ISOMAG™

The friendly magmeter

DATA SHEET

MV255

MV255_IT_EN_DS062REV09_IS

Official Isoil dealer in The Netherlands:

UFM

ISOIL INDUSTRIA

INDEX

TECHNICAL DATA

OVERALL FEATURES	
Suitable For	❑ All the ISOMAG® sensors
Minimum Conductivity	❑ 5 µS/cm
Altitude	❑ -200 m up to 4000 m
Ambient Temperature	❑ -20… +60°C / -4… +140 °F - Aluminium housing ❑ -10… +50°C / -4… +104 °F - Reinforced Nylon
Humidity Range	❑ 0÷100%

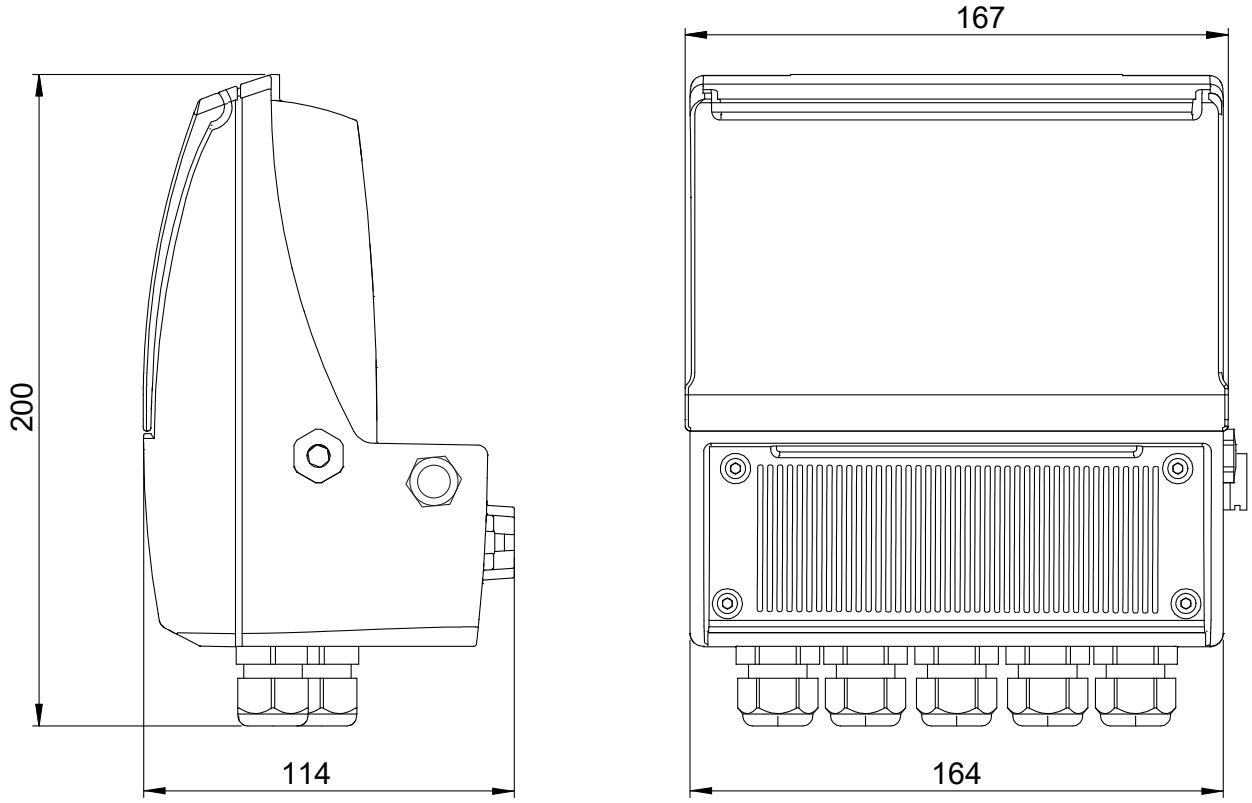
STANDARD FEATURES	
Version	❑ Compact ❑ Separate
Housing materials	❑ Painted Aluminium die casting ❑ Nylon reinforced with 15% of fiber glass
Protection Rate	❑ IP 67
Power supply / consumption	❑ Network/Rechargeable Battery / Primary Lithium Batteries / Alkaline Batteries (50mW ... 4W)
Cable Gland	❑ N° 5 cable gland PG 11
Full Scale Value	❑ 0,4…10m/s
Dig. Input	❑ N ° 1, programmable (for example reset totalizers)
Data Storage	❑ F-Ram
Galvanic Isolation	❑ All analog / digital inputs / outputs are galvanically isolated (500V);
Programming Plug In	❑ PC connection via USB (A/ USB MINI B type cable must be used)
Bidirectional	❑ YES
Diagnostic Funct.	❑ YES
Empty Pipe Detect.	❑ YES
Communication Ports	❑ Modem 3G ❑ Modem 4G
Data Logger	❑ MicroSD Memory Card 4 GBytes and RTC (Real Time Clock)
CE Certificate	❑ YES

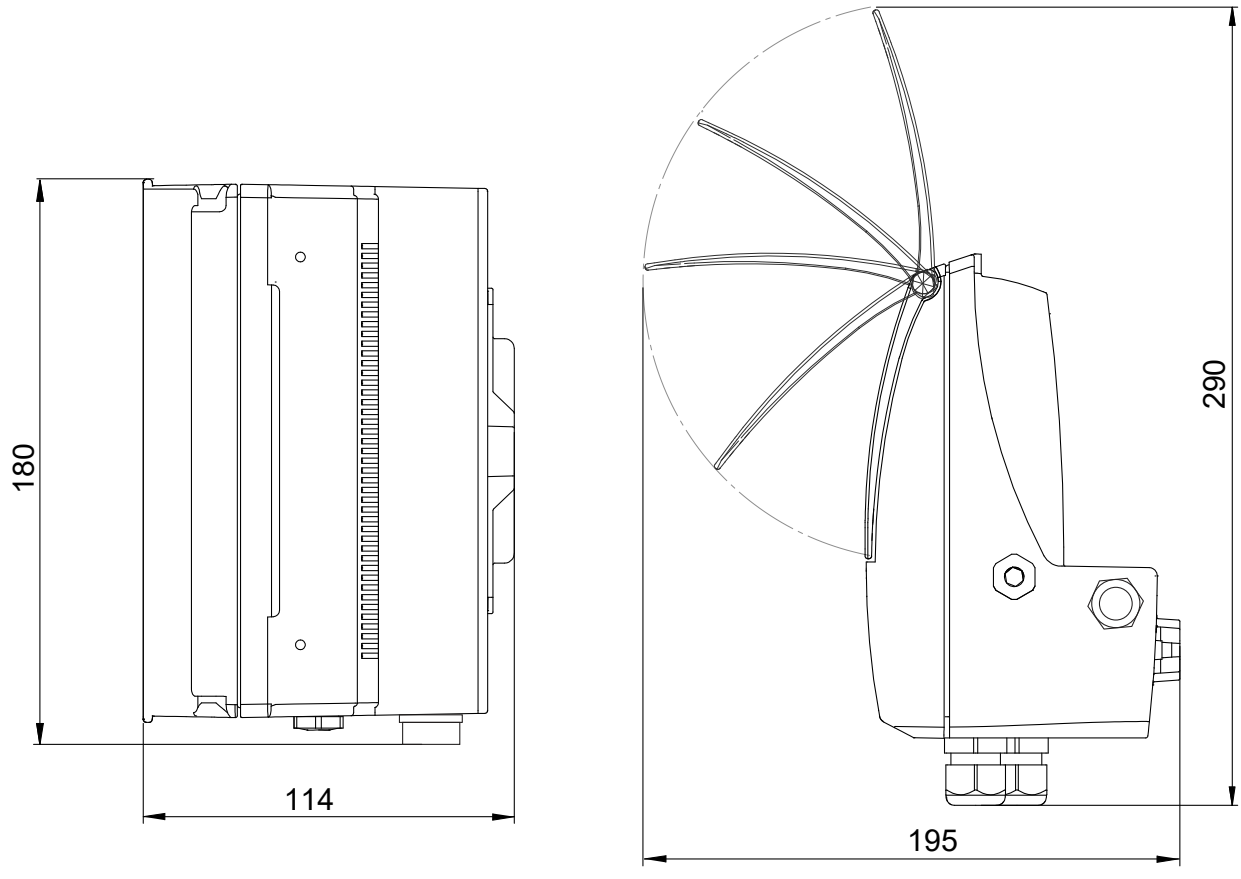
OPTIONAL FEATURES (CHECK HOW TO ORDER, AT LAST PAGE, FOR MORE DETAILS)	
Protection Rate	
Conn. Sensor Cable	❑ CABLE C015-C016
LCD Display	❑ 128x64 pixel backlit graphic display (Main power version only), with 3 keys for programming
Outputs: **Pulses/ Alarm**	❑ N°2...4 DIGITAL OUTPUT, Max 50 Hz, 100mA, 30 V (AC/DC) ❑ N°1...3 DIGITAL INPUT
Analog Outputs	❑ N ° 1 Analog Output 4 ... 20 mA
Pressure Input	❑ N ° 1 ... 2 Input from Pressure Sensor / N ° 1 ... 2 Temperature Input (PT100 / 500/1000)
Data Logger	❑ MicroSD Memory 4 GB : Data Logger + RTC (Real Time Clock) + BIV (Built In Verificator) ❑ MicroSD Memory 4 GB : Data Logger + RTC (Real Time Clock) + Meter Data (Real Time Converter & Sensor Data on SD Memory) ❑ MicroSD Memory 4 GB : Data Logger + RTC (Real Time Clock) + BIV + Meter Data ❑ MicroSD Memory Card 4 GBytes
Protocols	❑ ModBus RTU (speed ranges that can be set bps: 4800 /9600 / 19200/ 22800/ 38400/ 57600)

ACCURACY	
Measurements Tolerance	❑ Flow rate (volume) = ±0,1% c.r. ❑ Out 4/20 mA = ± 0,2 % c.r. ❑ Frequency Out = ± 0,2% c.r.
Accuracy (Whole System Converter+Sensor)	❑ See table below

