

### M-bus impeller type heat and heat/refrigeration meters

WF..5..



**Electronic, mains-independent impeller type meters with optional refrigeration range to acquire heat or cooling energy consumption in autonomous heating, cooling or solar plants.**

- Nominal flow 0.6 m<sup>3</sup>/h, 1.5 m<sup>3</sup>/h or 2.5 m<sup>3</sup>/h
- Meter with 2 pulse inputs for added up to two water meters
- No settling paths required (neither upstream nor downstream)
- Mounting position horizontal or vertical
- Removable processor
- Setting of device-specific parameters on the meter itself in the field via buttons or operating and parameterization software ACT50
- Optical interface
- Self-diagnostics

The electronic, mains-independent impeller type heat and cooling energy meter is of compact design and used for the physically correct acquisition of energy consumption. The meter consists of a flow measuring section, two ready connected temperature sensors and an integrated processor which – based on flow rate and temperature differential – calculates the energy consumption. The meter is available for heat, combined heat/cooling or solar energy metering.

It is used primarily in plants with central production of heat or cooling energy, where the energy is supplied via zones to several individual consumers in a building. Such buildings include:

- Multi-family houses
- Office and administrative buildings

Typical users:

- Service and billing providers
- Housing industry and housing cooperatives
- Building service companies and real estate agencies

### Restrictions

Temperature sensor and meter battery cannot be replaced.

The device is not permitted on DHW plants.

No communication modules can be attached to existing meters.

### Basic design

The meter comprises a flow and return temperature sensor and a flow sensor installed in a hot water or cooling water circuit. A processor calculates continuously the temperature differential of flow and return and multiplies the value by the flow rate. The result (the current heat or cooling energy output) is cumulated, displayed and forwarded via M-bus to a wired data processing system. The processor is powered by a long-life battery which ensures 10 years of operation.

In addition, 2 water meters with pulse output (Reed contact only, no Namur) can be connected to the heat meters. The consumption values for the water meters are displayed on the meter's display and forwarded via M-bus.

### Impeller type measuring principle

The meter's flow sensor (volume meter) works accordingly to the single-jet impeller sensor principle. The water flow hits the impeller radially. The speed of the impeller is acquired using a magnet-free sampling by induction for low wear and long-term stable measuring. Incorrect direction of flow is detected and indicated on the display in the form of an error message.

### Calculation of heat or cooling energy consumption

Using the acquired temperature differential of flow and return, the flow rate and the calculated thermal coefficient, the quantity of heat or cooling energy is shown on the display in physical units (kWh or MWh/MJ or GJ) following an internal calculation process. To increase measuring accuracy, the density and enthalpy values are determined for every measurement and included in the calculation.

### Water meter consumption

The heat meter separately adds up the pulses from the connected water meters (max. 2 water meters) with a pulse value of 1 liter/pulse or 10 liters/pulse and forwards the result to a data processing system via M-bus.

The pulse length are inactive by "default", i.e. the serial number of the heat meter = 0 (not visible on M-bus). The input is active as soon as a secondary address/serial number of a water meter is assigned to the pulse input.

## Processor

The same standard processor with a built-in service unit is used for all flow rates. The processor can be separated from the flow measuring section. The control cable length is 0.40 m.

## Infrared interface

The consumption meter can be read on site using a near field interface. The meter is read out and parameterized with the WFZ.IRDA-USB optical reading head and the associated ACT50-heat software.

## Tampering

The meter is protected by a factory-fitted seal.

## Function check

The temperature is acquired at 36-second intervals (optionally at 6-second intervals). The flow is acquired continuously. The amount of energy supplied is displayed in real time. Any errors are immediately shown.

## Display

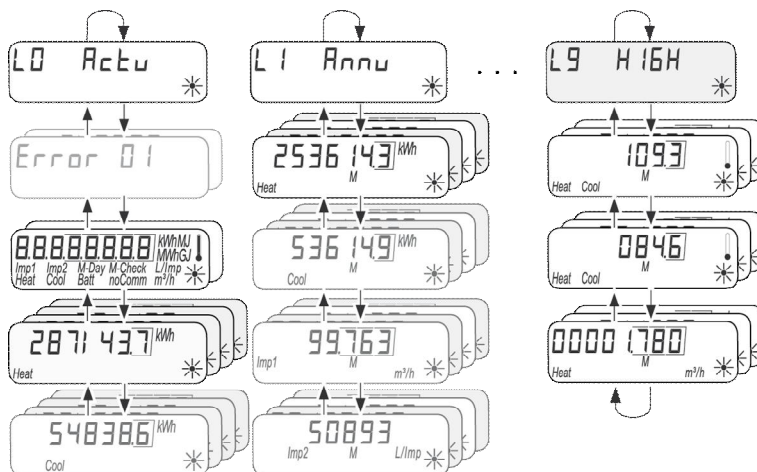
### Type of processor

The LCD shows meter states, display units and consumption values on several levels. The meter has 2 buttons to switch between the individual display steps and levels.



1. Button for navigating on a level
2. Button for changing a level

### Operation



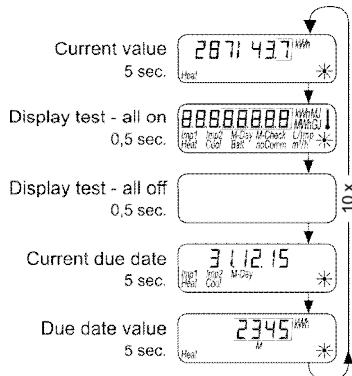
The display is off by default ("Sleep Mode"). The device awakens by pressing one of the two operating buttons.

The length of the button push selected one of the following two display concepts:

- Short press: Quick reading mode
- Press > 3 s: Standard operating concept

### Quick reading mode

The meter's display is in sleep mode during operation and activated only when a button is pressed. A single short press of a button repeats the quick read loop 10x. At the end of 10 repetitions, the display returns to sleep mode.

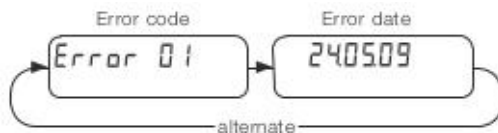


The quick read loop can be cancelled at any time by pressing a button > 3 s.

The display automatically goes to the standard display levels.

### Error messages

For a serious fault, the error code and error date is displayed in front of the meter state display.



The meter state display displays "incorrect flow direction" if determines the flow direction is wrong:



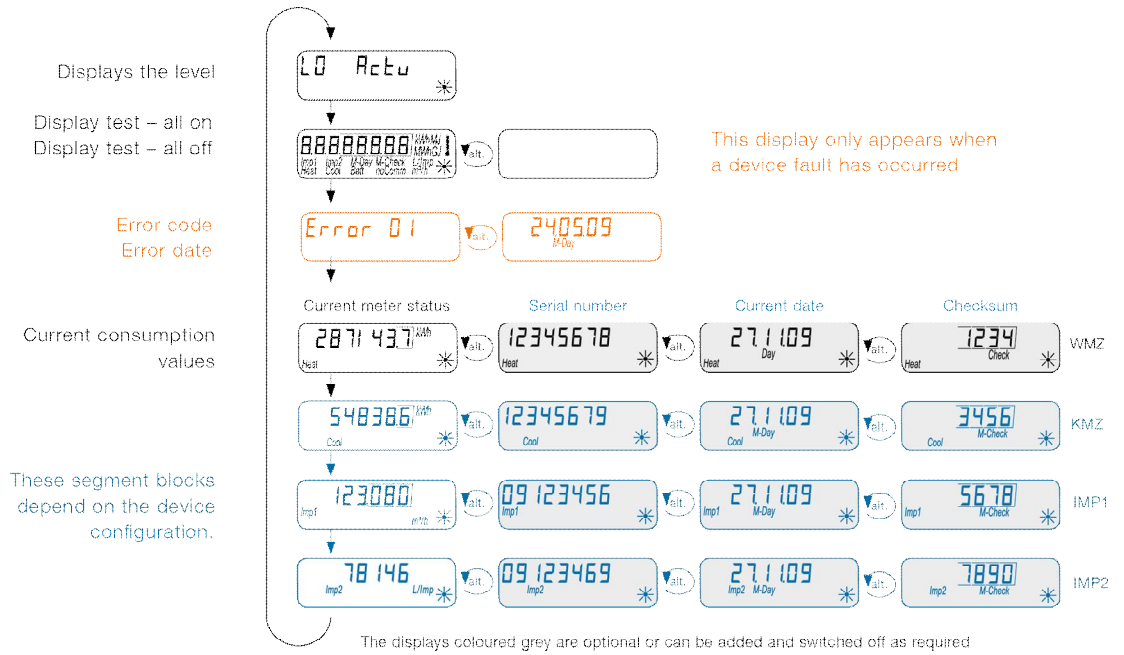
### Display levels

The following levels are available:

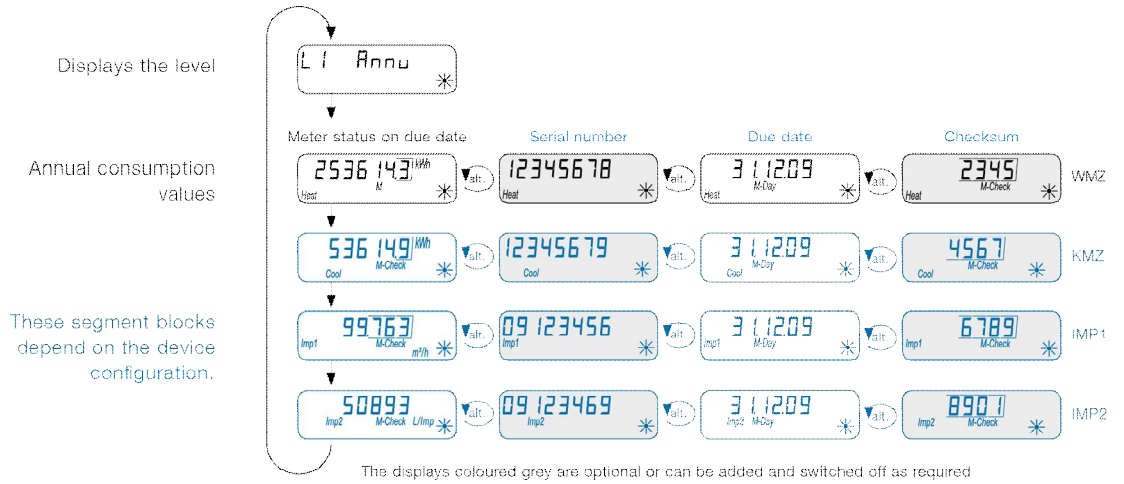
The following levels are available	
<b>Standard levels</b>	
L0	Current consumption values
L1	Annual consumption values
<b>The following levels can be deactivated individually</b>	
L2	Current values
L3	Parameters
L4	Connections
L5	Monthly values heat
L6	Monthly values cooling
L7	Monthly values pulse input 1
L8	Monthly values pulse input 2
L9	Maximum values

If an error message is pending, it is logged with the respective error code plus the date the error occurred and shown on the display (alternating).

