ISONRG™

DATA SHEET
MV311

Official Isoil dealer in The Netherlands:

UFM

ISOIL
I N D U S T R I A

INDEX

SYSTEM DESCRIPTION

MV311 is an energy meter designed for heating, cooling or combined heating/cooling carried by a thermal fluid; typically the thermal fluid is water, though a special features allow to calculate the energy even for water and glycol ethylene or polypropylene at several concentration. The calculator contains all the necessary circuits for calculating energy value according to the standard EN1434; the thermal energy calculation is based on the following calculation :

$$\ddot{u}$$

Where:

- Q: amount of heat (energy) transferred or absorbed
- q_m: mass flow rate of the vector fluid /kg s-1
- Δh: Δ of specific enthalpy between in-let and out-let pipe line /J kg-1
- t: time /s

So, the quantities to be measured are the the heat transfer fluid flow rate and the two temperatures of the circuit, measured respectively on a suitable flow and return point of the fluid itself.

Flow measurament

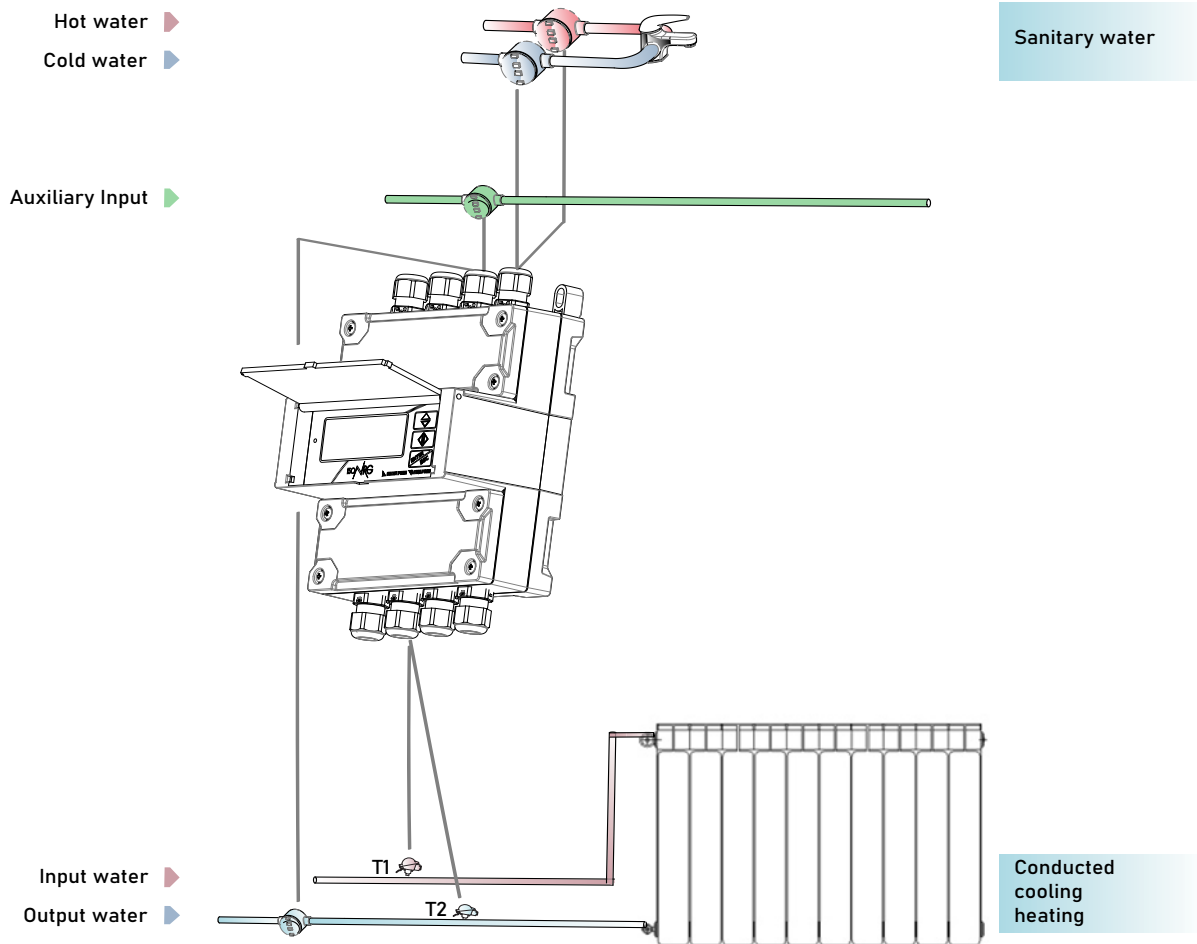The calculator can calculate the flow rate throughout two channel:

- Analogic: it acquires the 4-20mA signal from a flow meter
- Factorized pulses: it calculates the flow rate throughout factorized pulses coming from the flow meter

Temperature measurement

The instrument measures the temperature by RTD (PT type), in a 4-wires configuration; the PT values, can be selected via software; the allowed model are:

- PT100
- PT500
- PT1000

By a highly accurate internal reference system and an appropriate electronic switch network, the temperatures are measured by highly accurate ADC (Analog to Digital Converter).

