Building technology

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**

Application

- 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

Features

- 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 and OIML R75 recommendations
- 24 month register
- Mains supply 230 VAC
- 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^3
Indication device flow	m^3/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 VAC +10/-15%, 50 Hz ± 2%, max. 8 VA
Battery backup	3 VDC, 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_{on} / R_{off}	⩽ 150 Ω / ⩾ 2 MΩ
Cable diameter	3,5 - 8 mm
Wire cross-section	0,2...1,5 mm^2

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 VDC (status OFF)
Output frequency	max. 1 Hz
Pulse length	250 ms ± 8%
Resistor R_{on}	max. 20 Ω
Resistor R_{off}	min. 10 kΩ
Cable diameter	3,5 - 8 mm
Wire cross section	0,2...1,5 mm^2
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)	
4 active analogue outputs	
Parameters	Tr, Tv, Q, P, Δt
Output type	0...20 mA or 4...20 mA
Output load	max. 300 Ω (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, Δt, error message, power supply missing
Relay characteristic	NC contact or NO contact
Contact protection	RC element with 100 Ω / 0,1 µF
Switching voltage	max. 50 V
Switching current	max. 200 mA

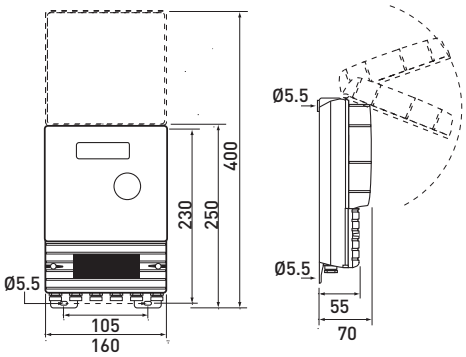
2 water meter inputs (alternative to 2 alarm relay outputs)	
Pulse input	Characteristic according EN 1434-2 - 7.1.5 class IC
Pulser	Reed contact, Open collector, Open drain or static contactor
Sampling voltage	max. 6 V
Contact current	max. 0,1 mA
Frequency	max. 5 Hz
Pulse length	min. 100 ms
Resistor R_{on}	max. 10 kΩ
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	**Pt 100 (2- or 4-wires)**

Dimension Diagram

Calculator CF-800



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