

Heat Metering

EW7011BK Series

Ultrasonic Heat and Cold Meter M-Bus/ Impuls-IN

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
- European Measuring Instruments Directive (MID) 2014/32/EU

Special Features

- Available as heat meter and heat meter with cooling option
- Integrated M-Bus interface and two pulse inputs for integration into a M-Bus system
- 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 0.6-10 m³/h
- Position-independent, high dynamic range up to 1:125 (1:250 with side notes) for detection of smallest flow rates
- Standard short and static temperature measurement cycle every 12 seconds (with 10 year battery) - ideal for use in central supply facilities



Technical Data

Medium	
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 immunity and interference emission:	EN 301 489-1, EN 301 489-3
IP protective rating Calculator unit/Flow sensor:	IP65 according to EN 60529
Data transmission according to:	EN 137 57-2 EN 137 57-3
Security:	EN 62368-1

Connection cable		OUT		IN
Function:		M-Bus		Pulse inputs
Length:		3 m		1 m
within Scope of delivery:		included		included for variants with pulse inputs
Protection class:		IP65		
Cable ends:		End sleeves		
Cable sheathing:		PVC		
Connection cable - Colour assignment				
Impulse input:	Imp1	orange (ground)	brown	
	Imp2	red (ground)	black	
M-Bus:	M-Bus	orange (not assigned)	brown (not assigned)	
	M-Bus	red	black	
Specification M-Bus				
Possible readouts per day:	96 (every 15 minutes)*			
Baud rate:	300, 2400			
Pulse input specification				
Class:	according to EN 1434-2, Class IB, Restriction: Switching threshold at low level max. 0.25 V			
Pulse length:	> 100 ms			
Pulse frequency:	< 5 Hz (2.5 Hz with filter setting "on")			
Current source:	< 0.1 mA			
Number of pulse inputs:	2			
Specification of impulse outputs of connected consumption meters				
Magnetic switch:	Reed contact			
Integrated circuit:	Open collector			
Namur sensor:	not possible			

* Note: If readings are taken less frequently, unused "credits" are stored in the device

Calculator Unit	
Temperature range:	heat meter: 0 °C ... 105 °C as heat meter with cooling option**: 0 °C ... 105 °C
Temperature difference range:	heat meter: 3 K ... 70 K as heat meter with cooling option**: 3 K ... 70 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

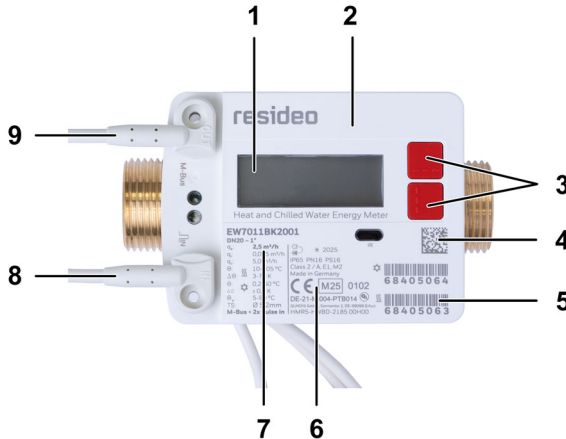
Temperature sensor	
Measuring element:	Pt1000 according to EN 60751
Version:	type DS
Diameter:	5.2 mm
Type of installation:	5.2 mm - direct (ball valve) / indirect***) (immersion sleeve)
Cable length:	Standard: 1.5 m

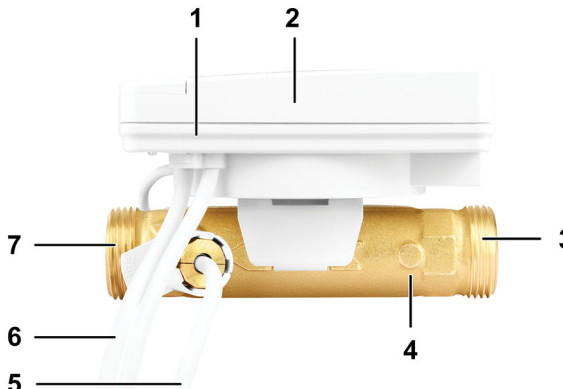
** Note: cold register not assessed for conformity. National regulations must be observed.

