SensoStar U

Ultrasonic heat meter for inline installation

- Detection of back flow and air
- High temperature resistant for district heating
- Measuring cycle temperature, dynamic: 2 / 60 s
- Measuring cycle flow: 2 s
- Lithium battery is easy to exchange
- Detachable calculator unit: 85 cm pulse cable length (2,85 m optional)
- Communication interfaces: wireless M-Bus;
  wireless M-Bus + 3 pulse inputs;
  M-Bus;
  M-Bus + 3 pulse inputs;
  2 pulse outputs

Micronics Limited, Unit B3, Knaves Beech Business Centre, Davies Way, Loudwater, High Wycombe, Bucks HP10 9QR Tel: +44 (0) 1628 810456
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Technical data:

Flow sensor

Measuring method			ultrasonic; time-of-flight						
Sizes	Nominal flow q_p	m³/h	0,6	1,5	1,5	2,5	3,5	3,5	6,0
	Low flow threshold	l/h	6	6	6	12	14	14	30
	Minimum flow q_i	l/h	12	15	15	25	35	35	60
	Maximum flow q_s	m³/h	1,2	3,0	3,0	5,0	7,0	7,0	12,0
Pressure drop Δp at q_p		bar	0,03	0,21	0,04	0,115	0,210	0,210	0,20
Pressure drop Δp at q_s		bar	0,13	0,85	0,16	0,46	0,885	0,885	0,80
Nominal diameter		mm	DN 15	DN 15	DN20	DN 20	DN 20	DN 25	DN 25
Thread		inch	G3/4B	G3/4B	G1B	G1B	G1B	G1 1/4B	G1 1/4B
Length		mm	110	110	130	130	130	150	150 / 260
Dynamic range q_i/q_p (standard)		-	1:50	1:125	1:125	1:100	1:125	1:125	1:100
Dynamic range q_i/q_p (optional)		-	-	1:50 1:100	1:50 1:100	-	1:100 1:150	1:100 1:150	-
Accuracy class (MID)			class 2						
Nominal pressure PN		bar	16						
Temperature range heat		°C	15 – 90 standard 15 – 130 high temperature (150; for maximal 2000 h)						
Temperature range cooling (from q_p 1,5 to q_p 6)		°C	5 – 50						
Temperature range heat/cooling		°C	15 – 90 heat standard 15 – 120 high temperature 5 – 50 cooling						
Point of installation			outlet flow and inlet flow; can be set when the amount of energy is still ≤ 10 kWh						
Mounting position			any position						
Protection class			IP65						

Calculator unit

Temperature range	°C	0 – 150 heat 0 – 50 cooling (from q_p 1,5 to q_p 6)
Ambient temperature	°C	5 – 55 at 95 % relative humidity
Temperature difference range *ΔΘ* heat	K	3 – 100
Temperature difference range *ΔΘ* cooling	K	-3 – -50
Minimum temp. difference *ΔΘ* heat	K	> 0,05
Minimum temperature difference *ΔΘ* 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; using a power pack: 2 s permanent
Measuring cycle flow	s	2
Display		LCD - 8 digits + special characters
Decimal places		up to 3 after comma
Units		MWh, kW, m³, m³/h (kWh, GJ, l, l/h, MW, MMBTU, Gcal); unit of energy can be set when the amount of energy is still ≤ 10 kWh
Interfaces		optical interface (M-Bus protocol); optional: wireless M-Bus; wireless M-Bus + 3 pulse inputs; M-Bus; M-Bus + 3 pulse inputs; 2 pulse outputs

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Power supply		exchangeable 3 V lithium battery; all types prepared for 3 V power pack (input voltage 230 V / 24 V)
Estimated lifetime	years	10; see instruction manual
Data storage		nonvolatile memory
Reading dates		selectable yearly reading date; 15 monthly and semimonthly values via display or wireless M-Bus; 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

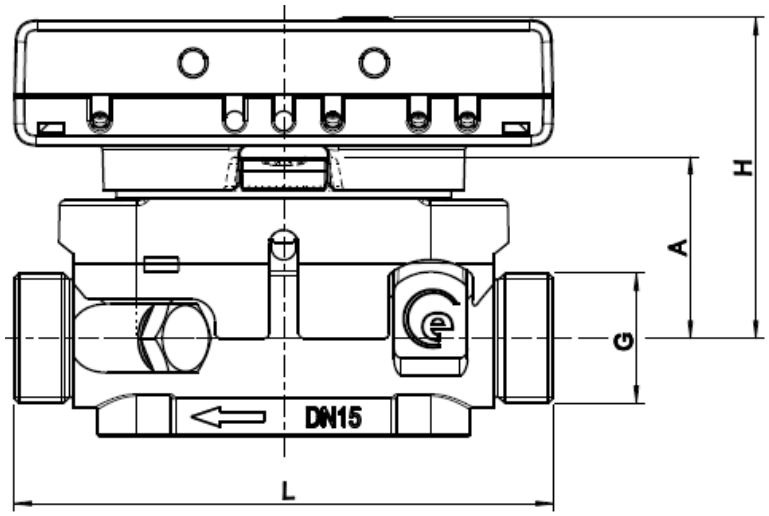
Temperature sensors (2-wire technique)

