sensor
1.2 Flow sensor lining material type
1.3 Type of sensor: fullbore or insertion
1.4 Type of measure units for sensor parameter: metric or imperial
1.5 Insert ND of sensor (0-400)
1.6 Calibration data of sensor visualized on sensor's label
1.7 Sensor coefficient KZ (zero point)
1.8 Sensor coefficient KD (zero point)
1.9 Insertion position
1.10 KP dynamic, coefficient for insertion
1.11 Sensor coefficient Ki
1.12 Sensor coefficient Kp
1.13 Sensor coefficient KC
1.14 Sensor excitation current
1.15 Current regulator proportional band
1.16 Current regulator derivation constant
1.17 Measure sampling frequency
1.18 Enables the empty pipe detection feature
1.19 Empty pipe detection threshold
1.20 Signal error delay (n. sample)
1.21 Automatic sensor verify enable
1.22 Pipe hydraulic zero calibration

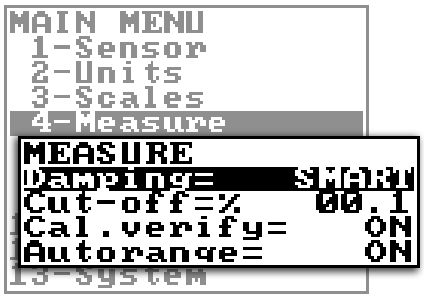


2.1 Nominal diameter measure unit
2.2 Flowrate type measure unit: metric or imperial
2.3 Pulse 1 type measure unit: metric or not metric
2.4 Pulse 2 type measure unit: metric or not metric
2.5 Total direct totalizer measure unit type: metric or imperial
2.6 Total direct totalizer measure unit
2.7 Partial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

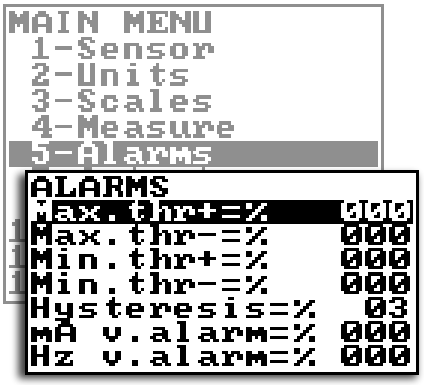
The physical display provides the following units of measurement: l/s, m^3/h, gal/mln, m^3, gal. Other units available at menus, selectable by MCP interface, they will not be displayed on the physical display, but will only display their numeric values.



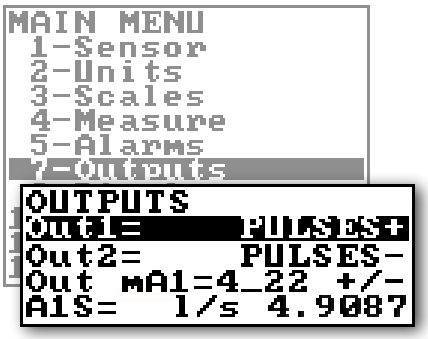
3.1 Full scale flow rate 1
3.2 Full scale flow rate 2
3.3 Pulse value on channel 1
3.4 Duration of the pulse generated on channel 1
3.5 Pulse value on channel 2
3.6 Duration of the pulse generated on channel 2
3.7 Full scale frequency for channel 1 (0.1Hz-1000.0Hz)
3.8 Full scale frequency for channel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



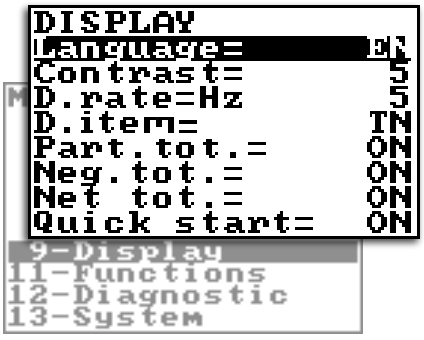
4.1 Measure filter
4.2 Low flow zero threshold: 0-25% of full scale value
4.3 Automatic calibration verify
4.4 Automatic change of measurement range



