Itrón



THERMAL ENERGY

Catalog



Itron - Your Partner in Creating a More Resourceful World

THE CHALLENGES WE FACE

30%
water lost or unaccounted for globally[1]

50%
increase in global natural gas demand between 2005 and 2030[2]

61%
of energy is wasted in the US economy each year.[3]

74%
of utility executives view the changing business model as an urgent or growing concern.[4]

8bn
estimated world population in 2025[5]

[1] IBNET Water Supply and Sanitation Blue Book 2014
[2] U.S. Energy Information Administration
[3] Lawrence Livermore National Laboratory, July 2013
[4] 2016 Itron Resourcefulness Index
[5] United Nations

TECHNOLOGY TODAY FOR A BETTER TOMORROW

In today's resource-hungry world — where infrastructure modernization, new CO2-neutral energy generation and clean water for everyone are essential — resource management is more critical than ever before. We all need to be more mindful of resource utilization and conservation. Itron is dedicated to developing solutions that address these challenges through more efficient measurement, management and analysis of energy and water resources. Utilities trust Itron's technology and people to help build a sustainable future with the latest innovations, a commitment to quality and a shared passion for responsible resource management.

THE DEMAND FOR HEAT AND COOLING METERING IS CONTANTLY GROWING

» Energy saving efforts and CO2 reduction
» Reliable and valuable data
» Fair allocation of heating costs
» Increasing demand due to district cooling and a growing use of cooling in homes and offices

The team of the Itron heat & allocation organization ist based in the Itron heating and cooling competency center in Germany. This team is working continuously on heating and cooling solutions for a more resourceful world.

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OVERVIEW

Itron Ultrasonic Heat Meters



CF UltraMaXX MK
» Ultrasonic heat meter (capsule version)



CF UltraMaXX V
» Ultrasonic heat meter (Inline version)



CF Echo II
» Ultrasonic heat meter
» Size : 15, 20, 25, 32, 40 and 50 mm

Itron Ultrasonic Flow Meters



US Echo II
» Ultrasonic flow meter
» Size : 15, 20, 25, 32, 40 and 50 mm



Axonic
» Ultrasonic flow meter
» Size : 65, 80100 and 150 mm

Itron Calculators



CF 51 / CF 55
» Calculators



CF800
» Highly accurate and versatile communica-ting calculator for high end applications

Itron Accessories



Temperature Sensors
» Direct immersion temperature sensors
Pocket temperature sensors
Pocket temperature head sensors



Heating and Cooling Meter Connection Kits
» Kits for direct immersion
Kits for pockets sensor

Itron Solutions

EquaScan Allocation
» Walkby system/Fix Net

M-BUS
» Remote Meter Reading with M-Bus Protocol

CF ULTRAMAXX V - Ultrasonic Heat Meter qp1,5 and 2,5



Features and Benefits

» Extended dynamic range
» Different options for implementation in communication systems
» Versions with 2 indexes for use in combined heating and cooling applications
» Advanced features for field data analysis.
» Removable calculator

Communication Options

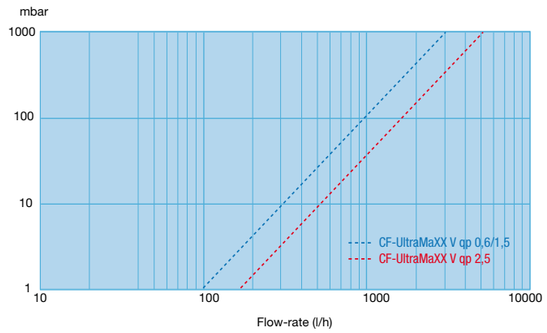
The UltraMaXX can be delivered with integrated options and hMIU[RF] :

» M-Bus
» M-Bus Power + 2 watermeters
» M-BUS + 4 watermeters
» Repetition E+V
» RF Everblu & Walk-By
» EquaScan modul

Advanced memory option for additional function-nalities

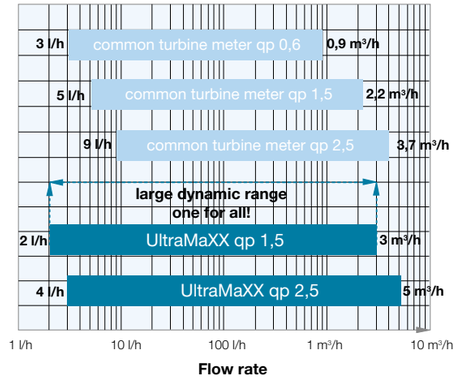
» Historical peak values on flow, power and supply temperature
» Tariff function
» 4 users programmable independant data loggers working in parallel for 6 values and different time periods

HEAD LOSS



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

DYNAMIC RANGE



Thanks to it's wide dynamic range, the CF-UltraMaXX V covers usual flow rate conditions in residential metering.

METROLOGICAL CHARACTERISTICS

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	Standard Option	99.999.999 99.999,999 99.999,999 999.999,99 999999,99
Power supply			Lithium cell 10+1 years (standard)
Environmental classification			EN1434-C/MID 2014/32/EG
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

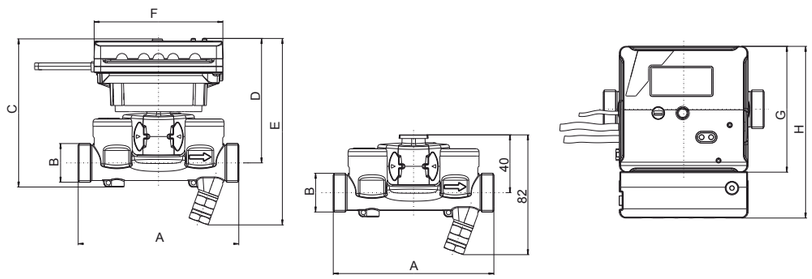
Flow meter		qp0,6	qp1,5	qp2,5
Max. overload flow	qss [m^3/h]	1,32	3,3	5,5
Maximum flow	qs [m^3/h]	1,2	3	5
Nominal flow	qp [m^3/h]	0,6	1,5	2,5
Minimum flow	qi [l/h]	6	6	15
Cut off flow rate	qc [l/h]	2	2	3
Accuracy class		EN1434 – class 2	EN1434 – class 2	EN1434 – class 2
Dynamic qp/qi		100	250	250
Nominal pressure	PN [bar]	16	16	16
Head loss @ qp	bar	0,04	0,21	0,22
Temperature range	°C	1....120 (130 as option)	1....120 (130 as option)	1....120 (130 as option)
Ingress protection	IP	67	67	67
Available sizes	¾"-110 1"-130	X X	X X	- X

Temperature Sensor		
Type		Pt500
Pocket Sensors (standard)	Type	PS 50mm / Ø6mm / spiral cable
Temperature range	°C	0…90
Cable length	m	1,2
Direct Sensors (optional)	Type	DS 1,5 mm / EN1434 AGFW / pur cable
Temperature range	°C	0…105
Cable length	m	1,5 / 5 / 10

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

DIMENSIONS

	¾" - 110mm	1" - 130mm
A	110	130
B	G¾ A	G1 A
C	102	102
D	86	86
E	128	128
F	88	88
G	86	86
H	126 (optional)	126 (optional)



REFERENCES

Product versions Pocket Short 1,2m (PS6)	Memory	Calculator size	References***	
		S	qp1,5 - ¾" - 110mm	qp2,5 - 1" - 130mm
UltraMaXX V	Standard	S	5614 23 0600 37	5618 23 0600 37
UltraMaXX V M-Bus	Standard	S*	5614 23 1600 37	5618 23 1600 37
UltraMaXX V M-Bus Advanced	Advanced	S*	5614 23 1900 37	5618 23 1900 37
UltraMaXX V M-Bus + 4WM	Advanced	L**	5614 23 2900 37	5618 23 2900 37
UltraMaXX V M-Bus PS + 2WM	Advanced	L**	5614 23 5300 37	5618 23 5300 37
UltraMaXX V Repetition E & V	Advanced	S*	5614 23 4900 37	5618 23 4900 37
EquaScan hMIU^{RF}		S	8030C01106	8030C01106



» Pocket Sensor

Product versions Direct Short 1,5m (DS 1,5 m)	Memory	Calculator size	References***	
		S	qp1,5 - ¾" - 110mm	qp2,5 - 1" - 130mm
UltraMaXX V	Standard	S	5614 73 0649 37	5618 73 0649 37
UltraMaXX V M-Bus	Standard	S*	5614 73 1649 37	5618 73 1649 37
UltraMaXX V M-Bus Advanced	Advanced	S*	5614 73 1949 37	5618 73 1949 37
UltraMaXX V M-Bus + 4WM	Advanced	L**	5614 73 2949 37	5618 73 2949 37
UltraMaXX V M-Bus PS + 2WM	Advanced	L**	5614 73 5349 37	5618 73 5349 37
UltraMaXX V Repetition E & V	Advanced	S*	5614 73 4949 37	5618 73 4949 37
EquaScan hMIU^{RF}		S	8030C01106	8030C01106

*product delivered with cable 1m length for connection to AMR system (M-Bus: 2 wires, Rep E&V: 4 wires)
**product equipped with cable clamps for connection to AMR system
***standard portfolio, other versions on request (e.g. qp0,6, T-sensors 150°C, LCD MWh/ GJ, 6+1 year bat., combined heating & cooling)



» Direct Sensor



» Calculator with EquaScan hMIU

REFERENCES - ACCESSORIES

Installation kits for DN15 or 20 pipe systems including waiting pipe, couplings, valves to close the pipe during meter exchange and T-piece (pocket type)* including or DS-valve (direct type)*.

