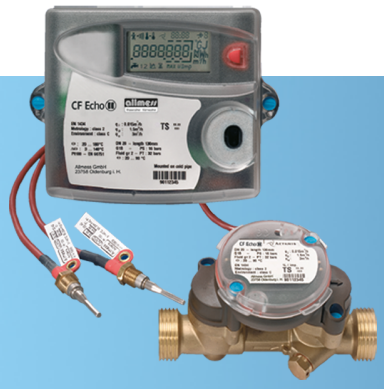
Heat / Cooling



CF-Echo II

Thermal energy meter

Your benefits

- Ultrasonic technology:
  Long-term stable energy measurement with maximum measuring accuracy
- Patented warning signal processing:
  Alarm message when soiled
- Special lengths available for vertical impeller meters:
  Simple replacement with ultrasonic technology possible
- Option cards for various functions:
  - Inexpensive basic device
  - Subsequent functions can be implemented

Applications

- High-end device for building management
- As a replacement for mechanical impeller heat meters
- Metering of heat and/or cooling consumption in building management

Properties

- Nominal diameters from DN 15 up to DN 50
- Nominal flow rates from q_p 1,5 up to q_p 15
- Lower pressure loss
- Universal installation position and no moving parts
- Operating temperature 130 °C, short term 150 °C
- Temperature sensor Pt 100 (2-wires)
- Electronic calculator and LCD-resolution 7 digits
- Non-volatile memory EEPROM and 24 month register
- Supply via 12-year battery, mains or M-Bus
- Maximum values with time stamp
- Standard EN 1434
- CE Conformity according European Measuring Instruments Directive (MID)

Options

- Special version for combined heat/cold measurements (special programming)
- Calculator usable for compact mounting
- Option cards for:
  - M-Bus / 2 water meter inputs
  - M-Bus / 2 pulse outputs energy + volume
  - M-Bus Power / 2 water meter inputs
  - LonWorks, FTT-10A / 2 water meter inputs (separate supply 24 V AC/DC necessary)
  - Modbus RTU (RS485) / 2 water meters inputs (Power supply module 230 V AC necessary)
- Retrofittable external EquaScan - pMIU pulse radio module

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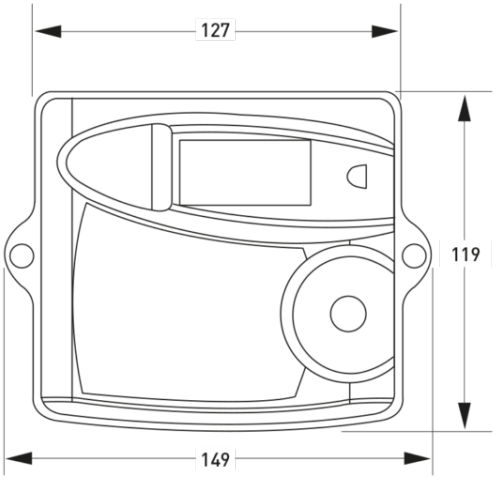
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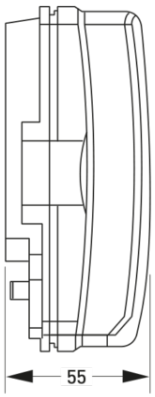
Technical Data

Execution			CF-Echo II										
Nominal flow rate	**q_p**	**m^3/h**	**1,5**	**1,5**	**2,5**	**2,5**	**3,5**	**3,5**	**6**	**6**	**6**	**10**	**10**	**15**
Nominal diameter	**DN**	**mm**	**15**	**20**	**20**	**20**	**25**	**25**	**25**	**25**	**32**	**40**	**40**	**50**
Operating pressure	**PN**	**bar**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**-**
			-	**-**	**-**	**-**	**-**	**25**	**-**	**25**	**-**	**-**	**25**	**25**
Kvs-value		m^3/h	3,21	3,21	6,01	6,01	10,41	10,41	16,39	16,39	16,39	33,15	33,15	33,8
Maximum flow rate	q_s	m^3/h	3	3	5	5	7	7	12	12	12	20	20	30
Minimum flow rate	q_i	l/h	15	15	25	25	35	35	60	60	60	100	100	150
Starting flow		l/h	3	3	5	5	7	7	12	12	12	20	20	30
Temperature		max. °C	130	130	130	130	130	130	130	130	130	130	130	130
Short term temperature		max. °C	150	150	150	150	150	150	150	150	150	150	150	150

Dimensions			CF-Echo II										
Length	L	mm	110	130	130	190	150	260	150	260	260	200	300	270
Height	A	mm	72	72	72	72	77	77	77	77	77	85	85	77
Height	B	mm	18	18	18	18	23	23	23	23	23	35	35	35
Flange external dimension	D	mm	-	-	-	105	-	115	-	115	-	-	150	165
Connection thread on meter	G...B	Inch	¾	1	1	1	1¼	1¼	1¼	1¼	1½	2	2	-
Flange			-	-	-	x	-	x	-	x	-	-	x	x

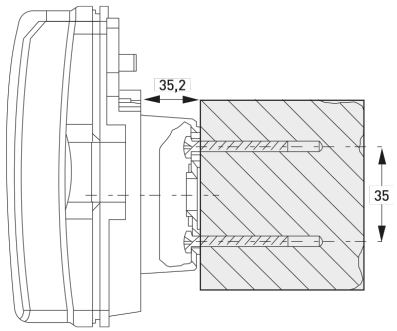
Dimension Diagram Calculator





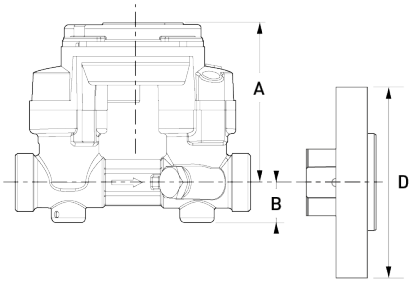
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Wall-fastening