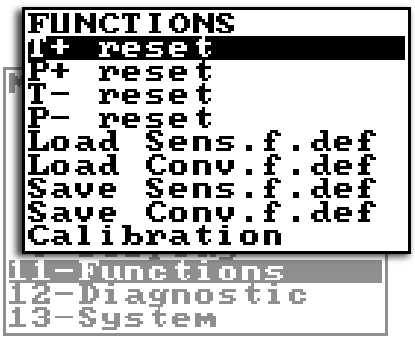
5.1 Maximum value alarm set for direct flow rate
5.2 Maximum value alarm set for reverse flow rate
5.3 Minimum value alarm set for direct flow rate
5.4 Minimum value alarm set for reverse flow rate
5.5 Hysteresis threshold set for the minimum and maximum flow rate alarms
5.6 Current output value in case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



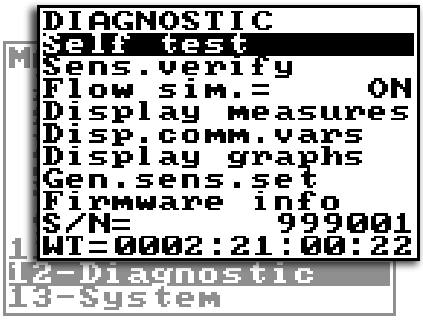
7.1 Output 1 functions
7.2 Output 2 functions
7.3 Choice of the function and the range of current output n.1
7.4 Full Scale value for analog out1



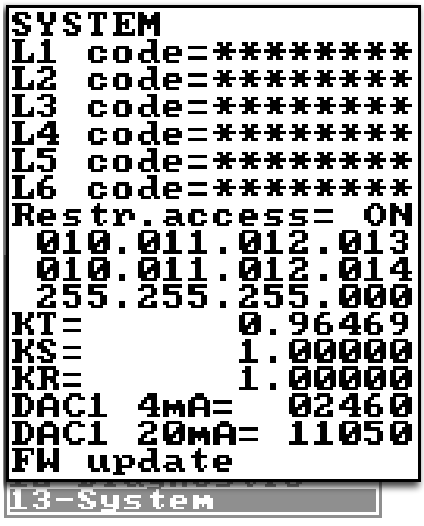
9.1 Choice of the language
9.2 Display contrast
9.3 Display updating frequency: 1-2-5-10 Hz
9.4 Display item choice
9.5 Partial totalizer enable
9.6 Negative totalizer enable
9.7 Net totalizer enable
9.8 Quick start menu visualization



