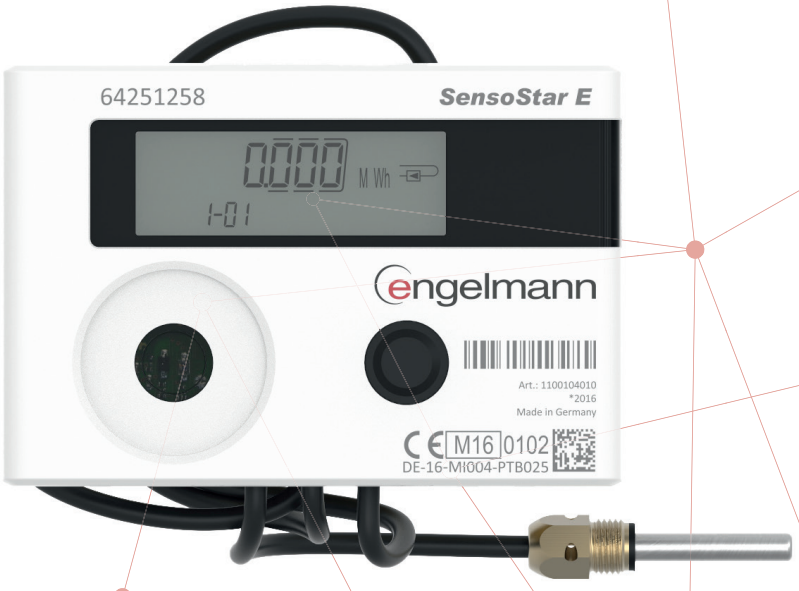
engelmann
smartest metering technology

Engelmann Heat Meter

SensoStar E

Mechanical flow sensor for inline installation points



- Most accurate measurement results using the single-jet principle
- Various installation options due to a large selection of interfaces and options
- Flexible communication based on modular system
- Fast response due to dynamic temperature measurement cycle

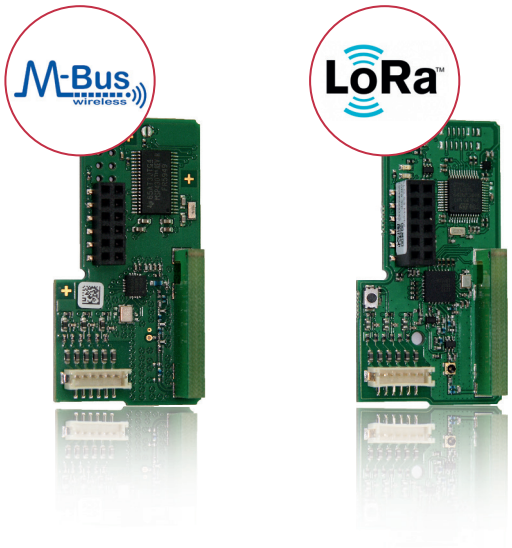
Precise heat/cooling measurement

The SensoStar E is a high-precision measuring device that uses inductive sensing to record heat or cooling energy. This meter offers the right solution for every installation situation or requirement. The comprehensive range covers installation lengths, temperature sensor and communication variants.

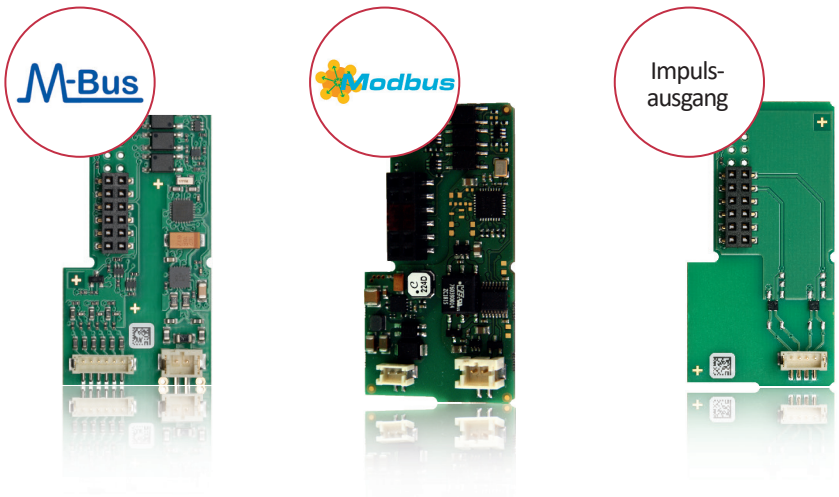
We speak your language

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

RADIO MODULES



WIRED MODULES



Features

- Meters from qp 0.6 to qp 2.5
- Sizes: DN 15 and DN 20
- Installation lengths: 110 mm and 130 mm
- Vertical or horizontal installation
- Installation point and display unit adjustable on site
- Automatic return flow detection
- Detachable calculator with 0.50 m connection cable
- Battery life of up to 20 years

