

# Product Catalog



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## Legend

Abbreviation	Identification
2-LT	2-wire technology
AH	Positioning ring on sensor cable
DN	Nominal diameter
EAS	Single pipe connection piece
ESH	Single jet flow meter
FL	Flanged connection
IA	Pulse output (1 IA = energy; volume can be changed per Device Monitor) Heat meter: 2 IA (2 pulse outputs) transmit energy and volume pulses Heat and cooling meter: 2 IA transmit heat energy and cooling energy pulses
IP	Protection class
KH	Ball valve
M-Bus	M-Bus-interface galvanically separated (data record)
MID	Measuring Instruments Directive (European approval)
MSH Typ A (Allmess/Itron)	Multi-jet flow sensor for metering points with M77x1,5-thread
MSH Typ M (Minol)	Multi-jet flow sensor for metering points with M60x1,5-thread
MSH Typ Q	Multi-jet flow sensor for inline installation, metering points 110 mm and 130 mm
MSH Typ I (Ista)	Multi-jet flow sensor for installation points with 2"-thread
MSH Typ T (Techem)	Multi-jet flow sensor for installation points with M62x2-thread
MTH	Multi-jet flow sensor, dry running, hard storage
NET	Mains connection
o.Fü.	Delivery without temperature sensor
PN	Nominal pressure
PTB	Physikalisch-Technische Bundesanstalt (German National Metrology Institute)
qp	Nominal flow
S / F	Standpipe mounting / Fall pipe mounting
US	Ultrasonic flow meter
UTS	Universal temperature sensor
V	Threaded connection
W	Horizontal mounting
WP	Woltmann flow sensor type WP - horizontal or vertical mounting position
WS	Woltmann flow sensor type WS - horizontal mounting position
UPK	In-wall case
VZ	Valve meter
ZHZ	Tap water meter
WTZ	Wash stand water meter

Note: Product information on images are only exemplary for demonstration purposes and are subject to change.

**Compact heat meters with single-jet flow sensor,  
for metering points with 110 or 130 mm installation length**

**SensoStar E (Single-jet)**

- Dynamic temperature measuring cycle 2/60 sec.
- Large, easy-to-read display
- 15 monthly and half-monthly values readable in display
- Backflow detection
- Optical interface
- Installation in return flow
- Return flow temperature sensor integrated
- Forward flow temperature sensor with 1,5 m connecting cable
- Silicone cable for the temperature sensors
- Including seals
- 50 cm connection cable and wall-mounting set for detachable calculator



Type	Nominal size qp	Length [mm]	DN	Connection	Temp.sensor Ø [mm]	Option	Article number*
Calculator not detachable							
E	0,6	110	15	G¾B	5,0	Module slot	ACAA000001
E	1,5	110	15	G¾B	5,0	Module slot	ACAB000004
E	1,5	130	20	G1B	5,0	Module slot	ACAB009729
E	2,5	130	20	G1B	5,0	Module slot	ACAC000008
E	0,6	110	15	G¾B	5,0	M-Bus (module installed)	ACAA000020
E	1,5	110	15	G¾B	5,0	M-Bus (module installed)	ACAB000010
E	1,5	130	20	G1B	5,0	M-Bus (module installed)	ACAB009741
E	2,5	130	20	G1B	5,0	M-Bus (module installed)	ACAC000011
E	0,6	110	15	G¾B	5,0	Radio (integrated)	ACAA000326
E	1,5	110	15	G¾B	5,0	Radio (integrated)	ACAB000327
E	1,5	130	20	G1B	5,0	Radio (integrated)	ACAB021044
E	2,5	130	20	G1B	5,0	Radio (integrated)	ACAC021045
Calculator detachable							
E	0,6	110	15	G¾B	5,0	Module slot	ACAA000015
E	1,5	110	15	G¾B	5,0	Module slot	ACAB000016
E	1,5	130	20	G1B	5,0	Module slot	ACAB009745
E	2,5	130	20	G1B	5,0	Module slot	ACAC000017
E	0,6	110	15	G¾B	5,0	M-Bus (module installed)	ACAA000009
E	1,5	110	15	G¾B	5,0	M-Bus (module installed)	ACAB000021
E	1,5	130	20	G1B	5,0	M-Bus (module installed)	ACAB009752
E	2,5	130	20	G1B	5,0	M-Bus (module installed)	ACAC000022
E	0,6	110	15	G¾B	5,0	Radio (integrated)	ACAA000026
E	1,5	110	15	G¾B	5,0	Radio (integrated)	ACAB000027
E	1,5	130	20	G1B	5,0	Radio (integrated)	ACAB009756
E	2,5	130	20	G1B	5,0	Radio (integrated)	ACAC000028

Note: Meters until 130mm length are packed as maximum 12 single-packed compact meters in one box.

\*The shown article numbers are examples. Changes occur if options are added.

Type	Nominal size qp	Length [mm]	DN	Connection	Temp.sensor Ø [mm]	Option	Article number*
Calculator not detachable							
E	0,6	110	15	G¾B	5,2	Module slot	ACAA000031
E	1,5	110	15	G¾B	5,2	Module slot	ACAB000032
E	1,5	130	20	G1B	5,2	Module slot	ACAB009758
E	2,5	130	20	G1B	5,2	Module slot	ACAC000033
E	0,6	110	15	G¾B	5,2	M-Bus (module installed)	ACAA000034
E	1,5	110	15	G¾B	5,2	M-Bus (module installed)	ACAB000035
E	1,5	130	20	G1B	5,2	M-Bus (module installed)	ACAB009760
E	2,5	130	20	G1B	5,2	M-Bus (module installed)	ACAC000036
E	0,6	110	15	G¾B	5,2	Radio (integrated)	ACAA021059
E	1,5	110	15	G¾B	5,2	Radio (integrated)	ACAB021061
E	1,5	130	20	G1B	5,2	Radio (integrated)	ACAB021062
E	2,5	130	20	G1B	5,2	Radio (integrated)	ACAC021063
Calculator detachable							
E	0,6	110	15	G¾B	5,2	Module slot	ACAA000040
E	1,5	110	15	G¾B	5,2	Module slot	ACAB000041
E	1,5	130	20	G1B	5,2	Module slot	ACAB009764
E	2,5	130	20	G1B	5,2	Module slot	ACAC000042
E	0,6	110	15	G¾B	5,2	M-Bus (module installed)	ACAA000043
E	1,5	110	15	G¾B	5,2	M-Bus (module installed)	ACAB000044
E	1,5	130	20	G1B	5,2	M-Bus (module installed)	ACAB009766
E	2,5	130	20	G1B	5,2	M-Bus (module installed)	ACAC000045
E	0,6	110	15	G¾B	5,2	Radio (integrated)	ACAA000049
E	1,5	110	15	G¾B	5,2	Radio (integrated)	ACAB000050
E	1,5	130	20	G1B	5,2	Radio (integrated)	ACAB009770
E	2,5	130	20	G1B	5,2	Radio (integrated)	ACAC000051

Note: Meters until 130mm length are packed as maximum 12 single-packed compact meters in one box.

\*The shown article numbers are examples. Changes occur if options are added.

**For more options see page 6**

**Refitting and exchange modules see page 26**

## Options for compact heat and cooling meters

### **SensoStar E**

installed at factory

Installation in forward flow	
Surcharge for glycol meters (solar systems) - Standard Ethylene glycol 30%	
Surcharge cooling meter (incl. programming), only available with removable calculator (not for qp 0,6)	
Surcharge heat and cooling meter (incl. programming)	
Temperature sensors Ø 6,0 mm ONLY symmetrical	
Forward flow temperature sensor cable, length 3 m (asymmetrical = return flow temp. sensor integrated)	
Forward flow temperature sensor cable, length 6 m (asymmetrical = return flow temp. sensor integrated)	
Forward and return flow temperature sensor cable, length 1,5 m (symmetrical = both temp. sensors outside)	
Forward and return flow temperature sensor cable, length 3 m (symmetrical = both temp. sensors outside)	
Forward and return flow temperature sensor cable, length 6 m (symmetrical = both temp. sensors outside)	
3 pulse inputs (for meters with Radio or M-bus)	
2 pulse outputs	
LoRaWAN module	
NB-IoT module	
Modbus module	

<b>Special programming (order related)</b>	
Special programming for glycol meters (Glycol type propylene or ethylene & concentration)	
Special programming for individual reading date (Standard 31.12.)	
Pre-programmed primary M-Bus address	
Pre-programmed secondary M-Bus address	
Other individual programming	

**Compact heat meters** with multi-jet flow sensor,  
compatible with 2" EAS (single pipe connection piece), acc. to EN 4064 - IST 2" (old EN 14154)

**SensoStar I** (Ista)

- Dynamic temperature measuring cycle 2/60 sec.
- Large, easy-to-read display
- 15 monthly and half-monthly values readable in display
- Backflow detection
- Optical interface
- Installation in return flow
- Return flow temperature sensor integrated
- Forward flow temperature sensor with 1,5 m connecting cable
- Silicone cable for the temperature sensors
- Including seals
- 50 cm connection cable and wall-mounting set for detachable calculator



Type	Nominal size qp			Temp.sensor Ø [mm]	Option	Article number*	
Calculator detachable							
I	0,6			5,0	Module slot	ACBA000061	
I	1,5			5,0	Module slot	ACBB000064	
I	2,5			5,0	Module slot	ACBC000063	
I	0,6			5,0	M-Bus (module installed)	ACBA000065	
I	1,5			5,0	M-Bus (module installed)	ACBB000066	
I	2,5			5,0	M-Bus (module installed)	ACBC000067	
I	0,6			5,0	Radio (integrated)	ACBA000071	
I	1,5			5,0	Radio (integrated)	ACBB000072	
I	2,5			5,0	Radio (integrated)	ACBC000073	

Note: Meters are packed as maximum 12 single-packed compact meters in one box.

