

## Data sheet

# SonoMeter 40 Energy Meters

## Description



The Danfoss SonoMeter 40 is a range of ultrasonic, compact energy meters intended for measuring energy consumption in heating and cooling applications for billing purposes. The meters are designed for remote meter read-out (AMR).

SonoMeter 40 energy meters consist of an ultrasonic flow sensor, a pair of Pt500 temperature sensors and a calculator with integrated circuits for temperature measurement, flow calculation and energy calculation.

## Features

- Available in nominal flow rates  $q_p$  0.6, 1.5, 2.5, 3.5, 6.0, 10.0, 15.0, 25.0, 40.0 and 60 m<sup>3</sup>/h
- Triple communication with M-Bus, wMBus onboard + 1 additional communication module slot
- Housings with thread (G3/4 to G2) or flange (DN 20 to DN 100) connections
- MID approval for ultrasonic energy meter with dynamic range of 1:100 ( $q_i:q_p$ ) in class 2
- Optional MID approved dynamic range of 1:250 in class 2
- Temperature range 0 - 180 °C
- Nominal pressure PN25 bar as standard
- Calculator with IP65 protection class as standard (IP68 on special request)
- Flow sensor with IP68 protection class as standard
- Return or supply pipe installation, for vertical or horizontal mounting
- Battery lifetime for at least 15+1 years
- Low pressure loss, insensitive to dirt
- No calming sections needed before or after the flow sensor (DN 15-DN 50)
- For DN 65 to DN 100 calming sections are needed (5 x DN on inlet and 3 x DN on outlet of flow sensor)
- Remote reading via M-Bus, radio OMS 868 MHz, RS 485 Modbus, BACnet, LoRA-WAN, pulse output or optical interface
- Two pulse inputs or outputs (always included, optionally with pre installed cable)

**Technical specifications**
**Complete energy meter**

|                                   |  |
|-----------------------------------|--|
| Application                       | Heating or Bifunctional (combined heating and cooling)                 |
| Medium                            | Water quality with pH 7 to 9.5 VDI 2035, VdTÜV TCh 1466                |
| Measuring cycle                   | Flow: 1 sec.<br>Energy: 1 sec.<br>Temperature: 10 sec.                 |
| Approved meteorological range     | $\Delta\Theta$ : 3 - 175K  |
|                                   | $\Theta$ : 0 - 180 °C  |
|                                   | $\Theta_q$ : 0.1 - 130 °C  |
| Temp. limits (energy calculation) | $\Delta\Theta$ : 0.2 - 180K  |
|                                   | $\Theta$ : 0 - 180 °C  |
| Ambient operating temperature     | Class C: 5 - 55 °C indoor installation, condensing, humidity max. 93%. |
| Ambient storage temperature       | temperature: -25 – +35 °C, humidity: max. 60%.                         |
| Mechanical environment            | Class M1   |
| Electromagnetic environment       | Class E2   |

**Calculator**

|  |  |  |
|--|--|--|
| IP [EN60529]                                 | 65 (68 on special request)   |  |
| Battery Supply                               | Voltage  | 3.6V DC  |
|  | Battery type and size  | 2x Lithium Battery, AA-size  |
|  | Battery life time  | 15+1 years (including AMR communication)   |
| Mains supply 24 V AC/DC (internal module)    | Voltage  | 12 V - 36 V AC<br>12 V - 42 V DC<br>Galvanically isolated  |
|  | Power consumption  | not more than 20 mA  |
|  | Alternating current voltage frequency  | 50/60 Hz   |
|  | Backup supply  | Internal backup battery: 1x AA-size<br>Service life not less than 15 years (without data reading via a digital or wireless interface) - for powering of the meter, when the external power supply is turned off. |
|  | Mains supply cable   | 2 wire copper cable with a diameter of $2 \times 0.25 \text{ mm}^2$  |
| Mains supply 230 V AC (external transformer) | Voltage  | 230 VAC +10% -15%<br>to 24VAC transformer for connection to mains power supply 24 AC/DC module.  |
|  | Power consumption  | not more than 5 mA   |
|  | Alternating current voltage frequency  | 50/60 Hz   |
|  | Backup supply  | Internal backup battery: 1x AA-size<br>Service life not less than 15 years (without data reading via a digital or wireless interface) - for powering of the meter, when the external power supply is turned off. |
|  | Mains supply cable   | 2 wire copper cable with a diameter of $2 \times 0.25 \text{ mm}^2$  |
| Display                                      | 85 x 35 mm LCD display with 8 digits (11.5 mm high main characters)<br>Menu guide and info panel |  |
| Display Units                                | MWh - kWh - GJ - Gcal - °C - m <sup>3</sup> - m <sup>3</sup> /h                                  |  |
| Display Values                               | Energy - volume - flow rate - power - temperatures   |  |
| Optical interface                            | Always included  | According to EN61107 (IEC1107)   |
| Communication                                | To be specified when ordering the meter. Both options can be selected.                           | 1. M-Bus according to EN13757-3, supports 300, 2400, 4800, 9600 baud. Delivered with 1,5 m cable.<br>2. wM-Bus 868 MHz (S1, T1 OMS)  |
| Additional communication                     | Delivered from factory or later upgrade. One option from the list is possible.                   | 1. Wired M-Bus<br>2. Modbus RTU<br>3. BACnet MS/TP<br>4. LoRaWAN   |

**Technical specifications**
*(continuous)*
**Flow sensor**

| Diameter                                       | DN 15   | DN 20 | DN 15 | DN 20             | DN 15 | DN 20 | DN 20             | DN 25 | DN 25 | DN 40 | DN 50 | DN 65 | DN 80  | DN 100             |                    |       |     |     |     |    |    |
|--|---|-------|-------|-------------------|-------|-------|-------------------|-------|-------|-------|-------|-------|--------|--------------------|--------------------|-------|-----|-----|-----|----|----|
| Nominal flow $q_p$ (m <sup>3</sup> /h)         | 0.6   |       | 1.0   |                   | 1.5   |       | 2.5               | 3.5   | 6     | 10    | 15    | 25    | 40     | 60                 |                    |       |     |     |     |    |    |
| Max flow $q_s$ (m <sup>3</sup> /h)             | 1.2   |       | 2     |                   | 3     |       | 5                 | 7     | 12    | 20    | 30    | 50    | 80     | 120                |                    |       |     |     |     |    |    |
| Minimum flow (1:100) $q_i$ (m <sup>3</sup> /h) | 0.006   |       | 0.01  |                   | 0.015 |       | 0.025             | 0.035 | 0.06  | 0.1   | 0.15  | 0.25  | 0.4    | 0.6                |                    |       |     |     |     |    |    |
| Cut off flow $q_c$ (m <sup>3</sup> /h)         | 0.003   |       | 0.005 |                   | 0.003 | 0.005 | 0.005             | 0.007 | 0.012 | 0.02  | 0.03  | 0.05  | 0.08   | 0.12               |                    |       |     |     |     |    |    |
| Overflow $q_{ss}$ (m <sup>3</sup> /h)          | 1.44  |       | 2.4   |                   | 3.6   |       | 6                 | 8.4   | 14.4  | 24    | 36    | 60    | 96     | 144                |                    |       |     |     |     |    |    |
| Pressure drop at $q_p$ (mbar)                  | 70  | 9     | 113   | 25                | 171   | 58    | 72                | 94    | 198   | 90    | 100   | 180   | 120    | 200                | 180                | 180   |     |     |     |    |    |
| $K_{vs}$ values                                | 2.27  | 6.32  | 2.97  | 6.32              | 3.63  | 6.23  | 5.59              | 8.15  | 5.62  | 11.67 | 18.97 | 23.57 | 43.3   | 55.9               | 94.3               | 141.4 |     |     |     |    |    |
| Connection                                     | G $\frac{3}{4}$ B   | G1B   | FL    | G $\frac{3}{4}$ B | G1B   | FL    | G $\frac{3}{4}$ B | G1B   | FL    | G1B   | G1B   | FL    | G1B    | G1 $\frac{1}{4}$ B | G1 $\frac{1}{4}$ B | G2B   | FL  | FL  | FL  | FL | FL |
| Overall length (mm)                            | 110   | 190   | 110   | 190               | 110   | 165   | 190               | 130   | 190   | 130   | 260   | 260   | 300    | 270                | 300                | 300   | 300 | 300 | 360 |    |    |
| Material of flow sensor                        | CW617N  |       |       |                   |       |       |                   |       |       |       |       |       | CC770S |                    |                    |       |     |     |     |    |    |
| Pressure PN (bar)                              | 25 bar  |       |       |                   |       |       |                   |       |       |       |       |       |        |                    |                    |       |     |     |     |    |    |
| IP [EN60529]                                   | IP68  |       |       |                   |       |       |                   |       |       |       |       |       |        |                    |                    |       |     |     |     |    |    |
| Temperature media (°C)                         | $\Theta_q$ : 0.1 - 130 °C   |       |       |                   |       |       |                   |       |       |       |       |       |        |                    |                    |       |     |     |     |    |    |
| Cable length                                   | 1.2 m, 2.5 m or 5 m   |       |       |                   |       |       |                   |       |       |       |       |       |        |                    |                    |       |     |     |     |    |    |
| Mounting                                       | Any position; DN 15 - DN 50: No calming sections needed<br>DN 65 - DN 100: calming sections are needed (5 x DN on inlet and 3 x DN on outlet) |       |       |                   |       |       |                   |       |       |       |       |       |        |                    |                    |       |     |     |     |    |    |

**Temperature sensor**

|                              |   |
|------------------------------|---|
| Type                         | Pt500, 2 wire, according to EN1434, EN60751 |
| Size / IP                    | Ø5.2 mm / IP65<br>Ø6 mm / IP67              |
| Cable length                 | 1.5 m, 3 m, 5 m or 10 m                     |
| Accuracy                     | Class B (EN60751)                           |
| Approved temp. range EN60751 | $\Theta$ : 0 - 150 °C                       |
| Difference temp. EN60751     | $\Delta\Theta$ : 3 - 150 K                  |
| Pressure                     | 25 bar                                      |
| Mounting                     | without pockets for sizes G3/4 and G1 only  |

**Communication interfaces**
**Optical interface**

Optical interface is integrated into the front panel of the calculator. It is designed for data reading via M-bus protocol and parameterization of the meter using SonoMeter 40 UserConfig software and optical head OG-1-USB. The optical interface is activated by pressing the control button and shuts automatically off 5 minutes after the last pressing button or after completing data transmission via interface.