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

SensoStar E

TECHNICAL DATA

1. Flow sensor

Sizes	**Nominal flow rate qp**	m³/h	0.6	1.5	1.5	2.5
	Low flow threshold value	horizontal	3.5 l/h	7 l/h	7 l/h	10 l/h
		vertical	4 l/h	7 l/h	7 l/h	10 l/h
	Minimum flow qi	l/h	24	60	60	100
	Maximum flow qs	m³/h	1.2	3	3	5
Pressure drop Δp at qp		bar	0.155	0.210	0.225	0.165
Pressure drop Δp at qs		bar	0.660	0.840	0.910	0.675
Nominal diameter		mm	DN 15	DN 15	DN20	DN20
Connection thread		inch	G3/4B	G3/4B	G1B	G1B
Installation length		mm	110	110	130	130
Dynamic range qi/qp		-	1:25	1:25	1:25	1:25

Measuring method		bidirectional inductive scanning system
Metrological class (MID)		Class 3
Nominal pressure PN	bar	16
Temperature range medium heat	°C	15 – 90
Temperature range medium cooling (qp 1.5 (DN 15) and qp 2.5)	°C	5 – 50
Point of installation		outlet flow and inlet flow; can be set when the amount of energy is still ≤ 10 kWh
Mounting position		horizontal/vertical
Protection class		IP65
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)

2. Calculator

Temperature range medium	°C	0 – 150 heat / 0 – 50 cooling (qp 1.5 (DN 15) and qp 2.5)
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
Measuring cycle temperature; dynamic	s	2 / 60; using a power pack: 2 s permanent

SensoStar E

TECHNICAL DATA

Display		LCD – 8 digits + special characters
Displayed thermal energy		up to 3 decimal places
Units		MWh, kW, m³, m³/h (kWh, GJ, MMBTU, Gcal); 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)
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 reference 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		IP65
CE		yes
EMC		EN 1434

* Optional with 3 pulse inputs.

3. Temperature sensors (2-wire technology)

Platinum precision resistor		Pt 1000
Sensor diameter	mm	UTS: 5; 5.2; 6; AGFW: 27.5; 38; needle sensor: 3.5 x 75
Connection cable length	m	1.5; 3; 6
Installation type		asymmetrical; symmetrical

4. Weights

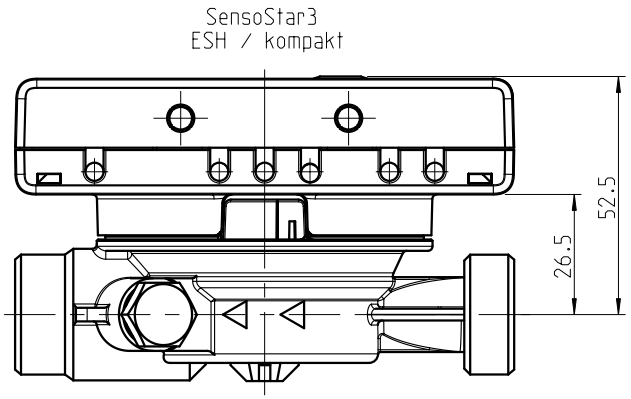
Weight (standard version in kg)	qp 0.6 / qp 1.5 (DN 15)	qp 1.5 (DN 20) / qp 2.5
Calculator not detachable	0.755	0.795
Calculator detachable	0.840	0.880