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

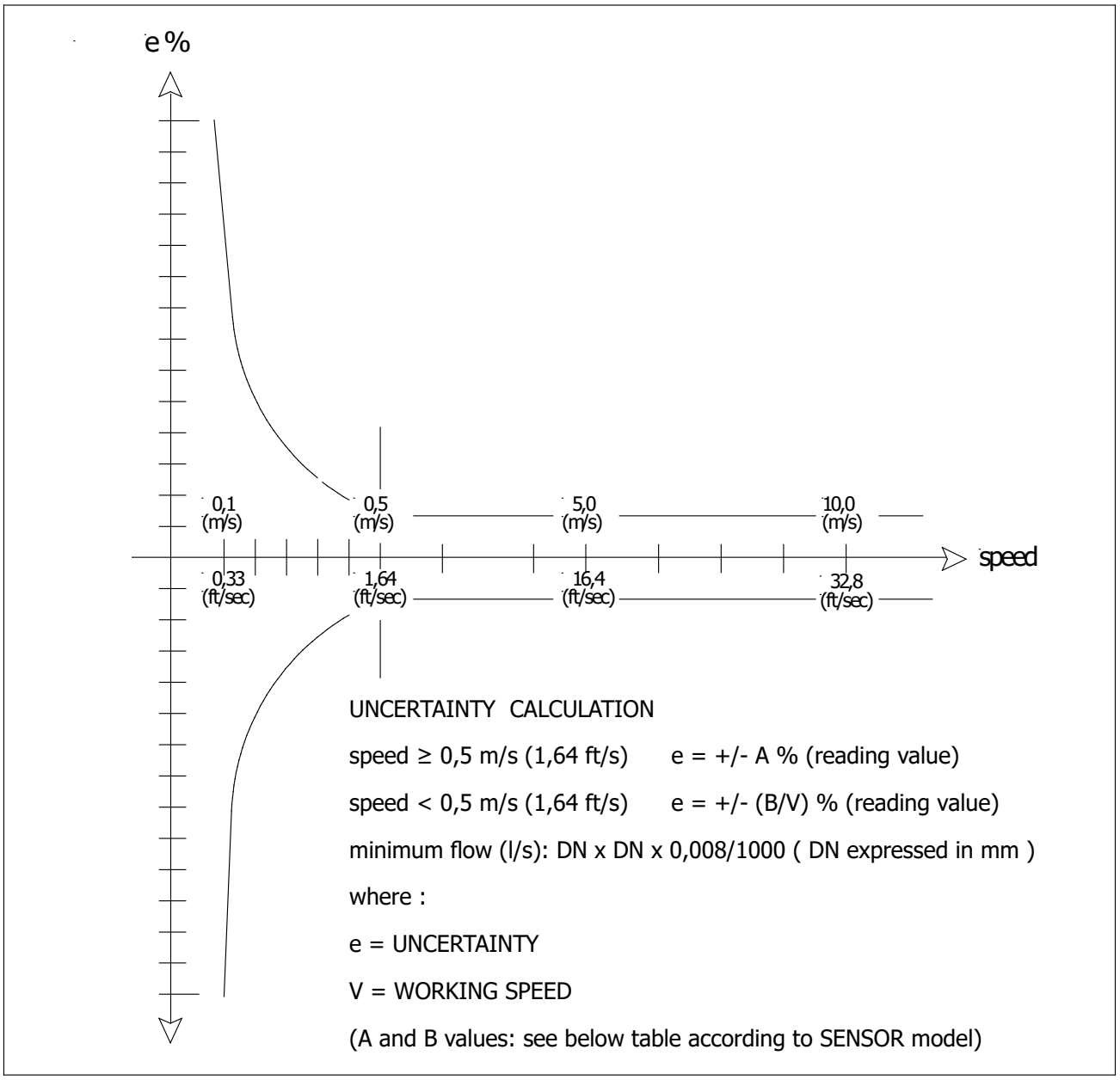


12.1 Self test diagnostic function
12.2 Sensor verify diagnostic function
12.3 Flow rate simulation enabling
12.4 Display internal measured value
12.5 Display comm. diagnostic values
12.6 Display measure as graphs
12.7 Generic sensor parameters set
12.8 Firmware version/revision
12.9 Board serial number
12.10 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 KS
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



ACCURACY TABLE

MS1000/MS2500		
A	B(m/s)	B(ft/s)
0,5	0,25	0,82

Reference conditions below and as per internal testing procedures:

Constant flow rate during the test
Pressure: >30 Kpa
Flow condition : fully developed flow profile
Zero stability +/- 0,005 %

MI-001 OIML R49 CLASS1: MV800

The MS2500 sensor's diameters listed below, coupled with MV800, are certified according to European Directive 2004/22CE category MI-001 (OIML R49)

