ISOMAG

The friendly magmeter

DATA SHEET

MV255

CE

ISOIL INDUSTRIA

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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	
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 A / USB MINI B type cable must be used)
Bidirectional	❑ YES
Diagnostic Funct.	❑ YES
Empty Pipe Detect.	❑ YES
Communication ports	❑ Modem 3G
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)	
Version	❑ Compact ❑ Separate
Protection Rate	❑ IP 68
Conn. Sensor Cable	❑ CABLE C015-C016
LCD Display	❑ 128x64 pixel backlit graphic display (Main power version only), with 3 keys for programming
Pulses / Alarm outputs	❑ 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

ACCURACY	
Measurements tolerance	❑ Flow rate (volume) = ±0,1% v.l. ❑ Out 4/20 mA = ± 0,2 % v.l. ❑ Frequency Out = ± 0,2% v.l.
Accuracy (whole system converter+sensor)	❑ See table below

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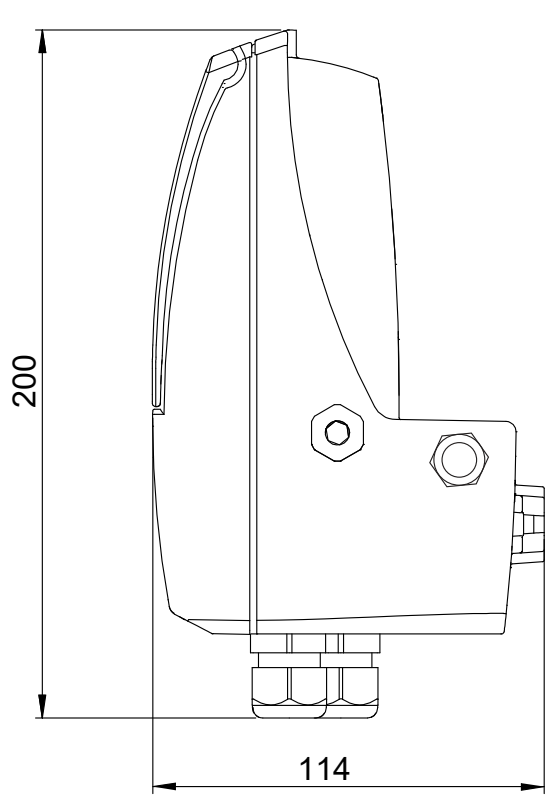
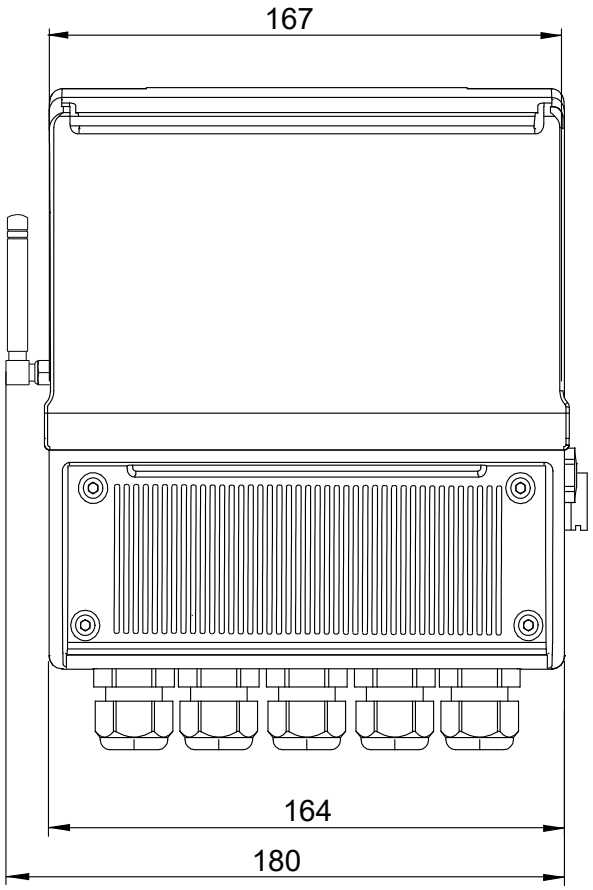
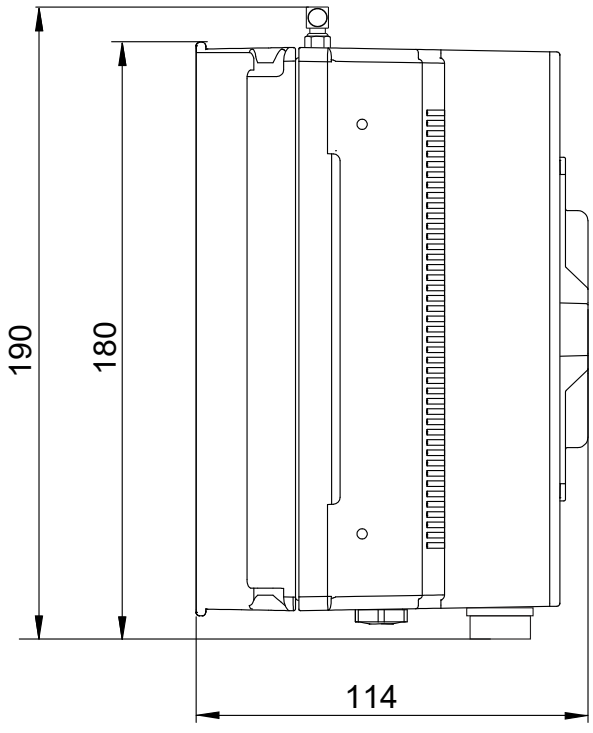
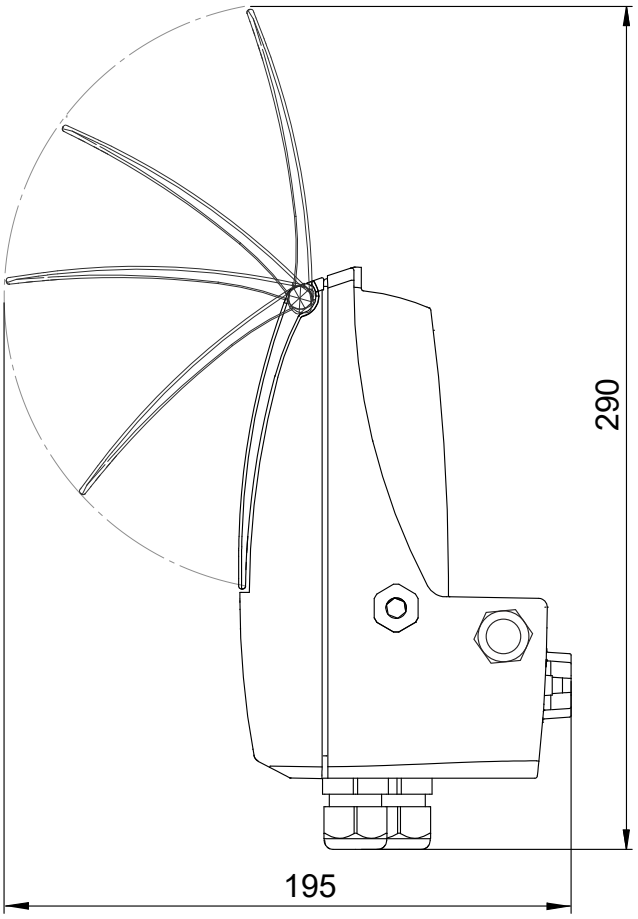
OVERALL DIMENSION WITHOUT BATTERY PACK









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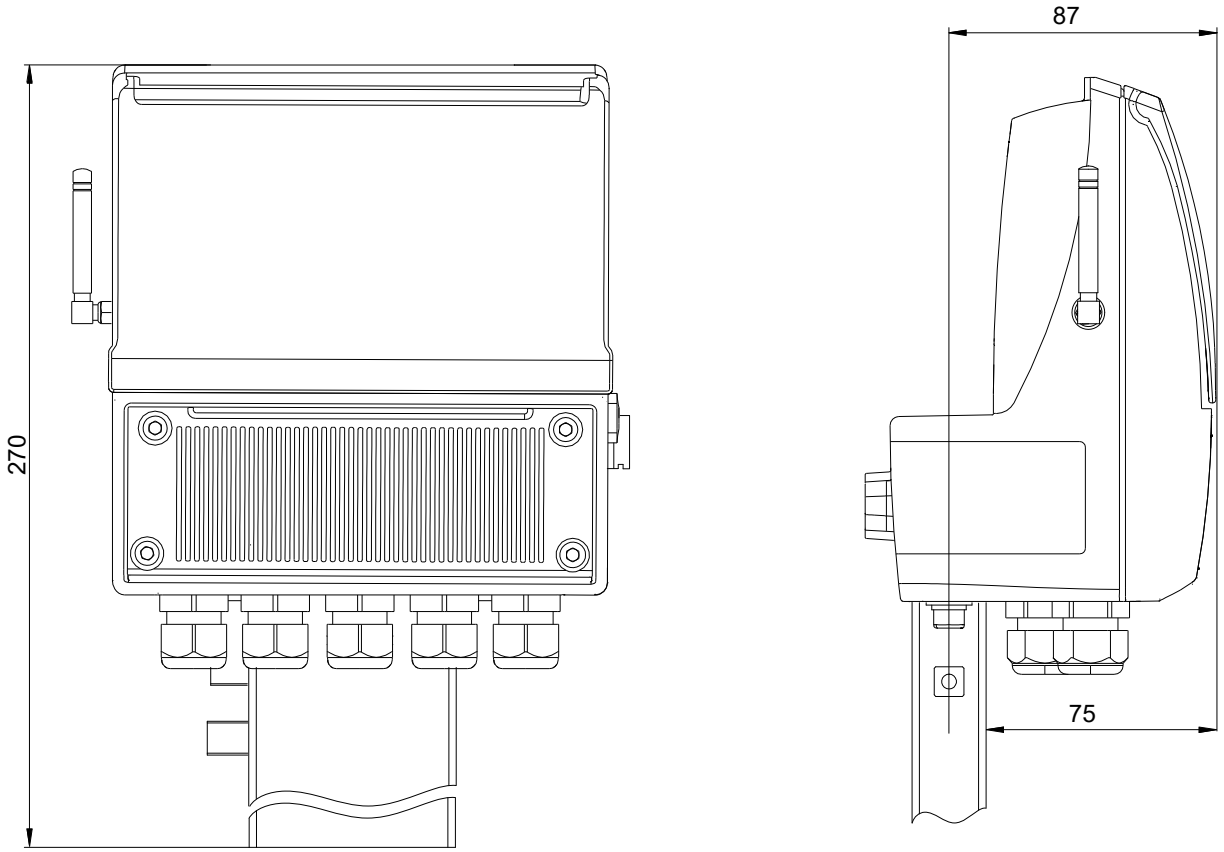
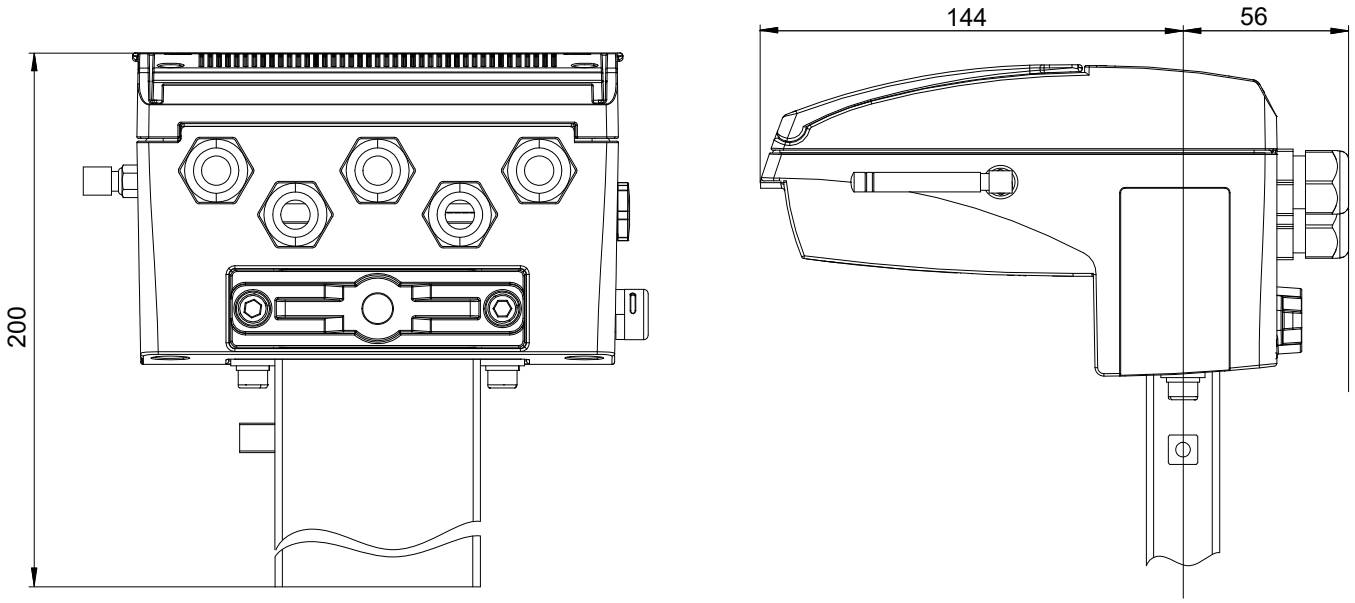
COMPACT VERSION



COMPACT VERSION (ROTATED)



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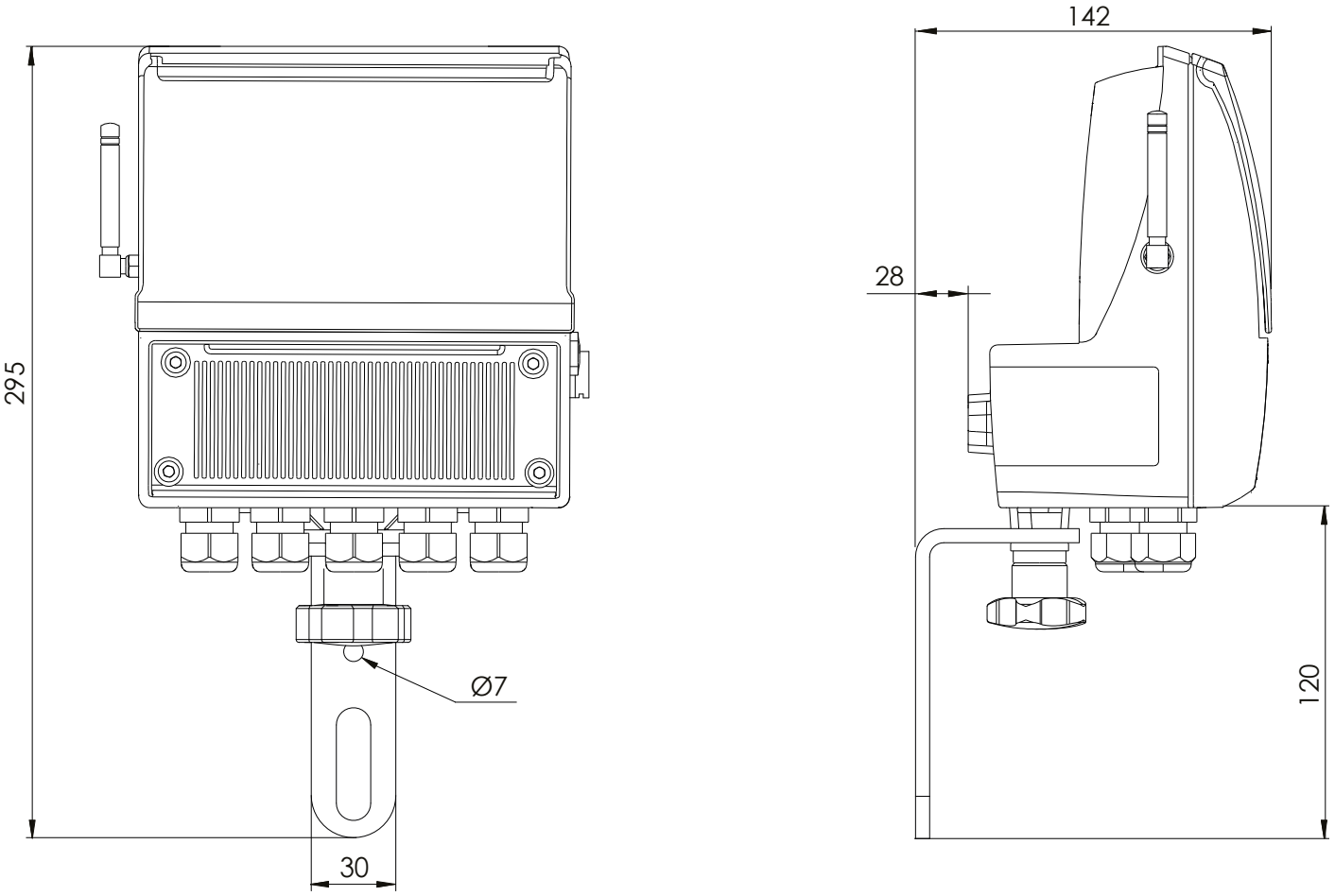
SEPARATE (WALL) VERSION



