

# CF ECHO II



## Ultrasonic Compact Heat and Cooling Meter, qp 0.6-15 m<sup>3</sup>/h

The CF ECHO II is the compact meter of Itron's CF Heat and Cooling meter family equipped with ultrasonic flow meter. Electronic data processing gives high precision throughout the entire measurement curve, producing a large dynamic range.

Flows can be measured from qp 0.6 to qp 15 m<sup>3</sup>/h (DN15 to DN50) with reliable and stable accuracy.

Thanks to a complete portfolio of body variants of every size, the CF ECHO II meters are very flexible in use. All hydraulic bodies carry a flanked design helping meter installation.

## Applications

Heating, Cooling and Combined, return and supply positioning, horizontal or vertical.

## Features and Benefits

- High metrology
- Advanced functions
- Ease of installation
- Easy reading
- Pre-equipped for communication
- Accurate measurement of high and low flows

## Standards Compliance

- MID 2014/32/EU Module B+D
- Class 2.0 acc. EN 1434
- Env. Class E1, M1 acc. 2014/32/EU
- OIML R75
- SP Test ≤ -2%
- PED compliant

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

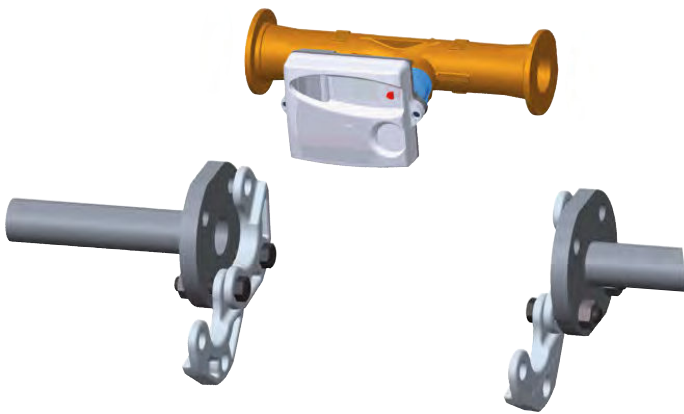
## Advanced Functions

The CF ECHO II provides a number of advanced functions such as data-logging for complex network analysis, double tariff for further billing choices, peak recording and lots more, which are powerful diagnostic aids for network management.

All available data are presented on the highly ergonomic and multifunctional display.

## Communication Device

The plug and play communication boards open the way for data collection through various reading systems.



*NEW! Movable flanges for easy installation directly at the meter body.*

## Multifunctional Display

The multifunctional display facilitates easy reading, providing fast and clear access to the most important billing data. The display enables the diagnosis of failures alarms form a single glance.

### Loop 1

#### Billing Data

Energy  
Cooling energy\*  
Volume  
LCD test  
External water meter 1 + 2\*

\*optional

### Loop 2

#### Additional Information

Flow rate  
Power  
Supply temperature  
Return temperature  
Temperature difference  
Operating time  
Power peak date + time\*  
Flow peak date + time\*  
Temperature peak date + time\*  
Time in alarm  
Temperature alarm  
Flow alarm  
Overflow alarm  
Power supply alarm  
Current time + date\*  
M-Bus primary address  
M-Bus secondary address  
M-Bus baud rate  
Pulse value water meter 1 + 2\*