MV311_IT_EN_DS060REV02

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Hot water ▶

Cold water ▶

Sanitary water

Auxiliary Input ▶

T1

Input water ▶

T2

Output water ▶

Conducted cooling heating

The diagram is a schematic of the principle: in addition to the thermal energy meter function, the MV 311 allows to totalize hot and cold water volume used for service lines; in some cases this solution can be helpful for a quick reference of the measures and the possibility to transfer them to other systems using several fieldbus which the instrument has built-in.
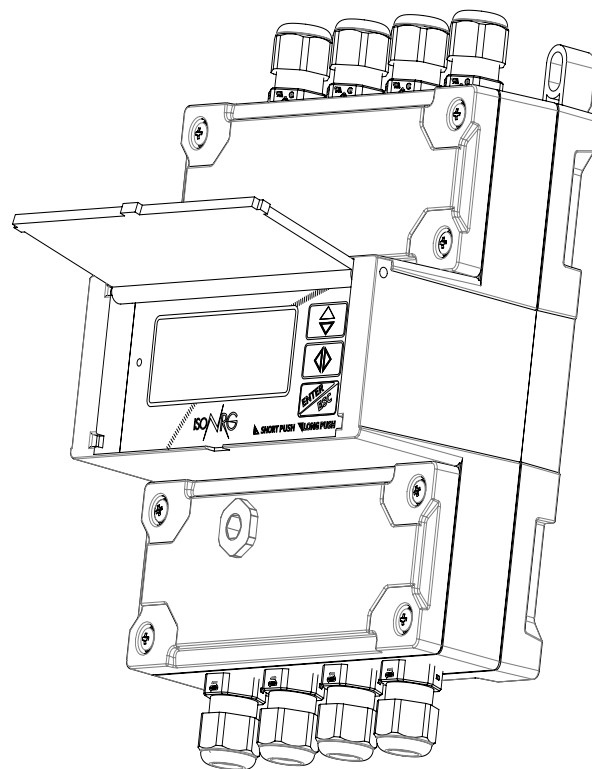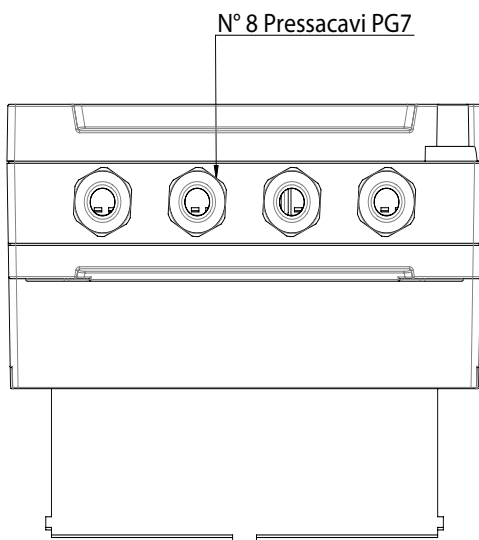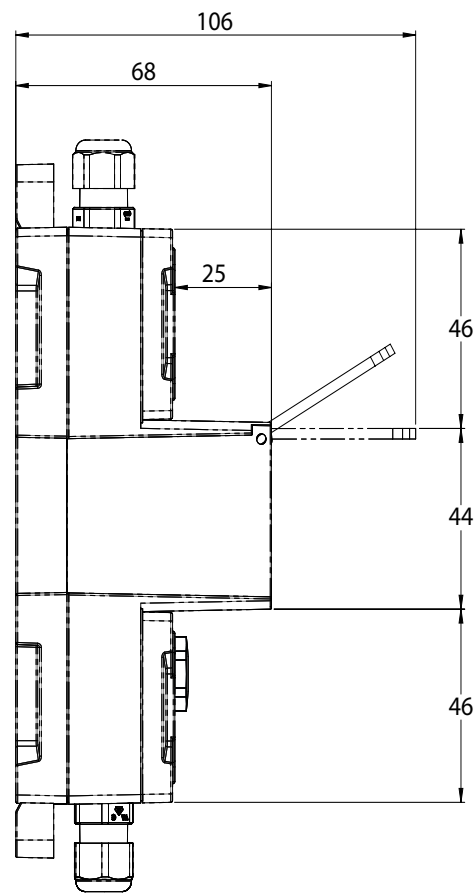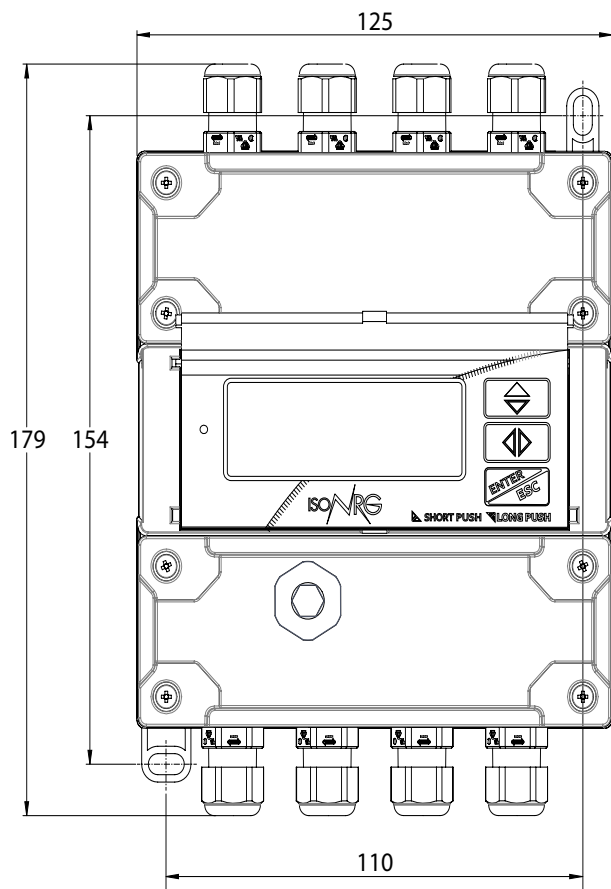
TECHNICAL DATA

OVERALL FEATURES	
Maximum Thermal Power	❑ Ps = 99999 GW
Hot/Cold Switching	❑ Automatic through assignment of the +/- sign (possibility of congruence control from remote input)
Measure Units Available	❑ kW/MJ, W, kW, MW, GW. J, kJ, Wh, Mj, kWh, Gj, MWh, GWh, BTU, kBTU, MBTU, °C, °F, ml, cm3, l, dm3, dal, hl, m3, Ml, in3, Gal, IGL, ft3, bbl, BBL, hf3, KGL, IKG, kf3, ttG, Aft, MGL, IMG,
Installation	❑ Any orientation - DIN rail
Altitude	❑ From -200m to 4000m (from -656 to 13120 feet)
Environmental Temperature	❑ +5... +55°C (+41...+131°F)
Temperature Range(Measure)	❑ -30... +200 (-22...+392°F) ❑ -15... +150 (+5...+302°F) for MID instrument
Protection Rate	❑ IP65
STANDARD FEATURES	
Housing Material	❑ PC/ABS self-extinguishing
Power Supply/Power Consumption	❑ 100-240V~ 45-66Hz (5W); 24-36V~ 45-66Hz ⎓ (5W); 12-48V (5W)
Pulses Outputs	❑ N° 2 output 1250Hz, 100mA, 30Vdc
Available Protocols	❑ MCP over USB
Digital Input	❑ N° 1 multifunction (Reset totalizers, cooling, heating, auxiliary fluid volume)
Analog Input For Flow Meter	❑ N°1 4..20mA range for measure fluid flow rate
Pulses Inputs (q max weight function per pulse)	❑ N° 4 inputs (frequency max. 1kHz, min. 0.003 Hz): ❑ Vector Fluid volume ❑ Hot water volume ❑ Cold water volume ❑ Auxiliary fluid volume (or digital input)
Inputs For Sensor Temperature	❑ N° 2 (one for the delivery and one for the return)
Digital Outputs	❑ N° 2 programmable for alarms or pulses for energy/volume
Programming Plug In	❑ Mini USB type B
Data storage	❑ F-RAM: permanent data storage in case of power failure
Galvanic Isolation	❑ All the inputs/outputs are galvanically isolated from power supply up to 500 V
Diagnostic Function	❑ Yes
CE Certification	❑ Yes

