



## CF-51

### Calculator



### Your benefits

- Big display:  
**Easy to read**
- Universal applicable:
  - **Wall-mounted model (Volume measuring meter UNICO® and MTW)**
  - **Different power supply possibilities**
- Option cards for diverse functionalities:
  - **Economical basic device**
  - **Additional functionalities feasible**

### Applications

- Metering of heat and/or cooling consumption in building management
- Calculator for local or remote reading

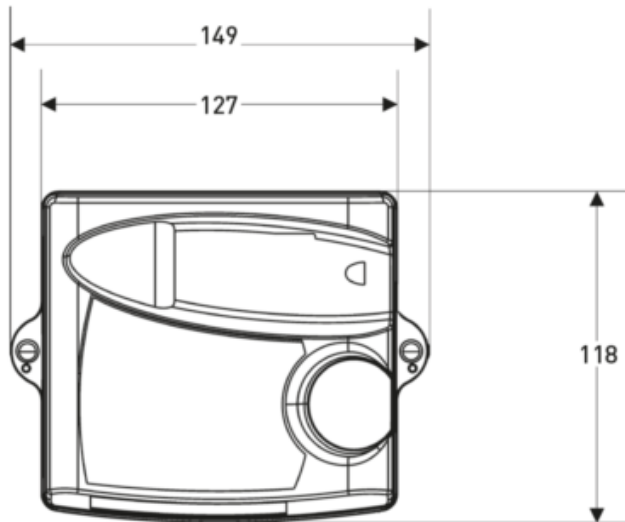
### Properties

- Electronic calculator
- LCD-resolution 7 digits
- Non-volatile memory EEPROM
- Temperature measuring range 0 - 180 °C
- Temperature sensor Pt 100 (2-wires)
- Standard EN 1434
- 24 month register
- Supply via 12-year battery, mains or M-Bus (pay attention to versions)
- Maximum values with time stamp
- Combinable with following volume measuring meters:
  - Mechanical impeller meters with Reed-pulser
  - MID
- **CE** Conformity according European Measuring Instruments Directive (MID)

### Options

- Special version for combined heat/cold measurements (special programming)
- Option cards for:
  - M-Bus / 2 water meter inputs
  - M-Bus / 2 pulse outputs
  - 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)

## Dimension Diagram



## Technical Data

### Technical data calculator CF-51

Temperature measuring range	0 to 180 °C
Temperature difference	3 to 160 K
Temperature resolution on display	0,1 °C
LCD resolution	7 digits
Max. display resolution	9'999'999
Indication device energy	MWh
Indication device volume	m <sup>3</sup>
Indication device flow	m <sup>3</sup> /h
Indication device power	kW
Protection class	IP64 acc. DIN 40050
Environment class	C acc. EN 1434
Environment temperature	+5 to +55 °C (intern installation)
Storage temperature	-10 bis +60 °C
EMV	protected acc. DIN EN 50081-1/2, DIN EN 50082-1/2
Double insulation	Protection class II acc. CEI 60364-4-443

### Power supply

Lithium battery	2 x 3,6 V-AA (lifetime up to 12 years)
Mains supply	230 V +10%/-15%, 50 Hz +/-2%, max. 1 VA
Supply via M-Bus (option card)	at M-Bus EN 1434-3 max. 2 M-Bus standard loads (2x1,5 mA)

### Maximum values

Parameter	Power, flow and inlet temperature (monthly maximum value on display with time stamp)
Period for averaging	15 min
Internal memory	24 month maximum values

### Inputs from volume measuring meter

Signal	Reed contact, Open collector, Open drain or static contactor
Pulse frequency	max. 16 Hz
Resistore $R_{on}/R_{off}$	$\leq 150 \Omega / \geq 2 M\Omega$
Cable diameter	3.75 +/- 0,75 mm
Wire cross-section	0,2 ... 1,5 mm <sup>2</sup>

### Option card M-Bus / 2 water meter inputs

M-Bus standard load	1 standard load = 1,5 mA power consumption
Protocol	M-Bus according EN 1434-3
Standard transmission rate	2400 baud
Pulse input	Characteristics according EN 1434-2 - 7.1.5 class IC
Pulser	Reed contact, Open collector, Open drain or static contactor
Frequency	max. 5 Hz
Pulse length	min. 100 ms
Resistore $R_{on}$	max. 10 k $\Omega$
Max. cable length	10 m
Pulse value	1 - 250 l/imp. (programmable, standard 10 l)

### Option card M-Bus / 2 pulse outputs

Heat energy	Output: Heat energy + volume
Heat and cooling energy	Output: Heat and cooling energy
M-Bus standard load	1 standard load = 1,5 mA power consumption
Protocol	M-Bus according EN 1434-3
Standard transmission rate	2400 baud
Pulse output	Characteristics according EN 1434-2 - 7.1.3 class OA
Pulser	galvanically separated optocoupler, bi-polar output
Output frequency	max. 2 Hz
Pulse length	250 ms +/- 8%
Resistore $R_{on}$	max. 20 $\Omega$
Pulse value	According to the smallest digit on the display

### Option card M-Bus Power / 2 water meter inputs

M-Bus standard load	2 standard loads = 3 mA power consumption
Protocol	M-Bus according EN 1434-3
Standard transmission rate	2400 Baud
Pulse input	Characteristics according EN 1434-2 - 7.1.5 class IC
Pulser	Reed contact, Open collector, Open drain or static contactor
Frequency	max. 5 Hz
Pulse length	min. 100 ms
Resistore $R_{on}$	max. 10 k $\Omega$
Max. cable length	10 m
Pulse value	1 - 250 l/imp. (programmable, standard 10 l)

### Option card LonWorks / 2 water meter inputs

Protocol	LonTalk®
Power supply	24 V AC/DC
Power input	1 VA
Pulse input	Characteristics according EN 1434-2 - 7.1.5. Klasse IC
Pulser	Reed contact, Open collector, Open drain or static contactor
Pulse length	min. 100 ms
Resistore $R_{on}$	max. 10 k $\Omega$
Max. cable length	10 m
Pulse value	1 - 250 l/imp. (programmable, standard 10 l)

### Temperature sensor

Temperature sensor	Pt 100 (2-wires)
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