Items	Description	References*
EBS DN15-G-KH	Installation Kit ¾"-110 pocket, incl. valves and T-piece	2433000006
EBS DN20-G-KH	Installation Kit 1"-130 pocket, incl. valves and T-piece	2423000006
EBS DN15-D-KH	Installation Kit ¾"-110 DS, incl. valves for return and supply pipe	2433000106
EBS DN20-D-KH	Installation Kit 1"-130 DS, incl. valves for return and supply pipe	2431000106

* one temperature sensor is direct installed in the meter body, usually in return pipe. The second temperature sensor, usually in supply pipe, should be installed in a T-piece (for pocket type) or in a special DS-valve (in case of direct immersion sensors).



CF UltraMaXX MK - Ultrasonic Heat Meter (Capsule Concept)



CE type approval certifi cate: DE-10-MI004-PTB001

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

Communication Options

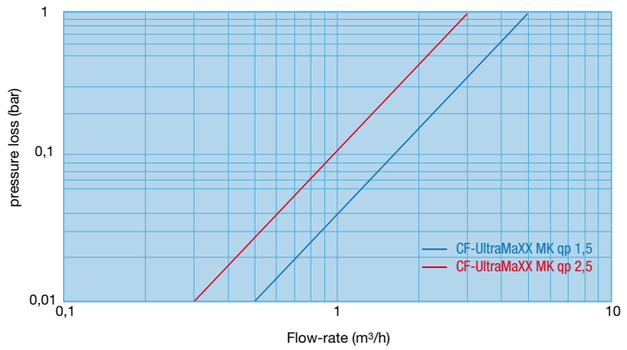
The UltraMaXX can be delivered with integrated options :

- M-Bus
- M-Bus Power + 2 watermeters
- M-BUS + 4 watermeters
- Repetition E+V
- RF Everblu & Walk-By
- EquaScan modul

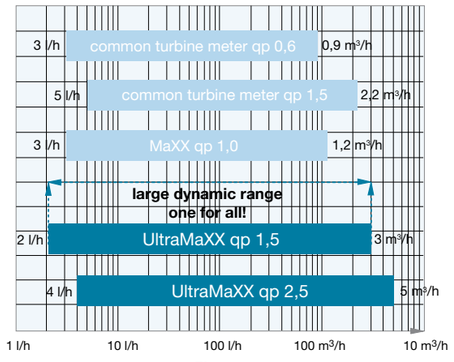
Advanced memory option for additional function-nalities

- Historical peak values on flow, power and supply temperature
- Tariff function
- 4 users programmable independant data loggers working in parallel for 6 values and different time periods

DYNAMIC RANGE



HEAD LOSS



Thanks to it's wide dynamic range, the CF-UltraMaXX MK covers usual flow rate conditions in residential metering.

METROLOGICAL CHARACTERISTICS

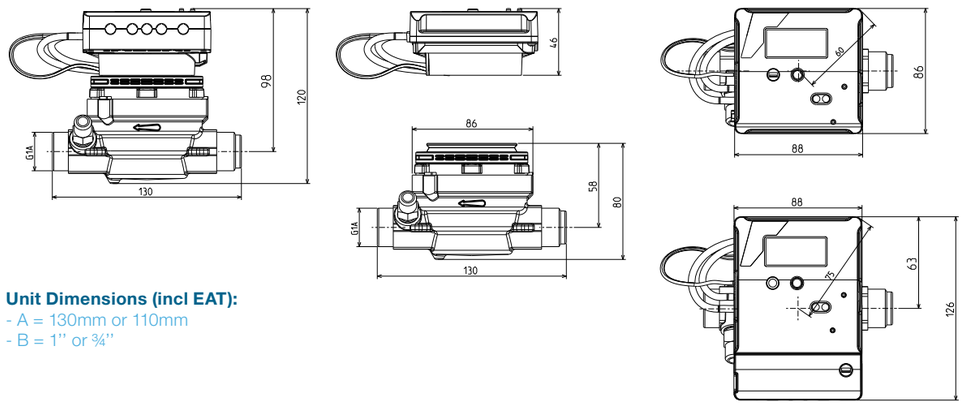
Calculator			
Temperature range		°C	0-90 / 0 – 150*
Temperature difference		K	3-90 / 3 – 150*
Display resolution 8 digits	Standard Option	kWh MWh GJ GJ m³	99.999.999 99.999,999 99.999,999 999.999,99 999999,99
Power supply			Lithium cell 10+1 years (standard) Lithium cell 6+1 years (option) By M-Bus (optional version)
Environmental classification		EN1434	EN1434-C/MID 2014/32/EG
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		qp1,5	qp2,5
Max. overload flow	qss [m³/h]	3,3	5,5
Maximum flow	qs [m³/h]	3	5
Nominal flow	qp [m³/h]	1,5	2,5
Minimum flow approval / production	qi [l/h]	6 / 15	50 / 50
Cut off flow rate	qc [l/h]	2	4
Accuracy class approval / production		EN1434 – class 2 / 3	EN1434 – class 2 / 3
Dynamic qp/qi approval/ production		250 / 100	50 / 50
Nominal pressure	PN [bar]	16	16
Head loss @ qp	bar	0,25	0,25
Temperature range permanent / short	°C	1....90 / 100	1....90 / 100
Ingress protection	IP	67	67
Body sizes / EAT	¾''-110 1''-130	X X	- X
Capsule / EAT interface		EN14154-2 Annex B type A1	

Temperature 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.

DIMENSIONS



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

REFERENCES

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).

Product versions	Memory	Calculator size S	References*** capsule qp1,5
UltraMaXX MK	Standard	S	5602 23 0600 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)

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



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



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

CF Echo II - Ultrasonic Heat Meter



CE type approval certificate: DE-06-MI004-PTB002

Features and Benefits

- High metrology
- Advanced functions
- Ease of installation
- Easy reading
- Pre-equipped for communication

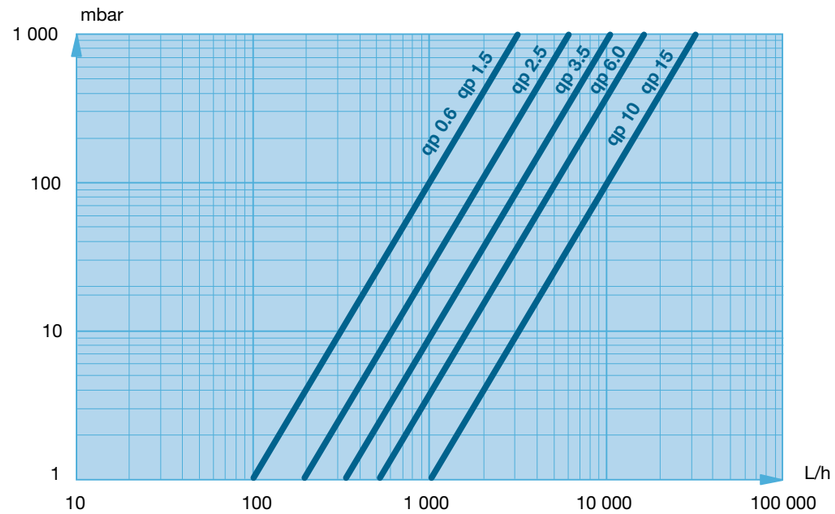
Option Boards

The CF ECHO II is pre-equipped for communication. Different option boards can be plugged into the meter and start working automatically.

The following option boards are available:

- Board 1: **M-Bus + E/V Repetition**
- Board 2: **M-Bus + 2 Water Meters pulse input**
- Board 3: **G PRS Modem + E/V Repetition + M-Bus Master**
- Board 4: **LON + 2 Water Meters pulse input**
- Board 5: **Radio + 2 Water Meters pulse input**
- Board 6: **M-Bus + 2 Water Meters pulse input + power supply by M-Bus**
- Board 7: **Mod-BUS**

HEAD LOSS

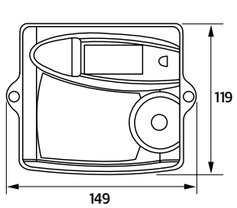


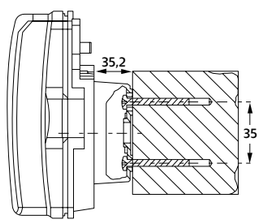
METROLOGICAL CHARACTERISTICS

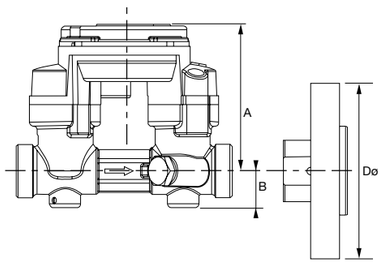
Nominal Flow Qp m³/h	Diameter DN mm	Max flow Qs m³/h	Min flow Qi L/h	Start flow Qstart L/h	Body length mm	Pipe Connection	Nominal Pressure bar	Permanent max. temp. °C	Accidential max. temp. °C
0.6	15	1.2	6	1.2	110	G ¾ B	16/25	130	150
	20	1.2	6	1.2	130	G 1 B	16/25	130	150
	20	1.2	6	1.2	190	G 1 B/ Flanges	16/25	130	150
1.5	15	3	15	3	110	G ¾ B	16/25	130	150
	20	3	15	3	130	G 1 B	16/25	130	150
	20	3	15	3	190	G 1 B/ Flanges	16/25	130	150
2.5	20	5	25	5	130	G 1 B	16/25	130	150
	20	5	25	5	190	G 1 B/ Flanges	16/25	130	150
	25	5	25	5	260	G 1 ¼ B	16/25	130	150
3.5	25	7	35	7	150	G 1 ¼ B	16/25	130	150
	25	7	35	7	260	G 1 ¼ B/ Flanges	16/25	130	150
	40	7	35	7	300	Flanges	25	130	150
6	25	12	60	12	150	G 1 ¼ B	16/25	130	150
	25	12	60	12	260	Flanges	16/25	130	150
	32	12	60	12	260	G 1 ½ B	16/25	130	150
	40	12	60	12	300	Flanges	25	130	150
	50	12	60	12	270	Flanges	25	130	150
10	40	20	100	20	200	G 2 B	16/25	130	150
	40	20	100	20	250	Flanges	25	130	150
	40	20	100	20	300	G 2 B/ Flanges	16/25	130	150
	50	20	100	20	270	Flanges	25	130	150
15	50	30	150	30	250	Flanges	25	130	150
	50	30	150	30	270	Flanges	25	130	150

