

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 m³/h, 1.5 m³/h or 2.5 m³/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

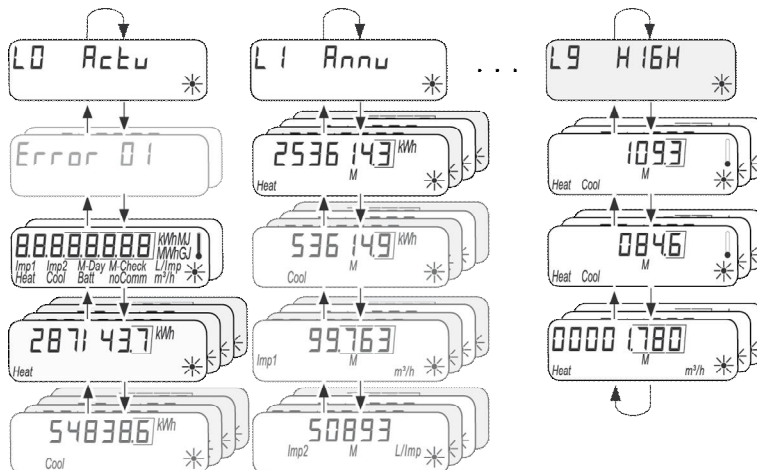
Type of processor

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



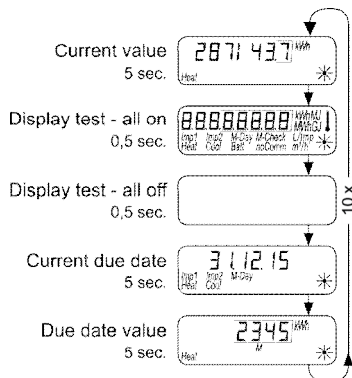
The display is off by default ("Sleep Mode"). The device awakens by pressing one of the two operating buttons.

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.

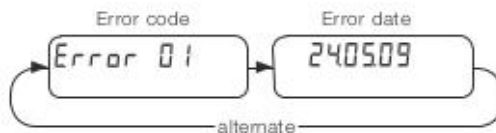


The quick read loop can be cancelled at any time by pressing a button > 3 s.

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:



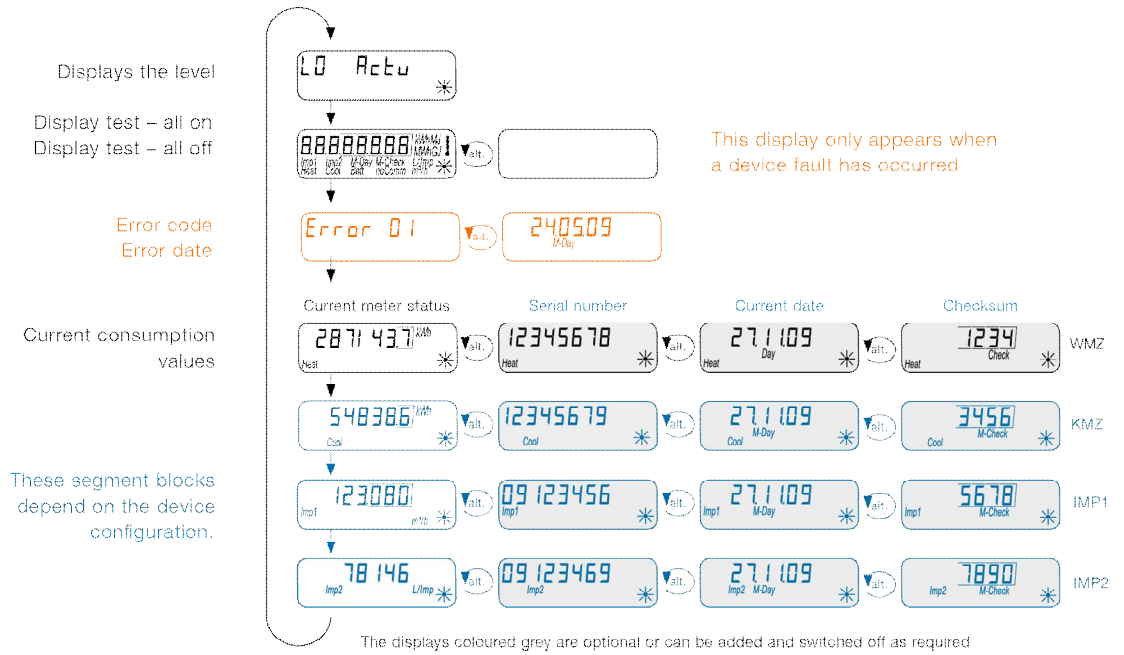
Display levels

The following levels are available:

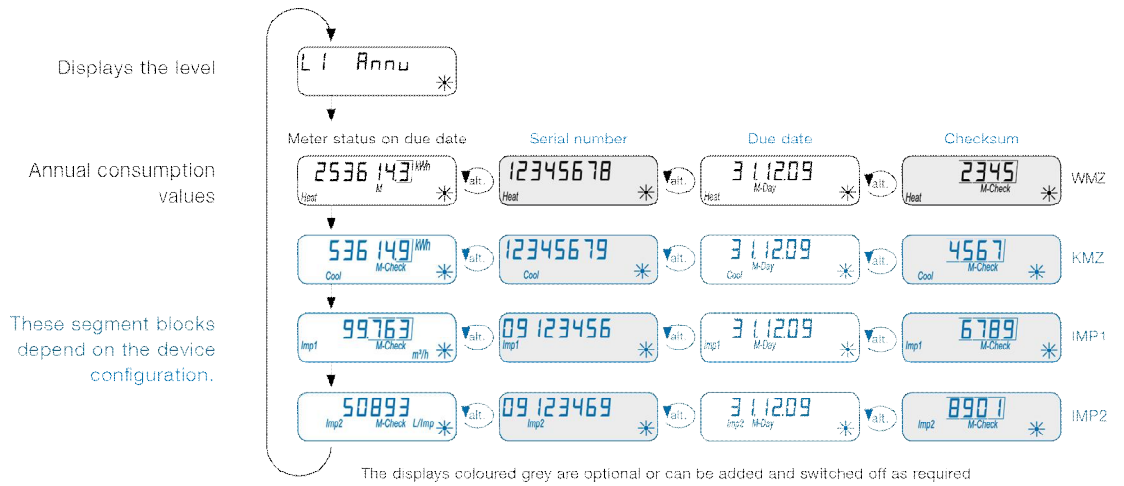
| The following levels are available | |
|---|------------------------------|
| Standard levels | |
| L0 | Current consumption values |
| L1 | Annual consumption values |
| The following levels can be deactivated individually | |
| L2 | Current values |
| L3 | Parameters |
| L4 | Connections |
| L5 | 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).