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OPTIONAL FEATURES (CHECK FOR MORE DETAILS 'HOW TO ORDER' ON LAST PAGE)	
LCD Display	❑ Graphic display 128 x 48 pixels back light; characters height 7,2/3,6mm ❑ 3 membrane keys ❑ Led status
Current Output	❑ N° 2 0/4…20mA selectable alternatively for flow, power, temperature T1, T2 or delta T
Temperature Sensor	❑ Thermal probes PT 100/PT500/PT1000 (2/3/4 wires)
Communication Port	❑ RS 485/MBus
Available Protocols	❑ Modbus (over RS485)/ BACnet (over RS485)/ M-bus ASHRAE **BACnet**™
Data Storage	❑ Data Logger with MicroSD Memory 4 GB
RTC	❑ Real Time Clock with Autonomy of 7 days (1 month if Measure Backup battery is installed) in absence of power supply.
Measure Backup	❑ Rechargeable Li-ion Battery for Measure Backup operations up to 1 month in absence of power supply (depending on configurations and connections).
MID Certification	❑ MI-004
MEASUREMENT	
Temperature Measuring Range	❑ ϑmin -15 °C (+5°F), ϑmax 200°C (392°F)
Delta Temperature ($\Delta\vartheta$)	❑ $\Delta\vartheta$ min 3 °C (37,4°F), $\Delta\vartheta$ max 150 °C (392°F) ❑ $\Delta\vartheta$ min 0,1 °C (32.18°F) $\Delta\vartheta$ max 200 °C (392°F) – instruments without MID certificate
Measurement Accuracy	❑ System: ± 0,20 % (0.18 + $\Delta\vartheta$ min/$\Delta\vartheta$)

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OVERALL DIMENSIONS

N° 8 Pressacavi PG7

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MV311
CONSTRUCTION
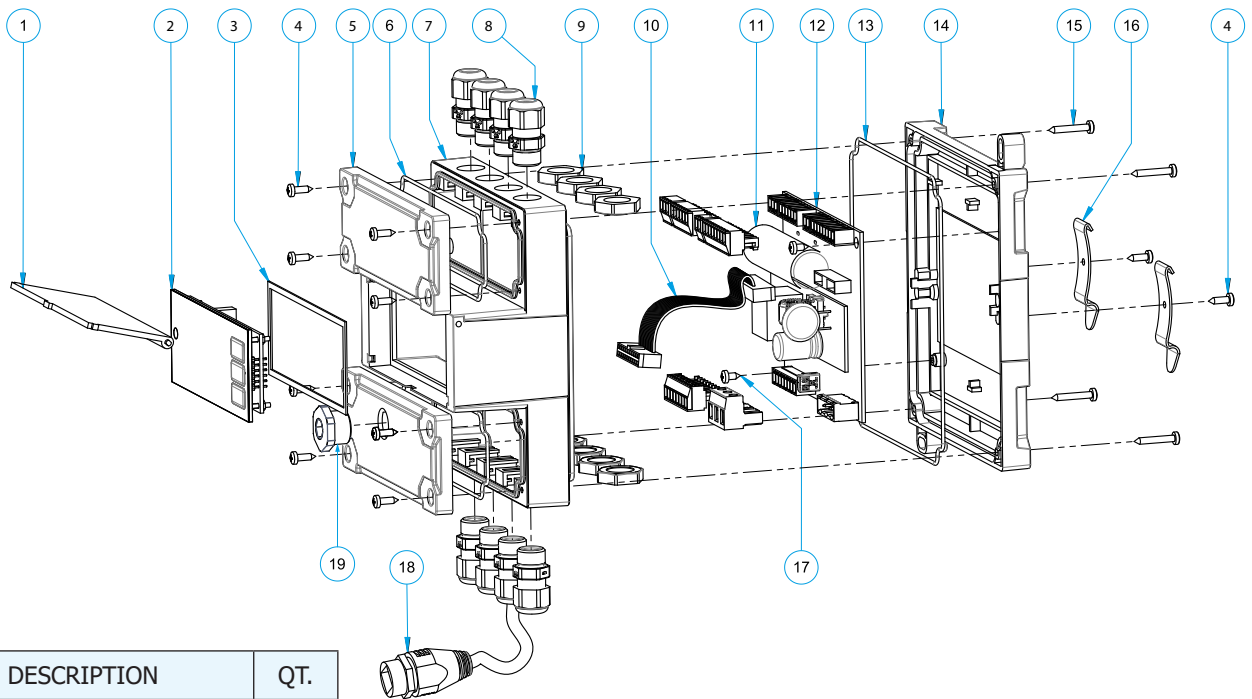
POS.	DESCRIPTION	QT.
1	PROTECTION GLASS	1
2	MV311 DISPLAY	1
3	ADHESIVE GASKET	1
4	SELF-TAPPING SCREW 2.9X9.5	10
w	TERMINAL BLOCK COVER	1
6	O-RING TERMINAL BLOCK COVER	2
7	MAIN HOUSING	2
8	CABLE GLAND PG7 COMPLETE WITH O-RING	8
9	CABLE GLAND RING PG7	8
10	FLAT CABLE 20 VIE	1
11	MV311 BATTERY	1
12	MV311 PCB	1
13	O-RING BACK COVER	1
14	REAR COVER	4
15	SELF-TAPPING SCREW 2.9X19	2
16	DIN RAIL CONNECTIONS	2
17	SELF-TAPPING SCREW 2.9X6.5	1
18	OPTIONAL ETHERNET CONNECTOR (P.O.E. ON ORDER).	1
19	PG9 CAP	1