CF ECHO II Energy Calculator	
Temperature range	0 … 180 °C
Temperature difference	3 … 160 K
Temperature sensor type	Pt100 or Pt500, 2 wires
Temperature sensor (Qp 0.6 to 2.5 m³/h)	Direct immersion or pocket type probes integrated in the flow meter body
Cable length to flow meter	From 0.4 to 10 m (Typical 1.5 / 3 m)
Back-up memory	EEPROM
Display	LCD - 7 digits
Optical interface	EN 60870-5 / MBus protocol
Power supply (optional)	6 or 12 year Lithium battery, 230V main power supply or power supply by M-Bus

DIMENSIONS







	15	20	25	32	40	50
A	72	72	77	77	85	85
B	18	18	23	24	35	-
Dø (flanges)	-	100	110	-	140	160

REFERENCES

CF-Echo II heat meter with removable calculator, flow sensor and temperature sensors Pt500, Energy display MWh, Battery 12Y lifetime.
Cable length: T-Sensors 1,7m, flow meter 1,5m (versions DN15-40) / both 3m (versions DN50).
Other configurations (cable length, power supply, display configuration, pt100 etc.) available on request.

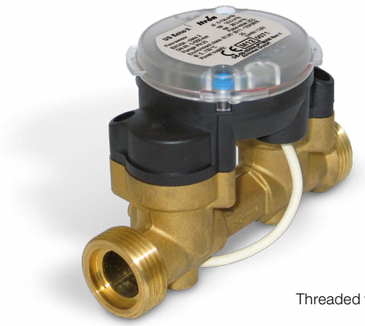
Type	qp	DN	L	Thrad/ Flange	References	Installation accessoires	Content	Type*	Reference
METERS - with pocket temperature sensors						**INSTALLATION KITS**			
CF-E II	0.6	15	110	G ¾ B	610043111037	EBS DN15 G¾"x110	couplings + T-piece (pocket)	PS-A	2434000006
CF-E II	0.6	20	130	G 1 B	610143111037	EBS DN20 G1"x130	couplings + T-piece (pocket)	PS-A	2422000006
CF-E II	0.6	20	190	G 1 B	610243111037	EBS DN20 G1"x190	ball-valves + T-piece (pocket)	PS-Y	2481000006
CF-E II	0.6	20	190	FL DN 20	610343111037	EBS DN20 FLx190	1" T-piece (pocket)		9166
CF-E II	1.5	15	110	G ¾ B	610543111037	EBS DN15 G¾"x110	couplings + T-piece (pocket)	PS-A	2434000006
CF-E II	1.5	20	130	G 1 B	610643111037	EBS DN20 G1"x130	couplings + T-piece (pocket)	PS-A	2422000006
CF-E II	1,5	20	190	G 1 B	610743111037	EBS DN20 G1"x190	ball-valves + T-piece (pocket)	PS-Y	2481000006
CF-E II	1.5	20	190	FL DN 20	610843111037	EBS DN20 FLx190	1" T-piece (pocket)		9166
CF-E II	2.5	20	130	G 1 B	611143111037	EBS DN20 G1"x130	couplings + T-piece (pocket)	PS-A	2422000006
CF-E II	2.5	20	190	G 1 B	611243111037	EBS DN20 G1"x190	ball-valves + T-piece (pocket)	PS-Y	2481000006
CF-E II	2.5	20	190	FL DN 20	611343111037	EBS DN20 FL	1" T-piece (pocket)		9166
CF-E II	2.5	25	260	G 1 ¼ B	611443111037	EBS DN25 G1-¼"B	couplings + pocket	PS-D	2436000006
CF-E II	3.5	25	150	G 1 ¼ B	611743111037	EBS DN25 G1-¼"B	couplings + pocket	PS-D	2436000006
CF-E II	3.5	25	260	G 1 ¼ B	611843111037	EBS DN25 G1-¼"B	couplings + pocket	PS-D	2436000006
CF-E II	3.5	25	260	FL DN 25	611943111037	EBS DN25 FL	2x pockets	PS-H	2436000206
CF-E II	3.5	40	300	FL DN 40	612043111037	EBS DN40 FL	2x pockets	PS-H	2438000206
CF-E II	6.0	25	150	G 1 ¼ B	612343111037	EBS DN25 G1-¼"B	couplings + pocket	PS-D	2436000006
CF-E II	6.0	32	260	G 1 ¼ B	612543111037	EBS DN25 G1-¼"B	couplings + pocket	PS-D	2436000006
CF-E II	6.0	25	260	G 1 ½ B	612643111037	EBS DN32 G1-½"B	couplings + 2x pockets	PS-F	2437000006
CF-E II	6.0	40	260	FL DN 25	612743111037	EBS DN25 FL	2x pockets	PS-H	2436000206
CF-E II	6.0	40	300	FL DN 40	612843111037	EBS DN40 FL	2x pockets	PS-H	2438000206
CF-E II	6.0	50	270	FL DN 50	612943113437	EBS DN50 FL	2x pockets	PS-H	2463000006
CF-E II	10.0	40	200	G 2B	613243111037	EBS DN40 G2"B	couplings + 2x pockets	PS-F	2438000006
CF-E II	10.0	40	300	G2B	613343111037	EBS DN40 G2"B	couplings + 2x pockets	PS-F	2438000006
CF-E II	10,0	40	300	FL DN 40	613443111037	EBS DN40 FL	2x pockets	PS-H	2438000206
CF-E II	10,0	50	270	FL DN 50	613543113437	EBS DN50 FL	2x pockets	PS-H	2463000006
CF-E II	10,0	40	250	FL DN 40	613643111037	EBS DN40 FL	2x pockets	PS-H	2438000206
CF-E II	15,0	50	270	FL DN50	613843113437	EBS DN50 FL	2x pockets	PS-H	2463000006
CF-E II	15,0	50	250	FL DN 50	613943113437	EBS DN50 FL	2x pockets	PS-H	2463000006
METERS - with direct temperature sensors						**INSTALLATION KITS**			
CF-E II	0,6	15	110	G¾B	610073110037	EBS DN15 G¾"x110-D-KH	incl. ball valves (return+supply)	DI-A	243300020699
CF-E II	0,6	20	130	G1B	610173110037	EBS DN20 G1"x130-D-KH	incl. ball valves (return+supply)	DI-A	243100010699
CF-E II	0,6	20	190	G1B	610273110037	EBS DN20 G1"x190-D-KH	incl. ball valves (return+supply)	DI-A	2481000106
CF-E II	0,6	20	190	FL DN20	610373110037	EBS DN20 FLx190-D	1" ball valve (supply)		4795
CF-E II	1,5	15	110	G¾B	610573110037	EBS DN15 G¾"x110-D-KH	incl. ball valves (return+supply)	DI-A	243300020699
CF-E II	1,5	20	130	G1B	610673110037	EBS DN20 G1"x130-D-KH	incl. ball valves (return+supply)	DI-A	243100010699
CF-E II	1,5	20	190	G1B	610773110037	EBS DN20 G1"x190-D-KH	incl. ball valves (return+supply)	DI-A	2481000106
CF-E II	1,5	20	190	FL DN20	610873110037	EBS DN20 FLx190-D	1" ball valve (supply)		4795
CF-E II	2,5	20	130	G1B	611173110037	EBS DN20 G1"x130-D-KH	incl. ball valves (return+supply)	DI-A	243100010699
CF-E II	2,5	20	190	G1B	611273110037	EBS DN20 G1"x190-D-KH	incl. ball valves (return+supply)	DI-A	2481000106
CF-E II	2,5	20	190	FL DN20	611373110037	EBS DN20 FLx190-D	1" ball valve (supply)		4795

