
# CF ECHO II

## Ultrasonic Compact Heat Meter, Qp 0.6-15 m³/h

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

The CF ECHO II is the compact meter of the new generation of Actaris ultrasonic heat meters. 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.

### Applications
Heating 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
- Class 2.0 acc. EN 1434
- Env. Class C acc. EN 1434
- OIML R75 class 4
- 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***
- **Instantaneous bonus***
- **Cumulative bonus***
- Time in alarm
- Temperature alarm
- Flow alarm
- Overflow alarm
- Power supply alarm
- M-Bus primary address
- M-Bus secondary address
- M-Bus baud rate
- **Pulse value water meter 1/2***

* *Optional*

## ▸ Loop 3

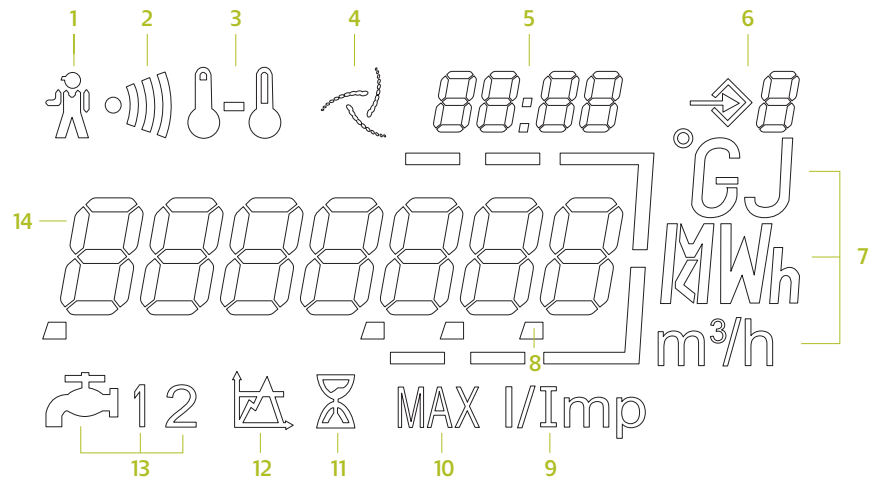
**Fixed Date Reading**

- Fixed date energy 1…13
- Fixed date cooling energy 1…13
- Fixed date volume 1…13
- **Fixed date water meter 1/2 1…13***
- Software version

* *Optional*

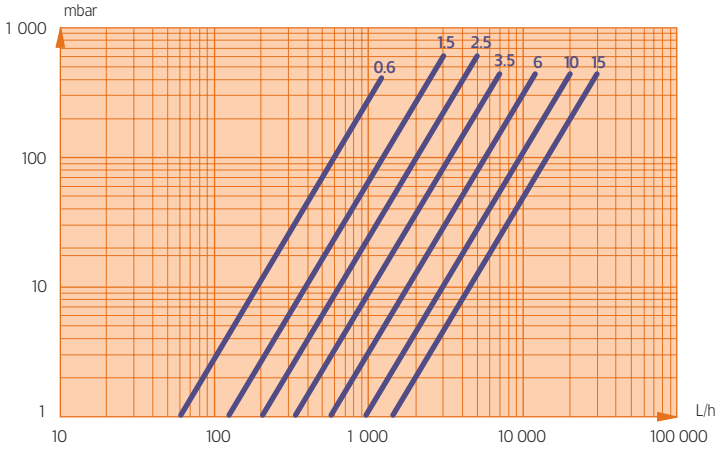
# Multifunctional Display

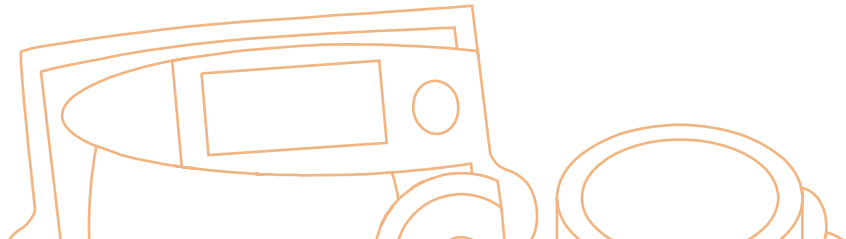
The multifunctional display facilitates easy reading, providing fast and clear access to the most important billing data. The display enables the diagnosis of failures alarms form a single glance. The LCD has a long life time and through a push button you get easily access to each level of data.