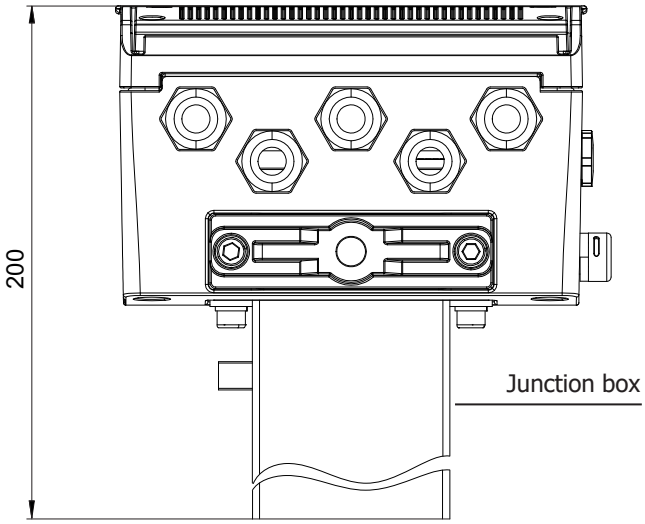
OVERALL DIMENSIONS

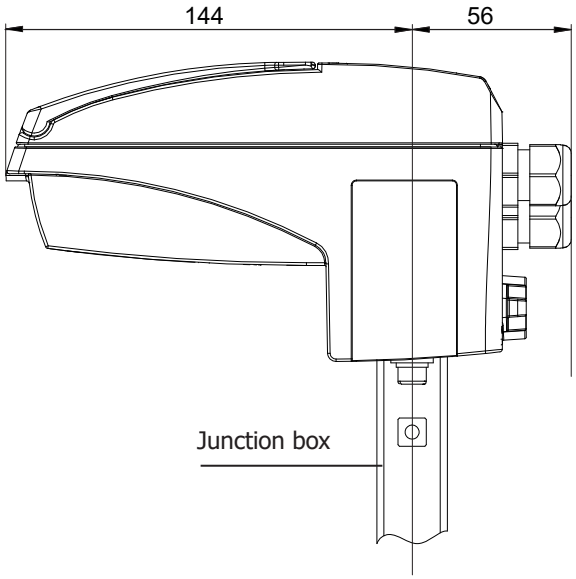
Without battery pack



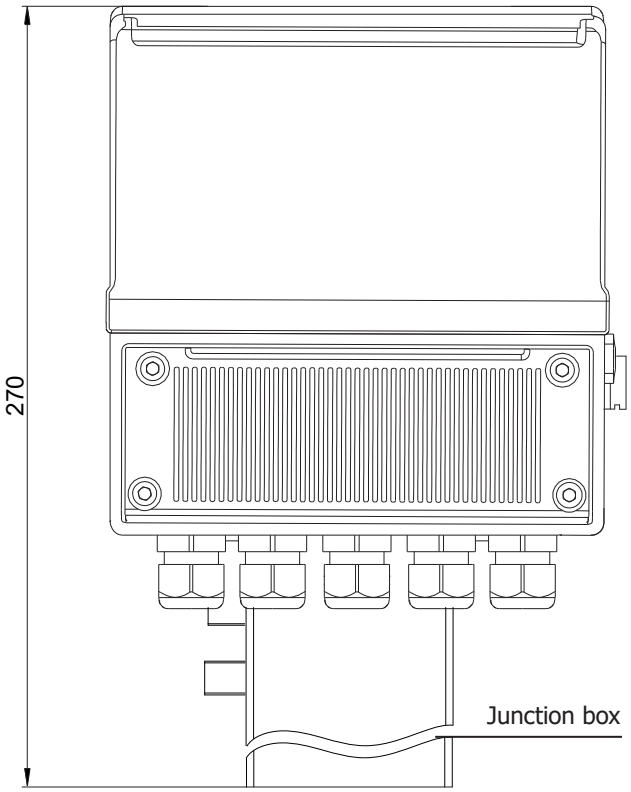


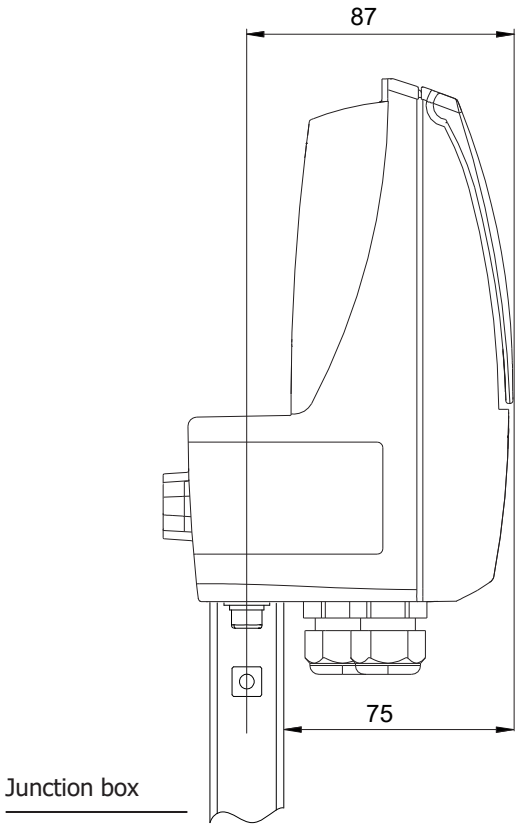
Horizontal compact version



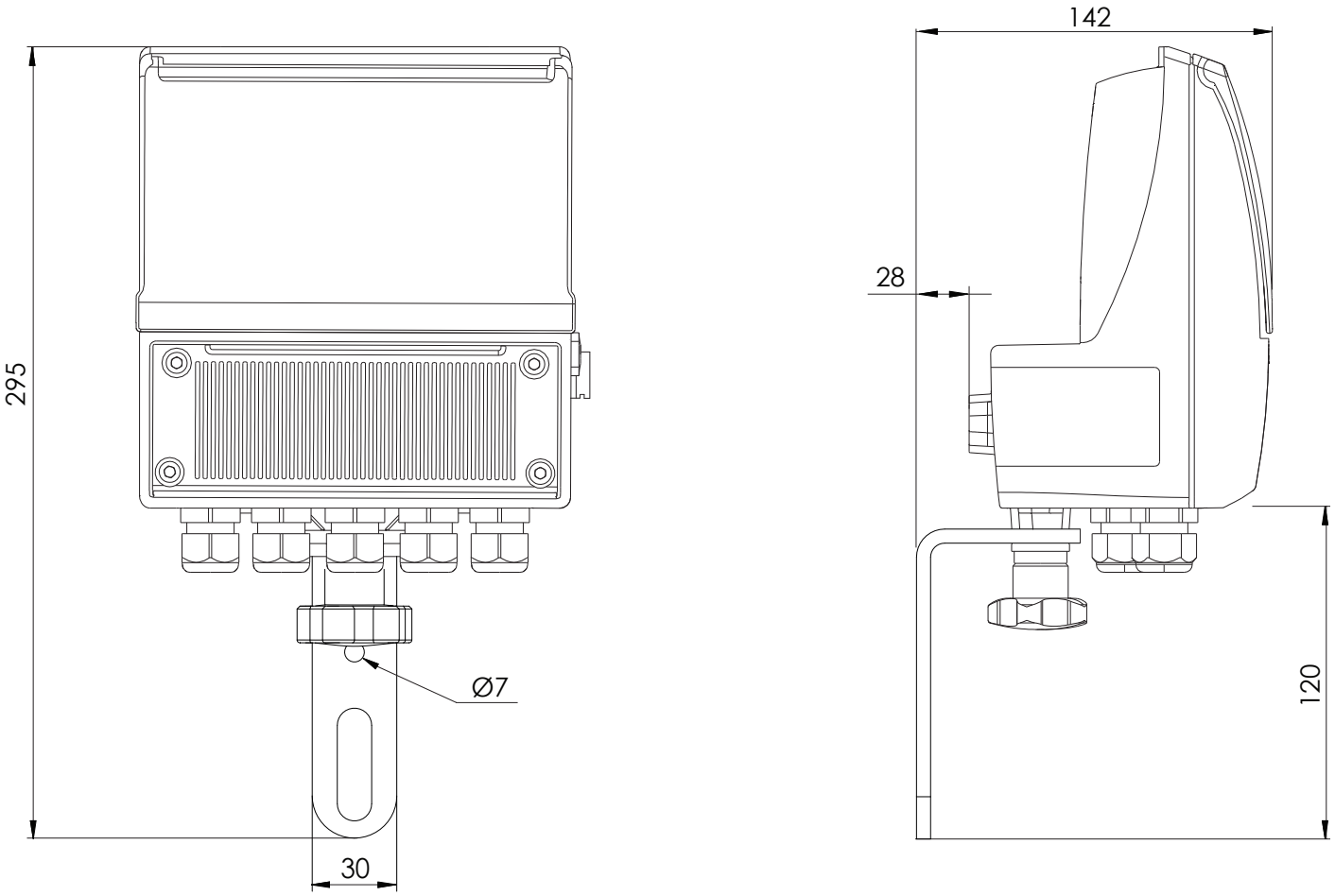


Vertical compact version



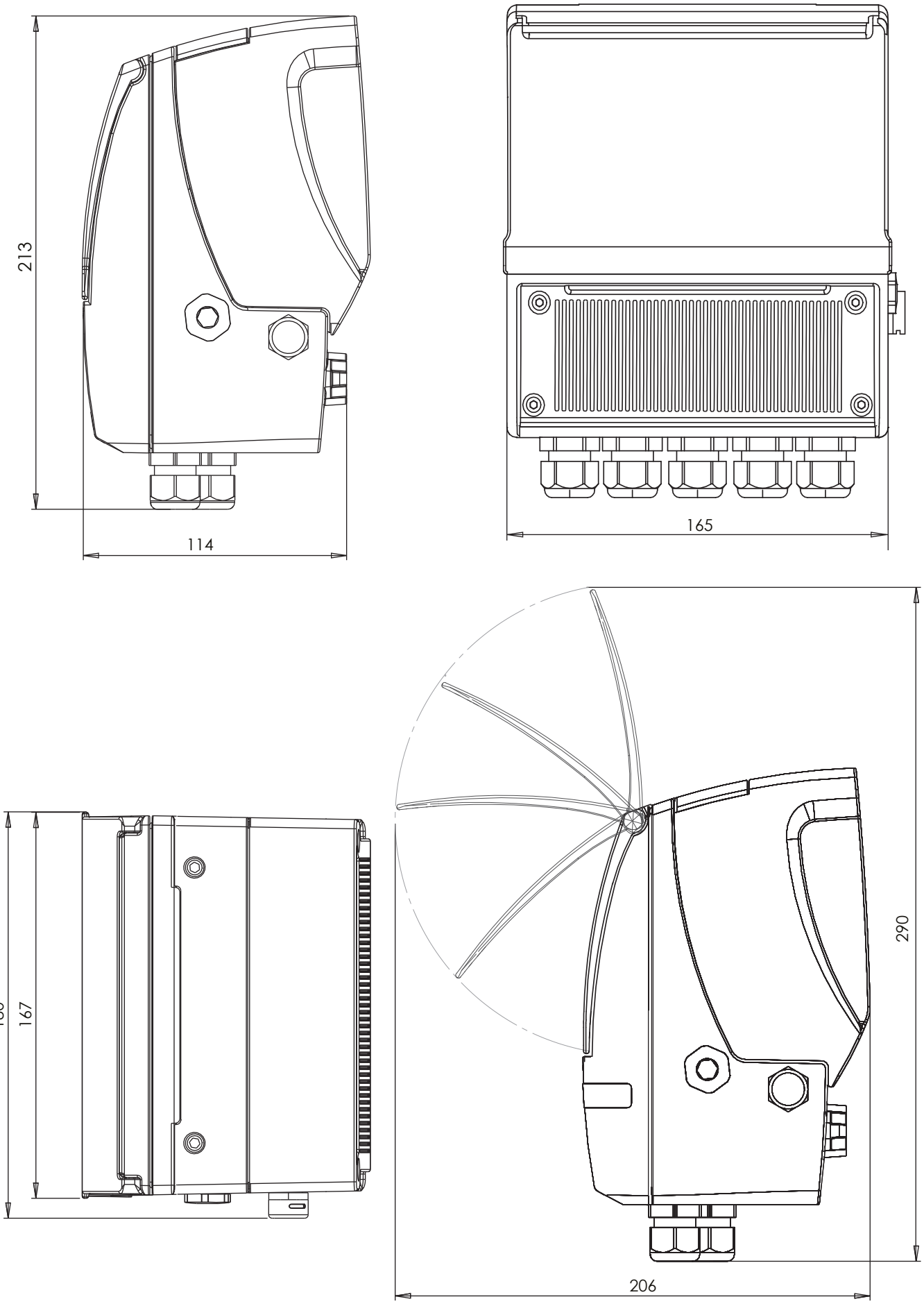


Separate (wall) version

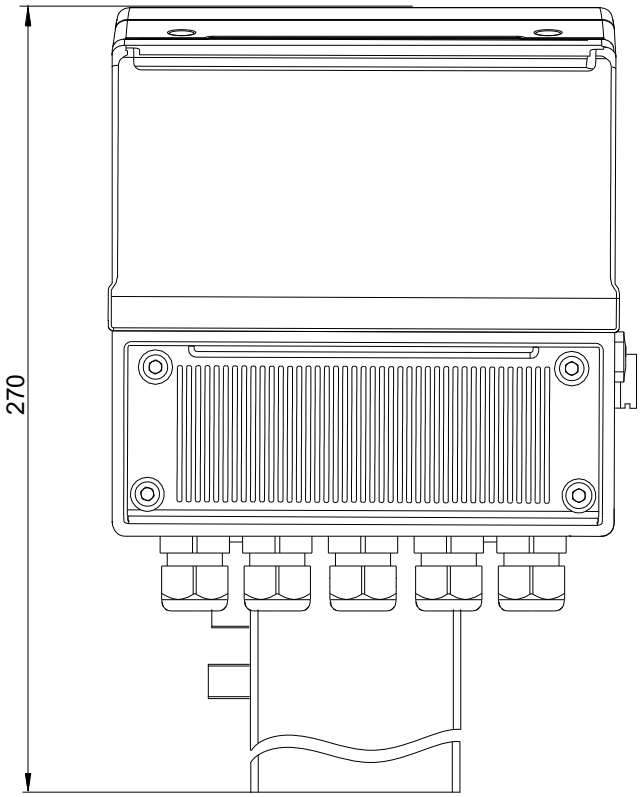


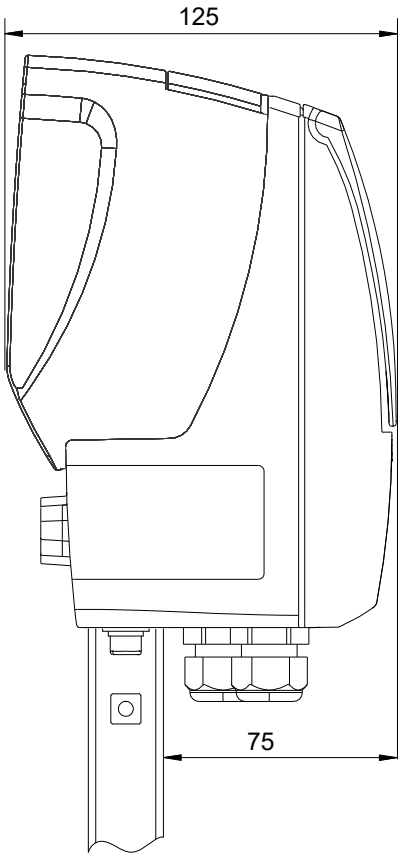
OVERALL DIMENSIONS

With battery pack

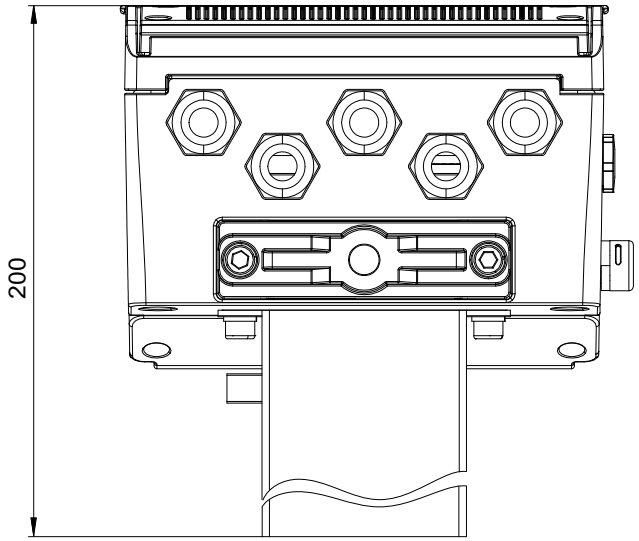


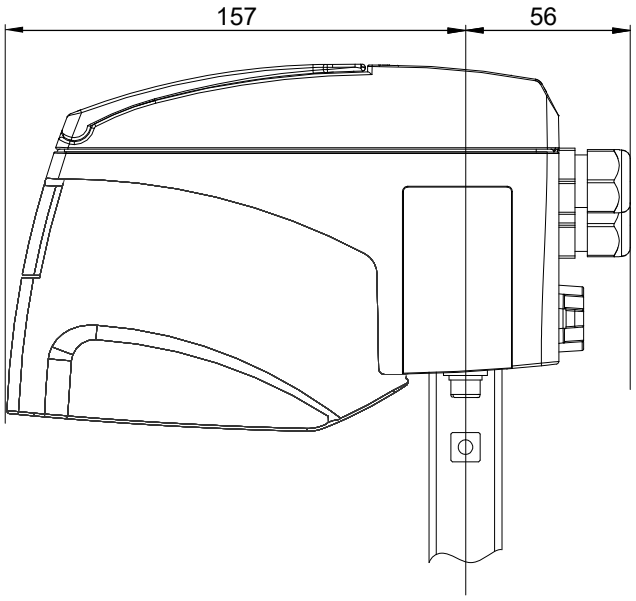
Horizontal compact version



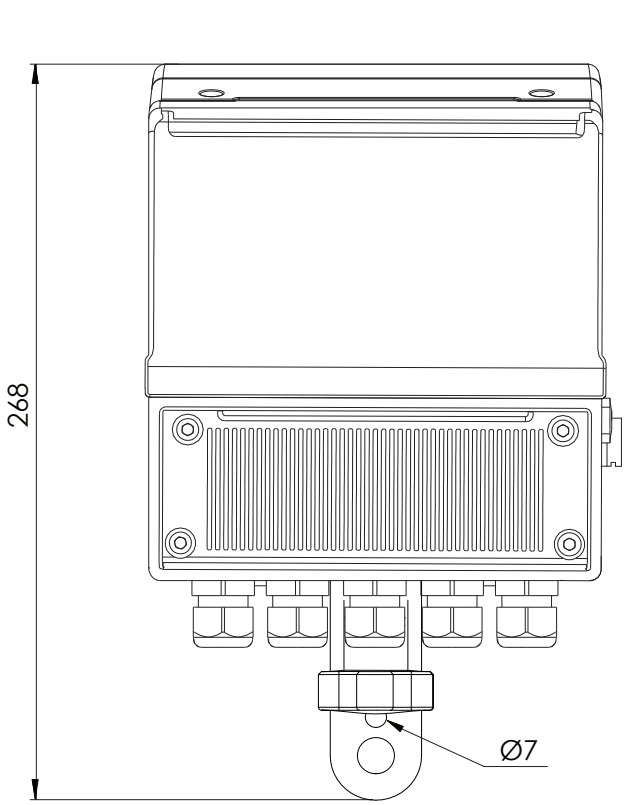


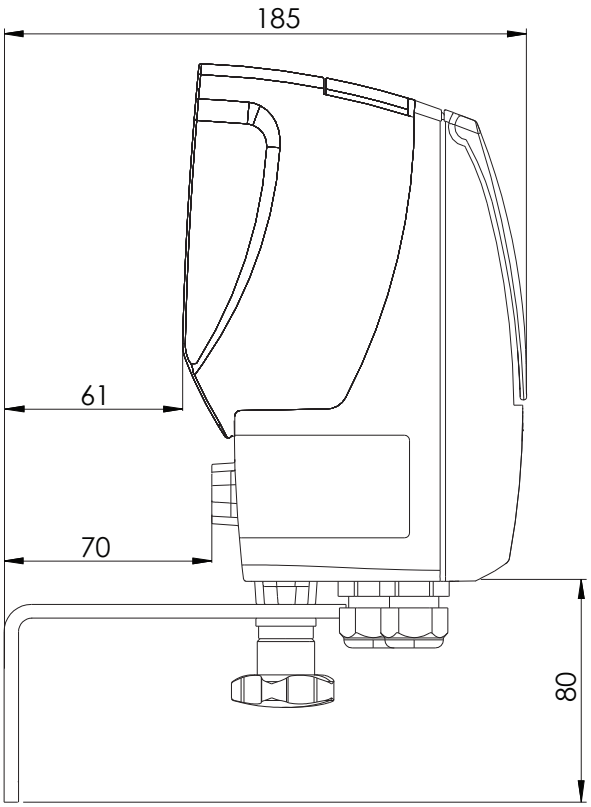
Vertical compact version





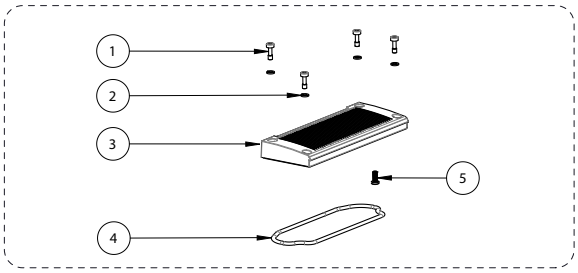
Separate (wall) version



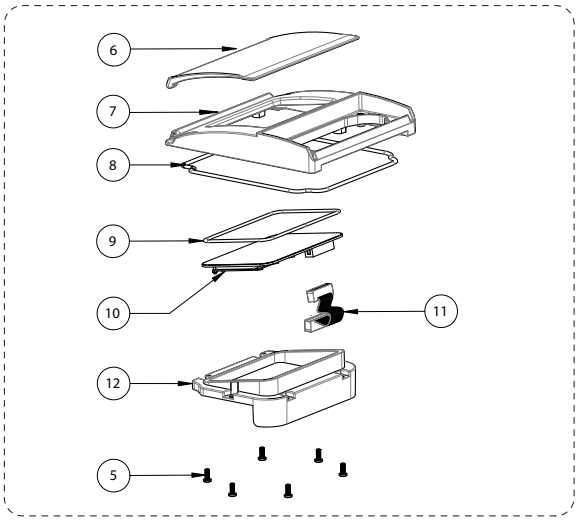


MV255 LAYOUT

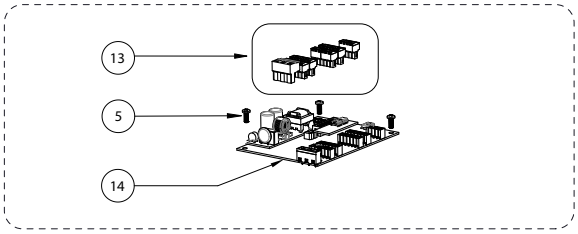
TERMINAL BLOCK COVER



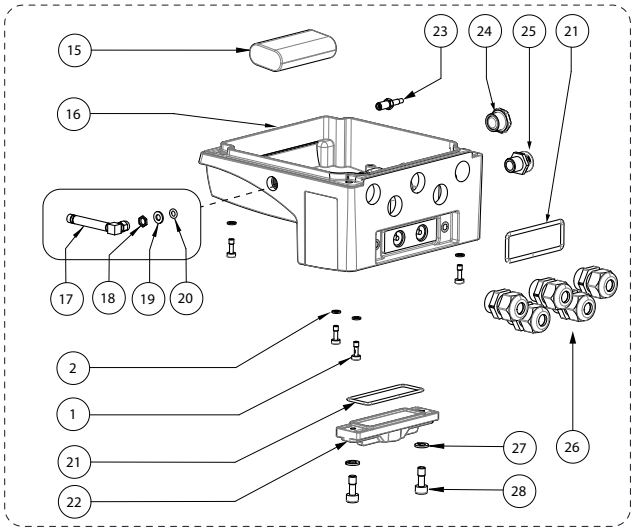
MAIN HOUSING COVER



PCB MV255

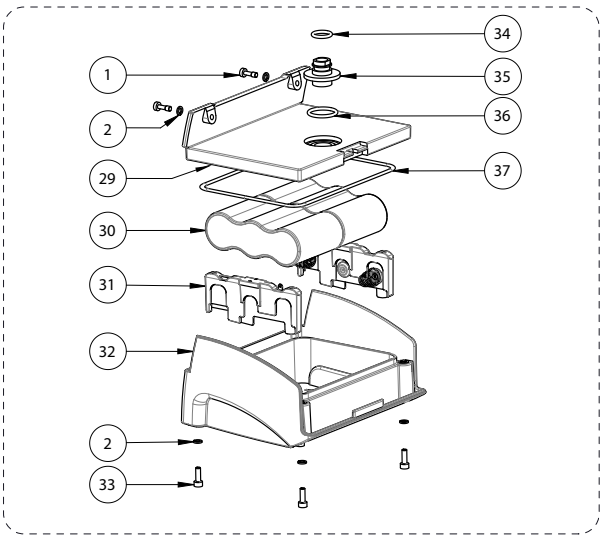


MAIN HOUSING



POS.	DESCRIPTION	
	PA6 VERSION	ALUMINIUM VERSION
1	SCREW M4x12	SCREW M5x12
2	GROWER WASHER Ø4	GROWER WASHER Ø5
3	TERMINAL BLOCK COVER	TERMINAL BLOCK COVER
4	O-RING-4400	
5	SELF-TAPPING SCREW 4x10	TRILOBO SCREW 4x10
6	PROTECTION COVER	
7	HOUSING COVER	HOUSING COVER
8	ORING-4700	
9	ORING-117x3	
10	DISPLAY	
11	FLAT CABLE DISPLAY	
12	FIXING DISPLAY FRAME (MATERIAL PA06)	
13	TERMINAL BLOCK SOLID WIRE: 26-16 AWG / 0.129-1.31 mm² STRANDED WIRE: 26-16 AWG / 0.129-1.31 mm² TORQUE: 3.0 Lb.In / 0.34 Nm	
14	PCB MV255	
15	RECHARGEABLE LITHIUM BATTERY	
16	MAIN HOUSING	MAIN HOUSING
17	3G/4G ANTENNA 3G/4G ANTENNA WITH CABLE OF 3m	
18	LOCKING DICE	
19	WASHER Ø 6	
20	O-RING 2018 VITON	
21	O-RING-155	
22	VERSION CAP (MATERIAL PA06))	
23	CABLE ANTENNA 15cm	
24	PG9 CAP	
25	ANTICONDESE CAP	
26	PG11 CABLE GLAND CABLE DIAMETER: Ø5-Ø10mm	
27	GROWER WASHER Ø6	
28	SCREW M6x16	