*see page XX for further explanations

US Echo II - Ultrasonic Flow Meter



Flanged version



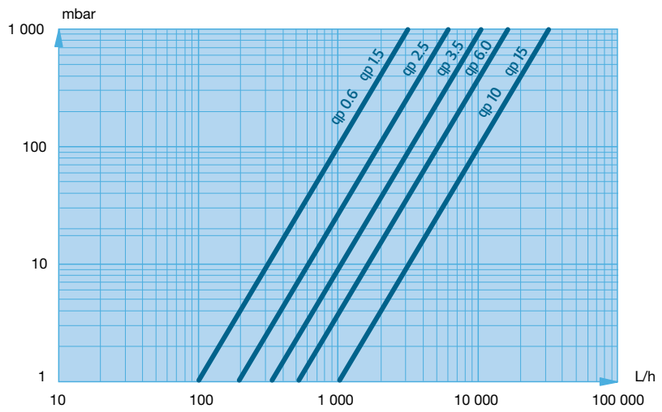
Threaded version

Features and Benefits

- » High Accuracy
- » Robustness
- » Ease of Installation
- » Self Management

CE type approval certificate:
DE-06-MI004-PTB008

HEAD LOSS

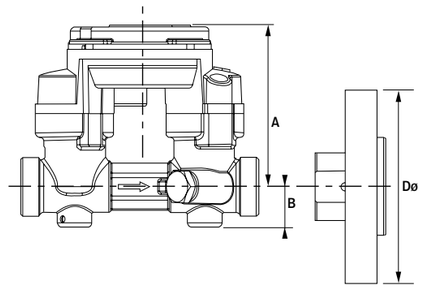


METROLOGICAL CHARACTERISTICS

Nominal Flow Qp m³/h	Diameter DN mm	Max flow Qs m³/h	Min flow Qi L/h	Start flow Qstart L/h	Body length mm	Pipe Connection	Nominal Pressure bar	Permanent max. temp. °C	Accidential max. temp. °C
0.6	15	1.2	6	1.2	110	G ¾ B	16/25	130	150
	20	1.2	6	1.2	130	G 1 B	16/25	130	150
	20	1.2	6	1.2	190	G 1 B/Flanges	16/25	130	150
1.5	15	3	15	3	110	G ¾ B	16/25	130	150
	20	3	15	3	130	G 1 B	16/25	130	150
	20	3	15	3	190	G 1 B/Flanges	16/25	130	150
2.5	20	5	25	5	130	G 1 B	16/25	130	150
	20	5	25	5	190	G 1 B/Flanges	16/25	130	150
	25	5	25	5	260	G 1 ¼ B	16/25	130	150
3.5	25	7	35	7	150	G 1 ¼ B	16/25	130	150
	25	7	35	7	260	G 1 ¼ B/ Flanges	16/25	130	150
	40	7	35	7	300	Flanges	25	130	150
6	25	12	60	12	150	G 1 ¼ B	16/25	130	150
	25	12	60	12	260	Flanges	16/25	130	150
	32	12	60	12	260	G 1 ½ B	16/25	130	150
	40	12	60	12	300	Flanges	25	130	150
	50	12	60	12	270	Flanges	25	130	150
10	40	20	100	20	200	G 2 B	16/25	130	150
	40	20	100	20	250	Flanges	25	130	150
	40	20	100	20	300	G 2 B/Flanges	16/25	130	150
	50	20	100	20	270	Flanges	25	130	150
15	50	30	150	30	250	Flanges	25	130	150
	50	30	150	30	270	Flanges	25	130	150

Pulse Value (Qp)	Pulses (L/p)	Test Pulses (cm³/p)
0.6	1, 2.5, 10, 25, 100, 250	5
1.5	1, 2.5, 10, 25, 100, 250	10
2.5	1, 2.5, 10, 25, 100, 250	20
3.5	1, 2.5, 10, 25, 100, 250	25
6	1, 2.5, 10, 25, 100, 250	50
10	1, 2.5, 10, 25, 100, 250	100
15	1, 2.5, 10, 25, 100, 250	100

DIMENSIONS



DN	15	20	25	32	40	50
A	72	72	77	77	85	85
B	18	18	23	24	35	-
Dø (flanges)	-	100	100	-	140	160

REFERENCES

US-Echo II ultrasonic flow meter with pulse output. Cable length 1,5m (versions DN15-40) /3m (versions DN50). Power supply from calculator. Other configurations (cable length, pulse weight) available on request

Type	qp	DN	L	Thrad/ Flange	References	Installation accessoires	Content	Type	Reference
METERS - with pocket temperature sensors						**INSTALLATION KITS**			
US-E II	0.6	15	110	G ¾ B	615043039037	EBS DN15 G¾"x110	couplings + T-piece (pocket)	PS-A	2434000006
US-E II	0.6	20	130	G 1 B	615143039037	EBS DN20 G1"x130	couplings + T-piece (pocket)	PS-A	2422000006
US-E II	0.6	20	190	G 1 B	615243039037	EBS DN20 G1"x190	ball-valves + T-piece (pocket)	PS-Y	2481000006
US-E II	0.6	20	190	FL DN 20	615343039037	EBS DN20 FLx190	1" T-piece (pocket)		9166
US-E II	1.5	15	110	G ¾ B	615543039037	EBS DN15 G¾"x110	couplings + T-piece (pocket)	PS-A	2434000006
US-E II	1.5	20	130	G 1 B	615643039037	EBS DN20 G1"x130	couplings + T-piece (pocket)	PS-A	2422000006
US-E II	1,5	20	190	G 1 B	615743039037	EBS DN20 G1"x190	ball-valves + T-piece (pocket)	PS-Y	2481000006
US-E II	1.5	20	190	FL DN 20	615843039037	EBS DN20 FLx190	1" T-piece (pocket)		9166
US-E II	2.5	20	130	G 1 B	616143039037	EBS DN20 G1"x130	couplings + T-piece (pocket)	PS-A	2422000006
US-E II	2.5	20	190	G 1 B	616243039037	EBS DN20 G1"x190	ball-valves + T-piece (pocket)	PS-Y	2481000006
US-E II	2.5	20	190	FL DN 20	616343039037	EBS DN20 FL	1" T-piece (pocket)		9166
US-E II	2.5	25	260	G 1 ¼ B	616443039037	EBS DN25 G1-¼"B	couplings + pocket	PS-D	2436000006
US-E II	3.5	25	150	G 1 ¼ B	616743039037	EBS DN25 G1-¼"B	couplings + pocket	PS-D	2436000006
US-E II	3.5	25	260	G 1 ¼ B	616843039037	EBS DN25 G1-¼"B	couplings + pocket	PS-D	2436000006
US-E II	3.5	25	260	FL DN 25	616943039037	EBS DN25 FL	2x pockets	PS-H	2436000206
US-E II	3.5	40	300	FL DN 40	617043039037	EBS DN40 FL	2x pockets	PS-H	2438000206
US-E II	6.0	25	150	G 1 ¼ B		EBS DN25 G1-¼"B	couplings + pocket	PS-D	2436000006
US-E II	6.0	32	260	G 1 ¼ B		EBS DN25 G1-¼"B	couplings + pocket	PS-D	2436000006
US-E II	6.0	25	260	G 1 ½ B		EBS DN32 G1-½"B	couplings + 2x pockets	PS-F	2437000006
US-E II	6.0	40	260	FL DN 25		EBS DN25 FL	2x pockets	PS-H	2436000206
US-E II	6.0	40	300	FL DN 40		EBS DN40 FL	2x pockets	PS-H	2438000206
UF-E II	6.0	50	270	FL DN 50		EBS DN50 FL	2x pockets	PS-H	2463000006
US-E II	10.0	40	200	G 2B		EBS DN40 G2"B	couplings + 2x pockets	PS-F	2438000006
US-E II	10.0	40	300	G2B		EBS DN40 G2"B	couplings + 2x pockets	PS-F	2438000006
US-E II	10,0	40	300	FL DN 40		EBS DN40 FL	2x pockets	PS-H	2438000206
US-E II	10,0	50	270	FL DN 50		EBS DN50 FL	2x pockets	PS-H	2463000006
US-E II	10,0	40	250	FL DN 40		EBS DN40 FL	2x pockets	PS-H	2438000206
US-E II	15,0	50	270	FL DN50		EBS DN50 FL	2x pockets	PS-H	2463000006
US-E II	15,0	50	250	FL DN 50		EBS DN50 FL	2x pockets	PS-H	2463000006

AXONIC - Ultrasonic Heat Meter

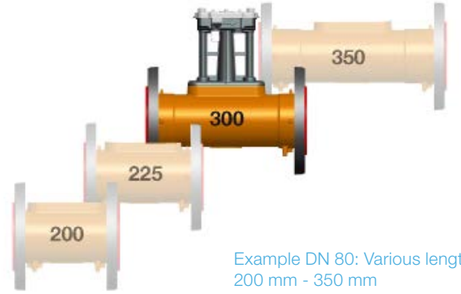


Features and Benefits

- » High accuracy and repeatability
- » Outstanding dynamic range
- » Still measurement also when exceeding qmax
- » Robust and reliable design
- » Ease of installation thanks to an innovative mobile flange design
- » Insensitive to flow disturbances
- » Optional 2nd pulse output
- » Self diagnostic functions
- » High pressure versions (PN40)
- » Various choice of lengths
- » Insulation compliant

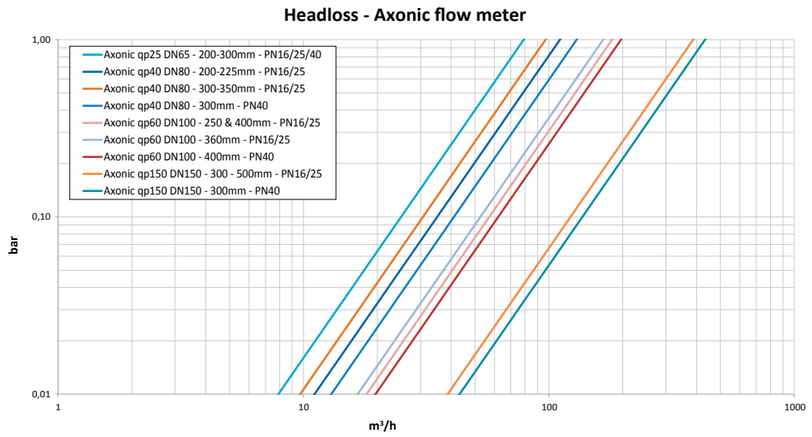
Various choice of lengths

Beside the typical standard lengths Axonic can be supplied in various special lengths, that make an exchange against older mechanical woltman type meters possible without conversion of the the pipe installation.



