

SensoStar U Eco

Ultrasonic Thermal Energy Meter

Ultrasonic heat meter for inline installation points



Features:

- 2 / 60 s dynamic measuring cycle temperature
- 2 s measuring cycle flow
- Detachable calculator unit
- Detection of back flow and air
- optical interface and M-Bus as Communication interfaces

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Technical data

Flow sensor

Measuring method			ultrasonic; time-of-flight				
Sizes	Nominal flow q_p	m ³ /h	1,5	1,5	2,5	3,5	6,0
	Low flow threshold	l/h	7,5	7,5	12,5	17,5	30
	Minimum flow q_i	l/h	15	15	25	35	60
	Maximum flow q_s	m ³ /h	3,0	3,0	5,0	7,0	12,0
Pressure drop Δp at q_p		bar	0,190	0,195	0,195	0,200	0,220
Pressure drop Δp at q_s		bar	0,800	0,830	0,830	0,850	0,900
Nominal diameter		mm	DN 15	DN20	DN 20	DN 25	DN 32
Thread		inch	G3/4B	G1B	G1B	G1 1/4B	G1 1/2B
Length		mm	110	130	130	160	180
Dynamic range q_i/q_p		-	1:100	1:100	1:100	1:100	1:100
Nominal pressure PN; max. press. MAP		bar	16				
Accuracy class (MID)			class 2				
Temperature range heat		°C	15 – 90				
Temperature range cooling		°C	5 – 50				
Temperature range heat/cooling		°C	15 – 90 heat 5 – 50 cooling				
Point of installation			return flow; optional: forward flow				
Mounting position			any position				
Protection class			IP65				

Calculator unit

Calculator housing (H x W x D)	mm	97 x 105 x 37,7
Temperature range	°C	0 – 105 heat 0 – 50 cooling
Ambient temperature	°C	5 – 55 at 95 % relative humidity
Temperature difference range $\Delta\theta$ heat	K	3 – 100
Temperature difference range $\Delta\theta$ cooling	K	-3 – -50
Minimum temp. difference $\Delta\theta$ heat	K	> 0,05
Minimum temperature difference $\Delta\theta$ cooling	K	< -0,05
Minimum temperature difference $\Delta\theta_{HC}$ heat / cooling	K	> 0,5 / < -0,5
Resolution temperature	°C	0,01
Measuring cycle temperature; dynamic	s	2 / 60
Measuring cycle flow	s	2
Display		LCD - 8 digits + special characters
Decimal places		up to 3 after comma
Units		MWh, kW, m ³ , m ³ /h (kWh, GJ, l, l/h, MW, MMBTU, Gcal)
Interfaces		optical interface (M-Bus protocol); M-Bus
Power supply		exchangeable 3 V lithium battery

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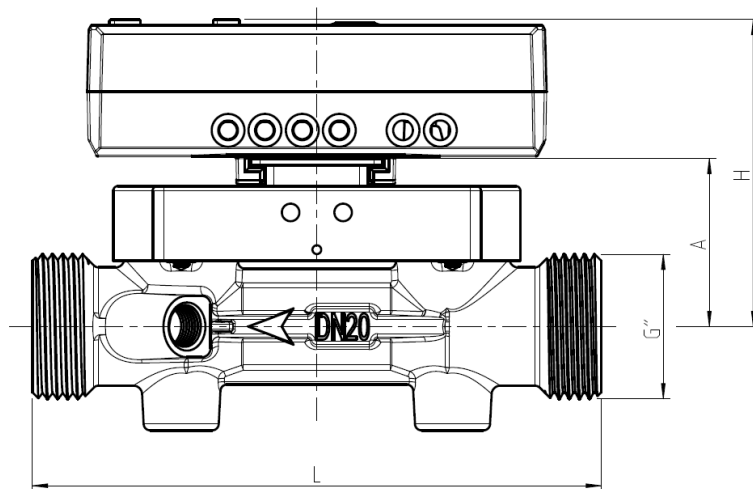
Estimated lifetime	years	8; see „Influencing_factors_battery_lifetime“ at www.engelmann.de
Data storage		nonvolatile memory
Reading dates		selectable yearly reading date; 365 daily values via optical interface; 15 monthly and semimonthly values via display; 24 monthly and semimonthly values via optical interface or M-Bus
2 tariff registers		can be set individually; adding up energy or time
Storage of maximum values		flow and power
Protection class		IP65
CE		yes
EMC		EN 1434

Temperature sensors

Platinum precision resistor		Pt 1000
Diameter	mm	5
Length of cable	m	1,5
Installation		one temperature sensor integrated in flow sensor; optional: both temperature sensors external to flow sensor

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Dimensions meter



Qp (m³/h)	Nominal diameter	G (")	L (mm)	H (mm)	A (mm)
1,5	DN 15	G3/4B	110	66,3	35
1,5	DN 20	G1B	130	70	38,8
2,5	DN 20	G1B	130	70	38,8
3,5	DN 25	G1 1/4B	160	72,6	41,3
6,0	DN 32	G1 1/2B	180	74,6	43,3

Pressure drop SensoStar U Eco

