

Heat Metering

EW701CF Series

Ultrasonic Heat and Cold Meter

Application

The measuring device is used to record heat energy or cold energy. The main areas of application are supply systems with a central heating or cooling circuit in which only water is used as the energy medium.

Approvals

- CE
- EN 1434
- EN 301489-1
- EN 301489-3
- EN 62368-1
- European Measuring Instruments Directive (MID) 2014/32/EU
- Data transmission EN 13757-4

Special Features

- Available as heat meter and combined heat/cold meter
- Radio data transmission by sending AMR- and Walk-by telegrams in C-mode as standard
- Patented, contamination-resistant ultrasonic measurement process
- Flexibility during commissioning by switching the return and supply flow without exchanging the temperature sensors as well as changing the energy unit
- Any installation position, also „overhead“
- Compact design and detachable calculator unit as standard for tight and difficult-to-access installation situations
- Flow sensor in all-metal design with nominal flow Q_p 0.6-2.5 m³/h
- Position-independent, high dynamic range up to 1:100 for detection of smallest flow rates
- Optional only with AMR telegrams or AMR extended telegrams¹ available for system optimization
- For secure data transmission optionally with AES encryption mode 5 and mode 7 available
- Standard short and static temperature measurement cycle every 12 seconds (with 10 year battery) - ideal for use in central supply facilities

¹ AMR telegram extended by current flow temperature, current return temperature, current volume flow and current output



Technical Data

Media	
Medium:	Only use water without chemical additives as the medium for this device (heat and cold meter). Glycol additives or sodium chloride NaCl (common salt) are expressly not permitted!
Norms and standards	
Heating water according to VDI 2035 and AGFW 510	
Electromagnetic class:	E1
Mechanical class:	M2
Environment class:	A
Precision class:	3 / 2 (depending on Flow sensor)
Electromagnetic compatibility	
Interference resistance:	EN 61000-6-2
Emitted interference:	EN 61000-6-3
IP protective rating Calculator unit/Flow sensor:	IP65 according to EN 60529

Radio	
Walk-by	every 112 seconds 10 hours per day (8.00 - 18.00) 365 days a year
AMR*	every 7.5 minutes 24 hours per day 365 days a year
Radio Frequency:	C-mode (868.95 +/- 0.25) MHz
Transmission power:	typically 10 dBm, maximum 14 dBm
Duty Cycle:	< 0.1 % (50 ms/128 s)

* OMS-conform data telegrams.

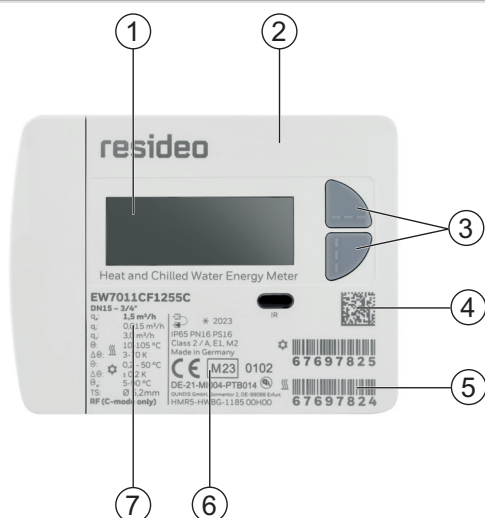
Calculator Unit	
Temperature range:	heat meter: 10 °C ... 105 °C combined heat meter/cold meter: 0 °C ... 105 °C cold meter: 0 °C ... 50 °C
Temperature difference range:	heat meter: 3 K ... 70 K combined heat meter/cold meter: 3 K ... 70 K cold meter: 3 K ... 50 K start of metering temperature difference: 0.2 K
Ambient temperature:	5 °C ... 55 °C
Lithium battery:	nominal voltage 3.0 V
Battery life:	10 years
Display:	8-digit LCD + pictograms
Energy display (switchable):	kWh <-> MWh MJ <-> GJ kWh <-> MJ (only up to 50 liters cumulative flow) MWh <-> GJ (only up to 50 liters cumulative flow)
Connection cable Calculator unit - flow sensor:	80 cm