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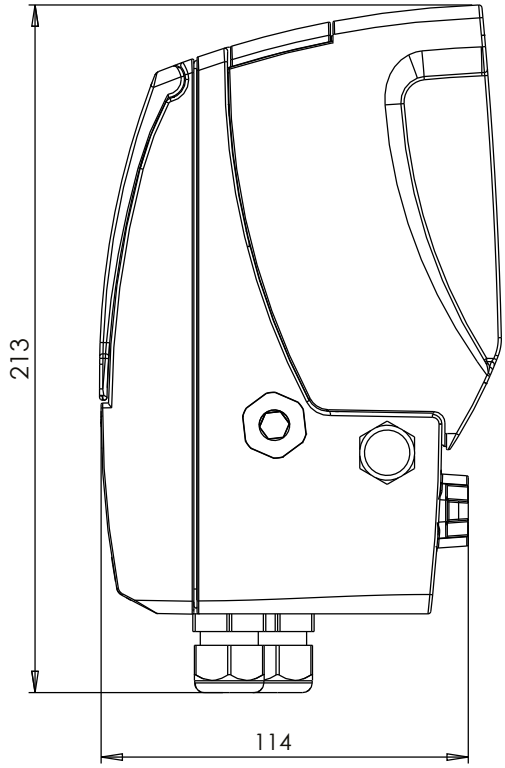
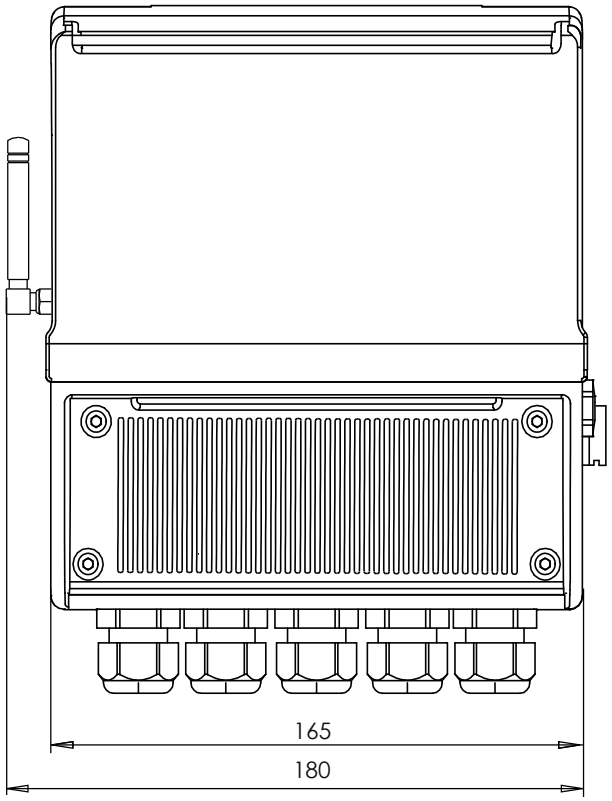
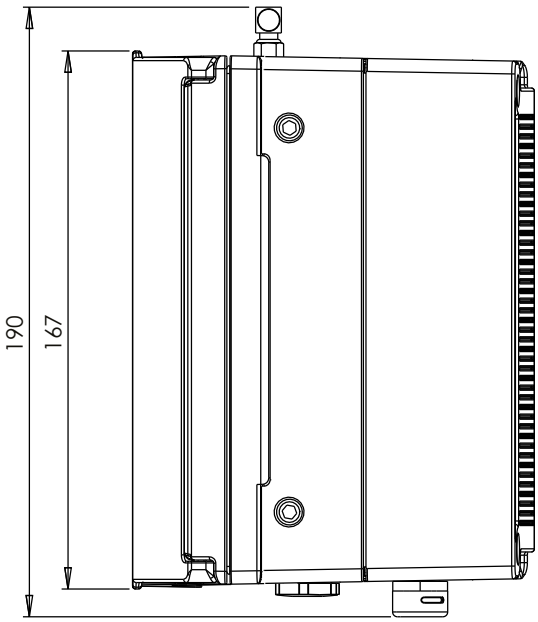
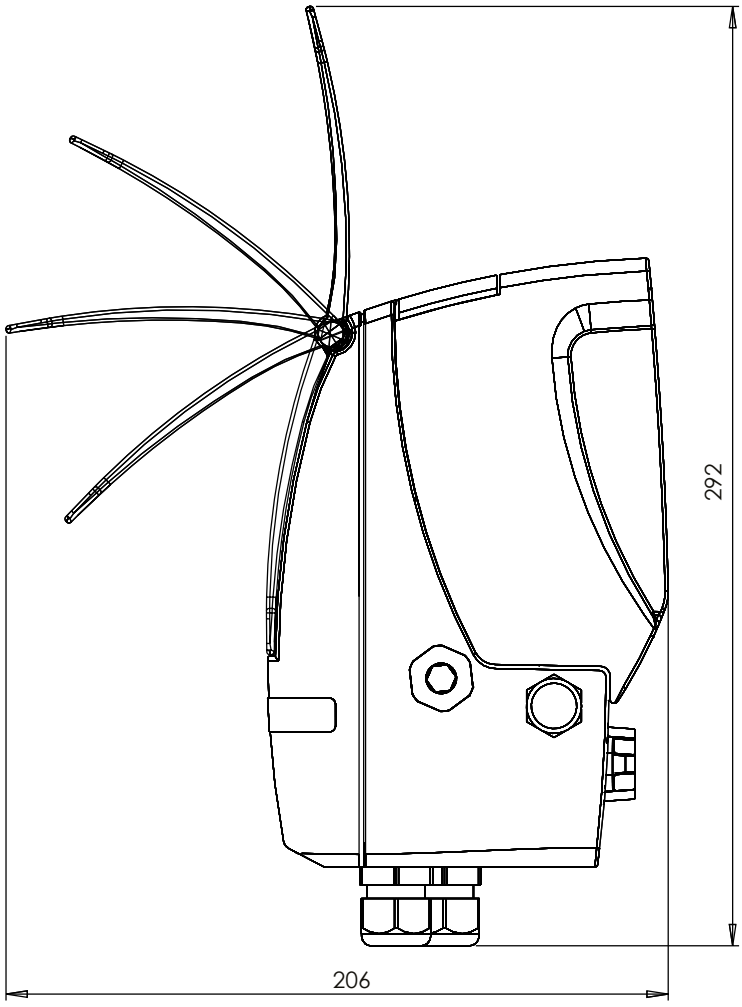
OVERALL DIMENSION WITH BATTERY PACK









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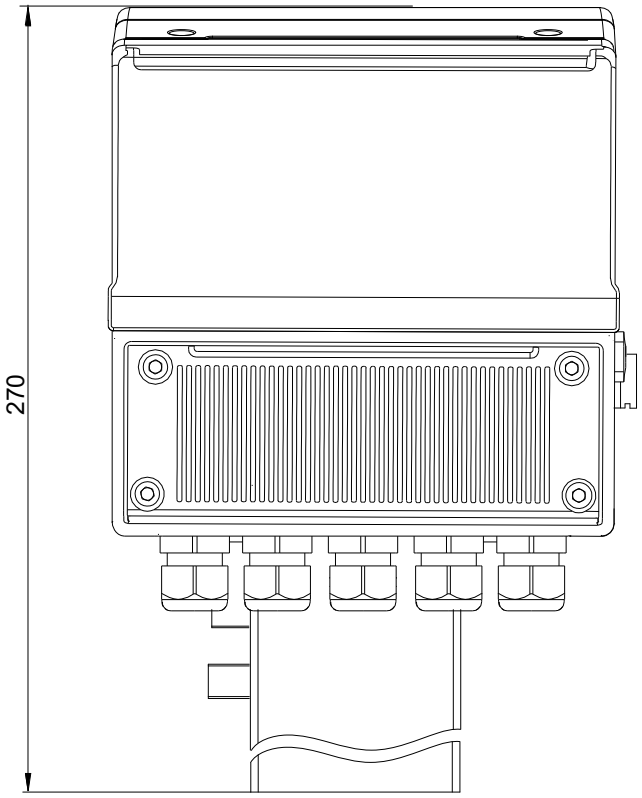
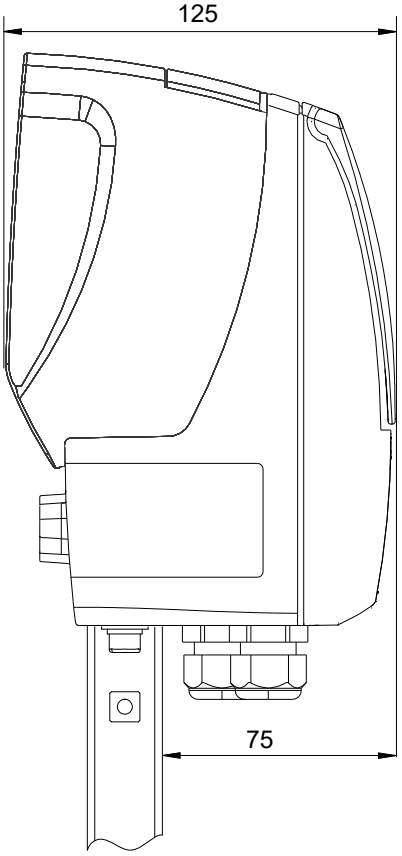
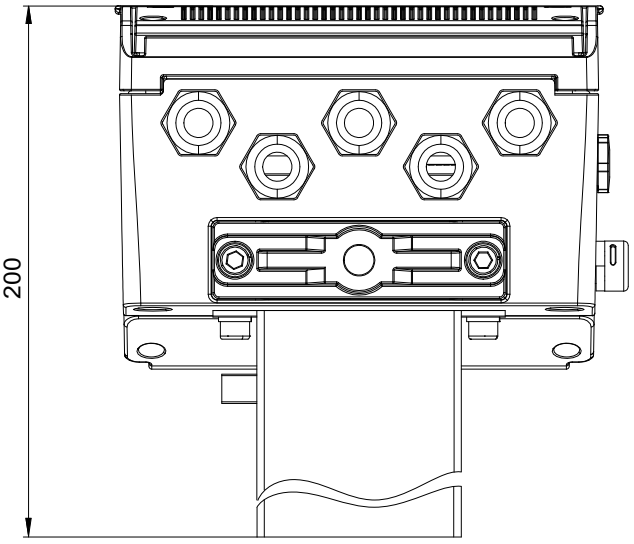
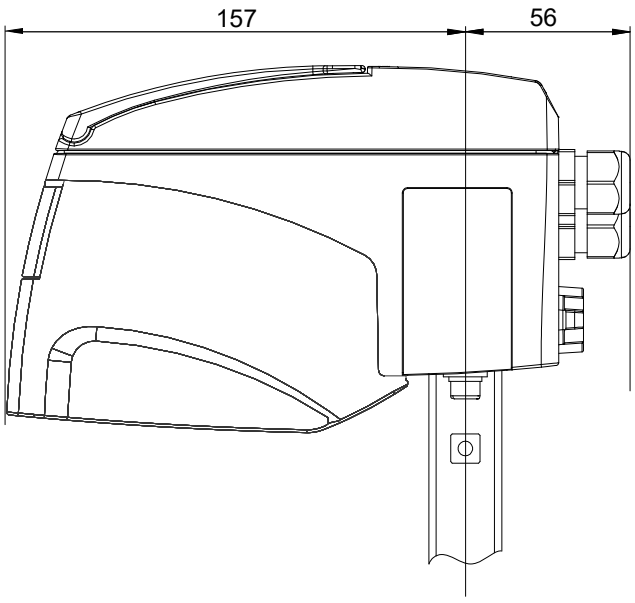
Compact version





Compact version (rotated)





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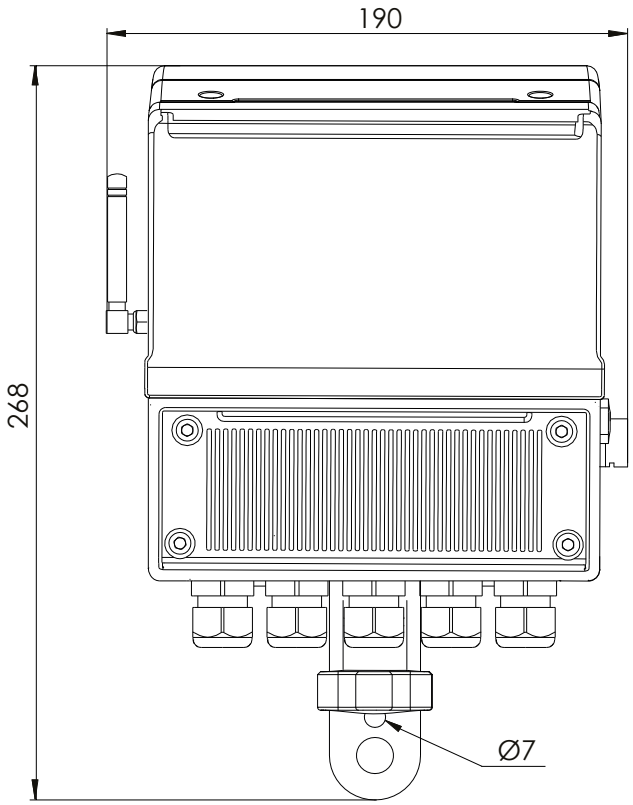
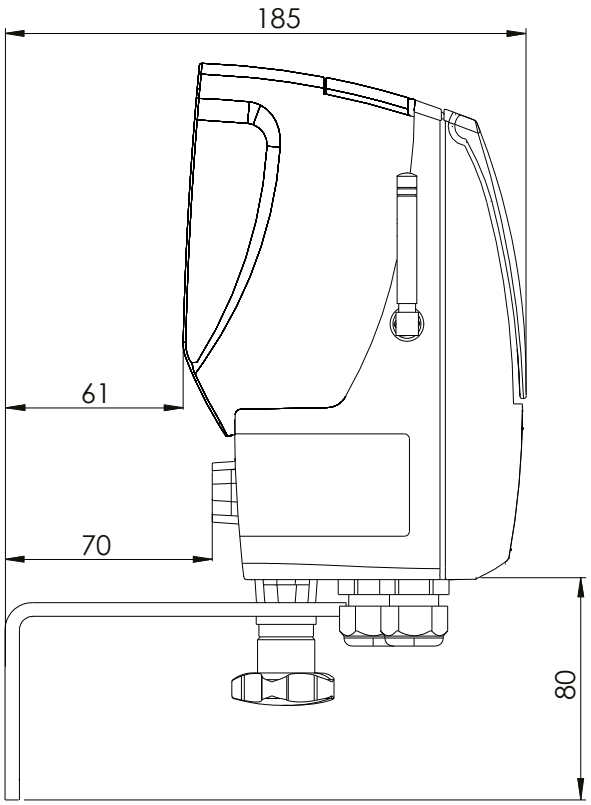
SEPARATE VERSION





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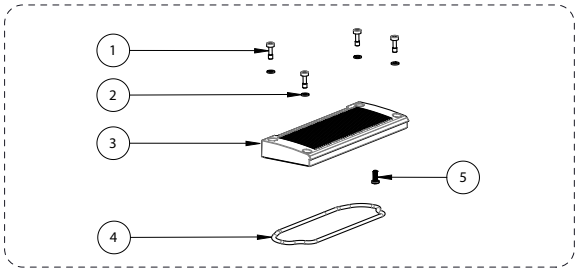
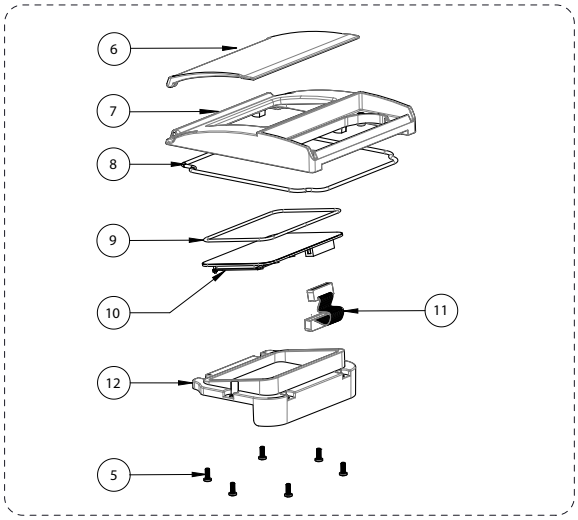
MV255 LAYOUT