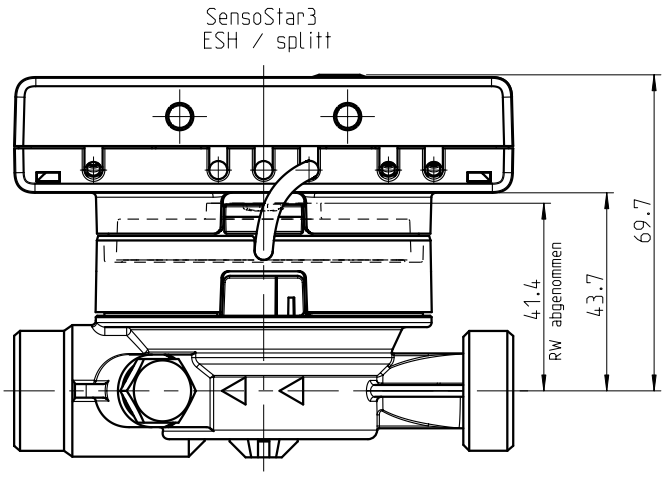
5. Dimensions

Pulse cable length (only separable version)	m	0.50
Calculator housing (H x W x D)	mm	75 x 110 x 34.5
Connection thread	G3/4“, DN 15: qp 0,6 / qp 1,5	G1“, DN 20: qp 1,5 / qp 2,5

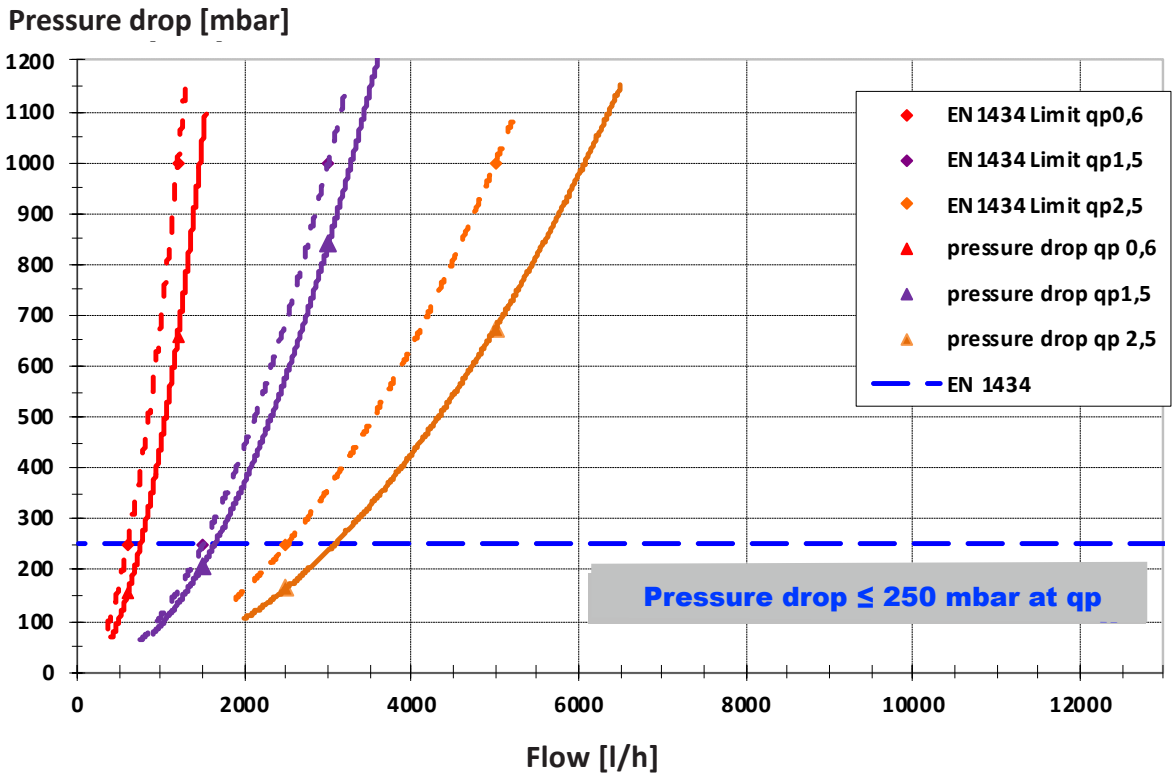
SensoStar E

TECHNICAL DATA





PRESSURE DROP SENSOSTAR E



Contact us here:

+49 6222 98 00 188 (Orders)
+49 6222 98 00 2727 (Technical Service)
+49 6222 98 00 0 (Head Office)

info@engelmann.de

Engelmann Sensor GmbH
Rudolf-Diesel-Straße 24-28
69168 Wiesloch-Baiertal
Germany

www.engelmann.de