**Wired M-Bus interface**

- M-Bus protocol according to EN13757-3 standard
- 2 wire with polarity reversal protection
- Galvanic insulation
- Current drawn: one M-Bus load (1.52mA)
- Primary or secondary addressing supported
- Primary M-Bus address (M-Bus integrated) last 2 digits of a serial number; if "00" the primary address is 100.
- Primary M-Bus address (Additional M-Bus module) Address "2".
- Configurable baud rate 300/1200/2400/4800/9600, factory default 2400 baud rate.
- Battery lifetime min 15+1 years (2 x AA cell)
- Battery supply communication is limited on every 15 min at 2400 baud rate or faster, 70 energy meters on bus
- Fastest reading interval at mains supply: no limits
- Default M-Bus telegram includes below information's:
  - Date and time
  - Date and time of error starting
  - Error code
  - Battery operation time
  - Working time without error
  - Energy for heating
  - (Energy for cooling)
  - (Energy of tariff 1)
  - (Energy of tariff 2)
  - Volume
  - Pulse input 1
  - Pulse input 2
  - Power
  - Flow rate
  - Temperature 1
  - Temperature 2
  - Temperature difference
  - Serial number

**Communication interfaces**
*(continuous)*
**Wireless M-Bus (OMS) interface, 868.95 MHz**

- Wireless M-Bus protocol according to EN13757-4
- OMS (open metering system) compatible, compliant to OMS 4.0.2
- T1 mode (unidirectional)
- sending interval every 90 seconds (suitable for 'walk by' readings)
- battery lifetime min 15+1 years (2 x AA cell)
- default wireless M-Bus telegram includes below information's:
  - Energy for heating
  - Time
  - Volume
  - Energy for cooling
  - Pulse in 1
  - Pulse in 2
  - Power
  - Flow

Wireless M-Bus telegram parameter list and sending frequency is configurable!

**Modbus RTU, RS485 module**

|              |  |
|--------------|--|
| Connectors   | 90 (noninverting, +) and 91 (inverting, -)   |
| Baud rate    | 1200, 2400, 4800, 9600 (default), 38400, 56000, 57600, 115200 bps  |
| Data format  | 8E1 (8 data bits, even parity bit, 1 stop bit) – default<br>8O1 (8 data bits, odd parity bit, 1 stop bit)<br>8N2 (8 data bits, no parity bit, 2 stop bits)             |
| Power supply | Polarity independent connection for power supply – connectors 60 and 61<br>Voltage 12-24 V AC/DC<br>Maximum power consumption 2 W max.<br>Typical supply current 50 mA |

**BACnet MS/TP, RS485 module**

BACnet MS/TP protocol and a serial interface for communication with external devices.

|              |  |
|--------------|--|
| Connectors   | 90 (noninverting, +) and 91 (inverting, -)   |
| Baud rate    | 9600, 19200, 38400 (default), 57600, 76800, 115200 bps   |
| Data format  | 8E1 (8 data bits, even parity bit, 1 stop bit)   |
| Power supply | Polarity independent connection for power supply – connectors 60 and 61<br>Voltage 12-24 V AC/DC<br>Maximum power consumption 2 W max.<br>Typical supply current 50 mA |

**LoRaWAN, 868 module**

Transmitting scenarios:

- Heating: Energy and volume + 4 historical values.
- Heating and Cooling: Heating Energy, Cooling energy + Volume + 2 Historical values.

**Pulse inputs**

|  |   |
|--|---|
| Number of pulse inputs                 | 2 or no (to be specified when ordering) |
| indicated units                        | m <sup>3</sup>                          |
| pulse value                            | programmable                            |
| input pulse types                      | IB according to LST EN1434-2            |
| maximum permissible frequency          | 3 Hz                                    |
| maximum permissible voltage            | 3.6 V                                   |
| condition of maintenance of high level | 3.6 V through 3.3 MΩ resistor           |

For versions with not openable enclosure (IP68), when meter is ordered with the pulse inputs, a permanently connected 1,5 m cable is fitted in the meter for connecting the pulse inputs.

**Pulse outputs**

|                         |  |
|-------------------------|--|
| Number of pulse outputs | 2 or no (to be specified when ordering)        |
| Class                   | OB in operating mode (OD in test mode)         |
| Type                    | open collector                                 |
| Permissible current     | up to 20 mA                                    |
| Voltage                 | up to 24 V                                     |
| Pulse duration          | 125 ms in operating mode (1.2 ms in test mode) |

**Communication interfaces**  
*(continuous)*

Pulse value in the operating mode:

- when the output is configured for energy, the value of its pulses can be selected from the list

| Energy measurement units | Possible values for the energy pulse *                               |
|--------------------------|--|
| „kWh“ or „MWh“           | 0,00001; 0,0001; 0,001; 0,01; 0,1; 1; 10; 100; 1000; 10000 MWh/pulse |
| „GJ“                     | 0,0001; 0,001; 0,01; 0,1; 1; 10; 100; 1000; 10000 GJ/pulse           |
| „Gcal“                   | 0,0001; 0,001; 0,01; 0,1; 1; 10; 100; 1000 Gcal/pulse                |

\* length of values list depends of permanent flow rate and LCD energy value comma position

- when the output is configured for water quantity, the value of its pulses can be selected from the list: 0,001 (where  $q_p = (0,6 \dots 6) \text{ m}^3/\text{h}$ ); 0,01; 0,1; 1; 10  $\text{m}^3/\text{pulse}$

For versions with not openable enclosure (IP68), when meter is ordered with the pulse outputs, a permanently connected 1,5 m cable is fitted in the meter for connecting the pulse outputs.

**Data logger**

Following hourly, daily and monthly parameter values are recorded in energy meter memory (can be configured by SonoMeter 40 UserConfig software):

- 1..... Integrated heating energy
- 2..... Integrated cooling energy
- 3..... Integrated energy of tariff 1
- 4..... Integrated energy of tariff 2
- 5..... Integrated volume of liquid
- 6..... Integrated pulse value in pulse input 1
- 7..... Integrated pulse value in pulse input 2
- 8..... Maximum thermal power value for heating and date
- 9..... Maximum thermal power value for cooling and date
- 10..... Maximum flow rate value and date
- 11..... Maximum value of flow temperature of heat conveying liquid and date
- 12..... Maximum value of return temperature of heat conveying liquid and date
- 13..... Minimum value of flow temperature of heat conveying liquid and date
- 14..... Minimum value of return temperature of heat conveying liquid and date
- 15..... Minimum value of temperature difference and date
- 16..... Average value of flow temperature of heat conveying liquid
- 17..... Average value of return temperature of heat conveying liquid
- 18..... Operating time without an error of thermal energy calculation
- 19..... Total error code
- 20..... Time when the flow rate exceeded 1.2  $q_s$
- 21..... Time when the flow rate was less than  $q_i$

**Data logger capacity**

- up to 1480 h - for hourly records
- up to 1130 days - for daily records
- up to 36 last months - for monthly records
- Storage time of measured integrated parameters even if device is disconnected from power supply: not less than 15 years