Example DN 80: Various lengths
200 mm - 350 mm

HEADLOSS



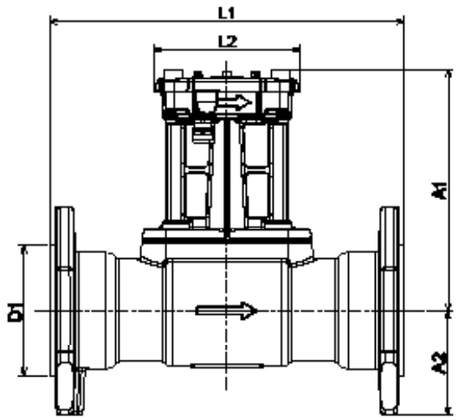
METROLOGICAL CHARACTERISTICS

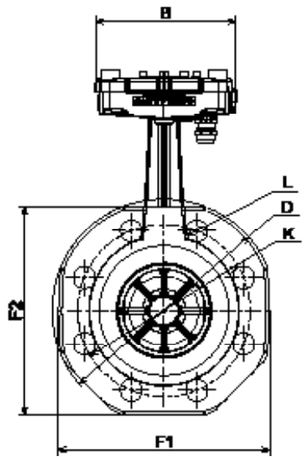
Type		DN 65 /qp 25	DN 80 /qp 40	DN 100 /qp 60	DN 150 /qp 150
Maximum overflow	qss (m³/h)	55	88	132	330
Maximum flow	qs (m³/h)	50	80	120	300
Nominal flow	qp (m³/h)	25	40	60	150
Minimum flow (R250)	qi (l/h)	100	160	240	600
Cut off flow	qc (l/h)	40	80	100	300
Dynamic range (approval)		400H / 250V	250 H,V	250 H,V	250 H, 100 V
Accuracy class		EN1434 class C2			
Head loss qp	bar	≤ 0,10	≤ 0,17	≤ 0,13	≤ 0,15
Flow profile sensitivity class		U0D0	U0D0	U0D0	U0D0
Water temperature (heat version)	°C	1…130°C/150°C (permanent / accidental)			
Water temperature (cooling version)	°C	1…50°C	1…50°C	1…50°C	1…50°C
Ambient temperature	°C	-25°C … +60°C	-25°C … +60°C	-25°C … +60°C	-25°C … +60°C
Storage / transport temperature	°C	-25°C …+60°C	-25°C …+60°C	-25°C …+60°C	-25°C …+60°C

DIMENSIONS

Type			DN 65 qp25			DN80 qp 40			DN100 qp 60			DN150 qp 150		
			PN16	PN25	PN40	PN16	PN25	PN40	PN16	PN25	PN40	PN16	PN25	PN40
Body length (available versions)	L1	mm	200 300	300	300	200 225 300 350	300	350	250 360 400	360	400	300 500	500	300
Electronic	L2	mm	124	124	124	124	124	124	124	124	124	124	124	124
	B	mm	119	119	119	119	119	119	119	119	119	119	119	119
Height	A1	mm	204	204	204	209	209	209	219	219	219	244	244	244
	A2	mm	93	93	88	100	100	100	111	118	112	143	150	144
Bolt circle diameter	K	mm	145	145	145	160	160	160	180	190	190	240	250	250
Bolt holes diameter	L	mm	19	19	18	19	19	18	20	23	22	24	28	26
Number of holes			4	8	8	8	8	8	8	8	8	8	8	8
Flange dimensions*	D	mm	185	185	188	200	200	203	220	235	238	285	300	300
	D1	mm	108	108	109	128	128	120	156	156	149	216	216	203
	F1	mm	-	-	178	-	-	194	-	-	228	-	-	288
	F2	mm	-	-	175	-	-	190	-	-	224	-	-	288
Weight (length)		kg (mm)	8,0 (200) 9,0 (300)	9,0 (300)	10,5 (300)	9,3 (200) 9,6 (225) 10,4 (300) 10,9 (350)	10,4 (300)	14,0 (350)	13,0 (250) 14,0 (360) 15,0 (400)	16,0 (360)	20,0 (400)	24,0 (300) 28,0 (500)	31,0 (500)	32,0 (300)

*Flanges PN16 and PN 25 according EN 1092-2 / Mobile Flanges Elevated interface type B *Flanges PN40 according EN 1092-1 / Type 21 PN40 Male hubbed socket Type E





REFERENCES

Axonic ultrasonic flow meter with pulse output. Cable length 3m. Power supply from calculator. Other configurations (cable length, pulse weight) available on request.

Type	q_p (m³/h)	DN (mm)	L (mm)	PN (bar)	Pulse weight (L/Pulse)	flow meter cable (m)	Application	References
Axonic	25,0	65	200	16	10	3,0	Heating	AX-AH24C11Z10FM1EN
Axonic	25,0	65	300	16	10	3,0	Heating	AX-BH24C11Z10FM1EN
Axonic	25,0	65	300	25	10	3,0	Heating	AX-CH24C11Z10FM1EN
Axonic	25,0	65	300	40	10	3,0	Heating	AX-DH24C11Z10FM1EN
Axonic	40,0	80	200	16	10	3,0	Heating	AX-EH24C11Z10FM1EN
Axonic	40,0	80	225	16	10	3,0	Heating	AX-FH24C11Z10FM1EN
Axonic	40,0	80	300	16	10	3,0	Heating	AX-GH24C11Z10FM1EN
Axonic	40,0	80	350	16	10	3,0	Heating	AX-IH24C11Z10FM1EN
Axonic	40,0	80	300	25	10	3,0	Heating	AX-HH24C11Z10FM1EN
Axonic	40,0	80	350	40	10	3,0	Heating	AX-JH24C11Z10FM1EN
Axonic	60,0	100	250	16	10	3,0	Heating	AX-KH24C11Z10FM1EN
Axonic	60,0	100	360	16	10	3,0	Heating	AX-LH24C11Z10FM1EN
Axonic	60,0	100	360	25	10	3,0	Heating	AX-MH24C11Z10FM1EN
Axonic	60,0	100	400	16	10	3,0	Heating	AX-NH24C11Z10FM1EN
Axonic	60,0	100	400	40	10	3,0	Heating	AX-OH24C11Z10FM1EN
Axonic	150,0	150	300	16	100	3,0	Heating	AX-QH24E11Z10FM1EN
Axonic	150,0	150	300	40	100	3,0	Heating	AX-RH24E11Z10FM1EN
Axonic	150,0	150	500	16	100	3,0	Heating	AX-SH24E11Z10FM1EN
Axonic	150,0	150	500	25	100	3,0	Heating	AX-TH24E11Z10FM1EN
Axonic	25,0	65	200	16	10	3,0	Cooling	AX-AC24C11Z10FF2EN
Axonic	25,0	65	300	16	10	3,0	Cooling	AX-BC24C11Z10FF2EN
Axonic	25,0	65	300	25	10	3,0	Cooling	AX-CC24C11Z10FF2EN
Axonic	40,0	80	200	16	10	3,0	Cooling	AX-EC24C11Z10FF2EN
Axonic	40,0	80	225	16	10	3,0	Cooling	AX-FC24C11Z10FF2EN
Axonic	40,0	80	300	16	10	3,0	Cooling	AX-GC24C11Z10FF2EN
Axonic	40,0	80	350	16	10	3,0	Cooling	AX-IC24C11Z10FF2EN
Axonic	40,0	80	300	25	10	3,0	Cooling	AX-HC24C11Z10FF2EN
Axonic	60,0	100	250	16	10	3,0	Cooling	AX-KC24C11Z10FF1EN
Axonic	60,0	100	360	16	10	3,0	Cooling	AX-LC24C11Z10FF1EN
Axonic	60,0	100	360	25	10	3,0	Cooling	AX-MC24C11Z10FF1EN
Axonic	150,0	150	300	16	100	3,0	Cooling	AX-QC24F11Z10FF1EN
Axonic	150,0	150	500	16	100	3,0	Cooling	AX-SC24F11Z10FF1EN
Axonic	150,0	150	500	25	100	3,0	Cooling	AX-TC24F11Z10FF1EN

CF51 / CF55 - Calculators



CE type approval certificate: DE-06-MI004-PTB006

CF51

- Modular Design
- Plug and Play Communication options boards
- 2 wires
- Maximum values

CF55

- Tarif Function
- Powerful Datalogger
- Plug and Play Communication Boards
- 2 or 4 wires

OPTION BOARDS

The CF 51 / CF 55 is pre-equipped for communication. Different option boards can be plugged simply to the meter and start working automatically.

