Building technology

Integral-V UltraMaXX

Combined ultrasonic heat and cooling meter
½" and ¾"

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 ½" or DN ¾"
- Nominal flow rates q_p 6.6 or q_p 11 gpm
- Supply via 10-year battery or M-Bus with back-up battery
- Max. operating pressure PN 230 psi
- Universal installation position
- No moving parts
- Electronic calculator
- LCD-resolution 8 digits
- Temperature range 32 °F – 194 °F
- 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

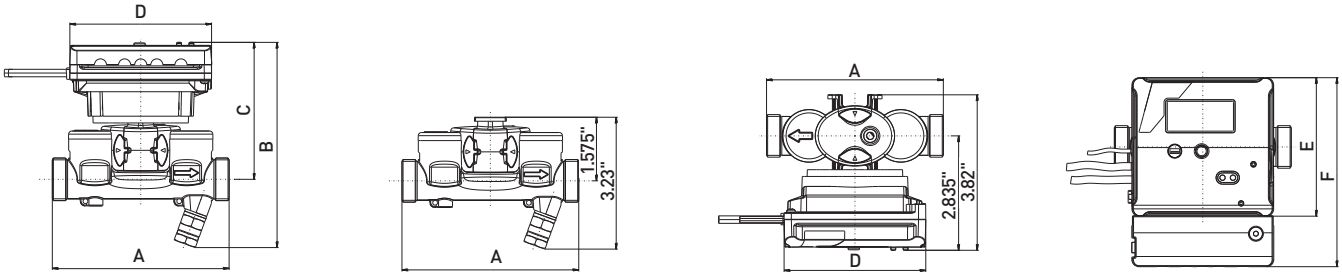
Calculator	
Temperature range	32 °F to 194 °F
Temperature difference	3 to 90 K
LCD resolution	99'999'999 kWh 999'999,99 m^3
Battery lifetime (Execution with battery)	10 years
Battery lifetime back-up battery (Execution supply via M-Bus)	1 year
Environment class	EN 1434 - class C, 2004/22/EC class E1, M1
Protection class	IP54
Environment temperature	41 °F to 131 °F
Storage temperature	14 °F to 140 °F
Optical interface	EN 60870-5 / M-Bus protocol
Temperature sensor type	2-wires, Pt 500
Cable length	1.97"

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	32 °F to 194 °F	32 °F to 194 °F
Temperature difference	3 to 90 K	3 to 90 K
Sensor diameter	0.142" / 0.212"	0.236"
Sensor length	1.082"	1.969"
Connection thread	M10x1	Knurled nut M12
Cable type	Smooth cable	Coiled cable
Cable length	6.89"	4.72"

Volume measuring meter					
Nominal diameter	DN	Inch	½	½	¾
Operating pressure	PN	psi	230	230	230
Connection thread on meter	G...A	Inch	¾	1	1
Nominal flow rate	q_p	gpm	6.6	6.6	11
Maximum flow rate	q_s	gpm	13.2	13.2	22
Minimum flow rate	q_i	gpm	0.0264	0.0264	0.044
Starting flow		gpm	0.0088	0.0088	0.0176
Kvs value		gpm	13.208	13.208	22.01
Temperature		max. °F	194	194	194
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	Inch	4.33	5.12	5.12
Height total	B	Inch	5.04	5.04	5.04
Height from pipe centre line	C	Inch	3.386	3.386	3.386
Width calculator	D	Inch	3.464	3.464	3.464
Height calculator (small housing)	E	Inch	3.386	3.386	3.386
Height calculator (large housing)	F	Inch	4.96	4.96	4.96

