

## 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. Energy: 1 sec. 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 12 V - 42 V DC Galvanically isolated
	Power consumption	not more than 20 mA
	Alternating current voltage frequency	50/60 Hz
	Backup supply	Internal backup battery: 1x AA-size 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% 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 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) 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. 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 2. Modbus RTU 3. BACnet MS/TP 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
Overall length (mm)	110	190	110	190	110	165	190	130	190	130	260	260	300	270	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 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 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 8O1 (8 data bits, odd parity bit, 1 stop bit) 8N2 (8 data bits, no parity bit, 2 stop bits)
Power supply	Polarity independent connection for power supply – connectors 60 and 61 Voltage 12-24 V AC/DC Maximum power consumption 2 W max. 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 Voltage 12-24 V AC/DC Maximum power consumption 2 W max. 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; 0,01; 0,1; 1; 10 m<sup>3</sup>/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<sub>s</sub>
- 21..... Time when the flow rate was less than q<sub>i</sub>

**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

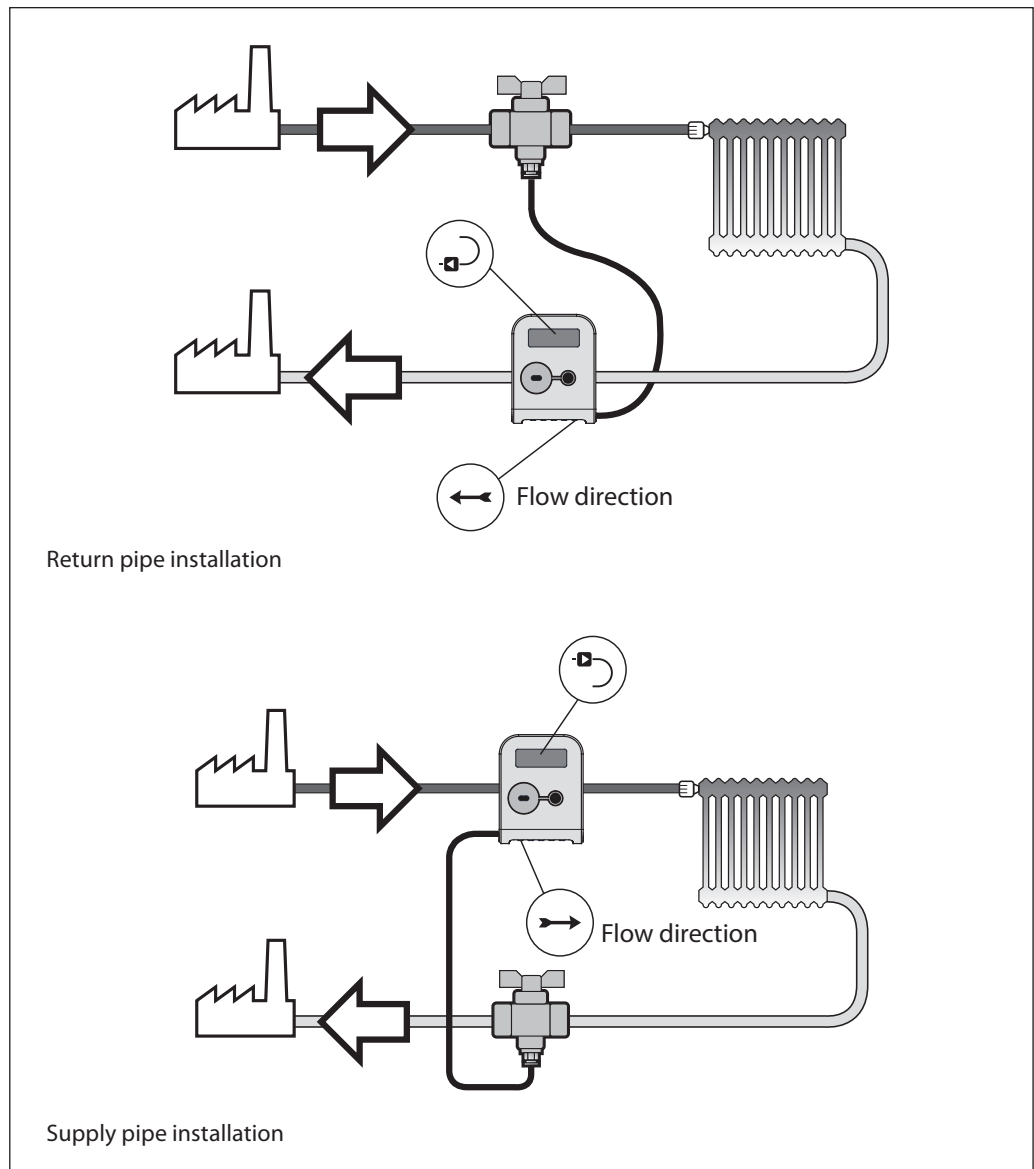
All data from archive can be read by means of the remote reading. In addition, data logger records of monthly parameters can be seen on the display.

**Bifunctional meters**

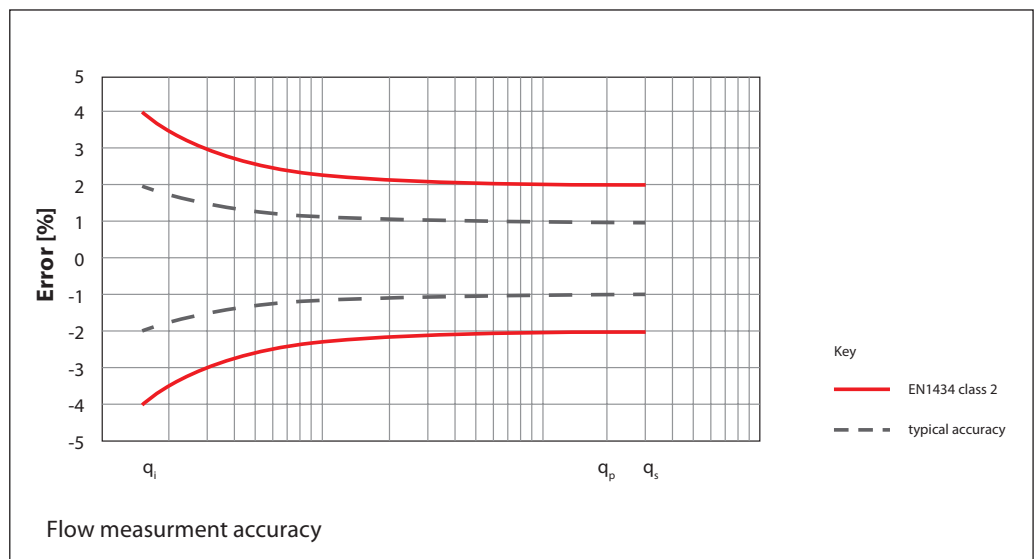
When the cooling energy tariff function is activated, in case of a negative temperature differential, energy will be accumulated in the additional tariff register Q\*. In this case, energy values are calculated according to the following formulas:

- 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  $\Theta_1 < \Theta_2$ :  $Q^* = V \cdot \rho_2 \cdot (h_{T2} - h_{T1})$ ,  $Q = 0$

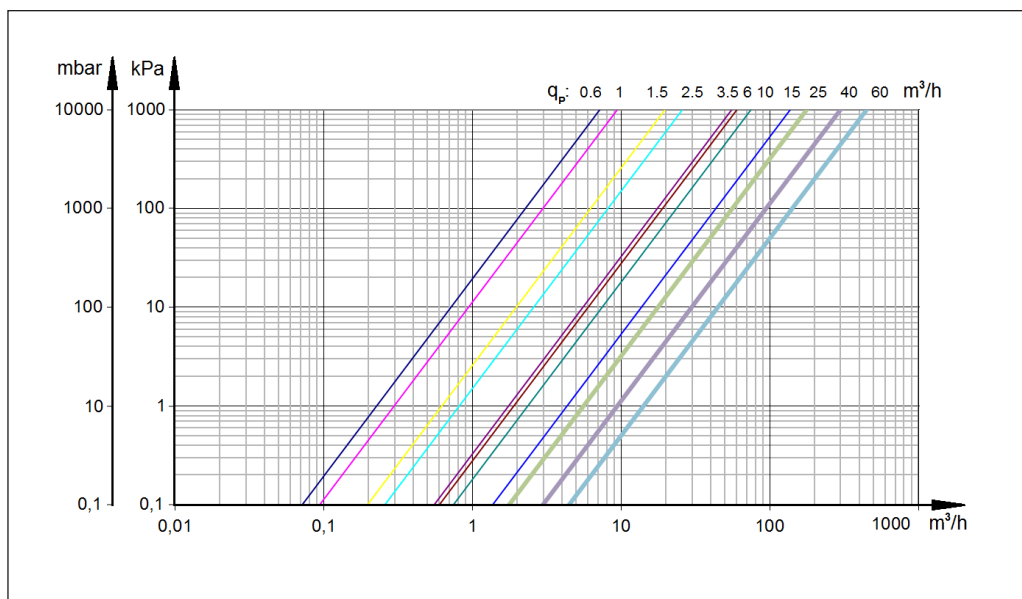
Application drawings



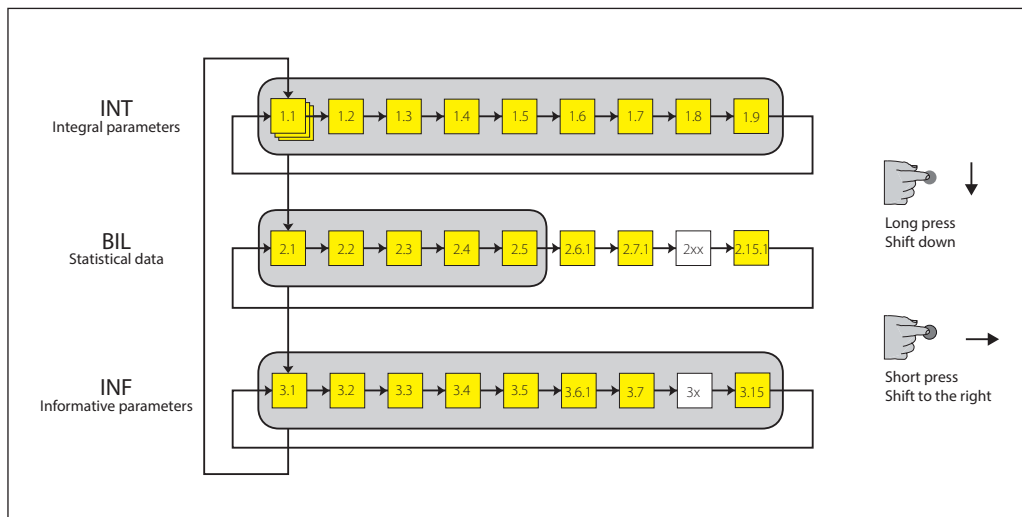
Accuracy



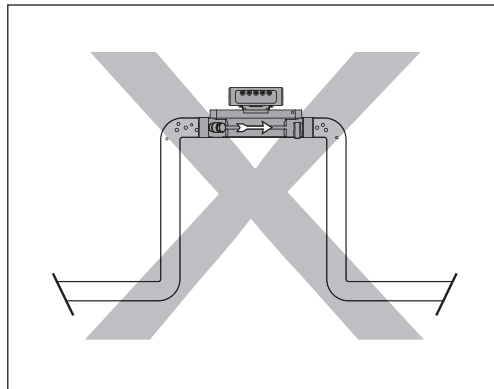
Pressure loss



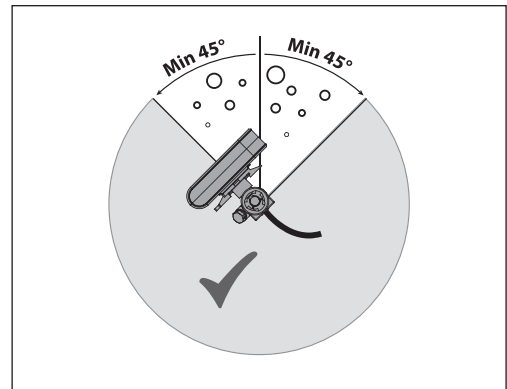
Menu structure



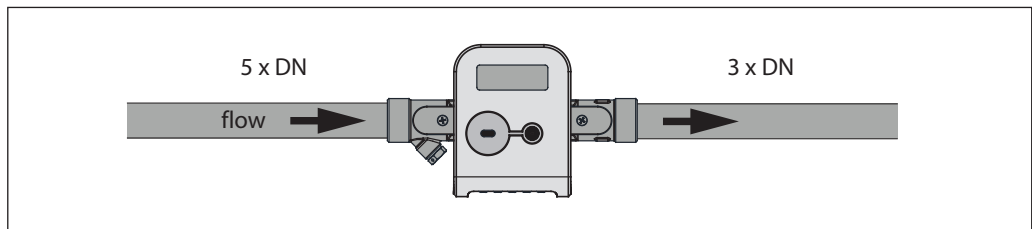
Mounting



**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.

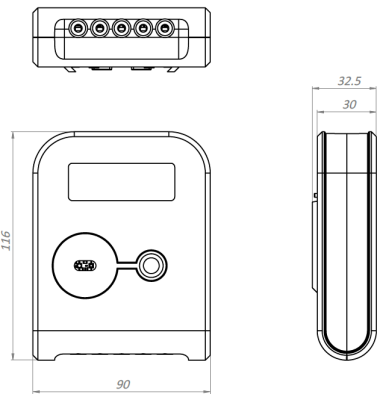


**Inlet/outlet conditions** (only for DN 65 - DN 100)  
In order to maximize accuracy, it is necessary to have straight inlet and outlet flow conditions before and after the flow sensor: 5 × DN on inlet and 3 × DN on outlet of flow sensor.