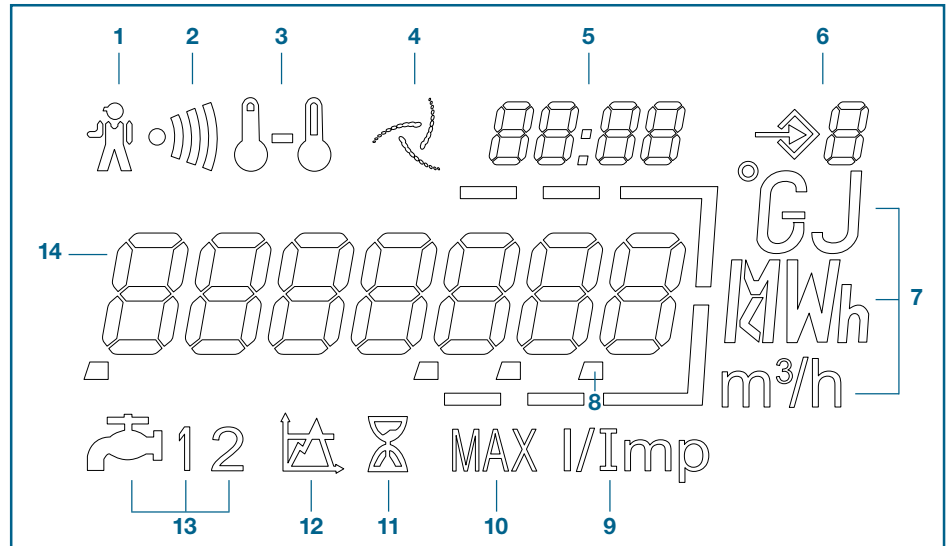
\*optional

### Loop 3

#### Fixed Date Reading

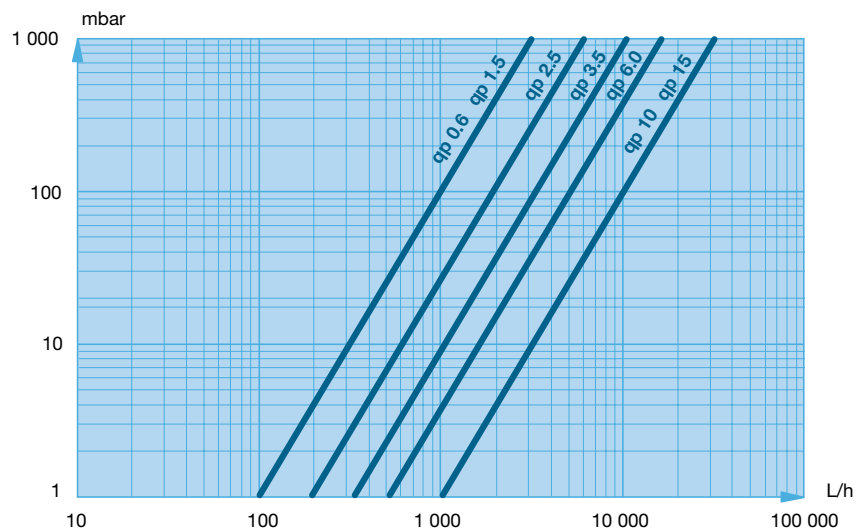
Fixed date energy 1...24  
Fixed date cooling energy 1...24\*  
Fixed date volume 1...24  
Fixed date water meter 1 + 2 1...24\*  
Software version

\*optional



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|----------------------|----------------------|---------------------------|
| 1 Alarm Icon         | 6 Loop Indicator     | 11 Elapsed Time Indicator |
| 2 Dirty Warning      | 7 Units              | 12 Thresholds             |
| 3 Temperatures       | 8 Decimal Indication | 13 External Water Meters  |
| 4 Flow Indicator     | 9 Pulse Input Value  | 14 Main Digits            |
| 5 Date & Time Digits | 10 Peaks             |                           |

### Head Loss



## Technical 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	Accidental 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	G 1 ¼ B/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	G2 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 / M-Bus protocol
Power supply (optional)	6 or 12 year Lithium battery, 230V main power supply or power supply by M-Bus

CF ECHO II Testing Pulse Value (Qp)	0.6	1.5	2.5	3.5	6	10	15
cm³/impuls	5	10	20	25	50	100	100



## Option Boards

The CF ECHO II 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: LoRa CMi4130
- Board 6: M-Bus + 2 Water Meters pulse input + power supply by M-Bus
- Board 7: Modbus

### M-Bus

Standard reference	EN 1434-3
Baud rate	300 to 2400 baud
Data in standard mode	Energy, Volume, Flow, Temperatures (supply, return, difference), Time in error, Operation time, Date and time, Volume of water meters 1&2, Firmware version

### Pulse inputs for 2 water meters

Pulse value (independent per input)	1 / 2.5 / 10 / 25 / 100 / 250 / 1000 L / imp
Pulse detection	Contact closed $R \leq 500 \Omega$ Contact opened $R \leq 100 k\Omega$ Maximum frequency: 10Hz

### Energy and Volume Pulse output

Pulse value	Repetition of display Energy from 1KWh to 1MWh Volume from 10 L to 1 m <sup>3</sup>
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### LON Application

Transceiver	TP / FT-10
Transmission speed	78 Kb/s

### LoRaWAN characteristics

Device class	Class A, bi-directional
LoRa version	1.0.2
Activation	OTAA or ABP
Data rate	DR0-DR5 (250 bit/s - 5470 bit/s)

### GPRS Modem with integrated M-Bus-Master (option)

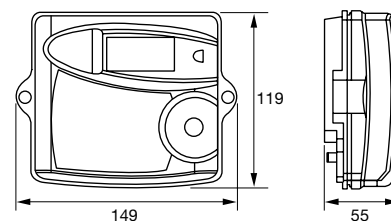
GPRS specifications	Quad Band GSM 850/900/1800/1900MHz
GPRS datatransfer via	SMS, E-Mail, FTP client, http client
M-Bus Master (option)	EN 13757-2/-3, 300/2400 Baud, 8 unit loads

### Modbus

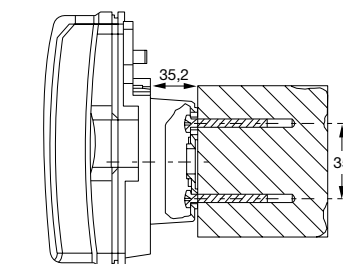
Mode	2 wires, Differential Half-Duplex
Baudrate / Data	2400, 4800, 9600, 19200 bits/s
Format	8 data bit 1 stop bit no parity
Power supply	3,6 V-12V DC from CF heat meter

### Power supply by M-Bus (Board 6)

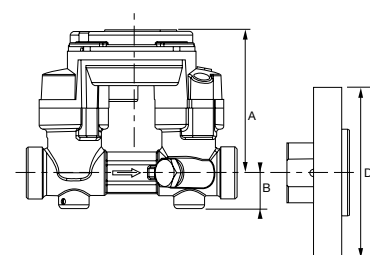
Current consumption	2 unit loads = 3mA (M-Bus master / permanent load)
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Integrator



Wall mounting



Flow meter

See Technical Characteristics table for available lengths

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