BATTERIES HOUSING

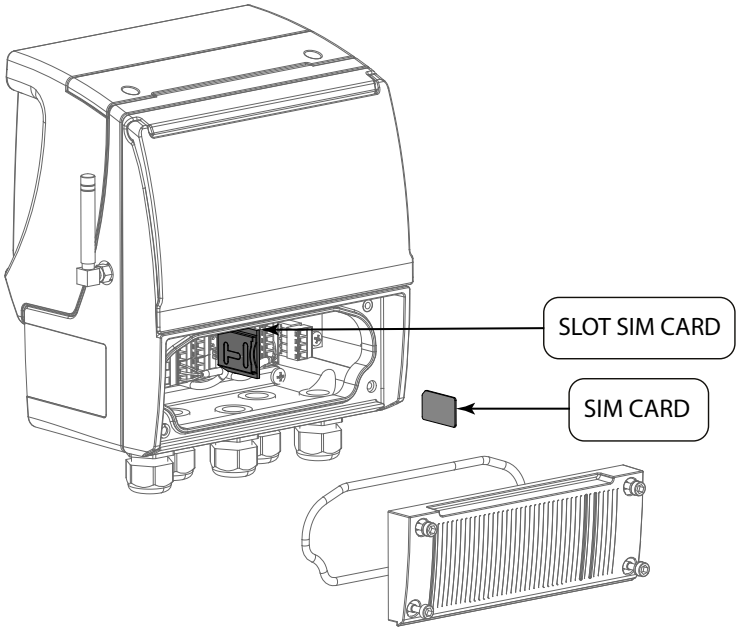


POS.	DESCRIPTION	
	PA6 VERSION	ALUMINIUM VERSION
29	BATTERY HOUSING COVER IN PA6	
30	LITHIUM BATTERY OR ALKALINE	
31	SUPPORT CONTACTS ALKALINE BATTERIES MV	
32	BATTERY HOUSING PA6	
33	SCREW M4X12	
34	O-RING 3050	
35	SEAL BUSH	
36	O-RING 3081	
37	O-RING 4575	

CONVERTER ACCESS

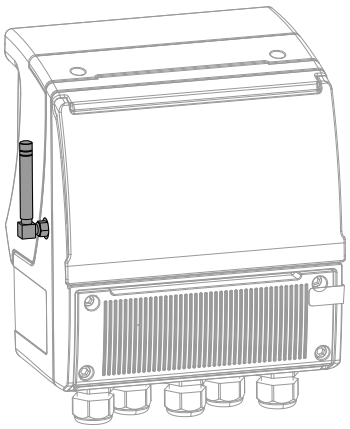
Slot SIM 3G

- MV255 is equipped with a modem for 3G/4G wireless communication. Utilizing GPRS technology and data packets transmitted through various layers of protocols and hardware devices.

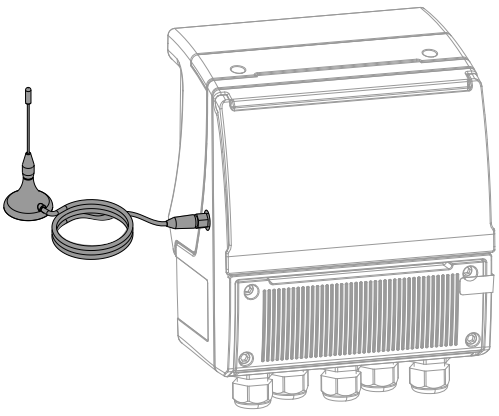


Antenna types

- It is possible to use two types of antennas depending on the place of installation of the instrument:

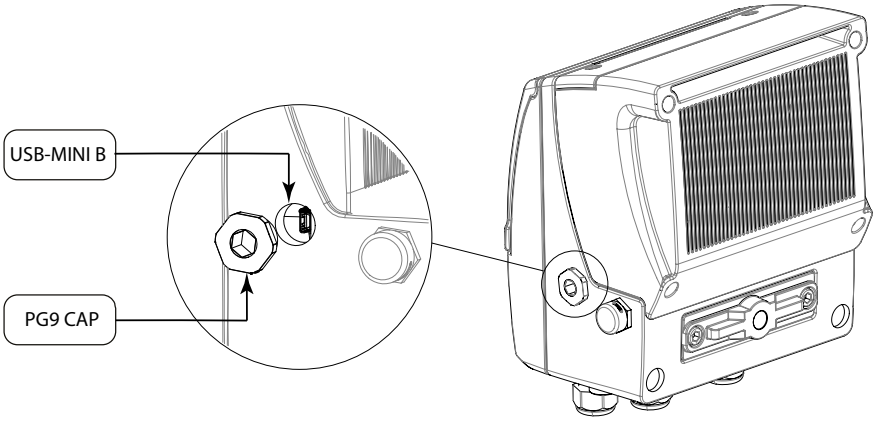


- 3G/4G antenna installed directly on the housing;

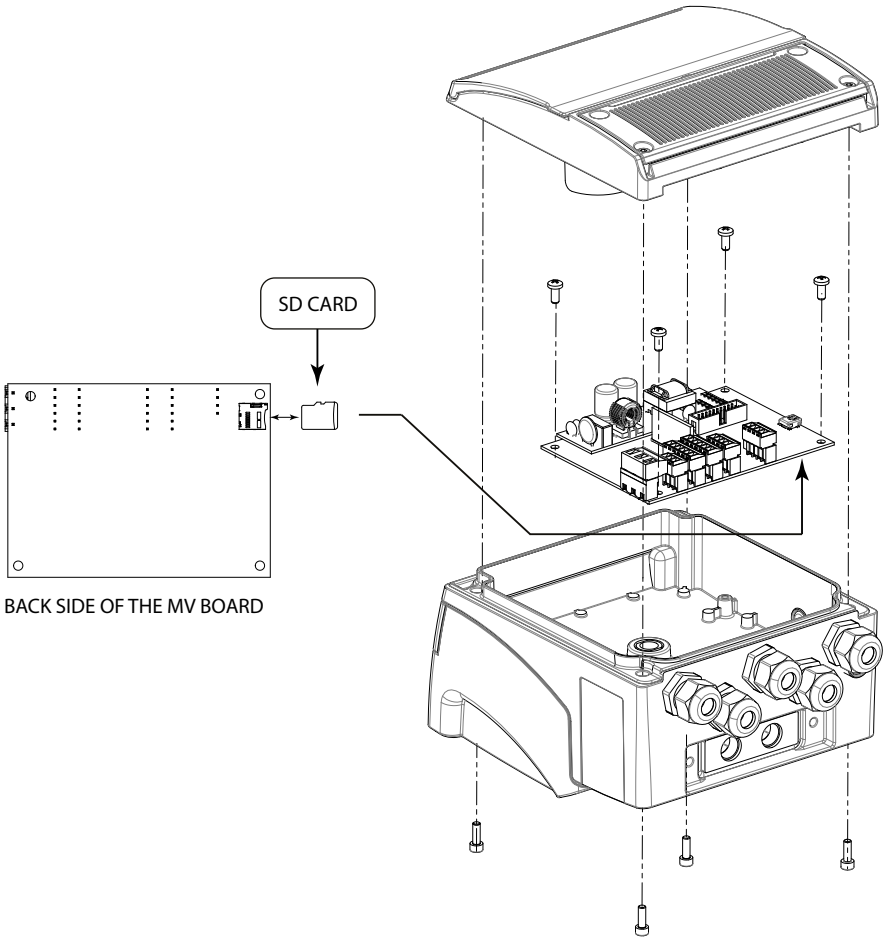


- 3G/4G Antenna with magnetic support connected to the converter housing with cable L= 3 meters

Connessione USB

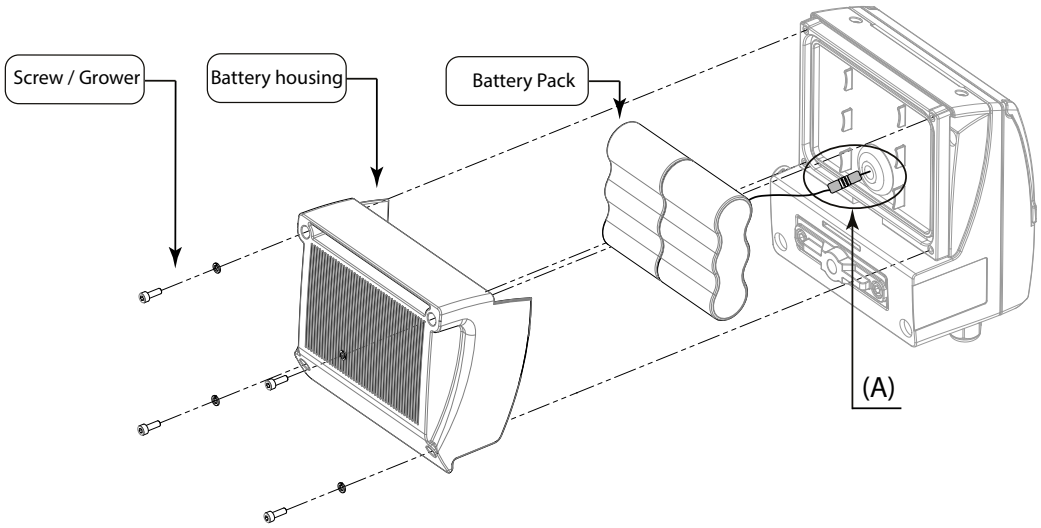


SD card

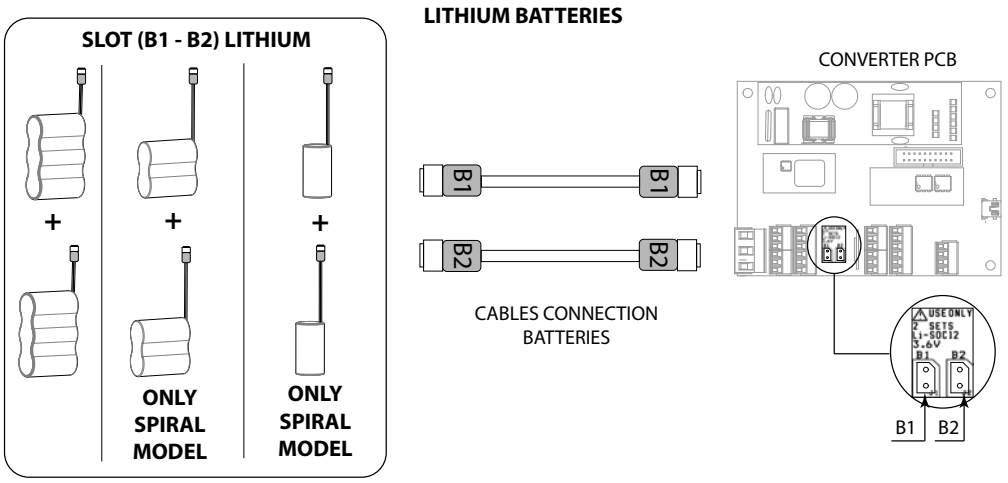


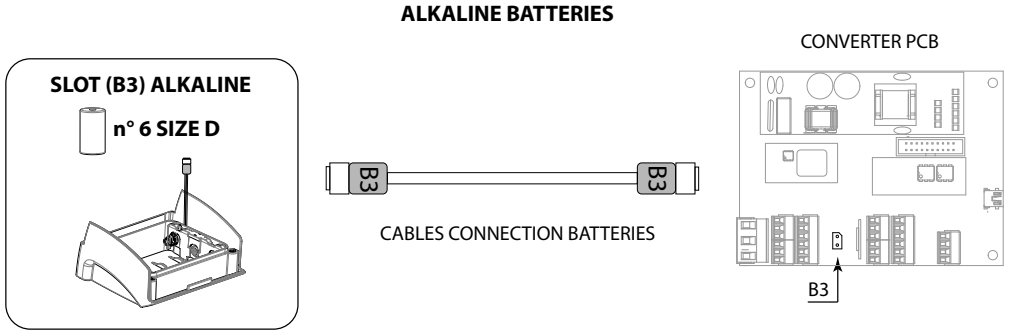
POWER SUPPLY

Batteries configuration



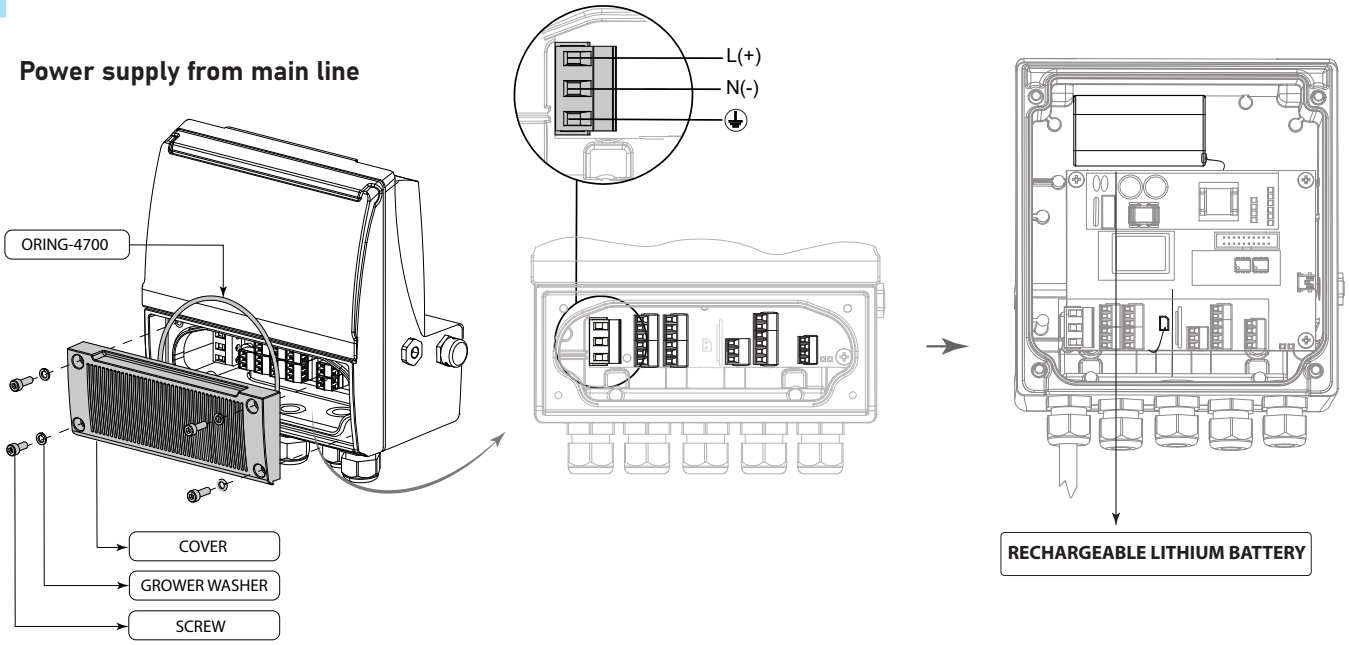
DETAIL (A) BATTERY CONNECTIONS CONVERTER PCB



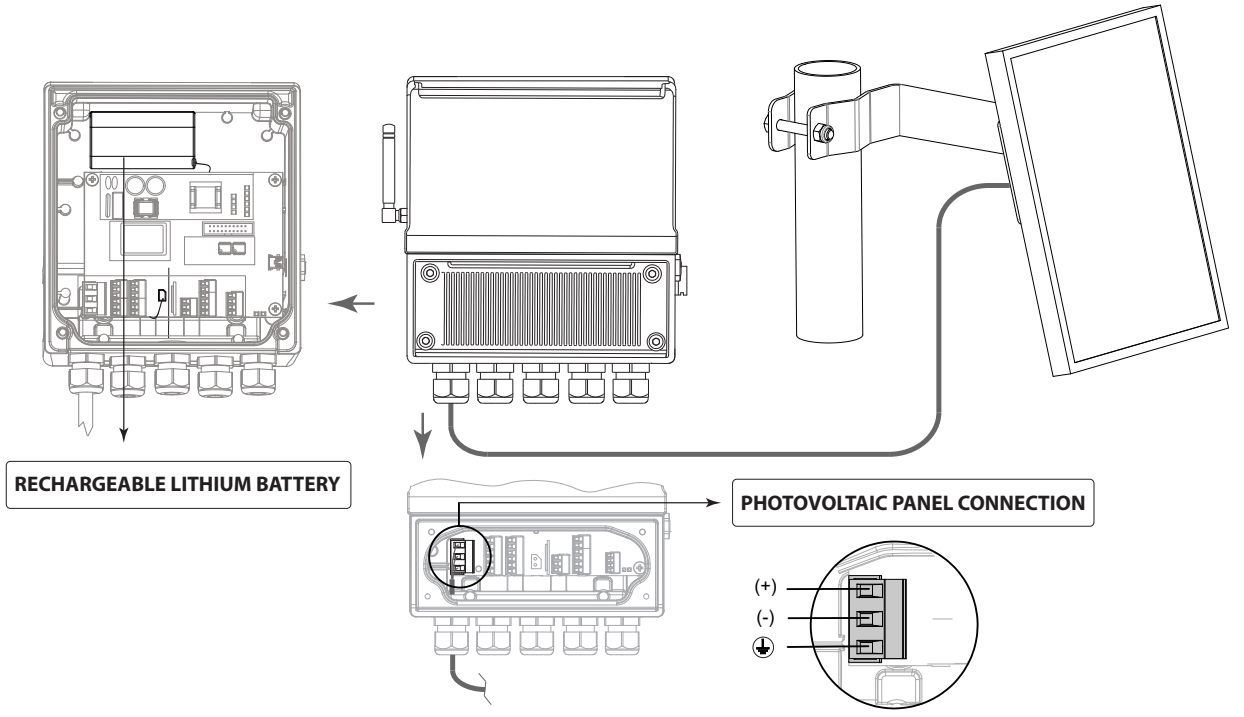


- The maximum number of batteries allowed in the various configurations is 6 size D batteries
- Alkaline batteries can also be purchased separately from third parties
- Lithium batteries are supplied exclusively by the manufacturer and can not be purchased separately from third parties. Furthermore, they are subject to special transport regulations based on the “Dangerous Goods Regulations, UN3090 and UN 3091”. Special documentation is required to observe the regulations