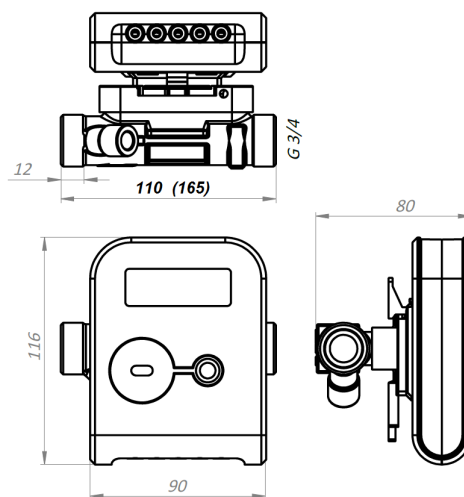


Dimensions

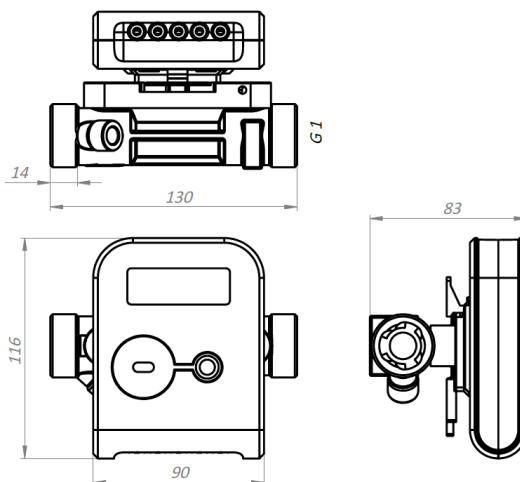
Calculator



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"



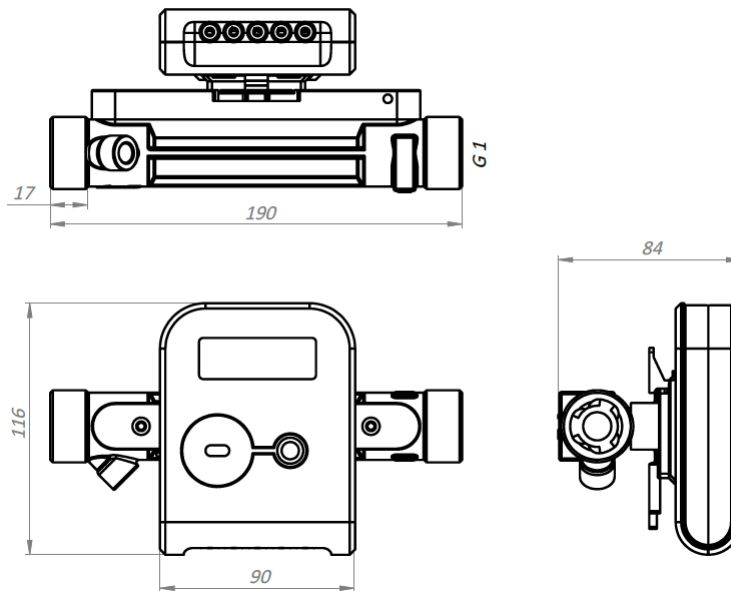
Flow sensor qp= 1.5/2.5 m<sup>3</sup>/h  
L=130 mm  
connection type: thread G1"



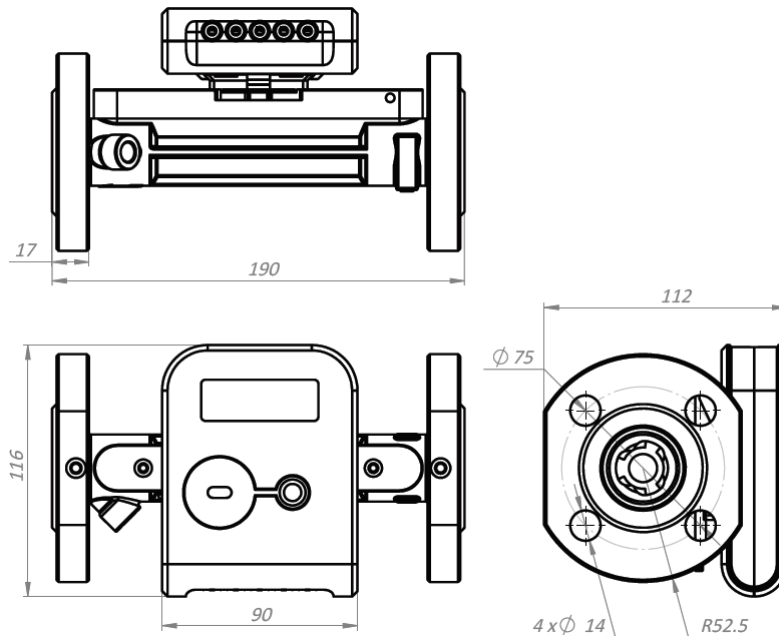
**Dimensions**  
(continuous)

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)



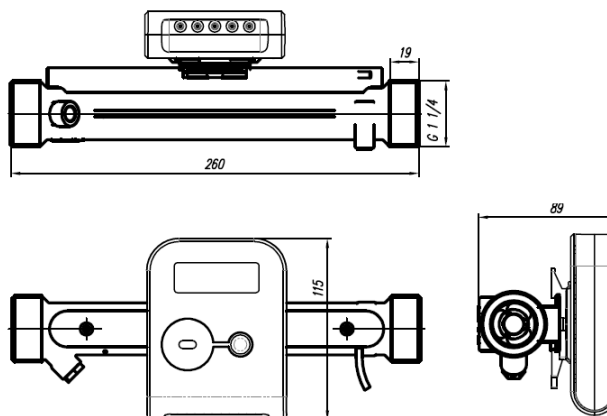
b)



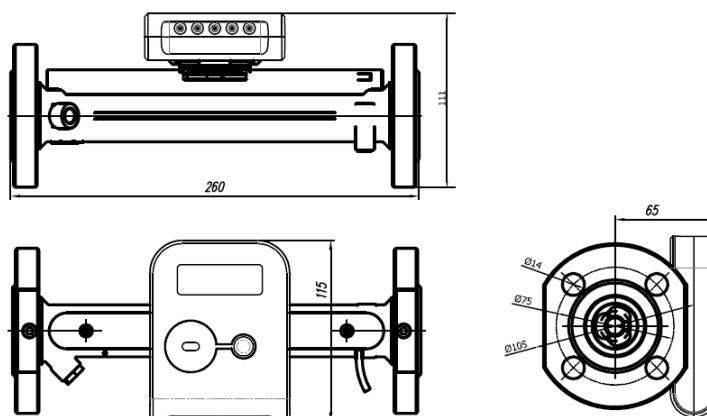
**Dimensions**  
(continuous)