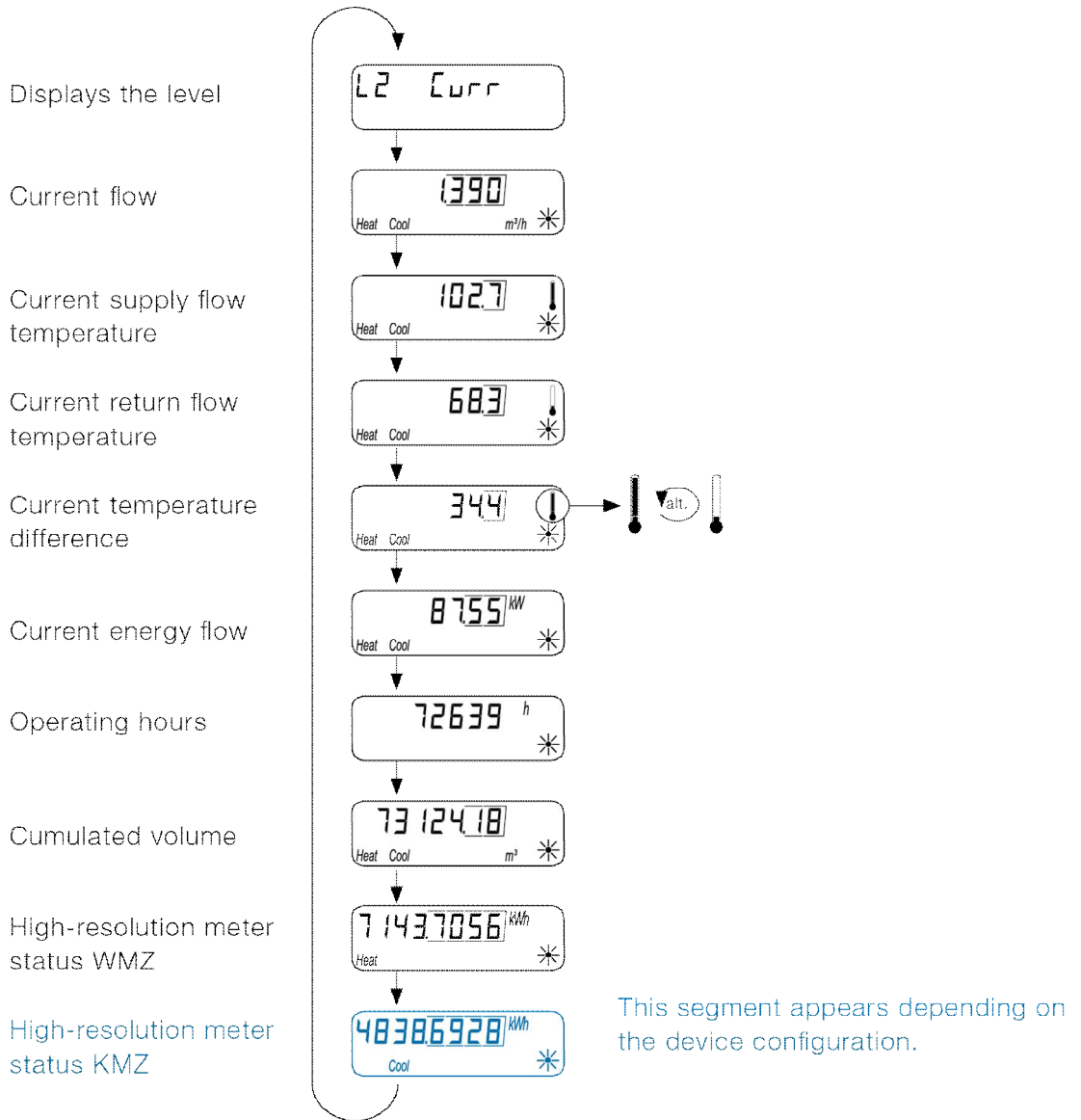
Level L0 - Current consumption values



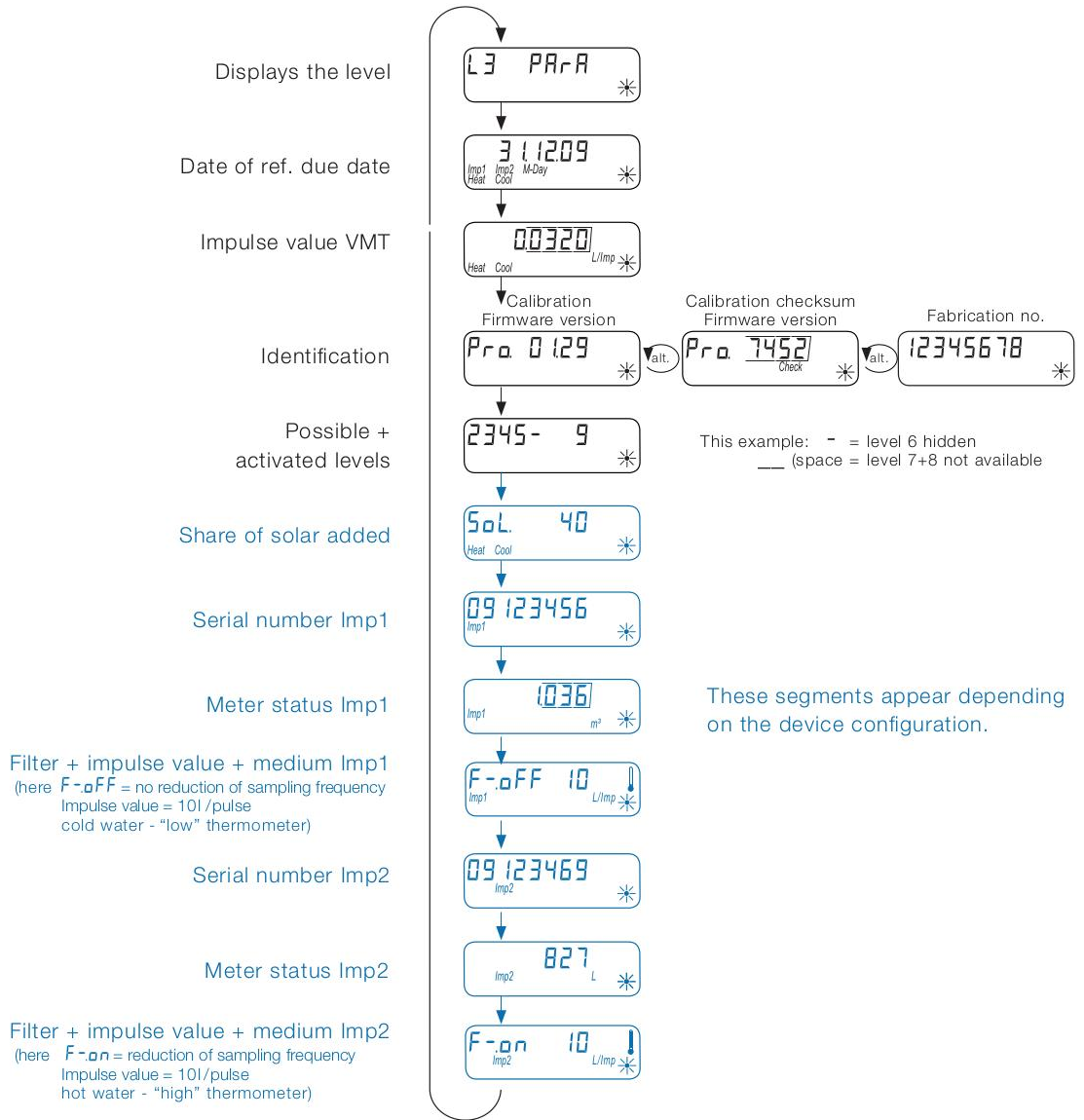
Level L1 - Consumption values at due date