Power supply from main line

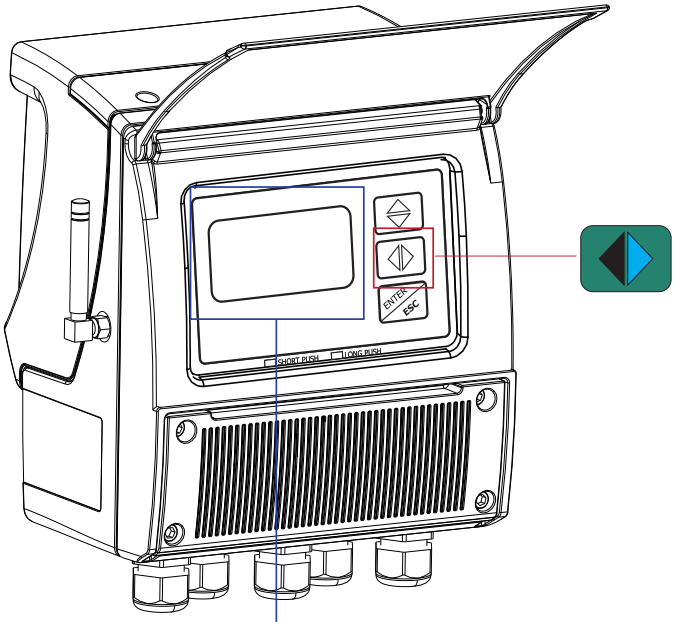


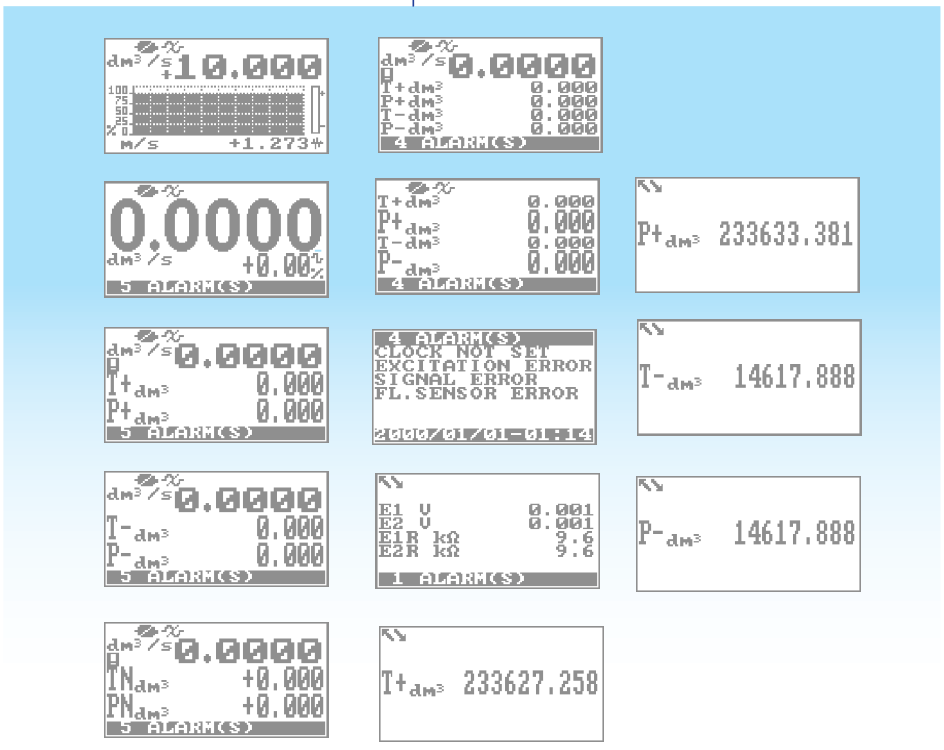
- The mains powered converter is not supplied with the external battery housing.
- The connections are made with approved cables with flame retardant properties, whose section varies from 0.25mm2 to 2.50 mm2, based on distance / power.
- The wiring can be checked by unscrewing the 4 screws on the terminal cover.
- When the lid is raised, the terminal block is visible. The terminal block shows the wired connection of the converter to external devices, sensors included.
- The rechargeable battery is always present inside the converter with mains power supply.
- It is possible to connect a photovoltaic panel that can be used as an alternative source of mains power supply (LLV power supply)After connecting the photovoltaic panel cable to the MV255 converter connector, the module is recognized and the sampling automatically switches to continuous mode whatever the profile set previously; this mode guarantees accurate measurements (flow rate / pressure) even with continuous and sudden variations.
- For installation consult the manual of the photovoltaic panel. Not supplied by ISOIL.



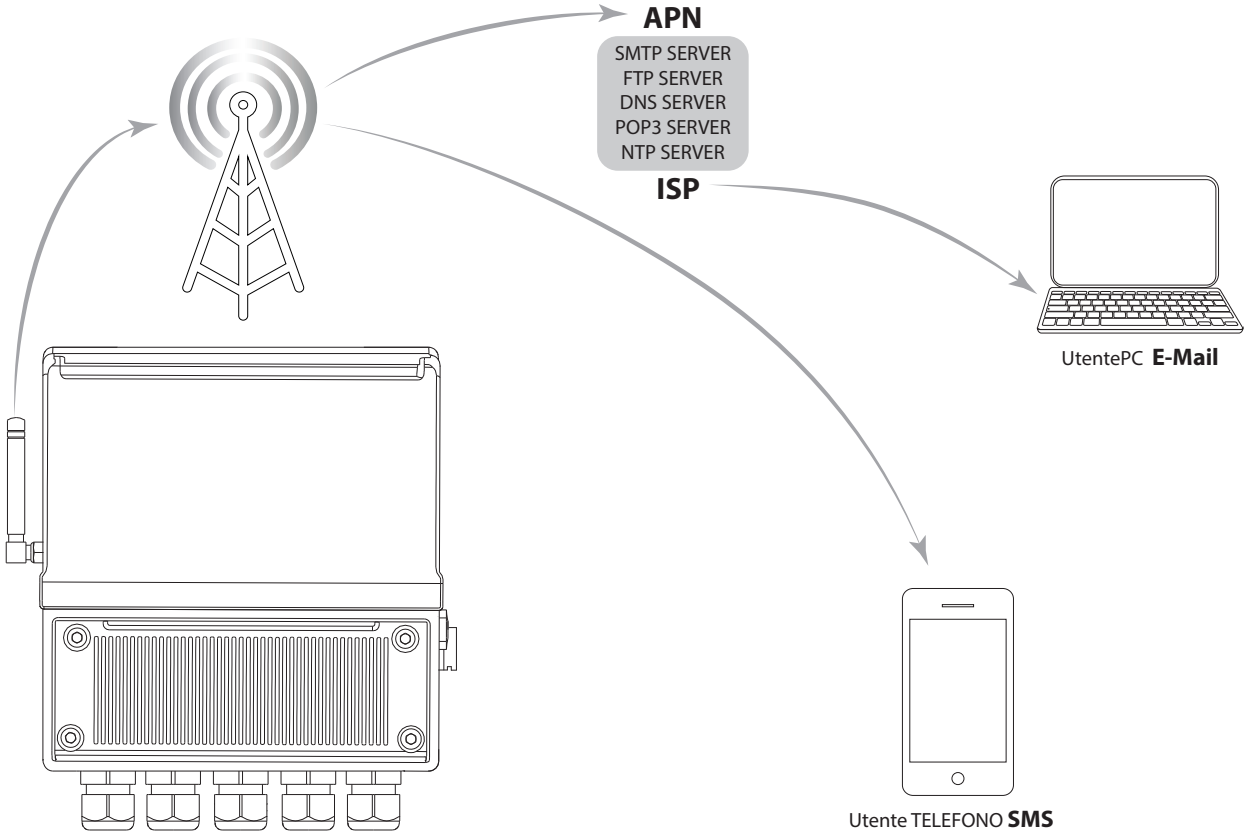
MAIN PAGES VISUALIZATION

Possible views by simply pressing the button 





3G NETWORK CONNECTION



- With the 3G connection it is possible to perform remote checks on the status of the device and the saved loggers
- The MV255 converter can send processed and stored data to different devices via SMS and / or email
- Communication takes place via a UMTS / GPRS technology, using data packets conveyed through various layers of protocols and hardware devices, as described below:
- Data -> Compression (ZIP) -> SMTP/POP3/FTP -> SSL -> TCP/IP -> PPP -> UMTS/GPRS -> RADIO LINK
- Data compression allows the volume to be reduced to values close to 1% compared to the original size (1000kb can be reduced to 10kb). Compressed files can be read by any operating system without any additional software.

SMTP and POP3 are protocols for transferring data via email between a client and a server

FTP is a protocol for the direct transfer of files between a client (meter) and a server

SSL is an intermediate layer dedicated to security that deals with encrypting and authenticating the flow of data so as to make it uneditable and unreadable by a third party who may be listening.

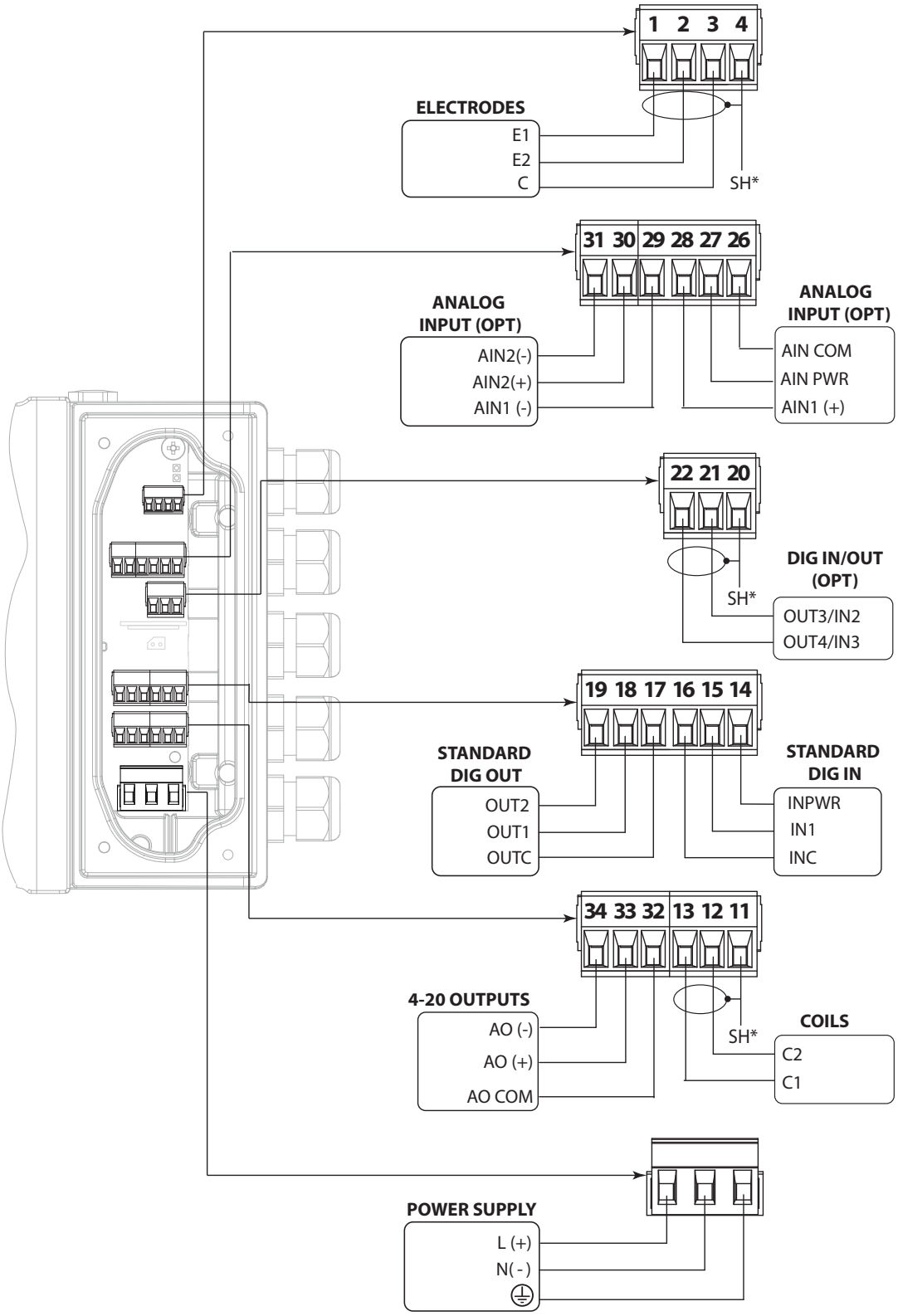
TCP / IP is a protocol that guarantees the transport of data with algorithms that control its flow, error control and integrity.

PPP is a protocol that allows the transfer of data packets between two points connected with a serial line, guaranteeing their integrity and correct timing.

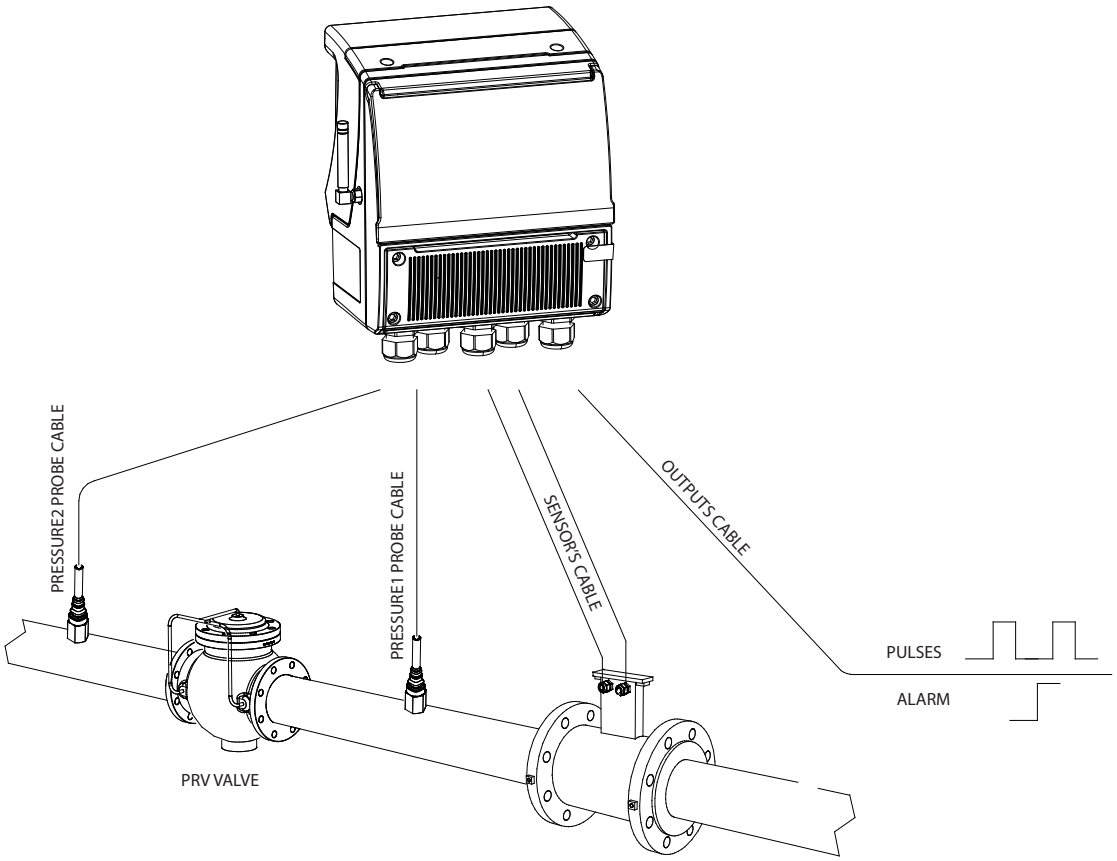
UMTS / GPRS is a technology that allows the exchange of serious data in a multi-user wireless network