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

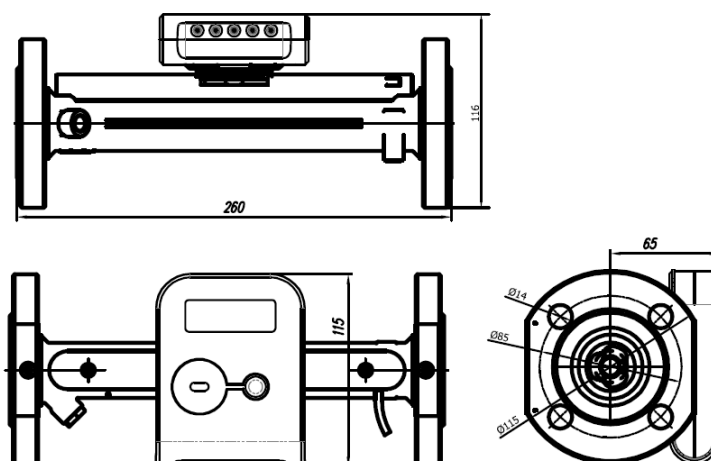
a)



b)

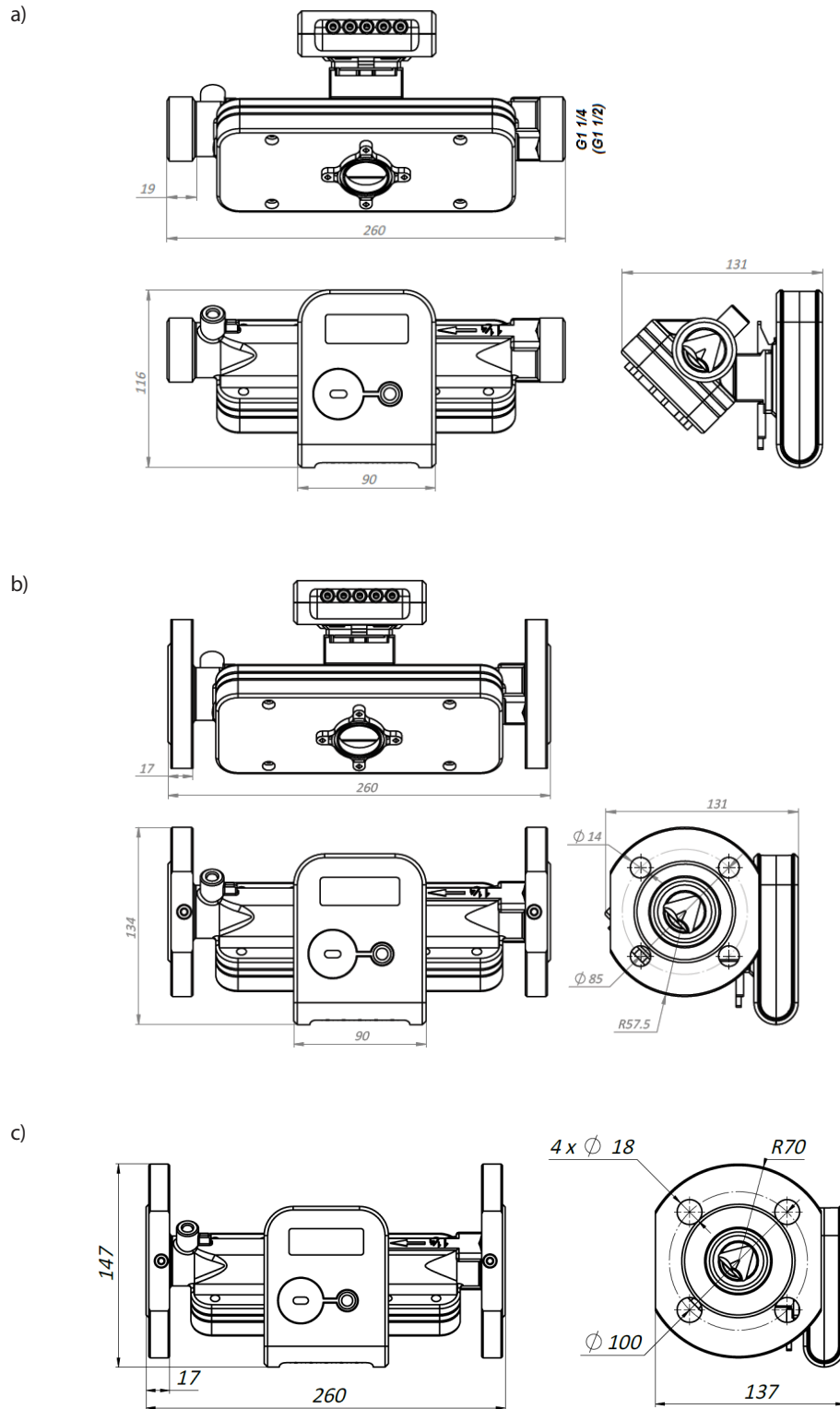


c)



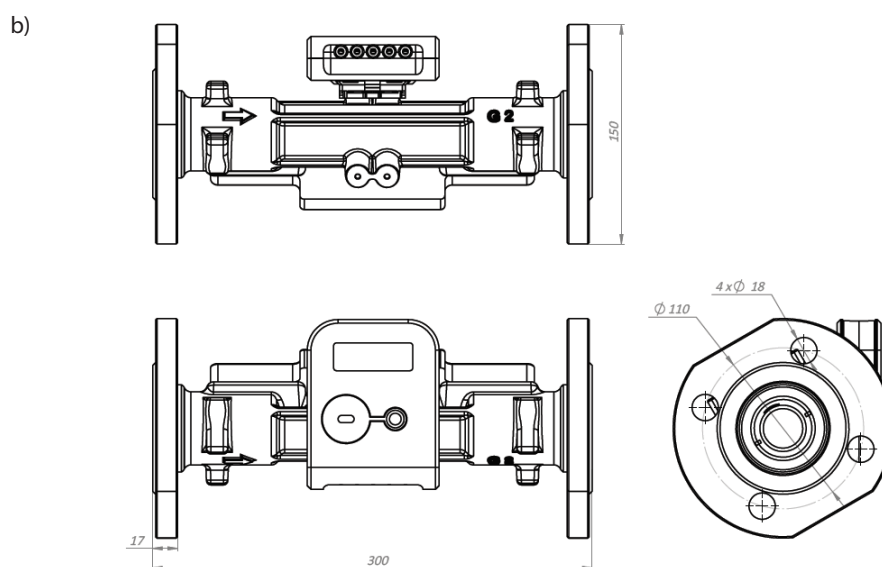
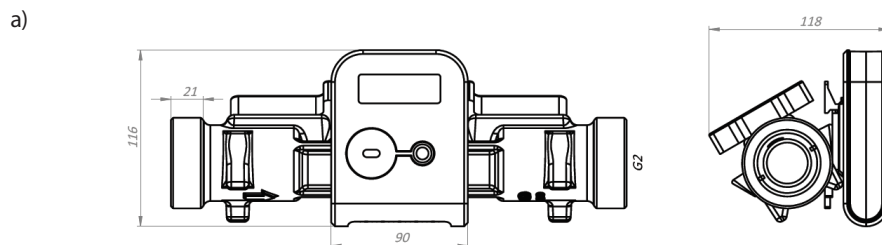
**Dimensions**  
(continuous)

