Technical data sheet

zelsius® C5-IUF

Electronic compact meter for heating or cooling energy with ultrasonic flow sensor (IUF)
Optional interfaces: M-Bus, wireless M-Bus, LoRaWAN® and 3 inputs/outputs
Nominal sizes: q_p 0.6 to 10 m^3/h

The zelsius® C5 ultrasonic heating and cooling meter operates with an innovative ultrasonic technology, specially developed for a broad scope of application from submetering to district heating.

For meter sites with fast temperature changes, zelsius® C5-IUF is also available as "fast reaction heat meter" in accordance with DIN EN 1434-1:2016-02.

In case of installation points with immersion pockets with an installation length of 85 mm to 150 mm (with clamp screw or ¼" interior thread) a new type of temperature sensor is now available that can be used universally and thus offers a logistic advantage.

For calibration exchange of mechanical flow sensors by ultrasonic meters the so-called short lengths (150 mm and 200 mm) are also available for zelsius® C5-IUF.

This wear-free ultrasonic technology is stable in the long run, insensitive to dirt and measures reliably, even with very small flow volumes. The ultrasonic flow sensors can be operated permanently up to a heat medium temperature of 130 °C and are optimally suited for application in district heat supply. Because of the high overload capacity and the wear-free measurement technology they can also be used to measure energy in hot water supply systems in accordance with § 9 (2) of the German heating costs ordinance.

A single button is used to call up all the important device and consumption data, such as reference date values, maximum values or the stored monthly values over the entire lifetime of the meter.

Its diverse, optionally selectable communication interfaces mean that the zelsius® C5 guarantees efficiency and precision in the recording of consumption data, whether wirelessly or by M-Bus.

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Technical data flow sensor IUF							
Nominal flow q_p	m^3/h	0.6	1.5	2.5	3.5	6	10
Maximum flow q_s	m^3/h	1.2	3	5	7	12	20
Minimum flow q_i	l/h	6 12	15 30	25 50	35 70	60 120	100 200
Pressure loss at q_p	bar	≤ 0,25					
Temperature range[1]	°C	0 ≤ Θq ≤ 105 / 0 ≤ Θq ≤ 130					
Temperature range short-time [2]		up to 150 ° C for an average of 1 hour / day or for about 2000 hours / 6 years					
Minimum pressure (to avoid cavitation)	bar	1 bar with q_p and 80°C medium temperature range					
Meassurement accuracy class[1]		2 (optional 3)					
Nominal pressure/ peak pressure[1]							
■ Body with thread connection	PS/PN	16/16					
■ Body with flange	PS/PN	25/25					
IP protection class		68					
Installation position		in any position					
Installation point		return flow optionally forward flow					
Cable length up to calculator	m	1.2					
Installation place temperature sensors		M10 x 1					
Heat carrier		Water					

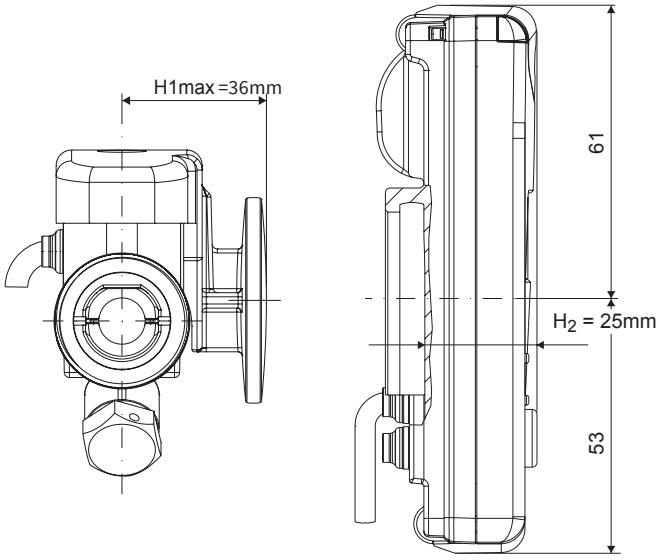
[1] optional

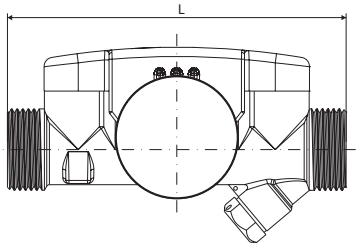
[2] For versions with silicone cable temperature sensors 45 x 5.2 mm, DS 27.5, DS 38 or Universal 60 - 150

Connecting sizes [1]

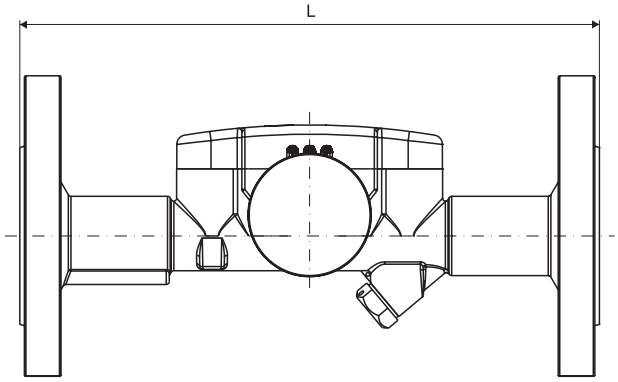
Nominal flow q_p (m^3/h)	L (mm)	Threaded connection	Flange
0.6	110	G¾B	
0.6	130	G1B	
0.6	190	G1B	DN20
1.5	110	G¾B	
1.5	130	G1B	
1.5	190	G1B	DN20
2.5	130	G1B	
2.5	190	G1B	DN20
3.5	150	G1¼B	
3.5	260	G1¼B	DN25
6	150	G1¼B	
6	260	G1¼B G1½B	DN25 DN32
10	200	G2B	
10	300	G2B	DN40