Platinum precision resistor		Pt 1000
Diameter	mm	5; 5,2; 6; AGFW 27,5; 38; needle sensor 3,5 x 75
Length of cable	m	1,5; 3; 6
Installation		asymmetrical; symmetrical

Dimensions calculator unit

Calculator housing (H x W x D)	mm	75 x 110 x 34,5

Dimensions meter



Qp (m³/h)	Nominal diameter	G (“)	L (mm)	H (mm)	A (mm)
0,6	DN 15	G3/4B	110	65	37
1,5	DN 15	G3/4B	110	65	37
1,5	DN 20	G1B	130	65	37
2,5	DN 20	G1B	130	65	37
3,5	DN 20	G1B	130	65	37
3,5	DN 25	G1 1/4B	150	65	37
6,0	DN 25	G1 1/4B	150	67,5	39,5
6,0	DN 25	G1 1/4B	260	67,5	39,5

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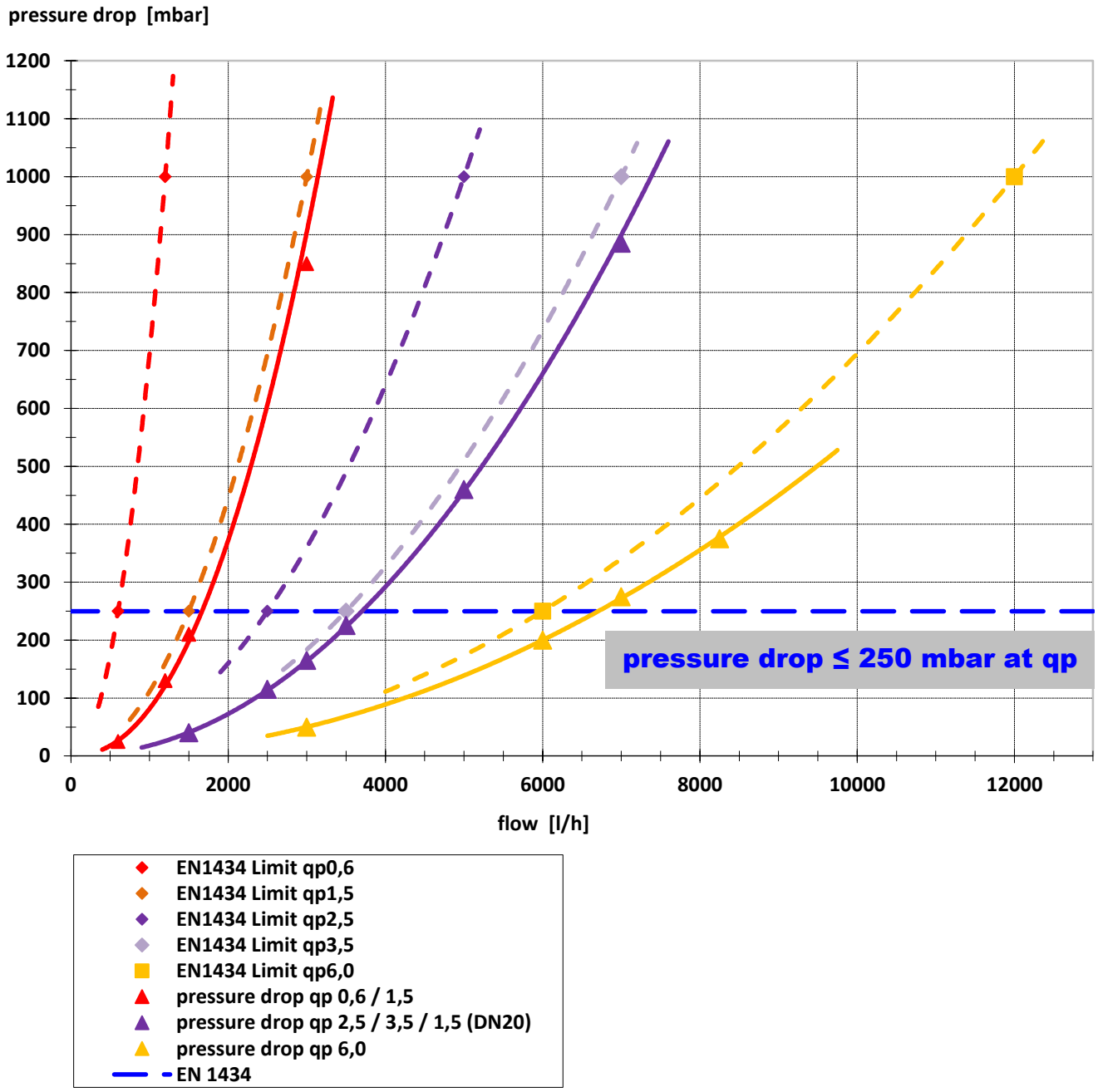
pressure drop ***SensoStar U***



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