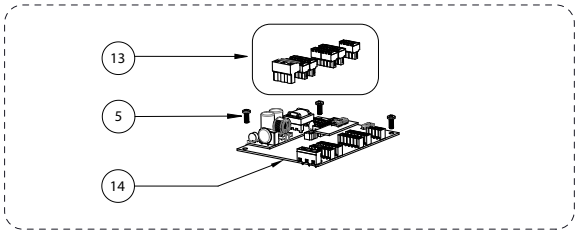
TERMINAL BLOCK COVER



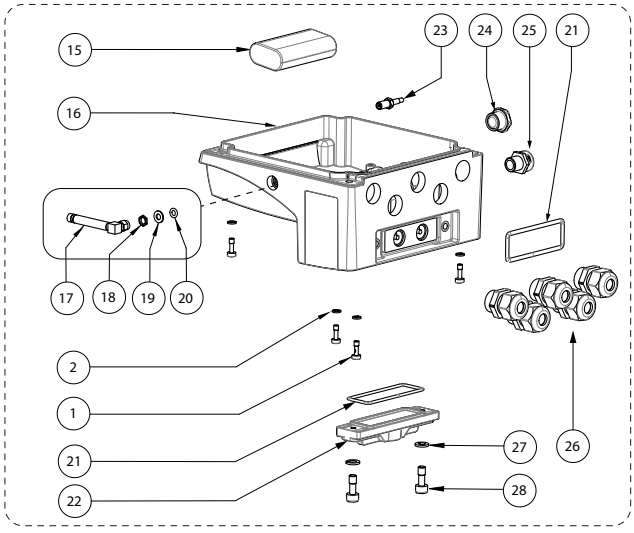
MAIN HOUSING COVER



PCB MV255



MAIN HOUSING



POS.	DESCRIPTION	
	PA6 VERSION	***ALUMINIUM VERSION***
1	SCREW M4x12	SCREW M5x12
2	GROWER Ø4	GROWER 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	PA6 MAIN HOUSING	ALUMINIUM MAIN HOUSING
17	3G ANTENNA 3G 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 Ø6	
28	SCREW M6x16	

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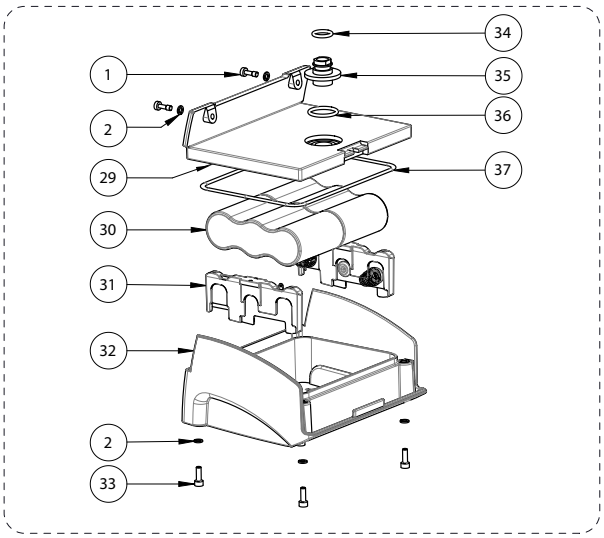
BATTERIES HOUSING



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	

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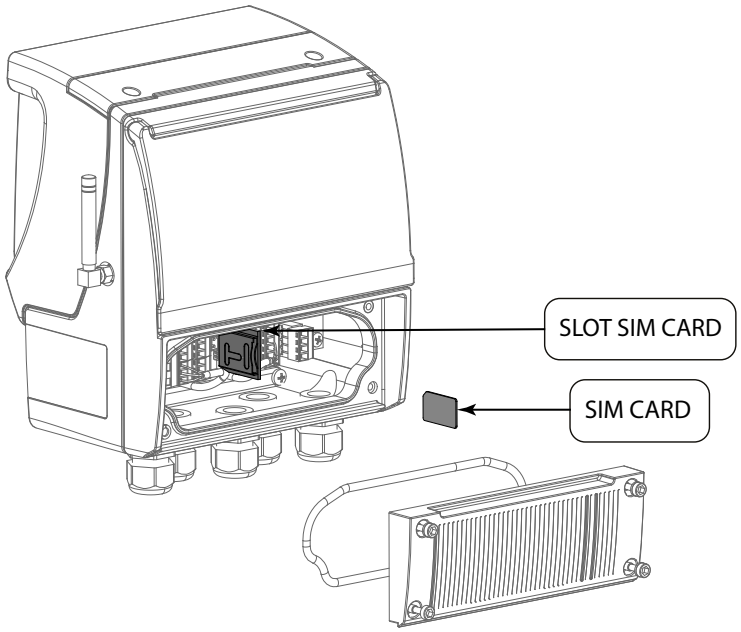
CONVERTER ACCESS

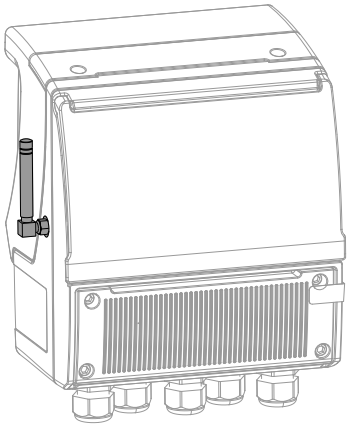
SLOT SIM 3G

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

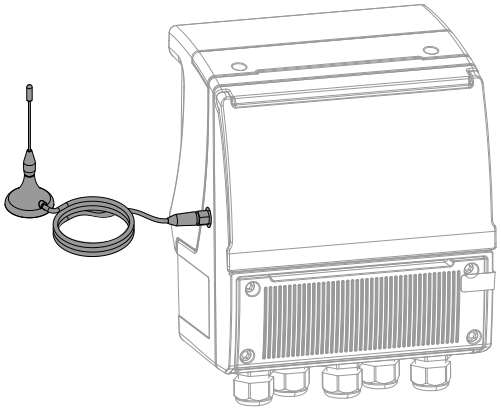


ANTENNA TYPES

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



3G ANTENNA INSTALLED DIRECTLY ON THE CONVERTER CASE



3G ANTENNA WITH MAGNETIC SUPPORT CONNECTED TO THE CONVERTER HOUSING WITH CABLE L = 3 meters

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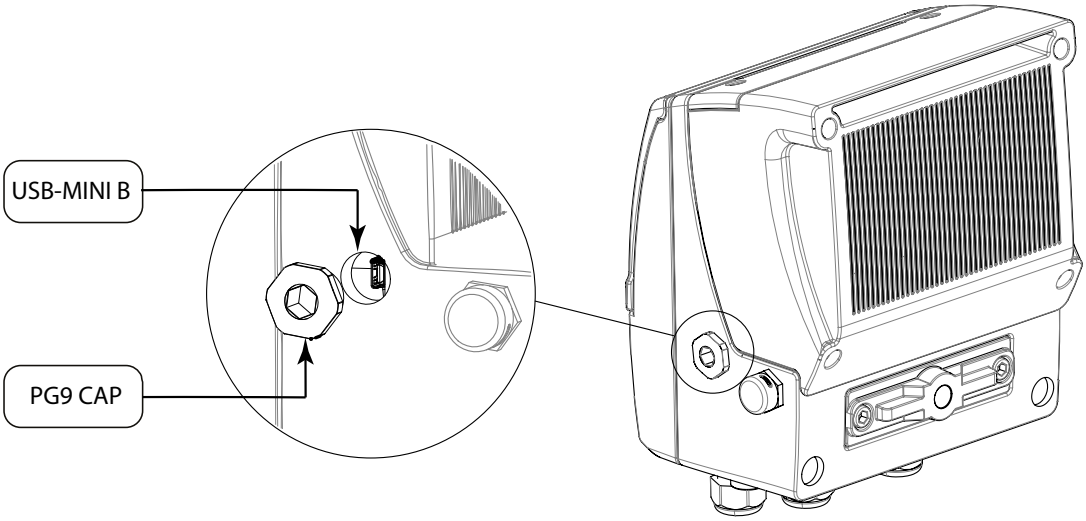
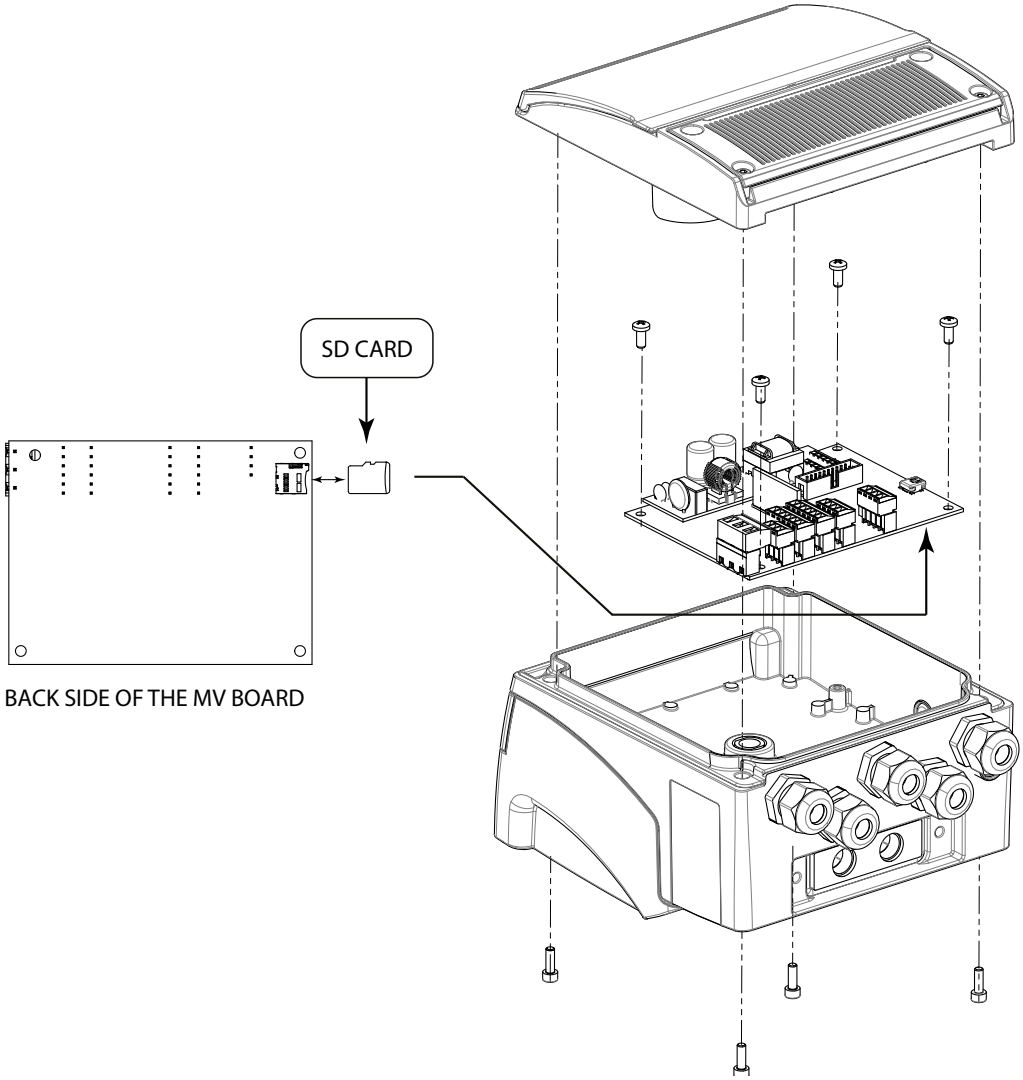
USB Connection



SD card



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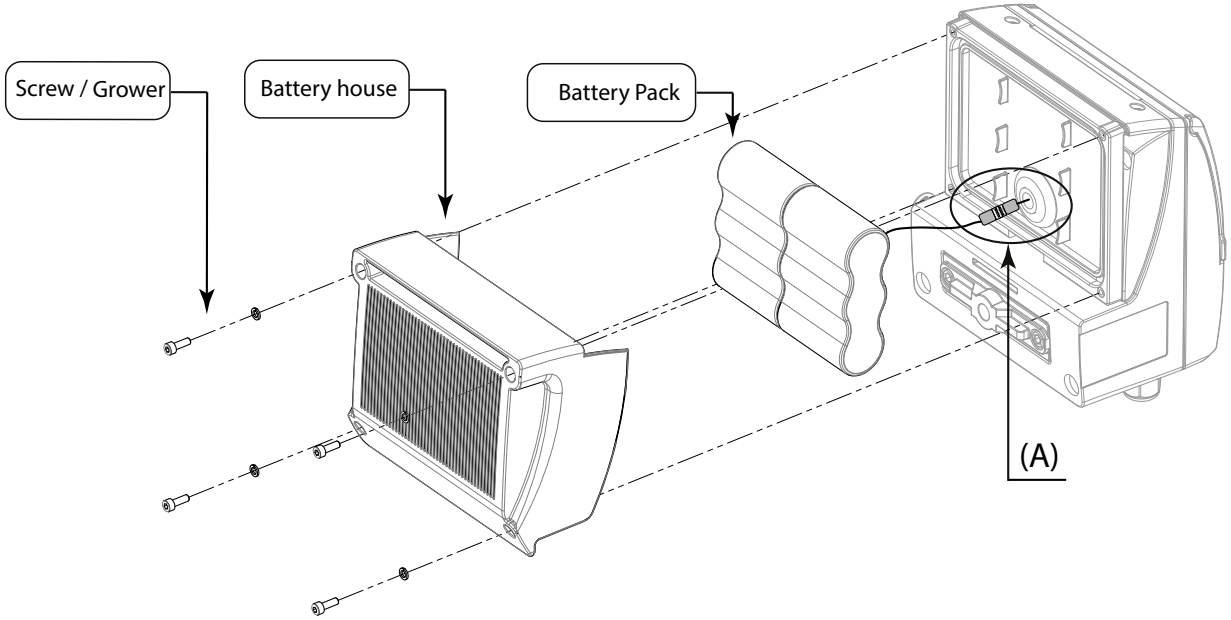
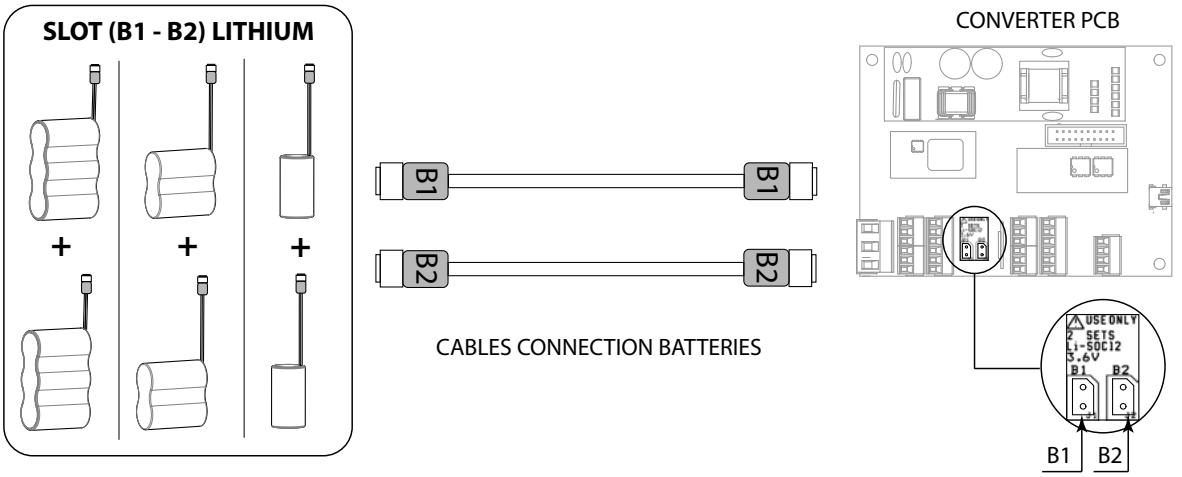
POWER SUPPLY

BATTERIES CONFIGURATION

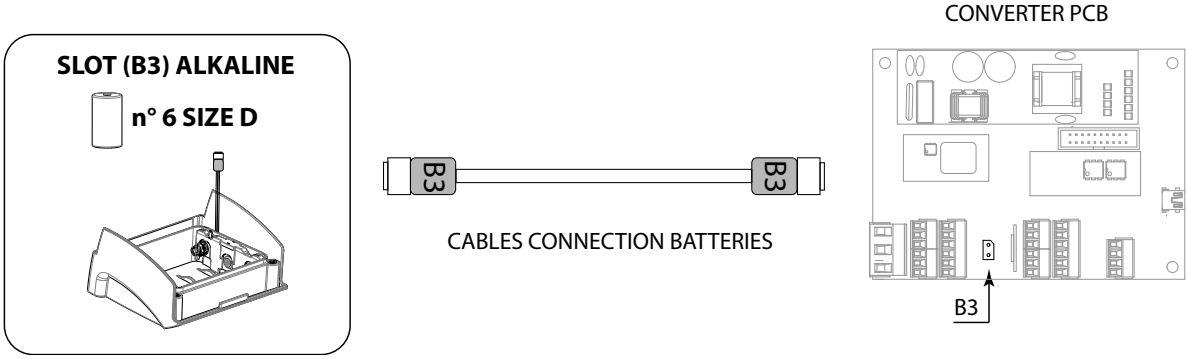


DETAIL (A) BATTERY CONNECTIONS CONVERTER PCB

LITHIUM BATTERIES



ALKALINE BATTERIES



- 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.