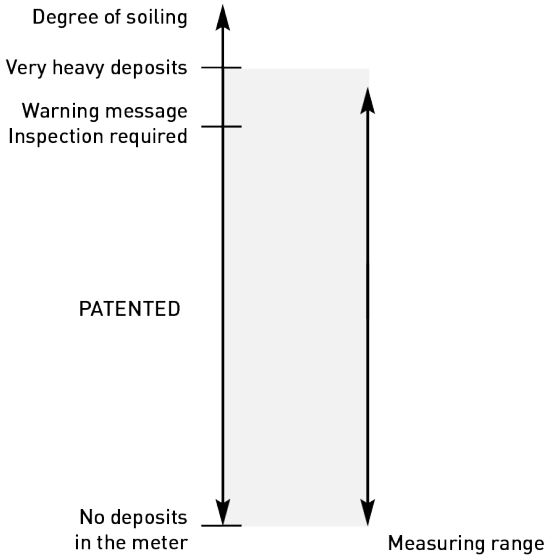
Dimension Diagram Flow Sensor

Flow sensor
DN 15 – DN 50



Soiling warning

The CF-Echo II processes a high signal level in a patented process to output a warning signal for the degree of soiling.



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Technical Data

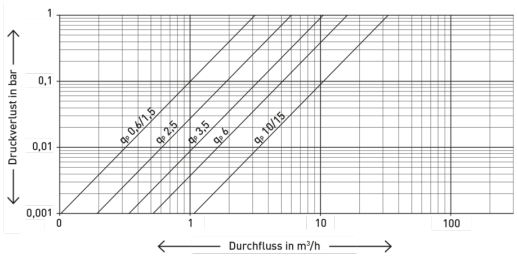
Calculator	
Temperature measuring range	0 to 180 °C
Temperature difference	3 to 160 K
Max. display resolution (7-digits)	9'999,999 / 99'999,99 / 999'999,9 / 9'999'999
Supply voltage lithium battery	3,6 V
Battery lifetime	12 years (optional mains or M-Bus)
Environment class	EN 1434 – class C
Protection class	IP54
Environment temperature	+5 to + 55 °C
Storage temperature	-10 to + 60 °C
Optical interface	EN 60870-5, M-Bus protocol
Temperature sensor connection	2-wires, cable Ø 3,5 to 6,5 mm

Temperature sensor	
Sensor element	Pt 100
Execution	Direct immersion sensor up to DN 20 Pocket sensor initiating DN 25
Connection diagram	2-wires
Installation length	50 mm / 105 mm q_p 15
Cable lengths	2 x 1,75 m / 2 x 3 m initiating q_p 15

Volume measuring meter	
Metrological class approval acc. PTB	EN 1434 - class 2 / 1:100
Calibration in class	3 / 1:100

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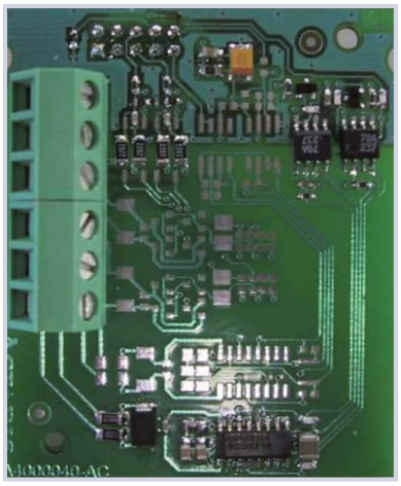
Typical Head Loss Curve



Option cards

As standard, CF-Echo II can accept various option cards. These option cards can also be connected to previously installed heat meters at a later date. The following option cards are available:

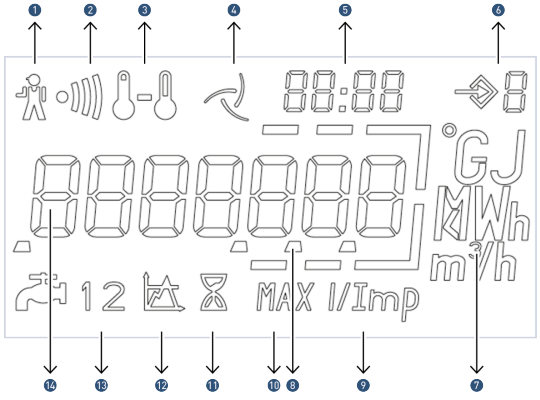
- M-Bus / 2 water meter inputs
- M-Bus / 2 pulse outputs energy + volume
- M-Bus Power / 2 water meter inputs
- LonWorks / 2 water meter inputs



Technical data on request

Multi-function display CF-Echo II / CF-51 / CF-55

Reading errors are minimised by the concise layout on 3 display levels and the clear symbols for status and alarm messages. The various display levels are selected via a red button. Press the button for app. 3 s to access the next level.



1. Operating fault
2. Soiling warning
3. Temperatures
4. Flow rate display
5. Time/Date
6. Display level
7. Units
8. Decimal points
9. Water meter pulse value
10. Maximum values
11. Operating period
12. Threshold values (not occupied)
13. Water meter inputs
14. Main display section

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