Level L2 - Current values

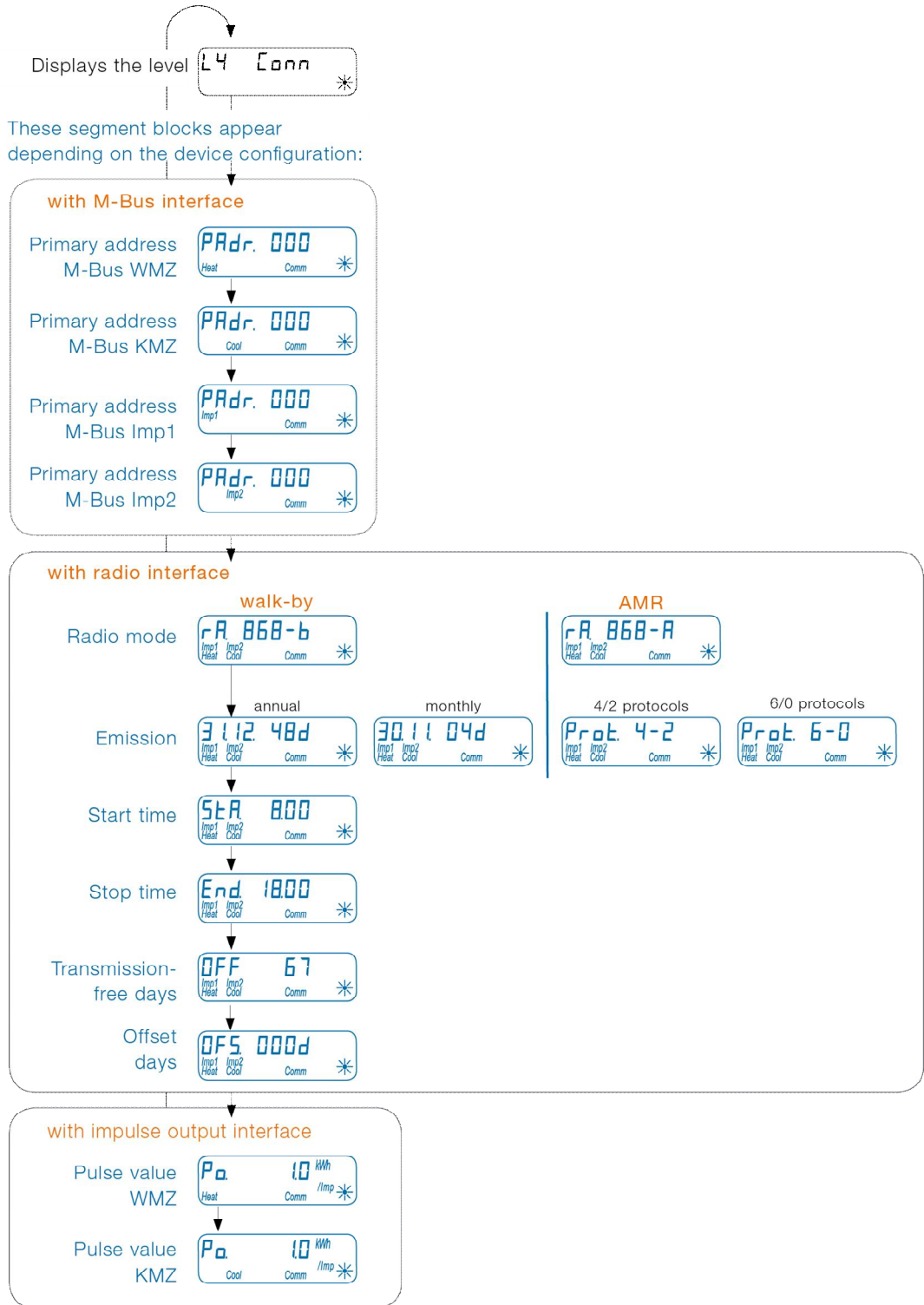


Level L3 - Parameters



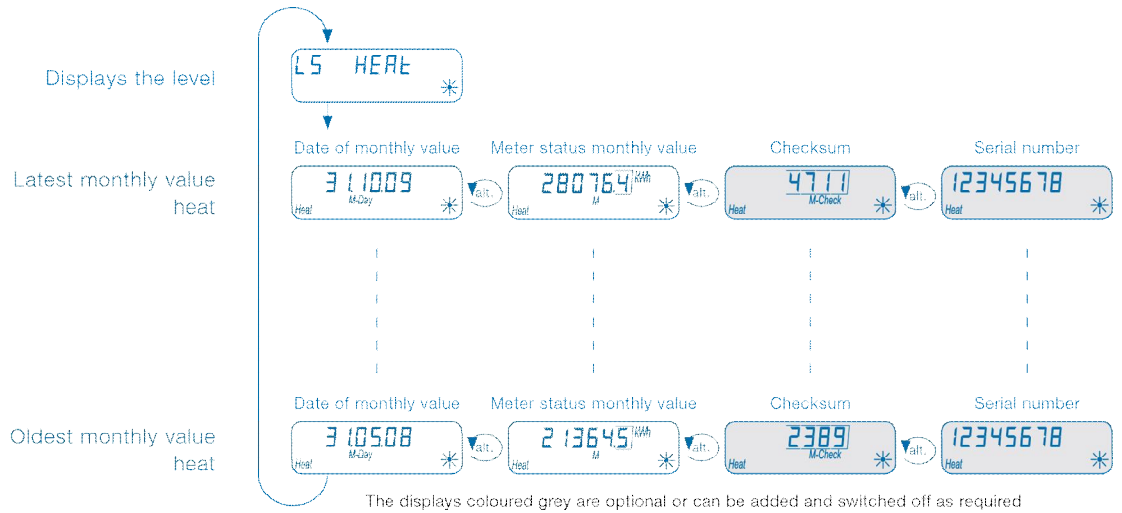
Level L4 - Connections

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



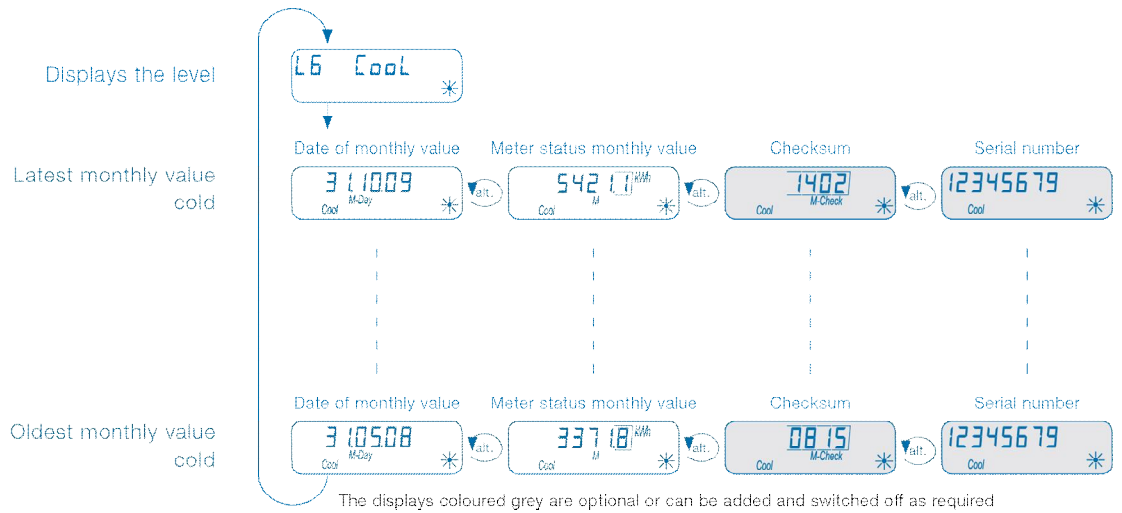
Level L5 - Monthly values heat

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

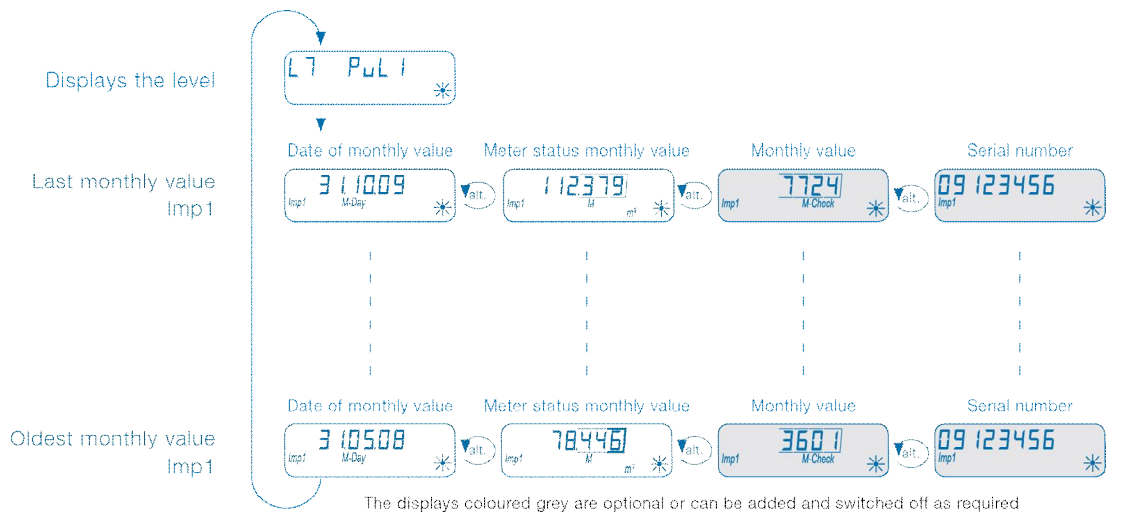