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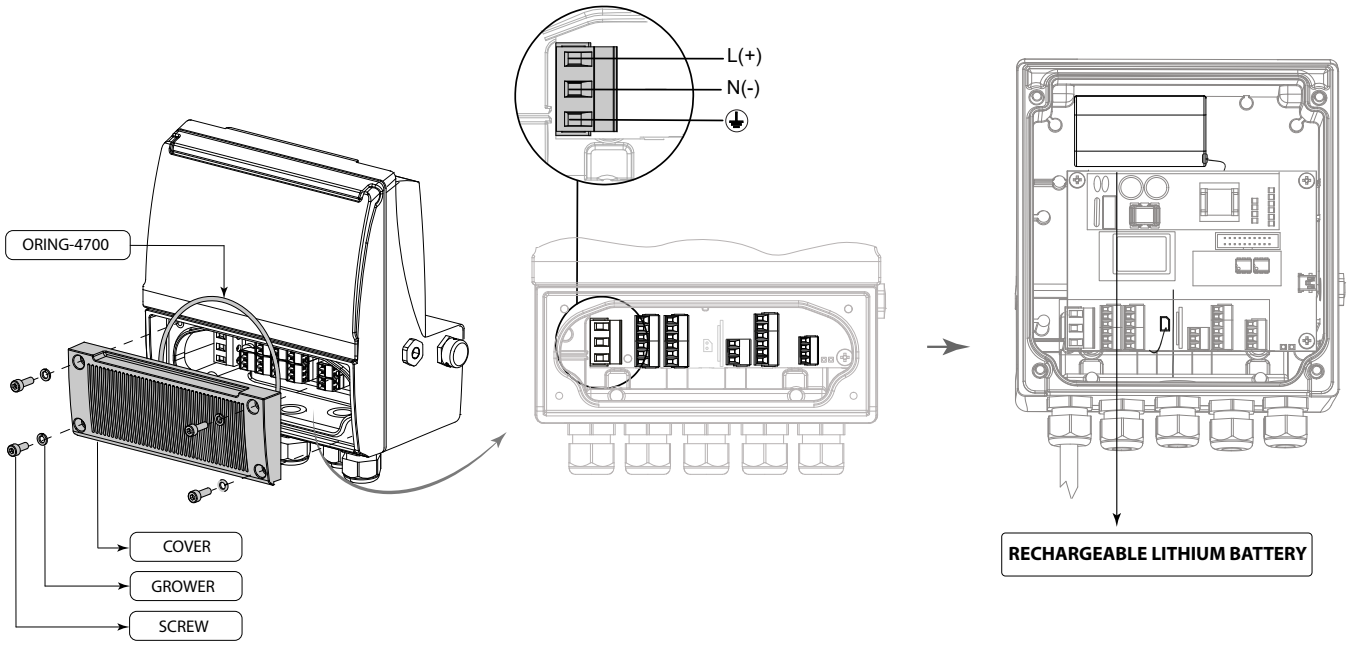
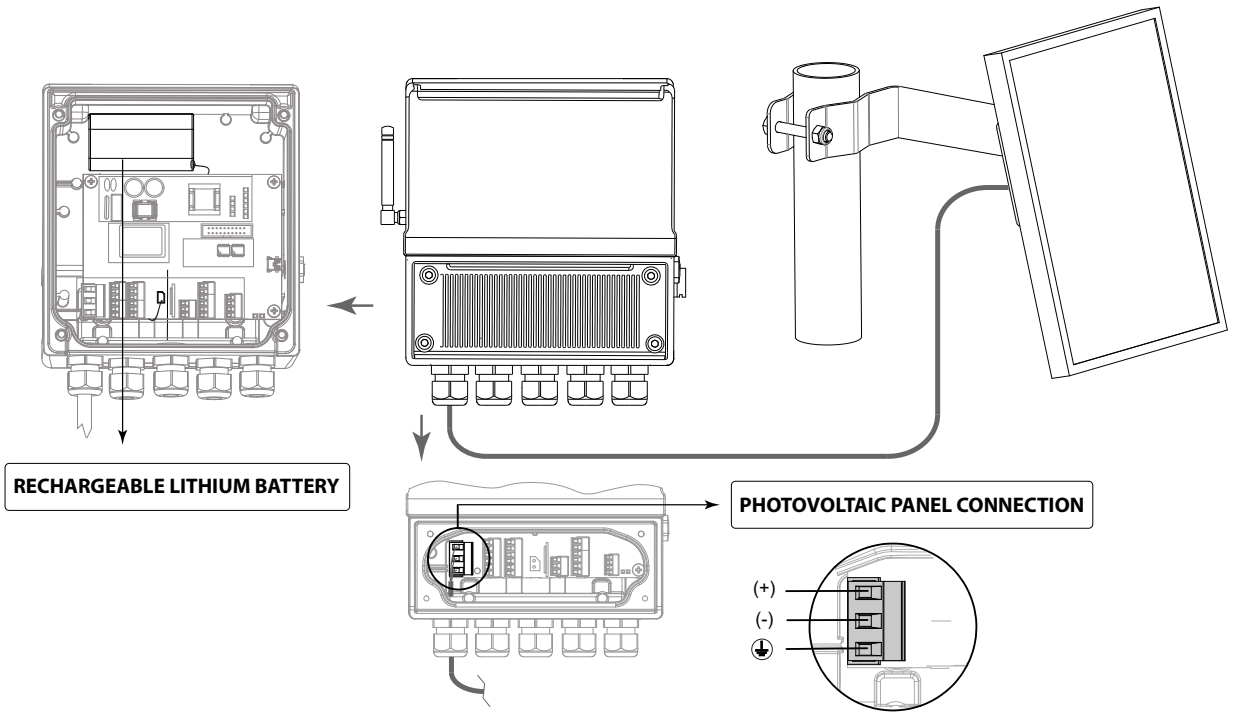
POWER SUPPLY FROM MAIN LINE



- 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 2.50mm2, 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, sensor 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



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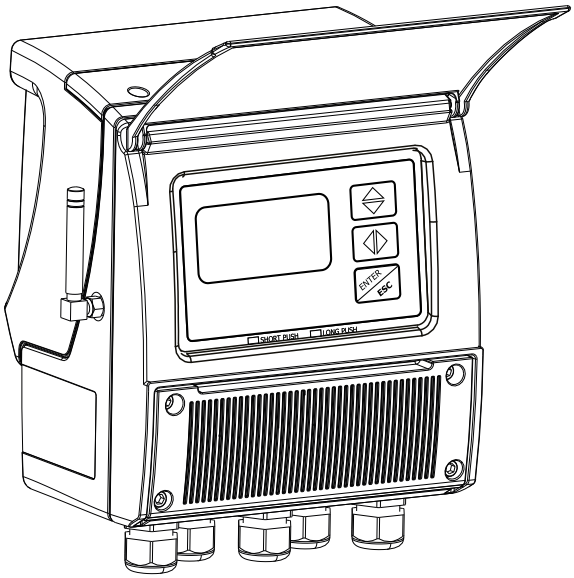
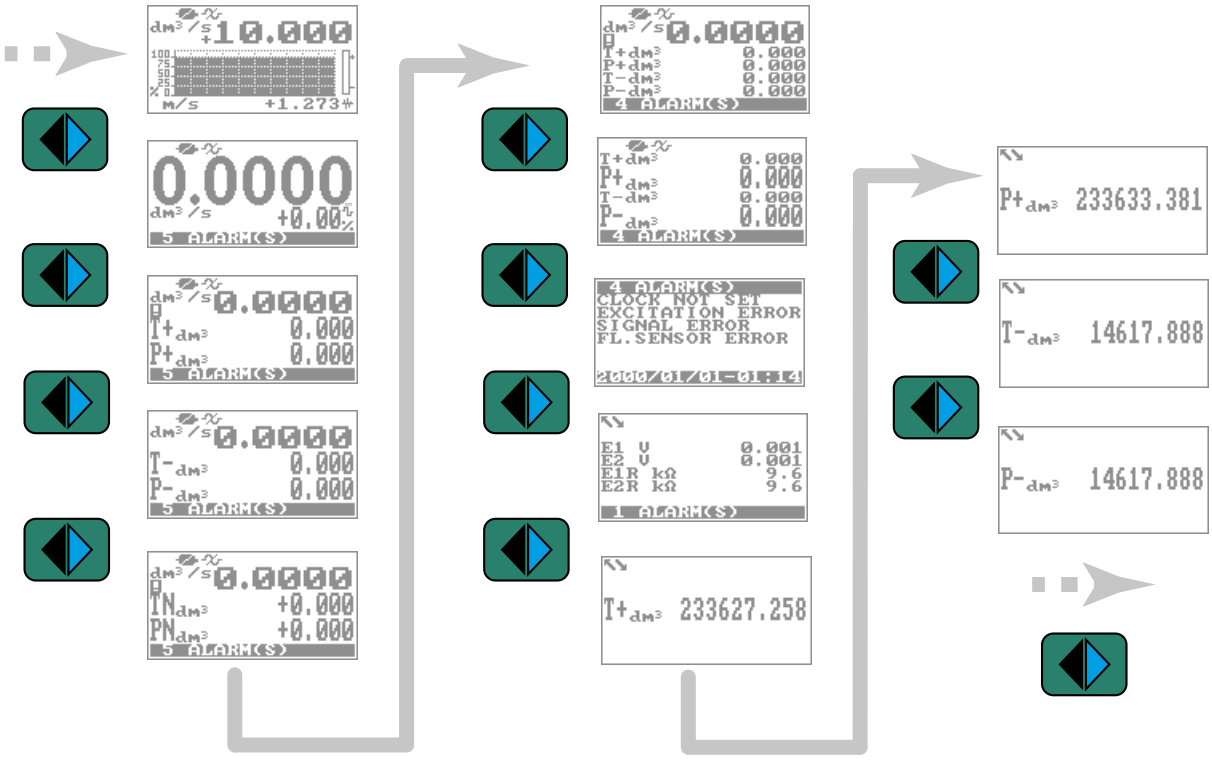
MAIN PAGES VISUALIZATION

Possible views by simply pressing the button





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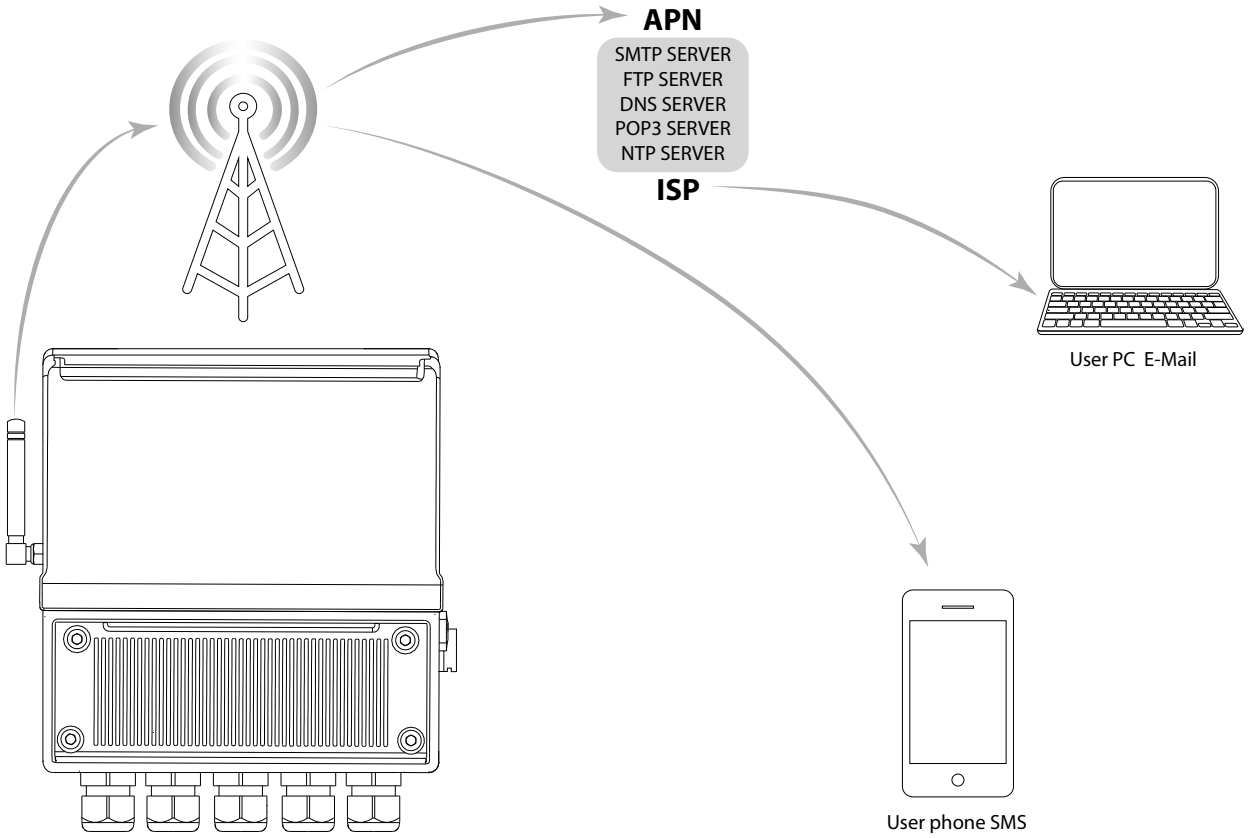
3G NETWORK CONNECTION



- 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 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

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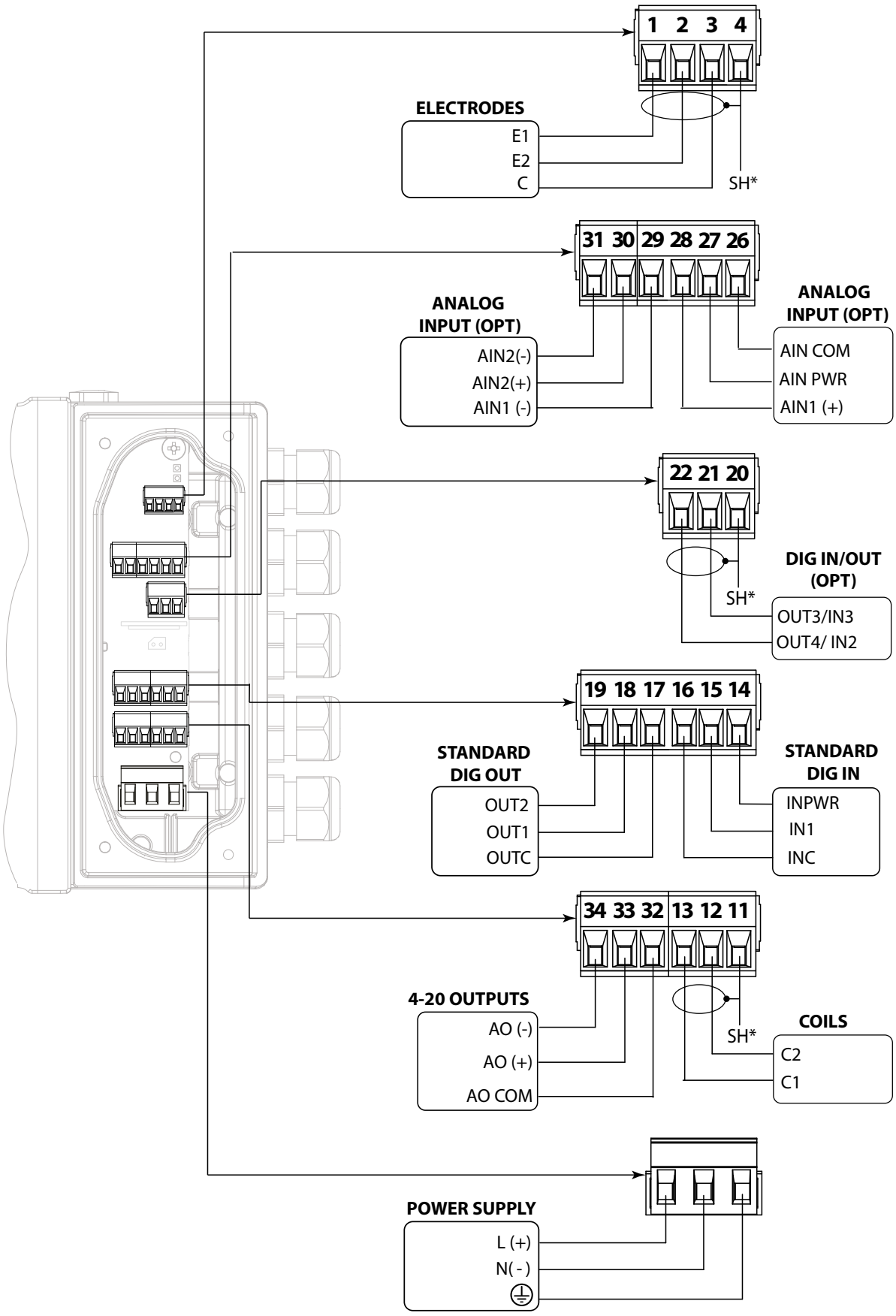
ELECTRICAL CONNECTIONS