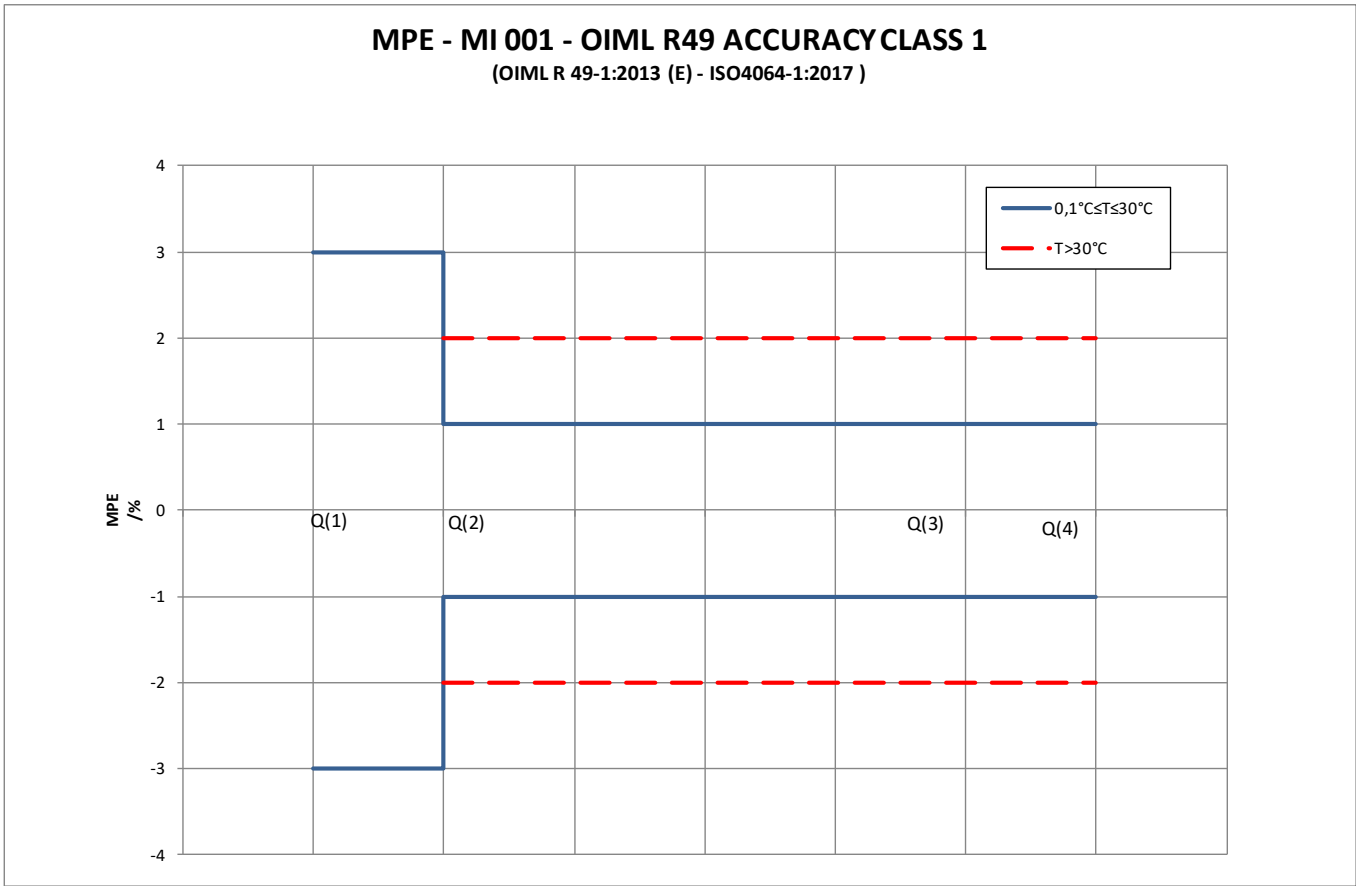
SENSOR SIZE	mm	25	32	40	50	65	80	100	125	150	200
	inch	1	1 ¼	1 ½	2	2 ½	3	4	5	6	8
Q1	m³/h	0.160	0.250	0.400	0.630	1.000	1.600	2.500	4.000	6.300	10.000
Q2	m³/h	0.256	0.400	0.640	1.008	1.600	2.560	4.000	6.400	10.080	16.000
Q3	**m³/h**	**16**	**25**	**40**	**63**	**100**	**160**	**250**	**400**	**630**	**630**
R	**Q3/Q1**	**100**									**63**