Level L6 - Monthly values cooling energy

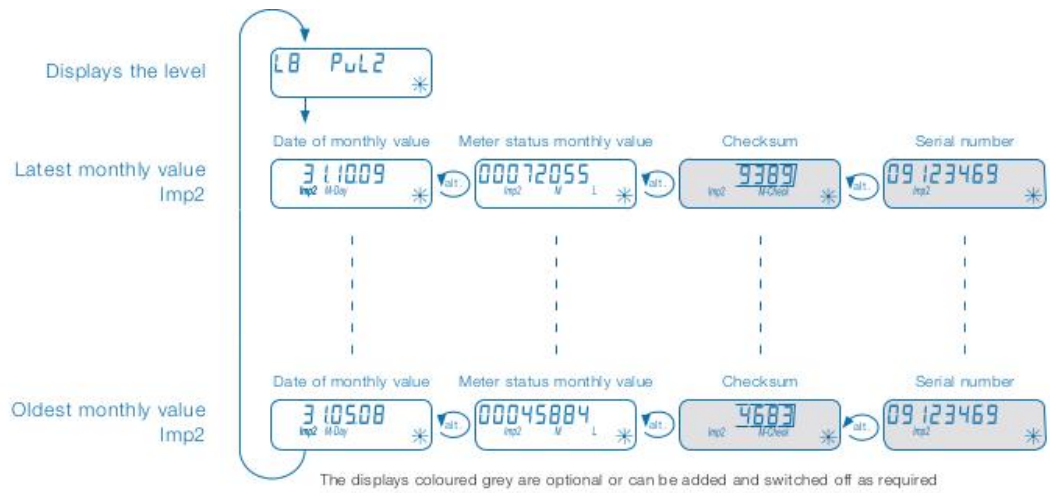
This level is displayed only when the meter is configured for metering cooling energy.



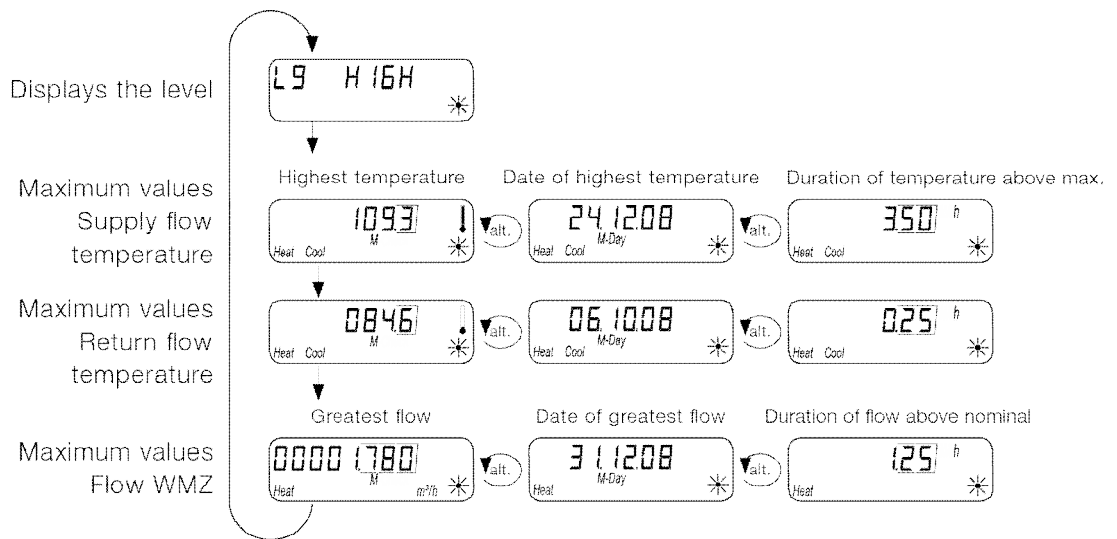
Level L7 - Monthly values pulse input 1



Level L8 - Monthly values pulse input 2





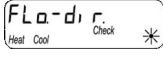
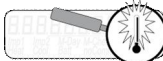
Level L9 - Highest values