"SECURITY SEALING" LABEL

TERMINAL BLOCK COVER

TERMINAL BLOCK COVER

"SECURITY SEALING" LABEL
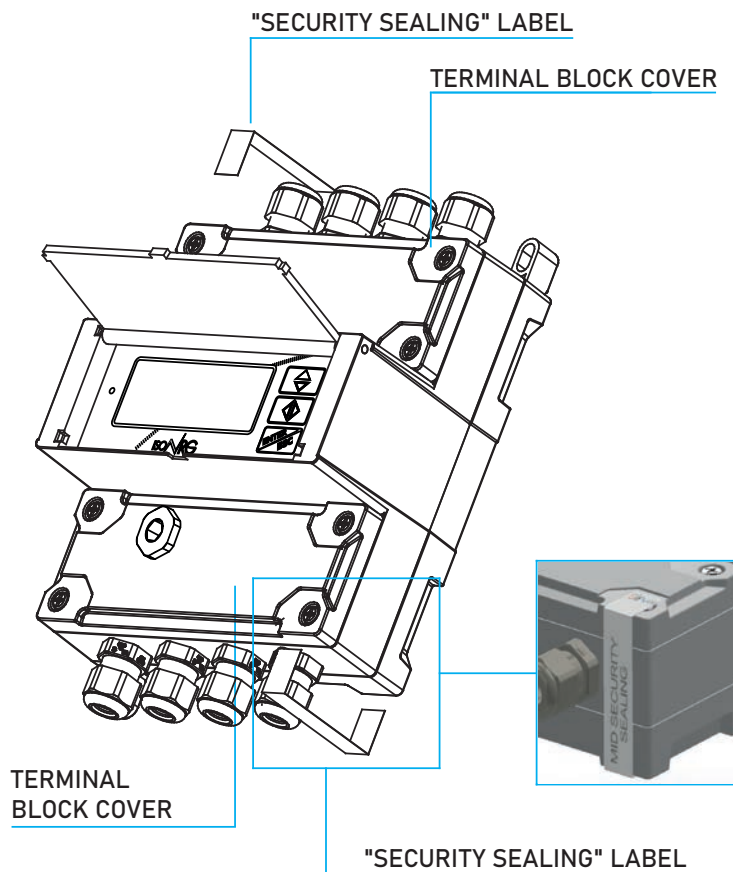
PAGES
VISUALIZATION

Different visualization possibilities by simply pressing of a key.
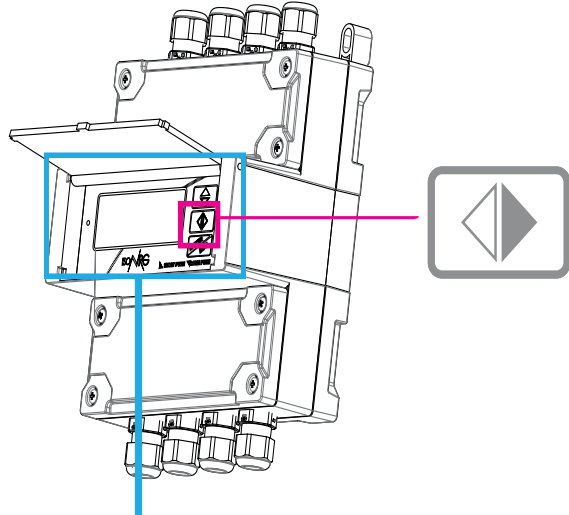
NO ALARMS 2018/03/07-09:28	POWER & FLOW ThPwr kW ▲ 1.4 UF 1/h ▼ 775.3 2018/05/25 13:29:59	TEMPERATURES TD °C +3.02 T1 °C 26.28 T2 °C 23.26 2018/03/07 09:28:32
HEATING ENERGY T. kWh 4.6460583 P. kWh 4.6460583 2018/03/07 09:28:34	COOLING ENERGY T. kWh 0.0000000 P. kWh 0.0000000 2018/03/07 09:28:35	VECTOR FLUID T. m³ 0.1012744 P. m³ 0.1012744 2018/03/07 09:28:37
HOT SERV. WATER T. m³ 0.0969618 P. m³ 0.0969618 2018/03/07 09:28:40	COLD SERV. WATER T. m³ 0.0969618 P. m³ 0.0969618 2018/03/07 09:28:41	AUXILIARY INPUT T. ml 0.00 P. ml 0.00 2020/04/23 09:22:52
MAIN POWER SUPPLY OFF 2018/03/07 09:35:11		

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ELECTRICAL CONNECTIONS

Cable gland PG7: Allowed diameter cables 3–6.5 mm.

WIRED COM.

RS485/MBUS
B   A
(RT-)   (RT+)   0V

26 27 28 29

OUTPUT TERMINAL BLOCK

+24V | PULSE OUTPUT 2 1 | 4-20 OUT2 OUT1 | 0V COM

9

17 18 19 20 21 22

INPUT TERMINAL BLOCK

IN POWER S. (3V) + COM | INPUTS IN4 IN3 IN2 IN1 | COM IN | 4-20 (FV) − +

9

30 31 16 15 14 13 12 11 10 9

IN 1: (FV) Vector Fluid
IN 2: (SHW) Sanitary Hot Water
IN 3: (SCW) Sanitary Cold Water
IN 4: Reset o 4° Fluid

POWER SUPPLY

RTD TERMINAL BLOCK

1 2 3 4   5 6 7 8

SHIELD

T1+   T1+   T1-   T1-   T2+   T2+   T2-   T2-
(EX)   (M)   (M)   (EX)   (EX)   (M)   (M)   (EX)

Terminal n° 5 is used only to allow the right RTD's wiring (connected in series)

T1 PROBE (4 wires)   T2 PROBE (4 wires)

To connect 2 wire probe:
T1: connect the probe to terminal block 2 and 3, bridge on 1-2 and 3-5
T2: connect the probe to terminal block 6 and 7, bridge on 5-6 and 7-8

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DIGITAL INPUTS

Connections with polarity type "P"

Isolated digital input with external power supply
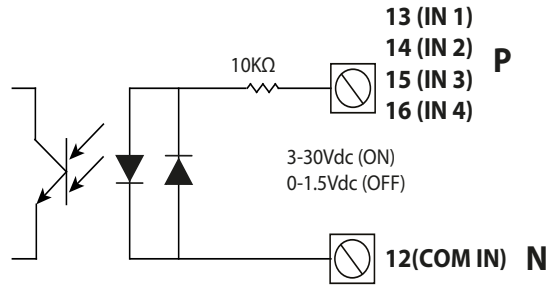
13 (IN 1)
14 (IN 2)
15 (IN 3) P
16 (IN 4)

10KΩ

3-30Vdc (ON)
0-1.5Vdc (OFF)

12(COM IN) N

Isolated digital input with + 24V internal power supply

+24 — **17**

10KΩ
13 (IN 1)
14 (IN 2)
15 (IN 3)
16 (IN 4)

12

-0 — **22**

Not isolated digital input with internal battery power supply

+3V — **30**

10KΩ
13 (IN 1)
14 (IN 2)
15 (IN 3)
16 (IN 4)

12

-0 — **31**

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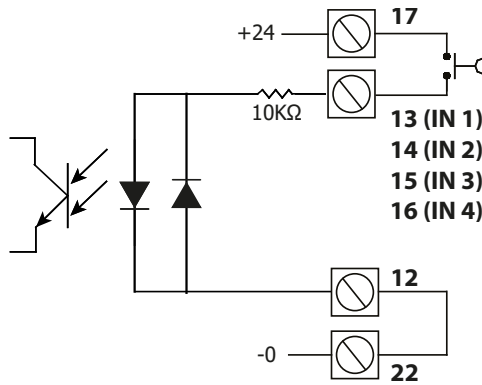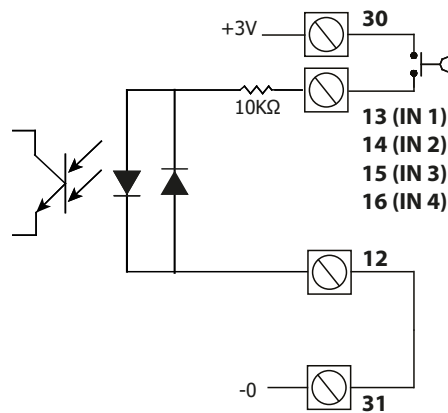
**Connections with
polarity type "N"**

Isolated digital
input with
external power
supply
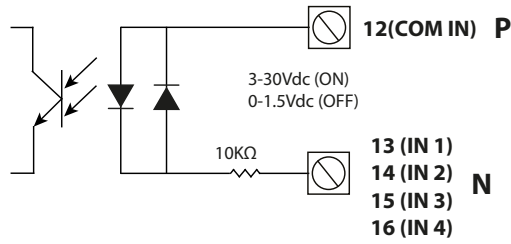
12(COM IN) **P**