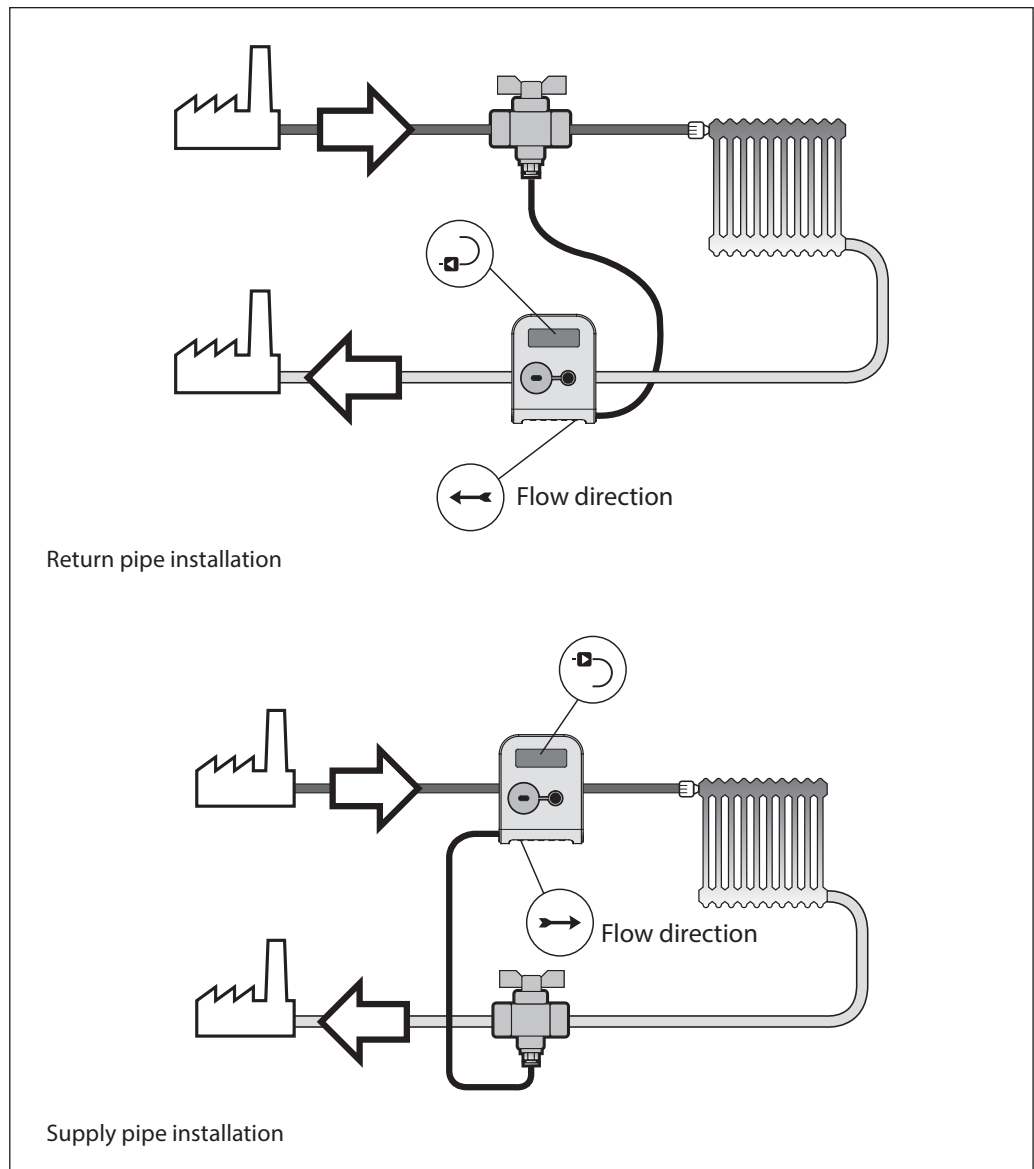
All data from archive can be read by means of the remote reading. In addition, data logger records of monthly parameters can be seen on the display.

**Bifunctional meters**

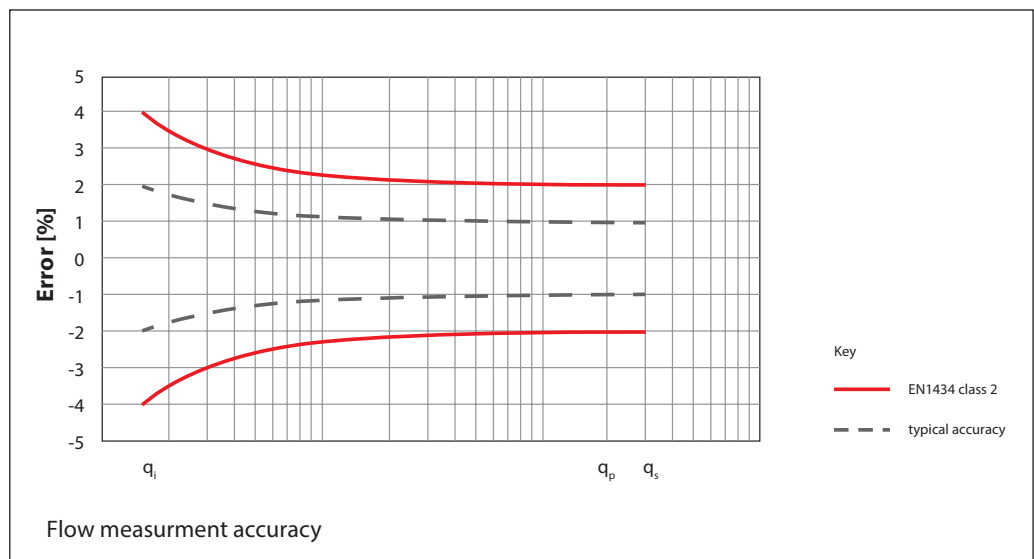
When the cooling energy tariff function is activated, in case of a negative temperature differential, energy will be accumulated in the additional tariff register  $Q_{**}$ . In this case, energy values are calculated according to the following formulas:

- when the flow sensor is in the supply line
  - when  $\Theta_1 > \Theta_2$ :  $Q = V \cdot \rho_1 \cdot (h_{T1} - h_{T2})$ ,  $Q_{**} = 0$
  - when  $\Theta_1 < \Theta_2$ :  $Q_{**} = V \cdot \rho_1 \cdot (h_{T2} - h_{T1})$ ,  $Q = 0$
- when the flow sensor is in the return line
  - when  $\Theta_1 > \Theta_2$ :  $Q = V \cdot \rho_2 \cdot (h_{T1} - h_{T2})$ ,  $Q_{**} = 0$
  - when  $\Theta_1 < \Theta_2$ :  $Q_{**} = V \cdot \rho_2 \cdot (h_{T2} - h_{T1})$ ,  $Q = 0$