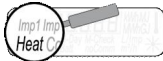






Error messages

| 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 |

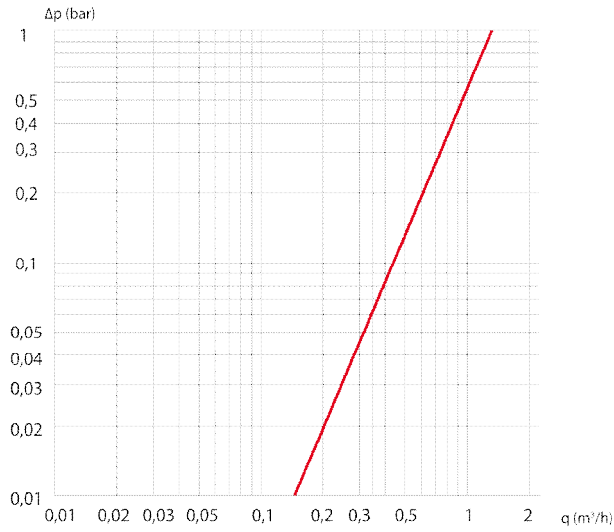
Operating state display

| 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 |

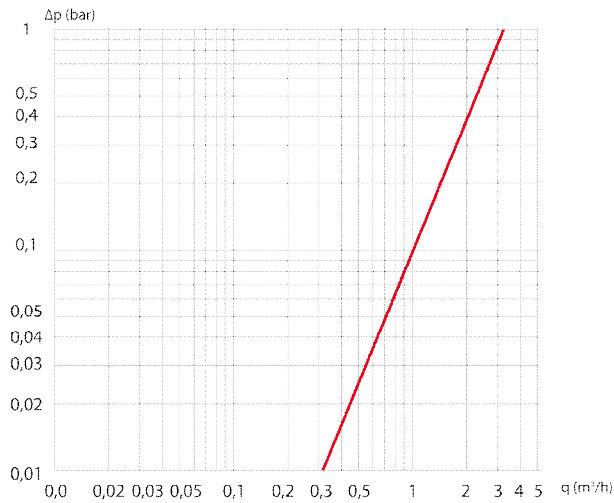
Status display:

| 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 | |

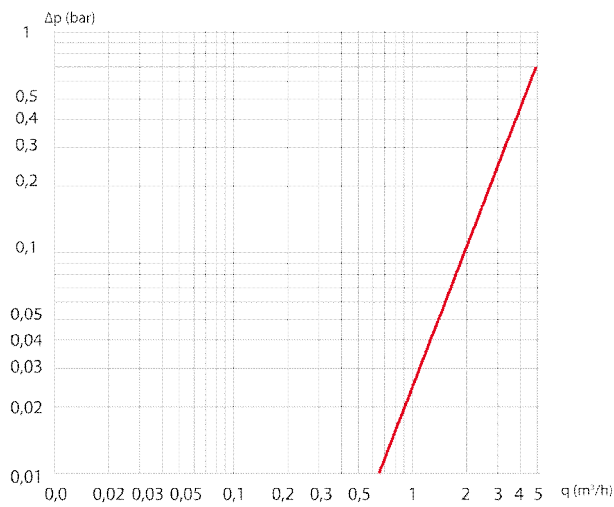
Screwed type meter pressure drop characteristic 0.6 m³/h, 110 mm



Screwed type meter pressure drop characteristic 1.5 m³/h, 80 mm and 110 mm



Screwed type meter pressure drop characteristic 2.5 m³/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 |
| In addition, with meters featuring solar adaption: |
| 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"> Return temperature sensor, integrated in the flow measuring section Meter with installation length of 80 mm: Sensor is not integrated in the volume measuring section |
| 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"> M-bus and IrDA communication |
| Threshold value for: | |
| <ul style="list-style-type: none"> Acquisition of heat | 1,0 K |
| <ul style="list-style-type: none"> Acquisition of cooling energy | 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. |
| Installation set Rp 1/2" 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 |
| Installation set Rp 3/4" , 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 |
| Installation set Rp 1" , 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 |
| Installation set Rp 1" , 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 |
| Installation set Rp 3/4" , 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 |

| Installation set fittings | | |
|--|-------------------|--------------------|
| Description | Stock no. | Product no. |
| Installation set R ½" , 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 |
| Installation set R ¾" , 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 |
| Installation set R 1" , 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 |
| Installation set R 1" , 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 |
| Installation set R ¾" , 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 |

| Spacers | | |
|---|------------------|--------------------|
| Description | Stock no. | Product no. |
| Spacer G ¾" , length 80 mm | JXF:FKM0032 | FKM0032 |
| Spacer G ¾" , length 110 mm | JXF:FKM0033 | FKM0033 |
| Spacer G 1" , length 130 mm, brass | JXF:FKM0075 | FKM0075 |

| Extensions | | |
|--|-------------------|--------------------|
| Description | Stock no. | Product no. |
| Adapter set from G ¾" to G 1" , consisting of: 2 adapter pieces from G ¾" to G 1" 2 flat gaskets 2 mm, 1" | JXF:HMXI-K003:001 | HMXI-K003001 |
| Extension set from G ¾" to G 1" , 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 |
| Extension set from 110 mm G ¾" to 130 mm G ¾" , 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 |
| Extension set from 110 mm G ¾" to 165 mm G ¾" , 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 |
| Extension set from 110 mm G ¾" to 190 mm G 1" , 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 |

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

| Ball valves | | |
|---|-------------|-------------|
| Description | Stock no. | Product no. |
| ball valve Rp ½" with thread M10x1 mm for fitting temperature sensor Ø 5.0x45 mm | JXF:FKM0023 | FKM0023 |
| ball valve Rp ¾" with thread M10x1 mm for fitting temperature sensor Ø 5.0x45 mm | JXF:FKM0024 | FKM0024 |
| ball valve Rp 1" with thread M10x1 mm for fitting temperature sensor Ø 5.0x45 mm | JXF:FKM0025 | FKM0025 |
| Ball valve Rp ½" with coupling nut G ¾" and thread M10x1 for fitting temperature sensor Ø 5.0x45 mm, without seal | JXF:FKM0026 | FKM0026 |
| Ball valve R ½" with coupling nut G ¾", without seal | JXF:FKM0027 | FKM0027 |
| Ball valve R ¾" with coupling nut G ¾", without seal | JXF:FKM0028 | FKM0028 |
| Ball valve R 1" with coupling nut G ¾", without seal | JXF:FKM0029 | FKM0029 |
| Ball valve R ¾" with coupling nut G 1", without seal | JXF:FKM0030 | FKM0030 |
| Ball valve R 1" with coupling nut G 1", without seal | JXF:FKM0031 | FKM0031 |

| Accessories | | |
|---|-------------------|--------------|
| Description | Stock no. | Product no. |
| Flat gasket ¾", 2 mm thick | JXF:FKS0005 | FKS0005 |
| Flat gasket 1", 2 mm thick | JXF:FKS0006 | FKS0006 |
| T-piece R ½" x G ¾" | JXF:FKM0035 | FKM0035 |
| T-piece R ¾" x G ¾" | JXF:FKM0036 | FKM0036 |
| T-piece R 1" x G ¾" | JXF:FKM0037 | FKM0037 |
| Immersion sleeve G ¾" for sensor Ø 5.0 x 45 mm, without gasket | JXF:FKM0038 | FKM0038 |
| Immersion M10x1 mm for sensor Ø 5.0 x 45 mm, without gasket | JXF:FKM0051 | FKM0051 |
| Immersion sleeve G ¾" for sensor Ø 5.2 x 45 mm, without gasket | JXF:FKM0039 | FKM0039 |
| Immersion sleeve M10x1 mm for sensor Ø 5.2, without gasket | JXF:FKM0052 | FKM0052 |
| Temperature sensor sleeve G ¾" for sensor Ø5.0x45 mm and Ø5.2x45 mm | JXF:FKM0049 | FKM0049 |
| Temperature sensor sleeve M10x1 mm for sensor Ø5.0 x 45 mm and Ø5.2 x 45 mm | JXF:FKM0050 | FKM0050 |
| Temperature sensor screwed, brass for sensor Ø5.0 mm and Ø5.2 mm, directly or indirectly immersed | JXF:HMXI-K004:001 | HMXI-K004001 |
| Wall bracket for WfX5 heat meter | JXF:HMRI-K001:001 | HMRI-K001001 |
| Seal, 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 |