3-30Vdc (ON)
0-1.5Vdc (OFF)

10KΩ

13 (IN 1)
14 (IN 2)
15 (IN 3)
16 (IN 4) **N**

Digital input
with + 24V
internal power
supply

+24   17

12

13 (IN 1)
14 (IN 2)
15 (IN 3)
16 (IN 4)

10KΩ

-0V   22

Not isolated
digital input
with internal
battery power
supply

+3V   30

12

13 (IN 1)
14 (IN 2)
15 (IN 3)
16 (IN 4)

10KΩ

-0   31
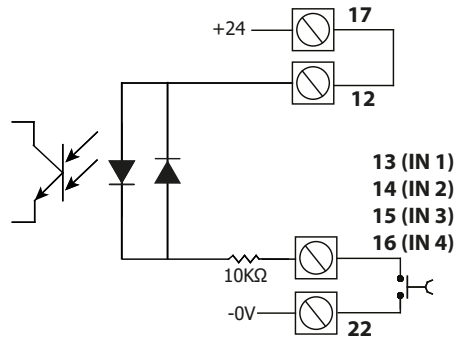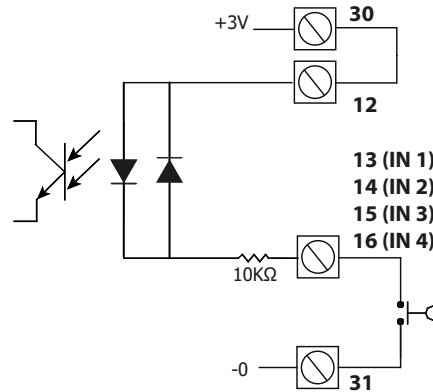
ANALOG INPUTS

4-20mA INPUT

MAIN
BOARD

Opto
Insulated

I max
27mA

10(+)

11(-)

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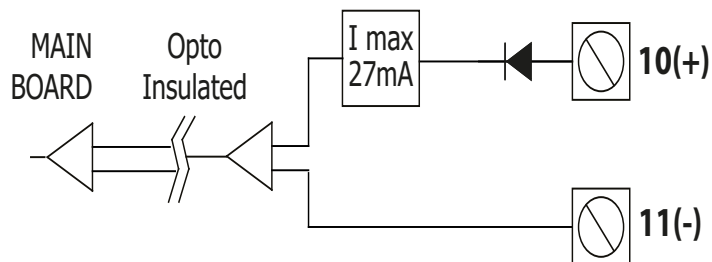
DIGITAL
OUTPUTS

Output 4-20mA

19 OUT 1(+)
18 OUT 2(+)

22 (COM. OUT 1-2)
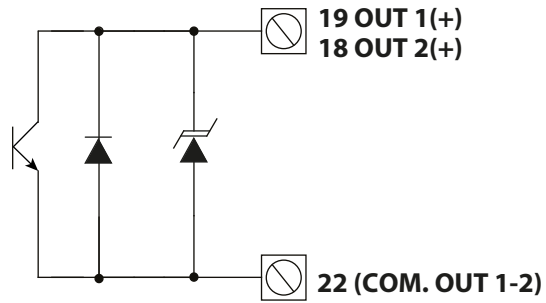
ANALOG
OUTPUTS

Output on/off
1250hz

mA

21 OUT 1(+)
20 OUT 2(+)

22 (COM. 4-20 OUT 1-2)

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POWER
SUPPLIES

HV	**L** **N** 100-240~±10% ⏚
LV	**L** **N** 24-36V≅±10% ⏚
LLV	**+** **−** 12-48V⎓±10% ⏚
LLV + PoE	**+** **−** 12-48V⎓±10% ⏚
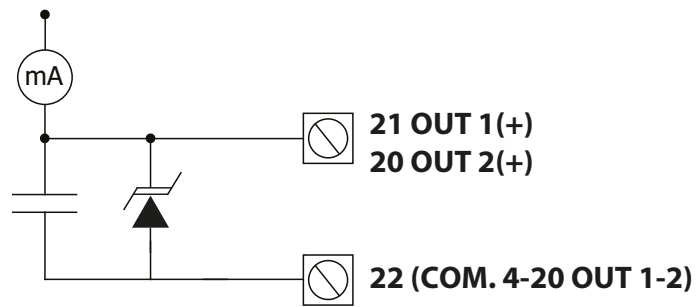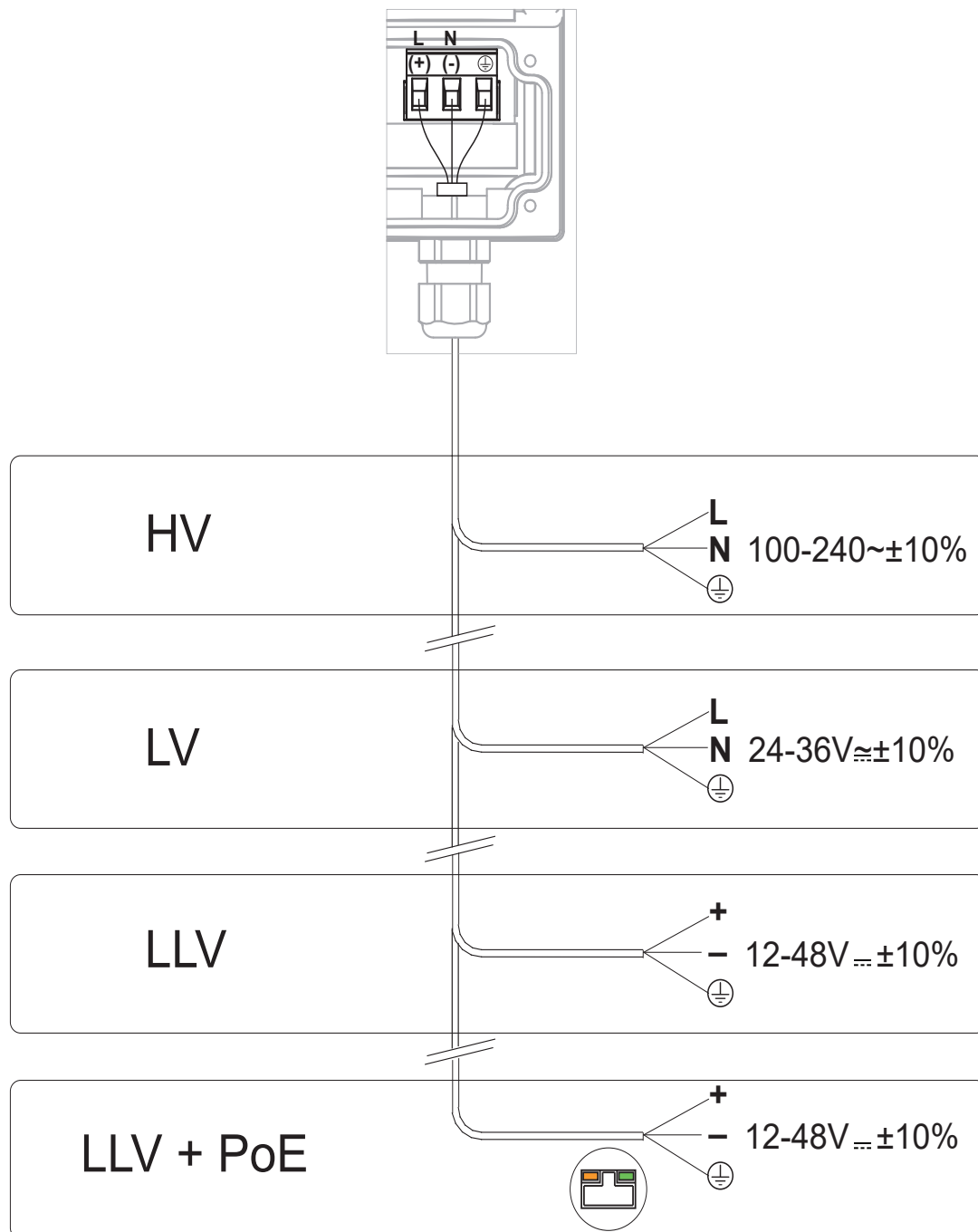
If the PoE power supply version, to guarantee the isolation required by the IEEE for ethernet, the external power supply (optional) must have minimum 1500Vac insulation with respect to earth and to every other connection.
The options above are also available with a rechargeable backup battery.