The following option boards are available:

- Board 1: **M-Bus + E/V Repetition**
- Board 2: **M-Bus + 2 Water Meters pulse input**
- Board 3: **GPRS Modem + E/V Repetition + M-Bus Master**
- Board 4: **LON + 2 Water Meters pulse input**
- Board 5: **Radio + 2 Water Meters pulse input**
- Board 6: **M-Bus + 2 Water Meters pulse input + power supply by M-Bus**
- Board 7: **Mod-Bus**
- Board 8: **Double M-Bus output (only available for CF 55)**

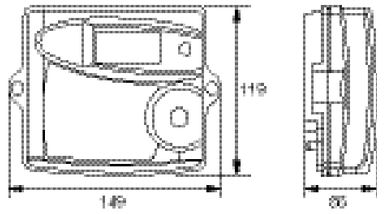


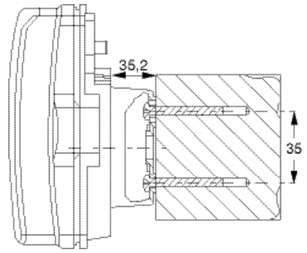
METROLOGICAL CHARACTERISTICS

CF 51 Energy Calculator	
Metrology exceeds	PTB, DRIRE, OIML, EN 1434
Temperature range	0 … 180 °C
Temperature difference	3 … 160 °K
Temperature sensors	Pt100 or Pt500, 2 wires
Display	LCD - 7 digits
Back-up memory	EEPROM
Power supply (optional)	6 or 12 year Lithium battery - 230 V main power supply or power supply by M-Bus
Protection class	IP64
Environmental class	Class C acc. EN 1434
Ambient temperature	5 … 55 °C
Pulse value (programmable)	1 / 2.5 / 10 / 25 / 100 / 250 / 1000 L
Optical interface	According to EN 60870-5 / M-Bus protocol

CF 55 Energy Calculator	
Metrology exceeds	PTB, DRIRE, OIML, EN 1434
Temperature range	0 … 180 °C
Temperature difference	3 … 160 °K
Temperature sensors	Pt100 or Pt500, 2 or 4 wires connection
Display	LCD - 7 digits
Back-up memory	EEPROM
Power supply (optional)	6 or 12 year Lithium battery - 230 V main power supply or power supply by M-Bus
Protection class	IP64
Environmental class	Class C acc. EN 1434
Ambient temperature	5 … 55 °C
Pulse value (programmable)	1 / 2.5 / 10 / 25 / 100 / 250 / 1000 L/ imp or 2.5, 4.5, 7.5, 10, 25 imp/L
Optical interface	According to EN 60870-5 / M-Bus protocol

DIMENSIONS





REFERENCES CF 51

Calculator for heat metering with modular design, pre-eqipped for option boards, 2-wire connection, Pt500, Energy display in MWh. Other configurations (power supply, display configuration, pt100 etc.) available on request.

Type	Pulse weight (L/Pulse)	Power Supply	References
CF51	1	Bat 12 Y	6210531137
CF51	10	Bat 12 Y	6212531137
CF51	100	Bat 12 Y	6214531137
CF51	1	Mains 230V	6210531237
CF51	10	Mains 230V	6212531237
CF51	100	Mains 230V	6214531237

REFERENCES CF 55

Calculator for heat metering with modular design, pre-eqipped for option boards, 2- or 4-wire connection, Pt500, Energy display in MWh. Other configurations (power supply, display configuration, pt100 etc.) available on request.

Type	Pulse weight (L/Pulse)	Power Supply	References
CF55	1	Bat 12 Y	6220531137
CF55	10	Bat 12 Y	6222531137
CF55	100	Bat 12 Y	6224531137
CF55	1	Mains 230V	6220531237
CF55	10	Mains 230V	6222531237
CF55	100	Mains 230V	6224531237

REFERENCES - ACCESSORIES

Type		References
Optionboard M-Bus + E/V Repetition		6201000006
Optionboard M-Bus + 2 Water Meters pulse input		6200000006
Optionboard M-Bus + 2 Water Meters pulse input + power supply by M-Bus		6209000006
Optionboard GPRS Modem + E/V Repetition + M-Bus Master		6202000006
Optionboard Double M-Bus output (only available for CF 55)		6204000006
Optionboard Radio + 2 Water Meters pulse input	AnyQuest / Walk-By + EverBlu	6205001506
Optionboard RF mains	AnyQuest / Walk-By + EverBlu	6205002506
Optionboard GPRS inkl. Netzteil		6203001006
Main supply		6208000006
Battery pack I (Standard)		6206000006
Battery pack I (Big)		6207000006

CF800 - Highly accurate and versatile communicating calculator for high end applications



Features and Benefits

- » Powerful communication features
- » Integrated data logger and tariff manager
- » High accuracy and reliability
- » 4 analog outputs, and 2 relay outputs
- » Approvals: MID DE-06- MI004-PTB001



» The CFCS software allows reading and configuring the product on site. As a standard, CF 800 is fitted with an optical interface.

OPTION BOARDS

As a standard, CF 800 is fi tted with repetition outputs for energy and volume. Two additional slots for option board allow personalizing of communications through the CF 800:

Option board 1 = one communication

Option board 1

- LON WORK board or
- M-Bus IEC 870-1 board or
- Radio board or Modem board
- Mod-Bus



Option board 2 (COMIO) = 7 outputs, of which one for communications

Option board 2 (COMIO)

- 4 analogic output
- 2 threshold or alarm relays or 2 water meter inputs
- 1 communication output
- M-Bus IEC 870
- M-Bus RS 485
- CF 150 current loop
- CF 150 RS 485



The cards may be configured and parameterized on site, making their application very fl exible, allowing for their adaptation to system changes. The confi guration of all communication boards is easy and simple using the CFCS-Software and the optical interface.

METROLOGICAL CHARACTERISTICS

Technical characteristics	
Metrology exceeds	PTB, DRIRE, OIML, EN 1434
Temperature range	0 ..... 180°C
Temperature difference	3... 160 K
Maximum Flow	4500 m^3/h
Temperature sensor type	Pt100 or Pt500, 4 wire shielded
Display	LCD - 7 digits
Back-up memory	EEPROM
Power supply	230 VAC +10% -15%
Interchangeable backup battery	3 V 2.5 Ah
Protection class	IP54
Environmental class	Class C acc. EN 1434
Ambient temperature	5 … 55 °C
Optical interface	According to EN 62056-21/EN +60870-5
Standard output	Energy/Volume Repetition
Communication boards Option1 Option 2 (COMIO)	 M-Bus, Radio, Mod-Bus 4 Analogic Outputs and 2 Relay Outputs or 2 water meters input and Communication Bus (MBus IEC 870 or MBus RS 485 C)
Combined heating/cooling metering interface	Optional

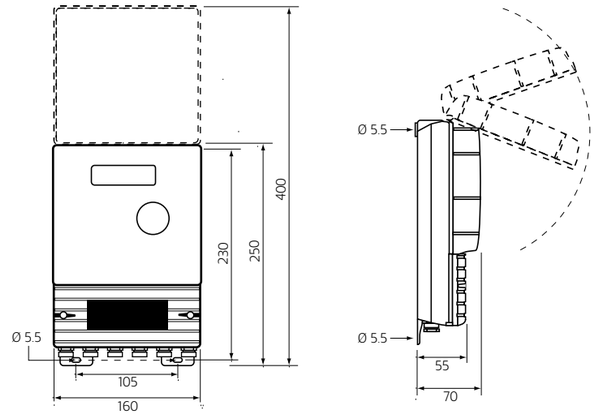
CF 800 as a communications expert

In order to optimize energy consumption and its administration, the CF 800 is fitted with outputs adapted to industrial standards.

This fl exibility of application gives the CF 800 all the advantages of modern telecommunications systems, assuring total compatibility with the peripherals for building and process control systems.

As a standard, CF 800 is fitted with repetition outputs for energy and volume.

DIMENSIONS



REFERENCES

Calculator with 2 slots for option boards. 4 wire connection, integrated data logger.

Type	Pulse weight l/pulse	Version	References
CF 800	1,0	Net, Pt100 with COMIO	6250530006
CF 800	2,5	Net, Pt100 with COMIO	6251530006
CF 800	10	Net, Pt100 with COMIO	6252530006
CF 800	25	Net, Pt100 with COMIO	6253530006
CF 800	100	Net, Pt100 with COMIO	6254530006
CF 800	250	Net, Pt100 with COMIO	6255530006
CF 800	1000	Net, Pt100 with COMIO	6256530006
CF 800	2500	Net, Pt100 with COMIO	6257530006

Temperature sensors PT100/PT500 MID approved and according to EN 60751

Overview Temperature Sensors

For pipe size	Cable length	Applications
THF50 - Ø 6mm pocket cable sensors Tmax 150°C - 2-wires		
DN 15...40	1.7 m - 5 m- 10 m	Heating / Cooling
THFC 105/140/230 - Ø 6 mm pocket cable sensors Tmax 150°C - 2 / 4 wires		
DN 50...500	2.5 m - 5 m - 10 m	Heating / Cooling
THFC 105/140/230 - Ø 6 mm pocket head sensors Tmax 150°C		
DN 50...500	no cable, 3 m, 5 m or 10 m	Heating
TDF27/38 direct cable sensors Tmax 150°C		
DN 15...40	1.7 m - 5 m- 10 m	Heating / Cooling
TDF91/146 / pocket cable sensors Tmax 150°C (to replace heat meters from Sensus / Landies /Siemens)		
DN 25...200	2.5 m	Heating / Cooling

REFERENCES THF50 + Accessoires

The following list represents a standard set of available T-Sensors paris. For more information and versions please refer to the temperature sensors guide P0752.