Temperature sensor	
Measuring element:	PT 1000 according to EN 60751
Version:	type DS
Diameter:	5.0 mm - 5.2 mm Ø
Type of installation:	5.0 mm - direct (ball valve) / indirect*) (immersion sleeve) 5.2 mm - direct (ball valve) / indirect*) (immersion sleeve)
Cable length:	standard: 1.5 m

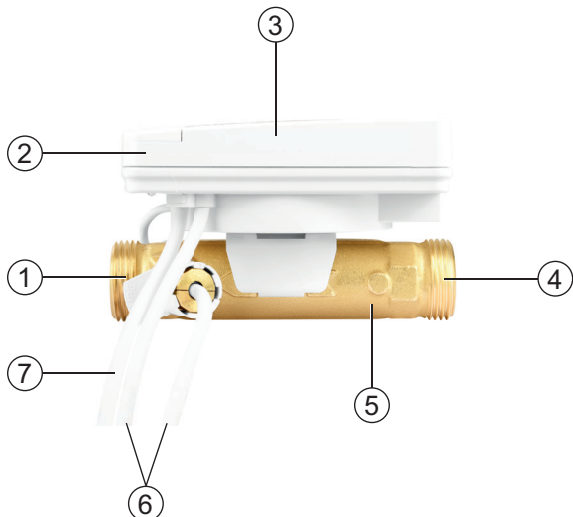
* Note national and country-specific regulations concerning the use of immersion sleeves!

Flow sensor	
Installation location:	return or supply flow (switchable up to 50 liters cumulative flow)
Installation position:	any
Inflow and outflow zone:	not required (U0/D0)
Temperature range heat:	20 °C ... 90 °C
Temperature range heat/cold:	5 °C ... 90 °C
Temperature range cold:	5 °C ... 50 °C

Construction

Overview EW7011CF range with integrated RF-Module		Components	Material/Comment
	1	LCD	-
	2	Front housing	Plastic
	3	Push button	Rubber
	4	2D barcode with meter specifications	Barcode containing of: - Serialnumber (heating) - Item No. - Datecode
	5	Serial number with barcodes	-
	6	Approval data	-
	7	Specifications	-

Overview



	Components	Materials
1	Outlet with external thread	-
2	Baseplate	Plastic
3	Front housing	Plastic
4	Inlet with external thread	-
5	Flow sensor housing	Brass
6	Return temperature sensor	-
7	Supply temperature sensor	-

Transportation and Storage

Keep parts in their original packaging and unpack them shortly before use.

The following parameters apply during transportation and storage:

Parameter	Value
Environment:	Clean and dust free
Min. ambient temperature:	-5 °C (storage) / -25 °C (transport)
Max. ambient temperature:	45 °C (storage) / 70 °C (transport)
Min. ambient relative humidity:	0 %*
Max. ambient relative humidity:	95 %*