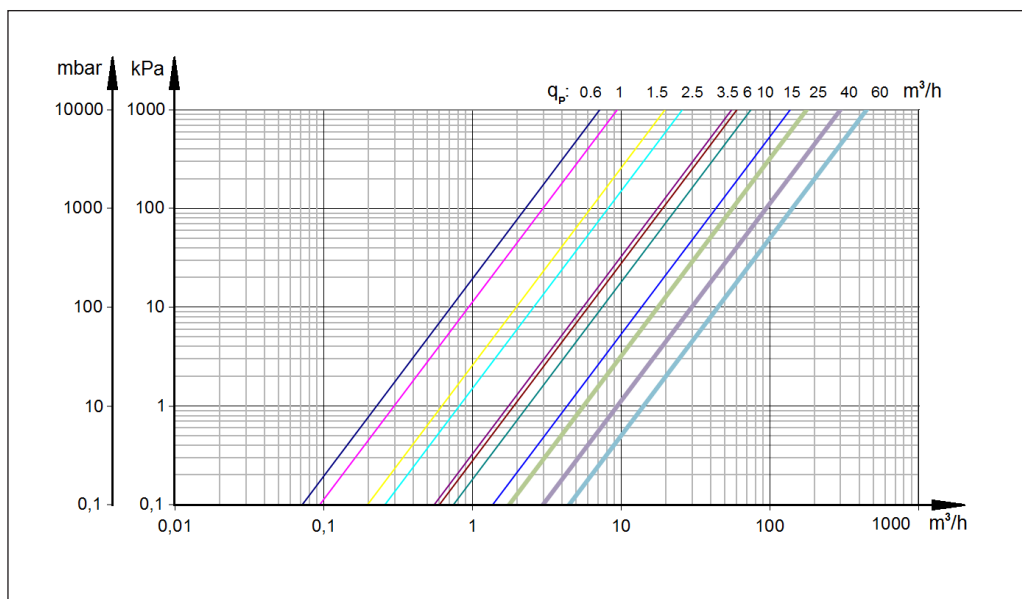
Application drawings



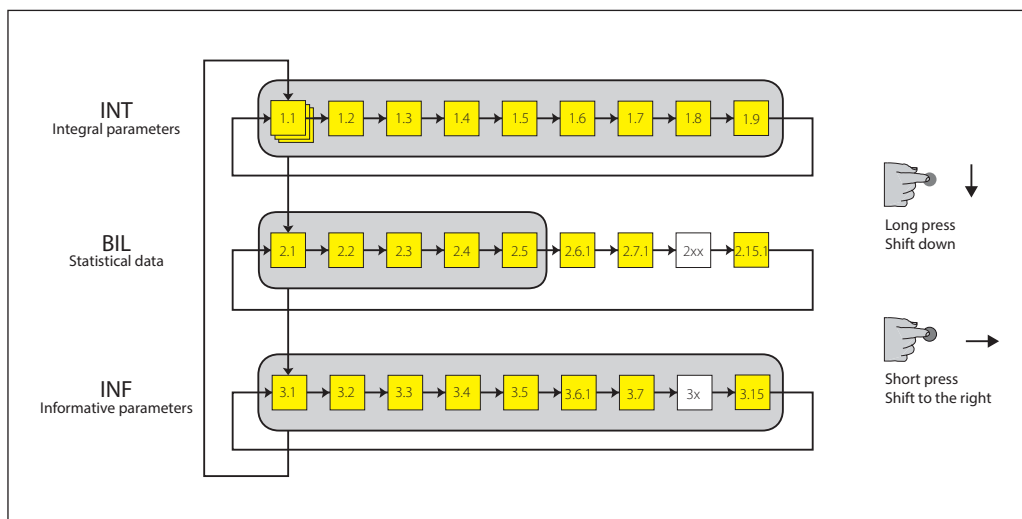
Accuracy



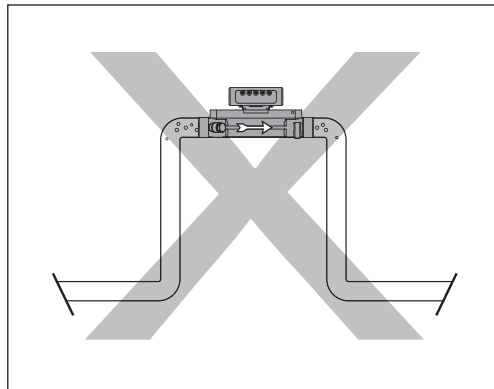
Pressure loss



Menu structure

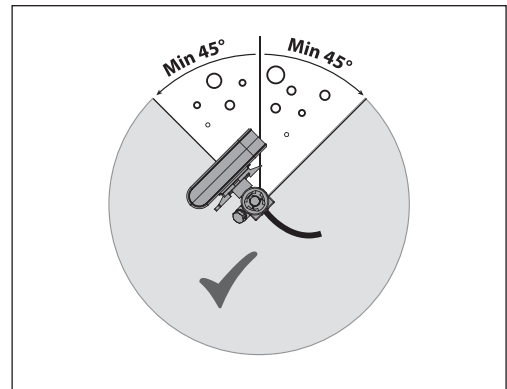


Mounting



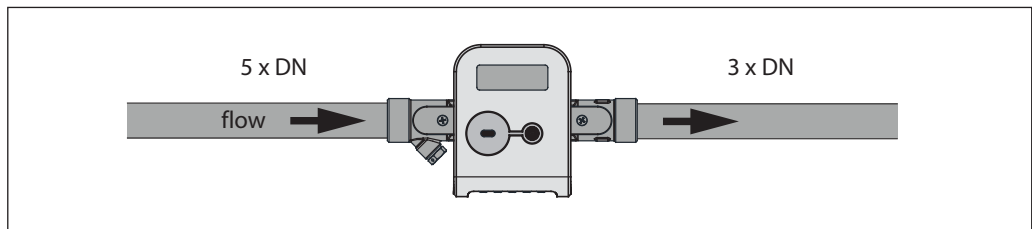
**Pipe position:**

No limitations but avoid positions where air can be collected.



**Rotation in pipe axis:**

Flow sensor should be angled in 45 to 315° to avoid air collection in flow sensor.



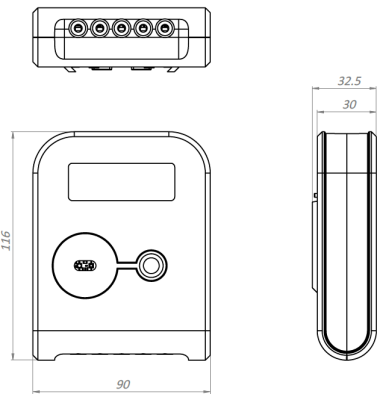
**Inlet/outlet conditions** (only for DN 65 - DN 100)

In order to maximize accuracy, it is necessary to have straight inlet and outlet flow conditions before and after the flow sensor: 5 × DN on inlet and 3 × DN on outlet of flow sensor.

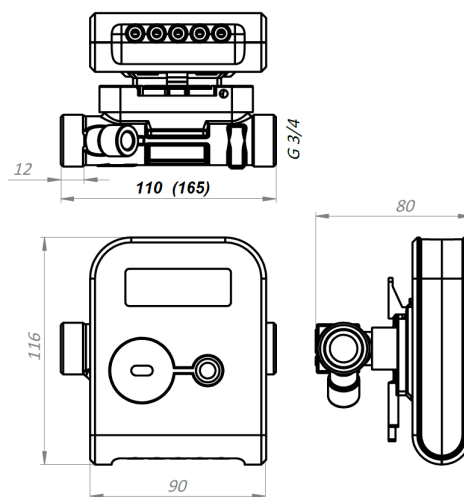


Dimensions

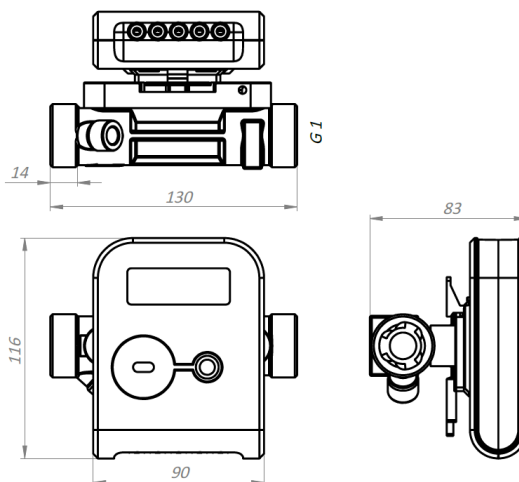
Calculator



Flow sensor qp= 0.6/1.0/1.5 m<sup>3</sup>/h  
 L=110 mm (L=165 mm);  
 connection type: thread G3/4"



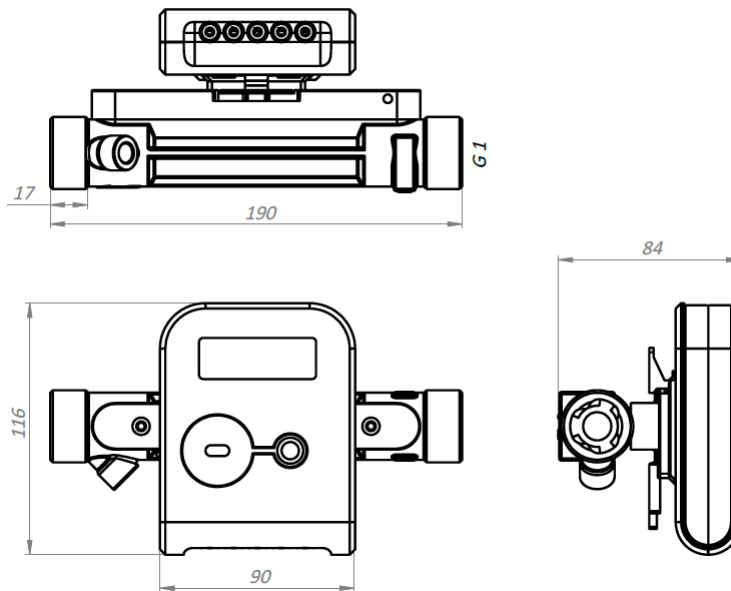
Flow sensor qp= 1.5/2.5 m<sup>3</sup>/h  
 L=130 mm  
 connection type: thread G1"



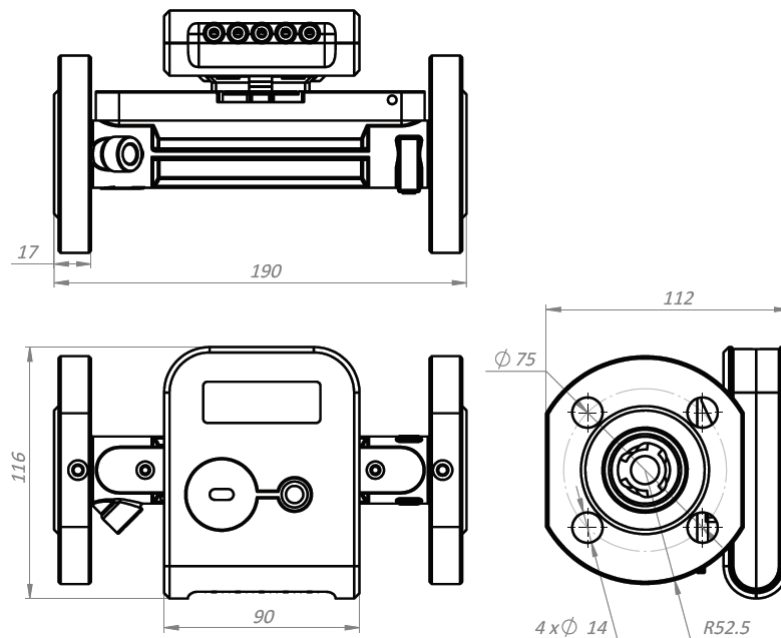
**Dimensions**  
(continuous)

Flow sensor qp= 0.6/1.0/1.5/2.5 m<sup>3</sup>/h  
 L=190 mm  
 a) connection type: thread G1"  
 b) connection type: flanges DN20

a)



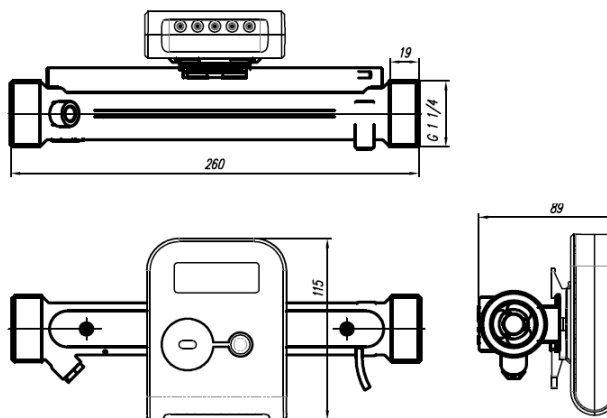
b)



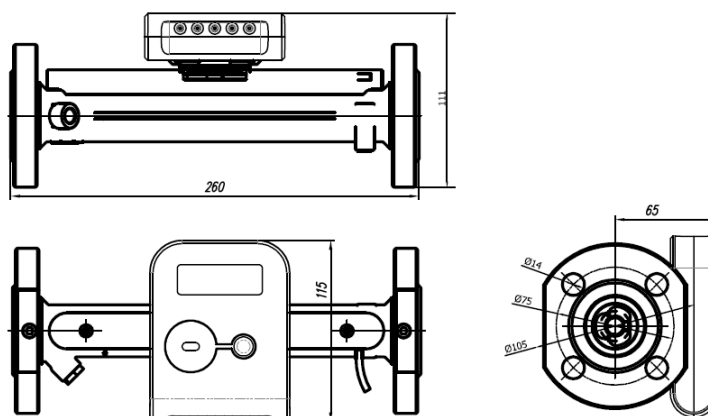
Dimensions  
(continuous)