Type	For pipe size	Cable length	Pt	References
THF50	DN15-40	1.7 m	100	2960830006
THF50	DN15-40	1.7 m	500	2960837006

Pocket temperature sensors

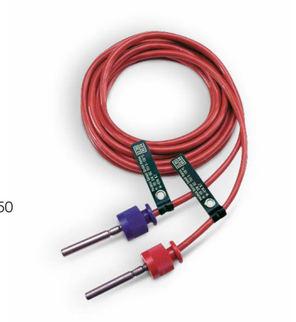
THF50 pocket sensor up to 120°C - 2 wires		
For pipe size	**Cable length**	**Applications**
DN 15…20	1.7, 5 m, 10 m	Heating/Cooling

REFERENCES THFC 105 - 140 - 230

Type	For pipe size	Cable length	Pt	References
THFC105	DN50-80	2,5m	100	5530831306
THFC105	DN50-80	2,5m	500	5529837106
THFC140	DN100-200	2,5m	100	5531831306
THFC140	DN100-200	2,5m	500	5531837706
THFC230	DN250-500	2,5m	100	5532831306
THFC230	DN250-500	2,5m	500	5532837106

REFERENCES THF 105 - 140 - 230

Type	For pipe size	Cable length	Pt	References
THF105	DN50-80	3m	100	5520510006
THF105	DN50-80	not included	100	5520513006
THF105	DN50-80	not included	500	5520538006
THF140	DN100-200	3m	100	5521510006
THF140	DN100-200	not included	100	5521513006
THF140	DN100-200	not included	500	5521538006
THF230	DN250-500	3m	100	5522510006
THF230	DN250-500	not included	100	5522513006
THF230	DN250-500	not included	500	5522538006



» THF50



» THF140



» THF-C105 / THF-C140

REFERENCES Accessoires THF/THFC 105 - 140 - 230

Type	For pipe size	Designation/ Cable length	Pt	References
Pocket				
TH 1/2“ x 85MM	DN50-80	THF/ THFC 105		7265
TH 1/2“ x 120MM	DN100-200	THF/ THFC 140		7266
TH 1/2“ x 210MM	DN250-500	THF/ THFC 230		13802
Welding sleeve				
AM 1/2" x 44MM / 45°C	50-500	TH 1/2“ - 85, 120, 210		0649
Cable (for THF105-140-230)				
Pair of cable	2-wire	3 m		0973
Pair of cable	2-wire	5 m		4490
Pair of cable	2-wire	10 m		4491
Pair of cable	4-wire	10 m		10344

REFERENCES T-Sensors Pairs TDF27/38 + Accessoires

Type	For pipe size	Cable length/ Designation	Pt	References
TDF27	DN15-25	1.7 m	100	2961830006
TDF27	DN15-25	1.7 m	500	2961837006
TDF38	DN32-40	2.5 m	100	2853831306
TDF38	DN32-40	2.5 m	500	2853837106
Adapter / fittings				
M10x1 - G3/8“	TDF27 / 38			4825
M10x1 - G1/2“	TDF27 / 38			5239
M10x1 - M10x1	TDF27 / 38			0930
Ball-Valves with direct immersion slot				
Ball Valve 1/2“ D	TDF27			10195
Ball Valve 3/4“ D	TDF27			2671
Ball Valve 1“ D	TDF27			4795
Ball Valve 1-1/4“ D	TDF38			14575
Ball Valve 1-1/2“ D	TDF38			14573



» TDF27

REFERENCES TDF91/146 + Accessoires
(T-Sensor for replacmenet competition products e.g. Sensus, Landis+Gyr).

Type	For pipe size	Designation/ Cable length	Pt	References
TDF91	DN25-40	2,5m	100	5524531306
TDF91	DN25-40	2,5m	500	5524537106
TDF146	DN50-200	2,5m	100	5525531306
TDF146	DN50-200	2,5m	500	5525537106
Pockets				
TH 1/2“ x 91mm		TDF91		11278
TH1/2“ x 146mm		TDF146		11690



» TDF91/146

Heating and Cooling Meter Connection Kits

Kits for Direct Immersion

Pipe size	Type	Distance pipe length	Meter connection
DN 15	DI-A	110	¾''
	DI-B	110	¾''
DN 20	DI-A	130	1''
	DI-B	130	1''

» Direct Immersion Kits



Type DI-A

Heating and Cooling Meter Connection Kits

Kits for Pockets Sensor

Pipe size	Type	Distance pipe length	Meter connection
DN 15	PS-A	110	¾''
	PS-B	-	¾''
	PS-Y	-	¾''
DN 20	PS-A	130	1''
	PS-B	-	1''
	PS-Y	-	1''
DN 25	PS-C	260	1'' ¼
	PS-D	-	1'' ¼
	PS-G	260	Flanges
	PS-H	-	-
DN 32	PS-F	-	1'' ½
DN 40	PS-E	300	2''
	PS-F	-	2''
	PS-G	300	Flanges
	PS-H	-	-

Pipe size	Type	Distance pipe length	Meter connection
DN 50	PS-G	270	Flanges
	PS-H	-	-
DN 65	PS-G	300	Flanges
	PS-H	-	-
DN 80	PS-G	300	Flanges
	PS-H	-	-
DN 100	PS-G	360	Flanges
DN 100 ... 200	PS-H	-	-
DN 250 ... 400	PS-H	-	-

» Pocket Sensor Kits



Type PS-E

Type PS-H

Type PS-A

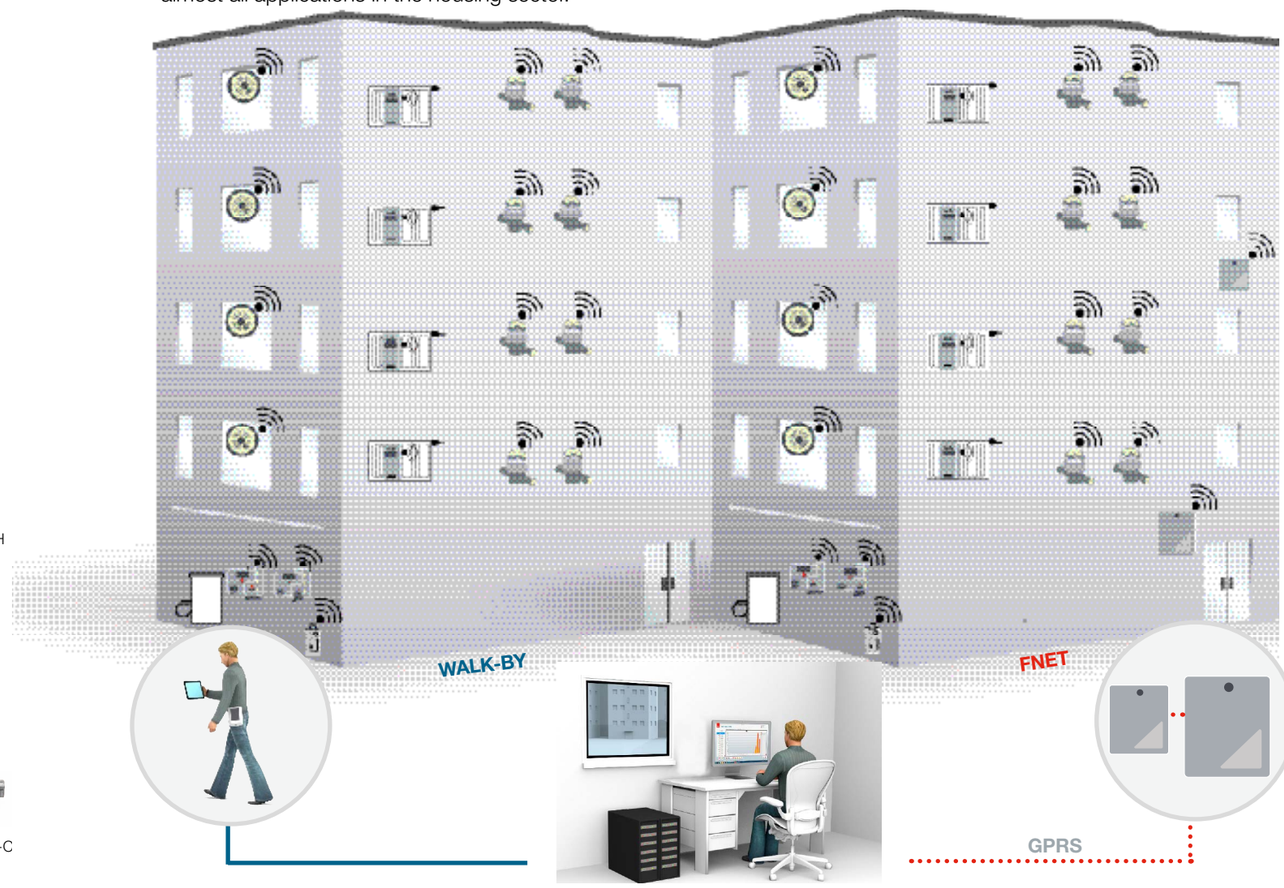
Type PS-C

Heating and Cooling Meter Connection Kits

Pipe size	DI-A	DI-B	PS-A	PS-B	PS-Y	PS-C	PS-D	PS-E	PS-F	PS-G	PS-H
Ball valve with DI entry	✔	✔									
T piece			✔	✔	✔						
2 x Ball valve	✔				✔						
Pocket and welding piece						✔	✔				
2 x Pocket and welding piece								✔	✔	✔	✔
Connector set	✔	✔	✔	✔	✔			✔	✔		
Connector set with pocket						✔	✔				
Distance pipe	✔	✔	✔			✔		✔		✔	

EquaScan - Radio System for allocation

All components of the Itron EquaScan radio system are optimally coordinated and, due to their range of functions, cover almost all applications in the housing sector.