\*The shown article numbers are examples. Changes occur if options are added.

Type	Nominal size qp			Temp.sensor $\varnothing$ [mm]	Option	Article number*	
Calculator detachable							
I	0,6			5,2	Module slot	ACBA000084	
I	1,5			5,2	Module slot	ACBB000085	
I	2,5			5,2	Module slot	ACBC000086	
I	0,6			5,2	M-Bus (module installed)	ACBA000087	
I	1,5			5,2	M-Bus (module installed)	ACBB000088	
I	2,5			5,2	M-Bus (module installed)	ACBC000089	
I	0,6			5,2	Radio (integrated)	ACBA000093	
I	1,5			5,2	Radio (integrated)	ACBB000094	
I	2,5			5,2	Radio (integrated)	ACBC000095	

Note: Meters are packed as maximum 12 single-packed compact meters in one box.

\*The shown article numbers are examples. Changes occur if options are added.

**For more options see page 9**

**Refitting and exchange modules see page 26**



## Options for compact heat and cooling meters

### **SensoStar I**

installed at factory

Installation in forward flow	
Surcharge for glycol meters (solar systems) - Standard Ethylene glycol 30%	
Surcharge cooling meter (incl. programming), only available with removable calculator (not for qp 0,6)	
Surcharge heat and cooling meter (incl. programming)	
Temperature sensors Ø 6,0 mm ONLY symmetrical	
Forward flow temperature sensor cable, length 3 m (asymmetrical = return flow temp. sensor integrated)	
Forward flow temperature sensor cable, length 6 m (asymmetrical = return flow temp. sensor integrated)	
Forward and return flow temperature sensor cable, length 1,5 m (symmetrical = both temp. sensors outside)	
Forward and return flow temperature sensor cable, length 3 m (symmetrical = both temp. sensors outside)	
Forward and return flow temperature sensor cable, length 6 m (symmetrical = both temp. sensors outside)	
3 pulse inputs (for meters with Radio or M-bus)	
2 pulse outputs	
LoRaWAN module	
NB-IoT module	
Modbus module	

<b>Special programming (order related)</b>	
Special programming for glycol meters (Glycol type propylene or ethylene & concentration)	
Special programming for individual reading date (Standard 31.12.)	
Pre-programmed primary M-Bus address	
Pre-programmed secondary M-Bus address	
Other individual programming	

**Compact heat meters with multi-jet flow sensor,  
for metering points with 110 or 130 mm installation length**

**SensoStar Q**

- Dynamic temperature measuring cycle 2/60 sec.
- Large, easy-to-read display
- 15 monthly and half-monthly values readable in display
- Backflow detection
- Optical interface
- Installation in return flow
- Return flow temperature sensor integrated
- Forward flow temperature sensor with 1,5 m connecting cable
- Silicone cable for the temperature sensors
- Including seals
- 50 cm connection cable and wall-mounting set for detachable calculator



Type	Nominal size qp	Length [mm]	DN	Connection	Temp.sensor Ø [mm]	Option	Article number*
<b>Calculator not detachable</b>							
Q	0,6	110	15	G¾B	5,0	Module slot	ACDA000096
Q	1,5	110	15	G¾B	5,0	Module slot	ACDB000097
Q	2,5	130	20	G1B	5,0	Module slot	ACDC000098
Q	0,6	110	15	G¾B	5,0	M-Bus (module installed)	ACDA000099
Q	1,5	110	15	G¾B	5,0	M-Bus (module installed)	ACDB000100
Q	2,5	130	20	G1B	5,0	M-Bus (module installed)	ACDC000101
Q	0,6	110	15	G¾B	5,0	Radio (integrated)	ACDA021109
Q	1,5	110	15	G¾B	5,0	Radio (integrated)	ACDB008276
Q	2,5	130	20	G1B	5,0	Radio (integrated)	ACDC008277
<b>Calculator detachable</b>							
Q	0,6	110	15	G¾B	5,0	Module slot	ACDA000105
Q	1,5	110	15	G¾B	5,0	Module slot	ACDB000106
Q	2,5	130	20	G1B	5,0	Module slot	ACDC000107
Q	0,6	110	15	G¾B	5,0	M-Bus (module installed)	ACDA000108
Q	1,5	110	15	G¾B	5,0	M-Bus (module installed)	ACDB000109
Q	2,5	130	20	G1B	5,0	M-Bus (module installed)	ACDC000110
Q	0,6	110	15	G¾B	5,0	Radio (integrated)	ACDA000114
Q	1,5	110	15	G¾B	5,0	Radio (integrated)	ACDB000115
Q	2,5	130	20	G1B	5,0	Radio (integrated)	ACDC000116

Note: Meters until 130mm length are packed as maximum 12 single-packed compact meters in one box.

\*The shown article numbers are examples. Changes occur if options are added.

Type	Nominal size qp	Length [mm]	DN	Connection	Temp.sensor Ø [mm]	Option	Article number*	
<b>Calculator not detachable</b>								
Q	0,6	110	15	G¾B	5,2	Module slot	ACDA000117	
Q	1,5	110	15	G¾B	5,2	Module slot	ACDB000118	
Q	2,5	130	20	G1B	5,2	Module slot	ACDC000119	
Q	0,6	110	15	G¾B	5,2	M-Bus (module installed)	ACDA000120	
Q	1,5	110	15	G¾B	5,2	M-Bus (module installed)	ACDB000121	
Q	2,5	130	20	G1B	5,2	M-Bus (module installed)	ACDC000122	
Q	0,6	110	15	G¾B	5,2	Radio (integrated)	ACDA021374	
Q	1,5	110	15	G¾B	5,2	Radio (integrated)	ACDB021144	
Q	2,5	130	20	G1B	5,2	Radio (integrated)	ACDC021145	
<b>Calculator detachable</b>								
Q	0,6	110	15	G¾B	5,2	Module slot	ACDA000126	
Q	1,5	110	15	G¾B	5,2	Module slot	ACDB000127	
Q	2,5	130	20	G1B	5,2	Module slot	ACDC000128	
Q	0,6	110	15	G¾B	5,2	M-Bus (module installed)	ACDA000129	
Q	1,5	110	15	G¾B	5,2	M-Bus (module installed)	ACDB000130	
Q	2,5	130	20	G1B	5,2	M-Bus (module installed)	ACDC000131	
Q	0,6	110	15	G¾B	5,2	Radio (integrated)	ACDA000135	
Q	1,5	110	15	G¾B	5,2	Radio (integrated)	ACDB000136	
Q	2,5	130	20	G1B	5,2	Radio (integrated)	ACDC000137	

Note: Meters until 130mm length are packed as maximum 12 single-packed compact meters in one box.

\*The shown article numbers are examples. Changes occur if options are added.

**For more options see page 12**

**Refitting and exchange modules see page 26**

## Options for compact heat and cooling meters

### SensoStar Q

installed at factory

Installation in forward flow	
Surcharge for glycol meters (solar systems) - Standard Ethylene glycol 30%	
Surcharge cooling meter (incl. programming), only available with removable calculator (not for qp 0,6)	
Surcharge heat and cooling meter (incl. programming)	
Temperature sensors Ø 6,0 mm ONLY symmetrical	
Forward flow temperature sensor cable, length 3 m (asymmetrical = return flow temp. sensor integrated)	
Forward flow temperature sensor cable, length 6 m (asymmetrical = return flow temp. sensor integrated)	
Forward and return flow temperature sensor cable, length 1,5 m (symmetrical = both temp. sensors outside)	
Forward and return flow temperature sensor cable, length 3 m (symmetrical = both temp. sensors outside)	
Forward and return flow temperature sensor cable, length 6 m (symmetrical = both temp. sensors outside)	
3 pulse inputs (for meters with Radio or M-bus)	
2 pulse outputs	
LoRaWAN module	
NB-IoT module	
Modbus module	

<b>Special programming (order related)</b>	
Special programming for glycol meters (Glycol type propylene or ethylene & concentration)	
Special programming for individual reading date (Standard 31.12.)	
Pre-programmed primary M-Bus address	
Pre-programmed secondary M-Bus address	
Other individual programming	

**Compact heat meters with multi-jet flow sensor,**  
compatible with connection piece M77x1,5 (1"), acc. to EN 4064 - A1 (old EN 14154)

**SensoStar A** (Allmess/Itron)

- Dynamic temperature measuring cycle 2/60 sec.
- Large, easy-to-read display
- 15 monthly and half-monthly values readable in display
- Backflow detection
- Optical interface
- Installation in return flow
- Return sensor 50 cm connection cable
- Forward flow temperature sensor with 1,5 m connecting cable
- Silicone cable for the temperature sensors
- Including seals



Type	Nominal size qp		Temp.sensor Ø [mm]	Option	Article number*
<b>Calculator detachable</b>					
A	0,6		6,0	Module slot	ACCA000138
A	1,5		6,0	Module slot	ACCB000139
A	2,5		6,0	Module slot	ACCC0001276
A	0,6		6,0	M-Bus (module installed)	ACCA000141
A	1,5		6,0	M-Bus (module installed)	ACCB000142
A	2,5		6,0	M-Bus (module installed)	ACCC000143
A	0,6		6,0	Radio (integrated)	ACCA000147
A	1,5		6,0	Radio (integrated)	ACCB000148
A	2,5		6,0	Radio (integrated)	ACCC000149

Note: Meters are packed as maximum 12 single-packed compact meters in one box.

