Building technology

Integral-V UltraMaXX

Combined ultrasonic heat and cooling meter
DN 15, 20

Your benefits

- Ultrasonic technology:
  Long-term stable energy measurement with maximum measuring accuracy
- Compact design:
  Less installation space required
- Large measuring range:
  Lower storage costs
- Replaceable calculator:
  Flexible mounting possible (compact/split)
- Display of operating faults and soiling warning:
  Increased operational safety
- Big display:
  Easy to read

Application

- High-end device for building management
- As a replacement for mechanical impeller heat meters
- Metering of heat and/or cooling consumption in building management

Features

- Nominal diameters DN 15 or DN 20
- Nominal flow rates q_p 1,5 or q_p 2,5
- Supply via 10-year battery or M-Bus with back-up battery
- Max. operating pressure PN 16 bar
- Universal installation position
- No moving parts
- Electronic calculator
- LCD-resolution 8 digits
- Temperature range 0 – 90°C
- Temperature sensor Pt 500
- 18 month register
- Max. values (P, Q, T)
- Standard EN 1434
- CE Conformity according European Measuring Instruments Directive (MID)

Options

- Execution on-site reading
  (Supply via battery, small calculator housing)
- Execution with 2 pulse outputs for heating- and cooling energy
  (Supply via battery, small calculator housing)
- Execution with M-Bus interface and 4 water meter inputs
  (Supply via battery, large calculator housing)
- Execution with M-Bus interface and 2 water meter inputs
  (Supply via M-Bus, large calculator housing)

Technical Data

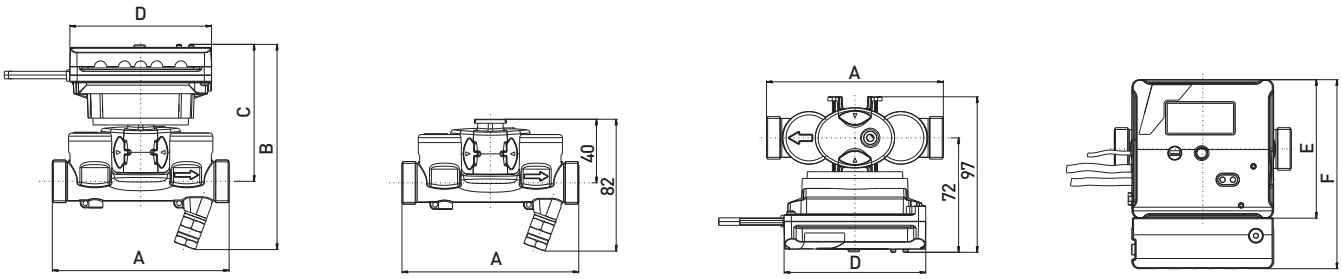
Calculator	
Temperature range	0 to 90°C
Temperature difference	3 to 90K
LCD resolution	99'999'999kWh 999'999,99m³
Battery lifetime (Execution with battery)	10 years
Battery lifetime back-up battery (Execution supply via M-Bus)	1 year
Environment class	EN 1434 - class C, 2004/22/EC class E1, M1
Protection class	IP54
Environment temperature	+5 to +55°C
Storage temperature	-10 to +60°C
Optical interface	EN 60870-5 / M-Bus protocol
Temperature sensor type	2-wires, Pt 500
Cable length	0,5m

Temperature sensor	Direct immersion sensor	Pocket sensor
Sensor element	Pt 500	Pt 500
Resistor acc. to	EN 60751 / EN 1434	EN 60751 / EN 1434
Measuring tolerance	Class B	Class B
Temperature measuring range	0 to 90°C	0 to 90°C
Temperature difference	3 to 90K	3 to 90K
Sensor diameter	3,6/5,4mm	6mm
Sensor length	27,5mm	50mm
Connection thread	M10x1	Knurled nut M12
Cable type	Smooth cable	Coiled cable
Cable length	1,75m	1,2m

Volume measuring meter					
Nominal diameter	DN	mm	15	15	20
Operating pressure	PN	bar	16	16	16
Connection thread on meter	G...A	Inch	¾	1	1
Nominal flow rate	q_p	m³/h	1,5	1,5	2,5
Maximum flow rate	q_s	m³/h	3	3	5
Minimum flow rate	q_i	l/h	6	6	10
Starting flow		l/h	2	2	4
Kvs value		m³/h	3	3	5
Temperature		max. °C	90	90	90
Measuring range	q_i/q_p		1:250	1:250	1:250
Metrological class			EN 1434 - class 2	EN 1434 - class 2	EN 1434 - class 2
Protection class			IP67	IP67	IP67

Dimensions					
Length without couplings	A	mm	110	130	130
Height total	B	mm	128	128	128
Height from pipe centre line	C	mm	86	86	86
Width calculator	D	mm	88	88	88
Height calculator (small housing)	E	mm	86	86	86
Height calculator (large housing)	F	mm	126	126	126

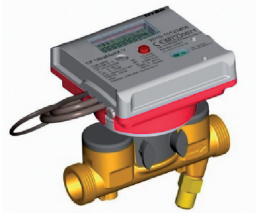
Dimension Diagram

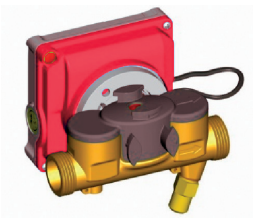


Installation

Integral-V UltraMaXX is approved for all horizontal and vertical installation positions, even overhead.