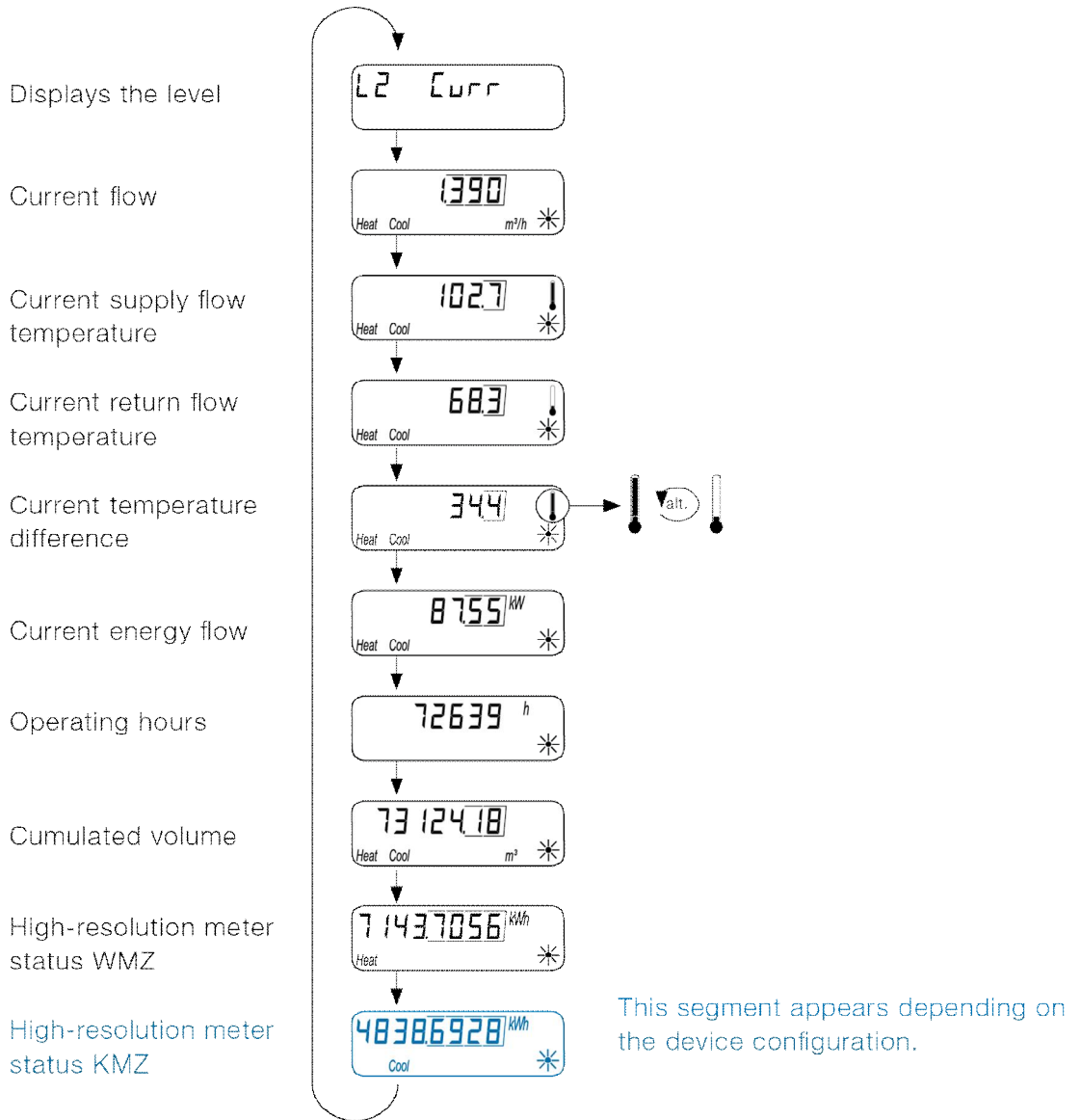
## Level L0 - Current consumption values



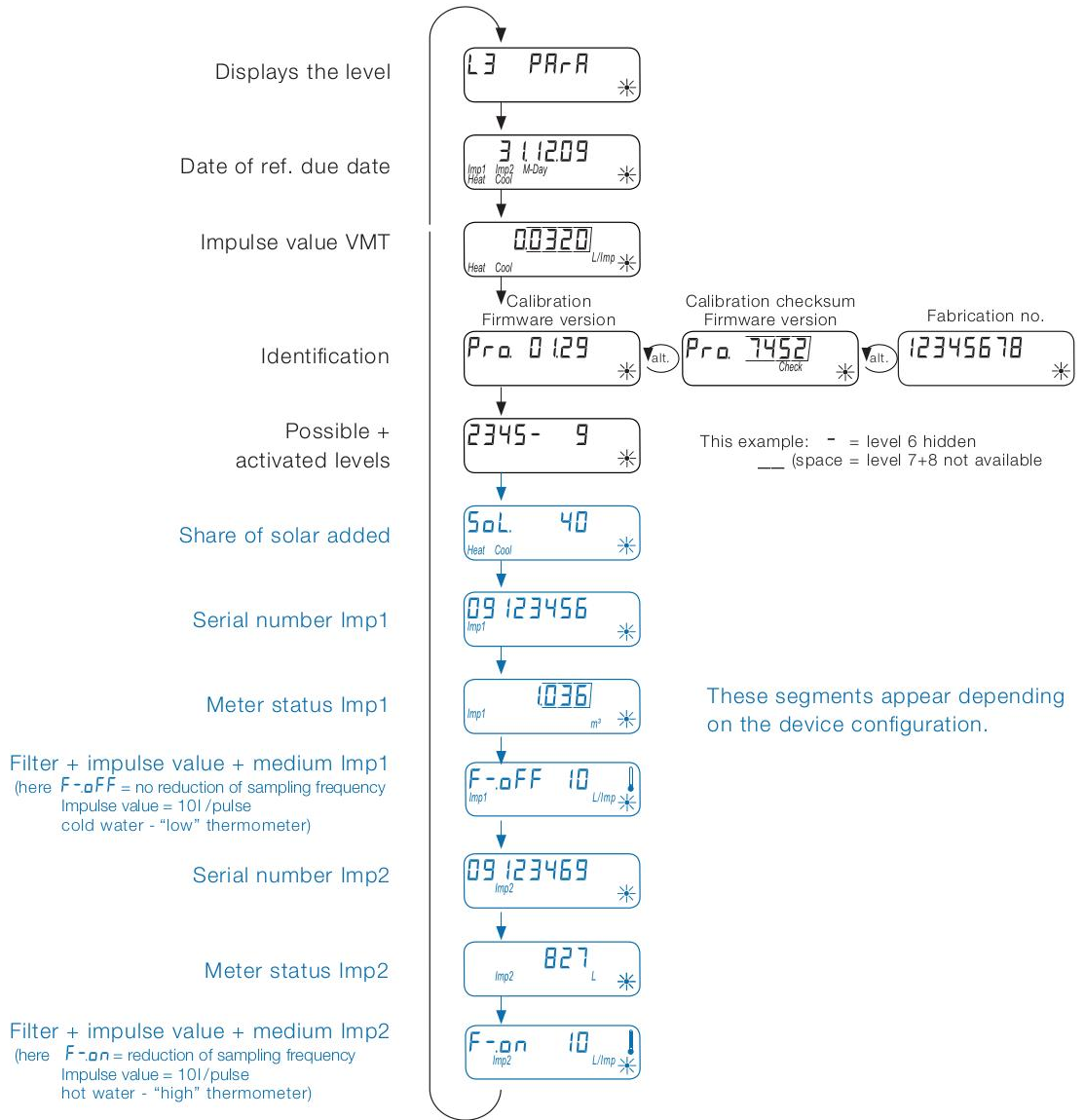
## Level L1 - Consumption values at due date