\*The shown article numbers are examples. Changes occur if options are added.

<b>Options for compact heat and cooling meters SensoStar A (installed at factory)</b>	
Installation in forward flow	
Surcharge for glycol meters (solar systems) - Standard Ethylene glycol 30%	
Surcharge cooling meter (incl. programming), only available with removable calculator (not for qp 0,6)	
Surcharge heat and cooling meter (incl. programming)	
Temperature sensors Ø 5,0 or 5,2 mm ONLY symmetrical	
Forward flow temperature sensor cable, length 3 m (asymmetrical = return flow temp. sensor 0,5 m cable length)	
Forward flow temperature sensor cable, length 6 m (asymmetrical = return flow temp. sensor 0,5 m cable length)	
Forward and return flow temperature sensor cable, length 1,5 m (symmetrical = both temp. sensors outside)	
Forward and return flow temperature sensor cable, length 3 m (symmetrical = both temp. sensors outside)	
Forward and return flow temperature sensor cable, length 6 m (symmetrical = both temp. sensors outside)	
3 pulse inputs (for meters with Radio or M-bus)	
2 pulse outputs	
LoRaWAN module	
NB-IoT module	
Modbus module	

<b>Special programming (order related)</b>	
Special programming for glycol meters (Glycol type propylene or ethylene & concentration)	
Special programming for individual reading date (Standard 31.12.)	
Pre-programmed primary M-Bus address	
Pre-programmed secondary M-Bus address	
Other individual programming	

**Refitting and exchange modules see page 26**

**Compact heat meters with multi-jet flow sensor,**  
compatible with connection piece M62x2, acc. to EN 4064 - TE1 (old EN 14154)

**SensoStar T (Techem)**

- Dynamic temperature measuring cycle 2/60 sec.
- Large, easy-to-read display
- 15 monthly and half-monthly values readable in display
- Backflow detection
- Optical interface
- Installation in return flow
- Return flow temperature sensor integrated
- Forward flow temperature sensor with 1,5 m connecting cable
- Silicone cable for the temperature sensors
- Including seals
- 50 cm connection cable and wall-mounting set for detachable calculator



Type	Nominal size qp			Temp.sensor Ø [mm]	Option	Article number*	
<b>Calculator detachable</b>							
T	0,6			5,2	Module slot	ACFA000150	
T	1,5			5,2	Module slot	ACFB000165	
T	2,5			5,2	Module slot	ACFC003306	
T	0,6			5,2	M-Bus (module installed)	ACFA000158	
T	1,5			5,2	M-Bus (module installed)	ACFB000159	
T	2,5			5,2	M-Bus (module installed)	ACFC000160	
T	0,6			5,2	Radio (integrated)	ACFA000329	
T	1,5			5,2	Radio (integrated)	ACFB000330	
T	2,5			5,2	Radio (integrated)	ACFC000331	

Note: Meters are packed as maximum 12 single-packed compact meters in one box.

\*The shown article numbers are examples. Changes occur if options are added.

<b>Options for compact heat and cooling meters SensoStar T (installed at factory)</b>	
Installation in forward flow	
Surcharge for glycol meters (solar systems) - Standard Ethylene glycol 30%	
Surcharge cooling meter (incl. programming), only available with removable calculator (not for qp 0,6)	
Surcharge heat and cooling meter (incl. programming)	
Temperature sensors Ø 5,0 mm	
Temperature sensors Ø 6,0 mm ONLY symmetrical	
Forward flow temperature sensor cable, length 3 m (asymmetrical = return flow temp. sensor integrated)	
Forward flow temperature sensor cable, length 6 m (asymmetrical = return flow temp. sensor integrated)	
Forward and return flow temperature sensor cable, length 1,5 m (symmetrical = both temp. sensors outside)	
Forward and return flow temperature sensor cable, length 3 m (symmetrical = both temp. sensors outside)	
Forward and return flow temperature sensor cable, length 6 m (symmetrical = both temp. sensors outside)	
3 pulse inputs (for meters with Radio or M-bus)	
2 pulse outputs	
LoRaWAN module	
NB-IoT module	
Modbus module	

<b>Special programming (order related)</b>	
Special programming for glycol meters (Glycol type propylene or ethylene & concentration)	
Special programming for individual reading date (Standard 31.12.)	
Pre-programmed primary M-Bus address	
Pre-programmed secondary M-Bus address	
Other individual programming	

**Refitting and exchange modules see page 26**

**Compact heat meters with multi-jet flow sensor,**  
compatible with connection piece M60x1,5, acc. to EN 4064 - M60 (old EN 14154)

**SensoStar M (Minol)**

- Dynamic temperature measuring cycle 2/60 sec.
- Large, easy-to-read display
- 15 monthly and half-monthly values readable in display
- Backflow detection
- Optical interface
- Installation in return flow
- Return flow temperature sensor integrated
- Forward flow temperature sensor with 1,5 m connecting cable
- Silicone cable for the temperature sensors
- Including seals
- 50 cm connection cable and wall-mounting set for detachable calculator



Type	Nominal size qp			Temp.sensor Ø [mm]	Option	Article number*	
<b>Calculator detachable</b>							
M	0,6			5,0	Module slot	ACGA000166	
M	1,5			5,0	Module slot	ACGB000167	
M	2,5			5,0	Module slot	ACGC000168	
M	0,6			5,0	M-Bus (module installed)	ACGA000169	
M	1,5			5,0	M-Bus (module installed)	ACGB000170	
M	2,5			5,0	M-Bus (module installed)	ACGC000172	
M	0,6			5,0	Radio (integrated)	ACGA000176	
M	1,5			5,0	Radio (integrated)	ACGB000177	
M	2,5			5,0	Radio (integrated)	ACGC000178	

Note: Meters are packed as maximum 12 single-packed compact meters in one box.

\*The shown article numbers are examples. Changes occur if options are added.

<b>Options for compact heat and cooling meters SensoStar M (installed at factory)</b>	
Installation in forward flow	
Surcharge for glycol meters (solar systems) - Standard Ethylene glycol 30%	
Surcharge cooling meter (incl. programming), only available with removable calculator (not for qp 0,6)	
Surcharge heat and cooling meter (incl. programming)	
Temperature sensors Ø 5,2 mm	
Temperature sensors Ø 6,0 mm ONLY symmetrical	
Forward flow temperature sensor cable, length 3 m (asymmetrical = return flow temp. sensor integrated)	
Forward flow temperature sensor cable, length 6 m (asymmetrical = return flow temp. sensor integrated)	
Forward and return flow temperature sensor cable, length 1,5 m (symmetrical = both temp. sensors outside)	
Forward and return flow temperature sensor cable, length 3 m (symmetrical = both temp. sensors outside)	
Forward and return flow temperature sensor cable, length 6 m (symmetrical = both temp. sensors outside)	
3 pulse inputs (for meters with Radio or M-bus)	
2 pulse outputs	
LoRaWAN module	
NB-IoT module	
Modbus module	

<b>Special programming (order related)</b>	
Special programming for glycol meters (Glycol type propylene or ethylene & concentration)	
Special programming for individual reading date (Standard 31.12.)	
Pre-programmed primary M-Bus address	
Pre-programmed secondary M-Bus address	
Other individual programming	

**Refitting and exchange modules see page 26**

## Compact heat meters with ultrasonic flow sensor

### SensoStar U (Ultrasonic)

- dynamic temperature measurement: 2/60 sec.
- 15 monthly and half-monthly values readable in display
- back flow detection
- large, easy-to-read display
- optical interface
- installation in return flow
- return flow temperature sensor integrated
- forward flow temperature sensor with 1,5 m connecting cable
- calculator detachable, connection cable 85 cm, incl. wall-mounting set