* non condensing

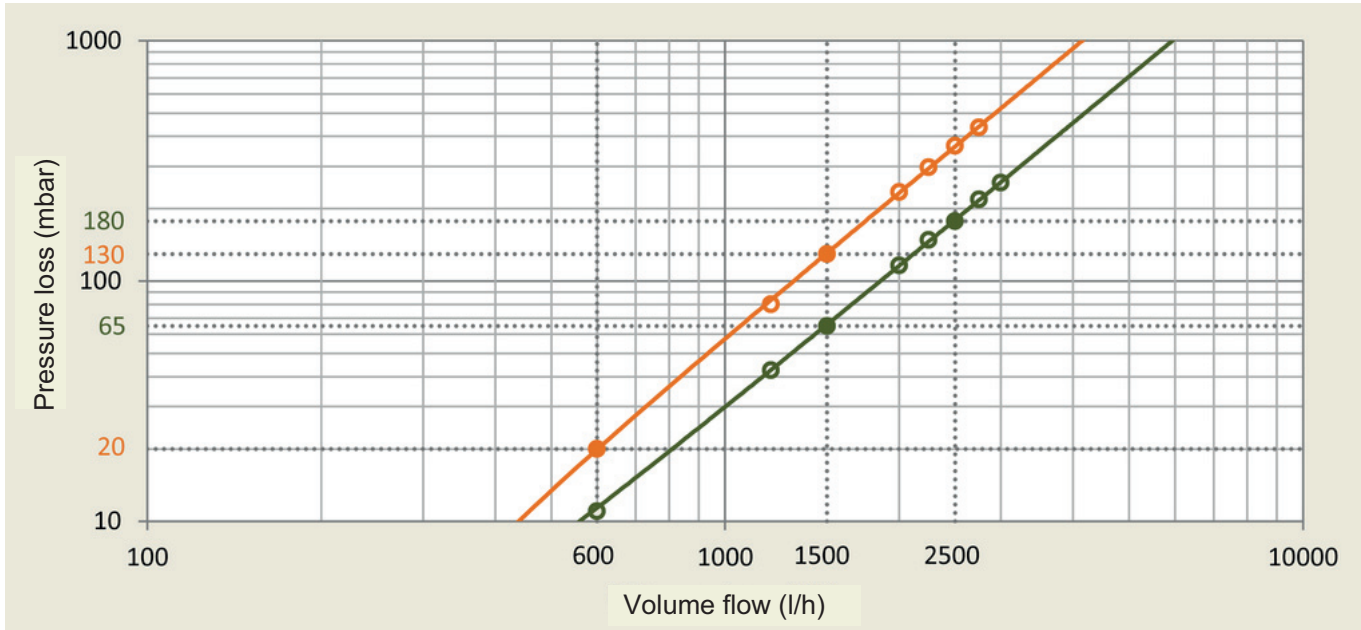
Technical Characteristics

Flow Data

Nominal flow rate q_p :	m^3/h	0.6	1.5	2.5
Length:	mm	110	110	130
Connection:	G	$\frac{3}{4}$ B	$\frac{3}{4}$ B	1 B
Weight:	g	530	530	660
Minimum flow q_i :	l/h	12	15	25
Minimum flow q_s :	l/h	1200	3000	5000
Start-up limit q_0 :	l/h	6	6	10
Dynamic range:	q_i/q_p	1:50	1:100	1:100
Pressure loss at q_p :	mbar	20	130	180
Min. system pressure to avoid cavitation*:	bar	1	1,5	2
Measuring accuracy class:		3	2	2

