



## CF-800

Calculator



### Your benefits

- Large display:  
**Easy to read**
- Backup battery with a backup period of 1 year:  
**To ensure time and metering values are not lost during a power outage**
- Option cards for diverse functionalities:
  - **Economical basic device**
  - **Additional functionalities feasible**

### Applications

- Metering of heat and/or cooling consumption in building management
- Energy measurement for local or remote reading
- Application for bulk measuring points
- Connection to management systems

### Properties

- Electronic calculator
- LCD-resolution 7 digits
- Non-volatile memory EEPROM
- Temperature measuring range 0 - 180 °C
- Temperature sensor Pt 100, two- or four-wire technology
- Standard EN 1434
- 24 month register
- Mains supply 230 V AC
- Maximum values with time stamp
- Can be combined with the following volume measuring meters:
  - Impeller meters with reed-pulser
  - MID
- Pulse outputs
- Wall-mounted installation
- **CE** Conformity according European Measuring Instrument Directive (MID)

### Options

- Special version for combined heat/cooling metering (special programming)
- Option cards Module 1
  - M-Bus
  - LonWorks, FTT-10A
  - Modbus RTU (RS485)
- Option card COMIO Module 2
  - 4 active, freely programmable analogue outputs 0/4...20 mA /
  - 2 alarm relay outputs or 2 water meter inputs / M-Bus

# Technical data

## Technical data calculator CF-800

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 ■ 999'999,9 ■ 99'999,99 ■ 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	IP54 acc. DIN 40050 (dust and splash-proof)
Environment class	C acc. EN 1434
Environment temperature	+5 to +55 °C (intern installation)
Storage temperature	-10 to +60 °C
EMV	Protected acc. EN 61010-1, 61000-6-2 (interference resistance for industrial sectors), 61000-6-3 (emitted interference for residential sector, business and commercial sector as well as small businesses)
Double insulation	Protective class II acc. CEI 60364-4-443

## Power supply

Mains supply	230 V AC +10/-15%, 50 Hz ± 2%, max. 8 VA
Battery backup	3 V DC, 2,5 Ah, lithium battery
Backup period	1 year (without supply), can be replaced Extended options are deactivated during the power outage period (COMIO option card)

## Maximum values

Parameters	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. 128 Hz
Resistor R <sub>on</sub> / R <sub>off</sub>	≤ 150 Ω / ≥ 2 MΩ
Cable diameter	3,5 - 8 mm
Wire cross-section	0,2...1,5 mm <sup>2</sup>

## Pulse outputs

Heat energy	Output: Heat energy + volume
Heat and cooling energy	Output: Heat and cooling energy
Pulse output	Characteristic according EN 1434-2 - 7.1.3 class OA
Pulser	Galvanically isolated optocoupler, bi-polar output
Sampling current	max. 20 mA (status ON)
Sampling voltage	max. 30 V DC (status OFF)
Output frequency	max. 1 Hz
Pulse length	250 ms $\pm$ 8%
Resistor $R_{on}$	max. 20 $\Omega$
Resistor $R_{off}$	min. 10 k $\Omega$
Cable diameter	3,5 - 8 mm
Wire cross section	0,2...1,5 mm <sup>2</sup>
Max. cable length	30 m
Pulse value	According to the smallest digit on the display

## Option card M-Bus (Module 1)

M-Bus standard load	1 standard load = 1,5 mA power consumption
Protocol	M-Bus according EN 1434-3
Standard transmission rate	2400 Baud

## Option card LonWorks (Module 1)

Protocol	LonTalk®
Power supply	24 V AC/DC
Power input	1 VA

## Option card COMIO (Module 2)

<b>4 active analogue outputs</b>	
Parameters	Tr, Tv, Q, P, $\Delta$ t
Output type	0...20 mA or 4...20 mA
Output load	max. 300 $\Omega$ (per output)
Accuracy	2% of the displayed value
Resolution	0,5% at 0...20 mA 0,65% at 4...20 mA

## 2 alarm relay outputs

Parameters	Tr, Tv, Q, P, $\Delta$ t, error message, power supply missing
Relay characteristic	NC contact or NO contact
Contact protection	RC element with 100 $\Omega$ / 0,1 $\mu$ F

## 2 alarm relay outputs

Switching voltage	max. 50 V
Switching current	max. 200 mA

## 2 water meter inputs (alternative to 2 alarm relay outputs)

Pulse input	Characteristic according EN 1434-2 - 7.1.5 class IC
Pulser	Reed contact, Open collector, Open drain or static contactor
Sampling voltage	max. 6 V
Contact current	max. 0,1 mA
Frequency	max. 5 Hz
Pulse length	min. 100 ms
Resistor $R_{on}$	max. 10 k $\Omega$
Max. cable length	10 m
Pulse values	1 - 250 l/imp. (programmable, standard 10 l)

## M-Bus

M-Bus standard load	1 standard load = 1.5 mA power consumption
Protocol	M-Bus in accordance with EN 1434-3
Standard transmission rate	2400 Baud

## Temperature sensor

Temperature sensor	Pt 100 (2- or 4-wires)
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## Dimension Diagram

### Calculator CF-800