Flow sensor qp= 3.5 m<sup>3</sup>/h  
 L=260 mm  
 a) connection type: thread G1 1/4"  
 b) connection type: flanges DN25  
 c) connection type: flanges DN32

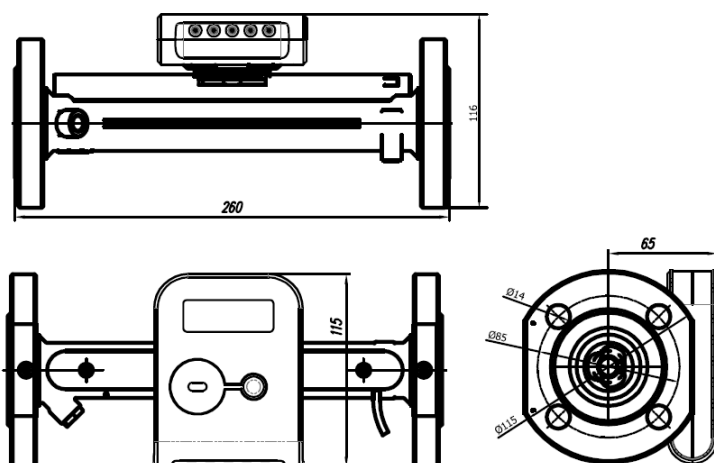
a)



b)

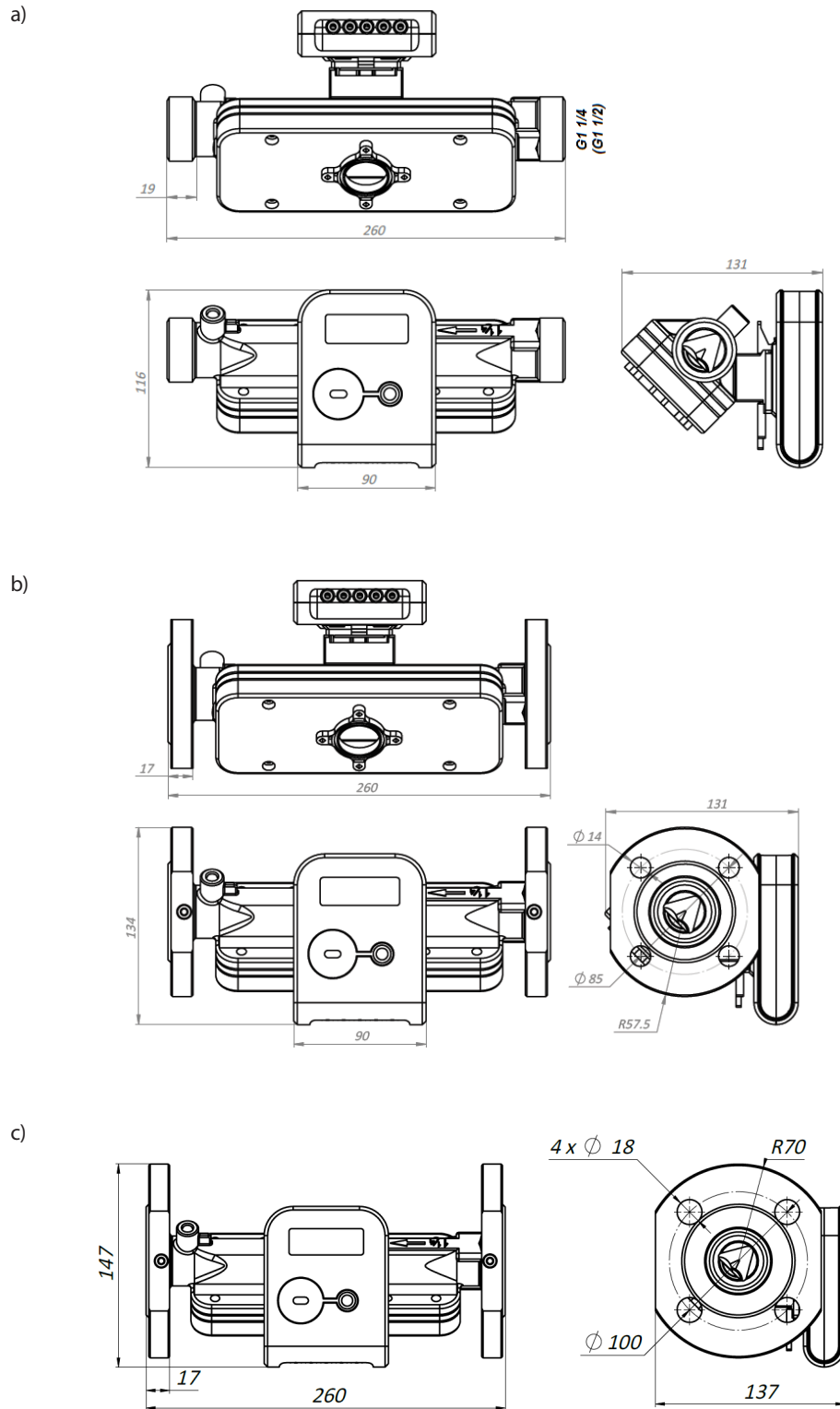


c)



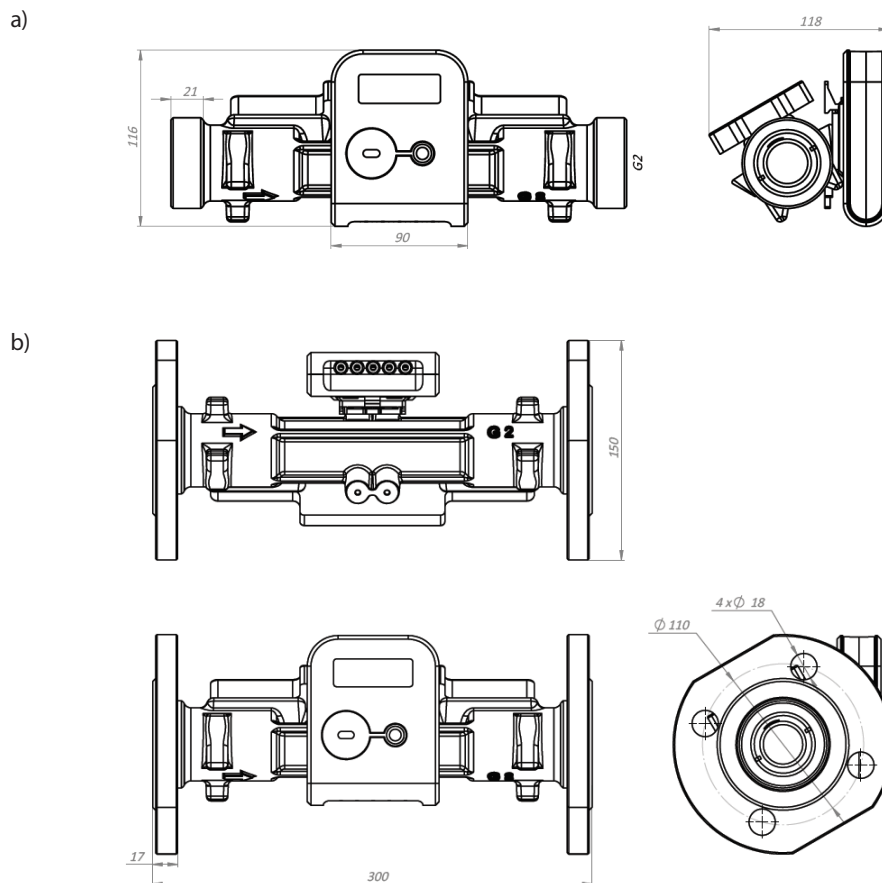
**Dimensions**  
(continuous)

Flow sensor qp= 6 m<sup>3</sup>/h  
 L=260 mm.  
 a) connection type: thread G1 1/4"  
 b) connection type: flanges DN25  
 c) connection type: flanges DN32

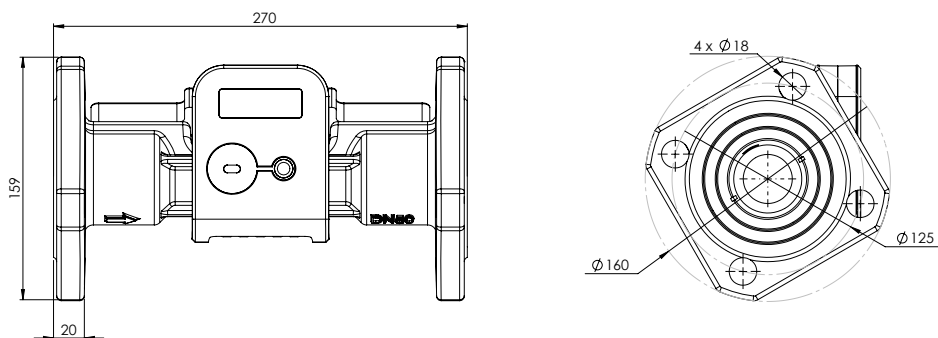


**Dimensions**  
(continuous)

Flow sensor qp= 10.0 m<sup>3</sup>/h  
L=300 mm  
a) connection type: thread G2"  
b) connection type: flanges DN40