TERMINAL CONNECTIONS



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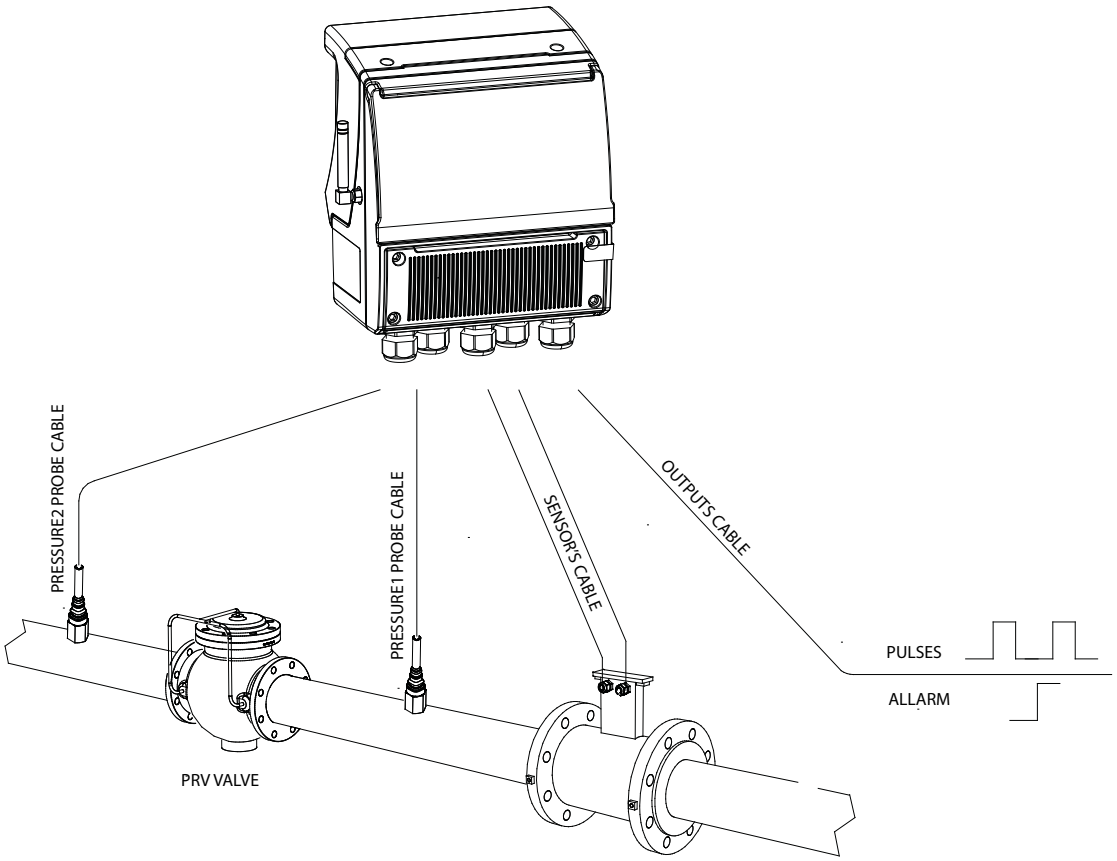
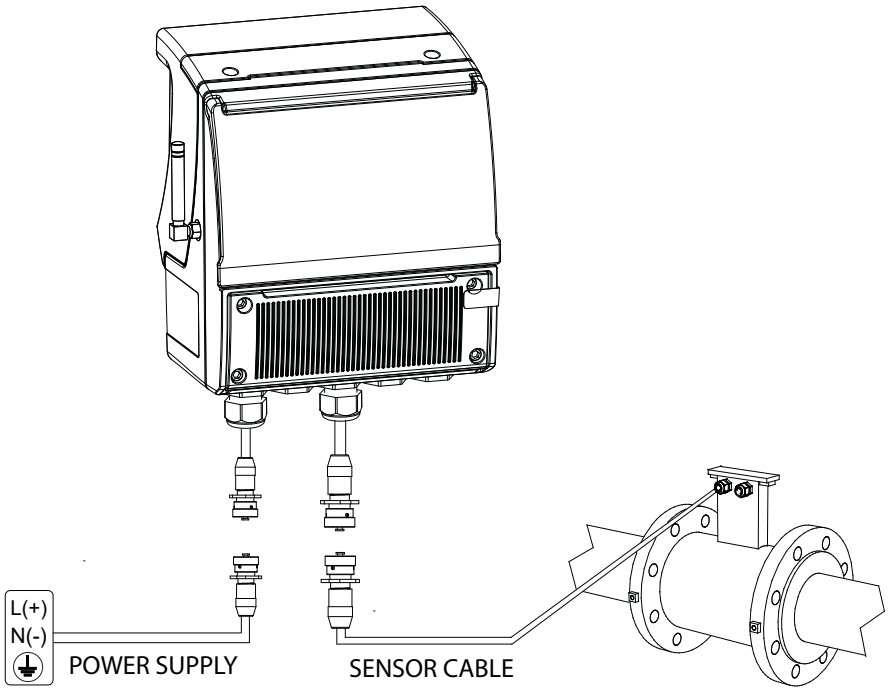
PRESSURE / TEMPERATURE PROBES



IP68 CONNECTION (EXAMPLE INSTALLATION)



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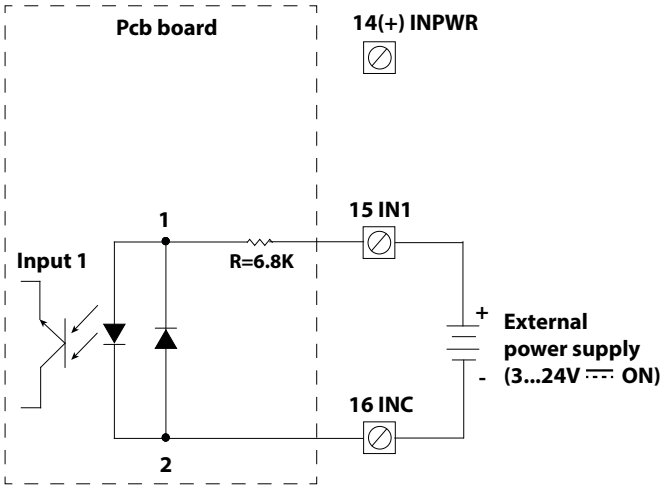
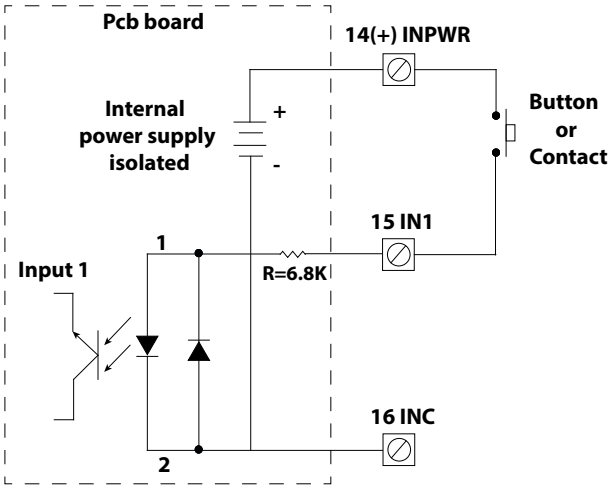
DIGITAL INPUT

ON/OFF INPUT (EXTERNAL POWER SUPPLY)

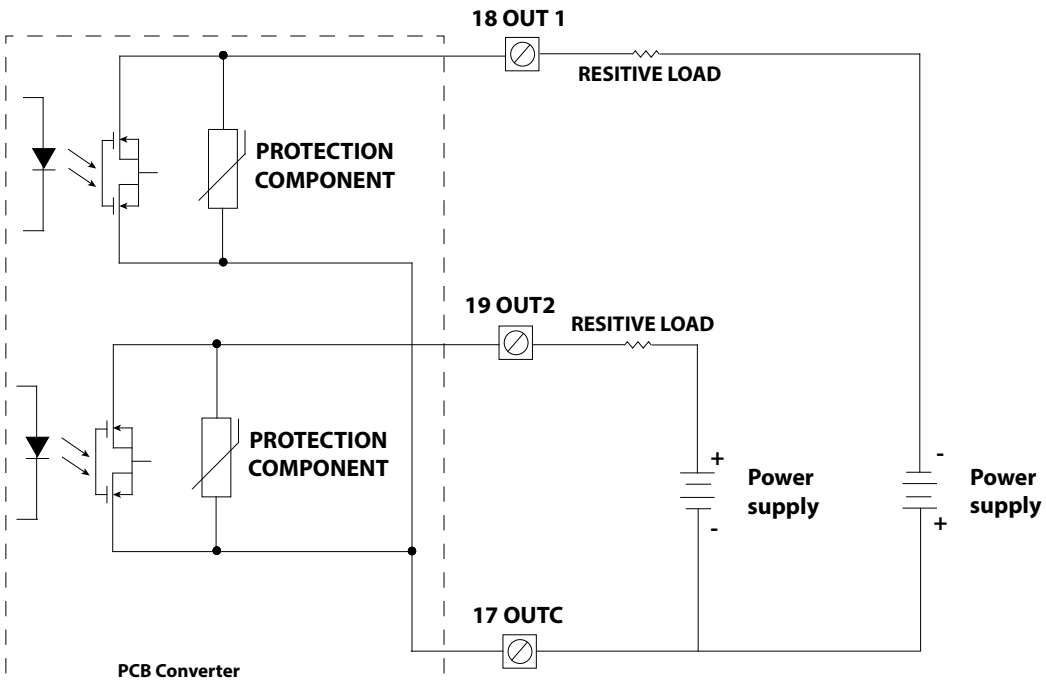


ON/OFF INPUT (INTERNAL POWER SUPPLY)



DIGITAL OUTPUTS

NOTE: the outputs are not polarized, so you can adopt schemes for connection to positive or common negative, as in the following electrical scheme.



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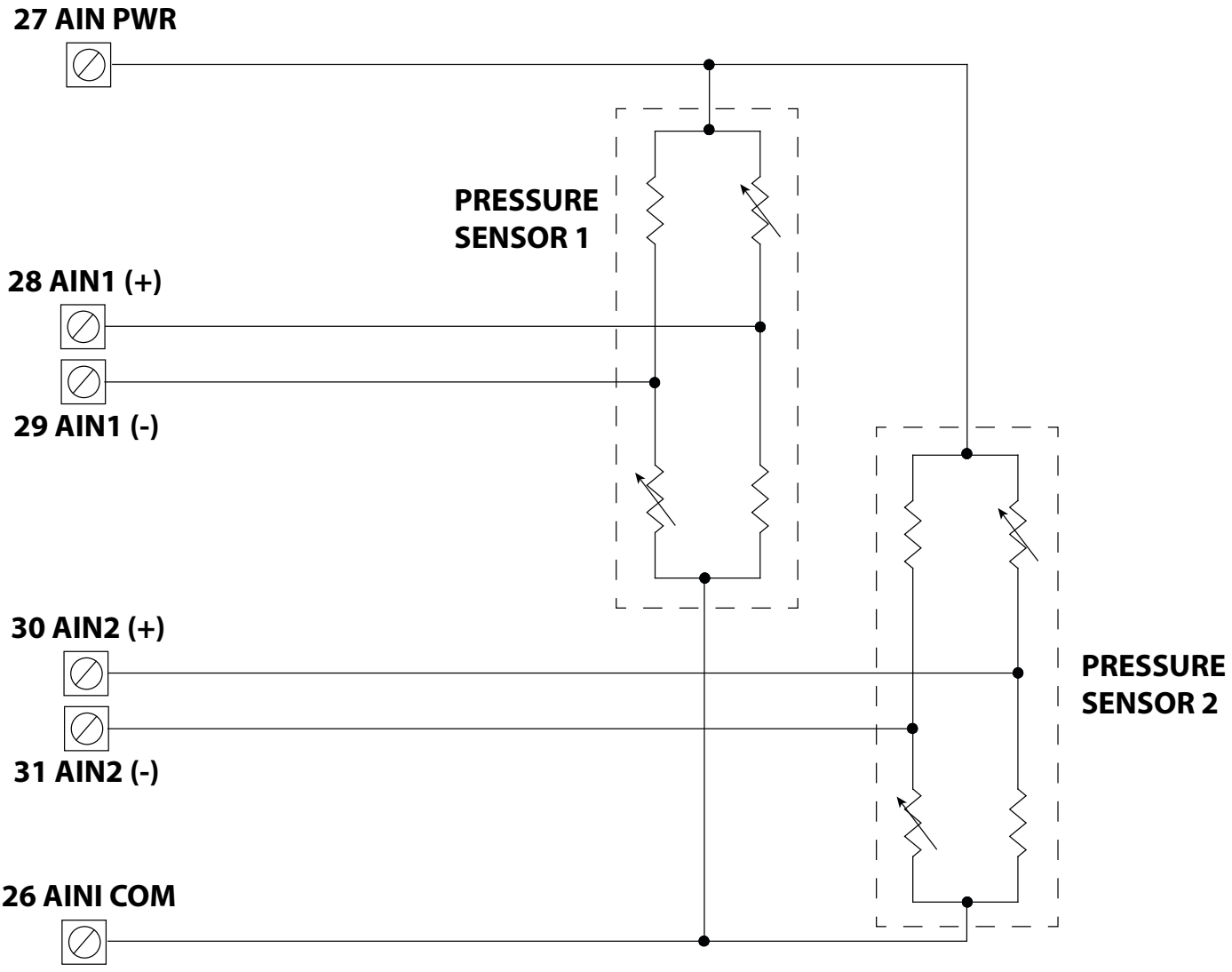
AUXILIARY MODULE ANALOG INPUTS

Connection of Pressure sensors

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.