MV311_IT_EN_DS060REV02

FUNCTIONS MENU

UNITS

```
MAIN MENU
1-Units
2-Scales
3-Measure
...
```

UNITS			
FR.unit	METRIC	1.1	Flow rate unit of measure type
Temper. unit	ºC	1.2	Temperature unit of measure
Energy unit	METRIC	1.3	Energy totalizer unit of measure type
Energy unit	(MWh)	1.4	Energy totalizer unit of measure
D.P. Energy	2	1.5	Energy totalizer Decimal point position
VFv unit	METRIC	1.6	VF volume totalizer unit of measure type
VFv unit	(m³)	1.7	VF volume totalizer unit of measure
VFv D.P.	2	1.8	VF volume total. decimal point position
HWv unit	METRIC	1.9	HW volume totalizer unit of measure type
HWv unit	(m³)	1.10	HW volume totalizer unit of measure
HWv D.P.	2	1.11	HW volume total. decimal point position
CWv unit	METRIC	1.12	CW volume totalizer unit of measure type
CWv unit	(m³)	1.13	CW volume totalizer unit of measure
CWv D.P.	2	1.14	CW volume total. decimal point position
AXi unit	MET.V.	1.15	AUX input totalizer unit of measure type
AXi unit	(m³)	1.16	AUX input totalizer unit of measure
AXi D.P.	2	1.17	AUX input total. decimal point position
IP1 unit	METRIC	1.18	In Pulse 1 unit of measure type
IP2 unit	METRIC	1.19	In Pulse 2 unit of measure type
IP3 unit	METRIC	1.20	In Pulse 3 unit of measure type
IP4 unit	MET.V.	1.21	In Pulse 4 unit of measure type
OP1 unit	METRIC	1.22	Out Pulse 1 unit of measure type
OP2 unit	METRIC	1.23	Out Pulse 2 unit of measure type

SCALES

```
MAIN MENU
1-Units
2-Scales
3-Measure
4-Alarms
...
```

SCALES			
FR	m³/h,100.00	2.1	Full scale flow rate value
TPwr	MW,1.0000	2.2	Full scale thermal power value
Ipl1	m³,0.0100	2.3	Channel 1 IN pulse volume value
Ipl2	m³,0.0100	2.4	Channel 2 IN pulse volume value
Ipl3	m³,0.0100	2.5	Channel 3 IN pulse volume value
Ipl4	m³,0.0100	2.6	Channel 4 IN pulse volume value
Opl1	kWh,10.000	2.7	Channel 1 OUT pulse energy value
Opl2	m³,1.0000	2.8	Channel 2 OUT pulse volume value
TOp1	(ms)	2.9	Channel 1 OUT pulse time value
TOp2	(ms)	2.10	Channel 2 OUT pulse time value
Start S.T	(ºC)	2.11	Start scale temperature (Min)
Full S. T	(ºC)	2.12	Full scale temperature (Max)
F.S.DTemp	(K)	2.13	Full scale temperature Delta
PresT1	(kPa)	2.14	Pressure at T1 point
PresT2	(kPa)	2.15	Pressure at T2 point

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MEASURES

```
MAIN MENU
 1-Units
 2-Scales
 3-Measure
 4-Alarms
 MEASURES
Sens.Type          PT100
VFF C.O.             (%)
DT Min.              ( K)
T1HC enable          OFF
T1HC                (°C)
VF Meas. side         T2
VF F.r. src         PLS1
Aux Inp. En.         OFF
VF F.r. pls          FRQ
Max Tme In1          (s)
Max Pls In1          500
Max Pls In2          500
Max Pls In3          500
Max Pls In4          500
E. Ctrl type         AUT
K-Factor             OFF
Subst.type    PPGRfrLSA5201
Subst. Conc. %       ---
M.Prof.              STD
LP S.Freq.       1.0(Hz)
LP Cycle sim         OFF
```

Ref	Description
3.1	Temperature sensor type
3.2	Vector fluid flow cut-off threshold
3.3	Temperature delta cut-off threshold
3.4	T1 Heating-Cooling threshold enable
3.5	T1 Heating-Cooling threshold value
3.6	Vector fluid measurement side
3.7	Vector Fluid flow rate source
3.8	Aux nput enable
3.9	Vector Fluid f. rate pulse type
3.10	Max Time Period for Input
3.11	Max Pulses per second for Input
3.12	Max Pulses per second for Input
3.13	Max Pulses per second for Input
3.14	Max Pulses per second for Input
3.15	Energy counter control type enable
3.16	Enable Table of Kfactor Coeff.
3.17	Kfactor Substance Type
3.18	Kfactor Substance Concentration
3.19	Measure acquisition profile
3.20	Low power sampling frequency
3.21	Low power m.cycle simulation

ALARMS

```
MAIN MENU
 1-Units
 2-Scales
 3-Measure
 4-Alarms
 5-Inputs
 ALARMS
FM                   OFF
Fm                   OFF
Pwr M                OFF
Pwr m                OFF
DT max               OFF
DT min               OFF
T1 Max               OFF
T1 min               OFF
T2 Max               OFF
T2 min               OFF
Hysteresis           (%)
OC Fault            (mA)
```

Ref	Description
4.1	VF Max. flow rate alarm threshold
4.2	VF min. flow rate alarm threshold
4.3	Max. thermal power alarm threshold
4.4	min. thermal power alarm threshold
4.5	Max. temperature delta alarm threshold
4.6	Min. temperature delta alarm threshold
4.7	Max. temperature alarm threshold
4.8	min. temperature alarm threshold
4.9	Max. temperature alarm threshold
4.10	min. temperature alarm threshold
4.11	Hysteresis on alarm thresholds
4.12	Out.Current Alarm Condition Val.