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

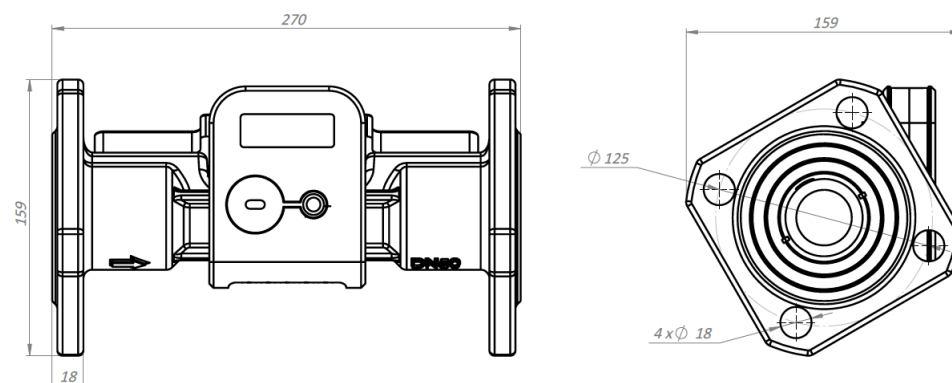


**Dimensions**  
(continuous)

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

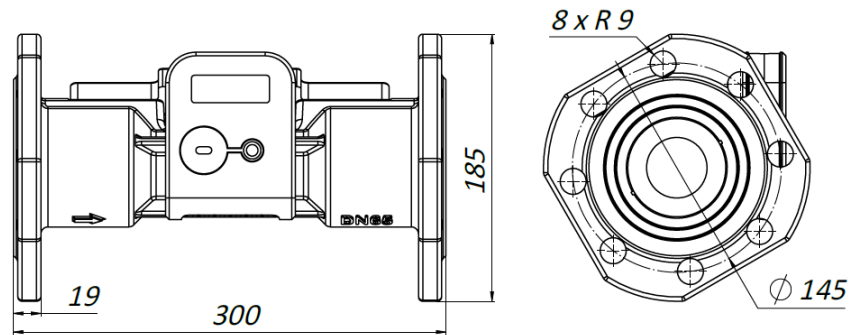


Flow sensor qp= 15 m<sup>3</sup>/h  
L=270 mm  
connection type: flanges DN50

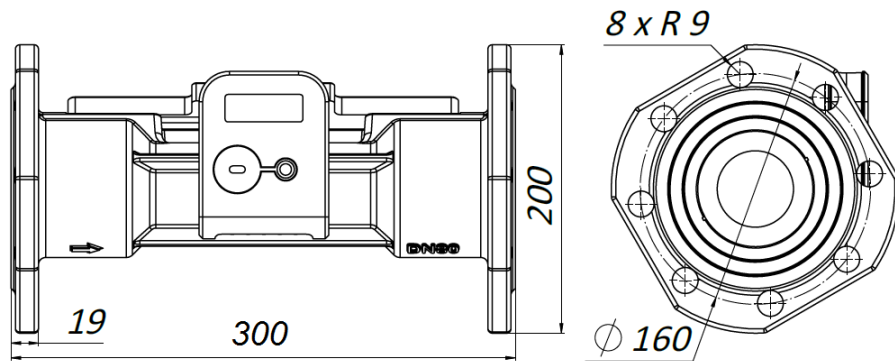


**Dimensions**  
(continuous)

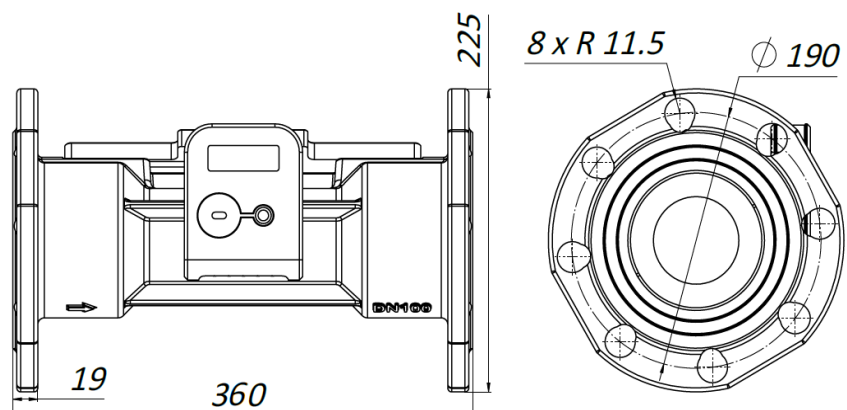
Flow sensor qp= 25 m<sup>3</sup>/h  
L=300 mm  
connection type: flanges DN65



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	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2000
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2001
	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2026
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2027
	Return	1.2m	1.5m	Mains power 230V	MBus	-	kWh	187F2052
	Supply	1.2m	1.5m	Mains power 230V	MBus	-	kWh	187F2053
	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2084
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2085
DN15 qp1.5m <sup>3</sup> /h G¾ 110mm	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2002
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2003
	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2028
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2029
	Return	1.2m	1.5m	Mains power 230V	MBus	-	kWh	187F2054
	Supply	1.2m	1.5m	Mains power 230V	MBus	-	kWh	187F2055
	Return	1.2m	1.5m	Mains power 230V	MBus	-	MWh	187F2078
	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2086
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2087
	Supply	1.2m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2118
DN20 qp1.5m <sup>3</sup> /h G1 130mm	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2004
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2005
	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2030
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2031
	Return	1.2m	1.5m	Mains power 230V	MBus	-	kWh	187F2056
	Supply	1.2m	1.5m	Mains power 230V	MBus	-	kWh	187F2057
	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2088
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2089
DN20 qp2.5m <sup>3</sup> /h G1 130mm	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2006
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2007
	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2032
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2033
	Return	1.2m	1.5m	Mains power 230V	MBus	-	kWh	187F2058
	Supply	1.2m	1.5m	Mains power 230V	MBus	-	kWh	187F2059
	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2090
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2091
	Supply	1.2m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2119