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

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

Installation

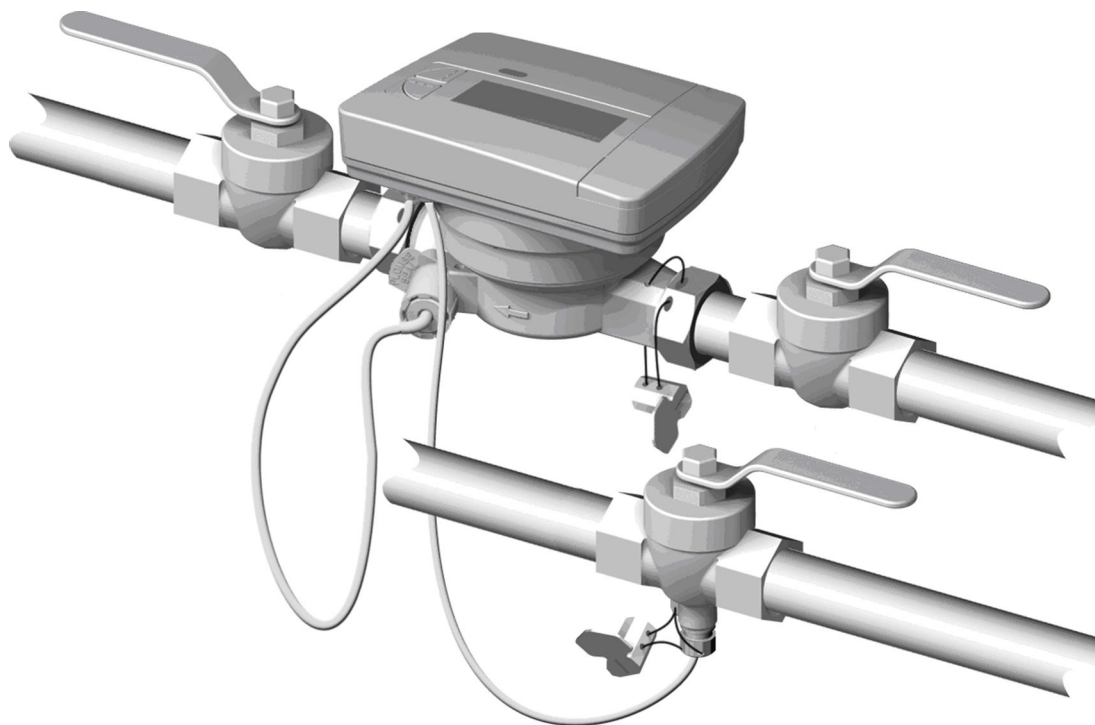
Flow measuring section

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).

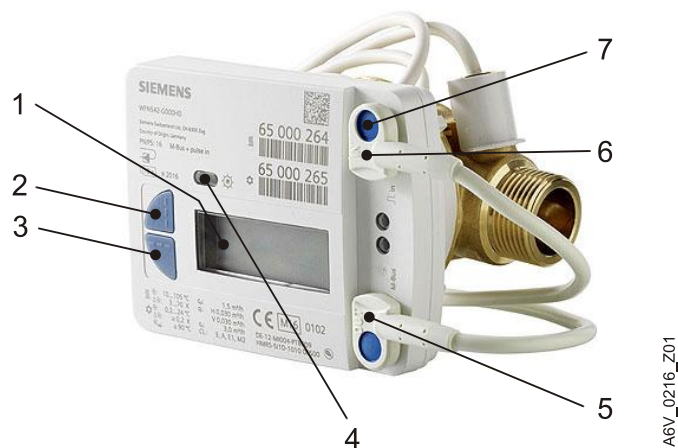
Depending on their design, the sensors can be fitted in T-pieces or ball valves. They can be directly immersed or fitted in immersion pockets (observe national regulations). In any case, the sensors' minimum immersion length must be such that their ends reach the pipe's center. Sensors and screwed connections 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 | | |
|--------------------------------------|---|-------------------------|
| Optical interface | Design | Similar to EN 13757-2/3 |
| | Protocol | |
| M-bus interface | 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 ² | |
| Pulse inputs | 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 ² |

| 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 ³ /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 ³ /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 Δp (mbar) | | 230 | | |
| • Mounting length 110 mm Δp (mbar) | 210 | | 230 | |
| • Mounting length 130 mm Δp (mbar) | | | | 170 |
| Flow at $\Delta p = 1$ bar, k_v (m ³ /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) | | |

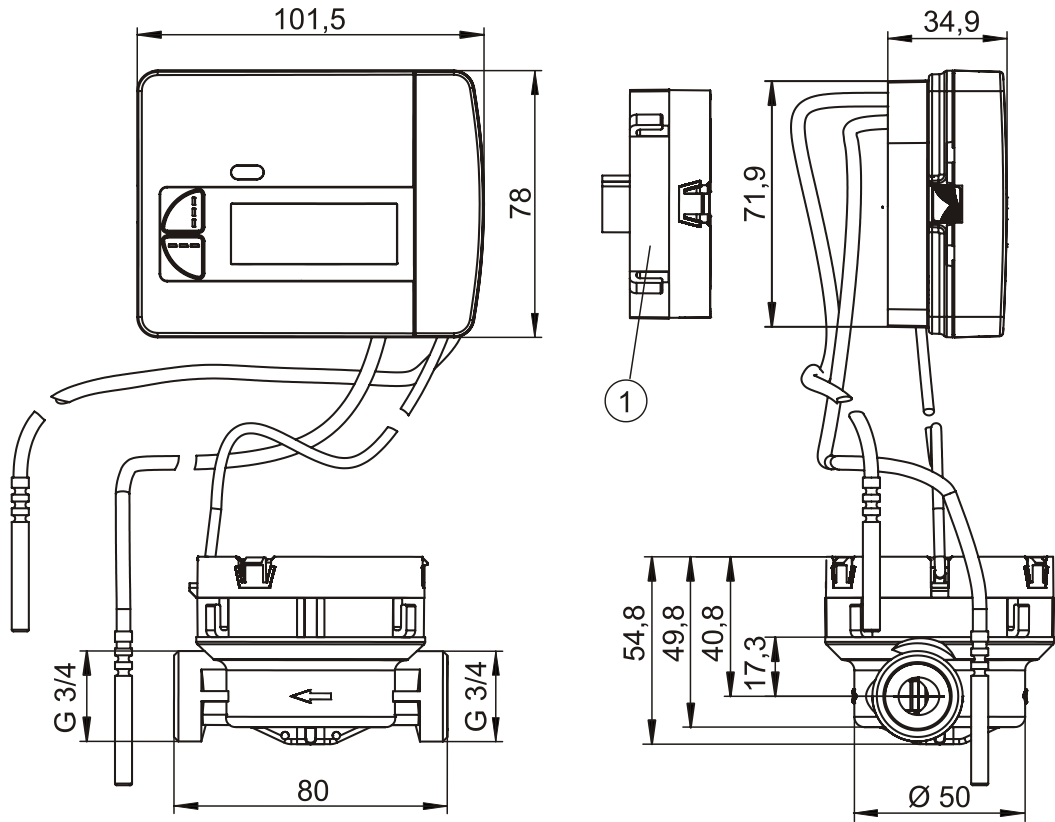
| Norms and standards | |
|--|--|
| EU conformity (CE) | |
| Processor | CE2T5323xx ¹⁾ |
| Quality of heating medium | VDI guideline 2035 |
| Type approval as per | EN 1434-4 Environment class A Measuring accuracy class 3 |
| Product standard | DIN EN 1434-1 (heat meters) |
| ¹⁾ Documents can be downloaded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