INPUTS

```
MAIN MENU
 1-Units
 2-Scales
 3-Measure
 4-Alarms
 5-Inputs
 6-Outputs
 INPUTS
VFv P. reset         OFF
HWv P. reset         OFF
CWv P. reset         OFF
AXi P. reset         OFF
HEv P. reset         OFF
CEv P. reset         OFF
P.Count lock         OFF
VFv T. reset         OFF
HWv T. reset         OFF
CWv T. reset         OFF
AXi T. reset         OFF
HEv T. reset         OFF
CEv T. reset         OFF
T.Count lock         OFF
```

Ref	Description
5.1	Vector fluid vol. part. reset input en.
5.2	Hot water vol. partial reset input en.
5.3	Cold water vol. partial reset input en.
5.4	Aux input partial reset input en.
5.5	Heating energy partial reset input en.
5.6	Cooling energy partial reset input en.
5.7	Partial counters lock input enable
5.8	Vector fluid vol. total reset input en.
5.9	Hot water vol. total reset input en.
5.10	Cold water vol. total reset input en.
5.11	Aux input total reset input en.
5.12	Heating energy total reset input en.
5.13	Cooling energy total reset input en.
5.14	Total counters lock input enable

OUTPUTS

```
MAIN MENU
  1-Units
  2-Scales
  3-Measure
  4-Alarms
  5-Inputs
  6-Outputs
  7-Communication
```

OUTPUTS			
D.Out1	T.NRG PLS	6.1	Digital Out 1 function selection
D.Out2	VF.V. PLS	6.2	Digital Out 2 function selection
A.Out1	T. POWER	6.3	Analog Out 1 function selection
A.Out2	V.F. FLOW	6.4	Analog Out 2 function selection
A.Out1	4,0	6.5	Analog Out 1 current range sel.
A.Out2	4,0	6.6	Analog Out 2 current range sel.

COMMUN.

COMMUNICATION			
BACnet	IP	7.1	BACnet Communication Protocol
Modbus	TCP	7.2	Modbus Communication Protocol
M-Bus	ON	7.3	MeterBus Communication Protocol
Dev. Address	1	7.4	Device Communication Address
Com.Speed	9600	7.5	Communication Speed
Parity	NO 1SB	7.6	Communication Parity Bits
Ans. Delay	(ms)	7.7	Communication Answer Delay
ETH DHCP en.	ON	7.8	Ethernet DHCP enable
ETH dev IP addr.	010.138.09..	7.9	Ethernet device IP address
ETH network mask	255.255.25..	7.10	Ethernet network mask
ETH gateway add.	010.138.09..	7.11	Ethernet gateway address
ETH DNS address	010.138.09..	7.12	Ethernet DNS address
NTP time server		7.13	NTP time server name / address
Network password		7.14	Network access password
Net S.En.	ON+OFF	7.15	Network security (SSL-TLS) enable
Bnet max mst	127	7.16	BACnet max master
Bnet ONr	4194302	7.17	BACnet Object Instance Number
Bnet ObjName	MV311_Name	7.18	BACnet Device Object Name
Bnet ObjDescr	MV311_desc.	7.19	BACnet Device Object Description
Bnet ObjLoc	MV311_locat.	7.20	BACnet Device Object Location
Bnet pw	Pa55w0rd	7.21	BACnet Device Managem. Password
Bnet W.E.	OFF	7.22	BACnet Device Object Write Enable
Bnet Port	47808	7.23	BACnet Device Ethernet Port number (47808)
MDB_32	AAAA-BBBB	7.24	Modbus 32 bits registers order
Mbus ID	985000	7.25	MeterBus Identif. number (Secondary add.)
Mbus Dev.T.	AUTO	7.26	MeterBus Device Type (media)

```
  6-Outputs
  7-Communication
  8-Display
  9-Data logger
 10-Functions
 11-Diagnostic
 12-System
```

DISPLAY

DISPLAY			
Language	EN	8.1	Language for all messages
Contrast	5	8.2	Display contrast adjustment
Disp.time	(s)	8.3	Display/keyboard inactivity time
Disp. F.Num.	0	8.4	Display page function number
Disp. P.Lock	OFF	8.5	Display lock page number
Disp. A.Scrl	0	8.6	Display auto-scroll pages bits (0=disab.)
Disp.date	ALL	8.7	Time and date display enable
LED Op. Mode	SIG	8.8	LED Operating Mode color switch
LED VF Blink	ON	8.9	LED Vector Fluid blink enable
LED HW Blink	OFF	8.10	LED Hot Water blink enable
LED CW Blink	OFF	8.11	LED Cold Water blink enable
LED Comm.Blk	BUS	8.12	LED Communication blink enable
Quick start	OFF	8.13	Quick start menu enable
Web VD En	ON	8.14	Virtual display web interface enable

```
  7-Communication
  8-Display
  9-Data logger
 10-Functions
 11-Diagnostic
 12-System
```

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DATA LOGGER

DATA LOGGER

D.logger en.	OFF	9.1	Data logger sampling enable
Meas. units	ON	9.2	Measure units recording enable
Header	OFF	9.3	Description headers recording enable
Field separat.	;	9.4	Field separator character
Decimal separ.	.	9.5	Decimal separator character
Interv.	15	9.6	Sampling interval
On alarm en.	OFF	9.7	Enable recording on alarm change
Tot. volume	OFF	9.8	Enable log of volume total totalizer
Par. volume	OFF	9.9	Enable log of volume partial totalizer
Tot. energy	OFF	9.10	Enable log of energy total totalizer
Par. energy	OFF	9.11	Enable log of energy partial totalizer
Temperatur.	OFF	9.12	Enable log of temperatures
Therm. power	OFF	9.13	Enable log of thermal power
V.F. flow r.	OFF	9.14	Enable log of vector fluid flow rate
Log ALARM Nr	OFF	9.15	Alarm events number logging enable
Log TempS D.	OFF	9.16	Temperature sensor's data logging enable
Log Board T.	OFF	9.17	Board temperatures logging enable
Log Int. B. VC	OFF	9.18	Internal board voltages & curr. log. enable

```
7-Communication
8-Display
9-Data logger
10-Functions
11-Diagnostic
12-System
```

FUNCTIONS

FUNCTIONS

VFv P. reset	10.1	Vector fluid vol. part. reset function
HWv P. reset	10.2	Hot water vol. partial reset function
CWv P. reset	10.3	Cold water vol. partial reset function
AXi P. reset	10.4	Aux input partial reset function
HEv P. reset	10.5	Heating energy partial reset function
CEv P. reset	10.6	Cooling energy Partial reset function
VFv T. reset	10.7	Vector fluid vol. total reset function
HWv T. reset	10.8	Hot water vol. total reset function
CWv T. reset	10.9	Cold water vol. total reset function
AXi T. reset	10.10	Aux input total reset function
HEv T. reset	10.11	Heating energy total reset function
CEv T. reset	10.12	Cooling energy total reset function
Load Dev. Fact.	10.13	Load device factory default values
Save Dev. Fact.	10.14	Save device factory default values
Acknow.Fact.Warn	10.15	Acknowledge factory data warning message

```
7-Communication
8-Display
9-Data logger
10-Functions
11-Diagnostic
12-System
```

