engelmann
smartest metering technology

Engelmann Heat Meter Calculator

SensoStar C

- Various application options due to a large selection of variants and setting options
- User-friendly mounting system for easy connection of flow and temperature sensors
- Flexible communication based on a modular system
- Connection of an external power pack enables direct monitoring of your system

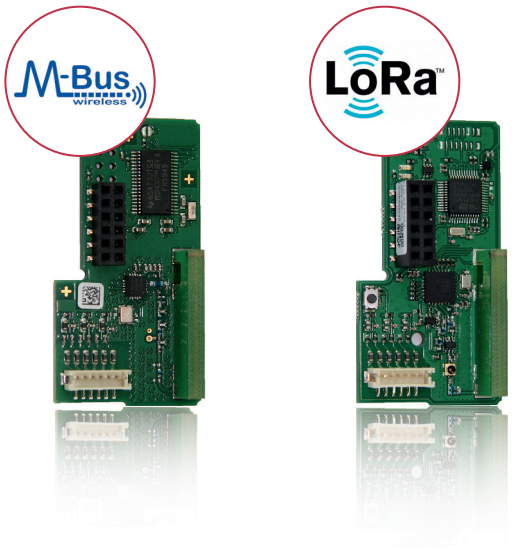
Precise heat/cooling measurement

The SensoStar C is a flexible calculator for recording heat or cooling energy that offers a suitable solution for every installation situation. Specially designed for the measurement of large volume flows, the calculator can be easily combined with all standard flow sensors. The range is rounded off by a wide selection of retrofittable communication modules as well as the option of an external power pack for direct system monitoring.

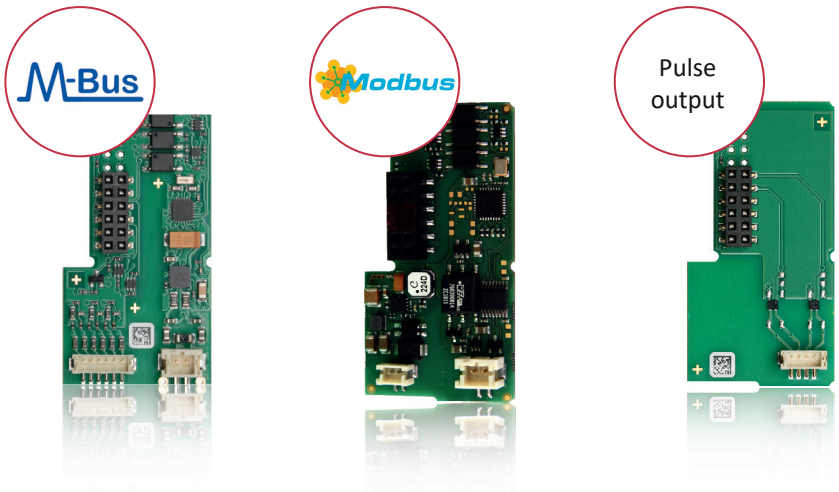
We speak your language

The continuously growing portfolio of communication modules offers you a wide range of remote readout options.

RADIO MODULES



WIRED MODULES



Features

- Available for heating and cooling applications
- Wide range of variants for different requirements
- Installation point and display unit adjustable on site
- Battery life of up to 20 years
- Automatic adjustment of the temperature measurement cycle by using external power supply

wM-Bus, LoRaWAN and M-Bus can also be equipped with 3 pulse inputs to connect other devices.

SensoStar C

TECHNICAL DATA

Calculator

Temperature range medium	°C	0 – 150 heat / 0 – 50 cooling
Ambient temperature in the field	°C	5 – 55 at 95 % relative humidity
Transport temperature	°C	-25 – 70 (for max. 168 h)
Storage temperature	°C	-25 – 55
Temperature difference range ΔΘ heat	K	3 – 100
Temperature difference range ΔΘ cooling	K	-3 –-50
Minimum temperature difference ΔΘ heat	K	> 0.05
Minimum temperature difference ΔΘ cooling	K	<-0.05
Minimum temperature difference ΔΘ heat / cooling	K	> 0.5 / <-0.5
Resolution temperature	°C	0.01
Temperature measurement cycle in normal operation	s	30 with a lifetime of 6+1 years; 60 with a lifetime of 10 years (optional); 2 by using a power pack
Pulse values, optional	l/Imp	1; 2.5; 10; 25; 100; 250; 1000; 2500

Display		LCD – 8 digits + special characters
Displayed thermal energy		up to 3 decimal places
Units		MWh, kW, m³, m³/h (kWh, GJ); unit of energy can be set when the amount of energy is still ≤ 10 kWh
Interfaces		optical interface (M-Bus protocol); *optional communication:* radio: wireless M-Bus*, LoRaWAN*; wired: M-Bus*, Modbus, 2 pulse outputs
Power supply		easily replaceable 3 V lithium battery; preparation for 3 V power pack available (input voltage 230 V / 24 V AC)
Estimated lifetime	years	20 without communication module; 16 with M-bus hourly readout; 15 with M-Bus 10 minute readout; 10 with others e.g. wM-bus, Modbus, LoRaWAN
Data storage		24 monthly and semi-monthly values
Billing dates		freely selectable annual billing date; 15 monthly and semi-monthly values via display or radio (compact mode); 24 monthly and semi-monthly values via optical interface or M-Bus
2 tariff registers		individually adjustable; store energy or time
Storage of the maximum values		flow, power and temperatures (inlet, outlet, ΔΘ) as well as the respective maximum values of the last 15 months
Protection class		IP54
CE		yes
Mechanical / electromagnetic class		M2 / E2
Pulse input device		microcontroller CMOS input of class IB according to EN 1434-2:2015 (D)
Medium		water; optional, without approval*: water with a propylene glycol or ethylene glycol percentage rate of 20 %, 30 %, 40 % or 50 % (* type and concentration of glycol can be set at any time)
Weight	kg	0.350
W x H x D	mm	150 x 130 x 35

* Optional with 3 pulse inputs.

Flow sensor requirements

Encoder type class (according to EN 1434-2:2015)		OA (reed contact); OC (open collector)
Maximum input frequency	Hz	10
Pulse length and pulse pause		at least 25 ms pulse length; at least 50 ms pulse pause

Temperature sensor requirements

Platinum precision resistor		Pt 500
Connecting cable length (unshielded)	m	up to 10 m in 2-wire technology; (3 and 10 available at Engelmann)
Installation type		direct immersion; in thermowells

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