Type	Nominal size qp	Length [mm]	DN	Connection	Temp.sensor Ø [mm]	Option	Article number*
U	0,6	110	15	G3/4B	5,0	Module slot	BDAA000179
U	0,6	190	20	G1B	5,0	Module slot	BDCA069410
U	1,5	105	20	G1B	5,0	Module slot	BDJB069407
U	1,5	110	15	G3/4B	5,0	Module slot	BDAB000180
U	1,5	130	20	G1B	5,0	Module slot	BDBB003551
U	1,5	190	20	G1B	5,0	Module slot	BDCB069411
U	2,5	105	20	G1B	5,0	Module slot	BDJC069302
U	2,5	130	20	G1B	5,0	Module slot	BDBC000181
U	2,5	190	20	G1B	5,0	Module slot	BDCC069412
U	2,5	260	25	G1 1/4B	5,0	Module slot	BDGC069621
U	0,6	110	15	G3/4B	5,0	M-Bus (module installed)	BDAA000184
U	0,6	190	20	G1B	5,0	M-Bus (module installed)	BDCA069418
U	1,5	105	20	G1B	5,0	M-Bus (module installed)	BDJB069414
U	1,5	110	15	G3/4B	5,0	M-Bus (module installed)	BDAB000185
U	1,5	130	20	G1B	5,0	M-Bus (module installed)	BDBB008032
U	1,5	190	20	G1B	5,0	M-Bus (module installed)	BDCB069419
U	2,5	105	20	G1B	5,0	M-Bus (module installed)	BDJC069415
U	2,5	130	20	G1B	5,0	M-Bus (module installed)	BDBC000186
U	2,5	190	20	G1B	5,0	M-Bus (module installed)	BDCC069420
U	2,5	260	25	G1 1/4B	5,0	M-Bus (module installed)	BDGC069622
U	0,6	110	15	G3/4B	5,0	Radio (integrated)	BDAA000199
U	0,6	190	20	G1B	5,0	Radio (integrated)	BDCA069447
	1,5	105	20	G1B	5,0	Radio (integrated)	BDJB069434
U	1,5	110	15	G3/4B	5,0	Radio (integrated)	BDAB000200
U	1,5	130	20	G1B	5,0	Radio (integrated)	BDBB008035
U	1,5	190	20	G1B	5,0	Radio (integrated)	BDCB069448
U	2,5	105	20	G1B	5,0	Radio (integrated)	BDJC069435
U	2,5	130	20	G1B	5,0	Radio (integrated)	BDBC000201
U	2,5	190	20	G1B	5,0	Radio (integrated)	BDCC069449
U	2,5	260	25	G1 1/4B	5,0	Radio (integrated)	BDGC069646

Note: Meters until 130 mm length are packed as maximum 12 single-packed compact meters in one box. From 150 mm length on, 6 single-packed compact meters are packed in one box.

\*The shown article numbers are examples. Changes occur if options are added.



Type	Nominal size qp	Length [mm]	DN	Connection	Temp.sensor Ø [mm]	Option	Article number*
U	0,6	110	15	G3/4B	5,2	Module slot	BDAA000209
U	0,6	190	20	G1B	5,2	Module slot	BDCA069499
U	1,5	105	20	G1B	5,2	Module slot	BDJB069494
U	1,5	110	15	G3/4B	5,2	Module slot	BDAB000210
U	1,5	130	20	G1B	5,2	Module slot	BDBB008038
U	1,5	190	20	G1B	5,2	Module slot	BDCB069500
U	2,5	105	20	G1B	5,2	Module slot	BDJC069496
U	2,5	130	20	G1B	5,2	Module slot	BDBC000211
U	2,5	190	20	G1B	5,2	Module slot	BDCC069501
U	2,5	260	25	G1 1/4B	5,2	Module slot	BDGC069497
U	0,6	110	15	G3/4B	5,2	M-Bus (module installed)	BDAA000216
U	0,6	190	20	G1B	5,2	M-Bus (module installed)	BDCA069538
U	1,5	105	20	G1B	5,2	M-Bus (module installed)	BDJB069504
U	1,5	110	15	G3/4B	5,2	M-Bus (module installed)	BDAB000217
U	1,5	130	20	G1B	5,2	M-Bus (module installed)	BDBB008039
U	1,5	190	20	G1B	5,2	M-Bus (module installed)	BDCB069539
U	2,5	105	20	G1B	5,2	M-Bus (module installed)	BDJC069505
U	2,5	130	20	G1B	5,2	M-Bus (module installed)	BDBC000218
U	2,5	190	20	G1B	5,2	M-Bus (module installed)	BDCC069540
U	2,5	260	25	G1 1/4B	5,2	M-Bus (module installed)	BDGC069536
U	0,6	110	15	G3/4B	5,2	Radio (integrated)	BDAA000231
U	0,6	190	20	G1B	5,2	Radio (integrated)	BDCA069610
U	1,5	105	20	G1B	5,2	Radio (integrated)	BDJB069606
U	1,5	110	15	G3/4B	5,2	Radio (integrated)	BDAB000232
U	1,5	130	20	G1B	5,2	Radio (integrated)	BDBB008042
U	1,5	190	20	G1B	5,2	Radio (integrated)	BDCB069611
U	2,5	105	20	G1B	5,2	Radio (integrated)	BDJC069607
U	2,5	130	20	G1B	5,2	Radio (integrated)	BDBC000233
U	2,5	190	20	G1B	5,2	Radio (integrated)	BDCC069612
U	2,5	260	25	G1 1/4B	5,2	Radio (integrated)	BDGC069608

Note: Meters until 130 mm length are packed as maximum 12 single-packed compact meters in one box.  
From 150 mm length on, 6 single-packed compact meters are packed in one box.

\*The shown article numbers are examples. Changes occur if options are added.

Options for compact heat and cooling meters <b>SensoStar U qp 0,6 - 2,5</b> (installed at factory)	
Installation in forward flow	
Surcharge cooling meter (incl. Programming; not for qp 0,6; approval: Germany, Austria and Swiss)	
Surcharge heat and cooling meter	
Forward flow temperature sensor cable, length 3 m (asymmetrical = return flow temp. sensor integrated)	
Forward flow temperature sensor cable, length 6 m (asymmetrical = return flow temp. sensor integrated)	
Forward flow temperature sensor cable, length 6 m, return flow temperature sensor 3 m (asymmetrical = return flow sensor integrated) needed in combination with connection cable 3 m (to be ordered separately, see below)	
Forward and return flow temperature sensor cable, length 3 m	
Forward and return flow temperature sensor cable, length 6 m	
Temperature sensors $\varnothing$ 6,0 mm (please select if integrated or outside)	
AGFW temperature sensors 27,5 mm (length 1,5 m) for direct mounting (not compatible with ultrasonic compact meters qp 10) (please specify symmetrical or asymmetrical installation)	
High temperature (heat till 130 °C; heat/cooling till 120 °C)	
Connection cable for detachable calculator 3 m. Please select cable length of temperature sensor (3 m or 6 m).	
3 pulse inputs (for meters with Radio or M-bus)	
2 pulse outputs	
LoRaWAN Modul	
NB-IoT Modul	
Modbus Modul	

<b>Special programming (order related)</b>	
Pre-programmed individual reading date (Standard 31.12.)	
Pre-programmed primary M-Bus address	
Pre-programmed secondary M-Bus address	
Other individual programming	

Type	Nominal size qp	Length [mm]	DN	Connection	Temp.sensor $\varnothing$ [mm]	Option	Article number*
U	3,5	130	20	G1B	5,0	Module slot	BDBD000182
U	3,5	150	25	G1 1/4B	5,0	Module slot	BDED000183
U	3,5	190	20	G1B	5,0	Module slot	BDCD069413
U	3,5	260	25	G1 1/4B	5,0	Module slot	BDGD069393
U	3,5	130	20	G1B	5,0	M-Bus (module installed)	BDBD000187
U	3,5	150	25	G1 1/4B	5,0	M-Bus (module installed)	BDED000188
U	3,5	190	20	G1B	5,0	M-Bus (module installed)	BDCD069426
U	3,5	260	25	G1 1/4B	5,0	M-Bus (module installed)	BDGD069417
U	3,5	130	20	G1B	5,0	Radio (integrated)	BDBD000202
U	3,5	150	25	G1 1/4B	5,0	Radio (integrated)	BDED000203
U	3,5	190	20	G1B	5,0	Radio (integrated)	BDCD069450
U	3,5	260	25	G1 1/4B	5,0	Radio (integrated)	BDGD069446

Note: Meters until 130 mm length are packed as maximum 12 single-packed compact meters in one box.

From 150 mm length on, 6 single-packed compact meters are packed in one box.

\*The shown article numbers are examples. Changes occur if options are added.

**Accessories see page 25**

**Refitting and exchange modules see page 26**

Type	Nominal size qp	Length [mm]	DN	Connection	Temp.sensor Ø [mm]	Option	Article number*
U	3,5	130	20	G1B	5,2	Module slot	BDDB000212
U	3,5	150	25	G1 1/4B	5,2	Module slot	BEDE000213
U	3,5	190	20	G1B	5,2	Module slot	BDGD069502
U	3,5	260	25	G1 1/4B	5,2	Module slot	BDGD069498
U	3,5	130	20	G1B	5,2	M-Bus (module installed)	BDDB000219
U	3,5	150	25	G1 1/4B	5,2	M-Bus (module installed)	BEDE000220
U	3,5	190	20	G1B	5,2	M-Bus (module installed)	BDGD069556
U	3,5	260	25	G1 1/4B	5,2	M-Bus (module installed)	BDGD069537
U	3,5	130	20	G1B	5,2	Radio (integrated)	BDDB000234
U	3,5	150	25	G1 1/4B	5,2	Radio (integrated)	BEDE000236
U	3,5	190	20	G1B	5,2	Radio (integrated)	BDGD069613
U	3,5	260	25	G1 1/4B	5,2	Radio (integrated)	BDGD069609

Note: Meters until 130 mm length are packed as maximum 12 single-packed compact meters in one box.  
From 150 mm length on, 6 single-packed compact meters are packed in one box.

\*The shown article numbers are examples. Changes occur if options are added.