RADIO LINK is a hardware data transport system based on wireless transmission and reception

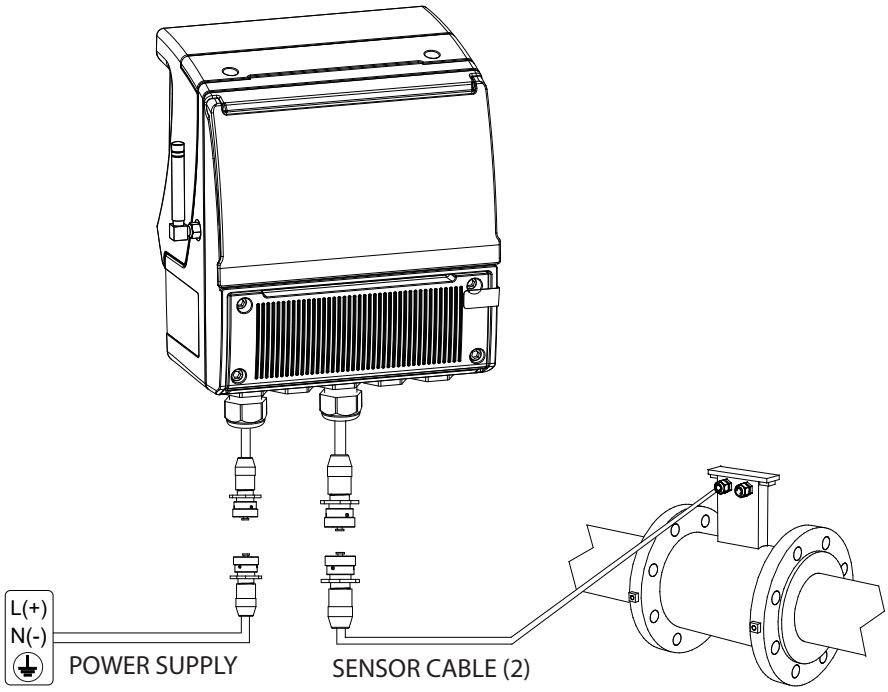
ELECTRICAL CONNECTIONS



Pressure / temperature probes

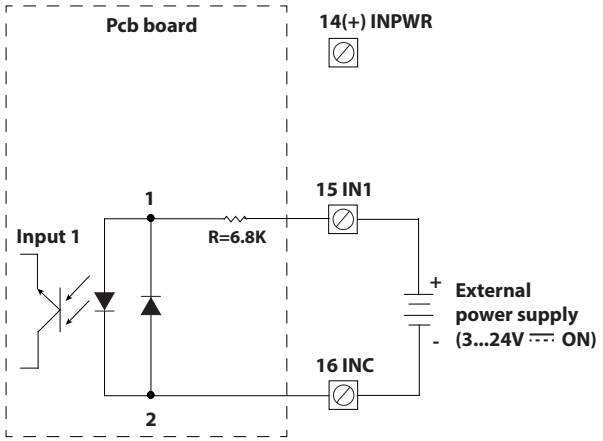


IP68 connection (example installation)

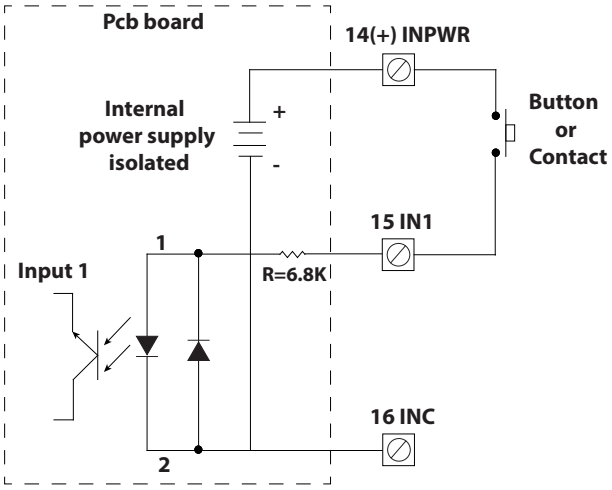


DIGITAL INPUT

On/off input (external power supply)

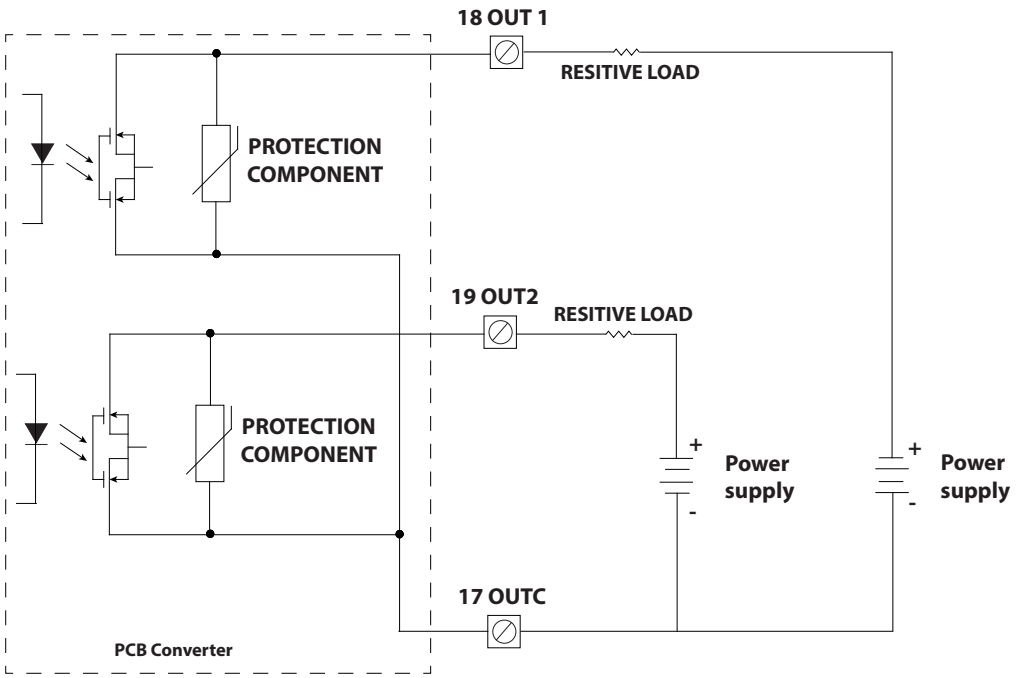


on/off input (internal power supply)



DIGITAL OUTPUTS

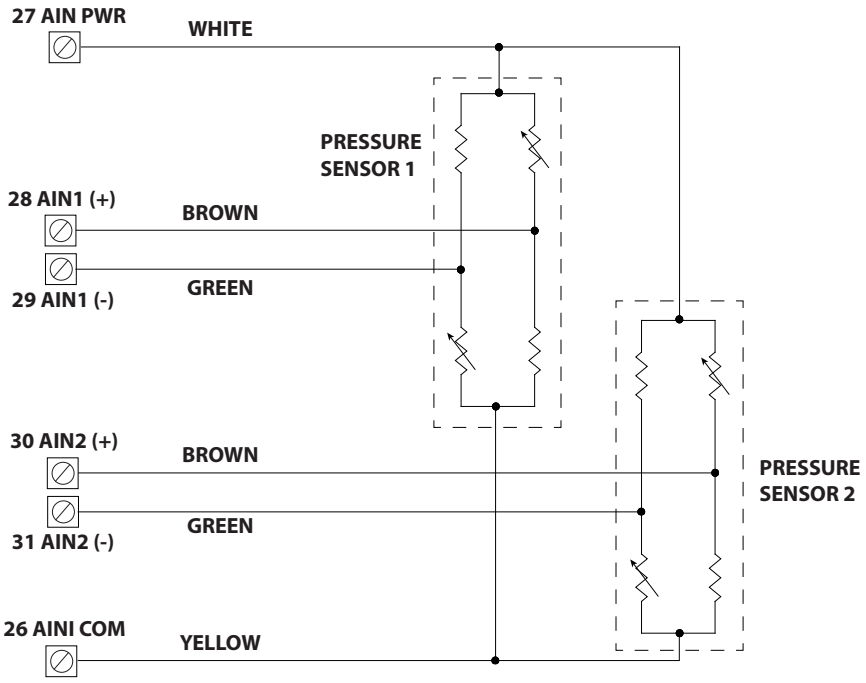
NOTE: the outputs are not polarized, so you can adopt schemes for connection to positive or common negative, as in the following elet ria l sb eme.



AUXILIARY MODULE ANALOG INPUTS

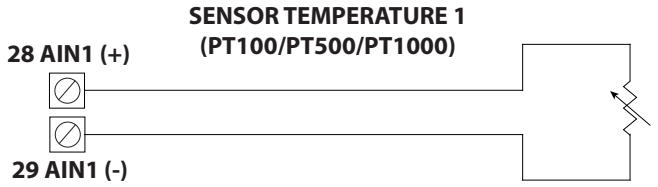
NOTE: Two different types of sensors can be connected, for example a pressure sensor connected to input 1 and a temperature sensor connected to input 2, or contrary.

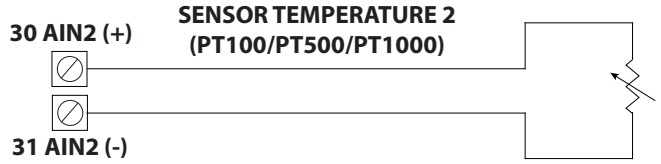
Connection of pressure sensors



Connection of Temperature sensors

There is no o mpena tion of a ble res s ane , we reo mmend the us of PT500 or PT1000 sensors if the a ble length is more than one meter. The reo gnition of the s ns r type (PT100 / 500/1000) is automatic

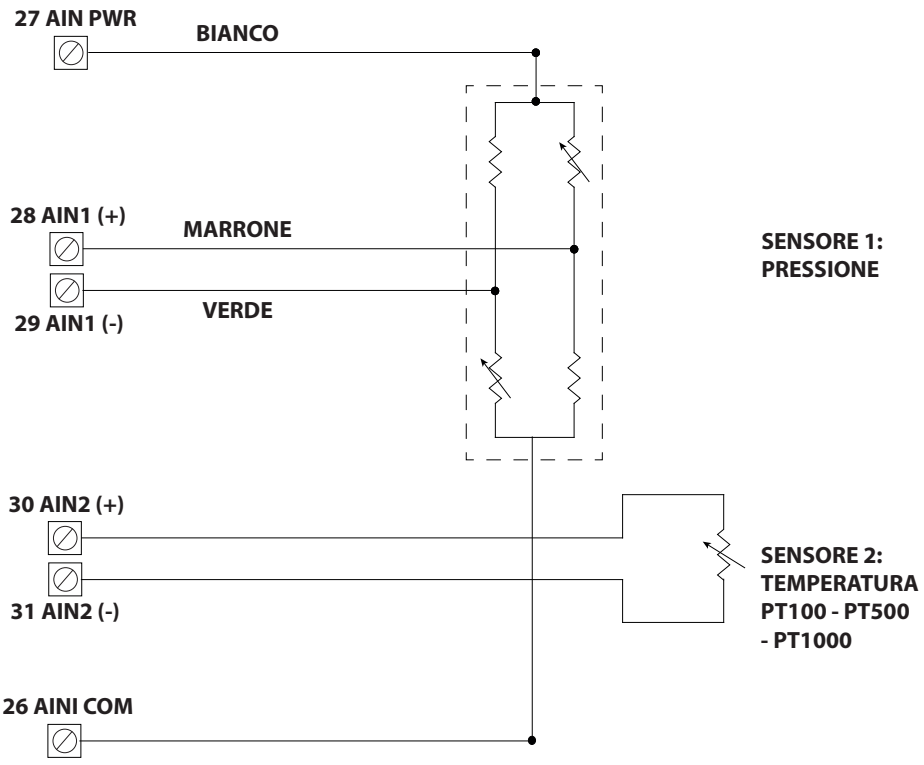




Connection of a pressure/ temperature sensor

Two different types of sensors can be connected, a pressure sensor and a temperature sensor.

For the temperature sensor, because there is no compensation of cable resistance, we recommend the use of PT500 or PT1000 sensors if the cable length is more than one meter. The recognition of the sensor type (PT100 / 500/1000) is automatic



N.B: the pressure sensor MUST BE connected to input 1 and the temperature sensor MUST BE connected to Input 2!

OUTPUTS 4÷20 MA

Digital input / output terminal block of the add-on module. (22-OUT4 22-IN2, 21-OUT3 21-IN3, GND):

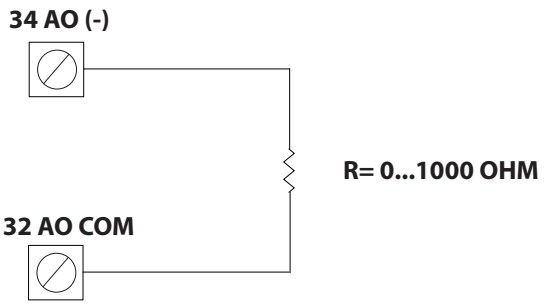
Passive mode: power is supplied from an external source .

- ❑ Connect the POSITIVE of the external source to the AO + terminal
- ❑ Connect the LOAD to the AO- terminal

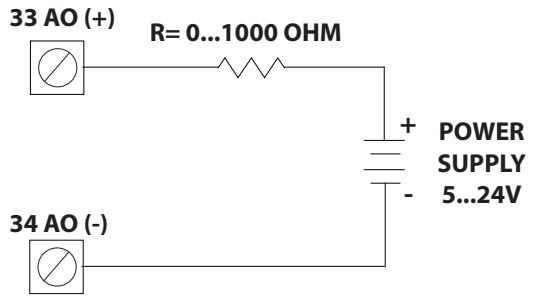
Active mode: power is supplied from the board power supply (if fitted).

- ❑ Connect the LOAD to the AO- terminal
- ❑ Connect the RETURN to the AOC terminal.

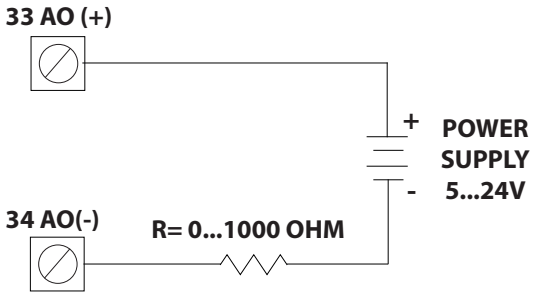
Active connection



Passive connection 1



Passive connection 2



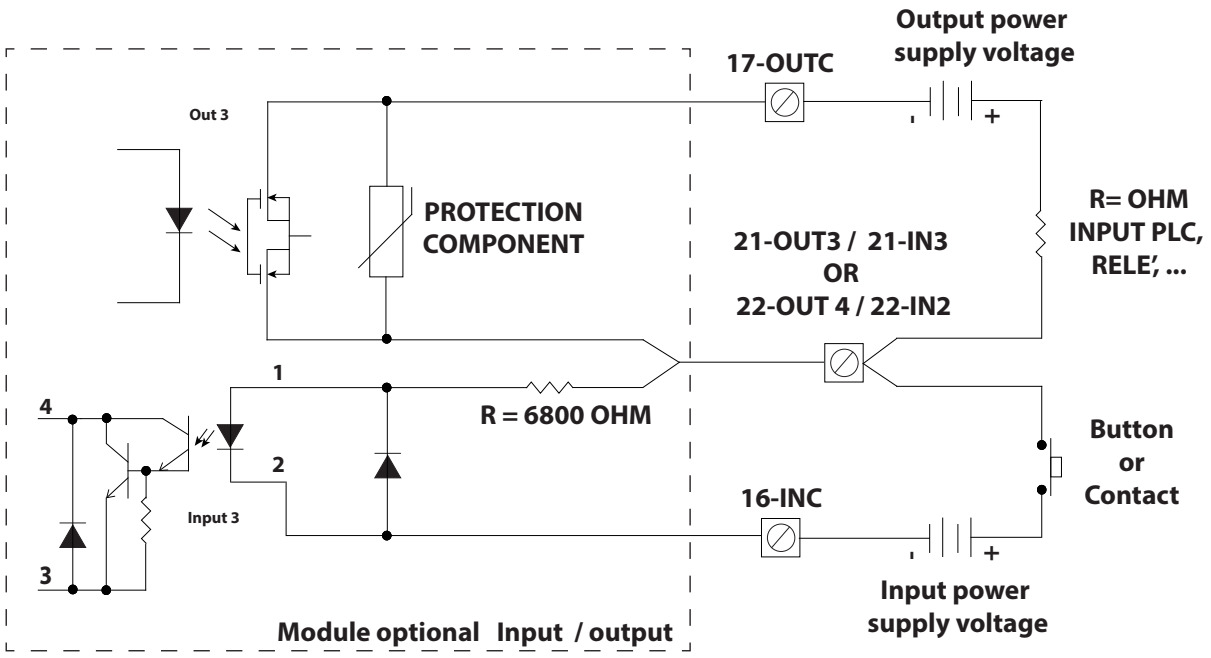
AUXILIARY MODULE DIGITAL INPUTS/ OUTPUTS

Digital inputs / outputs terminal block of the add-on module (22-OUT4 22-IN2, 21-OUT3 21-IN3, GND):

- 21-OUT3 21-IN3: digital output OUT 3 / digital input INPUT 3
- 22-OUT4 22-IN2: digital output OUT 4 / digital input INPUT 2
- GND: terminal connected to the protective earth (chassis) for connecting cable screens

NOTE:

- The digital outputs OUT4 and OUT3 use the 17-OUTC terminal as common.
- The digital inputs IN2 and IN3 use the 16-INC terminal as common.
- The digital output OUT4 and the digital input IN2 as well as the digital output OUT3 and the digital input IN3 share the same terminal but have different common, so the input and output circuits can be realized independently on the other hand, as indicated in the following diagram for OUT3 / IN3 (OUT4 / IN2 are equivalent).