## Level L2 - Current values

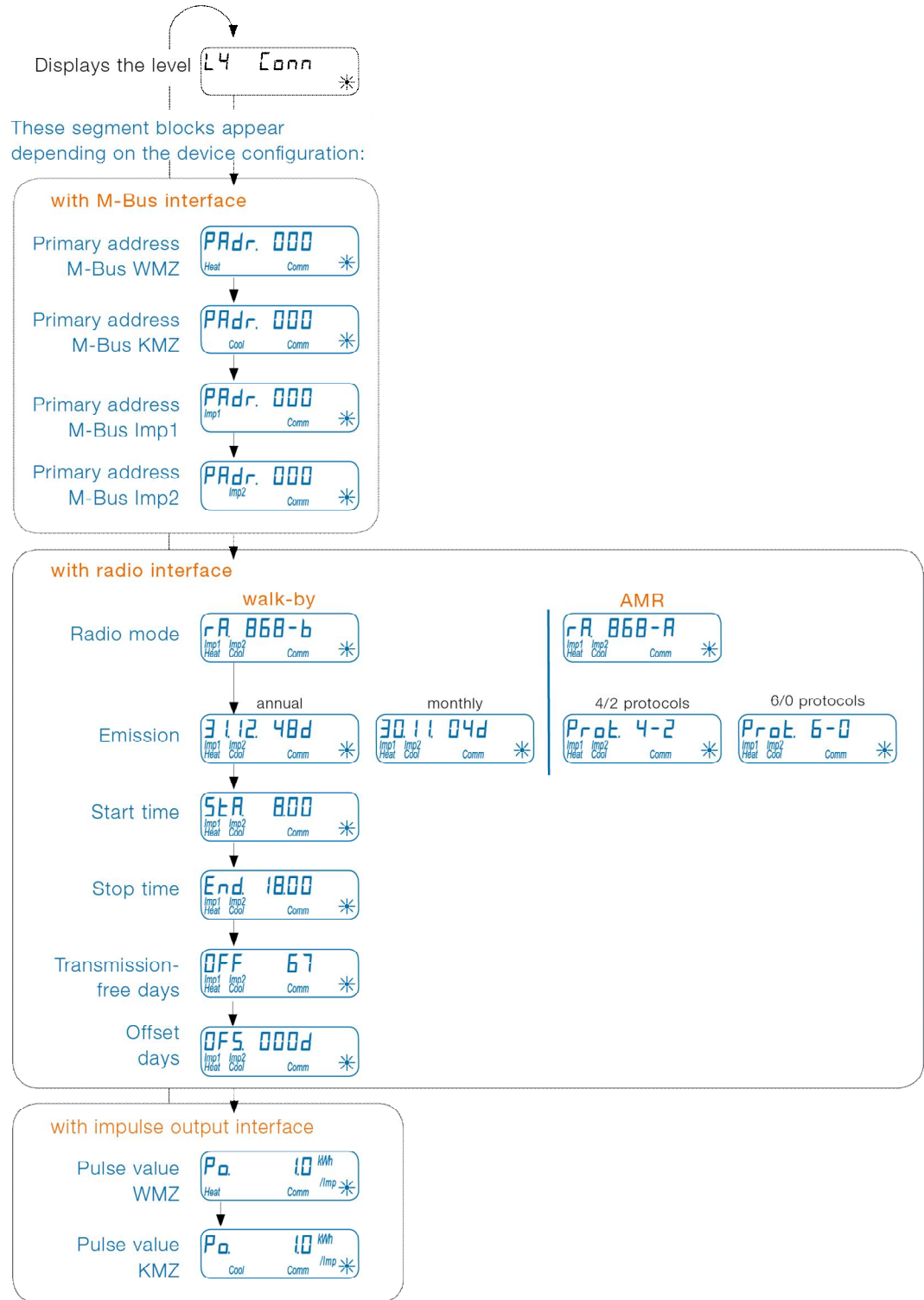


## Level L3 - Parameters



## Level L4 - Connections

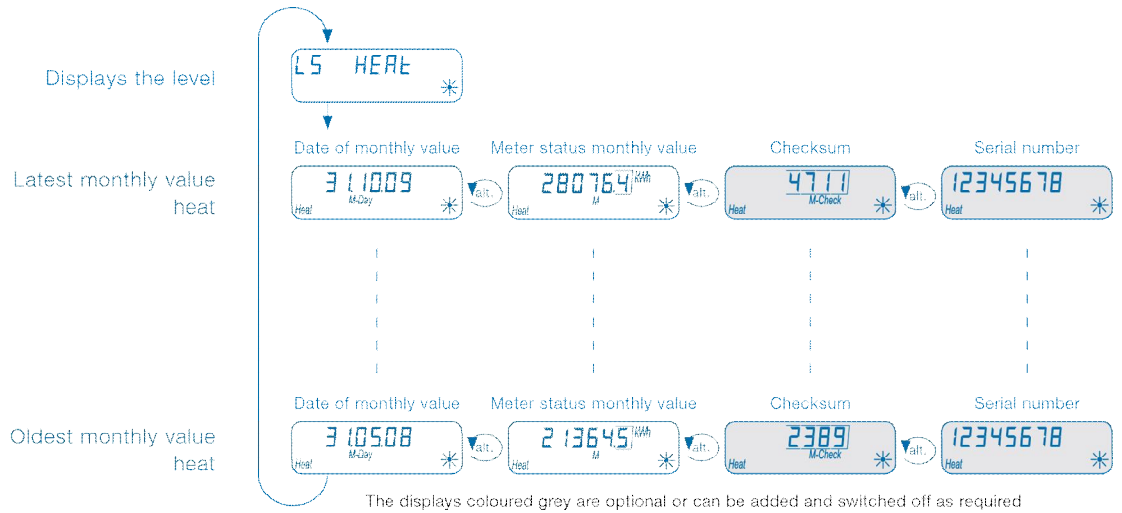
These segment blocks appear depending on the meter's configuration.





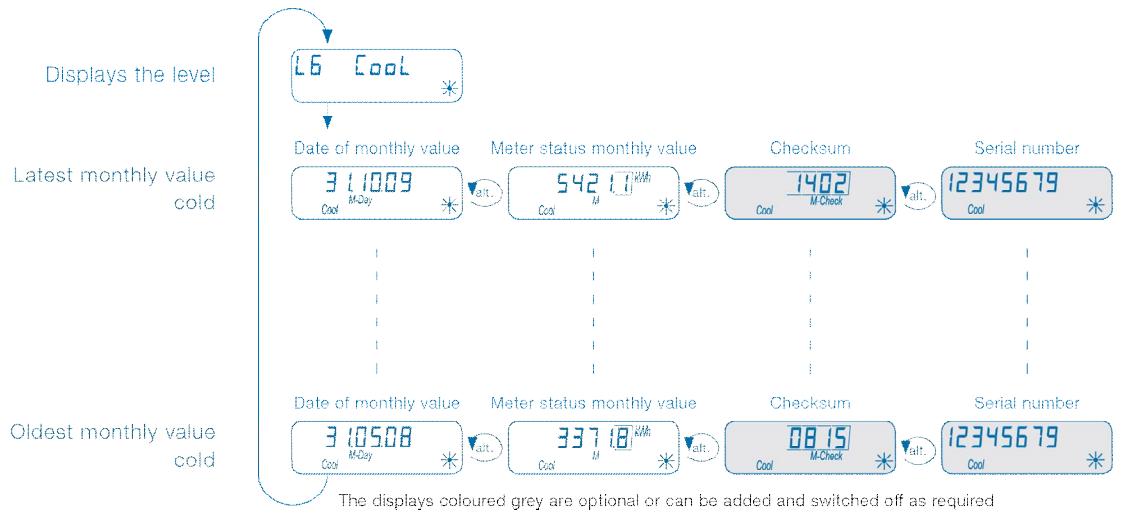
### Level L5 - Monthly values heat

This level is displayed only when the meter is configured for metering heat.

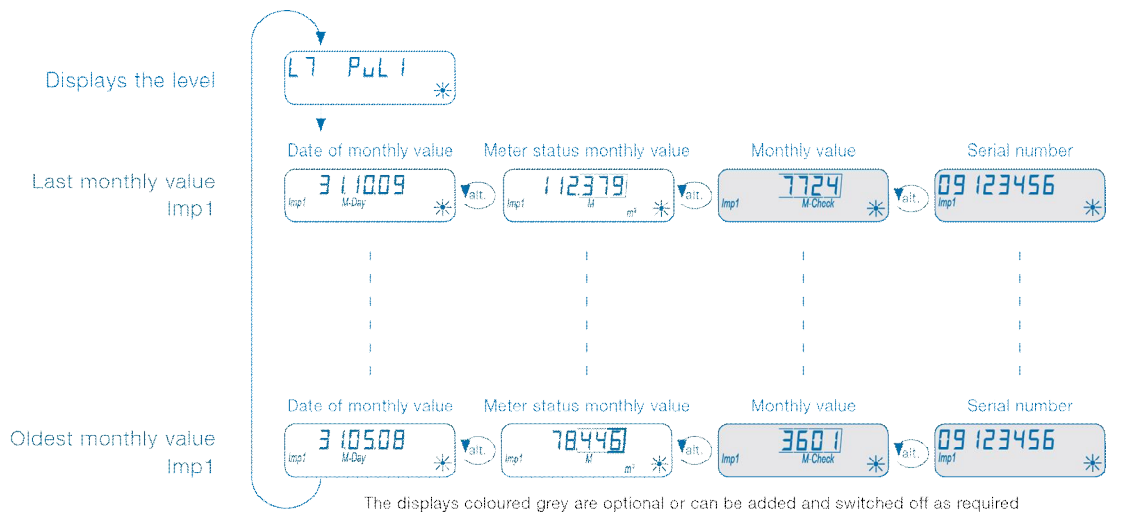


### Level L6 - Monthly values cooling energy

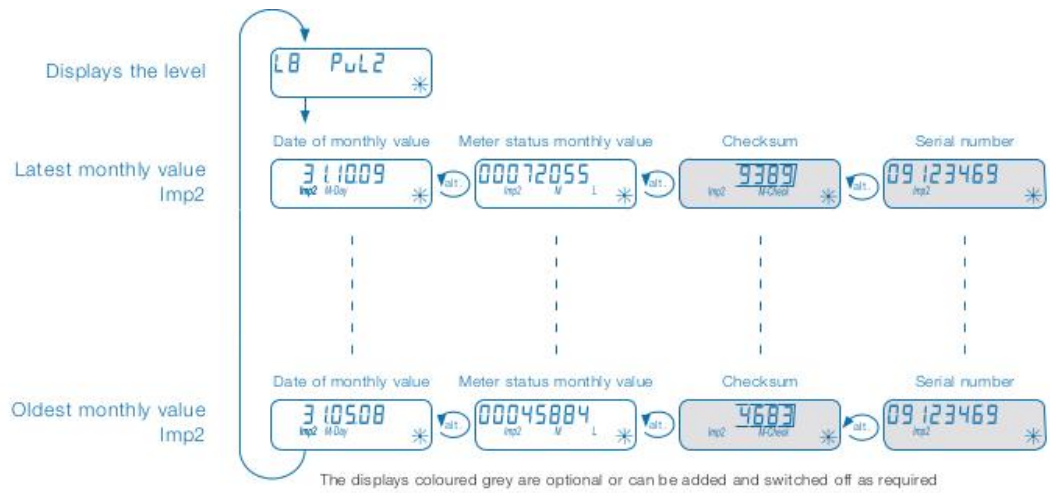
This level is displayed only when the meter is configured for metering cooling energy.



