CF-UltraMaXX MK

Utrasonic capsule thermal energy meter qp1,5

The new ultrasonic compact thermal energy meter “CF-UltraMaXX MK” is the result of the consequent evolution of the successful Itron CF-Family series of static flow and thermal energy meters. It combines the proven capsule system with innovative ultrasonic flow measurement technology. CF-UltraMaXX can be used for the measurement of all relevant billing data in heating and cooling systems.

FEATURES AND BENEFITS

- Itron innovation - first capsule heat meter with static technology
- extended dynamic range covers usual flow rate conditions in residential metering
- different options for implementation in communication systems
- advanced features for field data analysis.
- removable calculator

CE type approval certificate:
DE-10-MI004-PTB001

Capsule system

The capsule gives easy access cleaning and maintenance and it allows quick and simple meter exchange in case of retrofit. The body “EAT” remains in the pipe; just the measuring insert will be exchanged in case of retrofit. The screwed connecting of the measuring insert is secured by a plastic seal which breaks to show unauthorized access.

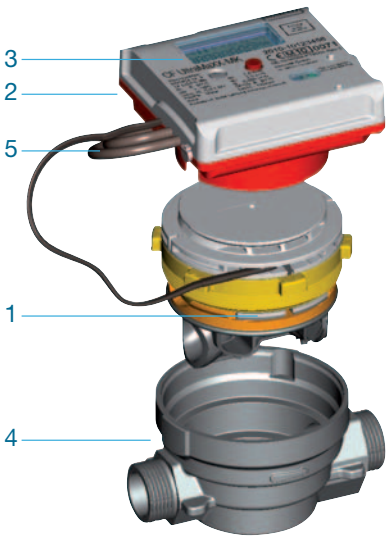
Communication

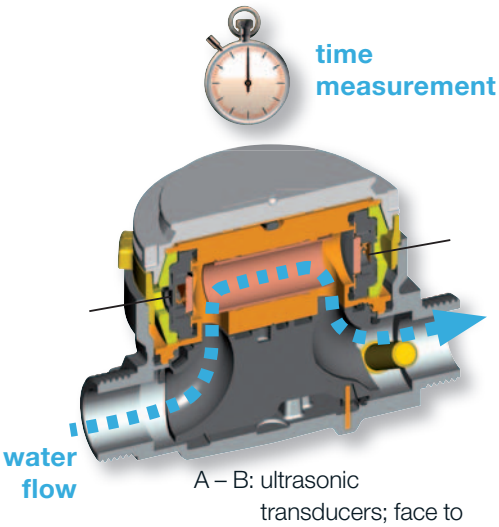
CF-UltraMaxx can be ordered in a various choice of integrated communication options in order to fit best to customers smart metering needs. Beside wired systems using repetition pulse output or M-Bus communication the UltraMaXX is also available for wireless systems such as Itron AnyQuest and Everblu.

Advanced memory features for field data analysis

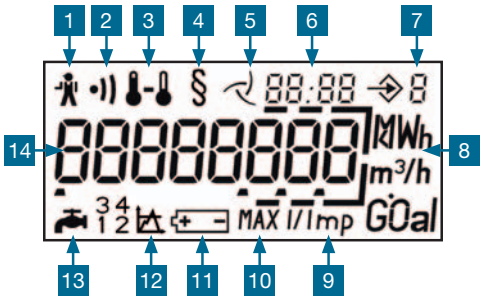
CF-UltraMaXX can be ordered with advanced features such as tariff function and integrated data logger. Together with the dedicated UltraMaXX service software this features enables the user to get detailed information about the heating and cooling system operation over time.