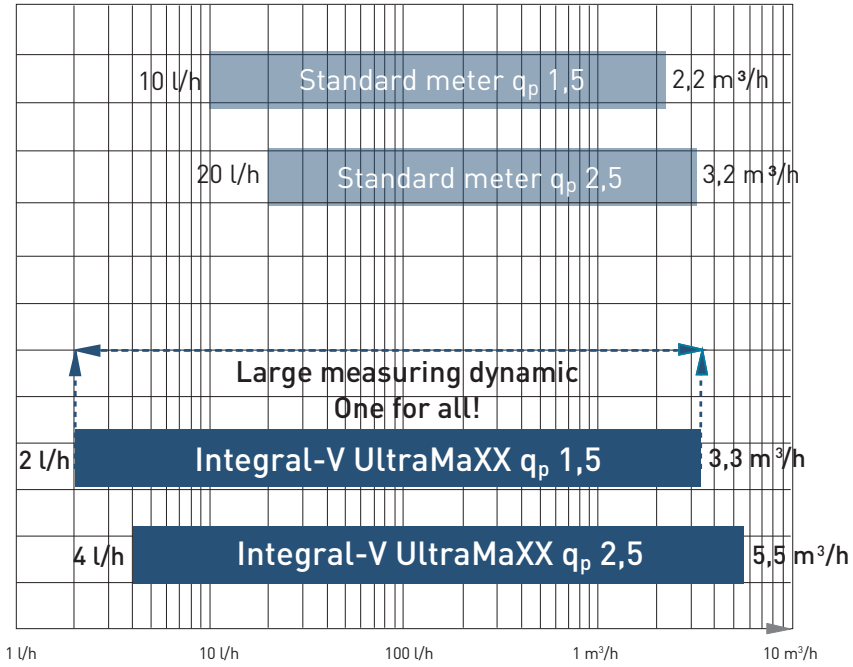
In combination with the flexible calculation unit attachment, it ensures an optimum reading position.



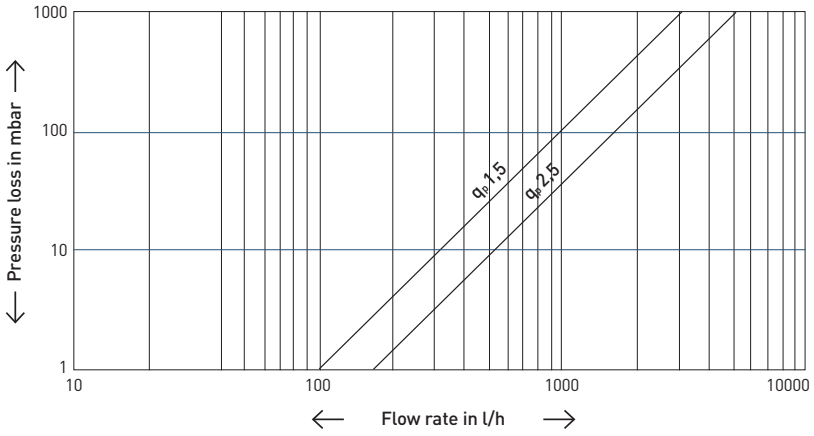


Flow Measuring Dynamic

The exceptionally large measuring dynamic (2-3300 l/h at q_p 1,5) means Integral-V UltraMaXX is a real multi-range meter.



Typical Head Loss Curve



Options

Integral-V UltraMaXX is supplied with integrated options. This enables quick and efficient installation and system setup.

The following versions are available.

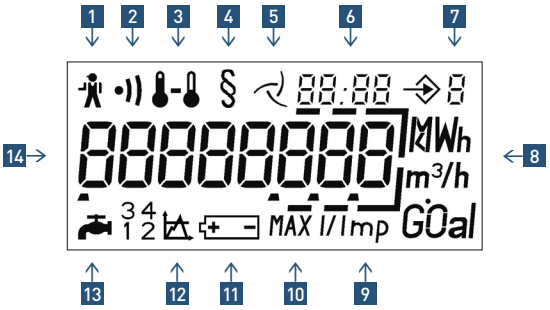
Specification for pulse outputs for heating- and cooling energy	
Pulse value	Heating energy: 1 pulse = 1 kWh Cooling energy: 1 pulse = 1 kWh
Pulse characteristic	Passive transducer, Open Collector Pull-down switch
Scanning voltage	max. 30 V, min. 2,5 V
Max. permissible current	max. 20 mA
Max. internal resistance R_{on}	100 Ω (during pulse ON)
Impulse length	120 ms

Specification for water meter inputs	
Pulse value	1, 2,5, 10, 25, 100, 250 l/pulse (programmable, same pulse value for all connected water meters, standard 10 l)
Scanning voltage	typisch 3 V
Impulse recognition	Contact closed: R < 500 Ω Contact opened: R > 1 MΩ Impulse duration / break every > 3 s
Cable length	max. 10 m

Specification for M-Bus interface	
Protocol	M-Bus according EN 13757-3
M-Bus standard load	Supply via battery: 1 standard load (1,5 mA) Supply via M-Bus: 2 standard loads (3 mA)
Standard baud rate	2400 baud
Standard data set	Manufacturer no., energy, volume, flow, power, temperatures (supply, return, difference), operating time, date and time, optional volume water meter inputs, firmware version, software version

Multi-function display

Reading errors are minimised by the concise layout on 3 display levels and the clear symbols for status and alarm messages. The various display levels are selected via a red button. Press the button for app. 3s to access the next level.



1. Operating fault
2. Soiling warning
3. Temperature
4. Calibrated value display
5. Flow rate display
6. Date/time
7. Display level
8. Units
9. Pulse value of water meter
10. Max. values
11. Calculated battery life
12. Threshold (not occupied)
13. Water meter inputs
14. Main display section

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