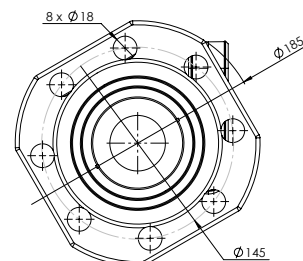
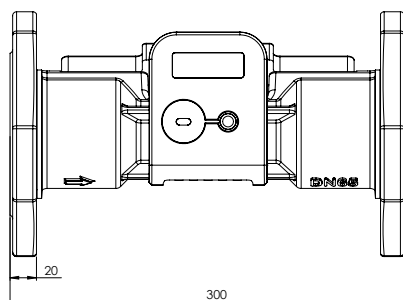


Flow sensor qp= 15 m<sup>3</sup>/h  
L=270 mm  
connection type: flanges DN50

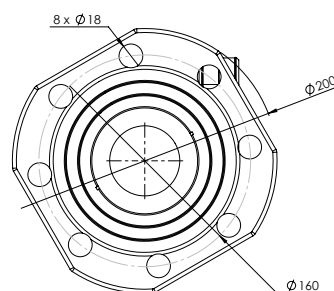
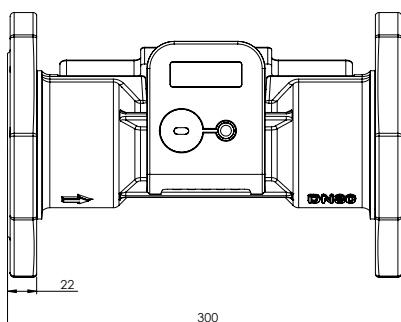


**Dimensions**  
(continuous)

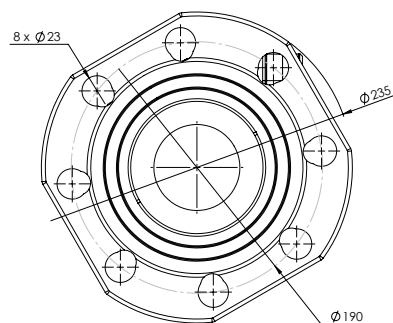
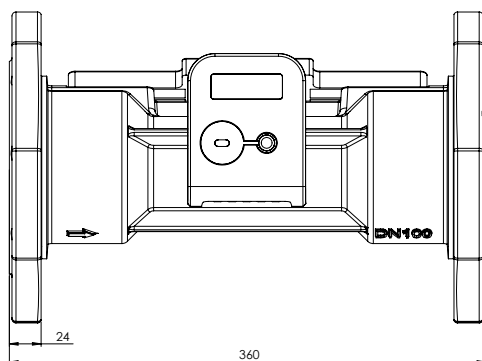
Flow sensor qp= 25 m<sup>3</sup>/h  
L=300 mm  
connection type: flanges DN65



Flow sensor qp= 40 m<sup>3</sup>/h  
L=300 mm  
connection type: flanges DN80



Flow sensor qp= 60 m<sup>3</sup>/h  
L=360 mm  
connection type: flanges DN100



Weight

| Connection type (and length) of the flow sensor | Weight of the meter, maximum (kg) |
|---|-----------------------------------|
| G3/4" (110 mm)                                  | 0.7                               |
| G3/4" (165 mm)                                  | 0.8                               |
| G1" (110 mm)                                    | 0.7                               |
| G1" (130 mm)                                    | 0.8                               |
| G1" (190 mm)                                    | 0.9                               |
| DN20 (190 mm)                                   | 2.5                               |
| G1 ¼"   | 3.2                               |
| DN25  | 5.6                               |
| DN32  | 6.0                               |
| G2"   | 3.7                               |
| DN40  | 6.8                               |
| DN50  | 8.5                               |
| DN65  | 13                                |
| DN80  | 15                                |
| DN100   | 18                                |

Ordering

SonoMeter 40 - Heating

| Nominal flow, size and connection type | Installation | Cable length transducer cable | Cable length temperature sensor | Power supply                | Communication integrated | Modules | Energy unit | Code no.        |
|--|--------------|-------------------------------|---------------------------------|-----------------------------|--------------------------|---------|-------------|-----------------|
| DN15 qp0.6m <sup>3</sup> /h G¾ 110mm   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | <b>187F2000</b> |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | <b>187F2001</b> |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | <b>187F2026</b> |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | <b>187F2027</b> |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | kWh         | <b>187F2052</b> |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | kWh         | <b>187F2053</b> |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | <b>187F2084</b> |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | <b>187F2085</b> |
| DN15 qp1.5m <sup>3</sup> /h G¾ 110mm   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | <b>187F2002</b> |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | <b>187F2003</b> |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | <b>187F2028</b> |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | <b>187F2029</b> |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | kWh         | <b>187F2054</b> |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | kWh         | <b>187F2055</b> |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | MWh         | <b>187F2078</b> |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | <b>187F2086</b> |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | <b>187F2087</b> |
|  | Supply       | 1.2m                          | 3m / Ø6mm                       | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | <b>187F2118</b> |
| DN20 qp1.5m <sup>3</sup> /h G1 130mm   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | <b>187F2004</b> |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | <b>187F2005</b> |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | <b>187F2030</b> |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | <b>187F2031</b> |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | kWh         | <b>187F2056</b> |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | kWh         | <b>187F2057</b> |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | <b>187F2088</b> |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | <b>187F2089</b> |
| DN20 qp2.5m <sup>3</sup> /h G1 130mm   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | <b>187F2006</b> |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | <b>187F2007</b> |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | <b>187F2032</b> |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | <b>187F2033</b> |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | kWh         | <b>187F2058</b> |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | kWh         | <b>187F2059</b> |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | <b>187F2090</b> |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | <b>187F2091</b> |
|  | Supply       | 1.2m                          | 3m / Ø6mm                       | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | <b>187F2119</b> |

| Nominal flow, size and connection type            | Installation | Cable length transducer cable | Cable length temperature sensor | Power supply                | Communication integrated | Modules | Energy unit | Code no. |
|---|--------------|-------------------------------|---------------------------------|-----------------------------|--------------------------|---------|-------------|----------|
| DN20 qp2.5m <sup>3</sup> /h G1 190mm              | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2008 |
|   | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2009 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2034 |
|   | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2035 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | kWh         | 187F2060 |
|   | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | kWh         | 187F2061 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | MWh         | 187F2079 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2092 |
|   | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2093 |
| DN25 qp3.5m <sup>3</sup> /h G1¼ 260mm             | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2010 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2011 |
|   | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2036 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2037 |
|   | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | kWh         | 187F2062 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | kWh         | 187F2063 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | MWh         | 187F2080 |
|   | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2094 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2095 |
|   | Supply       | 1.2m                          | 3m / Ø6mm                       | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2120 |
| DN25 qp6.0m <sup>3</sup> /h G1¼ 260mm             | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2012 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2013 |
|   | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2038 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2039 |
|   | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | kWh         | 187F2064 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | kWh         | 187F2065 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | MWh         | 187F2081 |
|   | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2096 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2097 |
|   | Supply       | 1.2m                          | 3m / Ø6mm                       | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2121 |
| DN25 qp6.0m <sup>3</sup> /h threaded flange 260mm | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2162 |
| DN40 qp10m <sup>3</sup> /h G2 300mm               | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2014 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2015 |
|   | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2040 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2041 |
|   | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | kWh         | 187F2066 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | kWh         | 187F2067 |
|   | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | MWh         | 187F2082 |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2098 |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2099 |
|   | Supply       | 2.5m                          | 3m / Ø6mm                       | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | MWh         | 187F2122 |
| DN40 qp10m <sup>3</sup> /h threaded flange 300mm  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2016 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2017 |
|   | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2042 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2043 |
|   | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | kWh         | 187F2068 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | kWh         | 187F2069 |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2100 |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2101 |
| DN50 qp15m <sup>3</sup> /h flange 270mm           | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2018 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2019 |
|   | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2044 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2045 |
|   | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | kWh         | 187F2070 |
|   | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | kWh         | 187F2071 |
|   | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | MWh         | 187F2083 |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2102 |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2103 |
|   | Return       | 5m                            | 5m / Ø6mm                       | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2110 |
|   | Supply       | 5m                            | 5m / Ø6mm                       | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2111 |
|   | Supply       | 2.5m                          | 3m / Ø6mm                       | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | MWh         | 187F2123 |



| Nominal flow, size and connection type      | Installation | Cable length transducer cable | Cable length temperature sensor | Power supply                | Communication integrated | Modules | Energy unit | Code no. |
|---|--------------|-------------------------------|---------------------------------|-----------------------------|--------------------------|---------|-------------|----------|
| DN65 qp25m <sup>3</sup> /h<br>flange 300mm  | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | MWh         | 187F2020 |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | MWh         | 187F2021 |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | MWh         | 187F2046 |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | MWh         | 187F2047 |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | MWh         | 187F2072 |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | MWh         | 187F2073 |
|   | Return       | 5m                            | 10m / Ø5.2mm                    | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2104 |
|   | Supply       | 5m                            | 10m / Ø5.2mm                    | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2105 |
|   | Return       | 5m                            | 10m / Ø6mm                      | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2112 |
| Supply                                      | 5m           | 10m / Ø6mm                    | Battery 3.6V DC (2 AA-cell)     | MBus                        | -                        | kWh     | 187F2113    |          |
| DN80 qp40m <sup>3</sup> /h<br>flange 300mm  | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | MWh         | 187F2022 |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | MWh         | 187F2023 |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | MWh         | 187F2048 |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | MWh         | 187F2049 |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | MWh         | 187F2074 |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | MWh         | 187F2075 |
|   | Return       | 5m                            | 10m / Ø5.2mm                    | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2106 |
|   | Supply       | 5m                            | 10m / Ø5.2mm                    | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2107 |
|   | Return       | 5m                            | 10m / Ø6mm                      | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2114 |
| Supply                                      | 5m           | 10m / Ø6mm                    | Battery 3.6V DC (2 AA-cell)     | MBus                        | -                        | kWh     | 187F2115    |          |
| DN100 qp60m <sup>3</sup> /h<br>flange 360mm | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | MWh         | 187F2024 |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | MWh         | 187F2025 |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | MWh         | 187F2050 |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | MWh         | 187F2051 |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | MWh         | 187F2076 |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | MWh         | 187F2077 |
|   | Return       | 5m                            | 10m / Ø5.2mm                    | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2108 |
|   | Supply       | 5m                            | 10m / Ø5.2mm                    | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | GJ          | 187F2109 |
|   | Return       | 5m                            | 10m / Ø6mm                      | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2116 |
| Supply                                      | 5m           | 10m / Ø6mm                    | Battery 3.6V DC (2 AA-cell)     | MBus                        | -                        | kWh     | 187F2117    |          |