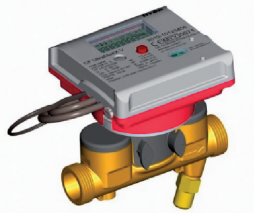
Dimension Diagram

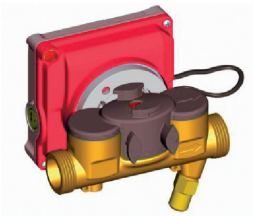


Installation

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

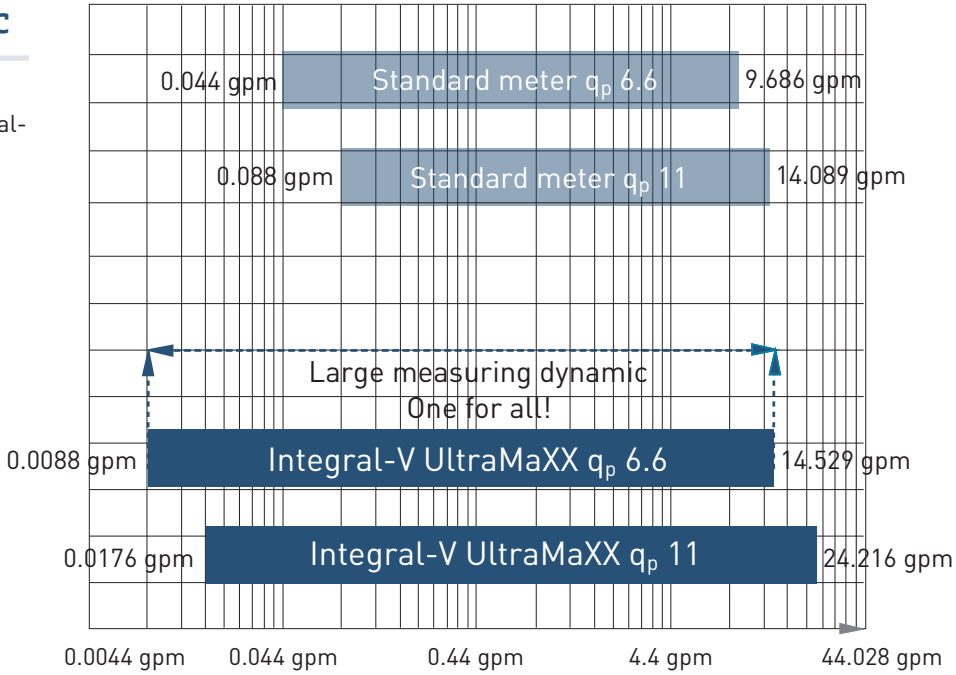
In combination with the flexible calculation unit attachment, it ensures an optimum reading position.



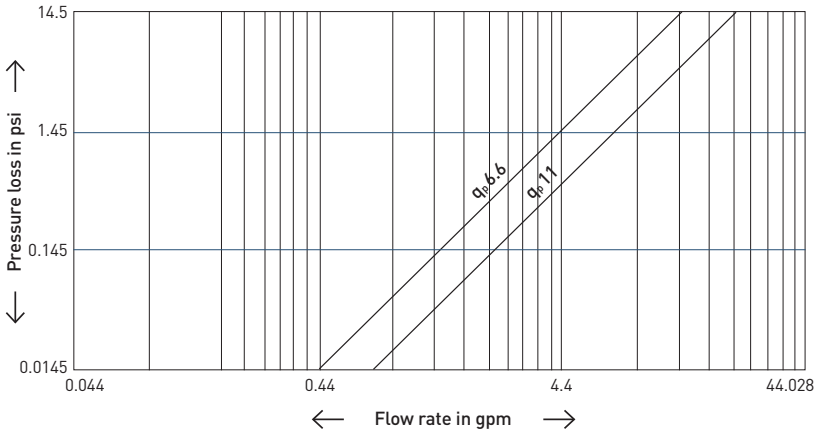


Flow Measuring Dynamic

The exceptionally large measuring dynamic (0.0088-14.529 gpm at qp 6.6) 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.

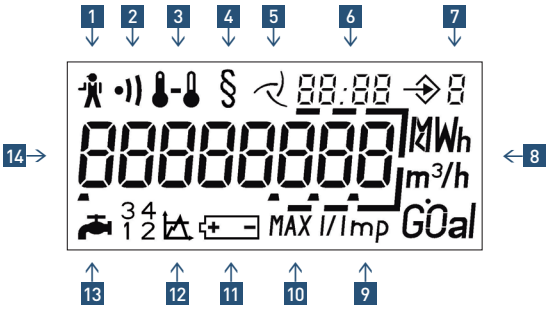
Specification for pulse outputs for heating- and cooling energy	
Pulse value	Heating energy: 1 pulse = 1 kWh Cooling energy: 1 pulse = 1 kWh
Pulse characteristic	Passive transducer, Open Collector Pull-down switch
Scanning voltage	max. 30 V, min. 2,5 V
Max. permissible current	max. 20 mA
Max. internal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

Specification for water meter inputs	
Pulse value	0.2642, 0.66, 2.642, 6.6, 26.42, 66 gal/pulse (programmable, same pulse value for all connected water meters, standard 2.642 gal)
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. 393.7"

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. 3 s 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

GWF MessSysteme AG
Obergrundstrasse 119
6005 Lucerne, Switzerland

T +41 41 319 50 50
info@gwf.ch, www.gwf.ch

Technical support:
T +41 41 319 52 00, support@gwf.ch

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