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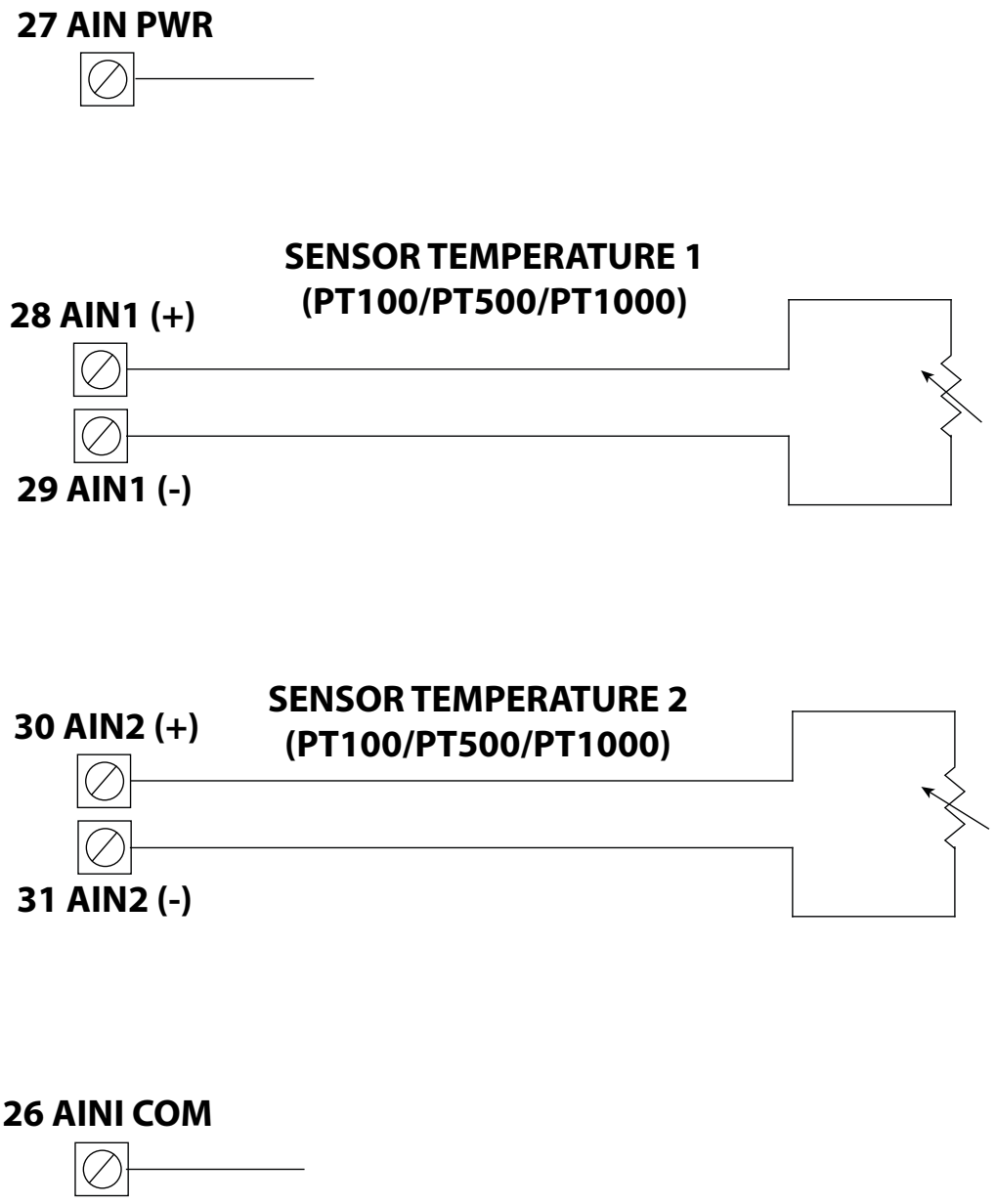
Connection of Temperature sensors

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.



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4-20 OUTPUTS

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

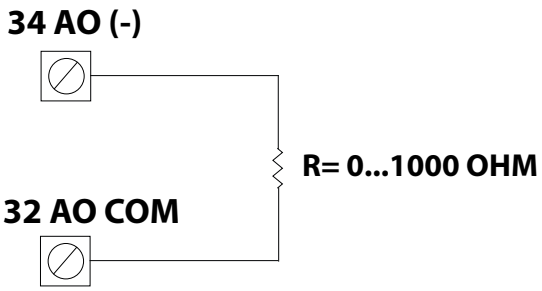
Passive mode: power is supplied from an external source.

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

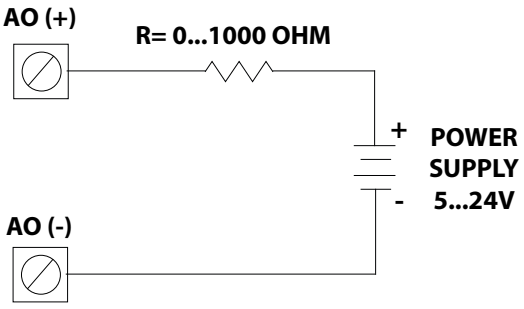
Active mode: power is supplied from the board power supply (if fitted).

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

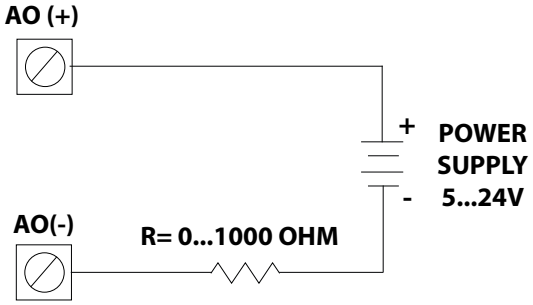
ACTIVE CONNECTION



PASSIVE CONNECTION 1



PASSIVE CONNECTION 2



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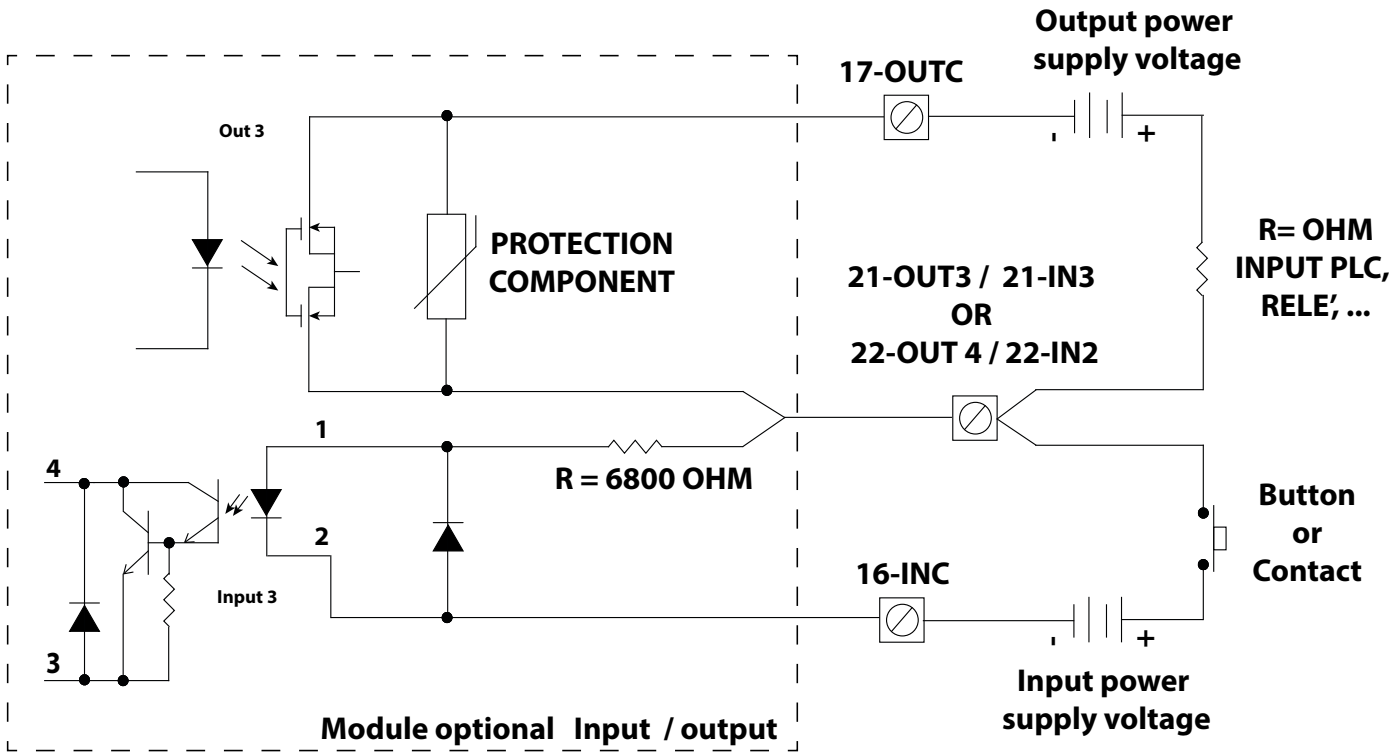
AUXILIARY MODULE DIGITAL INPUTS/ OUTPUS

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).



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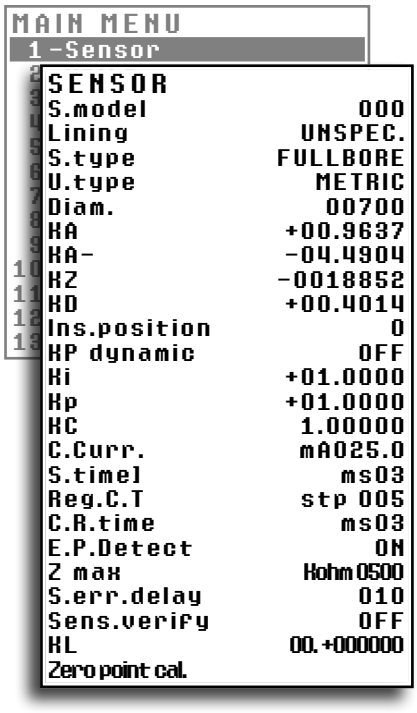
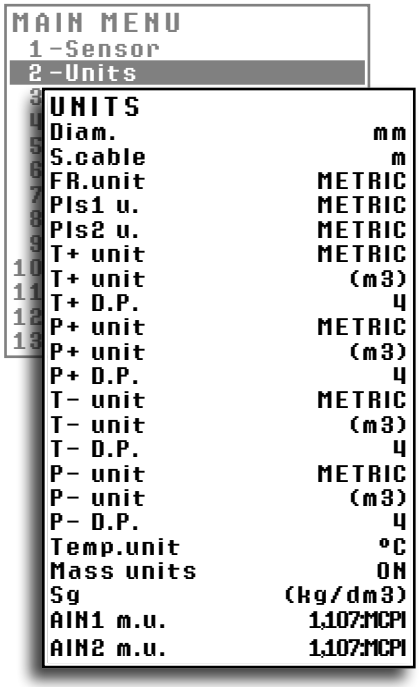
MENU FUNCTIONS



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	Sensor's nominal/real diameter DN (0-2500)
1.6	Sensor coefficient KZ (zero point)
1.7	Calibration data of sensor for negative flow
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	Linearization coefficient
1.24	Pipe hydraulic zero calibration



2.1	Nominal diameter measure unit
2.2	Cable length on separate version
2.3	Flow rate type measure unit: metric or imperial
2.4	Pulse 1 type measure unit: metric or not metric
2.5	Pulse 2 type measure unit: metric or not metric
2.6	Total direct totalizer measure unit type: metric or imperial
2.7	Total direct totalizer measure unit
2.8	Total direct totalizer decimal point position
2.9	Partial direct totalizer measure unit type: metric or not metric
2.10	Partial direct totalizer measure unit
2.11	Partial direct totalizer decimal point position
2.12	Total reverse totalizer measure unit type: metric or not metric
2.13	Total reverse totalizer measure unit
2.14	Total reverse totalizer decimal point position
2.15	Partial reverse totalizer measure unit type: metric or not metric
2.16	Partial reverse totalizer measure unit
2.17	Partial reverse totalizer decimal point position
2.18	Temperature measure
2.19	Enable/disable the selection of mass units on full scale set
2.20	Specific gravity coefficient
2.21	Unit of measurement for analogue input 1
2.22	Unit of measurement for analogue input 2

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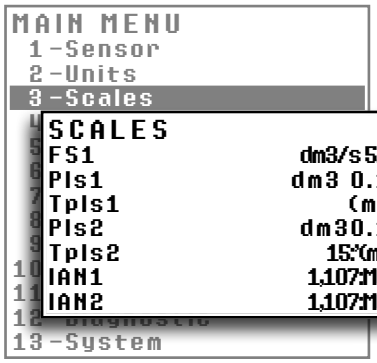
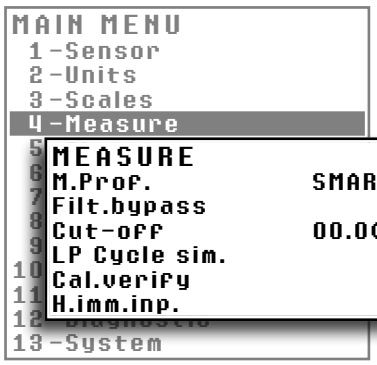
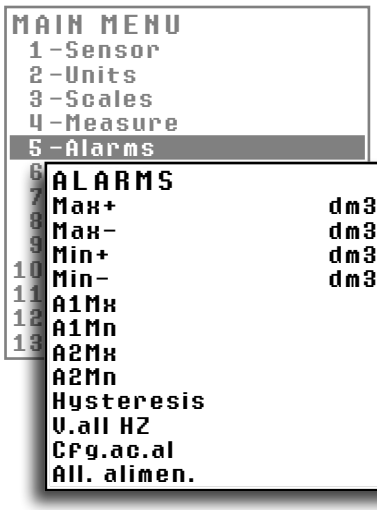


3.1	Full scale flow rate 1
3.2	Full scale flow rate 2
3.3	Duration of the pulse generated on channel 1
3.4	Pulse value on channel 2
3.5	Duration of the pulse generated on channel 2
3.6	Analog input scale 1
3.7	Analog input scale 2



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



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

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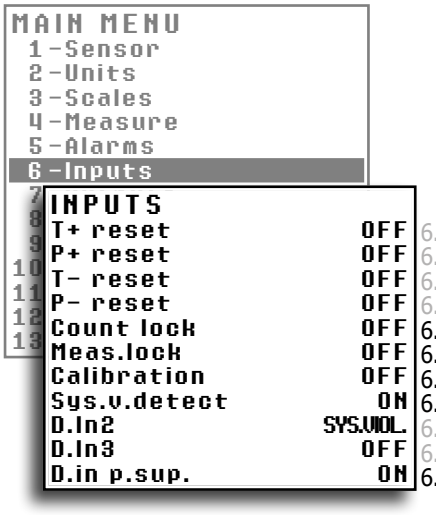
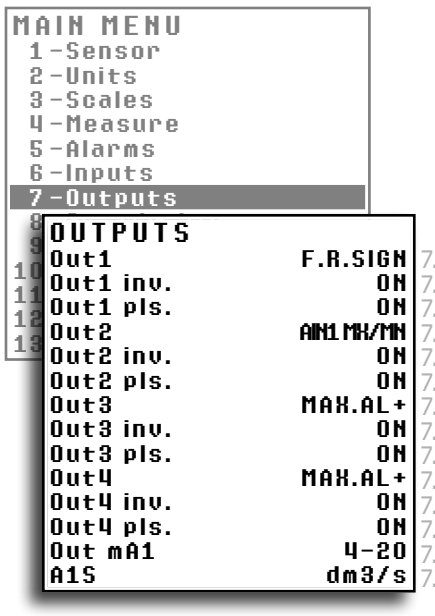


6.1	T+ reset	Total direct (positive) flow totalizer reset enable
6.2	P+ reset	Partial direct (positive) flow totalizer reset enable
6.3	T- reset	Total reverse (negative) flow totalizer reset enable
6.4	P- reset	Partial reverse (negative) flow totalizer reset enable
6.5	Count lock	Totalizer counting lock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



7.1	Out1	Output 1 function selection
7.2	Out1 inv.	Output 1 inverted status
7.3	Out1 pls.	Output 1 pulsed status
7.4	Out2	Output 2 function selection
7.5	Out2 inv.	Output 2 inverted status
7.6	Out2 pls.	Output 2 pulsed status
7.7	Out3	Output 3 function selection
7.8	Out3 inv.	Output 3 inverted status
7.9	Out3 pls.	Output 3 pulsed status
7.10	Out4	Output 4 function selection
7.11	Out4 inv.	Output 4 inverted status
7.12	Out4 pls.	Output 4 pulsed status
7.13	Out mA1	Analog current output 1 range
7.14	A1S	Full scale value for analog out1

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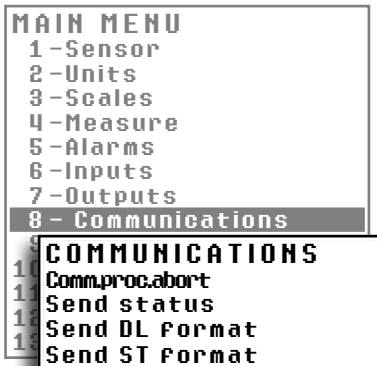