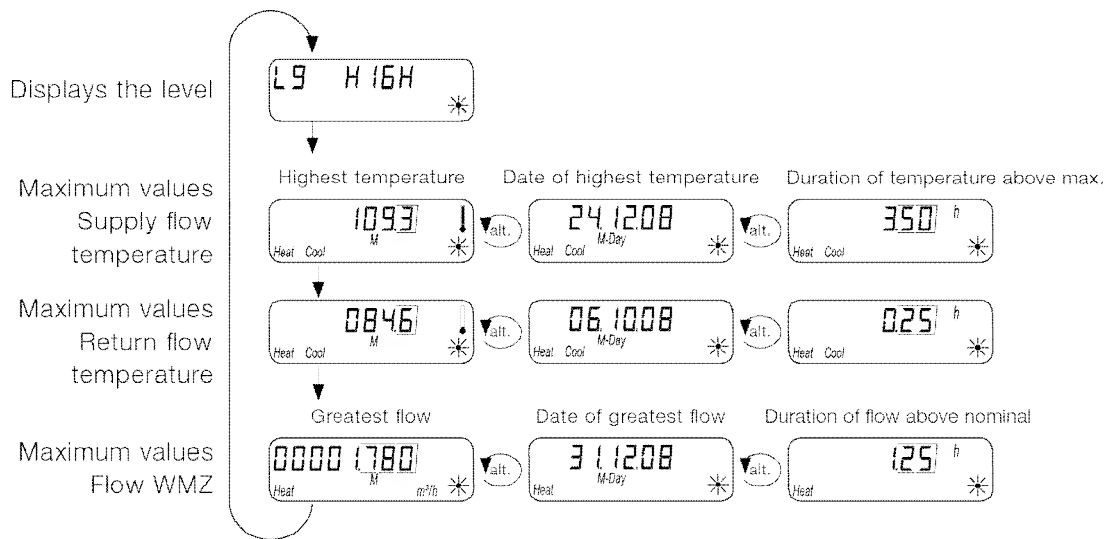
### Level L7 - Monthly values pulse input 1



## Level L8 - Monthly values pulse input 2





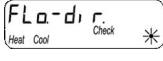
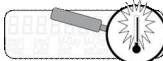
## Level L9 - Highest values



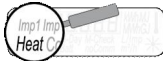






## Error messages

Indication of errors	Description of error	Measures/notes
Error 01 *	Hardware error or damaged software	Check flow sensor, connecting cable and processor for signs of external damage Exchange the device
Error 06 *	Flow sensor is broken	Check temperature sensor and wires for mechanical damage Exchange the device
Error 07 *	Flow sensor short circuit	Check temperature sensor and wires for mechanical damage Exchange the device
Error 08 *	Return sensor is broken	Check temperature sensor and wires for mechanical damage Exchange the device
Error 09 *	Return sensor short circuit	Check temperature sensor and wires for mechanical damage Exchange the device

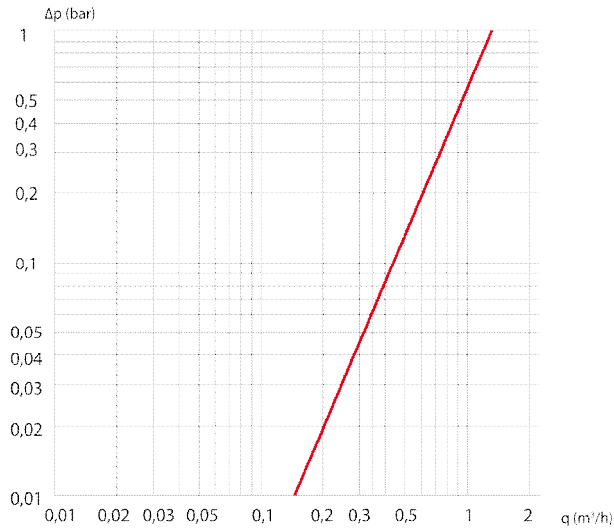
## Operating state display

Display	Description	Measures/notes
	Exceeds communications credit IrDA	Eliminate after credit period expires (Irda = current month).
	Operating time has expired	Device must be replaced or the battery exchanged.
Comply with all national and country-specific regulations!		
	Flow direction incorrect	Check installation (note arrow on the flow sensor) Check piping Check circulating pumps and thermostats for proper operation
	Temperature sensors are switched around or incorrectly mounted	Check whether the flow sensor was mounted in the correct line or check the installation type for the temperature sensor

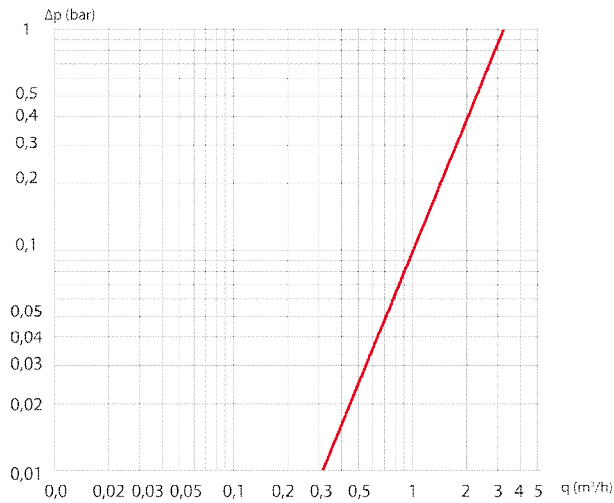
## Status display:

Display	Description	
	The displayed data applies to:	
	Heat = Wärme	Imp1 = Pulse input1
	Cool = Kälte	Imp2 = Pulse2
	(empty) = Displayed value is the current value	
	M (Memory) = Value at a monthly or due date	
	Displayed value is date:	
	Day = current date	
	M-Day = Date applies to saved yearly or monthly value	
	Displayed value is a checksum:	
	Check = Checksum refers to a current consumption value	
	M-Check = Checksum applies to a saved yearly or monthly value	
	Current flow available	
	No energy metering -> No temperature difference	
	Current flow available	
	Energy metering	
	IrDA communication is just active	

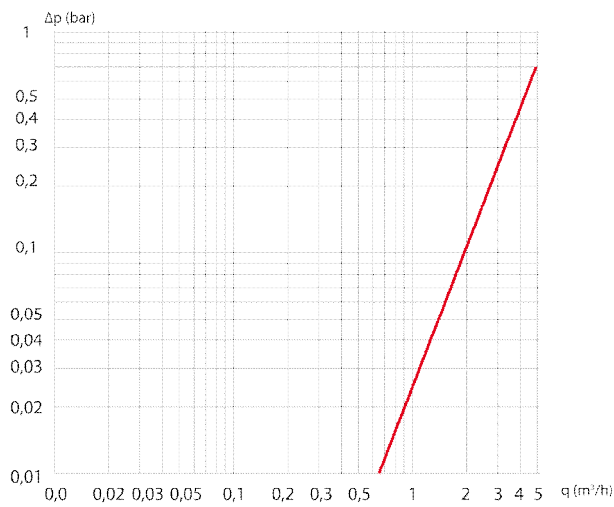
**Screwed type meter pressure drop characteristic 0.6 m<sup>3</sup>/h, 110 mm**



**Screwed type meter pressure drop characteristic 1.5 m<sup>3</sup>/h, 80 mm and 110 mm**



**Screwed type meter pressure drop characteristic 2.5 m<sup>3</sup>/h, 130 mm**



## Standard parameters

The meters are supplied with the following parameter settings:

- Due date: 31.12.
- Display of consumption in kWh

All display levels are shown.

The heat or cooling energy consumption values are continuously cumulated. The current state is stored at 24:00 o'clock on the due date.

Every time current and annual consumption are stored, the heat meter calculates a checksum. This can be read out together with the due date value and checked in the billing program.

This allows incorrect display readouts to be detected. The stored due date value remains in place for one year.

