



# 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 dynamic range exceeding class C. 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.

## FEATURES AND BENEFITS

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

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

## Applications

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

## Benefits

- » Accurate measurement of high and low flows,
- » Easy reading,
- » Pre-equipped for communication.

## Standards Compliance

- » MID 2004/22/EC Module B+D
- » Class 2.0 acc. EN 1434
- » Env. Class C acc. EN 1434
- » OIML R75
- » PTB Class C
- » SP Test ≤ -2%
- » PED compliant

## 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.

### 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

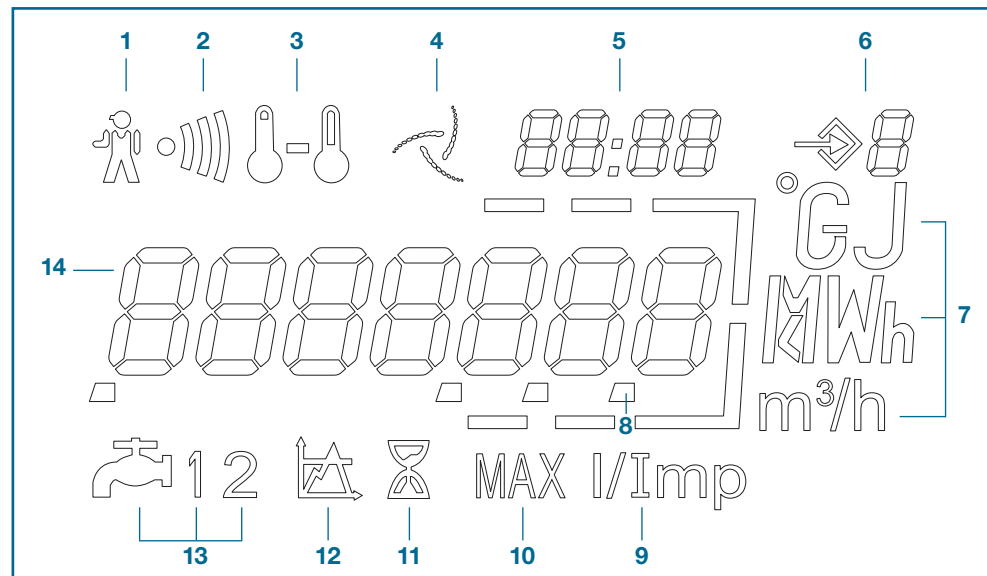
Fixed date energy 1...24  
Fixed date cooling energy 1...24\*  
Fixed date volume 1...24  
Fixed date water meter 1 + 2 1...24\*  
Software version

\*optional

## MULTIFUNCTIONAL DISPLAY

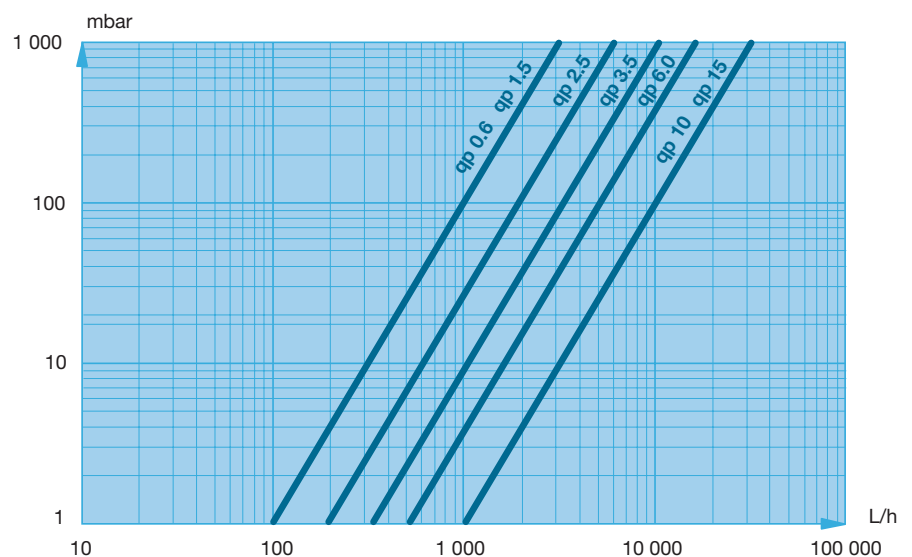
The multifunctional display facilitates easy reading, providing fast and clear access to the most important billing data. The display enables the diagnosis of failures alarms form a single glance.

The LCD has a long life time and through a push button you get easily access to each level of data.