COMPONENTS WALK-BY AND FNET



eHCA[RF]
Heat cost allocator



hMIU[RF]
Heat meter RF module



pMIU[RF]
Pulse RF module



wMIU[RF]
Water meter RF module



EquaScan software



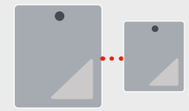
iSD[RF]
Smoke detector

WALK-BY



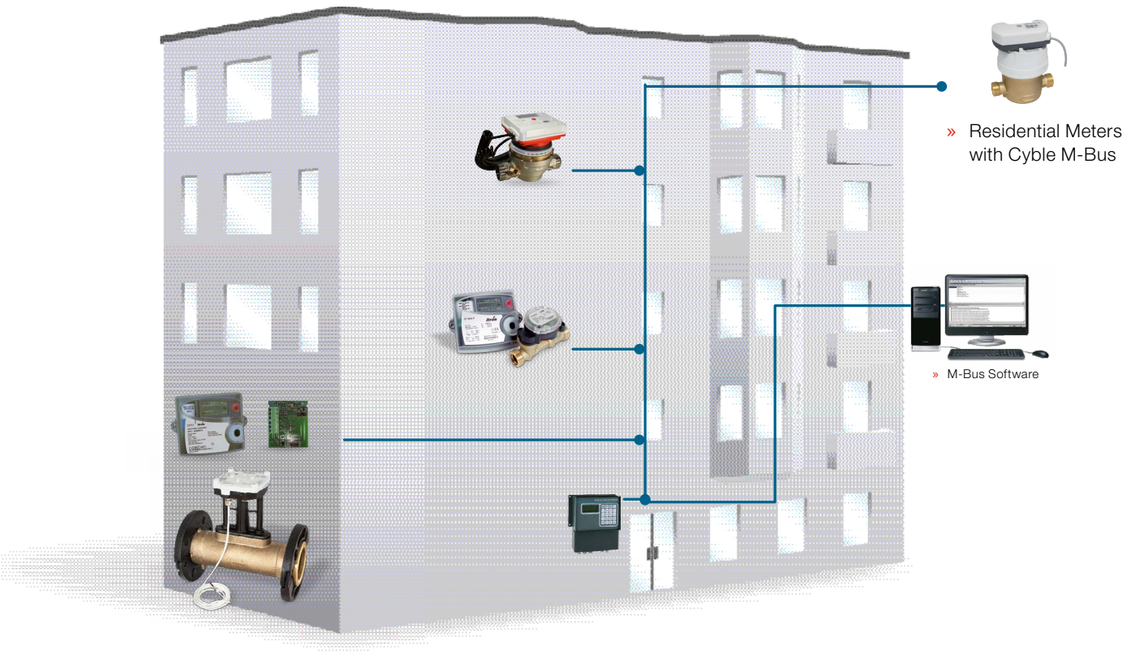
Master[RF]

FNET



Coordinator and router

Remote Meter Reading with M-BUS Protocol



» Residential Meters with Cyble M-Bus

» M-Bus Software

FEATURES

» AMR system for any meter with M-BUS output

» According to M-BUS protocol EN 13757

» Configurations tool available for reading, set ups, or retrofit installation

» The M-BUS system can be used either for areas with single houses, multiflat buildings or for C & I applications.



Aquadis+
Itron residential water meter with Cyble M-BUS.



UltraMaXX
The ultrasonic compact heat meter UltraMaxx with M-BUS Option can be integrated in the system.



CF Echo II
Itron compact heat meter for large applications with M-BUS Option board.



EVK
Apartment water meter with EVK-m M-BUS module.

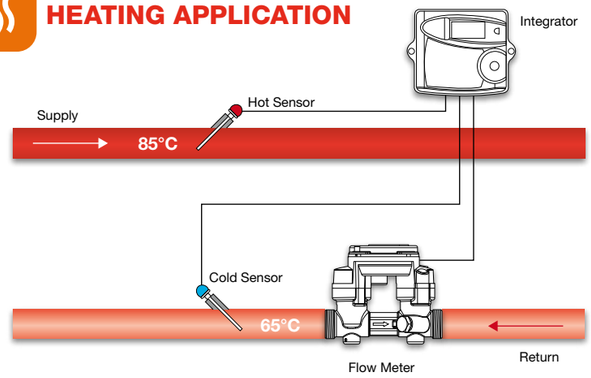


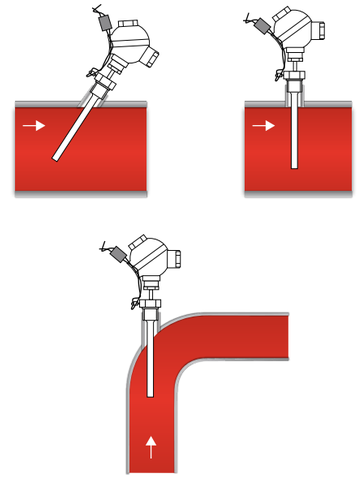
CF 51
Itron Calculator with M-BUS Option board

TEMPERATURE SENSORS INSTALLATION

» Sensor pockets must be installed in the supply and return pipe of the circuit where the flow is fitting.
» Do not install sensor pockets on a high point of the network.
» Install the sensor pocket downstream of the flow meter.
» Pockets must be mounted with an angle between 45° and 90°.
» Temperature sensors are paired delivered. Always mount them matched one to one (same ID number).

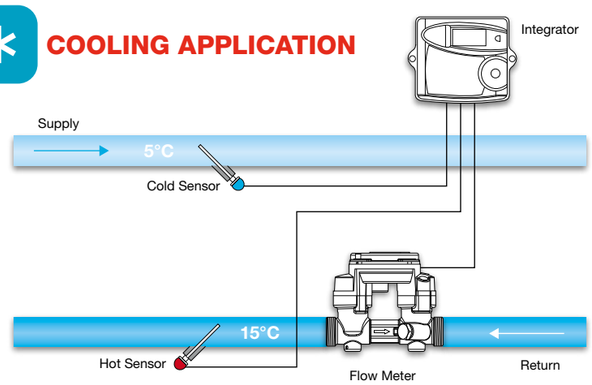
HEATING APPLICATION

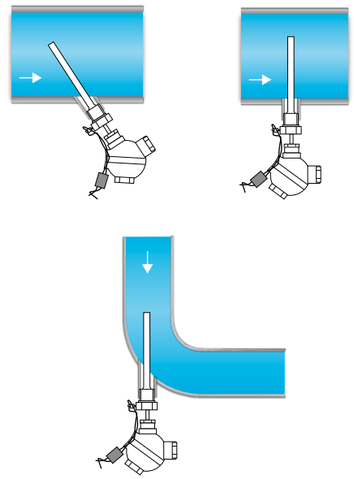




» Temperature sensors installation best practices for Heating application
- Sensor pockets and connected sleeves must be installed head upwards.

COOLING APPLICATION

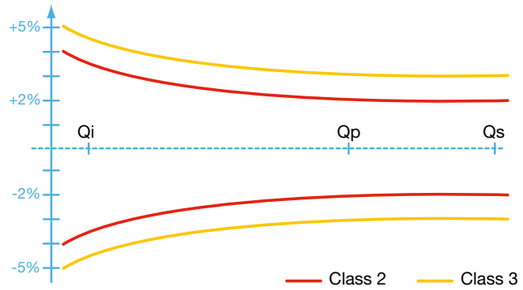




» Temperature sensors installation best practices for Cooling and Combined applications
- To prevent water condensation, sensor pockets and connected sleeves must be installed head downwards.
- To prevent rusted terminals, head temperature sensors should be potted with resin.
- Never use oil or grease to lubricate pockets. Use silicon instead.

METROLOGICAL CLASSES According to EN 1434 and MID

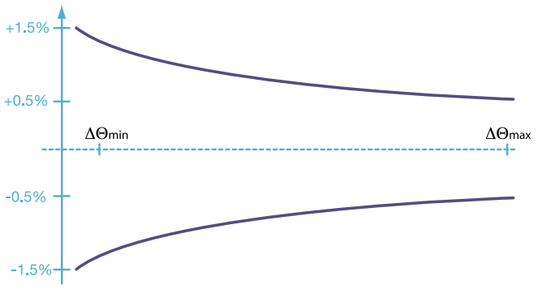
Flow Meter Tolerance



Error Class 2

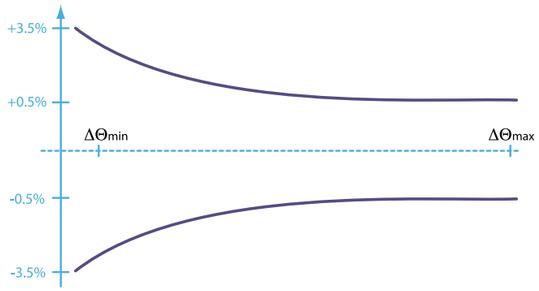
$$E_{FM} = \pm \left(2 + 0.02 \frac{Qp}{Q}\right)$$

Calculator Tolerance



$$E_C = \pm \left(0.5 + \frac{\Delta\Theta min}{\Delta\Theta}\right)$$

Sensors Tolerance



$$E_S = \pm \left(0.5 + 3 \frac{\Delta\Theta min}{\Delta\Theta}\right)$$

Complete meter

$$E_{CM} = \pm \left(3 + 4 \frac{\Delta\Theta min}{\Delta\Theta} + 0.02 \frac{Qp}{Q}\right)$$

ENVIRONMENT CONDITION CLASSES

» Class A

Indoor usage
- Residential applications
- Low relative humidity conditions
- Normal electromagnetic conditions

» Class B

Outdoor usage
- Residential applications
- Normal relative humidity conditions
- Normal electromagnetic conditions

» Class C

- Indoor usage
- Industrial application
- Normal relative humidity conditions
- High electromagnetic conditions

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