Options for compact heat and cooling meters <b>SensoStar U qp 3,5</b> (installed at factory)
Installation in forward flow
Surcharge cooling meter (approval: Germany, Austria and Swiss)
Surcharge heat and cooling meter
Forward flow temperature sensor cable, length 3 m (asymmetrical = return flow temp. sensor integrated)
Forward flow temperature sensor cable, length 6 m (asymmetrical = return flow temp. sensor integrated)
Forward flow temperature sensor cable, length 6 m, return flow temperature sensor 3 m (asymmetrical = return flow sensor integrated) needed in combination with connection cable 3 m (to be ordered separately, see below)
Forward and return flow temperature sensor cable, length 3 m
Forward and return flow temperature sensor cable, length 6 m
Temperature sensors Ø 6,0 mm (please indicate whether symmetrical or asymmetrical)
AGFW temperature sensors 27,5 mm (length 1,5 m) for direct mounting (not compatible with ultrasonic compact meters qp 10) (please specify symmetrical or asymmetrical installation)
AGFW temperature sensors 38,0 mm (length 1.5 m) for direct mounting ONLY symmetrical
High temperature (heat till 130 °C; heat/cooling till 120 °C)
Connection cable for detachable calculator 3 m. Please select cable length of temperature sensor (3 m or 6 m).
3 pulse inputs (for meters with Radio or M-bus)
2 pulse outputs
LoRaWAN module
NB-IoT module
Modbus module
<b>Special programming (order related)</b>
Pre-programmed individual reading date (Standard 31.12.)
Pre-programmed primary M-Bus address
Pre-programmed secondary M-Bus address
Other individual programming

**Accessories see page 25**

**Refitting and exchange modules see page 26**

## Compact heat meters with ultrasonic flow sensor

### SensoStar U

- dynamic temperature measurement: 2/60 sec.
- 15 monthly and half-monthly values readable in display
- back flow detection
- large, easy-to-read display
- optical interface
- installation in return flow
- forward flow temperature sensor with 1,5 m connecting cable
- calculator detachable, connection cable 85 cm, incl. wall-mounting set



Type	Nominal size qp	Length [mm]	DN	Connection	Temp.sensor Ø [mm]	Option	Article number*
<b>Return flow temperature sensor 1,5 m integrated, forward flow temperature sensor with 1,5 m connecting cable (asymmetrical)</b>							
U	6,0	150	25	G1 1/4B	5,0	Module slot	BDEE000242
U	6,0	260	25	G1 1/4B	5,0	Module slot	BDGE000243
U	6,0	150	25	G1 1/4B	5,0	M-Bus (module installed)	BDEE000244
U	6,0	260	25	G1 1/4B	5,0	M-Bus (module installed)	BDGE000245
U	6,0	150	25	G1 1/4B	5,0	Radio (integrated)	BDEE000250
U	6,0	260	25	G1 1/4B	5,0	Radio (integrated)	BDGE000251

<b>Forward and return flow temperature sensor outside with 3 m connecting cable (symmetrical)</b>							
U	6,0	150	25	G1 1/4B	5,0	Module slot	BDEE000254
U	6,0	260	25	G1 1/4B	5,0	Module slot	BDGE000255
U	6,0	150	25	G1 1/4B	5,0	M-Bus (module installed)	BDEE000256
U	6,0	260	25	G1 1/4B	5,0	M-Bus (module installed)	BDGE000257
U	6,0	150	25	G1 1/4B	5,0	Radio (integrated)	BDEE000262
U	6,0	260	25	G1 1/4B	5,0	Radio (integrated)	BDGE000263

Note: Meters 150 mm and 260 mm length, 6 single-packed compact meters are packed in one box.

\*The shown article numbers are examples. Changes occur if options are added.

Type	Nominal size qp	Length [mm]	DN	Connection	Temp.sensor Ø [mm]	Option	Article number*
<b>Return flow temperature sensor 1,5 m integrated, forward flow temperature sensor with 1,5 m connecting cable (asymmetrical)</b>							
U	6,0	150	25	G1 1/4B	5,2	Module slot	BDEE000266
U	6,0	260	25	G1 1/4B	5,2	Module slot	BDGE000267
U	6,0	150	25	G1 1/4B	5,2	M-Bus (module installed)	BDEE000268
U	6,0	260	25	G1 1/4B	5,2	M-Bus (module installed)	BDGE000269
U	6,0	150	25	G1 1/4B	5,2	Radio (integrated)	BDEE000274
U	6,0	260	25	G1 1/4B	5,2	Radio (integrated)	BDGE000275
<b>Forward and return flow temperature sensor outside with 3 m connecting cable (symmetrical)</b>							
U	6,0	150	25	G1 1/4B	5,2	Module slot	BDEE000278
U	6,0	260	25	G1 1/4B	5,2	Module slot	BDGE000279
U	6,0	150	25	G1 1/4B	5,2	M-Bus (module installed)	BDEE000280
U	6,0	260	25	G1 1/4B	5,2	M-Bus (module installed)	BDGE000281
U	6,0	150	25	G1 1/4B	5,2	Radio (integrated)	BDEE000287
U	6,0	260	25	G1 1/4B	5,2	Radio (integrated)	BDGE000288
<b>Return flow temperature sensor 1,5 m integrated, forward flow temperature sensor with 1,5 m connecting cable (asymmetrical)</b>							
U	6,0	150	25	G1 1/4B	6,0	Module slot	BDEE000291
U	6,0	260	25	G1 1/4B	6,0	Module slot	BDGE000292
U	6,0	150	25	G1 1/4B	6,0	M-Bus (module installed)	BDEE000293
U	6,0	260	25	G1 1/4B	6,0	M-Bus (module installed)	BDGE000294
U	6,0	150	25	G1 1/4B	6,0	Radio (integrated)	BDEE000299
U	6,0	260	25	G1 1/4B	6,0	Radio (integrated)	BDGE000300
<b>Forward and return flow temperature sensor outside with 3 m connecting cable (symmetrical)</b>							
U	6,0	150	25	G1 1/4B	6,0	Module slot	BDEE000303
U	6,0	260	25	G1 1/4B	6,0	Module slot	BDGE000304
U	6,0	150	25	G1 1/4B	6,0	M-Bus (module installed)	BDEE000305
U	6,0	260	25	G1 1/4B	6,0	M-Bus (module installed)	BDGE000306
U	6,0	150	25	G1 1/4B	6,0	Radio (integrated)	BDEE000311
U	6,0	260	25	G1 1/4B	6,0	Radio (integrated)	BDGE000312

Note: Meters 150 mm and 260 mm length, 6 single-packed compact meters are packed in one box.

\*The shown article numbers are examples. Changes occur if options are added.

**Further options see page 18**

**Accessories see page 25**

**Refitting and exchange modules see page 26**

## Compact heat meters with ultrasonic flow sensor

### SensoStar U

- dynamic temperature measurement: 2/60 sec.
- 15 monthly and half-monthly values readable in display
- back flow detection
- large, easy-to-read display
- optical interface
- installation in return flow
- forward flow temperature sensor with 1,5 m connecting cable
- calculator detachable, connection cable 85 cm, incl. wall-mounting set



Type	Nominal size qp	Length [mm]	DN	Connection	Temp.sensor Ø [mm]	Option	Article number*
<b>Forward and return flow temperature sensor outside 1,5 m (symmetrical)</b>							
U	10,0	200	40	G2B	5,0	Module slot	BDHF016681
U	10,0	300	40	G2B	5,0	Module slot	BDIF018079
U	10,0	200	40	G2B	5,0	M-Bus (module installed)	BDHF022825
U	10,0	300	40	G2B	5,0	M-Bus (module installed)	BDIF022861
U	10,0	200	40	G2B	5,0	Radio (integrated)	BDHF021523
U	10,0	300	40	G2B	5,0	Radio (integrated)	BDIF018136
<b>Forward and return flow temperature sensor outside 3 m (symmetrical)</b>							
U	10,0	200	40	G2B	5,0	Module slot	BDHF019511
U	10,0	300	40	G2B	5,0	Module slot	BDIF018494
U	10,0	200	40	G2B	5,0	M-Bus (module installed)	BDHF018715
U	10,0	300	40	G2B	5,0	M-Bus (module installed)	BDIF022897
U	10,0	200	40	G2B	5,0	Radio (integrated)	BDHF017652
U	10,0	300	40	G2B	5,0	Radio (integrated)	BDIF021116

<b>Forward and return flow temperature sensor outside 1,5 m (symmetrical)</b>							
U	10,0	200	40	G2B	5,2	Module slot	BDHF017414
U	10,0	300	40	G2B	5,2	Module slot	BDIF018094
U	10,0	200	40	G2B	5,2	M-Bus (module installed)	BDHF022912
U	10,0	300	40	G2B	5,2	M-Bus (module installed)	BDIF019246
U	10,0	200	40	G2B	5,2	Radio (integrated)	BDHF019940
U	10,0	300	40	G2B	5,2	Radio (integrated)	BDIF019976

Note: 200 mm length meters are packed as maximum 6 single-packed compact meters in one box.

300 mm length meters are packed as maximum 4 single-packed compact meters in one box.

\*The shown article numbers are examples. Changes occur if options are added.