*** 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:	5 °C ... 90 °C
Temperature range heat with cooling option:	5 °C ... 90 °C

Construction

Overview EW7011BK range with integrated M-Bus			
	1	LCD	-
	2	Front housing	Plastic
	3	Push button	Rubber
	4	2D QR-code with meter specifications	QR-code containing of: - Serialnumber (heating) - Item No. - Datecode
	5	Serial number with barcodes	-
	6	Approval data	-
	7	Specifications	-
	8	Impuls-IN	-
	9	M-Bus OUT	-

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

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

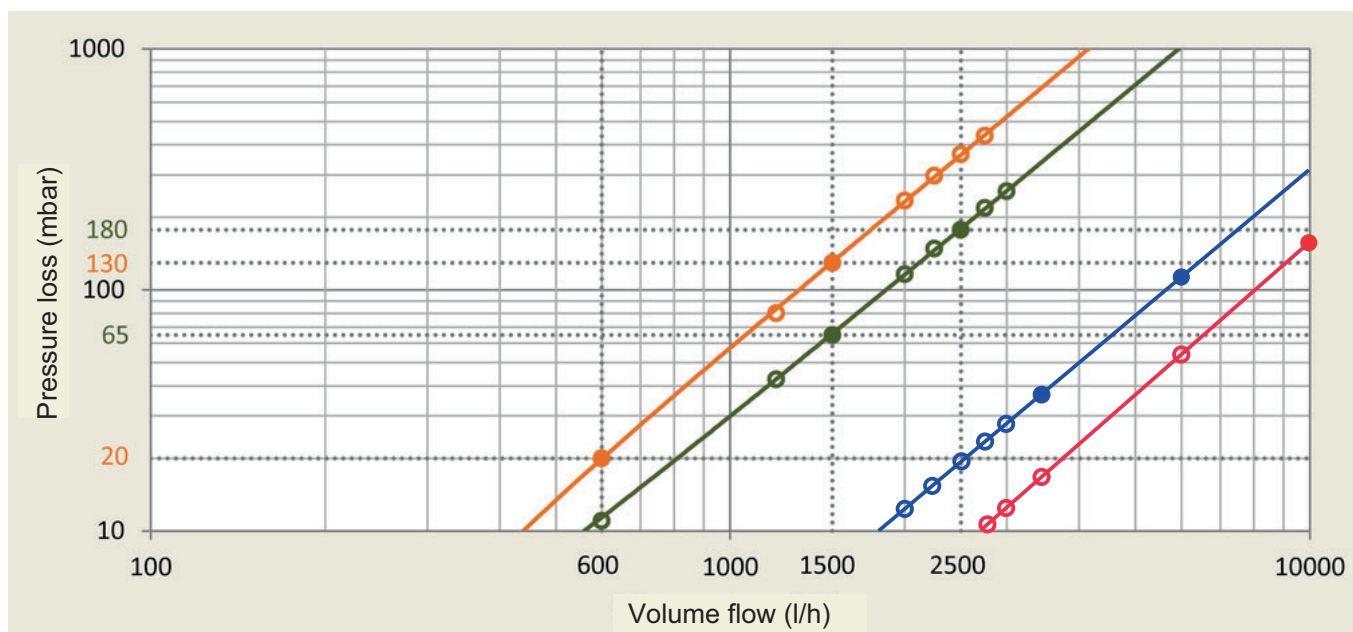
Technical Characteristics

Flow Data

Nominal flow rate q_p :	m^3/h	0.6	1.5	2.5	3.5	6.0	10.0
Nominal diameter:	mm	15	15	20	25	25	40
Length:	mm	110	110	130	260	260	300
Connection:	G	$\frac{3}{4}$ B	$\frac{3}{4}$ B	1 B	$1\frac{1}{4}$ B	$1\frac{1}{4}$ B	2 B
Weight:	g	530	530	660	1173	1173	1750
Installation location:	Return flow or supply flow (switchable up to 50 litres cumulative flow)						
Installation position:	any						
Inflow/outflow zone:	not required (U0/D0)						
Minimum flow q_i :	l/h	12	15	25	28	48 (24)*	100
Maximum flow q_s :	l/h	1200	3000	5000	7000	12000	20000
Start-up limit q_0 :	l/h	6	6	10	14	24 (12)*	50
Dynamic range:	q_i/q_p	1:50	1:100	1:100	1:125	1:125 (1:250)*	1:100
Measuring accuracy class:		3	2	2	2	2	2
Pressure loss at q_p :	mbar	20	130	180	38	122	168
Max. permissible operating pressure:	bar	16					
Min. system pressure to avoid cavitation*:	bar	1	1.5	2	1	1.5	1.5
Temperature range as heat meter:	$^{\circ}C$	5 ... 90					
Temperature range as heat meter with cooling option:		5 ... 90					