1 = Ultrasonic flow meter capsule 2 = Calculator 3 = display 4 = EAT 5 = Temperature sensors





A – B: ultrasonic transducers; face to face architecture



1 Alarm Icon
- operation error

2 Transducer warning
- Low signal level

3 Temperatures
- permanent: Ts, Tr or dT
- blinking: error

4 Metrological indicator
- Index approved for billing

5 Flow indicator
- permanent: flow
- blinking: no flow

6 Date and Time
- fixed dates, peak, tariff

7 LCD Loop indicator

8 Units
- actual physical unit

9 Pulse input value
- of external water meters

10 Peak value
- power, flow, Ts

11 Battery warning
- end of battery lifetime expected

12 Tariff index

13 External water meter
- Number of displayed counter

14 Main index 8 digits
- Digit size: 6,5mm x 3,3mm

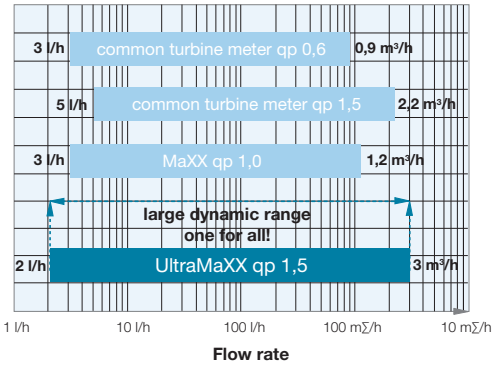
ULTRASONIC TECHNOLOGY IN SMALLEST DIMENSIONS

The ultrasonic capsule technology uses the principle of run time difference in the measuring pipe. The ultrasonic transducers A and B operates both as receiver and transmitter for the ultrasonic signal.

The runtime of the signal with the flow direction is shorter than against the flow direction. As higher the flow rate as higher the signal run time difference.

DYNAMIC RANGE

Due to it's wide dynamic range of 2…3.000 l/h (starting flow… maximum flow) the CF-UltraMaXX MK qp1,5 can be used for all applications in residential metering which requires usually two different product versions qp0,6 or qp1,5.



MULTIFUNCTIONAL DISPLAY

The LCD is organized in three different loops to ensure the best compromise between simplest reading for regular billing purposes and giving access to all data required for service activities.

1 - billing loop with energy indexes, volume indexes, volume indexes of external water meters*, tariff indexes*.

2 - fixed date reading loop with monthly indexes of energy and volume of previous 18 month

3 - service loop with flow, power, temperatures, peak values*, alarm codes and many other service information.

*optional displays

COMBINED HEATING AND COOLING SYSTEMS

Optionally UltraMaXX is available for use in combined heating & cooling applications. These versions are equipped with two independent energy registers for heating and cooling.

The change from heating to cooling registering depends on real temperature conditions in the application.

COMMUNICATION OPTIONS

CF-UltraMaXX will be delivered with integrated options. This allows quickest installation on site with minimum effort during systems set-up. Following integrated option are available in different combinations (available combinations see reference table).

M-Bus	
Description	Bi-directional serial interface for implementation in M-Bus networks
Protocol	EN 13757-3, 300/2400Baud, variable data protocol
Data	Energy, Volume, Flow, Power, Temperatures, operation time, status, monthly indexes + additional data frames
M-Bus PS	
Description	Bi-directional serial interface for implementation in M-Bus networks. Power supply of thermal energy meter from M-Bus (2 unit loads) + 1 year back-up battery.
Protocol & Data	See M-Bus
Repetition E & V	
Description	Pulse output / repetition of Energie and Volume display
Pulse weight	LCD in kWh / MWh: 1 KWh / 10L LCD in GJ: 10MJ / 10L
Characteristic	Passive output, open collector; max. 30V / 20mA; pulse width 120ms
WM pulse input	
Description	Additional input for water meters equipped with pulse output. Visualization of WM current and monthly indexes, remote reading by optical interface or M-Bus.
Pulse weight	1L, 2,5L, 10L, 25L, 100L or 250L (user configuration), 0,25Hz max. pulse frequency
Characteristic	Active input, 3,6V detection voltage, On/Off resistance ≤ 500Ω / ≥ 1MΩ
RF Radio	
Description	Bi-directional serial communication interface for implementation in walk-by or fixed network radio systems
Protocol	Radian open protocol, 433 Mhz
Data	Energy, volume, flow, temperatures, status. Via transparent mode access to all M-Bus frames
Systems	Itron AnyQuest walk-by radio system; Itron Everblu fixed network radio system.

