



# DATASHEET ULTRAHEAT® T230 | ULTRACOLD® T230

STATIC ULTRASONIC HEAT AND COOLING METER



## Application

The T230 is a modern ultrasonic heat-, cooling or combined heat and cooling meter with an robust glass-fibre reinforced composite measuring tube, which was specifically optimized for the requirements in building technology .

## Key Facts

- Ultrasonic measurement - precise, durable
- More than 2 million units produced
- Compact, removable electronic unit
- 24 monthly values including mid-month values
- Intelligent, adaptive measuring cycle
- Any installation possible without restrictions
- 11 years lifetime, even with walk-by radio
- NEW: Battery exchange in the field
- NEW: Optional electronic unit IP65

## Technical Data

### General

Measuring accuracy	Class 2 or 3 (EN 1434)
Environment class	A (EN 1434) for indoor installation
Mechanical class	M1 <sup>*)</sup>
Electromechanical class	E1 <sup>*)</sup>
Ambient humidity	< 93 % rel. F. at 25 °C, without condensation
Max. height	2000 m above sea level
Storage temperature	-20 ... 60 °C

<sup>\*)</sup> acc. to 2014/32/EC Measuring Instruments Directive (MID)

### Electronic unit

Ambient temperature	5 ... 55 °C
Housing protection class	IP 54 acc. to EN 60529, optional IP 65
Power supply	Battery for 6 or 11 years
Operation threshold for $\Delta T$	0.2 K
Temperature difference $\Delta T$	3 K ... 80 K
Temperature measurement range	0 ... 180 °C
LCD	7 digit
Optical Interface	Standard, EN 62056-21
Communication	Optional
Separability	Always, cable length 1.5 m

### Temperature sensors

Type	Pt 500 acc. to EN 60751, not detachable
Connection type	Pt 500, 2-wire technology
Cable length	1.5 m (optional 5 m)
Construction type	Type PS $\varnothing$ 5.2 x 45 mm
Temperature range	0 ... 95 °C

### Volume measuring tube

Protection class	IP 65 acc. to EN 60529
Mounting place	Hot side / cold side
Installation position	Any
Flow straightening	None
Measuring range	1:100
Temperature range	5 ... 90 °C National type approvals may be different.
Maximum overload	$q_s = 2 \times q_p$ , permanent
Nominal pressure	PN16 (1.6 MPa; PS16)

$q_p$ m <sup>3</sup> /h	Overall length and connection	
0.6	110 mm (3/4 ")	—
1.5	110 mm (3/4 ")	130 mm (1 ")
2.5	—	130 mm (1 ")



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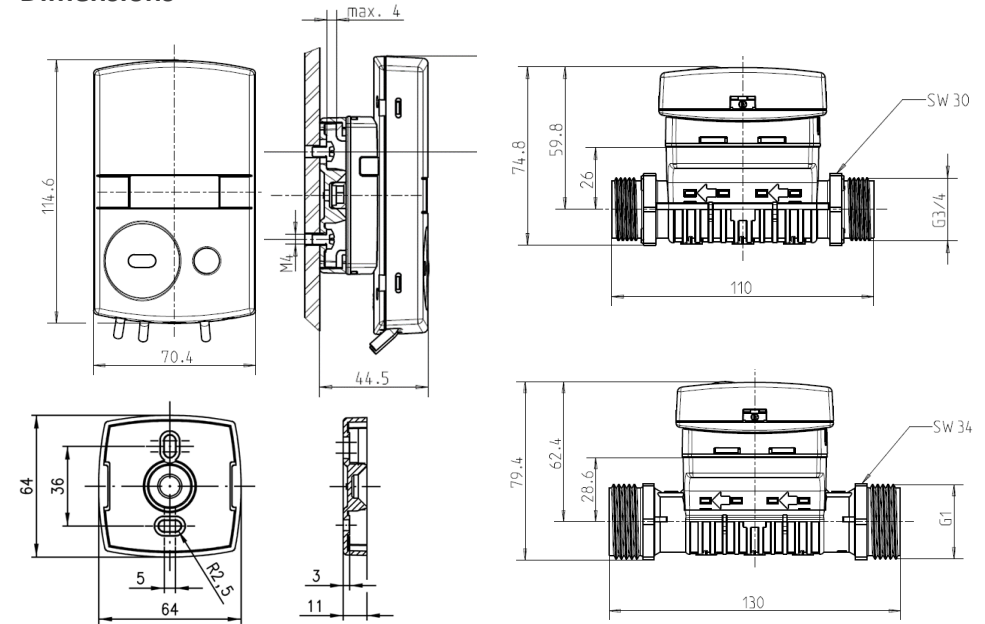
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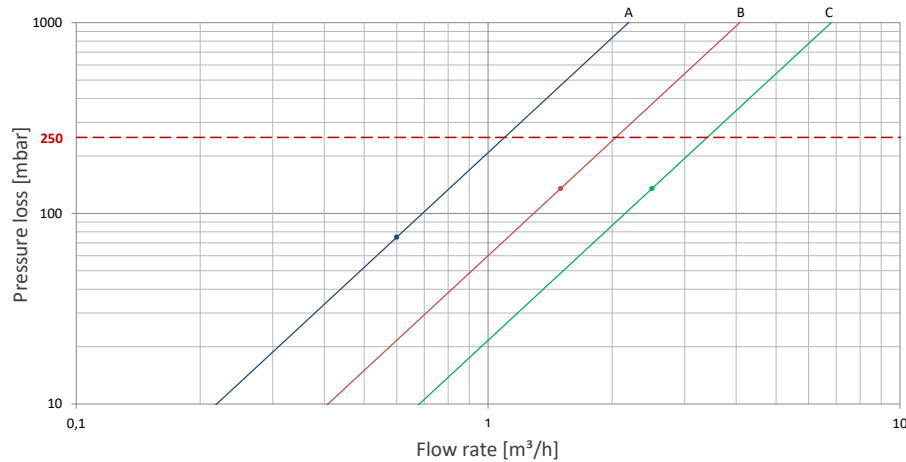
## Technical Data