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

| Material | |
|-------------------------------------|--------------------|
| 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 ³ /h | 820 g |
| • 1.5 m ³ /h (80 mm) | 709 g |
| • 1.5 m ³ /h (110 mm) | 802 g |
| • 2.5 m ³ /h | 895 g |

Screwed type meter
Dimensions in mm

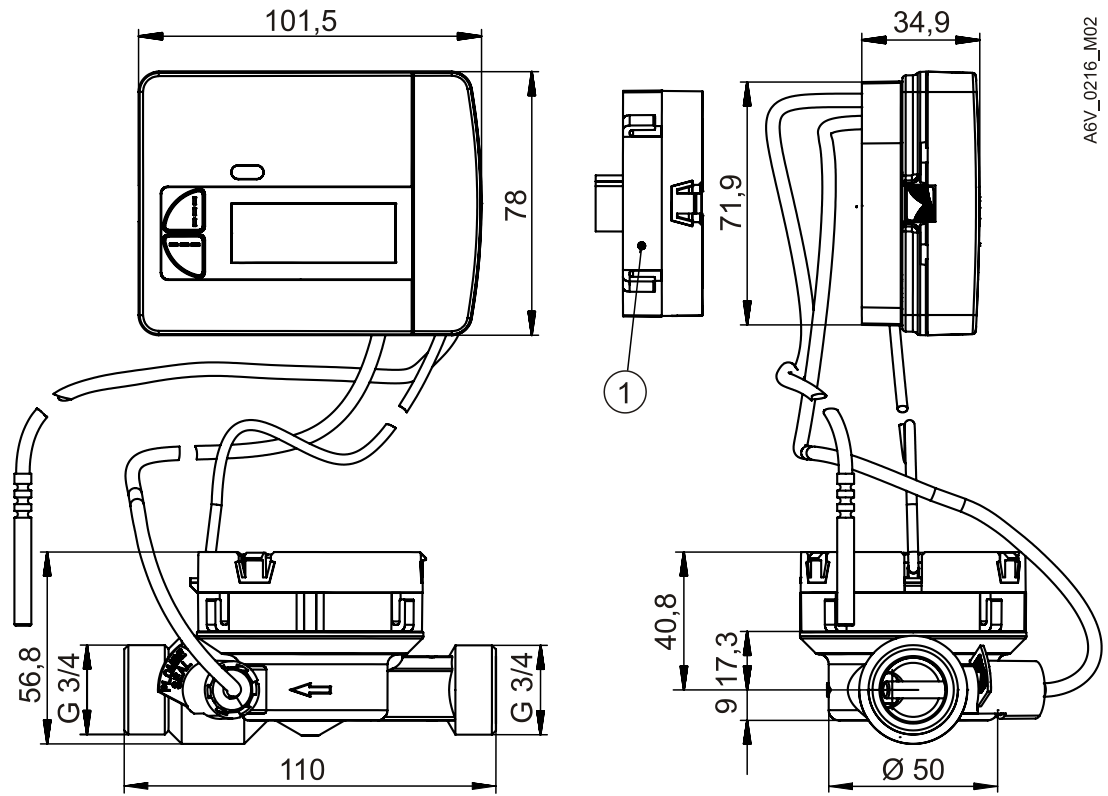
Mounting length 80 mm:



A6V_0216_M01

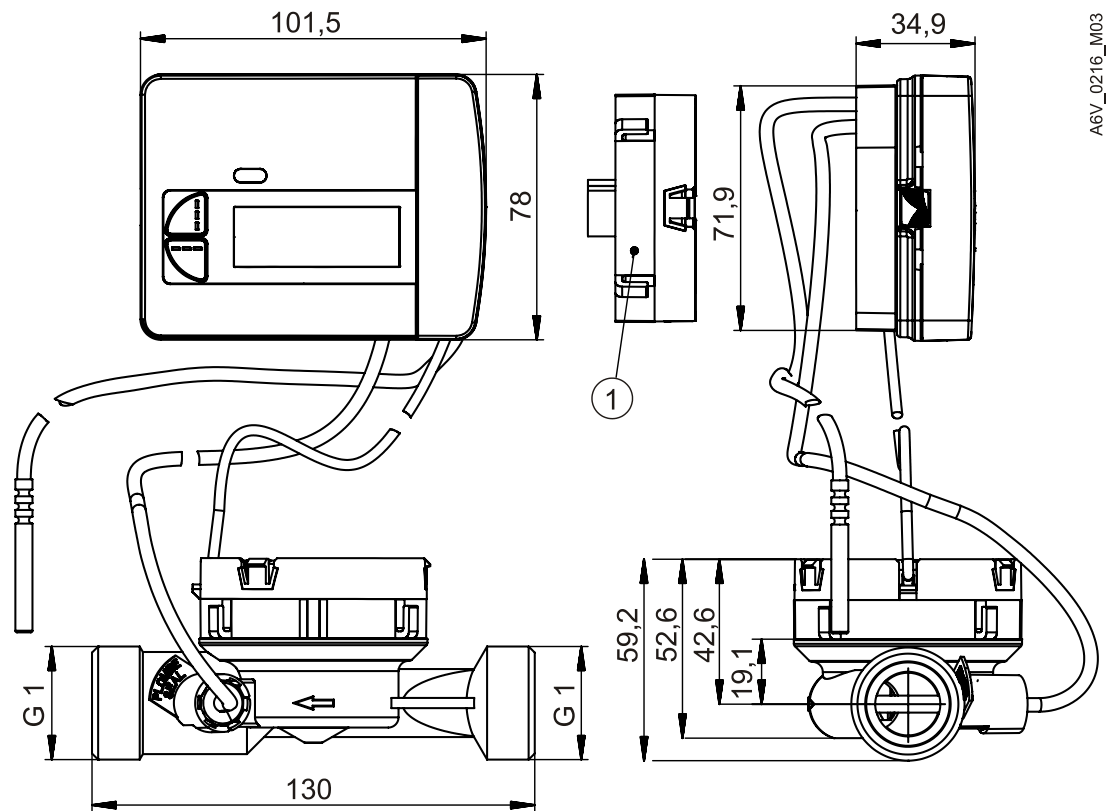
1. Wall mount available as an option

Mounting length 110 mm:



1. Wall mount available as an option

Mounting length 130 mm:



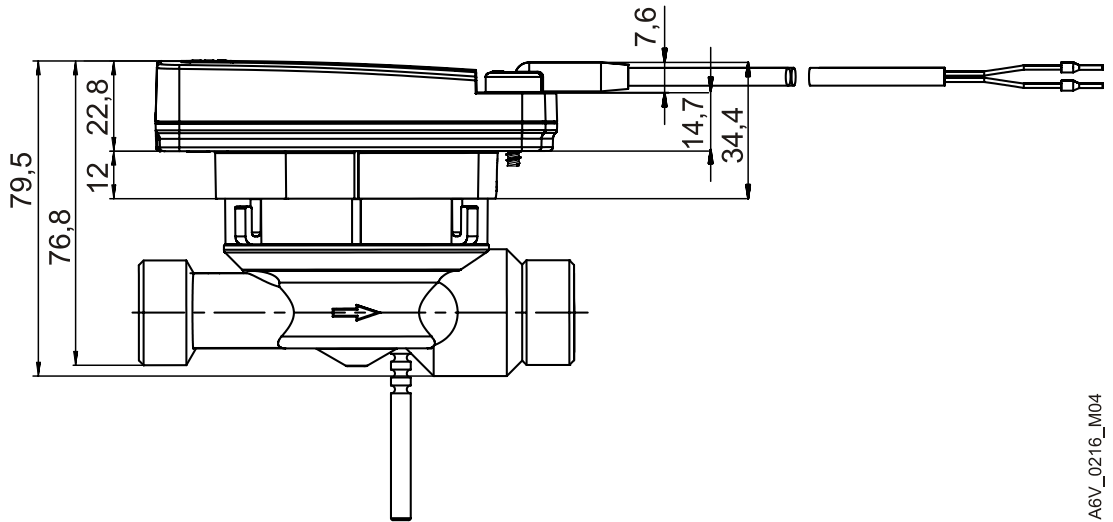
1. Wall mount available as an option

A6V_0216_M02

A6V_0216_M03

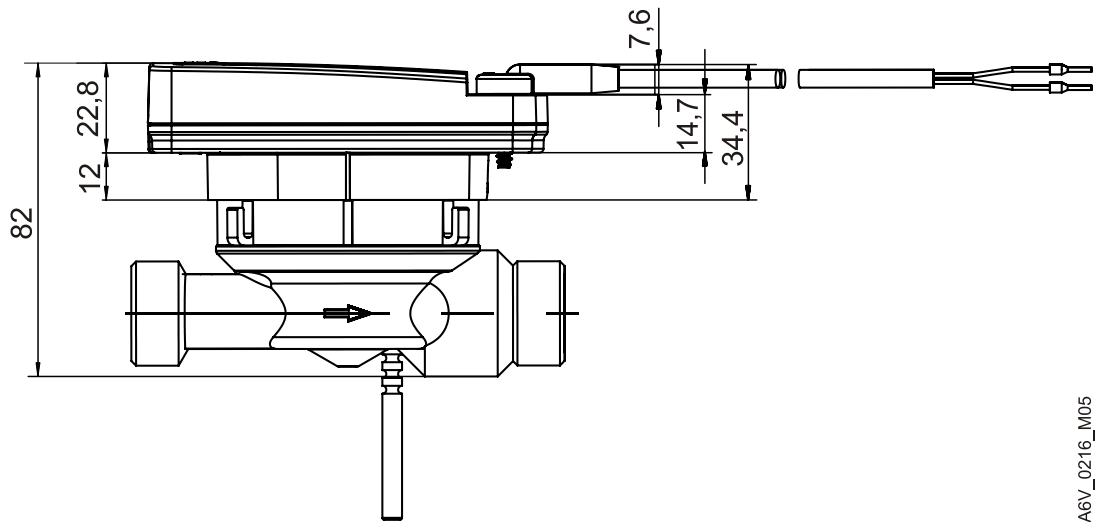
Input/output cable

Installation length 80 mm or 110 mm:



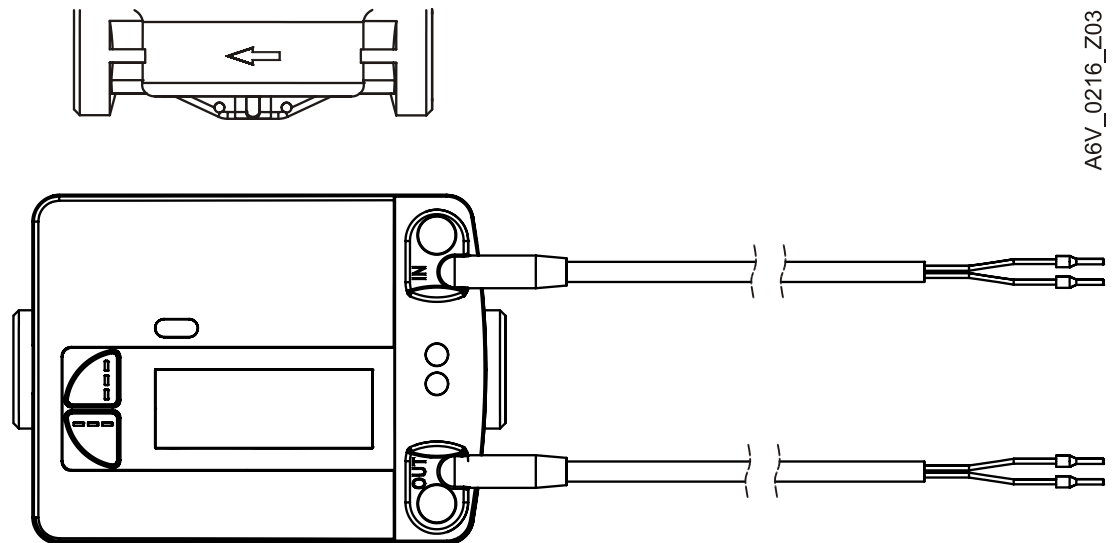
A6V_0216_M04

Mounting length 130 mm:



A6V_0216_M05

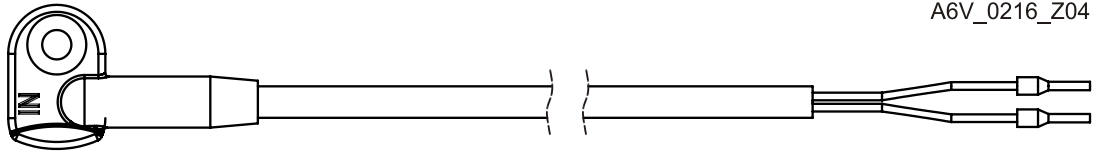
Processor with connected cable pulse "IN" and M-bus "OUT":



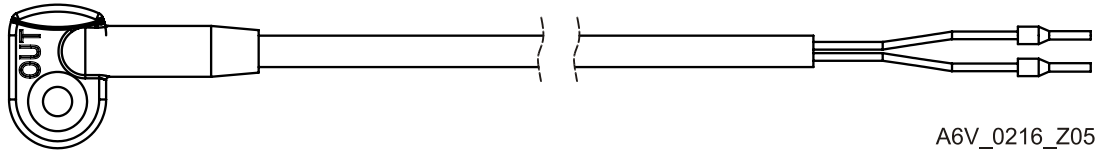
A6V_0216_Z03

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 |