Type	Nominal size qp	Length [mm]	DN	Connection	Temp.sensor $\varnothing$ [mm]	Option	Article number*
<b>Forward and return flow temperature sensor outside 3 m (symmetrical)</b>							
U	10,0	200	40	G2B	5,2	Module slot	BDHF016669
U	10,0	300	40	G2B	5,2	Module slot	BDIF017524
U	10,0	200	40	G2B	5,2	M-Bus (module installed)	BDHF022602
U	10,0	300	40	G2B	5,2	M-Bus (module installed)	BDIF022925
U	10,0	200	40	G2B	5,2	Radio (integrated)	BDHF022930
U	10,0	300	40	G2B	5,2	Radio (integrated)	BDIF022931

<b>Return flow temperature sensor 1,5 m integrated, forward flow temperature sensor 1,5 m (asymmetrical)</b>							
U	10,0	200	40	G2B	6,0	Module slot	BDHF009232
U	10,0	300	40	G2B	6,0	Module slot	BDIF009233
U	10,0	200	40	G2B	6,0	M-Bus (module installed)	BDHF009234
U	10,0	300	40	G2B	6,0	M-Bus (module installed)	BDIF009235
U	10,0	200	40	G2B	6,0	Radio (integrated)	BDHF009245
U	10,0	300	40	G2B	6,0	Radio (integrated)	BDIF009246

<b>Return flow temperature sensor 1,5 m integrated, forward flow temperature sensor 3 m (asymmetrical)</b>							
U	10,0	200	40	G2B	6,0	Module slot	BDHF009249
U	10,0	300	40	G2B	6,0	Module slot	BDIF009250
U	10,0	200	40	G2B	6,0	M-Bus (module installed)	BDHF009256
U	10,0	300	40	G2B	6,0	M-Bus (module installed)	BDIF009257
U	10,0	200	40	G2B	6,0	Radio (integrated)	BDHF009282
U	10,0	300	40	G2B	6,0	Radio (integrated)	BDIF009283

<b>Forward and return flow temperature sensor outside 3 m (symmetrical)</b>							
U	10,0	200	40	G2B	6,0	Module slot	BDHF009291
U	10,0	300	40	G2B	6,0	Module slot	BDIF009292
U	10,0	200	40	G2B	6,0	M-Bus (module installed)	BDHF009293
U	10,0	300	40	G2B	6,0	M-Bus (module installed)	BDIF009294
U	10,0	200	40	G2B	6,0	Radio (integrated)	BDHF009299
U	10,0	300	40	G2B	6,0	Radio (integrated)	BDIF009300

Note: 200 mm length meters are packed as maximum 6 single-packed compact meters in one box.

300 mm length meters are packed as maximum 4 single-packed compact meters in one box.

\*The shown article numbers are examples. Changes occur if options are added.

Type	Nominal size qp	Length [mm]	DN	Connection	Temp.sensor Ø [mm]	Option	Article number*
<b>Return flow temperature sensor 1,5 m integrated, forward flow temperature sensor 1,5 m (asymmetrical)</b>							
U	10,0	200	40	G2B	AGFW 38 mm	Module slot	BDHF017821
U	10,0	300	40	G2B	AGFW 38 mm	Module slot	BDIF022507
U	10,0	200	40	G2B	AGFW 38 mm	M-Bus (module installed)	BDHF022941
U	10,0	300	40	G2B	AGFW 38 mm	M-Bus (module installed)	BDIF022942
U	10,0	200	40	G2B	AGFW 38 mm	Radio (integrated)	BDHF022510
U	10,0	300	40	G2B	AGFW 38 mm	Radio (integrated)	BDIF022508

Note: 200 mm length meters are packed as maximum 6 single-packed compact meters in one box.

300 mm length meters are packed as maximum 4 single-packed compact meters in one box.

\*The shown article numbers are examples. Changes occur if options are added.

Options for compact heat and cooling meters <b>SensoStar U qp 6 - 10</b> (installed at factory)
Installation in forward flow
Surcharge cooling meter (incl. Programming; not for qp 0,6; approval: Germany, Austria, Swiss)
Surcharge heat and cooling meter (incl. programming)
Forward flow temperature sensor cable, length 3 m (asymmetrical = return flow temp. sensor integrated)
Forward flow temperature sensor cable, length 6 m (asymmetrical = return flow temp. sensor integrated)
Forward flow temperature sensor cable, length 6 m, return flow temperature sensor 3 m (asymmetrical = return flow sensor integrated) needed in combination with connection cable 3 m (to be ordered separately, see below)
Forward and return flow temperature sensor cable, length 3 m
Forward and return flow temperature sensor cable, length 6 m
AGFW temperature sensors 27,5 mm (length 1,5 m) for direct mounting (not compatible with ultrasonic compact meters qp 10), (please specify symmetrical or asymmetrical installation)
AGFW temperature sensors 38,0 mm (length 1,5 m) for direct mounting (only possible for ultrasonic compact meters > DN32). Please specify symmetrical or asymmetrical installation
High temperature (heat till 130 °C; heat/cooling till 120 °C)
Connection cable for detachable calculator 3 m. Please select cable length of temperature sensor (3 m or 6 m).
3 pulse inputs (for meters with Radio or M-bus)
2 pulse outputs
LoRaWAN module
NB-IoT module
Modbus module

Special programming (order related)
Pre-programmed individual reading date (Standard 31.12.)
Pre-programmed primary M-Bus address
Pre-programmed secondary M-Bus address
Other individual programming

**Accessories see page 25**

**Refitting and exchange modules see page 26**



## Accessories for compact heat and cooling meters

### SensoStar U

#### Accessories\*

Installation set consisting of:

- 1 adapter
- 2 ball valves with coupling rings (incl. gaskets)
- 1 ball valve with M10x1



Type	Length [mm]	DN	Connection	Article number	
SE-PS-3KH-110-0,6/1,5	110	15	G¾B	0050000106	
SE-PS-3KH-130-2,5	130	20	G1B	0050000107	
SE-PS-3KH-150-3,5	150	25	G1 ¼B	0500000052	
SE-PS-3KH-260-3,5/6	260	25	G1 ¼B	0500000058	
SE-PS-3KH-200-10	200	40	G2B	0500000059	
SE-PS-3KH-300-10	300	40	G2B	0500000060	

Installation set for meters (return flow temperature sensor not integrable in flow meter) consisting of:

- 1 adapter
- 2 ball valves with coupling rings (incl. gaskets)
- 2 ball valves with M10x1 sockets



Type	Length [mm]	DN	Connection	Article number	
SE-PS-4KH-150-3,5/6	150	25	G1¼B	0500000029	
SE-PS-4KH-260-3,5/6	260	25	G1¼B	0500000030	



Type	Length [mm]	DN	Connection	Article number	
Extension piece incl. gasket for qp 3,5 to 260 mm	110	25	G1¼B	0500000056	

Type	Article number	
Installation kit consisting of wall mounting support with adhesive pad, 50 pieces	0500000074	

\*The accessories for heat meters have no drinking water approval according to DVGW and KTW.

## Modules and accessories - for all compact heat and cooling meters and calculator SensoStar C

(Refitting by opening the casing)

Modules	Order unit	Article number	
Radio (module & adhesive seal)	10 pcs	9100600034	
Radio (module & adhesive seal) - parameterised	10 pcs	9100600234	
M-Bus (module, incl. connection cable & adhesive seal)	10 pcs	9100600030	
2 Pulse outputs (module incl. cable & adhesive seal)	10 pcs	9100600035	
3 Pulse inputs (can only be ordered in combination with radio module or M-Bus module)	10 pcs	9100600050	
NB-IoT module	10 pcs	9100600043	
Modbus module	10 pcs	9100600044	

Accessories	Order unit	Article number	
Battery-Set (incl. connection cable & adhesive seal) - for all S3 / S3C	10 pcs	9100600100	

Power supply S3 / S3C

- Uninterrupted Power Supply
- Wire end sleeves for mains connection



Power Supply - 230 Volts AC (Alternating current)	1 pc	9100600001	
Power Supply - 24 Volts AC (Alternating current)	1 pc	9100600005	

Adhesive Seal ES	100 pcs	9100000102	
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## Calculator **SensoStar C** for **heat meters**

- Large, easy-to-read LCD display
- Standard: Temperature measuring cycle 60 sec., battery lifetime 10 years  
Optional: Temperature measuring cycle 30 sec., battery lifetime 7 years  
Optional: Temperature measuring cycle 2 sec. with power supply
- 15 monthly values readable in the display
- Optical interface
- Mounting in return flow
- Incl. adhesive seal
- 2 wire technology



Type	Liters / Pulse	Option	Article number*	
<b>Heat approval MID</b>				
S3C	1L./pulse	Module slot	DCXX021866	
S3C	2,5L./pulse	Module slot	DCXX021867	
S3C	10L./pulse	Module slot	DCXX021868	
S3C	25L./pulse	Module slot	DCXX021869	
S3C	100L./pulse	Module slot	DCXX021870	
S3C	250L./pulse	Module slot	DCXX021871	
S3C	1000L./pulse	Module slot	DCXX021872	
S3C	2500L./pulse	Module slot	DCXX021873	
S3C	1L./pulse	M-Bus (module installed)	DCXX021875	
S3C	2,5L./pulse	M-Bus (module installed)	DCXX021881	
S3C	10L./pulse	M-Bus (module installed)	DCXX021882	
S3C	25L./pulse	M-Bus (module installed)	DCXX021883	
S3C	100L./pulse	M-Bus (module installed)	DCXX021886	
S3C	250L./pulse	M-Bus (module installed)	DCXX021885	
S3C	1000L./pulse	M-Bus (module installed)	DCXX021887	
S3C	2500L./pulse	M-Bus (module installed)	DCXX021888	
S3C	1L./pulse	Radio (module installed)	DCXX021918	
S3C	2,5L./pulse	Radio (module installed)	DCXX021919	
S3C	10L./pulse	Radio (module installed)	DCXX021920	
S3C	25L./pulse	Radio (module installed)	DCXX021921	
S3C	100L./pulse	Radio (module installed)	DCXX021922	
S3C	250L./pulse	Radio (module installed)	DCXX021923	
S3C	1000L./pulse	Radio (module installed)	DCXX021924	
S3C	2500L./pulse	Radio (module installed)	DCXX021925	

\*The shown article numbers are examples. Changes occur if options are added.