COMMUNICATIONS			
Comm.proc.abort		8.1	Communication process abort
Send status		8.2	Send device status information
Send DL format		8.3	Send data logger fields format
Send ST format		8.4	Send s.test data fields format]
Send proc.data		8.5	Send instantaneous process data
Send events		8.6	Send last system 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	XXXXXXXX	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	XXXXXXXX	8.25	Access point name
Auth.type	OFF	8.26	Access point authentication type
User name	XXXXXXXX	8.27	Access point user name
User password	XXXXXXXX	8.28	Access point password
SMTP User	XXXXXXXX	8.29	User name for SMTP service
SMTP psw.	XXXXXXXX	8.30	Password for SMTP email service
POP3 User	XXXXXXXX	8.31	User name for POP3 service
POP3 psw.	XXXXXXXX	8.32	Password for POP3 email service
FTP User	XXXXXXXX	8.33	User name for FTP service
FTP password	XXXXXXXX	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	XXXXXXXX	8.39	Instrument identifier string
HELO string	XXXXXXXX	8.40	HELO identification string
Sender addr.	XXXXXXXX	8.41	Email address of sender
Receiver 1	XXXXXXXX	8.42	Email address of receiver 1
Receiver 2	XXXXXXXX	8.43	Email address of receiver 2
SMTP server	XXXXXXXX	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	XXXXXXXX	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	XXXXXXXX	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	XXXXXXXXX	8.53	FTP root directory for data
FTP events	XXXXXXXXX	8.54	FTP root directory for events
FTP commands	XXXXXXXXX	8.55	FTP root directory for commands
Cert.check	ON	8.56	Server identity certif.check
NTP server	XXXXXXXXX	8.57	NTP time server name
T.ref	YYYY/MM/DD	8.58	Data send time reference
InMsTm	00:00	8.59	Incoming message check time
ProcST	00:00	8.60	Process data send time
LogDST	00:00	8.61	Logger data send time
S.Compl.File	ON	8.62	Send only complete file
Alarm time	00:00	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

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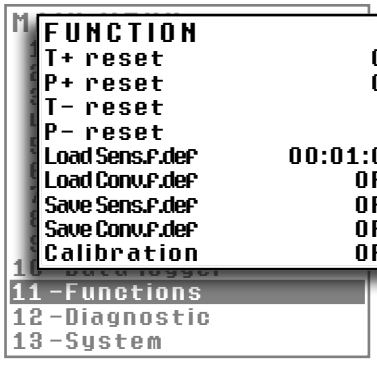
9.1	Choice of the language
9.2	Display/keyboard inactivity time
9.3	Display function number
9.4	Display function selection lock
9.5	Partial totalizer enable
9.6	Negative totalizer enable
9.7	Net totalizer enable
9.8	Time and date display enable
9.9	Quick start menu visualization

10.1	Data logger enabling
10.2	Measure unit recording enable
10.3	Field separator character
10.4	Decimal separator character
10.5	Sampling interval
10.6	Totalizer Total Positive Enable T+
10.7	Totalizer Partial Positive Enable P+
10.8	Totalizer Total Negative Enable T-
10.9	Totalizer Partial Net Enable P-
10.10	Totalizer Total Net Enable
10.11	Totalizer Partial Net Enable
10.12	Flow rate in Technical Units Enable
10.13	Flow rate in Percentage Enable
10.14	Alarm Events Enable
10.15	Additional Measures Enable
10.16	Sensor Test Results Enable
10.17	Board TemperatureS Enable
10.18	Internal Board Voltages
10.19	Electrodes DC Voltages Enable
10.20	Electrodes AC voltages Enable
10.21	Electrodes Source Impedance Enable
10.22	Sensor Coils Values Enable



11.1	Volume Totalizer Total Positive Reset
11.2	Volume Totalizer Partial Positive Reset
11.3	Volume Totalizer Total Negative Reset
11.4	Volume Totalizer Partial Negative Reset
11.5	Load Factory Default Sensor Data
11.6	Load Factory Default Converter Data
11.7	Save Factory Default Sensor Data
11.8	Save Factory Default Converter Data
11.9	Calibration Immediate Command

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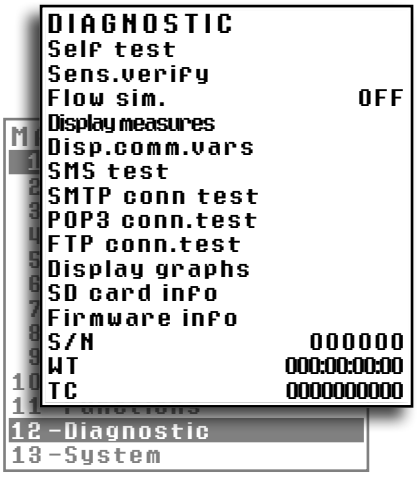
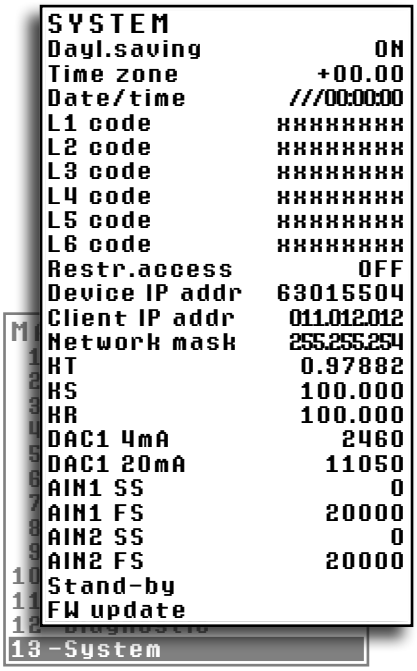


12.1	Auto test Immediate Command
12.2	Sensor Verify Command
12.3	Measure Simulation Enable
12.4	Diagnostic Measure VaLues
12.5	Diagnostic Communication VaLues
12.6	Short Message Test
12.7	SMTP Connection Test
12.8	POP3 Connection Test
12.9	FTP Connection Test
12.10	Oscilloscope function
12.11	SD memory Status
12.12	Model and Software Version
12.13	Serial Number
12.14	Total Working Time
12.15	Total Measure Cycles



13.1	Daylight Saving Time Enable
13.2	Time zone
13.3	Date and Time
13.4	Level 1 Access CoDe
13.5	Level 2 Access CoDe
13.6	Level 3 Access CoDe
13.7	Level 4 Access CoDe
13.8	Level 5 Access CoDe
13.9	Level 6 Access CoDe
13.10	ReStricted Access Rule Enable
13.11	Device IP Address
13.12	Client IP Address
13.13	Network MaSk
13.14	Coefficient KT
13.15	Coefficient KS
13.16	Coefficient KR
13.17	Current output 1 Calibration Point 1
13.18	Current output 1 Calibration Point 2
13.19	Analog input 1 Calibration Point 1
13.20	Analog input 1 Calibration Point 2
13.21	Analog input 2 Calibration Point 1
13.22	Analog input 2 Calibration Point 2
13.23	System StandbY
13.24	Firmware update

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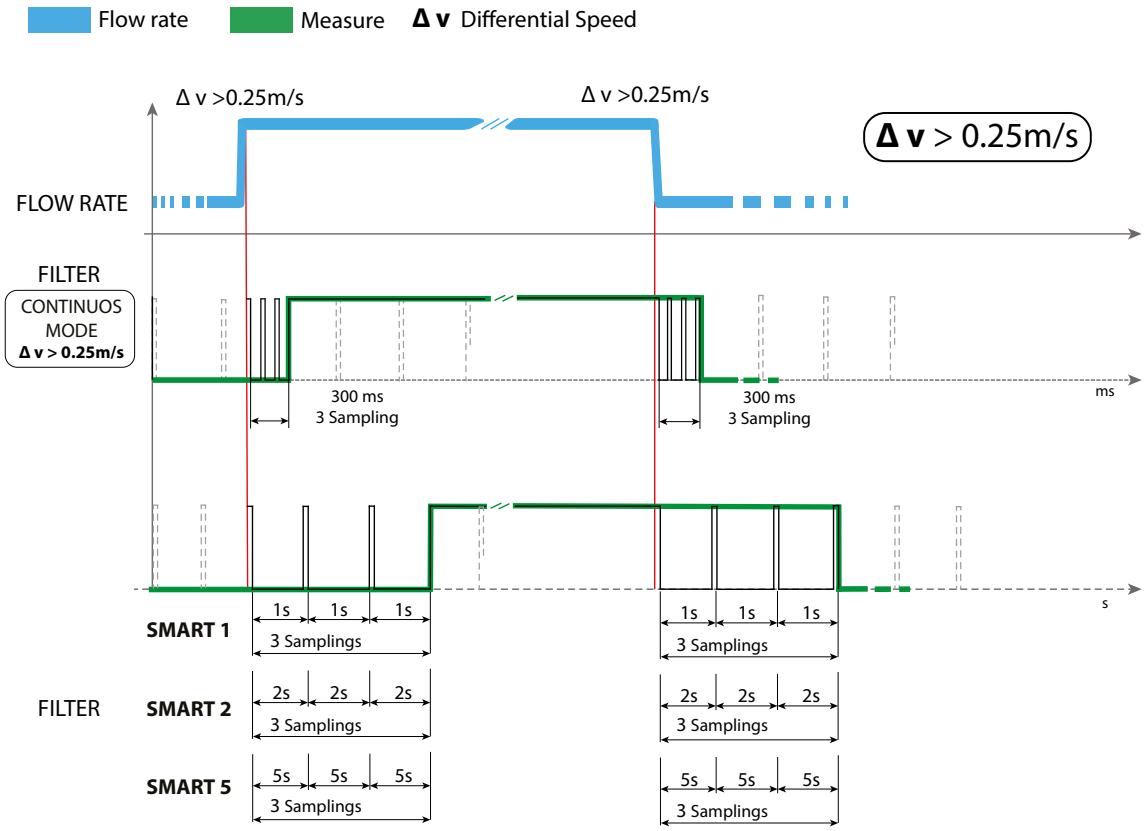
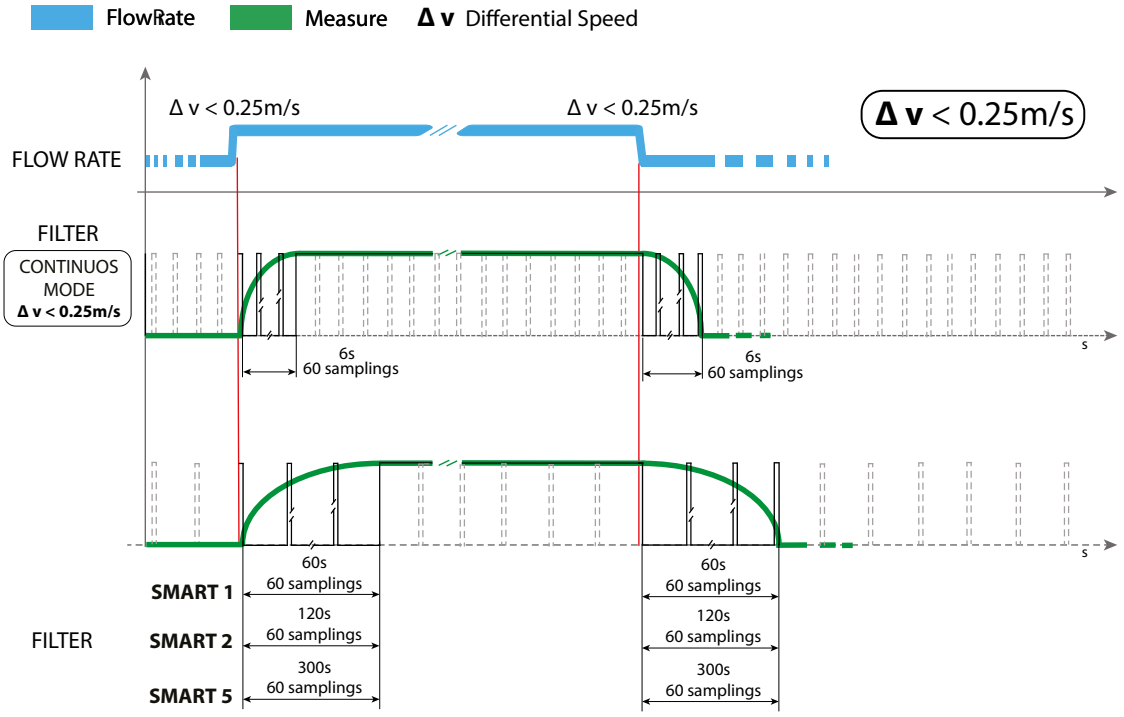
MEASURE/SAMPLE FREQUENCY

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

- ❑ SMART1: sampling at 1 second
- ❑ SMART2: sampling at 2 second
- ❑ SMART5: sampling at 5 seconds
- ❑ CONT. PWR: Continuous power sampling less than 1 second.





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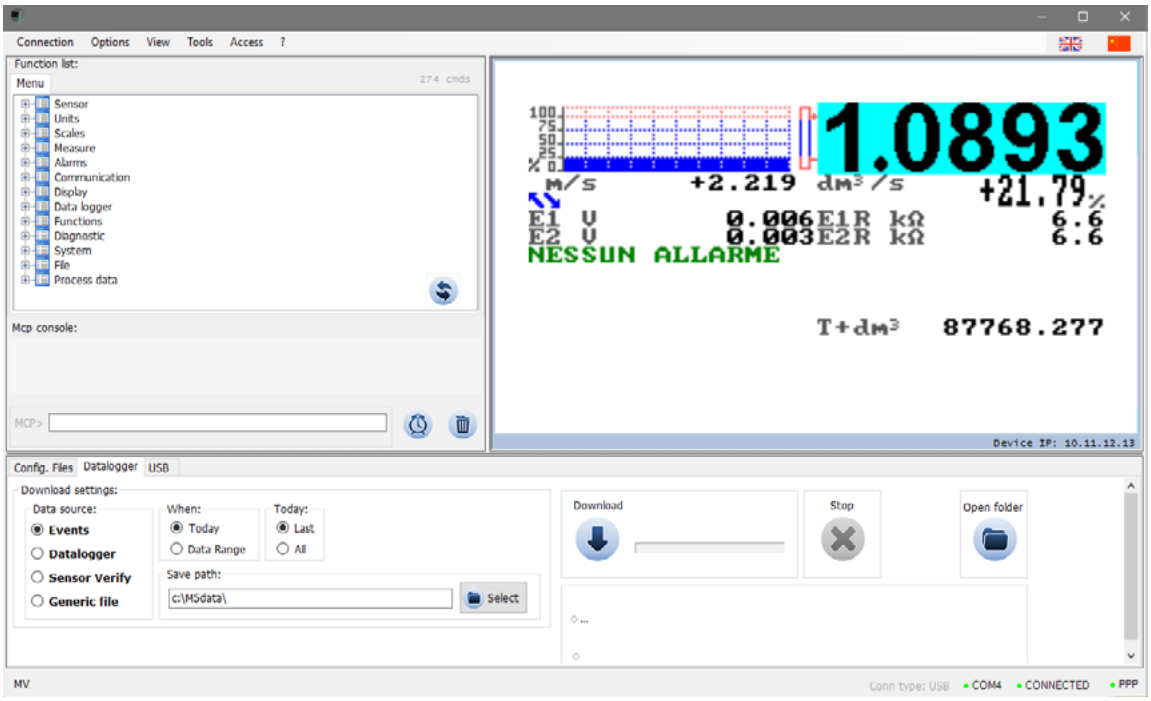
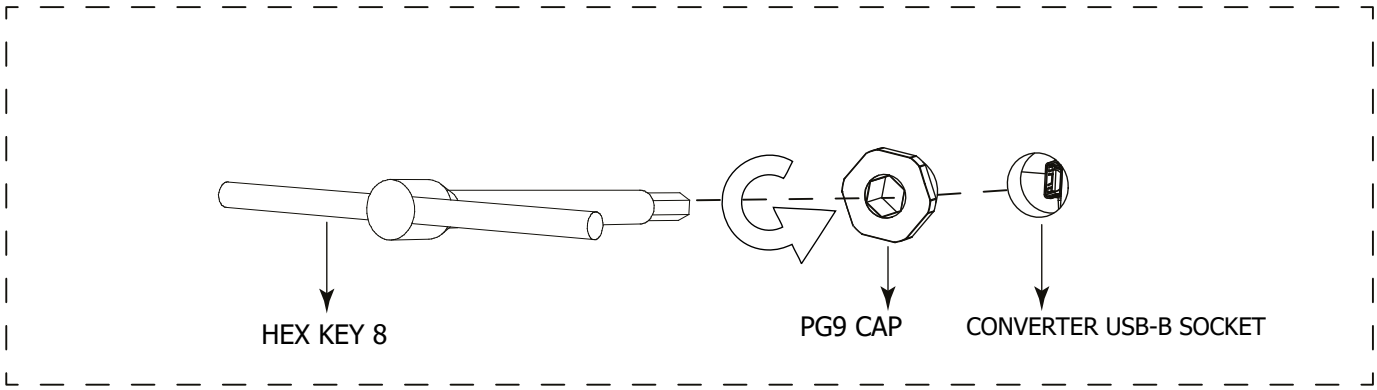
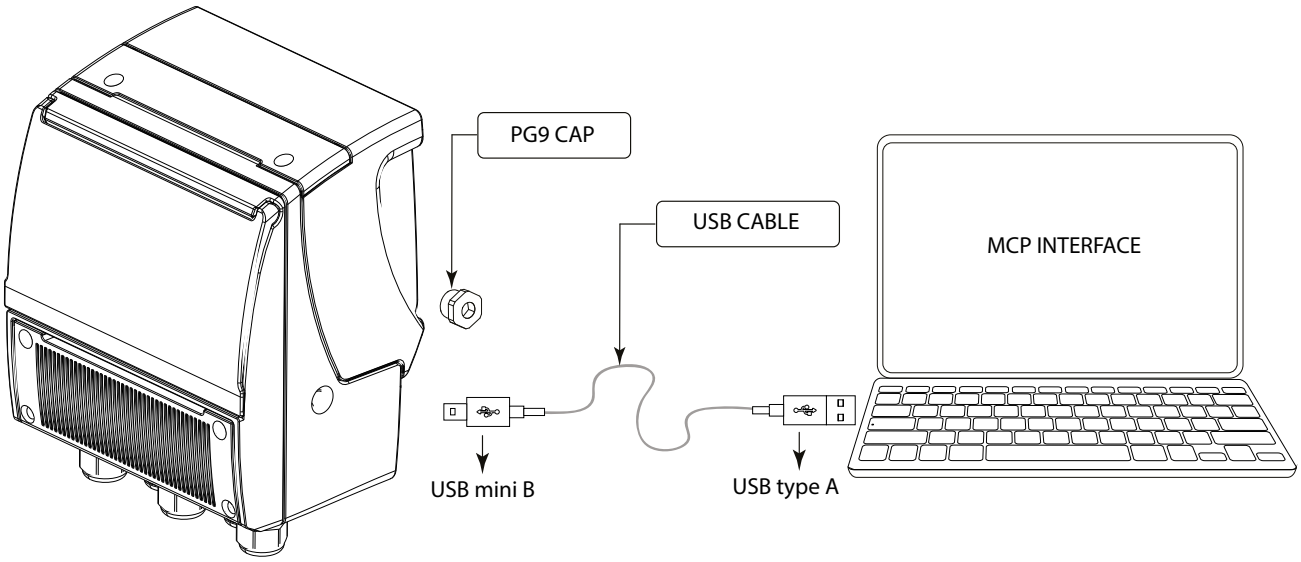
USER INTERFACE