[1] optional





Dimensions flow sensor with thread connection



Dimensions flow sensor with flange

Technical data sheet zelsius® C5-IUF

Technical data calculator

Temperature range	°C	0 ... 105 / 0 ... 150
Temperature difference range	K	3 ... 80 / 3 ... 130
Display range		LCD 8-digit + additional character
Ambient temperature	°C	5 ... 55
Storage temperature	°C	-20 ... + 65
Resolution frequency	°C	0.01
Measurement frequency	s	flow rate = 4 temperatures = 4 / 32[1]
Unit to read the heat consumtion		Standard: MWh Optional: kWh, GJ
Data storage		1 x daily
Due date values		Stores monthly readings during the whole running time
Maximum value storage		extensive storage of flow rate, perfomance and other parameters
Interface	Standard	optical interface (ZVEI, IrDA)
	optional	▪ 3 inputs/outputs ▪ M-Bus (The current consumption in the connectionon on the M-Bus level converter: < 1,5 mA), ▪ wireless M-Bus ▪ LoRaWAN®: Daily values or monthly values (incl. half monthly value) Temporary diagnostic protocol (value for temperatures, energy and flow - see separate description)
Supply		3,6 V lithium battery (different capacities)
Battery lifetime	Years	> 6, opt. >11 (changeable during the operation time)[2]
Protection class		IP54
Environmental class		A
Ambient conditions / climatic influencing (valid for complete compact meter)	- climatic	Highest permissible ambient temperature 55 °C Lowest permissible ambient temperature 5 °C Humidity class IP54
	- mechanical class	M1
	- electro-magnetic class	E1

[1] optional

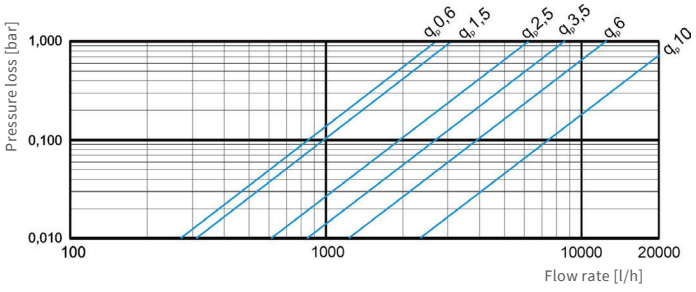
[2] Possibility for battery replacement is country-specific, please check the relevant national regulations.

Technical data temperature sensors

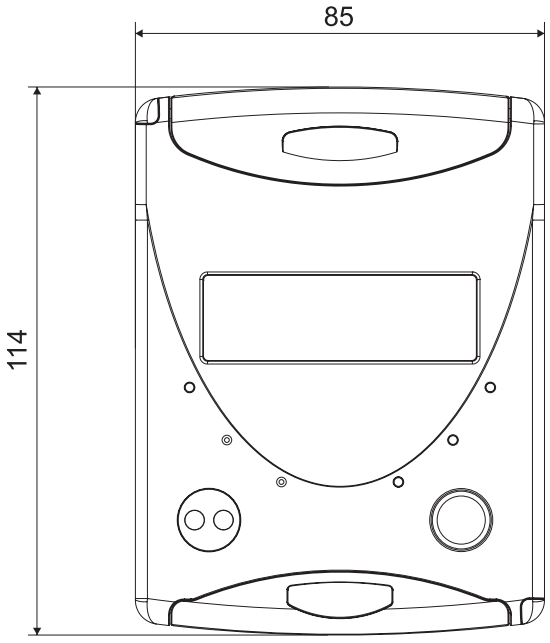
Platinum precision resistor			Pt 1000
Sensor type	mm		45 x 5.0 mm / 45 x 5.2 mm DS 27.5 / DS 38 Universal 60 - 150
Temperature range	°C		0 ... 105 / 0 ... 150[1]
Cable length	m		for q_p 0.6 to 2.5: 1.5 (opt. 5 for q_p 3,5 to 10: 5
Installation point [2]	supply pipe	red	By direct immersion or by immersion sleeves (in case of existing measuring points)
	return pipe	no marking or blue according to the model	By direct immersion or by immersion sleeves (in case of existing measuring points); Integrated in the flow sensor, optionally external

[1] optional

[2] Concerning existing immersion sleeves please observe the note in the separate description “mounting in existing immersion sleeves”.



Pressure loss curve



Dimensions data calculator

Further zelsius® C5-Versions:

zelsius® C5-CMF
Compact meter with coaxial measuring capsule (CMF)

zelsius® C5-ISF
Compact meter with single-jet flow sensor

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