Memory option

Advanced memory	
Description	Extra large internal memory to provide peak values, tariff function + data logger
Peak values	Maximum values of flow, power and supply temperature, user programmable averaging period (1…1440 minutes); history of last 18 month maximum values
Tariff function	Energy and volume tariff indexes, user programmable threshold parameter (P, Q, Tin, Tout or time window) and threshold value (2 steps)
Data logger	4 user programmable independent data logger (working in parallel) » Yearly data logger (16 years, programmable day and month at midnight) » Monthly data logger (48 month , last day of the month) » Daily data logger (460 days, at midnight). » Programmable data logger (1500 steps, logging period 1 minute to 7 days) 6 variables can be selected for each logger, table of variables: Power, Flow, Supply temperature, Return temperature, Energy, Volume, WM 1…4 volume (if WM option active), tariff indexes and peak values

Technical data

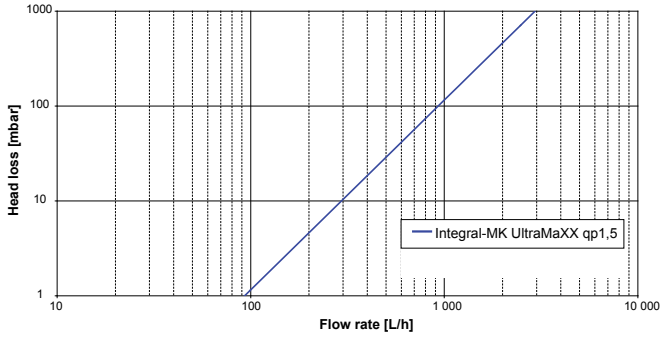
Calculator		
Temperature range	°C	0-90 / 0 – 150*
Temperature difference	K	3-90 / 3 – 150*
Display resolution 8 digits	kWh MWh GJ GJ m^3	99.999.999 99.999,999 99.999,999 999.999,99 999999,99
Power supply		Lithium cell 6+1 years (option) Lithium cell 10+1 years (standard) by M-Bus (optional version)
Environmental classification		EN1434 – C / 2004/22/EC class E1, M1
Ingress protection	IP	54
Environmental temperature	°C	5…55°C (operation) / -10…60°C (transport)
Optical interface		ZVEI / EN 60870-5 / M-BUS protocol
Temperature sensors	Type	Pt500
Cable calculator <-> flow meter	L [m]	0,5m

Flow meter		qp 1,5
Max. overload flow	qss [m^3/h]	3,3
Maximum flow	qs [m^3/h]	3
Nominal flow	qp [m^3/h]	1,5
Minimum flow approval / production	qi [l/h]	6 / 15
Cut off flow rate	qc [l/h]	2
Accuracy class approval / production		EN1434 – class 2 / 3
Dynamic qp/qi approval/ production		250 / 100
Nominal pressure	PN [bar]	16
Head loss @ qp	bar	0,25
Temperature range permanent / short	°C	1...90 / 100
Ingress protection	IP	67
Body sizes / EAT	¾''-110 1''-130	X X
Capsule / EAT interface		EN14154-2 Annex B type A1