DIAGNOSTIC

DIAGNOSTIC

Reboot-Self_Test		11.1	Reboot and execute self test diag. funct.
Firmware info		11.2	Firmware version information
Quick Setup info		11.3	Quick Setup information
SD card info		11.4	SD card status information
Battery info		11.5	Battery information
Disp. sys.values		11.6	Display diagnostic system values
Ethernet info.		11.7	Ethernet information data
F.Bus comm.diag.		11.8	FieldBus comm.diagnostic values
Disp.comm.vars		11.9	Display comm.diagnostic values
Display measures		11.10	Display internal measured values
S/N	985000	11.11	Board serial number (read only)
WT	8	11.12	Total working time (read only)
BW	0	11.13	Battery working time (read only)
PT	0	11.14	Partial counters / L.T.S. life time
Simulation	OFF	11.15	Flow & Temp. simulation function

```
9-Data logger
10-Functions
11-Diagnostic
12-System
```

MV311_IT_EN_DS060REV02

SYSTEM

| SYSTEM			
Abilit. RTC	ON	12.1	Abilitazione data/ora (Real Time Clock)
Ora Legale	OFF	12.2	Abilitazione ora legale
F. Orario	(h)	12.3	Fuso orario locale
Data/ora	16	12.4	Impostazione data e ora di sistema
Cod. L1	0	12.5	Codice di accesso livello 1
Cod. L2	0	12.6	Codice di accesso livello 2
Cod. L3	0	12.7	Codice di accesso livello 3
Cod. L4	0	12.8	Codice di accesso livello 4
Cod. L5	0	12.9	Codice di accesso livello 5
Cod. L6	0	12.10	Codice di accesso livello 6
Lim. Accesso	OFF	12.11	Limitazione accesso al livello impostato
CT	154472	12.12	Cicli totali di misura
Indirizzo IP Dis	010.011.01..	12.13	Indirizzo IP di rete del dispositivo
Indir. IP Client	010.011.01..	12.14	Indirizzo IP di rete del client
Network mask	255.255.25..	12.15	Network mask
BILANCIAM. T1-T2	(°C)	12.16	Calibrazione bilanciamento temp. T1 - T2
T1 OFFS.	(°C)	12.17	Calibrazione offset temperatura T1
T2 OFFS.	661	12.18	Calibrazione offset temperature T2
ADC 4mA	3327	12.19	Punto di calibrazione 4mA ingresso ADC
ADC 20mA	3453	12.20	Punto di calibrazione 20mA ingresso ADC
DAC1 4mA	14718	12.21	Punto di calibrazione 4mA uscita DAC1
DAC1 20mA	3403	12.22	Punto di calibrazione 20mA uscita DAC1
DAC2 4mA	14637	12.23	Punto di calibrazione 4mA uscita DAC2
DAC2 20mA		12.24	Punto di calibrazione 20mA uscita DAC2
Stand-by		12.25	Attivazione modalita' stand-by (spegnim.)
QS Salva e Bloc.		12.26	Salva e blocca modifica quick setup
FW update		12.27	Aggiornamento firmware

9-Data logger
10-Functions
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MV311_IT_EN_DS060REV02

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HOW TO ORDER

Code Example	Code/Description	
0	Certification	
	0	WITHOUT MID-004
	M	CE M CERTIFICATION: MID-004
B	Display	
	A	Blind version (without display)
	B	Graphic display 128 x 48 pixels with back light, 3 keys and RGB status LED.
2	Housing material / Protection rate	
	1	Without Housing
	2	PC/ABS housing sealable
A	Flow Rate Source (Thermal Fluid)	
	A	Pulses
	B	4/20 mA
	C	Pulses - 4/20 mA selectable by the customer, option NOT valid for MID instrument
1	Power supply	
	1	Power Supply : 100 ... 240 VAC 44/66 Hz
	2	Power Supply : 24 ... 36 VAC/VDC 0...44/66 Hz
	3	Power Supply : 12...48 VDC
	4	Power Supply : 12...48 VDC + P.o.E. (Power Over Ethernet - Ethernet port is required)
A	Analogue output	
	A	Without Analog Out
	B	n° 1 Programmable Analogue output 0/4...20/22 mA
	C	n° 2 Programmable Analogue outputs 0/4...20/22 mA
0	Digital Output	
	0	Without Digital Output
	1	With n° 2 Programmable Digital Outputs (Transistor)
A	Communication Gateways & Protocols	
	A	Without Protocol
	B	Ethernet port ONLY (FTPs, WEBs, NTPs, ...)
	C	Modbus RTU (over RS485)
	D	Modbus TCP (over Ethernet)
	E	Modbus RTU + TCP (over RS485 + Ethernet)
	F	Bacnet MS-TP (over RS485)
	G	Bacnet IP (over Ethernet)
	H	BACnet MS-TP + TCP - selectable by the customer - (over RS485 + Ethernet)
	I	BACnet MS-TP + Modbus RTU - selectable by the customer - (over RS485)
	L	Modbus TCP + BACnet IP (over Ethernet)
	M	Modbus RTU + TCP + BACnet MS-TP + IP (over RS485 + Ethernet)
	N	Mbus
	P	Mbus + Modbus IP (over Ethernet)
	Q	Mbus + BACnet IP (over Ethernet)
	R	Mbus + Modbus TCP + BACnet IP (over Ethernet)
	Z	Others

B		Thermal Probe	
	A	Without PT, selectable by the customer (default PT100)	
	B	PT 100	
	C	PT 500	
	D	PT 1000	
0		RTC – Measure BackUp – Data Logger	
	0	Without RTC - Measure BackUp - Data Logger	
	1	RTC - With Autonomy of 7 days (No measure back-up)	
	2	RTC + Measure Back-Up With Autonomy up to 1 Month	
	3	RTC - With Autonomy of 7 days + Data Logger with MicroSD Memory 4 GB (No measure back-up)	
	4	RTC + Measure BackUp (With Autonomy up to 1 Month)+ Data Logger with MicroSD Memory 4 GB	
A		Special Features	
	A	NONE	
	B	Connectors IP67 for Ethernet connection (female/female - Valid ONLY for Ethernet Communication Gateway)	

Complete code
example for
order

MV311–0B2A1A0A0B0A

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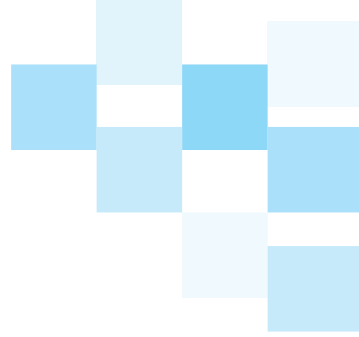
MV311_IT_EN_DS060REV02

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