- |                      |                      |                           |
|----------------------|----------------------|---------------------------|
| 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<br>Qp<br>m³/h | Diameter<br>DN<br>mm | Max flow<br>Qs<br>m³/h | Min flow<br>Qi<br>L/h | Start flow<br>Qstart<br>L/h | Body<br>length<br>mm | Pipe<br>Connection | Nominal<br>Pressure<br>bar | Permanent<br>max. temp.<br>°C | Accidental<br>max. temp.<br>°C |
|----------------------------|----------------------|------------------------|-----------------------|-----------------------------|----------------------|--------------------|----------------------------|-------------------------------|--------------------------------|
| 0.6                        | 15                   | 1.2                    | 6                     | 1.2                         | 110                  | G ¼ 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 ¼ 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,<br>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 |

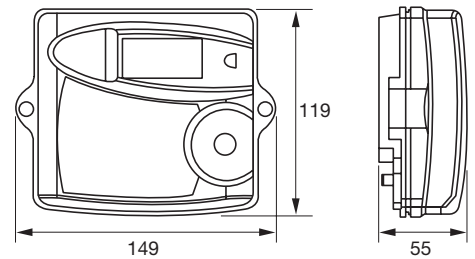
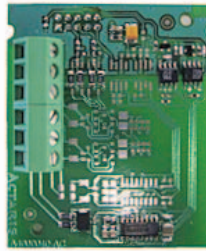


## OPTION BOARDS

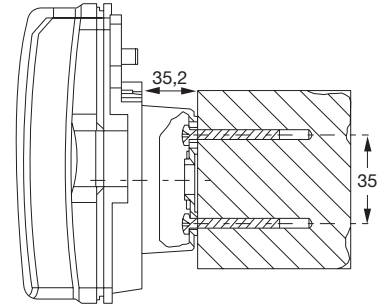
The CF ECHO II is pre-equipped for communication. Different option boards can be plugged simply to the meter and start working automatically.

The following option boards are available:

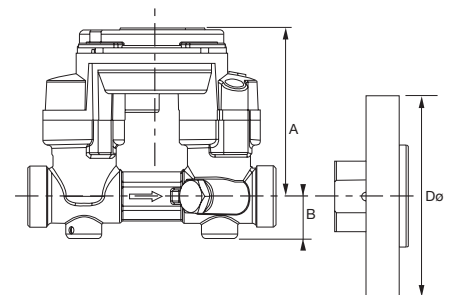
- » Board 1: **M-Bus + E/V Repetition**
- » Board 2: **M-Bus + 2 Water Meters pulse input**
- » Board 3: **GPRS Modem + E/V Repetition + M-Bus Master**
- » Board 4: **LON + 2 Water Meters pulse input**
- » Board 5: **Radio + 2 Water Meters pulse input**
- » Board 6: **M-Bus + 2 Water Meters pulse input + power supply by M-Bus**
- » Board 7: **RS232 + 2 Water Meters pulse input**



Integrator



Wall mounting



Flow meter

See Technical Characteristics table for available lengths

| 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 $R \leq 500 \Omega$<br>Contact opened $R \leq 100 \text{ k}\Omega$<br>Maximum frequency: 10Hz                                                |
| Energy and Volume Pulse output                   |                                                                                                                                                             |
| Pulse value                                      | Repetition of display<br>Energy from 1KWh to 1MWh<br>Volume from 10 L to 1 m <sup>3</sup>                                                                   |
| LON Application                                  |                                                                                                                                                             |
| Transceiver                                      | TP / FT-10                                                                                                                                                  |
| Transmission speed                               | 78 Kb/s                                                                                                                                                     |
| Radio Applications                               |                                                                                                                                                             |
| Compatibility                                    | AnyQuest radio walk-by system<br>EverBlu radio fixed network system                                                                                         |
| Frequency                                        | 433 Mhz                                                                                                                                                     |
| Protocol                                         | Radian open protocol                                                                                                                                        |
| 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                                                                                                                  |
| RS232                                            |                                                                                                                                                             |
| Standard Reference                               | M-Bus protocol EN1434-3                                                                                                                                     |
| Baudrate / Data                                  | See M-Bus specifications                                                                                                                                    |
| Power supply                                     | 4V-12V DC (DTR signal or external DC supply)                                                                                                                |
| Power supply by M-Bus (Board 6)                  |                                                                                                                                                             |
| Current consumption                              | 2 unit loads = 3mA (M-Bus master / permanent load)                                                                                                          |

| DN           | 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 |



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