Nominal flow $q_p$	0.6	1.5	1.5	2.5	[m <sup>3</sup> /h]
Overall length	110	110	130	130	[mm]
Connection	G ¾	G ¾	G 1	G 1	
Maximum flowrate $q_s$	1,2	3	3	5	[m <sup>3</sup> /h]
Minimum flowrate $q_i$	6	15	15	25	[l/h]
Response threshold (variable)	1,2	3	3	5	[l/h]
Pressure loss at $q_p$	75	135	135	130	[mbar]
Kv-Factor at $\Delta p$ 1bar	2.2	4.1	4.1	6.8	[m <sup>3</sup> /h]
Graph in diagram	A	B	B	C	
Weight	520	520	560	560	[g]
Packing Dimensions	Length	155	155	155	[mm]
	Width	135	135	135	[mm]
	Height	120	120	120	[mm]

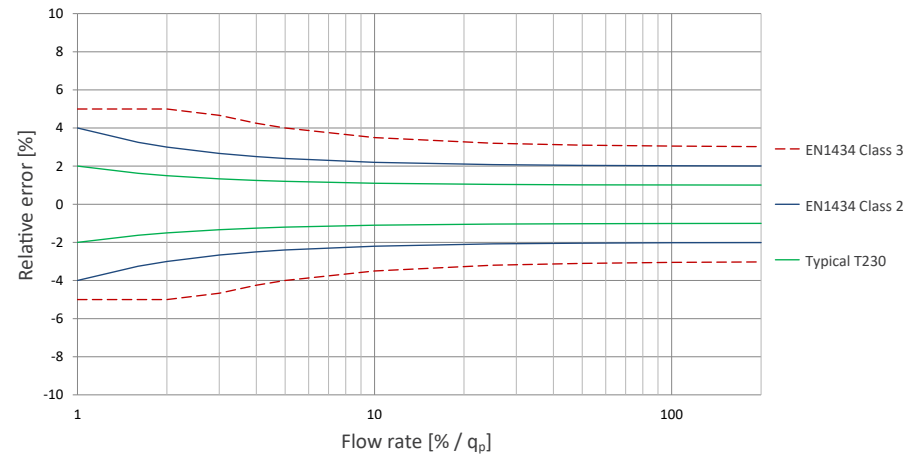
## Dimensions



## Pressure loss diagram



## Typical error acc. to EN1434





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## Communication (optional)

M-Bus	
Standard	EN13757-2 / EN13757-3
Address	Primary- or Secondary address
Transmission rate	Autobaud: 300 / 2400 Baud
Connection	1.5 m cable, 2-wired, fixed
Reading interval	> 1 min @ 2400 baud
Data telegram	1 predefined data telegram; User defined data telegram with Service Software UltraAssist
Previous month values	24 prev. month telegram via roll frame function available; 24 prev. monthly values available in user defined telegram

wM-Bus	
Standard	Open Metering System Specification OMS (Issue 3.0.1) EN 13757-4; Mode T1, C1
Frequency	868.95 MHz (min. 868.90 MHz - max. 869.00 MHz)
Transmission power	min. 3.16 mW (5 dBm) to max. 25 mW (13.9 dBm)
Range - Free field <sup>*)</sup>	Up to 400 m
Battery lifetime	6 a (mobile) / 11 a (mobile short telegram / stationary)
Sending interval	
- Mobile data reading	Acc. to configuration 20 - 34 seconds
- Stationary data reading	15 Minutes
- User defined data reading	Acc. to telegram length 12 - 900 Seconds
Data telegram	3 predefined data telegrams (mobile 6/11 a / stationary 11 a) User defined data telegram with Service Software UltraAssist

<sup>\*)</sup> depending on topology or building structure the range can deviate significantly

Pulse output	
Output type	open drain
Classification	OB/OC (acc. to EN1434-2)
Cable	1.5 m; 4-wired, LL84201 4xAWG28 / 0.2 mm <sup>2</sup>
Cable diameter	4 mm
Cable labelling	passive pulse output
Voltage	max. 30 V
Current	max. 30 mA
Dielectric strength	500 V <sub>eff</sub> against ground
ON/OFF resistance	100 Ω / 6 MΩ

LoRa WAN	
Power supply	battery, up to 11 a life time
Frequency	868 MHz
Output power	14 dBm
Receiver sensitivity	- 135 dBm
Device class	class A, bidirectional
LoRa version	1.0.2
Activation	OTAA or ABP, manual or automatic start
Data rate	DR0 - DR5 (250 - 5470 Bit/s)
Configuration	NFC via Elvaco OTC App or Downlink data
Approval	
- EMC	EN 301489-1, EN 301489-3
- LoRa Alliance®	LoRaWAN® Certified