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	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2008
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2009
	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2034
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2035
	Return	1.2m	1.5m	Mains power 230V	MBus	-	kWh	187F2060
	Supply	1.2m	1.5m	Mains power 230V	MBus	-	kWh	187F2061
	Return	1.2m	1.5m	Mains power 230V	MBus	-	MWh	187F2079
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2092
DN25 qp3.5m <sup>3</sup> /h G1¼ 260mm	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2010
	Supply	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2011
	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2036
	Supply	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2037
	Return	2.5m	3m	Mains power 230V	MBus	-	kWh	187F2062
	Supply	2.5m	3m	Mains power 230V	MBus	-	kWh	187F2063
	Return	1.2m	1.5m	Mains power 230V	MBus	-	MWh	187F2080
	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2094
	Supply	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2095
	Supply	1.2m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2120
DN25 qp6.0m <sup>3</sup> /h G1¼ 260mm	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2012
	Supply	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2013
	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2038
	Supply	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2039
	Return	2.5m	3m	Mains power 230V	MBus	-	kWh	187F2064
	Supply	2.5m	3m	Mains power 230V	MBus	-	kWh	187F2065
	Return	1.2m	1.5m	Mains power 230V	MBus	-	MWh	187F2081
	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2096
	Supply	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2097
	Supply	1.2m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2121
DN25 qp6.0m <sup>3</sup> /h threaded flange 260mm	Supply	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2162
DN40 qp10m <sup>3</sup> /h G2 300mm	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2014
	Supply	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2015
	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2040
	Supply	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2041
	Return	2.5m	3m	Mains power 230V	MBus	-	kWh	187F2066
	Supply	2.5m	3m	Mains power 230V	MBus	-	kWh	187F2067
	Return	2.5m	3m	Mains power 230V	MBus	-	MWh	187F2082
	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2098
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2099
	Supply	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	MWh	187F2122
DN40 qp10m <sup>3</sup> /h threaded flange 300mm	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2016
	Supply	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2017
	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2042
	Supply	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2043
	Return	2.5m	3m	Mains power 230V	MBus	-	kWh	187F2068
	Supply	2.5m	3m	Mains power 230V	MBus	-	kWh	187F2069
	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2100
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2101
DN50 qp15m <sup>3</sup> /h flange 270mm	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2018
	Supply	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2019
	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2044
	Supply	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2045
	Return	2.5m	3m	Mains power 230V	MBus	-	kWh	187F2070
	Supply	2.5m	3m	Mains power 230V	MBus	-	kWh	187F2071
	Return	2.5m	3m	Mains power 230V	MBus	-	MWh	187F2083
	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2102
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2103
	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2110
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2111
	Supply	2.5m	3m	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 flange 300mm	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	MWh	187F2020
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	MWh	187F2021
	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	MWh	187F2046
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	MWh	187F2047
	Return	5m	5m	Mains power 230V	MBus	-	MWh	187F2072
	Supply	5m	5m	Mains power 230V	MBus	-	MWh	187F2073
	Return	5m	10m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2104
	Supply	5m	10m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2105
	Return	5m	10m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2112
Supply	5m	10m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2113	
DN80 qp40m <sup>3</sup> /h flange 300mm	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	MWh	187F2022
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	MWh	187F2023
	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	MWh	187F2048
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	MWh	187F2049
	Return	5m	5m	Mains power 230V	MBus	-	MWh	187F2074
	Supply	5m	5m	Mains power 230V	MBus	-	MWh	187F2075
	Return	5m	10m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2106
	Supply	5m	10m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2107
	Return	5m	10m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2114
Supply	5m	10m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2115	
DN100 qp60m <sup>3</sup> /h flange 360mm	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	MWh	187F2024
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	MWh	187F2025
	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	MWh	187F2050
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	MWh	187F2051
	Return	5m	5m	Mains power 230V	MBus	-	MWh	187F2076
	Supply	5m	5m	Mains power 230V	MBus	-	MWh	187F2077
	Return	5m	10m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2108
	Supply	5m	10m	Battery 3.6V DC (2 AA-cell)	MBus	-	GJ	187F2109
	Return	5m	10m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2116
Supply	5m	10m	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> 110mm	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2600
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2601