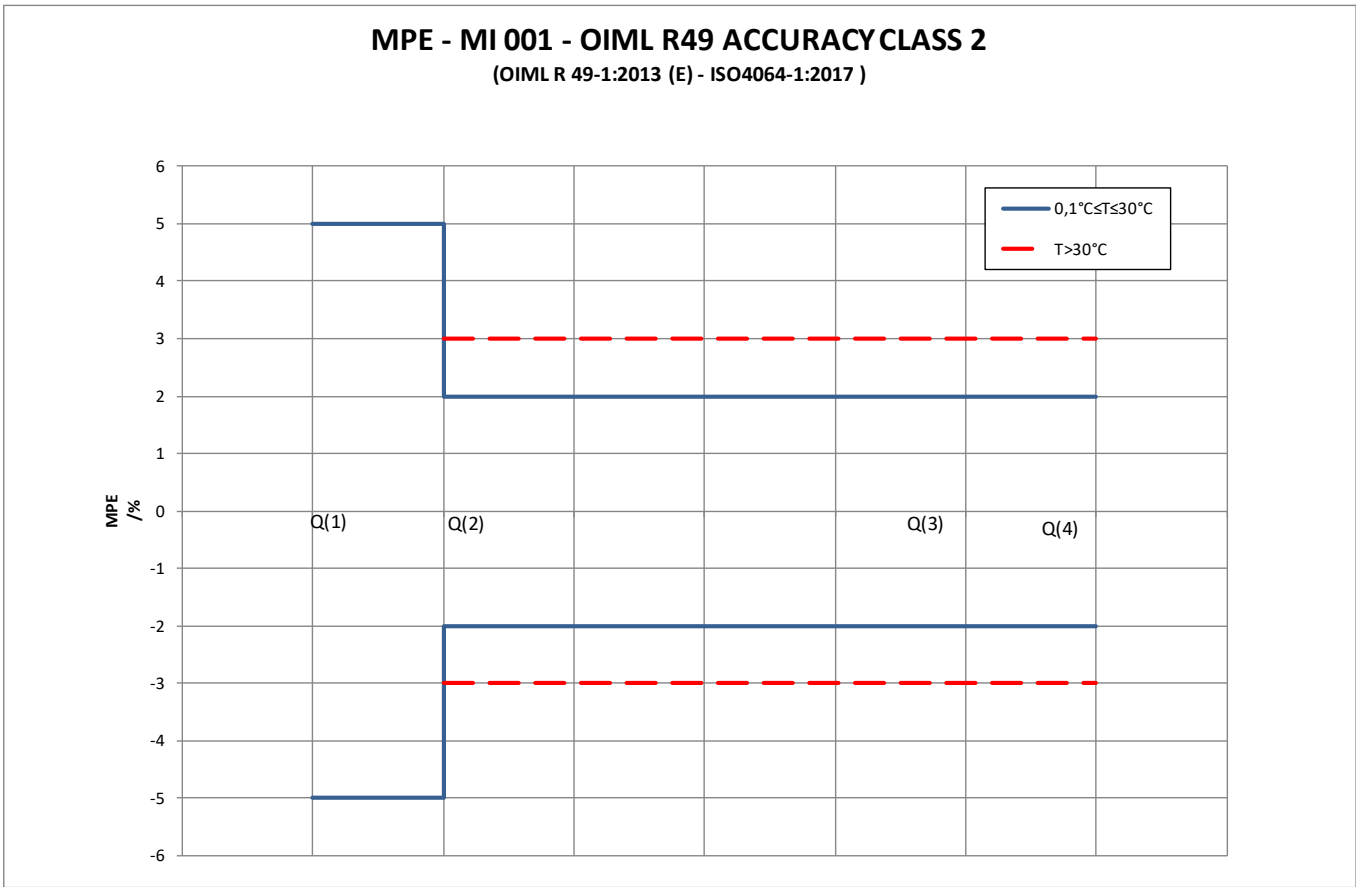
MI-001 OIML R49 CLASS 2: MV800

The MS2500 sensor's diameters listed below, coupled with MV800, are certified according to European Directive 2004/22CE category MI-001 (OIML R49)

SENSOR SIZE	mm	25	32	40	50	65	80	100	125	150	200
	inch	1	1 ¼	1 ½	2	2 ½	3	4	5	6	8
Q1	m³/h	0.100	0.156	0.250	0.394	0.625	1.000	1.563	2.500	3.938	7.880
Q2	m³/h	0.160	0.250	0.400	0.630	1.000	1.600	2.500	4.000	6.300	12.60
Q3	**m³/h**	**16**	**25**	**40**	**63**	**100**	**160**	**250**	**400**	**630**	**630**
R	**Q3/Q1**	**160**									**80**

SENSOR SIZE	mm	250
	inch	10
Q1	m³/h	15.75
Q2	m³/h	25.200
Q3	**m³/h**	**630**
R	**Q3/Q1**	**40**





MI-004 CLASS1: MV800

The MS2500 sensor's diameters listed below, coupled with MV800, are certified according to European Directive 2004/22CE category MI-004