| | | |
|---|---|---|
| 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



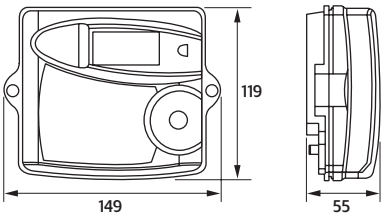
# Technical Characteristics

| Nominal flow | Diameter | Max flow | Min flow | Start flow | Body | Pipe | Nominal | Permanent | Accidential |
|---|---|---|---|---|---|---|---|---|---|
| Qp | DN | Qs | Qi | Qstart | length | connection | pressure | max. temp. | max. temp. |
| $m^3/h$ | mm | $m^3/h$ | L/h | L/h | mm | | bar | °C | °C |
| **0.6** | 15 | 1.2 | 6 | 1.2 | 110 | G 3/4 B | 16 | 130 | 150 |
| | 20 | 1.2 | 6 | 1.2 | 130 | G 1 B | 16 | 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 3/4 B | 16 | 130 | 150 |
| | 20 | 3 | 15 | 3 | 130 | G 1 B | 16 | 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 | 130 | 150 |
| | 20 | 5 | 25 | 5 | 190 | G 1 B/Flanges | 16/25 | 130 | 150 |
| | 25 | 5 | 25 | 5 | 260 | G 1 1/4 B | 16 | 130 | 150 |
| **3.5** | 25 | 7 | 35 | 7 | 150 | G 1 1/4 B | 16 | 130 | 150 |
| | 25 | 7 | 35 | 7 | 260 | G 1 1/4 B/Flanges | 16/25 | 130 | 150 |
| | 40 | 7 | 35 | 7 | 300 | Flanges | 25 | 130 | 150 |
| **6** | 25 | 12 | 60 | 12 | 150 | G 1 1/4 B | 16 | 130 | 150 |
| | 25 | 12 | 60 | 12 | 260 | G 1 1/4 B/Flanges | 16/25 | 130 | 150 |
| | 32 | 12 | 60 | 12 | 260 | G 1 1/2 B | 16 | 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 | 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 |

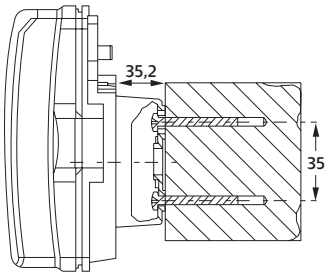
| **CF ECHO II Energy Calculator** | | | | | | | |
|---|---|---|---|---|---|---|---|
| Temperature range | 0 ... 180 °C | | | | | | |
| Temperature difference | 3 ... 160 °C | | | | | | |
| Temperature sensor type | Pt100 or Pt500, 2 wire | | | | | | |
| Temperature sensor (Qp 0.6 to 2.5 $m^3/h$) | Direct 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 | According to EN 60870-5 | | | | | | |
| Power supply | Main – 230 V<br>Standard life-time lithium battery (6 years typical)<br>Long life-time lithium battery (12 years typical) | | | | | | |
| **CF ECHO II Testing Pulse Value (Qp)** | **0.6** | **1.5** | **2.5** | **3.5** | **6** | **10** | **15** |
| $cm^3$/impuls | 5 | 10 | 20 | 25 | 50 | 100 | 100 |

# Dimensions

## Integrator

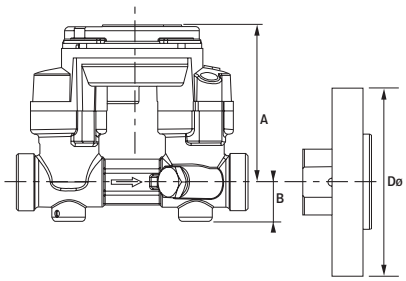



## Wall mounting




## 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 | - |
| Dø (Flanges) | - | 100 | 110 | - | 140 | 160 |

# 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 external Water meters**
- Board 3: **Modem + 2 external Water meters**
- Board 4: **LON + 2 external Water meters**
- Board 5: **RF + 2 external Water meters**
- Board 6: **RS232 + 2 external Water meters**

| M-Bus | |
|---|---|
| Standard reference | EN 1434-3 |
| Baud rate | 300 to 9600 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 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: 2Hz |

| Energy and Volume Pulse output | |
|---|---|
| Pulse value | Repetition of display |
| | Energy from 1 KWh to 1 MWh |
| | Volume from 10 L to 1 $m^3$ |



For more information, please contact your local agency.

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