FUNCTIONS MENU

SENSOR

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

```
SENSOR
```

S.model	0	1.1	Sensors model: Enter the first two characters of the serial number of the sensor
Lining	UNSPEC.	1.2	Flow sensor lining material type
S.type	FULLBORE	1.3	Type of sensor: fullbore or insertion
U.type	METRIC	1.4	Type of measure units for sensor parameter: metric or imperial
Diam.	700	1.5	Sensor's nominal/real diameter DN (0-2500)
KA	+00.9637	1.6	Sensor coefficient KZ (zero point)
KA-	-44.904	1.7	Calibration data of sensor for negative flow
KZ	-18852	1.8	Sensor coefficient KZ (zero point)
KD	+00.4014	1.9	Sensor coefficient KD
Ins.position	0	1.10	Insertion position
KP dynamic	OFF	1.11	KP dynamic, coefficient for insertion
Ki	10.000	1.12	Sensor coefficient Ki
Kp	10.000	1.13	Sensor coefficient Kp
KC	100.000	1.14	Sensor coefficient KC
C.Curr.	mA025.0	1.15	Sensor excitation current
S.time1	ms03	1.16	Current regulator proportional band
Reg.C.T	stp 005	1.17	Current regulator derivation constant
C.R.time	ms03	1.18	Measure sampling frequency
E.P.Detect	ON	1.19	Enables the empty pipe detection feature
Z max	Kohm 0500	1.20	Empty pipe detection threshold
S.err.delay	10	1.21	Signal error delay (n. sample)
Sens.verify	OFF	1.22	Automatic sensor verify enable
KL	00.+000000	1.23	Linearization coefficient
Zero point cal.		1.24	Pipe hydraulic zero calibration

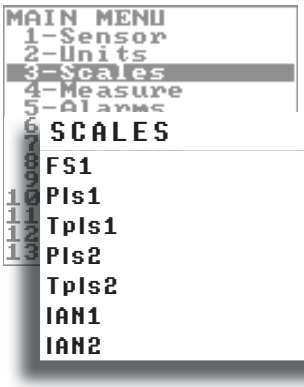
UNITS

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

```
UNITS
```

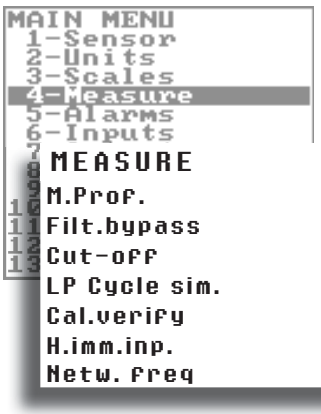
Diam.	mm	1.1	Nominal diameter measure unit
S.cable	m	1.2	Cable length on separate version
FR.unit	METRIC	1.3	Flow rate type measure unit: metric or imperial
Pls1 u.	METRIC	1.4	Pulse 1 type measure unit: metric or not metric
Pls2 u.	METRIC	1.5	Pulse 2 type measure unit: metric or not metric
T+ unit	METRIC	1.6	Total direct totalizer measure unit type: metric or imperial
T+ unit	(m3)	1.7	Total direct totalizer measure unit
T+ D.P.	4	1.8	Total direct totalizer decimal point position
P+ unit	METRIC	1.9	Partial direct totalizer measure unit type: metric or not metric
P+ unit	(m3)	1.10	Partial direct totalizer measure unit
P+ D.P.	4	1.11	Partial direct totalizer decimal point position
T- unit	METRIC	1.12	Total reverse totalizer measure unit type: metric or not metric
T- unit	(m3)	1.13	Total reverse totalizer measure unit
T- D.P.	4	1.14	Total reverse totalizer decimal point position
P- unit	METRIC	1.15	Partial reverse totalizer measure unit type: metric or not metric
P- unit	(m3)	1.16	Partial reverse totalizer measure unit
P- D.P.	4	1.17	Partial reverse totalizer decimal point position
Temp.unit	°C	1.18	Temperature measure
Mass units	ON	1.19	Enable/disable the selection of mass units on full scale set
Sg	(kg/dm3)	1.20	Specific gravity coefficient
AIN1 m.u.	1,107:MCPI	1.21	Unit of measurement for analogue input 1
AIN2 m.u.	1,107:MCPI	1.22	Unit of measurement for analogue input 2

SCALES



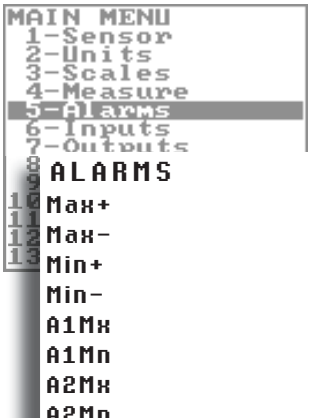
3.1	Full scale flow rate 1
3.2	Full scale flow rate 2
3.3	Duration of the pulse generated on channel 1
3.4	Pulse value on channel 2
3.5	Duration of the pulse generated on channel 2
3.6	Analog input scale 1
3.7	Analog input scale 2

MEASURE



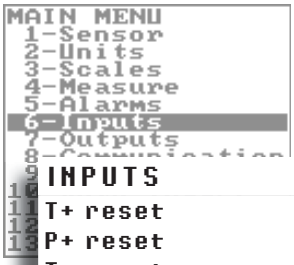
4.1	Measure power profile
4.2	Measure filter bypass
4.3	Measure cut-off threshold
4.4	Low power m.cycle simulation
4.4	Automatic calibration verify
4.6	High immunity inputs
4.7	Network Frequency environment

ALARMS



5.1	Max.pos.flow r.alarm threshold MAX+
5.2	Max.neg.flow r.alarm threshold MAX-
5.3	Min.pos.flow r.alarm threshold MIN+
5.4	Min.neg.flow r.alarm threshold MIN-
5.5	MAX alarm threshold for analog input 1
5.6	MIN alarm threshold for analog input 1
5.7	MAX alarm threshold for analog input 2
5.8	MIN alarm threshold for analog input 2
5.9	Hysteresis on alarm thresholds
5.10	Output frequency value in alarm
5.11	Configuration Access Alarm Enable
5.12	Power Supply Loss Alarm Enable

INPUTS



INPUTS			
T+ reset	OFF	6.1	Total direct (positive) flow totalizer reset enable
P+ reset	OFF	6.2	Partial direct (positive) flow totalizer reset enable
T- reset	OFF	6.3	Total reverse (negative) flow totalizer reset enable
P- reset	OFF	6.4	Partial reverse (negative) flow totalizer reset enable
Count lock	OFF	6.5	Totalizer counting lock command
Meas.lock	OFF	6.6	Measure zero lock command
Calibration	OFF	6.7	Calibration external command
Sys.v.detect	ON	6.8	System violation detect
D.In2	SYS.VIOL.	6.9	Digital input 2 function
D.In3	OFF	6.10	Digital input 3 function
D.in p.sup.	ON	6.11	Aux.digital inputs power supply

OUTPUTS

OUTPUTS			
Out1	F.R.SIGN	7.1	Output 1 function selection
Out1 inv.	ON	7.2	Output 1 inverted status
Out1 pls.	ON	7.3	Output 1 pulsed status
Out2	AN1 MX/MN	7.4	Output 2 function selection
Out2 inv.	ON	7.5	Output 2 inverted status
Out2 pls.	ON	7.6	Output 2 pulsed status
Out3	MAX.AL+	7.7	Output 3 function selection
Out3 inv.	ON	7.8	Output 3 inverted status
Out3 pls.	ON	7.9	Output 3 pulsed status
Out4	MAX.AL+	7.10	Output 4 function selection
Out4 inv.	ON	7.11	Output 4 inverted status
Out4 pls.	ON	7.12	Output 4 pulsed status
Out mA1	Apr-20	7.13	Analog current output 1 range
A1S	dm3/s	7.14	Full scale value for analog out1

COMMUNICATIONS

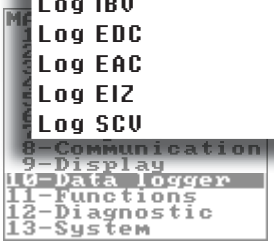
COMMUNICATIONS			
Comm.proc.abort		8.1	Communication process abort
Send status		8.2	Send device status information
Send DL format		8.3	Send data logger fields format
Send ST format		8.4	Send s.test data fields format]
Send proc.data		8.5	Send instantaneous process data
Send events		8.6	Send last system logged events
Send alarms		8.7	Send system alarms information
Send l.data		8.8	Send last logged process data
Send s.test		8.9	Send last sensor test data
Send config.		8.10	Send parameters config.data
Send fn.enable		8.11	Send functions enable status
Send qs.list		8.12	Send quick start func.list]
RTC sync.req.		8.13	Request a RTC synchronization
Check m.box		8.14	Check mail box for new mails
FTP download	ON	8.15	FTP download execute command
Mail send	ON	8.16	Mail send function enable
Mail rec.	ON	8.17	Mail receive function enable
FTP upload	ON	8.18	FTP upload function enable
FTP download	ON	8.19	FTP download function enable
Rmt.op.acl	1	8.20	Remote operations access level
File compr.	ON	8.21	File compression enable status
ZIP password	XXXXXXXXX	8.22	Compressed archive password
Conn.test	ON	8.23	Connection test enable
Auto Ev.snd	ON	8.24	Automatic events send on alarms
Access p.name	XXXXXXXXX	8.25	Access point name
Auth.type	OFF	8.26	Access point authentication type
User name	XXXXXXXXX	8.27	Access point user name
User password	XXXXXXXXX	8.28	Access point password
SMTP User	XXXXXXXXX	8.29	User name for SMTP service
SMTP psw.	XXXXXXXXX	8.30	Password for SMTP email service
POP3 User	XXXXXXXXX	8.31	User name for POP3 service
POP3 psw.	XXXXXXXXX	8.32	Password for POP3 email service
FTP User	XXXXXXXXX	8.33	User name for FTP service
FTP password	XXXXXXXXX	8.34	Password for FTP service
Min.sig.thr	ON	8.35	Min.antenna signal threshold
Primary DNS	000.000.000	8.36	Primary Domain Name Server
Secondary DNS	000.000.000	8.37	Secondary Domain Name Server
Retries	3	8.38	Max.number of session retries
Instr.ID	XXXXXXXXX	8.39	Instrument identifier string
HELO string	XXXXXXXXX	8.40	HELO identification string
Sender addr.	XXXXXXXXX	8.41	Email address of sender
Receiver 1	XXXXXXXXX	8.42	Email address of receiver 1
Receiver 2	XXXXXXXXX	8.43	Email address of receiver 2
SMTP server	XXXXXXXXX	8.44	SMTP mail send server name
SMTP sl	OFF	8.45	SMTP secure connection layer
SMTP port	25	8.46	SMTP mail send server port num.
POP3 server	XXXXXXXXX	8.47	POP3 mail receive server name
POP3 sl	SSL/TLS	8.48	POP3 Secure connection layer
POP3 port	995	8.49	POP3 mail receive serv.port num.
FTP server	XXXXXXXXX	8.50	FTP server name or address
FTP port	21	8.51	FTP server port number
FTP secure	ON	8.52	FTP secure connection enable
FTP data	XXXXXXXXXX	8.53	FTP root directory for data
FTP events	XXXXXXXXXX	8.54	FTP root directory for events
FTP commands	XXXXXXXXXX	8.55	FTP root directory for commands
Cert.check	ON	8.56	Server identity certif.check
NTP server	XXXXXXXXXX	8.57	NTP time server name
T.ref	YYYY/MM/DD	8.58	Data send time reference
InMsTm	0:00	8.59	Incoming message check time
ProcST	0:00	8.60	Process data send time
LogDST	0:00	8.61	Logger data send time
S.Compl.File	ON	8.62	Send only complete file
Alarm time	0:00	8.63	Alarm minimum send time interval
SMS f.en	ON	8.64	SMS functions global enable
Auth.number	1234	8.65	Authorized incoming phone number
Mess.recv.1	1234	8.66	Short messages receiver 1
Mess.recv.2	1234	8.67	Short messages receiver 2
Mess.recv.3	1234	8.68	Short messages receiver 3

DISPLAY

DISPLAY			
Language	EN	9.1	Impostazione lingua interfaccia
Disp.time	s	9.2	Tempo visualizz./inattività
Disp.Pn.	1	9.3	Numero funz.di visualizzazione
Disp.lock	OFF	9.4	Blocco funzioni visualizzazione
Part.tot.	ON	9.5	Abilitazione totalizz.parziali
Neg.tot.	ON	9.6	Abilitazione totalizzatori negativi
Net tot.	ON	9.7	Abilitazione visual.totalizz.netti
Disp.date	ON	9.8	Abilitazione visualizz.data/ora
Quick start	OFF	9.9	Abilitazione menu quick start

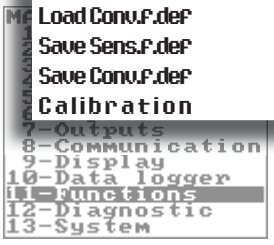
DATA LOGGER

DATA LOGGER			
D.logger en.	ON	9.1	Data logger enabling
Meas.units	ON	9.2	Measure unit recording enable
Field separ.	;	9.3	Field separator character
Decim.separ.	.	9.4	Decimal separator character
Interv.	0:01:00	9.5	Sampling interval
Log T+	OFF	9.6	Totalizer Total Positive Enable T+
Log P+	OFF	9.7	Totalizer Partial Positive Enable P+
Log T-	OFF	9.8	Totalizer Total Negative Enable T-
Log P-	OFF	9.9	Totalizer Partial Net Enable P-
Log TN	OFF	9.10	Totalizer Total Net Enable
Log PN]	OFF	9.11	Totalizer Partial Net Enable
Log Q(UM)	OFF	9.12	Flow rate in Technical Units Enable
Log Q(%)	OFF	9.13	Flow rate in Percentage Enable
Log AL.EV	OFF	9.14	Alarm Events Enable
Log ADM	OFF	9.15	Additional Measures Enable
Log STR	OFF	9.16	Sensor Test Results Enable
Log BTS	OFF	9.17	Board TemperatureS Enable
Log IBV	OFF	9.18	Internal Board Voltages
Log EDC	OFF	9.19	Electrodes DC Voltages Enable
Log EAC	OFF	9.20	Electrodes AC voltages Enable
Log EIZ	OFF	9.21	Electrodes Source Impedance Enable
Log SCV	OFF	9.22	Sensor Coils Values Enable



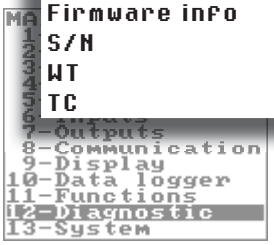
FUNCTION

FUNCTION			
T+ reset	ON	10.1	Volume Totalizer Total Positive Reset
P+ reset	ON	10.2	Volume Totalizer Partial Positive Reset
T- reset	;	10.3	Volume Totalizer Total Negative Reset
P- reset	.	10.4	Volume Totalizer Partial Negative Reset
Load Sens.F.def	0:01:00	10.5	Load Factory Default Sensor Data
Load Conv.F.def	OFF	10.6	Load Factory Default Converter Data
Save Sens.F.def	OFF	10.7	Save Factory Default Sensor Data
Save Conv.F.def	OFF	10.8	Save Factory Default Converter Data
Calibration	OFF	10.9	CALibration Immediate Command



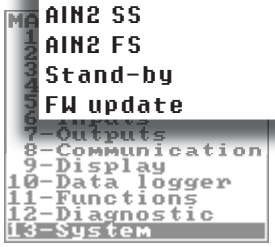
DIAGNOSTIC

DIAGNOSTIC			
Self test		11.1	Auto test Immediate Command
Sens.verify		11.2	Sensor Verify Command
Flow sim.	OFF	11.3	Measure Simulation Enable
Display measures		11.4	Diagnostic Measure VaLues
Disp.comm.vars		11.5	Diagnostic Communication VaLues
SMS test		11.6	Short Message Test
SMTP conn test		11.7	SMTP Connection Test
POP3 conn.test		11.8	POP3 Connection Test
FTP conn.test		11.9	FTP Connection Test
Display graphs		11.10	Oscilloscope function
SD card info		11.11	SD memory Status
Firmware info		11.12	Model and Software Version
S/N	0	11.13	Serial Number
WT	000:00:00:00	11.14	Total Working Time
TC	0	11.15	Total Measure Cycles