**Ordering**

SonoMeter 40 - Combined heating and cooling

| Nominal flow, size and connection type                | Installation | Cable length transducer cable | Cable length temperature sensor | Power supply                | Communication integrated | Modules | Energy unit | Code no. |
|---|--------------|-------------------------------|---------------------------------|-----------------------------|--------------------------|---------|-------------|----------|
| DN15 qp0.6m <sup>3</sup> /h G <sub>3/4</sub><br>110mm | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2600 |
|   | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2601 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2626 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | kWh         | 187F2639 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus+OMS                 | -       | kWh         | 187F2652 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | Modbus  | kWh         | 187F2665 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2678 |
|   | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | BACnet  | kWh         | 187F2691 |
|   | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | BACnet  | kWh         | 187F2704 |
|   | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2725 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | BACnet  | kWh         | 187F2738 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | BACnet  | kWh         | 187F2751 |
| DN15 qp1.5m <sup>3</sup> /h G <sub>3/4</sub><br>110mm | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2602 |
|   | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2603 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2627 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | kWh         | 187F2640 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus+OMS                 | -       | kWh         | 187F2653 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | Modbus  | kWh         | 187F2666 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2679 |
|   | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | BACnet  | kWh         | 187F2692 |
|   | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | BACnet  | kWh         | 187F2705 |
|   | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2726 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | BACnet  | kWh         | 187F2739 |
|   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | BACnet  | kWh         | 187F2752 |

| Nominal flow, size and connection type | Installation | Cable length transducer cable | Cable length temperature sensor | Power supply                | Communication integrated | Modules | Energy unit | Code no. |
|--|--------------|-------------------------------|---------------------------------|-----------------------------|--------------------------|---------|-------------|----------|
| DN20 qp15m <sup>3</sup> /h G1 130mm    | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2604 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2605 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2628 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | kWh         | 187F2641 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus+OMS                 | -       | kWh         | 187F2654 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | Modbus  | kWh         | 187F2667 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2680 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | BACnet  | kWh         | 187F2693 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | BACnet  | kWh         | 187F2706 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2727 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | BACnet  | kWh         | 187F2740 |
| Return                                 | 1.2m         | 1.5m / Ø5.2mm                 | Mains power 24V AC/DC           | -                           | BACnet                   | kWh     | 187F2753    |          |
| DN20 qp2.5m <sup>3</sup> /h G1 130mm   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2606 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2607 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2629 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | kWh         | 187F2642 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus+OMS                 | -       | kWh         | 187F2655 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | Modbus  | kWh         | 187F2668 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2681 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | BACnet  | kWh         | 187F2694 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | BACnet  | kWh         | 187F2707 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2728 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | BACnet  | kWh         | 187F2741 |
| Return                                 | 1.2m         | 1.5m / Ø5.2mm                 | Mains power 24V AC/DC           | -                           | BACnet                   | kWh     | 187F2754    |          |
| DN20 qp2.5m <sup>3</sup> /h G1 190mm   | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2608 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2609 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2630 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus                     | -       | kWh         | 187F2643 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | MBus+OMS                 | -       | kWh         | 187F2656 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | Modbus  | kWh         | 187F2669 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2682 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | BACnet  | kWh         | 187F2695 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | BACnet  | kWh         | 187F2708 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2729 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | BACnet  | kWh         | 187F2742 |
| Return                                 | 1.2m         | 1.5m / Ø5.2mm                 | Mains power 24V AC/DC           | -                           | BACnet                   | kWh     | 187F2755    |          |
| DN25 qp3.5m <sup>3</sup> /h G1¼ 260mm  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2610 |
|  | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2611 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2631 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | kWh         | 187F2644 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | MBus+OMS                 | -       | kWh         | 187F2657 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | Modbus  | kWh         | 187F2670 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2683 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | BACnet  | kWh         | 187F2696 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | BACnet  | kWh         | 187F2709 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2730 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | BACnet  | kWh         | 187F2743 |
| Return                                 | 1.2m         | 1.5m / Ø5.2mm                 | Mains power 24V AC/DC           | -                           | BACnet                   | kWh     | 187F2756    |          |
| DN25 qp6.0m <sup>3</sup> /h G1¼ 260mm  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2612 |
|  | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus                     | -       | kWh         | 187F2613 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | MBus+OMS                 | -       | kWh         | 187F2632 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | MBus                     | -       | kWh         | 187F2645 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | MBus+OMS                 | -       | kWh         | 187F2658 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | Modbus  | kWh         | 187F2671 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2684 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | BACnet  | kWh         | 187F2697 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | BACnet  | kWh         | 187F2710 |
|  | Supply       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2731 |
|  | Return       | 1.2m                          | 1.5m / Ø5.2mm                   | Mains power 230V            | -                        | BACnet  | kWh         | 187F2744 |
| Return                                 | 1.2m         | 1.5m / Ø5.2mm                 | Mains power 24V AC/DC           | -                           | BACnet                   | kWh     | 187F2757    |          |

| Nominal flow, size and connection type           | Installation | Cable length transducer cable | Cable length temperature sensor | Power supply                | Communication integrated | Modules | Energy unit | Code no. |
|--|--------------|-------------------------------|---------------------------------|-----------------------------|--------------------------|---------|-------------|----------|
| DN40 qp10m <sup>3</sup> /h G2 300mm              | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | kWh         | 187F2614 |
|  | Supply       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | kWh         | 187F2615 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus+OMS                 | -       | kWh         | 187F2633 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | Mbus                     | -       | kWh         | 187F2646 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | Mbus+OMS                 | -       | kWh         | 187F2659 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | -                        | Modbus  | kWh         | 187F2672 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2685 |
|  | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | -                        | BACnet  | kWh         | 187F2698 |
|  | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | BACnet  | kWh         | 187F2711 |
|  | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2732 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | -                        | BACnet  | kWh         | 187F2745 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | BACnet  | kWh         | 187F2758 |
| DN40 qp10m <sup>3</sup> /h threaded flange 300mm | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | kWh         | 187F2616 |
|  | Supply       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | kWh         | 187F2617 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus+OMS                 | -       | kWh         | 187F2634 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | Mbus                     | -       | kWh         | 187F2647 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | Mbus+OMS                 | -       | kWh         | 187F2660 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | -                        | Modbus  | kWh         | 187F2673 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2686 |
|  | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | -                        | BACnet  | kWh         | 187F2699 |
|  | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | BACnet  | kWh         | 187F2712 |
|  | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2733 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | -                        | BACnet  | kWh         | 187F2746 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | BACnet  | kWh         | 187F2759 |
| DN50 qp15m <sup>3</sup> /h flange 270mm          | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | kWh         | 187F2618 |
|  | Supply       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | kWh         | 187F2619 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus+OMS                 | -       | kWh         | 187F2635 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | Mbus                     | -       | kWh         | 187F2648 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | Mbus+OMS                 | -       | kWh         | 187F2661 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | -                        | Modbus  | kWh         | 187F2674 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2687 |
|  | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | -                        | BACnet  | kWh         | 187F2700 |
|  | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | BACnet  | kWh         | 187F2713 |
|  | Return       | 5m                            | 5m / Ø6mm                       | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | kWh         | 187F2717 |
|  | Supply       | 5m                            | 5m / Ø6mm                       | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | kWh         | 187F2718 |
|  | Supply       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | Modbus  | kWh         | 187F2734 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 230V            | -                        | BACnet  | kWh         | 187F2747 |
|  | Return       | 2.5m                          | 3m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | BACnet  | kWh         | 187F2760 |
| DN65 qp25m <sup>3</sup> /h flange 300mm          | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | MWh         | 187F2620 |
|  | Supply       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | MWh         | 187F2621 |
|  | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus+OMS                 | -       | MWh         | 187F2636 |
|  | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | Mbus                     | -       | MWh         | 187F2649 |
|  | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | Mbus+OMS                 | -       | MWh         | 187F2662 |
|  | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | -                        | Modbus  | MWh         | 187F2675 |
|  | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | Modbus  | MWh         | 187F2688 |
|  | Supply       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | -                        | BACnet  | MWh         | 187F2701 |
|  | Supply       | 5m                            | 5m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | BACnet  | MWh         | 187F2714 |
|  | Return       | 5m                            | 10m / Ø6mm                      | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | kWh         | 187F2719 |
|  | Supply       | 5m                            | 10m / Ø6mm                      | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | kWh         | 187F2720 |
|  | Supply       | 5m                            | 5m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | Modbus  | MWh         | 187F2735 |
|  | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | -                        | BACnet  | MWh         | 187F2748 |
|  | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | BACnet  | MWh         | 187F2761 |