## Readout parameters

The following parameters can be set directly on the meter using the operating buttons:

Generally
Next due date
Display of kWh or MWh or MJ or GJ
Selection of levels to be displayed
Display of meter readings with or without checksum
Serial number of the external meter (pulse meter)
Pulse value of the external meter
Start meter state of the external meter
Media for pulse inputs, selectable from chilled water and hot water
Primary addresses for heat, cooling, pulse 1 and pulse 2
<b>In addition, with meters featuring solar adaption:</b>
Proportion of glycol or brine

The following parameters are read or set using the optical near field interface with the help of ACT50 software:

Generally
Meter serial number
Serial number of the external meter
Primary addresses for heat, cooling, pulse 1 and pulse 2
Mounting place
Installation location
Firmware version
Heat meter medium
Media for pulse inputs, selectable from chilled water and hot water
Date of commissioning
Battery life
Stock no.
Device data
Heat carrier
Error date
Error code
User name and password for close-range interface
Display of kWh or MWh or MJ or GJ
Selection of levels to be displayed

Device information
Current temperature (return)
Current temperature (flow)
Current temperature (difference)
Current energy flow
Current flow rate
Total flow rate
Pulse value of the external meter
Start meter state of the external meter
Device name

Meter states (with or without checksum)	
Current meter status	
Last due date	
Meter status on last due date	
Next due date	
Flow	Maximum temperature Date of maximum temperature Duration of upper deviations
Return	Maximum temperature Date of maximum temperature Duration of upper deviations
Flow rate	Maximum flow rate Date of maximum flow rate Duration of upper deviations
Statistical values	15 monthly values with date

## Type summary

Features of the impeller type meters listed below:	
Mounting location	Return
Design	Processor can be removed, cable length 0.40 m
Rated pressure	PN 16
Sensor mounting	<ul style="list-style-type: none"> <li>Return temperature sensor, integrated in the flow measuring section</li> <li>Meter with installation length of 80 mm: Sensor is not integrated in the volume measuring section</li> </ul>
Type of sensing element	Pt1000, Ø 5.0 mm, length 45 mm
Temperature sensor cable length	1,5 m
Communication	<ul style="list-style-type: none"> <li>M-bus and IrDA communication</li> </ul>
Threshold value for:	
<ul style="list-style-type: none"> <li>Acquisition of heat</li> </ul>	1,0 K
<ul style="list-style-type: none"> <li>Acquisition of cooling energy</li> </ul>	0,2 K
Due date	31.12.
Display	kWh

## Heat meter

Options	Stock no.	Product no.
0,6 m3/h, mounting length 110 mm, connecting thread G 3/4"	S55561-F239	WFM541-G000H0
1.5 m3/h, mounting length 80 mm, connecting thread G 3/4"	S55561-F240	WFM542-C000H0
1.5 m3/h, mounting length 110 mm, connecting thread G 3/4"	S55561-F241	WFM542-G000H0
2.5 m3/h, mounting length 130 mm, connecting thread G 1"	S55561-F242	WFM543-L000H0

## Combined heat and cooling energy meter

Options	Stock no.	Product no.
0,6 m3/h, mounting length 110 mm, connecting thread G 3/4"	S55561-F243	WFN541-G000H0
1.5 m3/h, mounting length 110 mm, connecting thread G 3/4"	S55561-F244	WFN542-G000H0
2.5 m3/h, mounting length 130 mm, connecting thread G 1"	S55561-F245	WFN543-L000H0

## Scope of delivery

The meters come complete with operating and installation instructions in different languages including the required mounting material (gaskets, seals, etc.).

## Languages

The operating and installation Instructions are supplied in 18 languages:

Bulgarian, Croatian, Czech, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Lithuanian, Norwegian, Polish, Slovakian, Slovenian, Spanish and Turkish.

## Accessories

Installation sets ball valves		
Description	Stock no.	Product no.
<b>Installation set Rp 1/2"</b> consisting of: 2 ball valves Rp 1/2" with coupling nut G 3/4" and flat gasket 2 mm, 3/4" 1 ball valve Rp 1/2" with thread M10x1 mm for fitting temperature sensor Ø 5.0x45 mm	JXF:HMXI-K001:001	HMXI-K001001
<b>Installation set Rp 3/4"</b> , consisting of: 2 ball valves Rp 3/4" with coupling nut G 3/4" and flat gasket 2 mm, 3/4" 1 ball valve Rp 3/4" with thread M10x1 mm for fitting temperature sensor Ø 5.0x45 mm	JXF:HMXI-K001:002	HMXI-K001002
<b>Installation set Rp 1"</b> , consisting of: 2 ball valves Rp 1" with coupling nut G 3/4" and flat gasket 2 mm, 3/4" 1 ball valve Rp 1" with thread M10x1 mm for fitting temperature sensor Ø 5.0x45 mm	JXF:HMXI-001:003	HMXI-K001003
<b>Installation set Rp 1"</b> , consisting of: 2 ball valves Rp 1" with coupling nut G 1" and flat gasket 2 mm, 1" 1 ball valve Rp 1" with thread M10x1 mm for fitting temperature sensor Ø 5.0x45 mm	JXF:HMXI-001:004	HMXI-K001004
<b>Installation set Rp 3/4"</b> , consisting of: 2 ball valves Rp 3/4" with coupling nut G 1" and flat gasket 2 mm, 1" 1 ball valve Rp 1" with thread M10x1 mm for fitting temperature sensor Ø 5.0x45 mm	JXF:HMXI-001:005	HMXI-K001005

<b>Installation set fittings</b>		
<b>Description</b>	<b>Stock no.</b>	<b>Product no.</b>
<b>Installation set R ½"</b> , consisting of: fittings R ½" with coupling nut G ¾" and flat gasket 2 mm, ¾" 1 ball valve Rp ½" with thread M10x1 mm for fitting temperature sensor Ø 5.0x45 mm	JXF:HMXI-K002:001	HMXI-K002001
<b>Installation set R ¾"</b> , consisting of: fittings R ¾" with coupling nut G ¾" and flat gasket 2 mm, ¾" 1 ball valve Rp ¾" with thread M10x1 mm for fitting temperature sensor Ø 5.0x45 mm	JXF:HMXI-K002:002	HMXI-K002002
<b>Installation set R 1"</b> , consisting of: fittings R 1" with coupling nut G ¾" and flat gasket 2 mm, ¾" 1 ball valve Rp 1" with thread M10x1 mm for fitting temperature sensor Ø 5.0x45 mm	JXF:HMXI-K002:003	HMXI-K002003
<b>Installation set R 1"</b> , consisting of: fittings R 1" with coupling nut G 1" and flat gasket 2 mm, 1" 1 ball valve Rp 1" with thread M10x1 mm for fitting temperature sensor Ø 5.0x45 mm	JXF:HMXI-K002:004	HMXI-K002004
<b>Installation set R ¾"</b> , consisting of: fittings R ¾" with coupling nut G 1" and flat gasket 2 mm, 1" 1 ball valve Rp 1" with thread M10x1 mm for fitting temperature sensor Ø 5.0x45 mm	JXF:HMXI-K002:005	HMXI-K002005

<b>Spacers</b>		
<b>Description</b>	<b>Stock no.</b>	<b>Product no.</b>
<b>Spacer G ¾"</b> , length 80 mm	JXF:FKM0070	FKM0070
<b>Spacer G ¾"</b> , length 110 mm	JXF:FKM0074	FKM0074
<b>Spacer G 1"</b> , length 130 mm, brass	JXF:FKM0075	FKM0075

<b>Extensions</b>		
<b>Description</b>	<b>Stock no.</b>	<b>Product no.</b>
<b>Adapter set from G ¾" to G 1"</b> , consisting of: 2 adapter pieces from G ¾" to G 1" 2 flat gaskets 2 mm, 1"	JXF:HMXI-K003:001	HMXI-K003001
<b>Extension set from G ¾" to G 1"</b> , consisting of: 2 adapter pieces from 110 mm G ¾" to 130 mm G 1" 2 flat gaskets 2 mm, 1"	JXF:HMXI-K003:002	HMXI-K003002
<b>Extension set from 110 mm G ¾" to 130 mm G ¾"</b> , consisting of: 1 extension 27 mm 2 flat gaskets 2 mm, ¾" 1 gasket made of copper ¾" x 1.5 mm	JXF:HMXI-K003:003	HMXI-K003003
<b>Extension set from 110 mm G ¾" to 165 mm G ¾"</b> , consisting of: 1 extension 27 mm 1 extension 42 mm 2 flat gaskets 2 mm, ¾" 1 gasket made of copper ¾" x 1.5 mm	JXF:HMXI-K003:004	HMXI-K003004
<b>Extension set from 110 mm G ¾" to 190 mm G 1"</b> , consisting of: 2 adapter pieces from 110 mm G ¾" to 190 mm G 1" 2 flat gaskets 2 mm, 1" -1 gasket made of copper ¾" x 1.5 mm	JXF:HMXI-K003:005	HMXI-K003005



<b>Fittings</b>		
<b>Description</b>	<b>Stock no.</b>	<b>Product no.</b>
<b>Fitting R ½" x G ¾"</b> , without gasket	JXF:FKM0018	FKM0018
<b>Fitting R ¾" x G ¾"</b> , without gasket	JXF:FKM0019	FKM0019
<b>Fitting R 1" x G ¾"</b> , without gasket	JXF:FKM0020	FKM0020
<b>Fitting R ¾" x G 1"</b> , without gasket	JXF:FKM0021	FKM0021
<b>Fitting R 1" x G 1"</b> , without gasket	JXF:FKM0022	FKM0022

<b>Ball valves</b>		
<b>Description</b>	<b>Stock no.</b>	<b>Product no.</b>
<b>ball valve Rp ½"</b> with thread M10x1 mm for fitting temperature sensor Ø 5.0x45 mm	JXF:FKM0023	FKM0023
<b>ball valve Rp ¾"</b> with thread M10x1 mm for fitting temperature sensor Ø 5.0x45 mm	JXF:FKM0024	FKM0024
<b>ball valve Rp 1"</b> with thread M10x1 mm for fitting temperature sensor Ø 5.0x45 mm	JXF:FKM0025	FKM0025
<b>Ball valve Rp ½"</b> with coupling nut G ¾" and thread M10x1 for fitting temperature sensor Ø 5.0x45 mm, without seal	JXF:FKM0026	FKM0026
<b>Ball valve R ½"</b> with coupling nut G ¾", without seal	JXF:FKM0076	FKM0076
<b>Ball valve R ¾"</b> with coupling nut G ¾", without seal	JXF:FKM0028	FKM0028
<b>Ball valve R 1"</b> with coupling nut G ¾", without seal	JXF:FKM0029	FKM0029
<b>Ball valve R ¾"</b> with coupling nut G 1", without seal	JXF:FKM0030	FKM0030
<b>Ball valve R 1"</b> with coupling nut G 1", without seal	JXF:FKM0031	FKM0031