	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2626
	Return	1.2m	1.5m	Mains power 230V	MBus	-	kWh	187F2639
	Return	1.2m	1.5m	Mains power 230V	MBus+OMS	-	kWh	187F2652
	Return	1.2m	1.5m	Mains power 230V	-	Modbus	kWh	187F2665
	Return	1.2m	1.5m	Mains power 24V AC/DC	-	Modbus	kWh	187F2678
	Supply	1.2m	1.5m	Mains power 230V	-	BACnet	kWh	187F2691
	Supply	1.2m	1.5m	Mains power 24V AC/DC	-	BACnet	kWh	187F2704
	Supply	1.2m	1.5m	Mains power 24V AC/DC	-	Modbus	kWh	187F2725
	Return	1.2m	1.5m	Mains power 230V	-	BACnet	kWh	187F2738
	Return	1.2m	1.5m	Mains power 24V AC/DC	-	BACnet	kWh	187F2751
DN15 qp1.5m <sup>3</sup> /h G <sub>3/4</sub> 110mm	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2602
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	187F2603
	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	187F2627
	Return	1.2m	1.5m	Mains power 230V	MBus	-	kWh	187F2640
	Return	1.2m	1.5m	Mains power 230V	MBus+OMS	-	kWh	187F2653
	Return	1.2m	1.5m	Mains power 230V	-	Modbus	kWh	187F2666
	Return	1.2m	1.5m	Mains power 24V AC/DC	-	Modbus	kWh	187F2679
	Supply	1.2m	1.5m	Mains power 230V	-	BACnet	kWh	187F2692
	Supply	1.2m	1.5m	Mains power 24V AC/DC	-	BACnet	kWh	187F2705
	Supply	1.2m	1.5m	Mains power 24V AC/DC	-	Modbus	kWh	187F2726
	Return	1.2m	1.5m	Mains power 230V	-	BACnet	kWh	187F2739
	Return	1.2m	1.5m	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	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	<b>187F2604</b>
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	<b>187F2605</b>
	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	<b>187F2628</b>
	Return	1.2m	1.5m	Mains power 230V	MBus	-	kWh	<b>187F2641</b>
	Return	1.2m	1.5m	Mains power 230V	MBus+OMS	-	kWh	<b>187F2654</b>
	Return	1.2m	1.5m	Mains power 230V	-	Modbus	kWh	<b>187F2667</b>
	Return	1.2m	1.5m	Mains power 24V AC/DC	-	Modbus	kWh	<b>187F2680</b>
	Supply	1.2m	1.5m	Mains power 230V	-	BACnet	kWh	<b>187F2693</b>
	Supply	1.2m	1.5m	Mains power 24V AC/DC	-	BACnet	kWh	<b>187F2706</b>
	Supply	1.2m	1.5m	Mains power 24V AC/DC	-	Modbus	kWh	<b>187F2727</b>
	Return	1.2m	1.5m	Mains power 230V	-	BACnet	kWh	<b>187F2740</b>
	Return	1.2m	1.5m	Mains power 24V AC/DC	-	BACnet	kWh	<b>187F2753</b>
DN20 qp2.5m <sup>3</sup> /h G1 130mm	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	<b>187F2606</b>
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	<b>187F2607</b>
	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	<b>187F2629</b>
	Return	1.2m	1.5m	Mains power 230V	MBus	-	kWh	<b>187F2642</b>
	Return	1.2m	1.5m	Mains power 230V	MBus+OMS	-	kWh	<b>187F2655</b>
	Return	1.2m	1.5m	Mains power 230V	-	Modbus	kWh	<b>187F2668</b>
	Return	1.2m	1.5m	Mains power 24V AC/DC	-	Modbus	kWh	<b>187F2681</b>
	Supply	1.2m	1.5m	Mains power 230V	-	BACnet	kWh	<b>187F2694</b>
	Supply	1.2m	1.5m	Mains power 24V AC/DC	-	BACnet	kWh	<b>187F2707</b>
	Supply	1.2m	1.5m	Mains power 24V AC/DC	-	Modbus	kWh	<b>187F2728</b>
	Return	1.2m	1.5m	Mains power 230V	-	BACnet	kWh	<b>187F2741</b>
	Return	1.2m	1.5m	Mains power 24V AC/DC	-	BACnet	kWh	<b>187F2754</b>
DN20 qp2.5m <sup>3</sup> /h G1 190mm	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	<b>187F2608</b>
	Supply	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	<b>187F2609</b>
	Return	1.2m	1.5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	<b>187F2630</b>
	Return	1.2m	1.5m	Mains power 230V	MBus	-	kWh	<b>187F2643</b>
	Return	1.2m	1.5m	Mains power 230V	MBus+OMS	-	kWh	<b>187F2656</b>
	Return	1.2m	1.5m	Mains power 230V	-	Modbus	kWh	<b>187F2669</b>
	Return	1.2m	1.5m	Mains power 24V AC/DC	-	Modbus	kWh	<b>187F2682</b>
	Supply	1.2m	1.5m	Mains power 230V	-	BACnet	kWh	<b>187F2695</b>
	Supply	1.2m	1.5m	Mains power 24V AC/DC	-	BACnet	kWh	<b>187F2708</b>
	Supply	1.2m	1.5m	Mains power 24V AC/DC	-	Modbus	kWh	<b>187F2729</b>
	Return	1.2m	1.5m	Mains power 230V	-	BACnet	kWh	<b>187F2742</b>
	Return	1.2m	1.5m	Mains power 24V AC/DC	-	BACnet	kWh	<b>187F2755</b>
DN25 qp3.5m <sup>3</sup> /h G1¼ 260mm	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	<b>187F2610</b>
	Supply	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	<b>187F2611</b>
	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	<b>187F2631</b>
	Return	2.5m	3m	Mains power 230V	MBus	-	kWh	<b>187F2644</b>
	Return	2.5m	3m	Mains power 230V	MBus+OMS	-	kWh	<b>187F2657</b>
	Return	1.2m	1.5m	Mains power 230V	-	Modbus	kWh	<b>187F2670</b>
	Return	1.2m	1.5m	Mains power 24V AC/DC	-	Modbus	kWh	<b>187F2683</b>
	Supply	1.2m	1.5m	Mains power 230V	-	BACnet	kWh	<b>187F2696</b>
	Supply	1.2m	1.5m	Mains power 24V AC/DC	-	BACnet	kWh	<b>187F2709</b>
	Supply	1.2m	1.5m	Mains power 24V AC/DC	-	Modbus	kWh	<b>187F2730</b>
	Return	1.2m	1.5m	Mains power 230V	-	BACnet	kWh	<b>187F2743</b>
	Return	1.2m	1.5m	Mains power 24V AC/DC	-	BACnet	kWh	<b>187F2756</b>
DN25 qp6.0m <sup>3</sup> /h G1¼ 260mm	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	<b>187F2612</b>
	Supply	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	<b>187F2613</b>
	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	kWh	<b>187F2632</b>
	Return	2.5m	3m	Mains power 230V	MBus	-	kWh	<b>187F2645</b>
	Return	2.5m	3m	Mains power 230V	MBus+OMS	-	kWh	<b>187F2658</b>
	Return	1.2m	1.5m	Mains power 230V	-	Modbus	kWh	<b>187F2671</b>
	Return	1.2m	1.5m	Mains power 24V AC/DC	-	Modbus	kWh	<b>187F2684</b>
	Supply	1.2m	1.5m	Mains power 230V	-	BACnet	kWh	<b>187F2697</b>
	Supply	1.2m	1.5m	Mains power 24V AC/DC	-	BACnet	kWh	<b>187F2710</b>
	Supply	1.2m	1.5m	Mains power 24V AC/DC	-	Modbus	kWh	<b>187F2731</b>
	Return	1.2m	1.5m	Mains power 230V	-	BACnet	kWh	<b>187F2744</b>
	Return	1.2m	1.5m	Mains power 24V AC/DC	-	BACnet	kWh	<b>187F2757</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.
DN40 qp10m <sup>3</sup> /h G2 300mm	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	Mbus	-	kWh	187F2614
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	Mbus	-	kWh	187F2615
	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	Mbus+OMS	-	kWh	187F2633
	Return	2.5m	3m	Mains power 230V	Mbus	-	kWh	187F2646
