

**Compact thermal energy meter
Single jet water meter for in-line installation**



M-Bus

M-Bus
wireless

LoRaWAN

- Detection of backflow
- Dynamic temperature measuring cycle: 2/60 s
- Inlet or outlet and unit of measurement can be set on site
- Detachable calculator, 50 cm cable (optional)
- Communication interfaces:
 - wireless M-Bus
 - wireless M-Bus + 3 pulse inputs
 - M-Bus
 - M-Bus + 3 pulse inputs
 - 2 pulse outputs
 - LoRaWAN + 3 pulse inputs
- Replaceable battery, service life 10 years
- Ready for external power supply

TECHNICAL DATA

Water meter

Measuring method		Bidirectional inductive scanning system		
Nominal flow rate q_p	m ³ /h	0.6	1.5	2.5
Horizontal starting flow rate	l/h	3.5	7.0	10.0
Vertical starting flow rate	l/h	4.0	7.0	10.0
Minimum flow rate q_i	l/h	24	60	100
Maximum flow rate q_s	m ³ /h	1.2	3.0	5.0
Pressure drop Δp at q_p	bar	0.155	0.210	0.165
Pressure drop Δp at q_s	bar	0.660	0.840	0.675
Nominal diameter	mm	DN15	DN15	DN20
Thread	inch	G3/4B	G3/4B	G1B
Length	mm	110	110	130
Dynamic range q_i/q_p		1:25		
Accuracy class (MID)		3		
Nominal pressure PN	bar	16		
Temperature range of liquid – heat	°C	15-90		
Temperature range of liquid – cooling (q_p 1.5 and q_p 2.5)	°C	5-50		
Installation point		Inlet or outlet Can be set if the energy value is ≤ 10 kWh		
Mounting position		Cooling energy meters: any position Heat meters: horizontal/vertical		
Protection class		IP65		
Liquid		Water Optional, not certified*: water with a propylene glycol or ethylene glycol percentage rate of 20%, 30%, 40% or 50%. (*The type and concentration of glycol can be set if the energy value is ≤ 10 kWh)		

Calculator

Temperature range of liquid – heat	°C	0-150
Temperature range of liquid – cooling (q_p 1.5 and q_p 2.5)	°C	0-50
Operating ambient temperature	°C	5-55 with 95% relative humidity
Transport temperature	°C	-25-70 (max. 168 hours)
Storage temperature	°C	-25-55
Temperature difference range $\Delta\theta$ heat	K	3-100
Temperature difference range $\Delta\theta$ cooling	K	-3- -50
Minimum temperature difference $\Delta\theta$ heat	K	> 0.05
Minimum temperature difference $\Delta\theta$ cooling	K	< -0.05
Minimum temperature difference $\Delta\theta_{HC}$ heat/cooling	K	> 0.5/< -0.5
Temperature resolution	°C	0,01
Dynamic temperature measuring cycle	s	2/60; with power pack: 2 s permanently
Display		LCD - 8 digits + special characters
Decimals		Up to 3
Units		MWh, kW, m ³ , m ³ /h (kWh, GJ, l, l/h, MW, MMBTU, Gcal). The energy unit can be set until the energy value is ≤ 10 kWh.
Interfaces		Optical interface (M-Bus protocol) Optional: wireless M-Bus, wireless M-Bus + 3 pulse inputs; M-Bus, M-Bus + 3 pulse inputs; 2 pulse outputs; LoRaWAN +3 pulse inputs
Power supply		Replaceable 3 V lithium battery; all models are prepared for a 3 V power pack (input voltage 230 V/24 V)
Estimated lifetime	Years	10; see "Factors influencing battery lifetime" (Maddalena technical documents)
Data storage		Non-volatile memory

Reading dates		Selectable yearly reading date; 15 monthly and semimonthly values via display or wireless M-Bus; 24 monthly and semimonthly values via optical interface or M-Bus
2 tariff registers		Can be set individually; energy or time can be added
Storage of maximum values		Flow rate and power
Protection class		IP65
CE		Yes
Electromagnetic interference		EN 1434

Temperature sensors (2-wire technique)

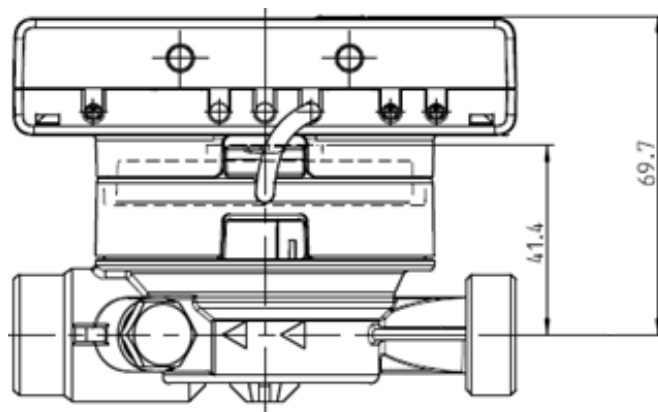
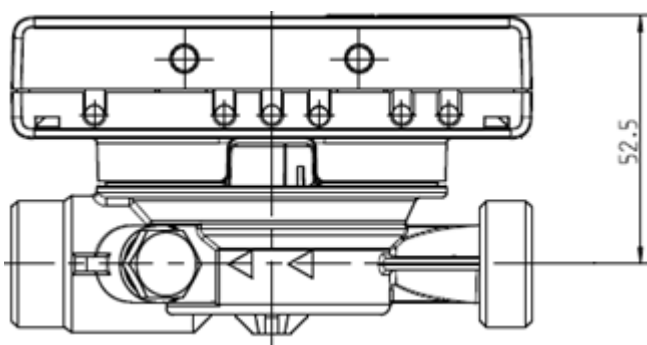
Platinum precision resistor		Pt 1000
Diameter	mm	5; 5.2; 6; AGFW 27.5; 38; needle sensor 3.5 x 75
Cable length	m	1.5; 3; 6
Installation point		Asymmetrical, symmetrical

Weight

Basic version	q _p	0.6/1.5	2.5
Calculator not detachable	kg	0.755	0.795
Detachable calculator	kg	0.840	0.880

Dimensions

Basic version	q _p	0.6/1.5	2.5
Pulse cable length (only separable version)	m	0.50	
Calculator housing (h x w x d)	mm	75 x 110 x 34.5	
Thread		G3/4", DN15	G1" DN20



(On the right: version with detachable calculator)

HEAD LOSS