<b>Accessories</b>		
<b>Description</b>	<b>Stock no.</b>	<b>Product no.</b>
<b>Flat gasket ¾"</b> , 2 mm thick	JXF:FKS0005	FKS0005
<b>Flat gasket 1"</b> , 2 mm thick	JXF:FKS0006	FKS0006
<b>T-piece R ½" x G ¾"</b>	JXF:FKM0035	FKM0035
<b>T-piece R ¾" x G ¾"</b>	JXF:FKM0036	FKM0036
<b>T-piece R 1" x G ¾"</b>	JXF:FKM0037	FKM0037
<b>Immersion sleeve G ¾"</b> for sensor Ø 5.0 x 45 mm, without gasket	JXF:FKM0038	FKM0038
<b>Immersion M10x1 mm</b> for sensor Ø 5.0 x 45 mm, without gasket	JXF:FKM0051	FKM0051
<b>Immersion sleeve G ¾"</b> for sensor Ø 5.2 x 45 mm, without gasket	JXF:FKM0039	FKM0039
<b>Immersion sleeve M10x1 mm</b> for sensor Ø 5.2, without gasket	JXF:FKM0052	FKM0052
<b>Temperature sensor sleeve G ¾"</b> for sensor Ø5.0x45 mm and Ø5.2x45 mm	JXF:FKM0049	FKM0049
<b>Temperature sensor sleeve M10x1 mm</b> for sensor Ø5.0 x 45 mm and Ø5.2 x 45 mm	JXF:FKM0050	FKM0050
<b>Temperature sensor screwed, brass</b> for sensor Ø5.0 mm and Ø5.2 mm, directly or indirectly immersed	JXF:HMXI-K004:001	HMXI-K004001
<b>Wall bracket</b> for WFX5 heat meter	JXF:HMRI-K001:001	HMRI-K001001
<b>Seal</b> , wire length 250 mm	JXF:FNS0001	FNS0001

Programming accessories		
Description	Stock no.	Product no.
Infrared read head with USB interface	JXF:WFZ.IRDA-USB	WFZ.IRDA-USB
Parameterization and diagnostic software	JXF:ACT50-Heat	ACT50-Heat

## Product documentation

Related documents such as environmental declarations, CE declarations, etc., can be downloaded at the following Internet address:

<http://siemens.com/bt/download>

## Notes

### Installation

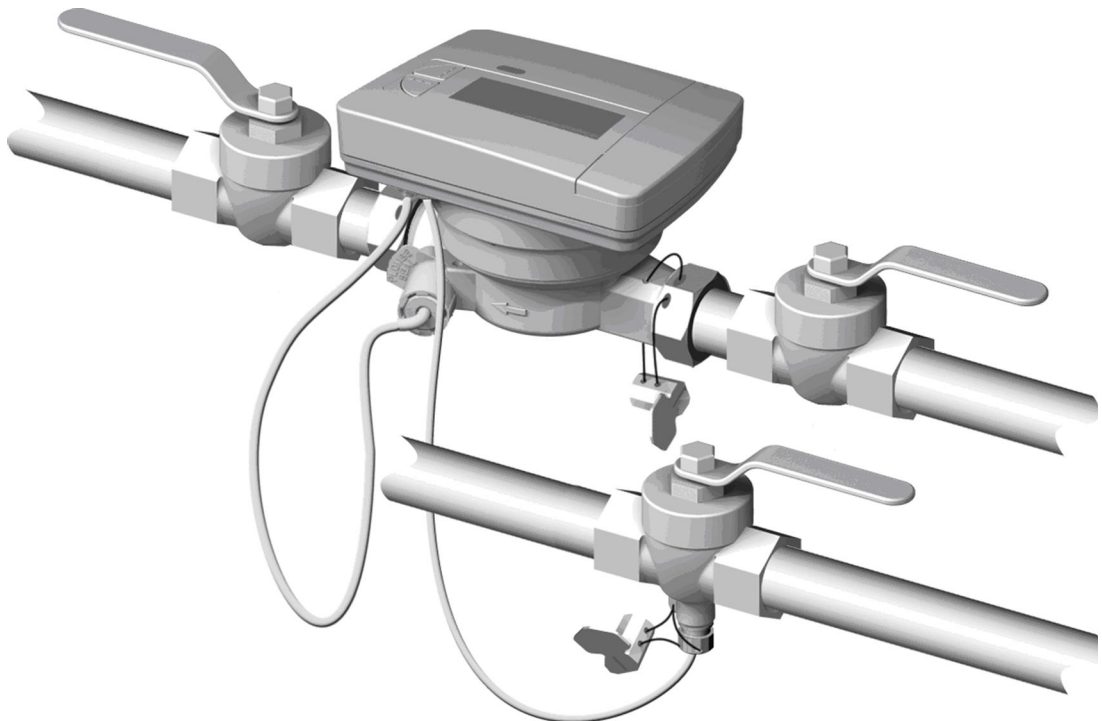
#### Flow measuring section

The meter's mounting position is optional (with the exception of upside down). The mounting location (return or flow) depends on the type of meter. Settling paths are not required, neither upstream of nor downstream from the meter. But if the meter is installed in the common return of 2 heating circuits (e.g. space heating and DHW), a certain distance to the joining T-piece (min. 10 x DN) must be observed to make certain the water is properly mixed.

Before installing the meter, the system must be thoroughly flushed.

The flow measuring section must be installed between 2 shutoff valves, and the arrow on the measuring section must agree with the direction of flow. The temperature sensors must be installed in the same water circuit as the flow measuring section (observe mixing).

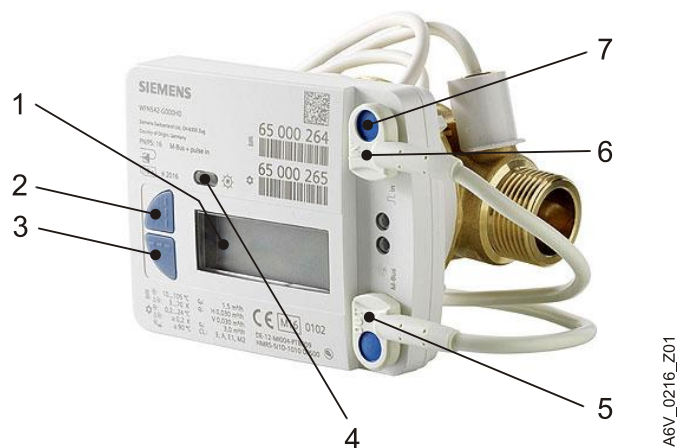
Depending on their design, the sensors can be fitted in T-pieces or ball valves. They can be directly immersed or fitted in immersion pockets (observe national regulations). In any case, the sensors' minimum immersion length must be such that their ends reach the pipe's center. Sensors and screwed connections must be sealed to prevent tampering.



Mounting with ball valves

## Processor

Basic design of processor:



1. LCD
2. Button to change between the levels
3. Button to navigate on a level
4. IrDA interface
5. M-bus interface
6. Pulse inputs (added seal to interface)
7. Fixing holes for cover and seals

The processor's ambient temperature of 55 °C must be observed. Direct solar radiation must be avoided.

The meter is a split device version. The process can be separated from the flow measuring section and mounted on the wall at a distance of 40 cm.

## Sealing

After mounting the meter, all components must be sealed to prevent tampering (observe national regulations):

- The flow measuring section with its fitting (inlet)
- The flow temperature sensor with the ball valve or the immersion pocket, the immersion pocket with the pipe and, if required,

## Maintenance

The meters are maintenance-free. Observe national calibration regulations.

## Disposal



The device is considered an electronics device for disposal in terms of European Directive 2012/19/EU and may not be disposed of as domestic garbage.

- Dispose of the device through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.
- Dispose of empty batteries in designated collection points.

## Warranty service

Technical data on specific applications are valid only together with Siemens products listed under "Equipment combinations". Siemens rejects any and all warranties in the event that third-party products are used.

**Processor**

Power supply	
Battery type	Lithium battery CR AA (cannot be replaced)
Battery voltage	3,0 V
Battery life	10 years with backup

Function data	
Measuring range	
• Heat meter	15 ... 105 °C
• Heat meter with optional refrigeration range	Refrigeration range: 0.2 ... 24 °C
Differential temperature range $\Delta\Theta$	3 ... 70 K
Threshold value	
• Heat	1,0 K
• Cooling energy	0,2 K
Temperature sensor	Thermal coefficient

Shifting compensated	
Sensing element	Pt1000 as per EN 60751
Type	DS (direct short)
Diameter	Dia. 5.0 x 45 mm (standard)
Cable length	1.5 m (standard, 3 m optional)

Display	
Display	8-digit LCD + pictograms
Energy display based on device configuration	kWh / MWh (kWh: Decimal to 1 decimal place) (MWh: Decimal to 4 decimal places) MJ / GJ (MJ: Decimal to 1 decimal place) (GJ: Decimal to 4 decimal places)

Communication		
<b>Optical interface</b>	Design	Similar to EN 13757-2/3
	Protocol	
<b>M-bus interface</b>	Per EN 13757-2	
Voltage $V_{max}$ .	50 V	
Current draw	1 M-bus load	
Addressing	Primary or secondary	
Baud rate	300 or 2400 baud	
Max. permissible reading frequency	typically 1 x daily	
Protocol	Per EN 13757-3, EN 1434-3	
Connecting cable length and diameter	3 m, 4x 0.22 mm <sup>2</sup>	
<b>Pulse inputs</b>	Similar to EN 1434-2 class IB*	
Number of inputs	2	
*Switching threshold at low level	max. 0.25 V	
Max. pulse frequency	Standard 5 Hz, 2.5 Hz if filter is active	

Communication	
Min. pulse length	> 100 ms
Pulse value (both are identical)	10 liters per pulse (factory setting) 1 liters per pulse
• Connecting cable length and diameter	1 m, 4x 0.22 mm <sup>2</sup>