	Return	2.5m	3m	Mains power 230V	Mbus+OMS	-	kWh	187F2659
	Return	2.5m	3m	Mains power 230V	-	Modbus	kWh	187F2672
	Return	2.5m	3m	Mains power 24V AC/DC	-	Modbus	kWh	187F2685
	Supply	2.5m	3m	Mains power 230V	-	BACnet	kWh	187F2698
	Supply	2.5m	3m	Mains power 24V AC/DC	-	BACnet	kWh	187F2711
	Supply	2.5m	3m	Mains power 24V AC/DC	-	Modbus	kWh	187F2732
	Return	2.5m	3m	Mains power 230V	-	BACnet	kWh	187F2745
Return	2.5m	3m	Mains power 24V AC/DC	-	BACnet	kWh	187F2758	
DN40 qp10m <sup>3</sup> /h threaded flange 300mm	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	Mbus	-	kWh	187F2616
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	Mbus	-	kWh	187F2617
	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	Mbus+OMS	-	kWh	187F2634
	Return	2.5m	3m	Mains power 230V	Mbus	-	kWh	187F2647
	Return	2.5m	3m	Mains power 230V	Mbus+OMS	-	kWh	187F2660
	Return	2.5m	3m	Mains power 230V	-	Modbus	kWh	187F2673
	Return	2.5m	3m	Mains power 24V AC/DC	-	Modbus	kWh	187F2686
	Supply	2.5m	3m	Mains power 230V	-	BACnet	kWh	187F2699
	Supply	2.5m	3m	Mains power 24V AC/DC	-	BACnet	kWh	187F2712
	Supply	2.5m	3m	Mains power 24V AC/DC	-	Modbus	kWh	187F2733
	Return	2.5m	3m	Mains power 230V	-	BACnet	kWh	187F2746
Return	2.5m	3m	Mains power 24V AC/DC	-	BACnet	kWh	187F2759	
DN50 qp15m <sup>3</sup> /h flange 270mm	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	Mbus	-	kWh	187F2618
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	Mbus	-	kWh	187F2619
	Return	2.5m	3m	Battery 3.6V DC (2 AA-cell)	Mbus+OMS	-	kWh	187F2635
	Return	2.5m	3m	Mains power 230V	Mbus	-	kWh	187F2648
	Return	2.5m	3m	Mains power 230V	Mbus+OMS	-	kWh	187F2661
	Return	2.5m	3m	Mains power 230V	-	Modbus	kWh	187F2674
	Return	2.5m	3m	Mains power 24V AC/DC	-	Modbus	kWh	187F2687
	Supply	2.5m	3m	Mains power 230V	-	BACnet	kWh	187F2700
	Supply	2.5m	3m	Mains power 24V AC/DC	-	BACnet	kWh	187F2713
	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	Mbus	-	kWh	187F2717
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	Mbus	-	kWh	187F2718
	Supply	2.5m	3m	Mains power 24V AC/DC	-	Modbus	kWh	187F2734
	Return	2.5m	3m	Mains power 230V	-	BACnet	kWh	187F2747
Return	2.5m	3m	Mains power 24V AC/DC	-	BACnet	kWh	187F2760	
DN65 qp25m <sup>3</sup> /h flange 300mm	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	Mbus	-	MWh	187F2620
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	Mbus	-	MWh	187F2621
	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	Mbus+OMS	-	MWh	187F2636
	Return	5m	5m	Mains power 230V	Mbus	-	MWh	187F2649
	Return	5m	5m	Mains power 230V	Mbus+OMS	-	MWh	187F2662
	Return	5m	5m	Mains power 230V	-	Modbus	MWh	187F2675
	Return	5m	5m	Mains power 24V AC/DC	-	Modbus	MWh	187F2688
	Supply	5m	5m	Mains power 230V	-	BACnet	MWh	187F2701
	Supply	5m	5m	Mains power 24V AC/DC	-	BACnet	MWh	187F2714
	Return	5m	10m	Battery 3.6V DC (2 AA-cell)	Mbus	-	kWh	187F2719
	Supply	5m	10m	Battery 3.6V DC (2 AA-cell)	Mbus	-	kWh	187F2720
	Supply	5m	5m	Mains power 24V AC/DC	-	Modbus	MWh	187F2735
	Return	5m	5m	Mains power 230V	-	BACnet	MWh	187F2748
	Return	5m	5m	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 flange 300mm	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	MWh	<b>187F2622</b>
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	MWh	<b>187F2623</b>
	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	MWh	<b>187F2637</b>
	Return	5m	5m	Mains power 230V	MBus	-	MWh	<b>187F2650</b>
	Return	5m	5m	Mains power 230V	MBus+OMS	-	MWh	<b>187F2663</b>
	Return	5m	5m	Mains power 230V	-	Modbus	MWh	<b>187F2676</b>
	Return	5m	5m	Mains power 24V AC/DC	-	Modbus	MWh	<b>187F2689</b>
	Supply	5m	5m	Mains power 230V	-	BACnet	MWh	<b>187F2702</b>
	Supply	5m	5m	Mains power 24V AC/DC	-	BACnet	MWh	<b>187F2715</b>
	Return	5m	10m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	<b>187F2721</b>
	Supply	5m	10m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	<b>187F2722</b>
	Supply	5m	5m	Mains power 24V AC/DC	-	Modbus	MWh	<b>187F2736</b>
	Return	5m	5m	Mains power 230V	-	BACnet	MWh	<b>187F2749</b>
	Return	5m	5m	Mains power 24V AC/DC	-	BACnet	MWh	<b>187F2762</b>
DN100 qp60m <sup>3</sup> /h flange 360mm	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	MWh	<b>187F2624</b>
	Supply	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus	-	MWh	<b>187F2625</b>
	Return	5m	5m	Battery 3.6V DC (2 AA-cell)	MBus+OMS	-	MWh	<b>187F2638</b>
	Return	5m	5m	Mains power 230V	MBus	-	MWh	<b>187F2651</b>
	Return	5m	5m	Mains power 230V	MBus+OMS	-	MWh	<b>187F2664</b>
	Return	5m	5m	Mains power 230V	-	Modbus	MWh	<b>187F2677</b>
	Return	5m	5m	Mains power 24V AC/DC	-	Modbus	MWh	<b>187F2690</b>
	Supply	5m	5m	Mains power 230V	-	BACnet	MWh	<b>187F2703</b>
	Supply	5m	5m	Mains power 24V AC/DC	-	BACnet	MWh	<b>187F2716</b>
	Return	5m	10m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	<b>187F2723</b>
	Supply	5m	10m	Battery 3.6V DC (2 AA-cell)	MBus	-	kWh	<b>187F2724</b>
	Supply	5m	5m	Mains power 24V AC/DC	-	Modbus	MWh	<b>187F2737</b>
	Return	5m	5m	Mains power 230V	-	BACnet	MWh	<b>187F2750</b>
	Return	5m	5m	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>



**Danfoss A/S**

Climate Solutions • danfoss.com • +45 7488 2222

Any information, including, but not limited to information on selection of product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals, catalogues descriptions, advertisements, etc. and whether made available in writing, orally, electronically, online or via download, shall be considered informative, and is only binding if and to the extent, explicit reference is made in a quotation or order confirmation. Danfoss cannot accept any responsibility for possible errors in catalogues, brochures, videos and other material. Danfoss reserves the right to alter its products without notice. This also applies to products ordered but not delivered provided that such alterations can be made without changes to form, fit or function of the product.

All trademarks in this material are property of Danfoss A/S or Danfoss group companies. Danfoss and the Danfoss logo are trademarks of Danfoss A/S. All rights reserved.