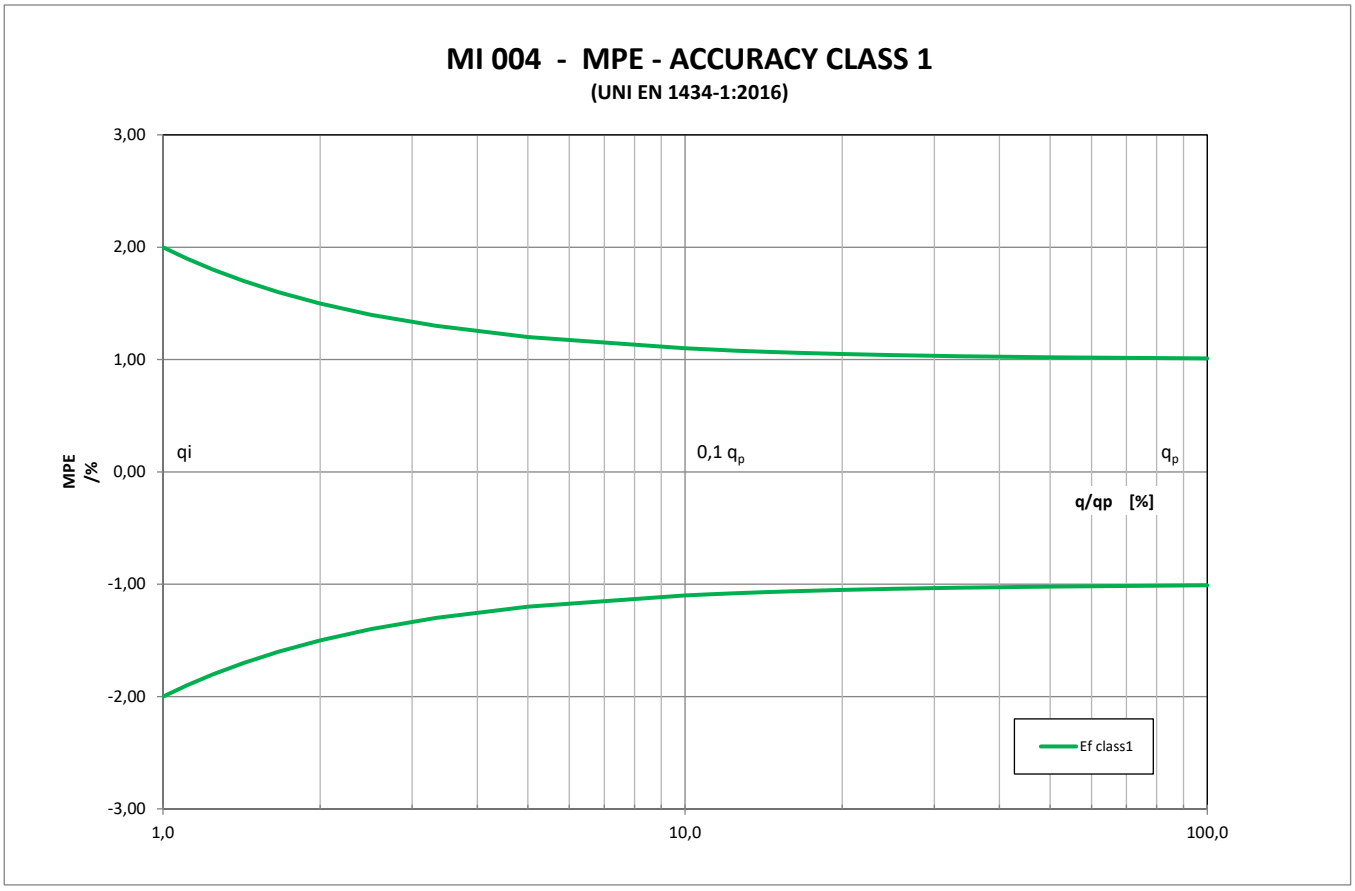
SENSOR SIZE	mm	25	32	40	50	65	80	100	125	150	200	250	300	350	400
	inch	1	1 ¼	1 ½	2	2 ½	3	4	5	6	8	10	12	14	16
q_i	m³/h	0.16	0.25	0.40	0.63	1.0	1.6	2.5	4.0	6.3	10	16	25	25	40
0,1 q_p	m³/h	1.6	2.5	4.0	6.3	10	16	25	40	63	100	160	250	250	400
$q_{p\ (10m/s)}$	m³/h	**16**	**25**	**40**	**63**	**100**	**160**	**250**	**400**	**630**	**1000**	**1600***	**2500***	**2500***	**4000***
q_s	m³/h	16	25	40	63	100	160	250	400	630	1000	1600	2500	2500	4000
q_p/q_i		**100**													