SYSTEM

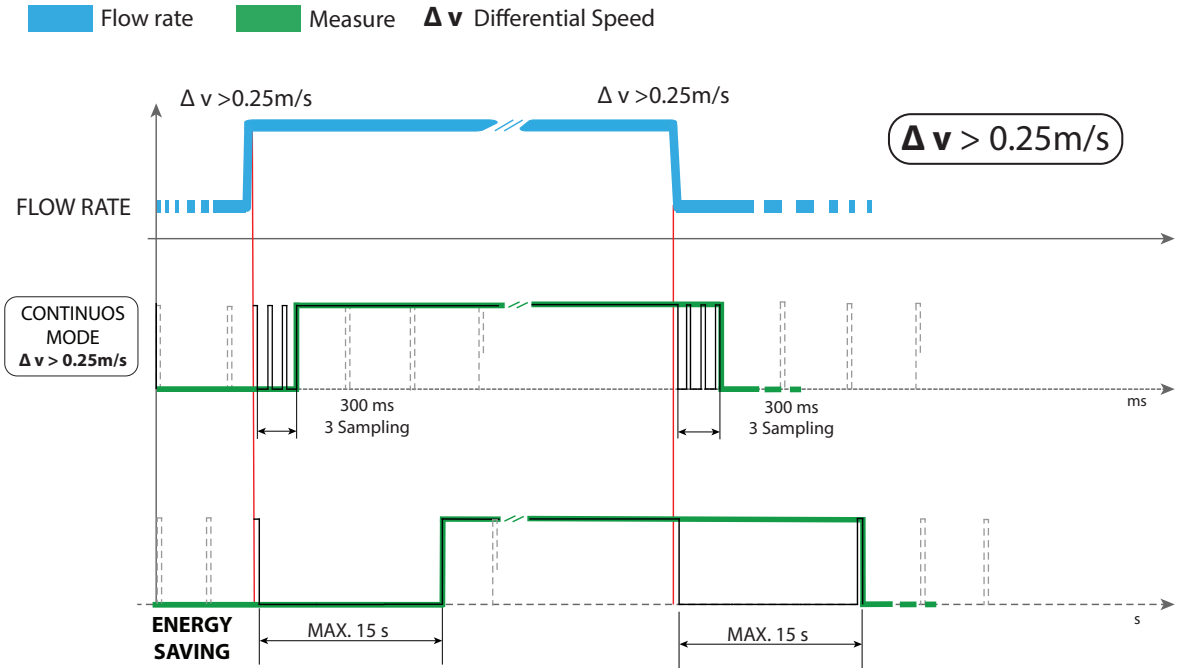
SYSTEM			
Dayl.saving	ON	13.1	Daylight Saving Time Enable
Time zone	+00.00	13.2	Time zone
Date/time	///00:00:00	13.3	Date and Time
L1 code	xxxxxxxxx	13.4	Level 1 Access CoDe
L2 code	xxxxxxxxx	13.5	Level 2 Access CoDe
L3 code	xxxxxxxxx	13.6	Level 3 Access CoDe
L4 code	xxxxxxxxx	13.7	Level 4 Access CoDe
L5 code	xxxxxxxxx	13.8	Level 5 Access CoDe
L6 code	xxxxxxxxx	13.9	Level 6 Access CoDe
Restr.access	OFF	13.10	ReStricted Access Rule Enable
Device IP addr	63015504	13.11	Device IP Address
Client IP addr	11.012.012	13.12	Client IP Address
Network mask	255.255.254	13.13	Network MaSk
KT	0.97882	13.14	Coefficient KT
KS	100.000	13.15	Coefficient KS
KR	100.000	13.16	Coefficient KR
DAC1 4mA	2460	13.17	Current output 1 Calibration Point 1
DAC1 20mA	11050	13.18	Current output 1 Calibration Point 2
AIN1 SS	0	13.19	Analog input 1 Calibration Point 1
AIN1 FS	20000	13.20	Analog input 1 Calibration Point 2
AIN2 SS	0	13.21	Analog input 2 Calibration Point 1
AIN2 FS	20000	13.22	Analog input 2 Calibration Point 2
Stand-by		13.23	Sy em StandbY
FW update		13.24	Firmware update

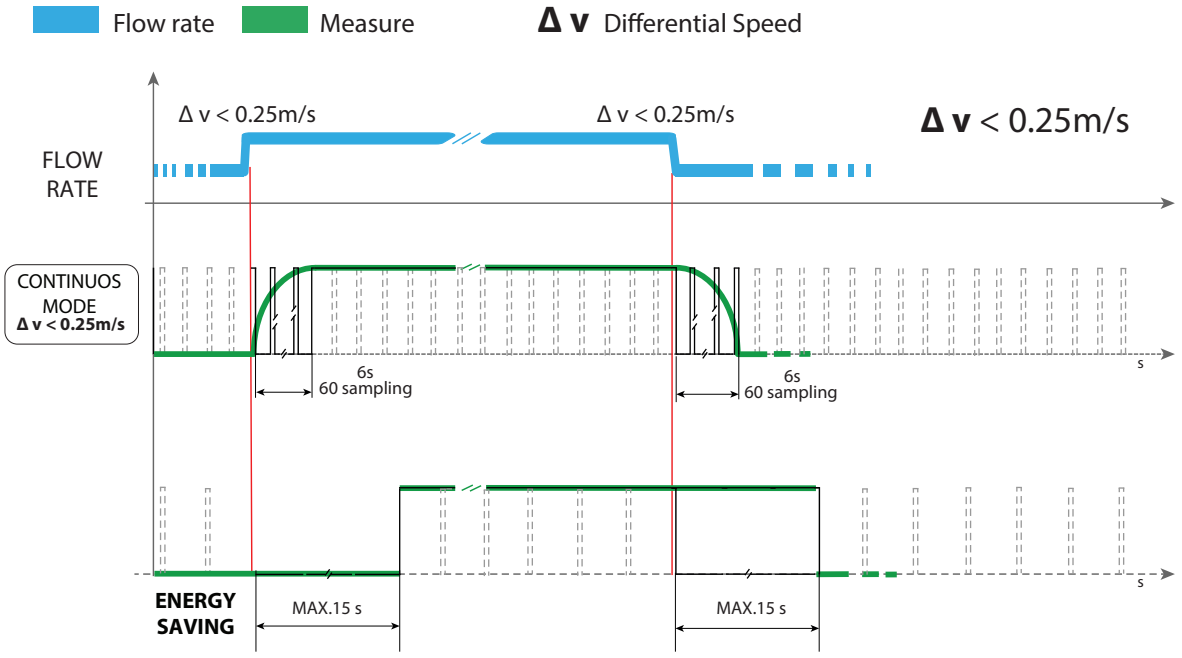


MEASUREMENT SETTINGS

MV255 can be programmed to acquire the measurement in two different ways:

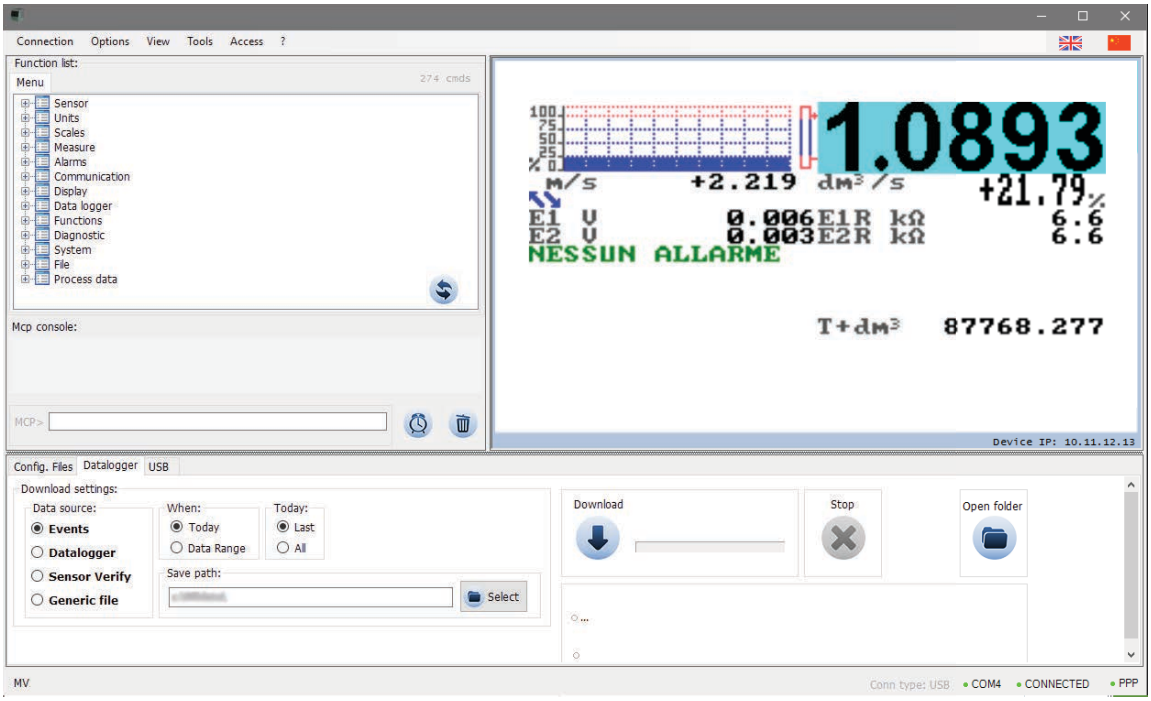
- ENERGY SAVING MODE: Sampling every 15 s.
- CONT. PWR: Continuous power sampling.

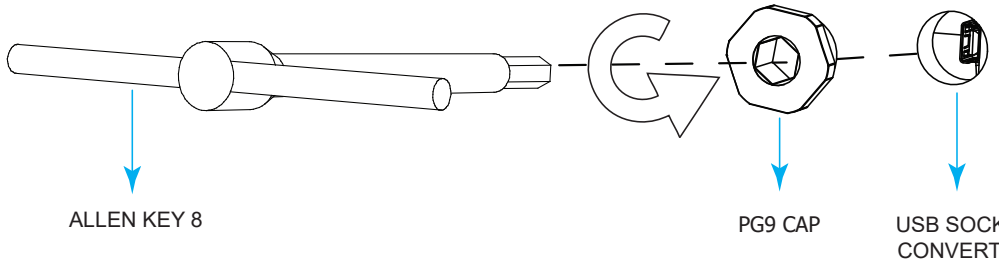


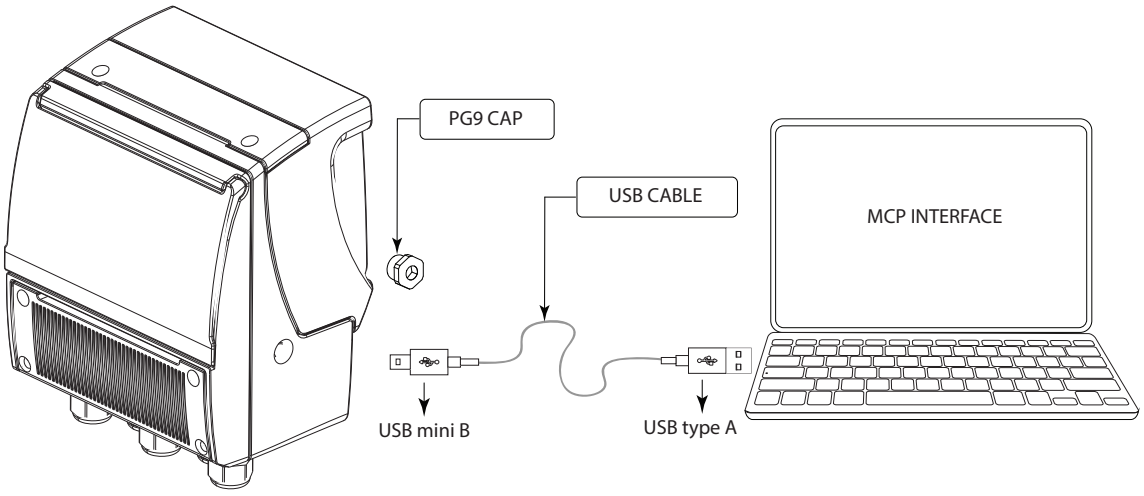


USER INTERFACE

Beside the keyboard, the converter can be programmed by MCP INTERFACE: a real time interface between converter and PC.

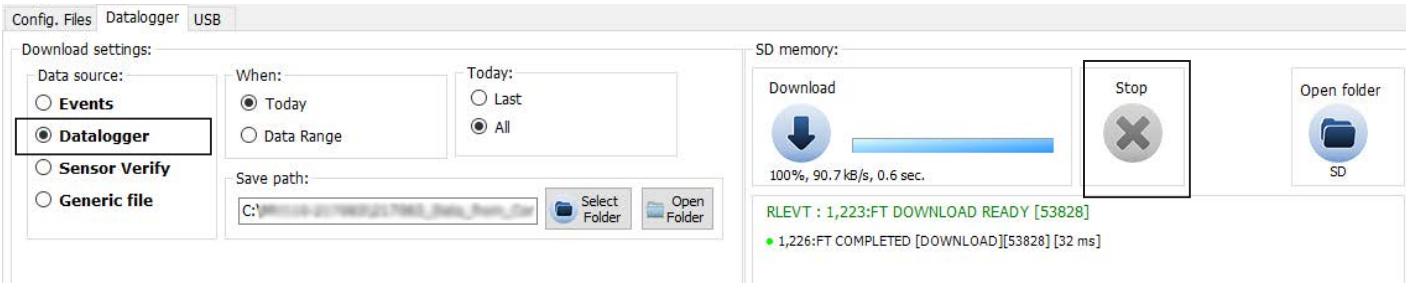






DATA LOGGER

Data is stored on micro SD card; the recorded data or the events, can be easily downloaded by the MCP INTERFACE, pres ng the relev nt k y as sh own below.

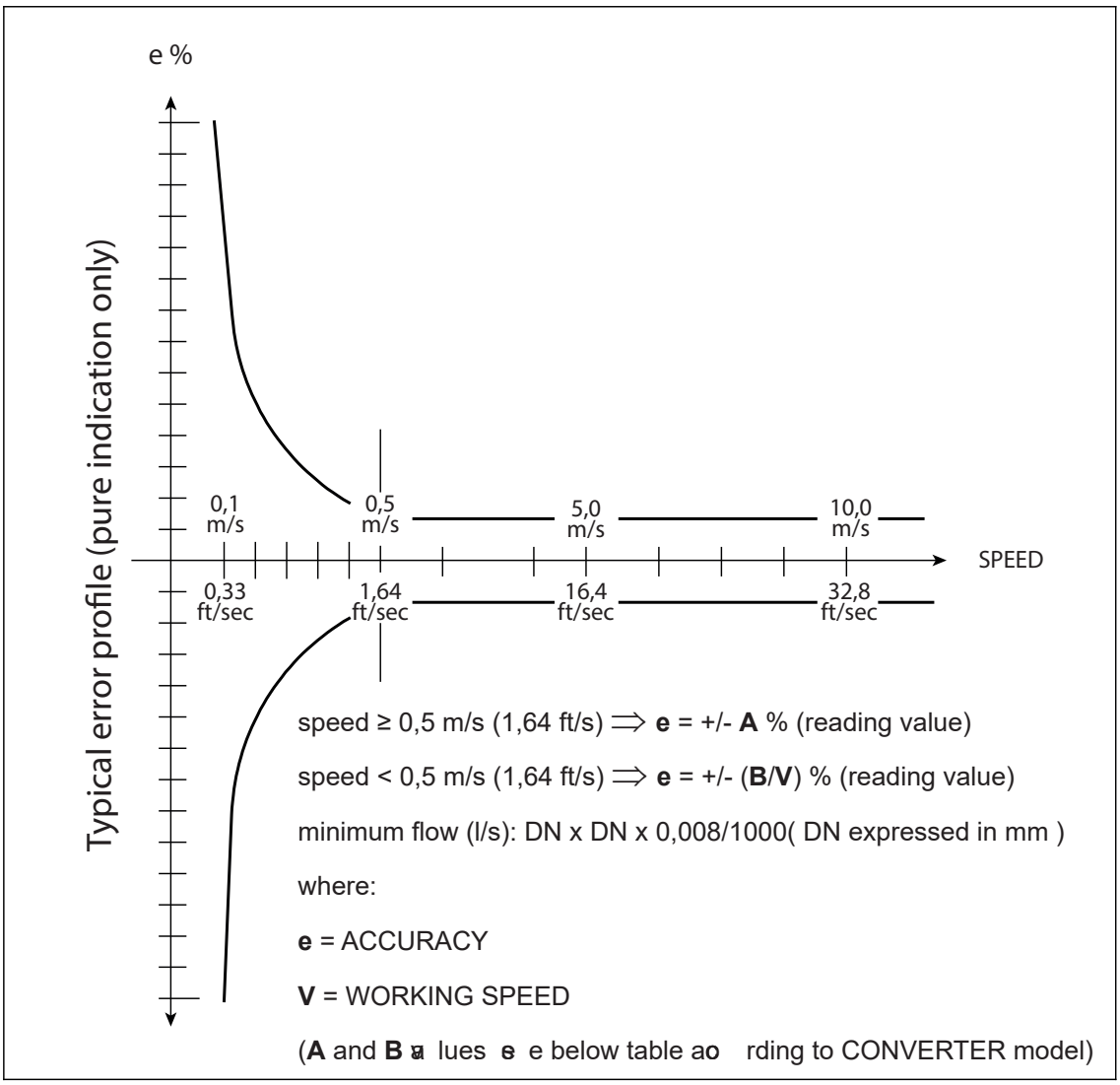


Note: to reo rd o rrec ly the data, the date and time sh all be properly s t.

Example of extrapolation of the data logger file:

K	P- 0 0 0 0 0 0	TOT_P-: value of the partial negative totalizer. Fields present when the sending flag of the P-totalizer is active
J	UM dm3 dm3 dm3 dm3 dm3 dm3	U=xxx: unit of measurement used for the partial negative totalizer. Fields present when the sending flag of the P-totalizer is active
I	T- 0 0 0 0 0 0	TOT_T-: total negative totalizer value. Fields present when the sending flag of the T-totalizer is active
H	UM dm3 dm3 dm3 dm3 dm3 dm3	U=xxx: unit of measurement used for total negative totalizer. Fields present when the sending flag of the T-totalizer is active
G	P+ 0 0 0 0 0 0	TOT_P+: value of the positive partial totalizer. Fields present when the sending flag of the totalizer P is active
F	UM dm3 dm3 dm3 dm3 dm3 dm3	U = xxx: unit of measurement used for the positive partial totalizer. Fields present when the sending flag of the P + totalizer is active
E	T- 0 0 0 0 0 0	TOT_T +: total positive totalizer value. Fields present when the sending flag of the T + totalizer is active
D	UM dm3 dm3 dm3 dm3 dm3 dm3	U = xxx: unit of measurement used for total positive totalizer. Fields present when the sending flag of the T + totalizer is active
C	ORA 00:00:00 00:00:00 00:00:00 00:00:00 00:00:00 00:00:00	TIME: Viewing the reo rding time for eab reo rd
B	DATA dd/mm/yy dd/mm/yy dd/mm/yy dd/mm/yy dd/mm/yy dd/mm/yy	DATE: Display of the recording date for each record.
A	N° RECORD n° n° n° n° n° n°	RNUM: reo rd number. View the number of reo rded reo rds in progres ion.