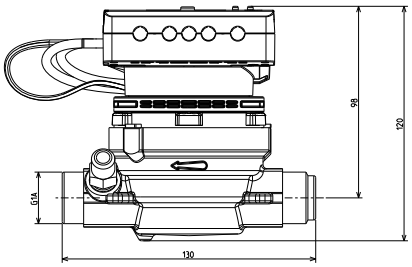
Temp.-Sensor		
Type		Pt500
Pocket Sensors (standard)	Type	PS 50mm / Ø6mm / spiral cable
Temperature range	°C	0…90
cable length	m	1,2
Pocket Sensors (optional)	Type	PS 50mm / Ø6mm / silicone cable
Temperature range	°C	0…150
cable length	m	1,75 / 5 / 10
Direct Sensors (optional)	Type	DS 27,5mm / EN1434 / silicone cable
Temperature range	°C	0…150
cable length	m	1,75 / 5 / 10

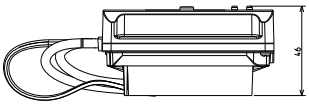
*indication on type plate depends on type of connected temperature sensors.

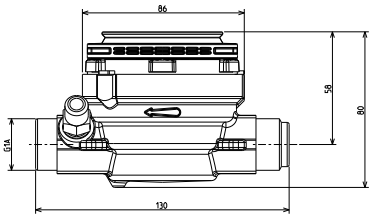
HEAD LOSS

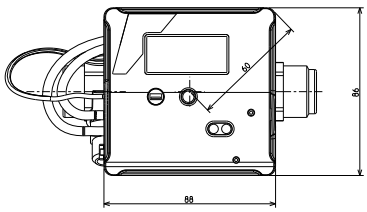


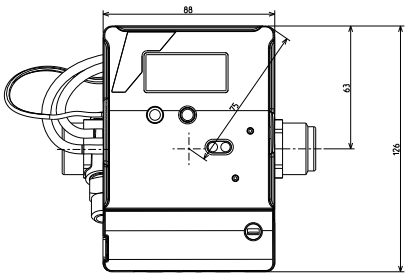
Unit Dimensions (incl EAT):
- A = 130mm or 110mm
- B = 1'' or ¾''











REFERENCES – PRODUCT VERSIONS

CF-UltraMaXX MK equipped with T-Sensors PS 50mm / Ø6mm spiral type (0…90°C), k-correction cold pipe, LCD in kWh, Li.-Battery 10+1 years lifetime (except UltraMaXX M-Bus PS + 2 WM which is powered by M-Bus 2 ULs), English labels & manuals.

Product versions	Memory	Calculator size S	References*** capsule qp1,5
UltraMaXX MK	Standard	S	5602 23 0600 37
UltraMaXX MK Advanced	Advanced	S	5602 23 0900 37
UltraMaXX MK M-Bus	Standard	S*	5602 23 1600 37
UltraMaXX MK M-Bus Advanced	Advanced	S*	5602 23 1900 37
UltraMaXX MK M-Bus + 4WM	Advanced	L**	5602 23 2900 37
UltraMaXX MK M-Bus PS + 2WM	Advanced	L**	5602 23 5300 37
UltraMaXX MK Repetition E & V	Advanced	S*	5602 23 4900 37
UltraMaXX MK RF	Advanced	L	5602 23 6900 37

*product delivered with cable 1m length for connection to AMR system (M-Bus: 2 wire, Rep E&V: 4 wires)

**product equipped with cable clamps for connection to AMR system

***standard portfolio, other versions on request (e.g. T-sensors 150°C, LCD MWh/ GJ, 6+1 year bat., combined heating & cooling)

Small size calculator (S)
cable output in case of wired options

Large size calculator (L)
Covered cable clamps in case of wired options

References - Accessories

Item	Description	References***
EAT ¾"-K	EAT body ¾"-110mm + T-piece for supply T-sensor	2406000006
EAT ¾"-KH	EAT body ¾"-110mm + ball valves + T-piece for supply T-sensor	2407000006
EAT 1"-K	EAT body 1"-130mm + T-piece for supply T-sensor	2403000006
EAT 1"-KH	EAT body 1"-130mm + ball valves + T-piece for supply T-sensor	2401000006
capsule tool	Installation key for UltraMaXX head ring screw	5699000006

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