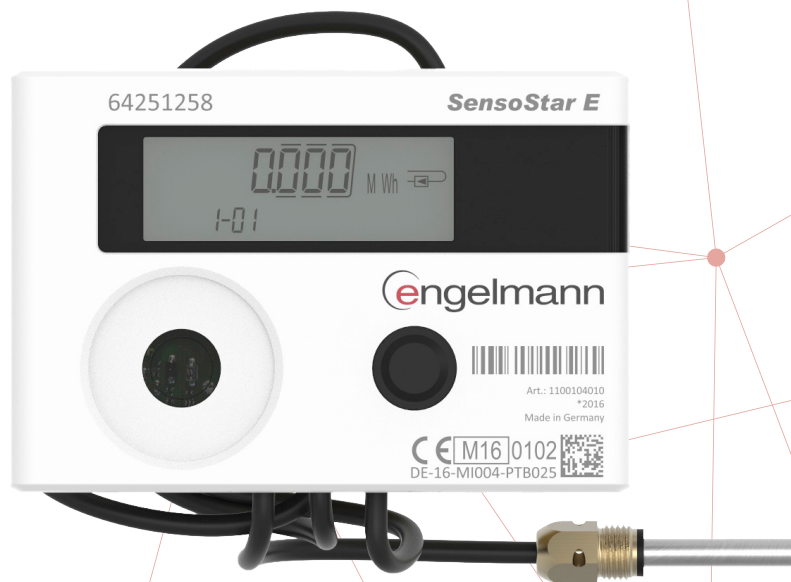


Engelmann **Heat Meter**

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

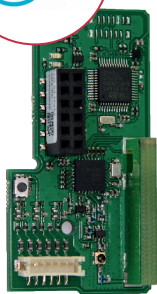
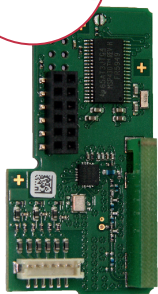
Precise heat/cooling measurement

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 all 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.

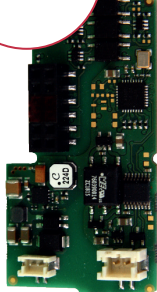
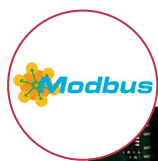
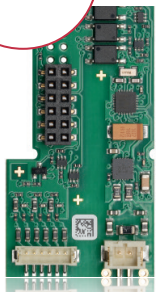
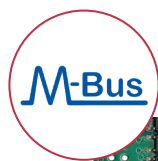
RADIO MODULES



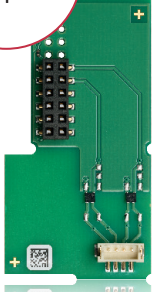
Features

- 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 capacity of up to 20 years

WIRED MODULES



Pulse
output



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

Flow sensor

Sizes	Nominal flow rate Qp	m³/h	0.6	1.5	1.5	2.5
	Low flow threshold value	horizontal (l/h)	3.5	7	7	10
		vertical (l/h)	4	7	7	10
	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	DN 20	DN 20
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			
Accuracy class (MID)			class 3 (EN 1434)			
Protection class			IP65			
Nominal pressure PN		bar	16			
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)			
Mounting position			horizontal/vertical			
Point of installation			outlet flow and inlet flow can be set when the amount of energy is still ≤ 10 kWh			
Temperature range medium heat		°C	15 – 90			
Temperature range medium cooling (Qp 1.5 (DN 15) and Qp 2.5)		°C	5 – 50			

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

Display	LCD – 8 digits + special characters	
Displayed thermal energy	up to 3 decimal places	
Units	MWh, kW, m ³ , m ³ /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) <i>optional communication:</i> radio: wireless M-Bus*, LoRaWAN* wired: M-Bus*, Modbus RTU, 2 pulse outputs	
	*Optional with 3 pulse inputs.	
Power supply	easily replaceable 3 V lithium battery preparation for 3 V power pack available (input voltage 230 V / 24 V)	
Battery capacity, designed	years	20 (without communication module) 16 (M-Bus, readout interval 1 hour) 15 (M-Bus, readout interval 10 minutes) 10 (with others e.g. wM-Bus, Modbus RTU, LoraWAN)
Data storage	24 monthly and 24 semi-monthly values	
Billing dates	freely selectable annual billing date 15 monthly and 15 semi-monthly values via display or radio (compact mode) 24 monthly and 24 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	
Approvals	DE-16-MI004-PTB025; DE-16-M-PTB-0097 CH-T2-18768-00 CE	
Type designation	S3	
EMC (MID)	EN 1434	

Temperature sensors (2-wire technology)