**For more options see page 29**

**Suitable flow meters see pages 30-32**

**Suitable temperature sensors see page 33**

## Calculator **SensoStar C** for **cooling meters**

- Large, easy-to-read LCD display
- Standard: Temperature measuring cycle 60 sec., battery lifetime 10 years  
Optional: Temperature measuring cycle 30 sec., battery lifetime 7 years  
Optional: Temperature measuring cycle 2 sec. with power supply
- 15 monthly values readable in the display
- Optical interface
- Mounting in return flow
- Incl. adhesive seal
- 2 wire technology



Type	Liters / Pulse	Option	Article number*
<b>Cooling approval PTB for Germany, Austria and Swiss</b>			
S3C	1L./pulse	Module slot	DCXX067708
S3C	2,5L./pulse	Module slot	DCXX067709
S3C	10L./pulse	Module slot	DCXX024445
S3C	25L./pulse	Module slot	DCXX031362
S3C	100L./pulse	Module slot	DCXX024441
S3C	250L./pulse	Module slot	DCXX067718
S3C	1000L./pulse	Module slot	DCXX067719
S3C	2500L./pulse	Module slot	DCXX067720
S3C	1L./pulse	M-Bus (module installed)	DCXX067728
S3C	2,5L./pulse	M-Bus (module installed)	DCXX067729
S3C	10L./pulse	M-Bus (module installed)	DCXX024216
S3C	25L./pulse	M-Bus (module installed)	DCXX028679
S3C	100L./pulse	M-Bus (module installed)	DCXX028680
S3C	250L./pulse	M-Bus (module installed)	DCXX067738
S3C	1000L./pulse	M-Bus (module installed)	DCXX067739
S3C	2500L./pulse	M-Bus (module installed)	DCXX067740
S3C	1L./pulse	Radio (module installed)	DCXX067852
S3C	2,5L./pulse	Radio (module installed)	DCXX067853
S3C	10L./pulse	Radio (module installed)	DCXX067854
S3C	25L./pulse	Radio (module installed)	DCXX067855
S3C	100L./pulse	Radio (module installed)	DCXX067856
S3C	250L./pulse	Radio (module installed)	DCXX067857
S3C	1000L./pulse	Radio (module installed)	DCXX067858
S3C	2500L./pulse	Radio (module installed)	DCXX067859

\*The shown article numbers are examples. Changes occur if options are added.

**For more options see page 29**

**Suitable flow meters see pages 30-31**

**Suitable temperature sensors see page 32**

Options  
**SensoStar C**

installed at factory

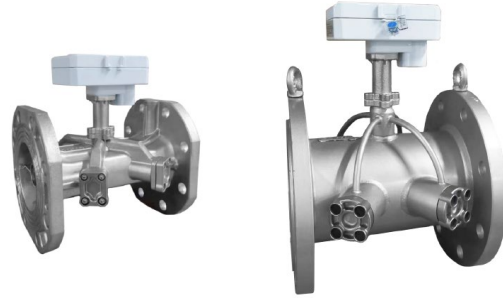
Installation in forward flow	
Glycol meters (solar systems) - Standard Ethylene glycol 30%	
Heat and cooling meter (incl. programming)	
3 pulse inputs (for meters with Radio or M-bus)	
2 pulse output (module installed) – Battery lifetime 10 years	
LoRaWAN module	
NB-IoT module	
Modbus module	
Battery lifetime 7 years (temperature measuring cycle 30 sec)	

<b>Special programming (order related)</b>	
Special programming for glycol meters (Glycol type propylene or ethylene & concentration)	
Special programming for individual reading date (Standard 31.12.)	
Pre-programmed primary M-Bus address	
Pre-programmed secondary M-Bus address	
Other individual programming	

## Ultrasonic flow sensor

### FlowStar U

Precise volume detection with doppel channel-ultrasonic path  
 High-quality stainless steel housing  
 Measuring unit in a shielded aluminum housing  
 MID approval  
 1-130 °C (150 °C for 2000 h)  
 cable length pulse cable: 10 m  
 Battery life time up to 12 years  
 In any installation position



Type	Nominal size qp	Length [mm]	DN	Liters / pulse	Connection	Article number MID	
<b>Flange connection PN16</b>							
<b>4-hole</b>							
FlowStar U	15	200	50	25L./Imp.	-	1500034213	
FlowStar U	25	200	65	25L./Imp.	-	1500034215	
<b>8-hole</b>							
FlowStar U	40	225	80	100L./Imp.	-	1500034217	
FlowStar U	60	250	100	100L./Imp.	-	1500034219	
FlowStar U	100	350	125	100L./Imp.	-	1500034220	
FlowStar U	150	200	150	250L./Imp.	-	1500034221	
<b>12-hole</b>							
FlowStar U	250	350	200	250L./Imp.	-	1500034222	
FlowStar U	400	400	250	1000L./Imp.	-	1500034223	
FlowStar U	600	450	300	1000L./Imp.	-	1500034224	

<b>Flange connection PN25</b>							
<b>4-hole</b>							
FlowStar U	15	200	50	25L./Imp.	-	1500034201	
FlowStar U	15	270	50	25L./Imp.	-	1500034202	
<b>8-hole</b>							
FlowStar U	25	200	65	25L./Imp.	-	1500034207	
FlowStar U	25	300	65	25L./Imp.	-	1500034203	
FlowStar U	40	225	80	100L./Imp.	-	1500034208	
FlowStar U	40	300	80	100L./Imp.	-	1500034204	
FlowStar U	60	360	100	100L./Imp.	-	1500034205	
FlowStar U	100	350	125	100L./Imp.	-	1500034206	
FlowStar U	150	350	150	250L./Imp.	-	1500034209	
<b>12-hole</b>							
FlowStar U	250	350	200	250L./Imp.	-	1500034210	
FlowStar U	400	400	250	1000L./Imp.	-	1500034211	
<b>16-hole</b>							
FlowStar U	600	450	300	1000L./Imp.	-	1500034212	

Prices for cooling metery may vary

Ultrasonic flow meters from Qp 1,5-10 with threaded connection are available on request

## Ultrasonic flow meters (Sharky)

- Electronic flow calculation
- Heat approval MID or PTB cold approval
- galvanically isolated



Type		Nominal size qp	Length [mm]	DN	Liters / pulse	Connection	Article number	
<b>flow meters with heat approval</b>								
Sharky, FS473		3,5	135	25	10L./pulse	G5/4B	1500033111	
Sharky, FS473		6,0	135	25	10L./pulse	G5/4B	1500033065	
Sharky, FS473		6,0	150	32	10L./pulse	G3/2B	1500033066	
Sharky, FS473		6,0	260	32	10L./pulse	G3/2B	1500033005	
Sharky, FS473	replaces qp10	6,0	150	40	10L./pulse	G2B	1500033067	

Type		Nominal size qp	Length [mm]	DN	Liters / pulse	Connection	Article number	
<b>flow meters with cooling approval*</b>								
Sharky, FS473		3,5	135	25	10L./Imp.	G5/4B	3500033111	
Sharky, FS473		6,0	135	25	10L./Imp.	G5/4B	3500033065	
Sharky, FS473		6,0	150	32	10L./Imp.	G3/2B	3500033066	
Sharky, FS473		6,0	260	32	10L./Imp.	G3/2B	3500033005	
Sharky, FS473		6,0	150	40	10L./Imp.	G2B	3500033067	

\*only cooling approval PTB / for Germany and Austria

## Woltmann flow meters

- PN 16
- Flange connection
- Mechanic flow calculation
- Heat approval MID
- galvanically isolated