SENSOR SIZE	mm	25	32	40	50	65	80	100	125	150	200	250	300	350	400
	inch	1	1 ¼	1 ½	2	2 ½	3	4	5	6	8	10	12	14	16
qi	m³/h	0.20	0.32	0.50	0.80	1.26	2.0	3.2	5.0	8.0	12.6	20	32	50	50
0,1 qp	m³/h	1.0	1.6	2.5	4.0	6.3	10	16	25	40	63	100	160	250	250
$qp_{\ (5m/s)}$	m³/h	**10**	**16**	**25**	**40**	**63**	**100**	**160**	**250**	**400**	**630**	**1000**	**1600***	**2500***	**2500***
q_s	m³/h	16	25	40	63	100	160	250	400	630	1000	1600	2500	2500	4000
q_p/q_i		**50**													

SENSOR SIZE	mm	25	32	40	50	65	80	100	125	150	200	250	300	350	400
	inch	1	1 ¼	1 ½	2	2 ½	3	4	5	6	8	10	12	14	16
qi	m³/h	0.40	0.64	1.00	1.60	2.52	4.00	6.40	10.0	16.0	25.2	40.0	64.0	100	100
0,1 qp	m³/h	1.0	1.6	2.5	4.0	6.3	10.0	16.0	25.0	40.0	63.0	100	160	250	250
$qp_{\ (2;5m/s)}$	m³/h	**10**	**16**	**25**	**40**	**63**	**100**	**160**	**250**	**400**	**630**	**1000**	**1600***	**2500***	**2500***
q_s	m³/h	16	25	40	63	100	160	250	400	630	1000	1600	2500	2500	4000
q_p/q_i		**25**													

SENSOR SIZE	mm	25	32	40	50	65	80	100	125	150	200	250	300	350	400
	inch	1	1 ¼	1 ½	2	2 ½	3	4	5	6	8	10	12	14	16
qi	m³/h	1.0	1.6	2.5	4.0	6.3	10.0	16.0	25.0	40.0	63.0	100	160	250	250
0,1 qp	m³/h	1.0	1.6	2.5	4.0	6.3	10.0	16.0	25.0	40.0	63.0	100	160	250	250
$qp_{\ (1,0m/s)}$	m³/h	**10**	**16**	**25**	**40**	**63**	**100**	**160**	**250**	**400**	**630**	**1000**	**1600***	**2500***	**2500***
q_s	m³/h	16	25	40	63	100	160	250	400	630	1000	1600	2500	2500	4000
q_p/q_i		**10**													

(*) : Reduced flowrates to the test rig limits



HOW TO ORDER

CODE EXAMPLE	MV 800	
A	**A**	MV800 - Blind, N°1 freely programmable digital OUT
	B	MV800 - Complete of DISPLAY LCD and N°1 freely programmable digital OUT (mandatory for MI001)
Housing material / Protection rate		
0	**0**	Housing in painted Alluminum (with PA6 plastic cover for version with display)
	1	Housing in AISI 304 JB RAW (with PA6 plastic cover for version with display)
	2	Housing in AISI 304 JB POLISHED (with PA6 plastic cover for version with display)
DIGITAL Output		
A	**A**	without Additional Digital Out
	B	n° 1 additional digital out
ANALOG Output		
0	**0**	Without Analog Out
	1	With Analog Out
Electrical Connections		
A	**A**	5 poles connector complete with plug
	B	2 meters of N° 5 poles cable ALREADY CONNECTED
Special Features		
0	**0**	NONE
MID Approval		
A	**A**	NONE
	B	MI-001/OIMLR49-CLASS 1
	C	MI-001/OIMLR49-CLASS 2
	D	MI-004-CLASS 1

MV800-A0A0A0A (Complete code example for order)

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

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