* Cavity formation in fast flowing liquids

Pressure loss curves

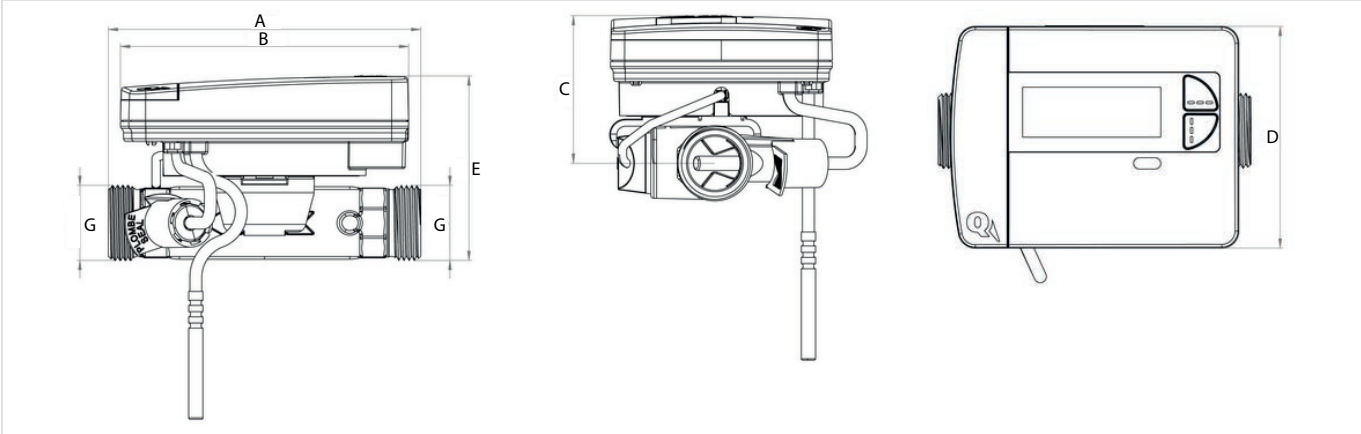


Length 110 mm = orange

Length 130 mm = green

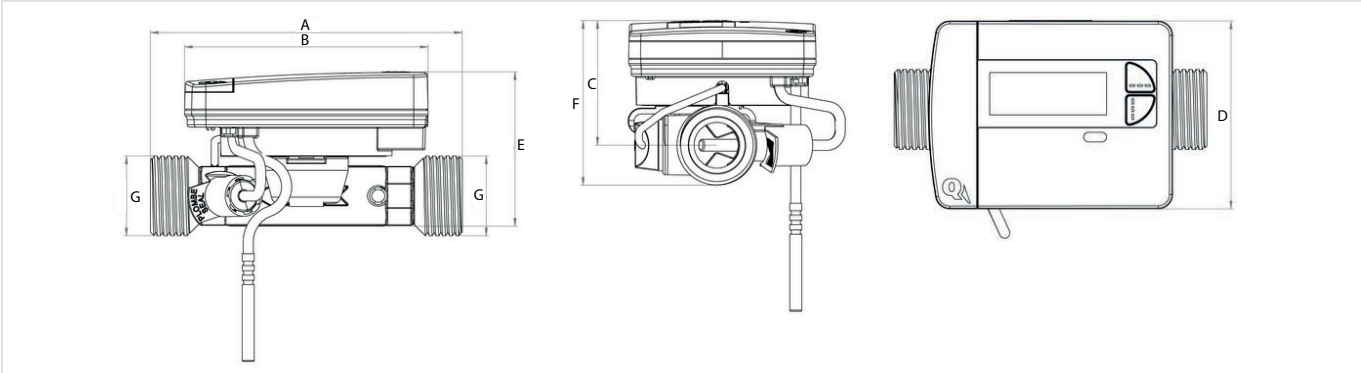
Dimensions

Overview (0.6 - 1.5 m³/h)



Values	A	B	C	D	E	G
Dimensions:	110	101.5	51.8	78	65	G 3/4 A

Overview (2.5 m³/h)



Values	A	B	C	D	E	F	G
Dimensions:	130	101.5	51.86	78	64.4	68.48	G 1 A

Note: All dimensions in mm unless stated otherwise

Ordering Information

Options

The following tables contain all the information you need to make an order of an item of your choice.

When ordering, please always state the ordering number.

EW7011 CF type (RF communication modules installed, for heating and cooling water, C mode)

Nominal flow qp m3/h	Length mm	Description	Item No.
0.6	110	Ultrasonic Heatmeter QP0.6 DN15 L110 C5.5 HC SR CD HC (Heat and Cooling Applications), SR (Placeable in Supply or Return loop), CD (Calculator detachable)	EW7011CF0155C
1.5	110	Ultrasonic Heatmeter QP1.5 DN15 L110 C5.5 HC SR CD HC (Heat and Cooling Applications), SR (Placeable in Supply or Return loop), CD (Calculator detachable)	EW7011CF1255C
2.5	130	Ultrasonic Heatmeter QP2.5 DN20 L130 C5.5 HC SR CD HC (Heat and Cooling Applications), SR (Placeable in Supply or Return loop), CD (Calculator detachable)	EW7011CF2055C

Accessories

	Item No.	Description	EAN Code
	EWA1500xx	Set of union nuts, sealings and externally threaded brass tailpieces (one pack per meter required)	
	EWA1500035	For DN15, 1/2" x 3/4"	4029289072764
	EWA1500042	For DN20, 3/4" x 1"	4029289051219
	EWAxx	Tailpiece for direct connection of supply temperature sensor Temperature sensor installation kit required	
	EWA087HY003	R 1/2" external thread, M10x1 sensor thread	4029289053909
	EWA354830	G 1/4" external thread, M10x1 sensor thread	4029289062178
	EWA087HYxxx	Ball valve with internal threads	
	EWA087HY004	For DN15, G 1/2" internal threads	4029289053916
	EWA087HY005	For DN20, G 3/4" internal threads	4029289053923

Note: RF AMR / Walk-By C-Mode according to OMS konform

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