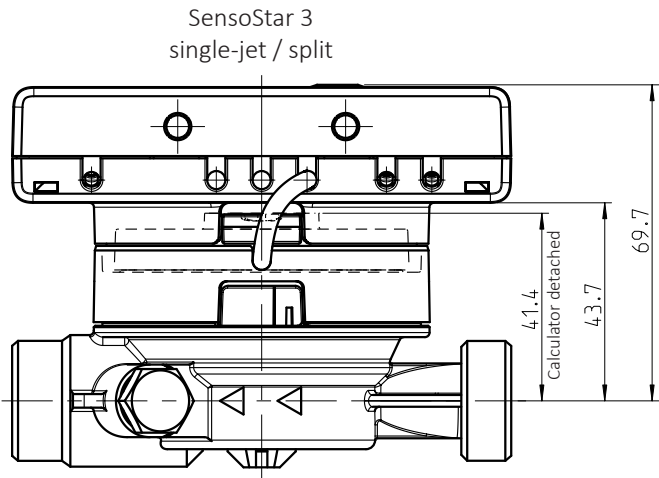
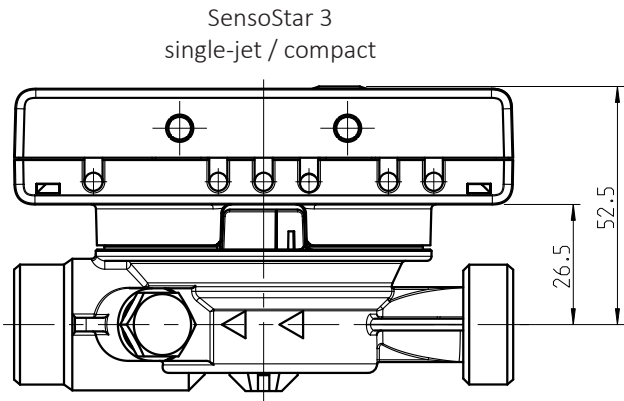
Platinum precision resistor	Pt 1000	
Sensor diameter	mm	UTS: 5; 5.2; 6; AGFW: 27.5; 38; needle sensor: 3.5 x 75
Connection cable length	m	1.5; 3; 6
Installation type	asymmetrical; symmetrical	

Weights

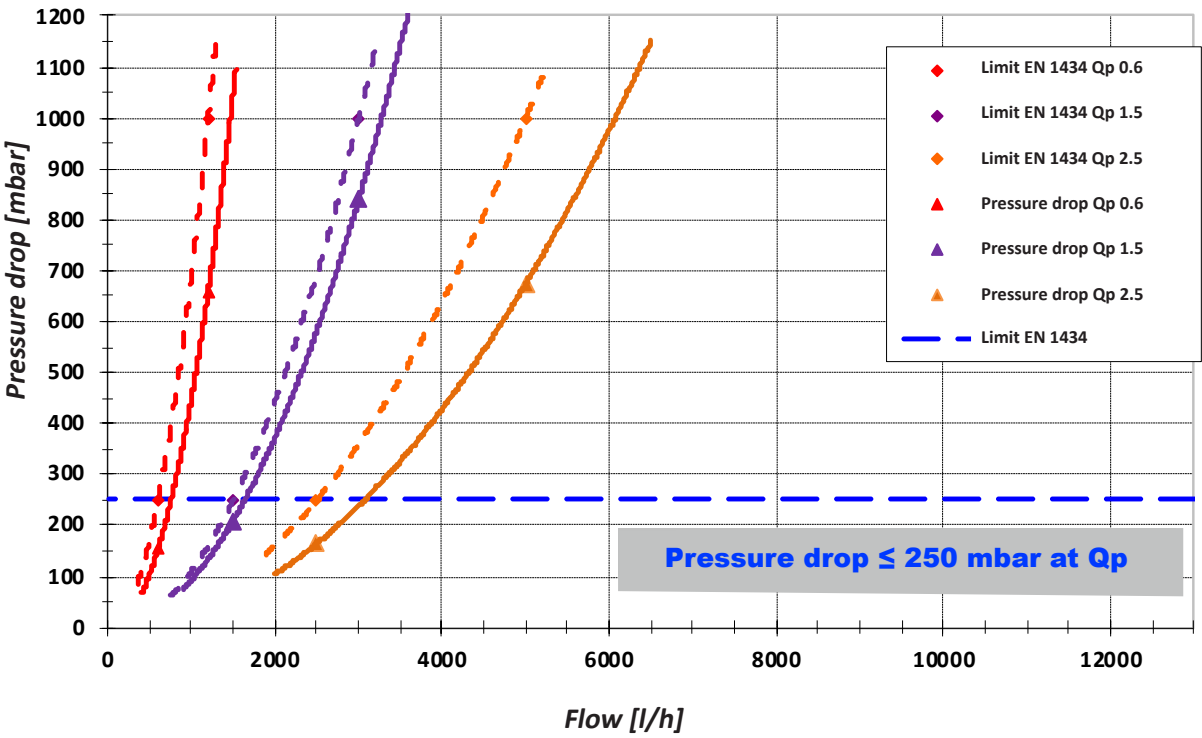
Weight (standard version in kg)	Qp 0.6 / Qp 1.5 (DN 15)	Qp 1.5 (DN 20) / Qp 2.5
Calculator not detachable	0.755	0.795
Calculator detachable	0.840	0.880

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



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