Volume measuring section screwed type meter pressure				
Temperature range (national approvals may differ)	10...90 °C			
Maximum temperature $t_{max}$ .	90 °C			
Nominal pressure (max. permissible operating pressure)	16 bar (PN 16)			
Min. system pressure to prevent cavitation	1 bar			
Nominal flow $q_p$ (m <sup>3</sup> /h)	0,6	1,5	1,5	2,5
Installation length (mm)	110	80	110	130
Connecting thread	G ¾ B	G ¾ B	G ¾ B	G 1 B
Metrological class ( $q_p/q_i$ )				
• Horizontal	25:1	50:1	50:1	50:1
• Vertical	25:1	50:1	50:1	50:1
Maximum flow $q_s$ (m <sup>3</sup> /h)	1,2	3,0	3,0	5,0
Minimum flow $q_i$				
• Horizontal	24	30	30	50
• Vertical	24	30	30	50
Ratio $q_s/q_i$		2:1		
Response threshold (l/h)	3...4	4...5	4...5	6...7
Pressure drop at $q_p$				
• Mounting length 80 mm $\Delta p$ (mbar)		230		
• Mounting length 110 mm $\Delta p$ (mbar)	210		230	
• Mounting length 130 mm $\Delta p$ (mbar)				170
Flow at $\Delta p = 1$ bar, $k_v$ (m <sup>3</sup> /h)	3,0	3,1	3,1	5,2
Mounting position	Horizontal/vertical			

Housing	
Safety class	III
Degree of protection	
• Processor	IP65
• Flow measuring section	IP65 as per EN 60529

Environmental conditions			
	Operation EN 60721-3-3	Transport EN 60721-3-2	Storage EN 60721-3-1
Climatic conditions	3K5	2K3	1K3
Temperature	5...55 °C	-25...70 °C	-5...45 °C
Humidity	<93% r.h. at 25 °C (non-condensing)	<93% r.h. at 25 °C (non-condensing)	<93% r.h. at 25 °C (non-condensing)
Mechanical conditions	3M2	2M2	1M2
Max. altitude	Min. 700 hPa (corresponding to max. 2000 m above sea level)		

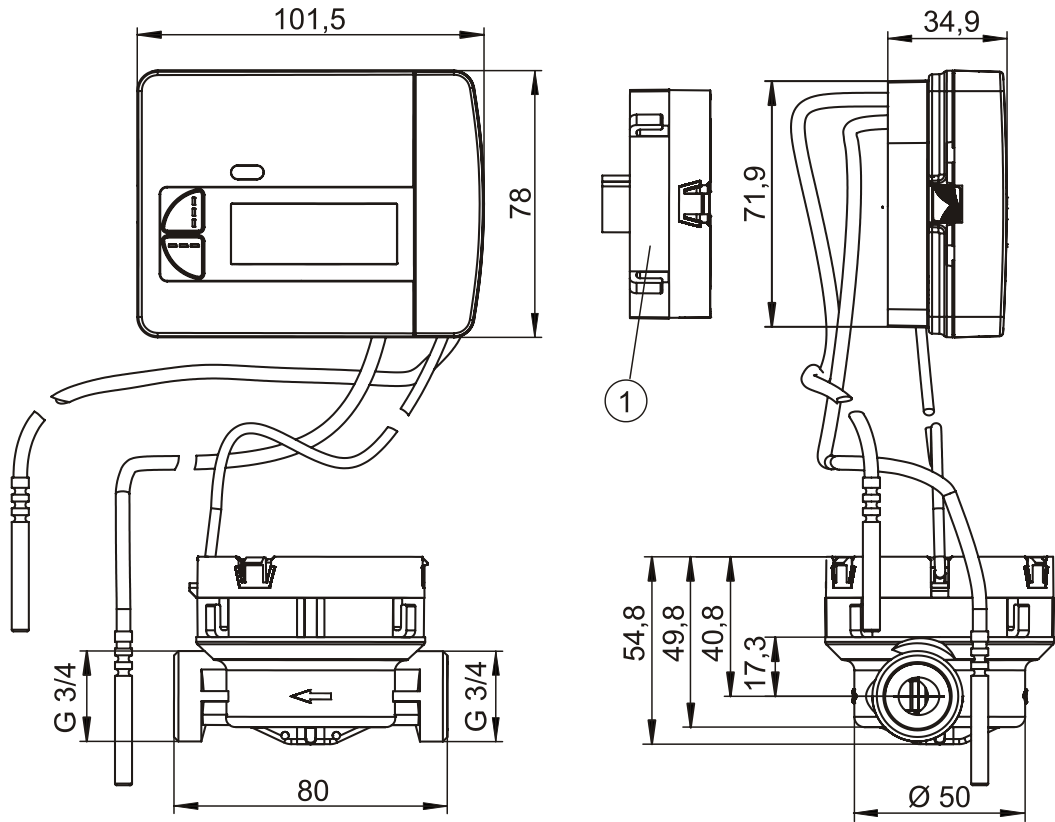
<b>Norms and standards</b>	
EU conformity (CE)	
Processor	CE2T5323xx <sup>1)</sup>
Quality of heating medium	VDI guideline 2035
Type approval as per	EN 1434-4 Environment class A Measuring accuracy class 3
Product standard	DIN EN 1434-1 (heat meters)
<sup>1)</sup> Documents can be downloaded at <a href="http://www.siemens.com/bt/download">http://www.siemens.com/bt/download</a>	

<b>Environmental compatibility</b>
Environmental Declaration CE1E5323xx <sup>1)</sup> contains data on environmental-compatible product design and assessment (RoHS compliance, compositions, packaging, environmental benefits and disposal)
<sup>1)</sup> Documents can be downloaded at <a href="http://www.siemens.com/bt/download">http://www.siemens.com/bt/download</a>

<b>Material</b>	
Dimensions (W x H x D)	
• Processor	101.5 x 78 mm
• Flow measuring section	See "Dimensions"
Housing material processor	PC-ABS PC-LEXAN
Housing color processor	RAL 9016
Weight (device packed with inserts)	
• 0,6 m <sup>3</sup> /h	820 g
• 1.5 m <sup>3</sup> /h (80 mm)	709 g
• 1.5 m <sup>3</sup> /h (110 mm)	802 g
• 2.5 m <sup>3</sup> /h	895 g