* Cavity formation in fast flowing liquids

Pressure loss curves



Length 110 mm = orange

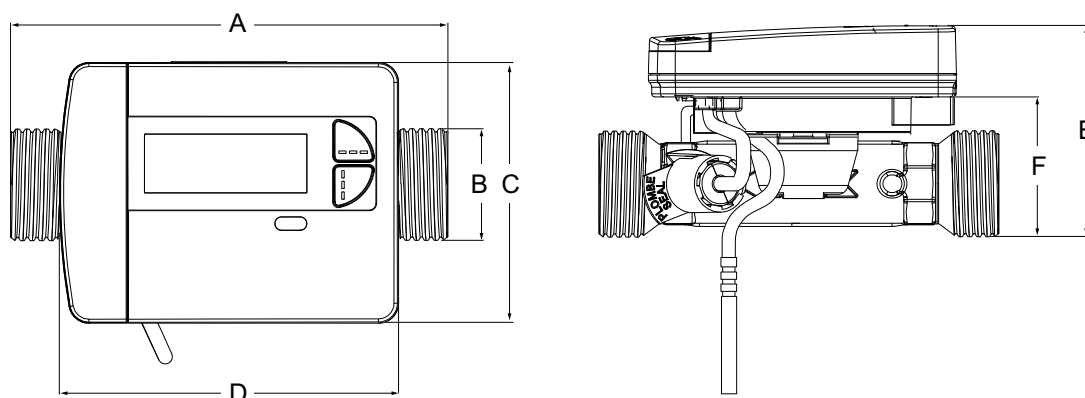
Length 130 mm = green

Length 260 mm = blue

Length 300 mm = red

Dimensions

Overview



m ³ /h	0.6	1.5	2.5	3.5	6.0	10.0
A	110	110	130	260	260	300
B	G 3/4 B	G 3/4 B	G 1 B	G 1 1/4 B	G 1 1/4 B	G 2 B
C	78					
D	101.5					
E	65	65	68.48	84	84	100
F	41.5	41.5	45	60.5	60.5	76.5

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 BK type

Nominal flow qp m ³ /h	Length mm	Description	EAN Code	Item No.
0.6	110	Ultrasonic Heatmeter EW701 BK QP0.6 DN15 L110 Mbus HC SR CD - HC (Heat and Cooling Applications), SR (Placeable in Supply or Return loop), CD (Calculator detachable)	5059087024817	EW7011BK0101
1.5	110	Ultrasonic Heatmeter EW701 BK QP1.5 DN15 L110 Mbus HC SR CD - HC (Heat and Cooling Applications), SR (Placeable in Supply or Return loop), CD (Calculator detachable)	5059087024824	EW7011BK1201
2.5	130	Ultrasonic Heatmeter EW701 BK QP2.5 DN20 L130 Mbus HC SR CD - HC (Heat and Cooling Applications), SR (Placeable in Supply or Return loop), CD (Calculator detachable)	5059087024831	EW7011BK2001
3.5	260	Ultrasonic Heatmeter EW701 BK QP3.5 DN25 L260 Mbus HC SR CD - HC (Heat and Cooling Applications), SR (Placeable in Supply or Return loop), CD (Calculator detachable)	5059087024862	EW7011BK2801
6.0	260	Ultrasonic Heatmeter EW701 BK QP6.0 DN25 L260 Mbus HC SR CD - HC (Heat and Cooling Applications), SR (Placeable in Supply or Return loop), CD (Calculator detachable)	5059087024848	EW7011BK3601
10.0	300	Ultrasonic Heatmeter EW701 BK QP10 DN40 L300 Mbus HC SR CD - HC (Heat and Cooling Applications), SR (Placeable in Supply or Return loop), CD (Calculator detachable)	5059087024855	EW7011BK4601

Accessories

	Description		EAN Code	Item No.
	EWA15000xx	Set of union nuts, sealings and externally threaded brass tailpieces (one pack per meter required)		
		For DN15, 1/2" x 3/4"	40 29289 07276 4	EWA1500035
		For DN20, 3/4" x 1"	40 29289 05121 9	EWA1500042
		For DN25, 1" x 1 1/4"	40 29289 07978 7	EWA1500067
		For DN40, 1 1/2" x 2"	40 29289 07279 5	EWA1500072
	EWAxx	Tailpiece for direct connection of supply temperature sensor Temperature sensor installation kit required		
		R 1/2" external thread, M10x1 sensor thread	40 29289 05390 9	EWA087HY003
	EWA087HYxxx	Ball valve with internal threads		
		For DN15, G 1/2" internal thread		EWA087HY004
		For DN20, G 3/4" internal thread		EWA087HY005
		For DN25, G 1" internal threads		EWA087HY006
		For DN40, G 1 1/2" internal threads		EWA087HY008

resideo

Ademco 1 GmbH, Hardhofweg 40,
74821 MOSBACH, GERMANY
Phone: +49 6261 810

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Pittway Sàrl, Z.A., La Pièce 6,
1180 Rolle, Switzerland
by its authorised representative
Ademco 1 GmbH

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