ACCURACY



Fullbore Sensor

MS501/MS600/MS1000/MS2410/MS2500			MS5000		
A	**B(m/s)**	**B(ft/s)**	**A**	**B(m/s)**	**B(ft/s)**
0,4*	0,20	0,66	2	1	3,28

* = 0,25 (special velocity > 1 m/s)

Insertion sensor

See Sensor DATA SHEET.

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: MV255

The **MS2500** e nə r's diameters lis ed below, o upled with **MV255**, are certified according to European Directive 2014/32/EU category MI-001 (OIML R49)

SIZE		Q3	Q2	Q1	R
mm	inch	m3/h			Q3/Q1
25	1	16	0,32	0,20	80
32	1 ¼	25	0,50	0,31	
40	1 ½	40	0,80	0,50	
50	2	63	1,3	0,79	
65	2 ½	100	2	1,25	
80	3	160	3,2	2	
100	4	250	5,0	3,13	
125	5	400	8,0	5,0	
150	6	630	13	7,88	
200	8	1000	20	12,50	
250	10	1600***	32	20	
300	12	2500**	50	31,25	
350	14	2500**	50	31,25	
400	16	4000**	80	50	
450	18	4000**	80	50	
500	20	6300	126	78,75	
600	24	10000	200	125	
700	28	10000	200	125	
800	32	16000*	320	200	
900	36	16000*	320	200	
1000	42	25000*	500	312,5	

SIZE		Q3	Q2	Q1	R
mm	inch	m3/h			Q3/Q1
25	1	16	0,26	0,16	100
32	1 ¼	25	0,40	0,25	
40	1 ½	40	0,64	0,40	
50	2	63	1,0	0,63	
65	2 ½	100	1,6	1,00	
80	3	160	2,6	1,60	
100	4	250	4,0	2,50	
125	5	400	6,4	4,00	
150	6	630	10	6,30	
200	8	1000	16	10,00	

(*) : Calibration flowrate 14000 m3/h - as for max rig flowrate L8
(**) : Calibration flowrate 1400 m3/h - as for max test rig flowrate L7
(***) Calibration flowrate 1100 m3/h - as for max test rig flowrate L6

MI-001 OIML R49 CLASS2: MV255

The **MS2500** e nc r's diameters lis ed below, c upled with **MV255**, are certified according to European Directive 2014/32/EU category MI-001 (OIML R49)

SIZE		Q3	Q2	Q1	R
mm	inch	m3/h			Q3/Q1
25	1	16	0,16	0,10	
32	1 ¼	25	0,25	0,16	
40	1 ½	40	0,40	0,25	
50	2	63	0,63	0,39	
65	2 ½	100	1,0	0,63	
80	3	160	1,6	1,0	
100	4	250	2,5	1,6	
125	5	400	4,0	2,5	
150	6	630	6,3	3,9	
200	8	1000	10	6,3	
250	10	1600***	16	10	160
300	12	2500**	25	16	
350	14	2500**	25	16	
400	16	4000**	40	25	
450	18	4000**	40	25	
500	20	6300	63	39	
600	24	10000	100	63	
700	28	10000	100	63	
800	32	16000*	160	100	
900	36	16000*	160	100	
1000	42	25000*	250	156	

SIZE		Q3	Q2	Q1	R
mm	inch	m3/h			Q3/Q1
25	1	16	0,10	0,06	
32	1 ¼	25	0,16	0,10	
40	1 ½	40	0,26	0,16	
50	2	63	0,40	0,25	
65	2 ½	100	0,64	0,40	
80	3	160	1,0	0,64	
100	4	250	1,6	1,0	
125	5	400	2,6	1,6	
150	6	630	4,0	2,5	
200	8	1000	6,4	4,0	
250	10	1600***	10	6,4	250
300	12	2500**	16	10	
350	14	2500**	16	10	
400	16	4000**	26	16	
450	18	4000**	26	16	
500	20	6300	40	25	
600	24	10000	64	40	
700	28	10000	54	40	
800	32	16000*	102	64	
900	36	16000*	102	64	
1000	42	25000*	160	100	

(*) : Calibration flowrate 14000 m3/h - as for max rig flowrate L8

(**) : Calibration flowrate 1400 m3/h - as for max test rig flowrate L7

(***) Calibration flowrate 1100 m3/h - as for max test rig flowrate L6

SIZE		Q3	Q2	Q1	R
mm	inch	m3/h			Q3/Q1
25	1	16	0,06	0,04	
32	1 ¼	25	0,10	0,063	
40	1 ½	40	0,16	0,10	
50	2	63	0,25	0,16	
65	2 ½	100	0,40	0,25	
80	3	160	0,64	0,40	
100	4	250	1,0	0,63	
125	5	400	1,6	1,0	
150	6	630	2,5	1,6	
200	8	1000	4,0	2,5	
250	10	1600***	6,4	4,0	**400**
300	12	2500**	10	6,3	
350	14	2500**	10	6,3	
400	16	4000**	16	10	
450	18	4000**	16	10	
500	20	6300	25	16	
600	24	10000	40	25	
700	28	10000	40	25	
800	32	16000*	64	40	
900	36	16000*	64	40	
1000	42	25000*	100	63	

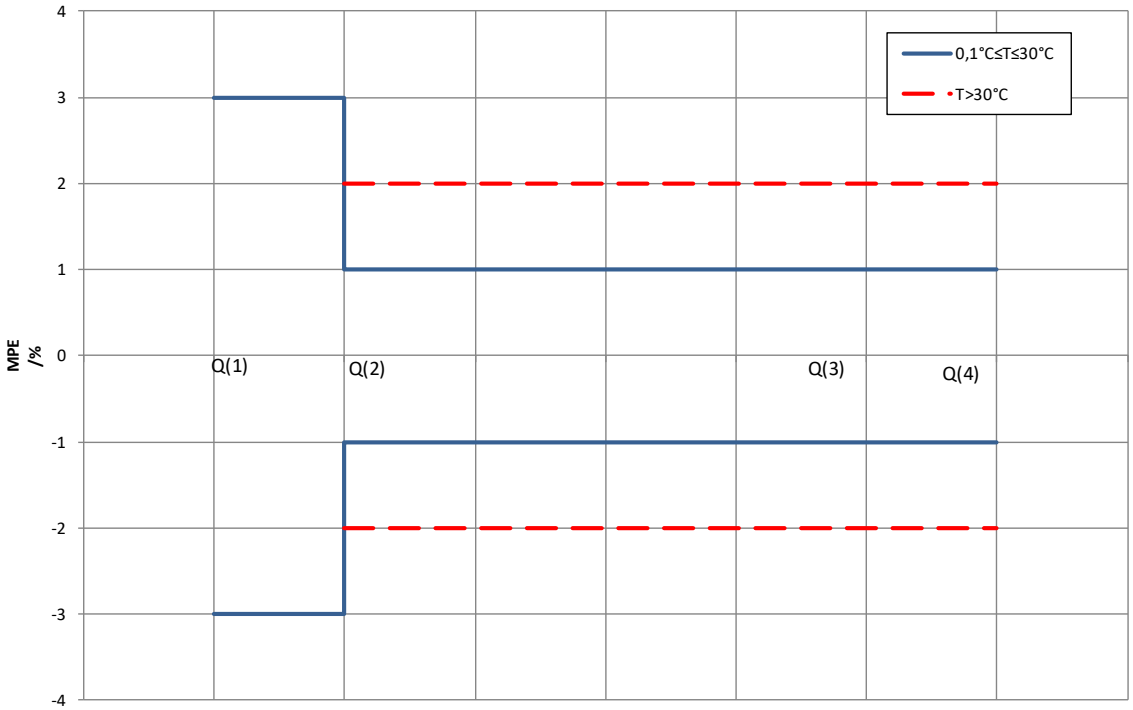
(*) : Calibration flowrate 14000 m3/h - as for max rig flowrate L8

(**) : Calibration flowrate 1400 m3/h - as for max test rig flowrate L7

(***) Calibration flowrate 1100 m3/h - as for max test rig flowrate L6

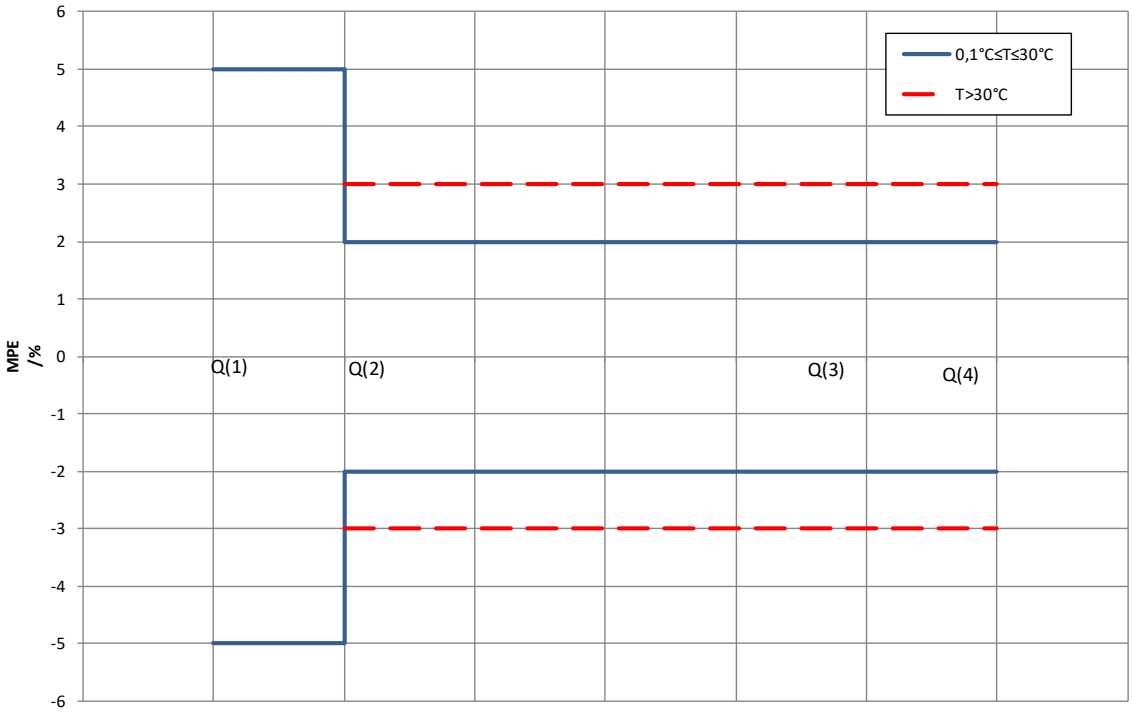
MPE - MI 001 - OIML R49 ACCURACY CLASS 1

(OIML R 49-1:2013 (E) - ISO4064-1:2017)



MPE - MI 001 - OIML R49 ACCURACY CLASS 2

(OIML R 49-1:2013 (E) - ISO4064-1:2017)



HOW TO ORDER

CODE/ EXAMPLE		CODE/DESCRIPTION
Display		
B	A	Blind version (without display and programming keys - USB cable type A / USB Mini B is Required for programming)
	B	Graphic LCD WSTN - B/W-matrix points 128 x 64, 8 line/16 characters and 3 programming keys (mandatory for MI001)
Housing material		
0	0	Nylon PA6 with fiber glass, (IP67 only)
	1	Painted aluminium die cast ing
Version / Protection rate		
A	A	Compact version with sensor MS - IP67
	B	Separate version for wall monting, complete with Aluminium mounting accessories, (use C015/C016 cable max length 20 m) - IP67
	C	Compact version with display visible from the top -IP67
	D	Compact version - IP68 1,5 meters - ONLY aluminium housing
	E	Compact version with display visible from the top - IP68 1,5 meters - ONLY aluminium housing
	F	Separate version with sensor MS - IP68 1,5 meters - ONLY aluminium housing
Main Power supply (FOR Option 2 is Included the possibility Solar Panel 12-24 VDC)		
0	0	Without Main Power Supply (MANDATORY IF BATTERY ALCALYNE OR LITHIUM ARE SELECTED)
	1	Power supply : 100 ... 240 VAC 45/66 Hz + Rechargeable Bettery 3,7 V - 5200 mAh (NOT ALLOWED WITH ALKALINE OR LITHIUM BATTERIES)
	2	Power supply : 12…48 VDC + Rechargeable Bettery 3,7 V - 5200 mAh (NOT ALLOWED WITH ALKALINE OR LITHIUM BATTERIES) ALSO FOR SOLAR PANEL
Batteries (THE USE IS NOT ALLOWED IF THE MAIN POWER IS SELECTED)		
A	A	Whithout Batteries (MANDATORY IF MAIN POWER SUPPLY IS SELECTED)
	B	2 Lithium thionyl chloride batteries (n° 1 on slot 1 - n° 1 on slot 2) - ONLY SPIRAL MODEL
	C	4 Lithium thionyl chloride batteries (n° 2 on slot 1 - n° 2 on slot 2) - ONLY SPIRAL MODEL
	D	6 Lithium thionyl chloride batteries (n° 3 on slot 1 - n° 3 on slot 2)
	E	6 Alkaline or NiMh batteries SIZE D (on slot 3)
	F	Board set for Lithium (slot 1-2) (Batteries NOT Supplied)
	G	Board set for Alkaline (slot 3) (Batteries NOT Supplied)
Analog Input/Output		
0	0	Without Analog Input/Output
	1	N° 1 Input for n° 1 pressure sensor (pressure sensor to be ordered separately)
	2	N° 2 Inputs for n° 2 pressure sensors (pressure sensors to be ordered separately)
	3	N° 1 Input for n° 1 PT 100/500/1000 THERMAL PROBE (probe to be ordered separately)
	4	N° 2 Inputs for n° 2 PT 100/500/1000 THERMAL PROBE (probes to be ordered separately)
	5	N° 1 Analog Output (4/20 mA) - Active or Passive (by wiring) if the Main Power is SELECTED ; ONLY PASSIVE if powered by BATTERIES
	6	Option 1 + 5
	7	Option 2 + 5
	8	Option 3 + 5
	9	Option 4 + 5
	a	Option 1 + 3
Digital Input/Output		
A	A	Without Digital Input/Output
	B	N° 2 ON/OFF output (max 50 Hz - max 100 mA) + N° 1 ON/OFF input
	C	N° 4 ON/OFF output (max 50 Hz - max 100 mA) + N° 3 ON/OFF input

Communication Gateway& Protocol		
0	0	3G o mmunia tion module with antenna on the hous ng
	1	3G o mmunia tion module with 3 meters a ble antenna
	2	3G communication module with antenna on the housing with DNP3 protocol
	3	3G communication module with 3 meters cable antenna with DNP3 protocol
	5	4G o mmunia tion module with antenna on the hous ng
	6	4G o mmunia tion module with 3 meters a ble antenna
	7	4G communication module with antenna on the housing with DNP3 protocol
	8	4G communication module with 3 meters cable antenna with DNP3 protocol
	9	Others
Data Logger		
A	A	MicroSD Memory 4 GB : Data Logger + RTC (Real Time Clock)
	B	MicroSD Memory 4 GB : Data Logger + RTC (Real Time Clock) + BIV (Built In Verificator)
	C	MicroSD Memory 4 GB : Data Logger + RTC (Real Time Clock) + Meter Data (Real Time Converter & Sensor Data on SD Memory)
	D	MicroSD Memory 4 GB : Data Logger + RTC (Real Time Clock) + BIV + Meter Data
Special Features		
0	0	None
	1	WITH ANTICONDENSE CAP
Connectors for POWER SUPPLY and CABLES FROM SENSOR (Separate Version) (Maximum 5 connectors including IN/OUT connectors)		
A	A	NO CONNECTORS
	B	POWER SUPPLY (n° 1 connector)
	C	SEPARATE VERSION (n° 2 connectors)
	D	POWER SUPPLY (n° 1 connector)+ SEPARATE VERSION (n° 2 connectors)
Connectors FOR INPUTS/OUTPUTS		
0	0	NO CONNECTORS
	1	n.1 Pres re or n.1 Temperature (n.1 o nnect or)
	2	n.2 Pressure or n.2 Temperature (n. 2 connector)
	3	n.2 Digital Outputs - n.1 Digital Input (n.1 connector)
	5	n. 2 DIGITAL OUTPUT - n. 1 DIGITAL INPUT (n.1 connector) + n. 1 PRESSURE or N° 1 TEMPERATURE (n.1 o nnect or)
	6	n.2 Digital Outputs + n.1 Output 4-20 mA (n.1 connector)
	7	n.1 Pressure and n.1 Temperature (n. 2 connectors) + n.2 Digital Outputs - n.1 Digital Input (n.1 connector)
MID Approval		
A	A	NONE
	B	MI-001/OIMLR49-CLASS 1
	C	MI-001/OIMLR49-CLASS 2

Example of complete code to order → **MV255-B0A0A0A0A0**

MV255_IT_EN_DS062REV09_IS

Due to the constant technical development and improvement of its products, the manufacturer reserves the right to make changes and/or modify the information contained in this document without notice.

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