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







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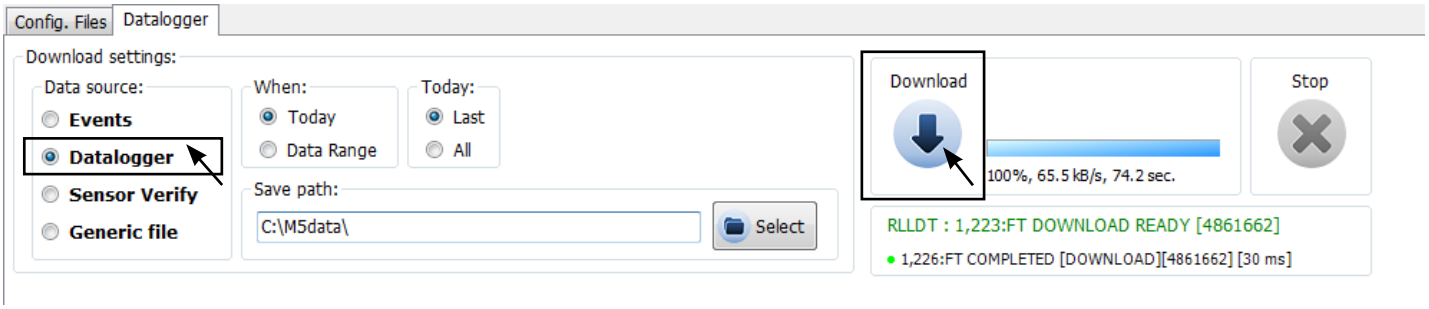
DATA LOGGER

Data is stored on micro SD card; the recorded data or the events, can be easily downloaded by the MCP INTERFACE, pressing the relevant key as shown below.



Note: to record correctly the data, the date and time shall be properly set.

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 recording time for each record
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: record number. View the number of recorded records in progression.

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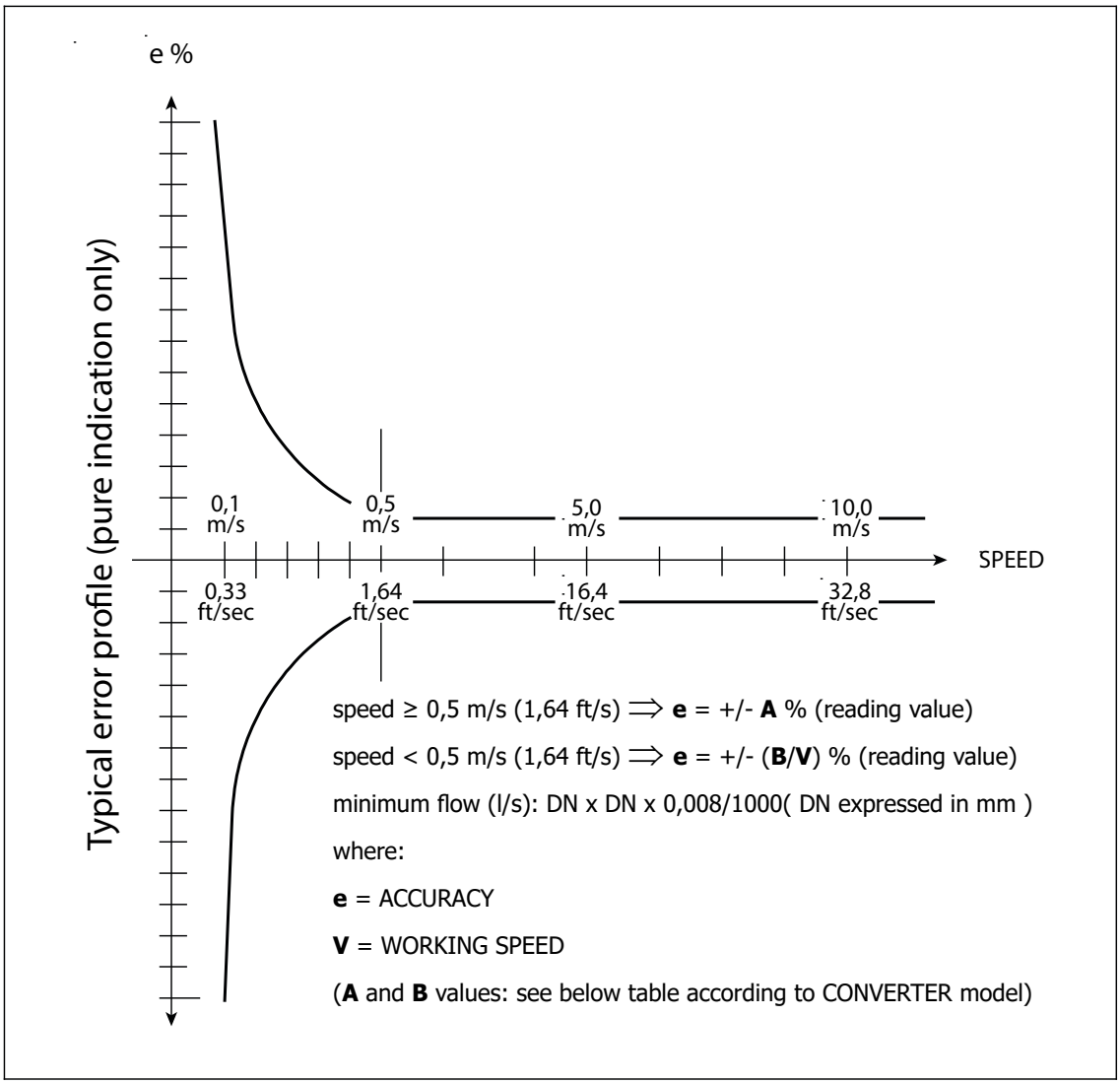
ACCURACY



FULLBORE SENSOR

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

* = 0,2 (special)
**= 0,1(m/s) ; 0,33(ft/s) - special

INSERTION SENSORS

See sensors 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 %

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MI-001 OIML R49 CLASS 2: MV255

The diameters of the MS2500 sensors shown below, coupled with MV255 comply with the European directive:
DIRECTIVE 2014/32/EU (MID) ANNEX III (MI-001) AND 2015/13/EU- 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	0.160	0.250	0.390	0.630	1.000	1.560	2.500	3.940	6.250
Q2	m³/h	0.160	0.250	0.400	0.630	1.000	1.600	2.500	4.000	6.300	10.000
Q3	**m³/h**	**16.0**	**25.0**	**40.0**	**63.0**	**100.0**	**160.0**	**250.0**	**400.0**	**630.0**	**1000**
R	**Q3/Q1**	**160**									

SENSOR SIZE	mm	250	300	350	400	450	500	600	700	800	900	1000
	inch	10	12	14	16	18	20	24	28	32	36	42
Q1	m³/h	10.000	25.00	25.00	40.00	40.00	63.00	100.0	100.0	160.0	160.0	250.0
Q2	m³/h	16.00	40.00	40.00	64.00	64.00	100.8	160.0	160.0	256.0	256.0	400.0
Q3	**m³/h**	**1600*** **	**2500****	**2500****	**4000****	**4000****	**6300**	**10000**	**10000**	**16000***	**16000***	**25000***
R	**Q3/Q1**	**100**										

MI-001 OIML R49 CLASS1: MV255

The diameters of the MS2500 sensors shown below, coupled with MV255 comply with the European directive:
DIRECTIVE 2014/32/EU (MID) ANNEX III (MI-001) AND 2015/13/EU- 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**	**16.0**	**25.0**	**40.0**	**63.0**	**100.0**	**160.0**	**250.0**	**400.0**	**630.0**	**1000**
R	**Q3/Q1**	**100**									

SENSOR SIZE	mm	250	300	350	400	450	500	600	700	800	900	1000
	inch	10	12	14	16	18	20	24	28	32	36	42
Q1	m³/h	20.000	31.25	31.25	50.00	50.00	78.75	125.0	125.0	200.0	200.0	312.5
Q2	m³/h	32.000	50.00	50.00	80.00	80.00	126.8	200.0	200.0	320.0	320.0	500.0
Q3	**m³/h**	**1600*** **	**2500****	**2500****	**4000****	**4000****	**6300**	**10000**	**10000**	**16000***	**16000***	**25000***
R	**Q3/Q1**	**80**										

(*) : 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

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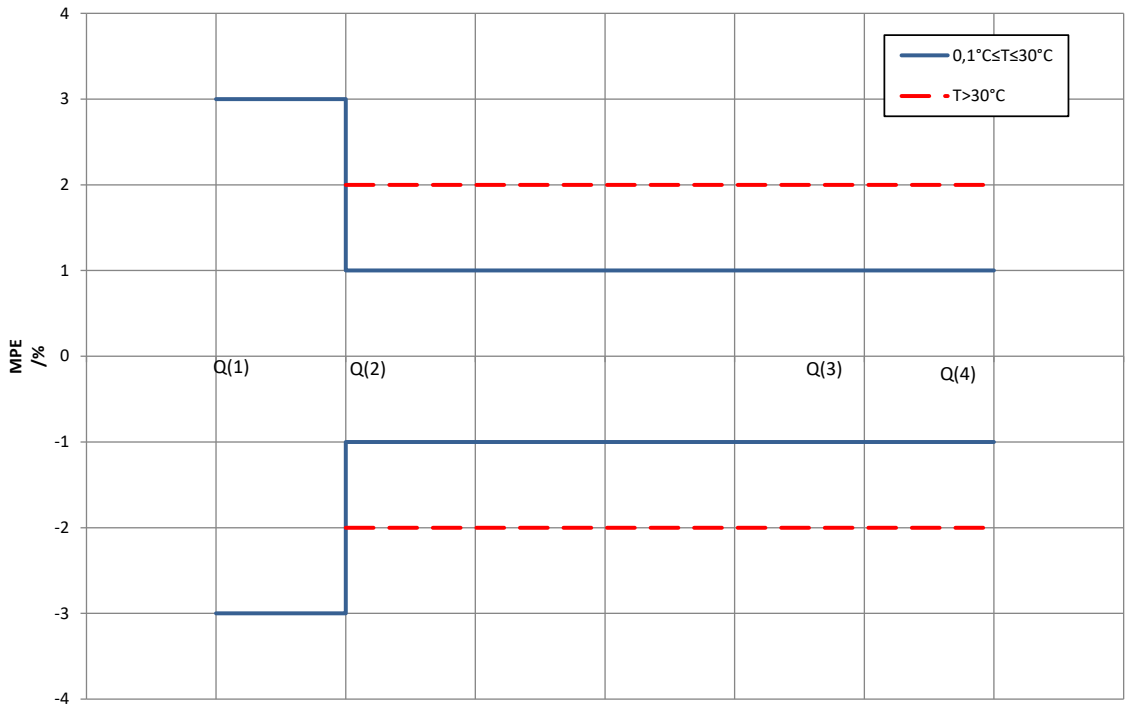
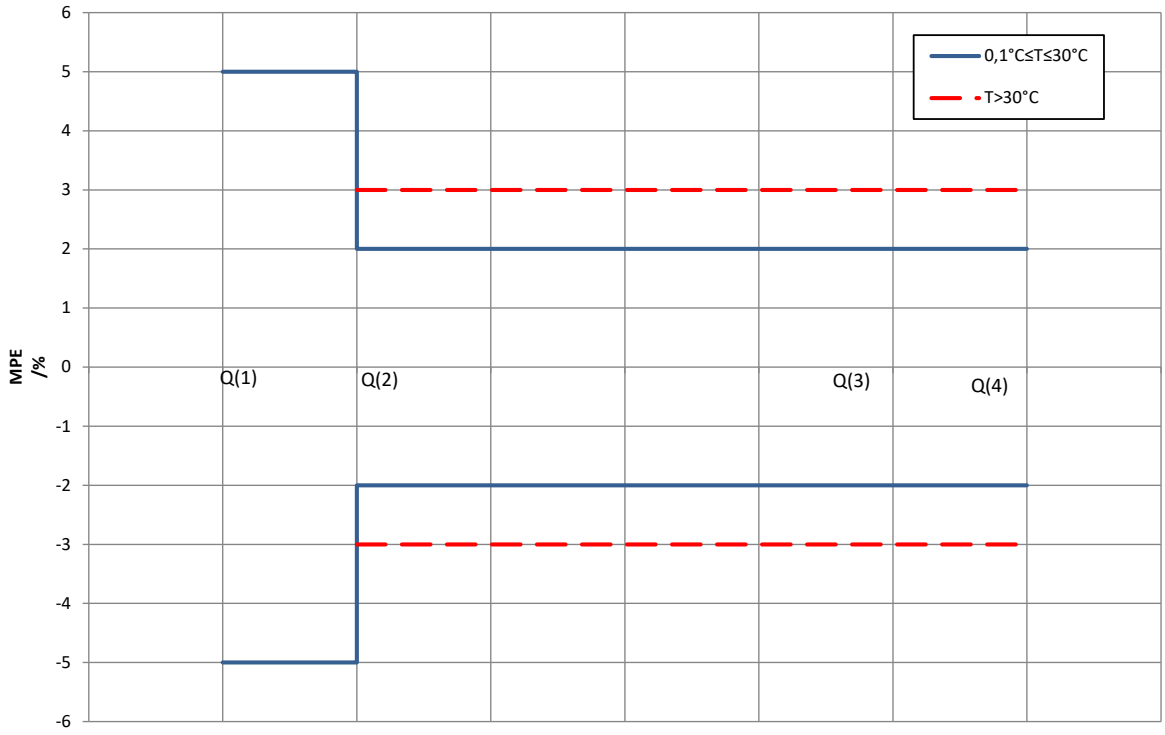
MPE - OIML R49 ACCURACY CLASS 1

(OIML R 49-1:2013 (E) - ISO4064-1:2014)



MPE - MI 001 - OIML R49 ACCURACY CLASS 2

(OIML R 49-1:2013 (E) - ISO4064-1:2014)



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HOW TO ORDER

CODE EXAMPLE	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 casting
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)
	C	4 Lithium thionyl chloride batteries (n° 2 on slot 1 - n° 2 on slot 2)
	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
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		
0	0	3G communication module with antenna on the housing
	1	3G communication module with 3 meters cable antenna
	2	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

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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 (Maximum 5 connectors including connectors for Power Supply and cables from sensor) (other combinations on request)		
0	**0**	NO CONNECTORS
	1	n.1 Pressure or n.1 Temperature (n.1 connector)
	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 connector)
	6	n.2 Digital Outputs + n.1 Output 4-20 mA (n.1 connector)
MID Approval		
A	**A**	NONE
	B	MI-001/OIMLR49-CLASS 1
	C	MI-001/OIMLR49-CLASS 2

MV255-B0A0A0A0A0 (Complete code example for order)

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http://www.isoil.com/u_vendita.asp

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