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 m³/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

**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.
**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.

---

### 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*

---

### HEAD LOSS

![Graph showing head loss](image)

1 2 3 4 5 6 7 8 9 10 11 12 13 14

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

---

1000 mbar

1 2 3 4 5 6 7 8 9 10

100 1000 10000 100000

1 10 100 1000 10000 100000

1 10 100 1000 10000 100000
### Technical Characteristics

<table>
<thead>
<tr>
<th>Nominal Flow Qp m³/h</th>
<th>Diameter DN mm</th>
<th>Max flow Qs m³/h</th>
<th>Min flow Qs L/h</th>
<th>Start flow Qstart L/h</th>
<th>Body length mm</th>
<th>Pipe Connection</th>
<th>Nominal Pressure bar</th>
<th>Permanent max. temp. °C</th>
<th>Accidental max. temp. °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.6</td>
<td>15</td>
<td>1.2</td>
<td>6</td>
<td>1.2</td>
<td>110</td>
<td>G ¾ B</td>
<td>16/25</td>
<td>130</td>
<td>150</td>
</tr>
<tr>
<td>1.5</td>
<td>15</td>
<td>3</td>
<td>15</td>
<td>3</td>
<td>110</td>
<td>G ¾ B</td>
<td>16/25</td>
<td>130</td>
<td>150</td>
</tr>
<tr>
<td>2.5</td>
<td>20</td>
<td>5</td>
<td>25</td>
<td>5</td>
<td>130</td>
<td>G 1 B</td>
<td>16/25</td>
<td>130</td>
<td>150</td>
</tr>
<tr>
<td>3.5</td>
<td>25</td>
<td>7</td>
<td>35</td>
<td>7</td>
<td>150</td>
<td>G 1 ¼ B</td>
<td>16/25</td>
<td>130</td>
<td>150</td>
</tr>
<tr>
<td>6</td>
<td>25</td>
<td>12</td>
<td>60</td>
<td>12</td>
<td>150</td>
<td>G 1 ¼ B</td>
<td>16/25</td>
<td>130</td>
<td>150</td>
</tr>
<tr>
<td>10</td>
<td>40</td>
<td>20</td>
<td>100</td>
<td>20</td>
<td>200</td>
<td>G 2 B</td>
<td>16/25</td>
<td>130</td>
<td>150</td>
</tr>
<tr>
<td>15</td>
<td>50</td>
<td>30</td>
<td>150</td>
<td>30</td>
<td>250</td>
<td>Flanges</td>
<td>25</td>
<td>130</td>
<td>150</td>
</tr>
</tbody>
</table>

#### CF ECHO II Energy Calculator

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

#### CF ECHO II Testing Pulse Value (Qp)

<table>
<thead>
<tr>
<th>Qp (m³/h)</th>
<th>0.6</th>
<th>1.5</th>
<th>2.5</th>
<th>3.5</th>
<th>6</th>
<th>10</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm³/impuls</td>
<td>5</td>
<td>10</td>
<td>20</td>
<td>25</td>
<td>50</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
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

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

Radio applications
Compatibility AnyQuest radio walk-by system
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)

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 ≤ 500 Ω
Contact opened R ≤ 100 kΩ
Maximum frequency: 10Hz

Energy and Volume Pulse output
Pulse value Repetition of display
Energy from 1KWh to 1MWh
Volume from 10 L to 1 m³

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

Flow meter
See Technical Characteristics table for available lengths

Our company is the world’s leading provider of smart metering, data collection and utility software systems, with over 8,000 utilities worldwide relying on our technology to optimize the delivery and use of energy and water.

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