**Screwed type meter**  
 Dimensions in mm

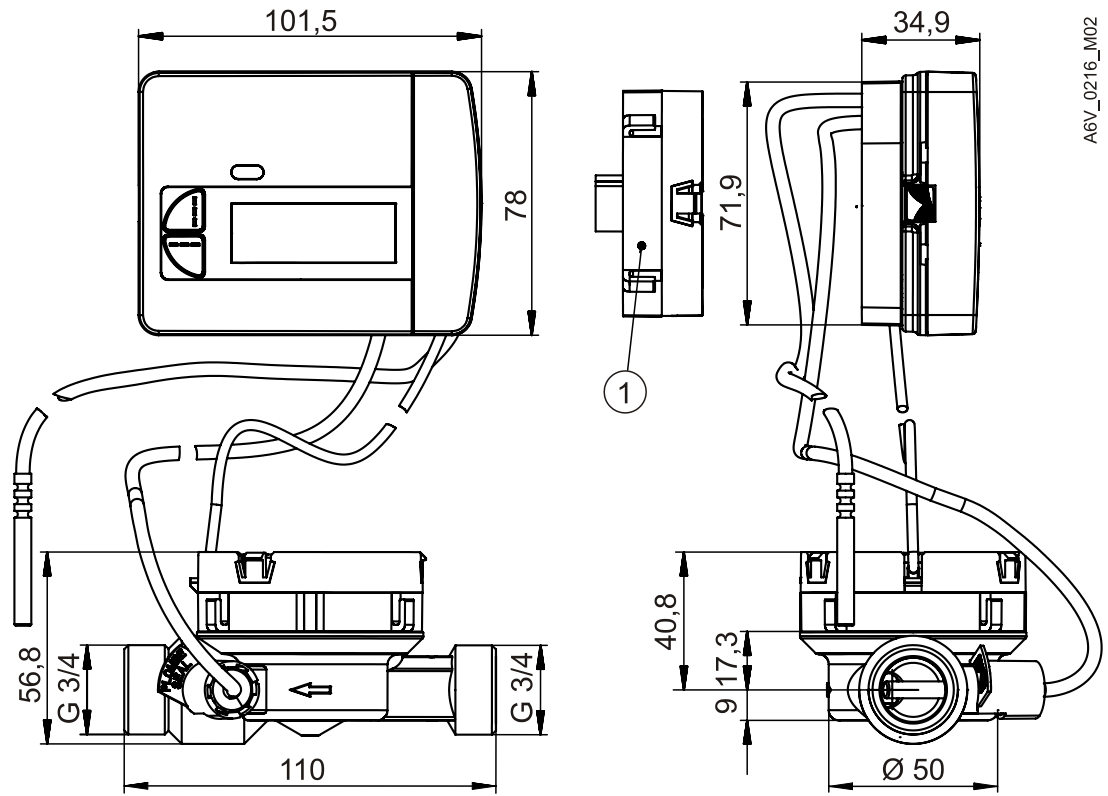
**Mounting length 80 mm:**



A6V\_0216\_M01

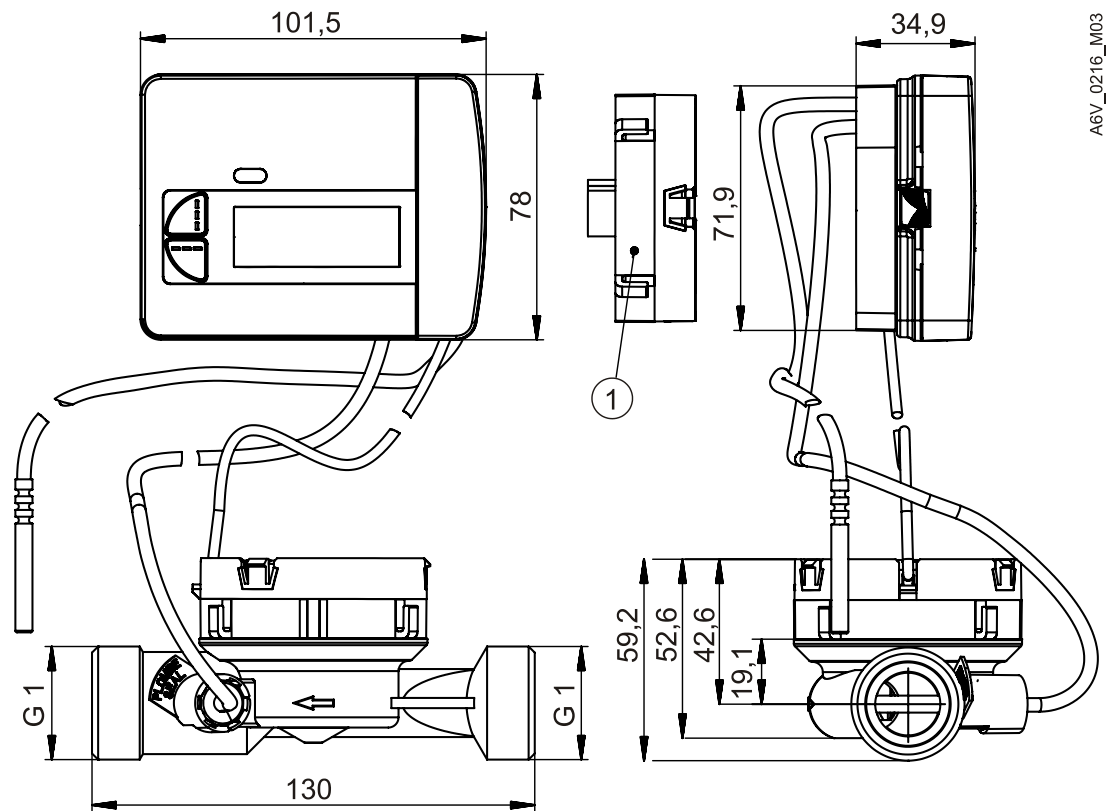
1. Wall mount available as an option

**Mounting length 110 mm:**



1. Wall mount available as an option

**Mounting length 130 mm:**



1. Wall mount available as an option

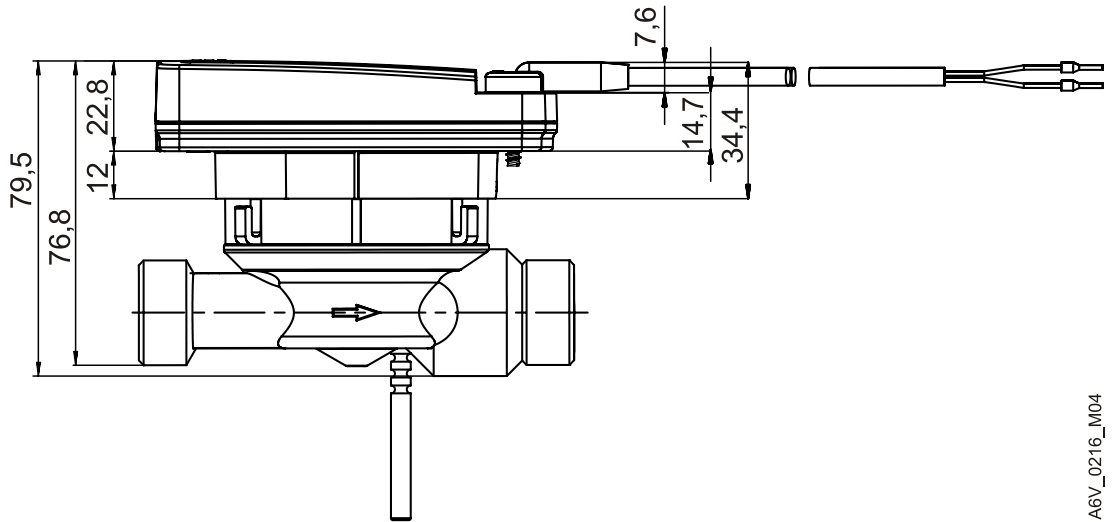
A6V\_0216\_M02

A6V\_0216\_M03



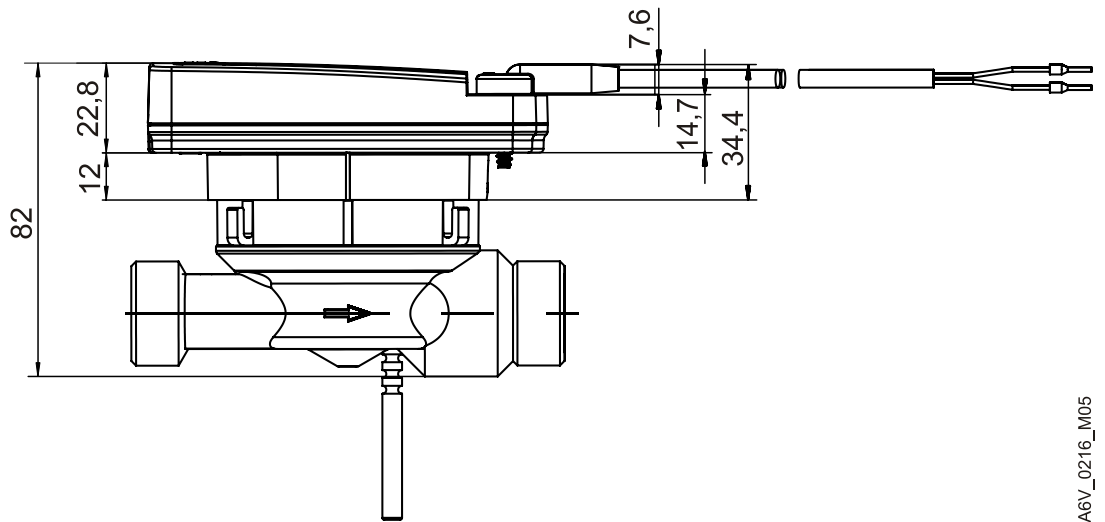
**Input/output cable**

**Installation length 80 mm or 110 mm:**



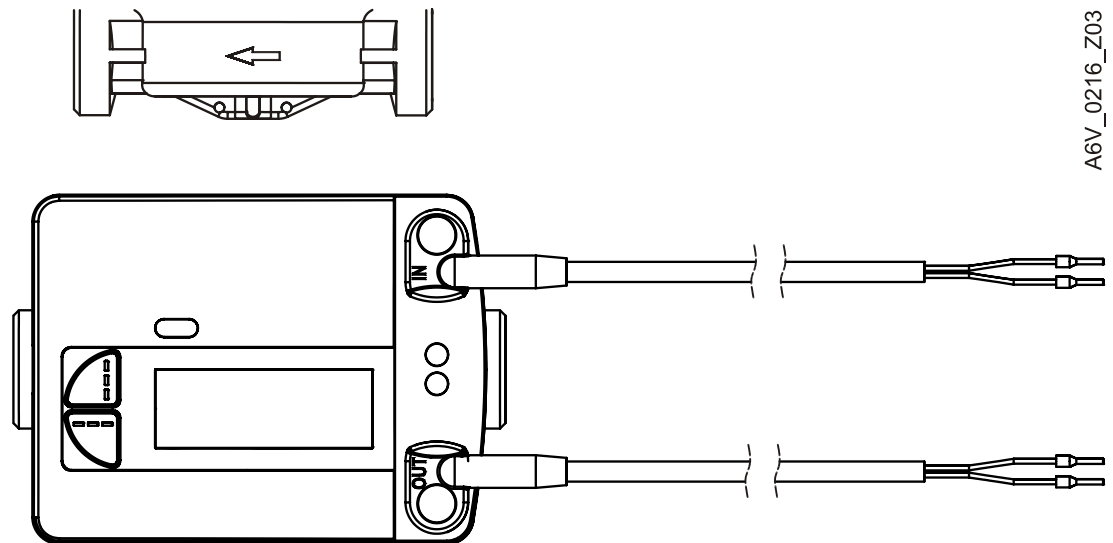
A6V\_0216\_M04

**Mounting length 130 mm:**



A6V\_0216\_M05

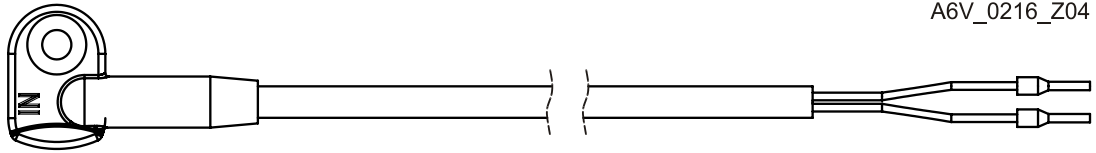
**Processor with connected cable pulse "IN" and M-bus "OUT":**



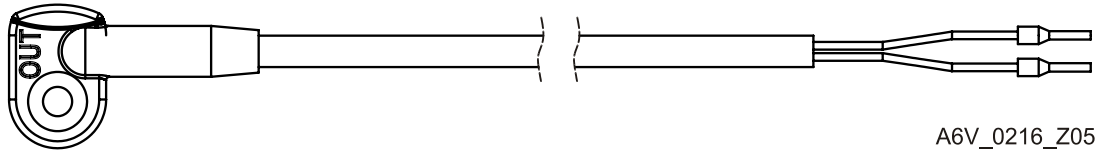
A6V\_0216\_Z03

**Control cable COM 4-pin:**

A6V\_0216\_Z04



Pulse input 1	Pulse input 2
Pin 1: orange	Pin 1: red
Pin 2: brown	Pin 2: black



A6V\_0216\_Z05

M-bus	
Pin 1: orange (not used)	Pin 3: red
Pin2: brown (not used)	Pin 4: black