| Nominal flow, size and connection type      | Installation | Cable length transducer cable | Cable length temperature sensor | Power supply                | Communication integrated | Modules | Energy unit | Code no.        |
|---|--------------|-------------------------------|---------------------------------|-----------------------------|--------------------------|---------|-------------|-----------------|
| DN80 qp40m <sup>3</sup> /h<br>flange 300mm  | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | MWh         | <b>187F2622</b> |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | MWh         | <b>187F2623</b> |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus+OMS                 | -       | MWh         | <b>187F2637</b> |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | Mbus                     | -       | MWh         | <b>187F2650</b> |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | Mbus+OMS                 | -       | MWh         | <b>187F2663</b> |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | -                        | Modbus  | MWh         | <b>187F2676</b> |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | Modbus  | MWh         | <b>187F2689</b> |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | -                        | BACnet  | MWh         | <b>187F2702</b> |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | BACnet  | MWh         | <b>187F2715</b> |
|   | Return       | 5m                            | 10m / Ø6mm                      | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | kWh         | <b>187F2721</b> |
|   | Supply       | 5m                            | 10m / Ø6mm                      | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | kWh         | <b>187F2722</b> |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | Modbus  | MWh         | <b>187F2736</b> |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | -                        | BACnet  | MWh         | <b>187F2749</b> |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | BACnet  | MWh         | <b>187F2762</b> |
| DN100 qp60m <sup>3</sup> /h<br>flange 360mm | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | MWh         | <b>187F2624</b> |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | MWh         | <b>187F2625</b> |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Battery 3.6V DC (2 AA-cell) | Mbus+OMS                 | -       | MWh         | <b>187F2638</b> |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | Mbus                     | -       | MWh         | <b>187F2651</b> |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | Mbus+OMS                 | -       | MWh         | <b>187F2664</b> |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | -                        | Modbus  | MWh         | <b>187F2677</b> |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | Modbus  | MWh         | <b>187F2690</b> |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | -                        | BACnet  | MWh         | <b>187F2703</b> |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | BACnet  | MWh         | <b>187F2716</b> |
|   | Return       | 5m                            | 10m / Ø6mm                      | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | kWh         | <b>187F2723</b> |
|   | Supply       | 5m                            | 10m / Ø6mm                      | Battery 3.6V DC (2 AA-cell) | Mbus                     | -       | kWh         | <b>187F2724</b> |
|   | Supply       | 5m                            | 5m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | Modbus  | MWh         | <b>187F2737</b> |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 230V            | -                        | BACnet  | MWh         | <b>187F2750</b> |
|   | Return       | 5m                            | 5m / Ø5.2mm                     | Mains power 24V AC/DC       | -                        | BACnet  | MWh         | <b>187F2763</b> |

**Ordering  
Accessories**

| Product  | Designation   | Quantity | Code no.        |
|--|---|----------|-----------------|
| Optical head   | Optical head OG-1-USB   | 1 pc     | <b>187F3112</b> |
| Power supply   | Sono40 Battery 3.6V DC A-cell   | 1 pc     | <b>187F2970</b> |
|  | Sono40 Mains unit 24V AC/DC + 230V AC                                       | 1 pc     | <b>187F2971</b> |
| Communication modules                                  | Sono40 M-Bus module   | 1 pc     | <b>187F2972</b> |
|  | Sono40 Modbus RTU module  | 1 pc     | <b>187F2973</b> |
|  | Sono40 BACnet MSTP module   | 1 pc     | <b>187F2974</b> |
| Temperature sensor Ø 5.2 mm                            | Pt 500 / Ø 5.2 mm / 1.5 m cable, MID  | 1 pair   | <b>187F3125</b> |
|  | Pt 500 / Ø 5.2 mm / 3 m cable, MID  | 1 pair   | <b>187F3127</b> |
|  | Pt500 / Ø 5.2 mm / 5 m cable, MID   | 1 pair   | <b>187F3390</b> |
|  | Pt500 / Ø 5.2 mm / 10 m cable, MID  | 1 pair   | <b>187F3391</b> |
| Temperature sensor Ø 6.0 mm                            | Pt500 / Ø 6.0 mm / 3 m cable, MID   | 1 pair   | <b>187F3123</b> |
|  | Pt500 / Ø 6.0 mm / 5 m cable, MID   | 1 pair   | <b>187F3124</b> |
|  | Pt500 / Ø 6.0 mm / 10 m cable, MID  | 1 pair   | <b>187F3389</b> |
| Ball valve for Ø 5.2 mm temperature sensor Single pack | DN15 - 1/2" for direct sensor   | 1 pc     | <b>187F0593</b> |
|  | DN20 - 3/4" for direct sensor   | 1 pc     | <b>187F0592</b> |
|  | DN25 - 1" for direct sensor   | 1 pc     | <b>187F0591</b> |
|  | DN32 - 5/4" for direct sensor   | 1 pc     | <b>187F3448</b> |
| Ball valve for Ø 5.2 mm temperature sensor Multi pack  | DN15 - for direct sensor,12pc   | 12 pcs.  | <b>087H0118</b> |
|  | DN20 - for direct sensor,12pc   | 12 pcs.  | <b>087H0119</b> |
|  | DN25 - for direct sensor,12pc   | 12 pcs.  | <b>087H0120</b> |
|  | DN32 - for direct sensor,12pc   | 12 pcs.  | <b>187F3449</b> |
| T-Fitting  | DN15: G1/2", G1/2", G1/2" PN25 130 °C                                       | 1 pc     | <b>014U1959</b> |
|  | DN20: G3/4", G1/2", G3/4" PN25 130 °C                                       | 1 pc     | <b>014U1960</b> |
|  | DN25: G1", G1/2", G1" PN25 130 °C   | 1 pc     | <b>014U1961</b> |
|  | DN32: G1 1/4", G1/2", G1 1/4" PN25 130 °C                                   | 1 pc     | <b>014U1943</b> |
| Pockets for Ø 5.2 mm temperature sensors               | Ø 5.2 mm, brass, 35 mm length   | 1 pair   | <b>087G6053</b> |
|  | Ø 5.2 mm, brass, 52 mm length   | 1 pair   | <b>087G6054</b> |
|  | Ø 5.2 mm, brass, 85 mm length   | 1 pair   | <b>087G6055</b> |
|  | Ø 5.2 mm, brass,120 mm length   | 1 pair   | <b>087G6056</b> |
|  | Ø 5.2 mm, stainless steel, 85 mm length                                     | 1 pair   | <b>087G6057</b> |
|  | Ø 5.2 mm, stainless steel, 120 mm length                                    | 1 pair   | <b>087G6058</b> |
|  | Ø 5.2 mm, stainless steel, 155 mm length                                    | 1 pair   | <b>087G6059</b> |
| Pockets for Ø 6.0 mm temperature sensors               | Ø 6.0 mm, stainless steel, 210 mm length                                    | 1 pair   | <b>087G6060</b> |
|  | Ø 6.0 mm, brass, 40 mm length   | 1 pair   | <b>087G6061</b> |
|  | Ø 6.0 mm, brass, 85 mm length   | 1 pair   | <b>087G6062</b> |
|  | Ø 6.0 mm, brass, 120 mm length  | 1 pair   | <b>087G6063</b> |
|  | Ø 6.0 mm, stainless steel, 85 mm length                                     | 1 pair   | <b>087G6064</b> |
|  | Ø 6.0 mm, stainless steel, 120 mm length                                    | 1 pair   | <b>087G6065</b> |
| Tailpiece connection set                               | Ø 6.0 mm, stainless steel, 155 mm length                                    | 1 pair   | <b>087G6066</b> |
|  | Ø 6.0 mm, stainless steel, 210 mm length                                    | 1 pair   | <b>087G6067</b> |
|  | DN15 G3/4"-R1/2" PN25 130 °C  | 1 pair   | <b>087G6071</b> |
|  | DN20 G1"-R3/4" PN25 130 °C  | 1 pair   | <b>087G6072</b> |
|  | DN25 G1 1/4"-R1" PN25 130 °C  | 1 pair   | <b>087G6073</b> |
| Adapter for Ø 5.2 mm temperature sensor                | DN40 G2"-R1 1/2" PN25 130°C   | 1 pair   | <b>087G6074</b> |
|  | R1/2" to M10x1 (1pc) - incl. copper gasket for flat sealing. PN25 130 °C    | 1 pc.    | <b>087G6075</b> |
|  | R1/2" to M10x1 (32pcs.) - incl. copper gasket for flat sealing. PN25 130 °C | 32 pcs.  | <b>087G6076</b> |
|  | R1/2" to M10x1 (1pc) - conical thread for sealing with hemp. PN25 130 °C    | 1 pcs.   | <b>014U1941</b> |
| Adapter for Ø 5.2 mm temperature sensor                | R1/2" to M10x1 (32pcs.) - conical thread for sealing with hemp. PN25 130 °C | 32 pcs.  | <b>014U1935</b> |
|  | M10x1 plastic installation set  | 20 pcs.  | <b>087G6077</b> |
|  | M10x1 brass installation set  | 20 pcs.  | <b>087G6078</b> |



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