Type	Mounting position	Nominal size qp	Length [mm]	DN	Liters / pulse	Connection	Article number	
<b>WP = horizontal or vertical mounting position</b>								
Flow meter-VMT	WPTH-S/FFL	15	200	50	100L./pulse	4-hole	ER33080-00	
Flow meter-VMT	WPTH-S/FFL	25	200	65	100L./pulse	4-hole	ER33081-00	
Flow meter-VMT	WPTH-S/FFL	32	225	80	100L./pulse	8-hole	ER33082-00	
Flow meter-VMT	WPTH-S/FFL	32	200	80	100L./pulse	8-hole	ER33104-00	
Flow meter-VMT	WPTH-S/FFL	50	250	100	100L./pulse	8-hole	ER33100-00	
Flow meter-VMT	WPTH-S/FFL	80	250	125	100L./pulse	8-hole	ER33101-00	
Flow meter-VMT	WPTH-S/FFL	200	300	150	1000L./pulse	8-hole	ER33102-00	
<b>WS = only horizontal mounting position</b>								
Flow meter-VMT	WSTH-WFL	15	270	50	100L./pulse	4-hole	ER33090-00	
Flow meter-VMT	WSTH-WFL	25	300	65	100L./pulse	4-hole	ER33091-00	
Flow meter-VMT	WSTH-WFL	40	300	80	100L./pulse	8-hole	ER33092-00	
Flow meter-VMT	WSTH-WFL	60	360	100	100L./pulse	8-hole	ER33093-00	
Flow meter-VMT	WSTH-WFL	150	500	150	1000L./pulse	8-hole	ER33094-00	

## Temperature sensors

Temperature sensor pairs Pt500 suitable for calculator SensoStar C

### Universal temperature sensors (UTS)

- One pair precision resistor temperature sensors
- UTS 5,0 mm with 4 positioning rings (at 90 mm, 120 mm, 150 mm, 210 mm)
- UTS 5,2 mm without positioning rings
- UTS 6,0 mm with 5 positioning rings (at 85 mm, 100 mm, 120 mm, 150 mm, 210 mm)
- 2 wire technology



Type		Temp.sensor $\varnothing$ [mm]	Cable length [m]	Article number	
Heat approval MID / cooling approval DE					
UTS-5,0 mm-4AH		5,0	3	1121106001	
UTS-5,0 mm-4AH		5,0	10	1121106002	
UTS-5,2 mm		5,2	3	1121106003	
UTS-5,2 mm		5,2	10	1121106004	
UTS-6,0 mm-5AH		6,0	3	1121106005	
UTS-6,0 mm-5AH		6,0	10	1121106006	

### Temperature sensor pair AGFW

- with threaded connection M10x1, for direct mounting
- 2 wire technology
- Sensor diameter front 3,7 mm



Type	Immersion depth [mm]	Temp.sensor tip $\varnothing$ [mm]	Cable length [m]	Article number	
Heat approval MID / cooling approval DE					
AGFW-27,5 mm	27,5	5,0	3	1121106007	
AGFW-38 mm	38	5,0	3	1121106009	
AGFW-38 mm	38	5,0	10	1121106010	
AGFW-60 mm	60	5,0	10	1121106012	

Hint: AGFW 27,5 mm until DN 32, AGFW 38 mm DNN32 up to DN 50



## Accessories\*

### Installation set for multi-jet Typ I (Ista)

consisting of:

- 1 EAS (2") incl. overflow lange and gasket
- 2 threaded fittings (incl. gaskets)
- 1 ball valve with M10x1 socket



Type	Length [mm]	DN	Connection	Article number	
SE-EAS-V	110	15	G¾B	0500000002	
SE-EAS-V	130	20	G1B	0500000003	

### Installation set for multi-jet Typ I (Ista)

consisting of:

- 1 EAS (2") incl. overflow lange and gasket
- 2 ball valves with coupling rings (incl. gaskets)
- 1 ball valve with M10x1 socket



Type	Length [mm]	DN	Connection	Article number	
SE-EAS-3KH	110	15	G¾B	0500000000	
SE-EAS-3KH	130	20	G1B	0500000001	

### Installation set for meters (return flow sensor can be installed in flow meter):

consisting of:

- 1 adapter
- 2 threaded fittings (incl. gaskets)
- 1 ball valve with M10x1 socket



Type	Length [mm]	DN	Connection	Article number	
SE-PS-V	150	25	G1 ¼B	0500000051	
SE-PS-V	260	25	G1 ¼B	0500000053	
SE-PS-V	300	40	G2B	0500000055	

### Installation set for meters (return flow sensor can not be installed in flow meter):

consisting of:

- 1 adapter
- 2 threaded fittings (incl. gaskets)
- 2 ball valves with M10x1 sockets



Type	Length [mm]	DN	Connection	Article number	
SE-PS-V-2KH	260	25	G1 ¼B	0500000020	
SE-PS-V-2KH	200	40	G2B	0500000037	
SE-PS-V-2KH	300	40	G2B	0500000039	

Hint: For these ball valves only temp. sensors 5,0 / 5,2 mm can be used (alternatively AGFW 27,5 up to DN32 / 38 mm temp.sensors for DN32 and DN40)

## Accessories\*

**Installation set** for meters (return flow sensor can be installed in flow meter):  
consisting of:

- 1 adapter
- 2 ball valves with coupling rings (incl. gaskets)
- 1 ball valve with M10x1 socket



Type	Length [mm]	DN	Connection	Article number	
SE-PS-3KH	110	15	G¾B	0050000106	
SE-PS-3KH	130	20	G1B	0050000107	
SE-PS-3KH	190	20	G1B	0500000031	
SE-PS-3KH	150	25	G1 ¼B	0500000052	
SE-PS-3KH	260	25	G1 ¼B	0500000058	
SE-PS-3KH	200	40	G2B	0500000059	
SE-PS-3KH	300	40	G2B	0500000060	

**Installation set** for meters (return flow sensor can not be installed in flow meter):  
consisting of:

- 1 adapter
- 2 ball valves with coupling rings (incl. gaskets)
- 2 ball valves with M10x1 sockets



Type	Length [mm]	DN	Connection	Article number	
SE-PS-4KH	150	25	G1¼B	0500000029	
SE-PS-4KH	260	25	G1¼B	0500000030	
SE-PS-4KH	200	40	G2B	0500000036	
SE-PS-4KH	300	40	G2B	0500000038	

**Single pipe connection piece (EAS 2"):**

- incl. gasket
- without overflow cap (lid)



Type	Length [mm]	DN	Connection	Article number	
EAS-A-110-¾	110	15	G¾B	0500000067	
EAS-A-130-1	130	20	G1B	0500000066	
EAS-A-105-1	105	20	G1B	0500000023	
EAS-A-190-1	190	20	G1B	0500000024	
Overflow cap separate, incl. gasket	-	-	-	0500000012	

**Forward flow adapter**

for a direct mounted temperature sensor in a T-piece (incl. gasket)



Type	Connection	Article number	
VAD-M10x1	1/2"	ER30499-00	
VAD-M10x1	3/8"	0050000009	

\*The accessories for heat meters have no drinking water approval according to DVGW and KTW.

## Accessories\*

### Adapters



Type	Length [mm]	Connection	Article number
PS-110-¾	110	G¾B	ER30470-00
PS-130-1	130	G1B	ER30471-00
PS-190-1	190	G1B	ER30472-00
PS-150-5/4	150	G1 ¼B	ER30473-00
PS-260-5/4	260	G1 ¼B	ER30474-00
PS-200-2	200	G2B	ER30475-00
PS-300-2	300	G2B	ER30476-00

### Temperature pockets, for installation of universal temperature sensors

- 6,0 mm (incl. Gasket) stainless steel
- 5,0 mm (incl. Gasket) Brass



Type	Length [mm]	Connection	Temp.sensor Ø [mm]	Article number
up to qp 10 m³/h	85	1/2"	6,0	ER30480-00
qp 15 m³/h - 100 m³/h	120	1/2"	6,0	ER30481-00
from qp 150 m³/h	210	1/2"	6,0	ER30482-00
qp 0,6 - 2,5 m³/h	40	1/2"	5,0	055000009
qp 3,5 - 6,0 m³/h	60	1/2"	5,0	055000010
qp 10 - 15 m³/h	90	1/2"	5,0	055000011
qp 15 - 100 m³/h	120	1/2"	5,0	055000012
ab qp 150 m³/h	210	1/2"	5,0	005000071

### Welding sleeve

- with internal thread ½", for mounting a temperature pocket



Type	Length [mm]	Connection	Article number
SWM	70	1/2"	052000012

### Insulating shell



Type	Length [mm]	DN	Order unit	Article number
Insulating shell single/multi-jet heat/cooling meters: Universal insulation for mechanic meters with detachable calculator	110 - 190 mm	DN 15/20	10	0030000071
Insulating shell multi-jet heat/cooling meters 3KH Set: 1 shell for mech. meter + 3 shells for ball valves 1"	110 - 190 mm	DN 15/20	5	0030000073
Insulating shell ultrasonic heat/cooling meters: Universal insulation for ultrasonic meters with detachable calculators	110 - 190 mm	DN 15/20	10	0030000081
Insulating shell ultrasonic heat/cooling meters 3KH Set: 1 shell for ultrasonic meter + 3 shells for ball valves 1"	110 - 190 mm	DN 15/20	5	0030000082
Insulation ball valve 1": Shell for ball valve for heat/cooling meter till 1"		DN 15/20	10	0030000072

\*The accessories for heat meters have no drinking water approval according to DVGW and KTW.

## Accessories\*

### Threaded fitting with coupling ring (incl. gasket)



Type	Connection coupling ring	Connection external thread	Article number
compatible to qp 0,6 m <sup>3</sup> /h / 1,5 m <sup>3</sup> /h	G¾B	1/2"	ER30490-00
compatible to qp 2,5 m <sup>3</sup> /h	G1B	3/4"	ER30491-00
compatible to qp 3,5 m <sup>3</sup> /h/ 6 m <sup>3</sup> /h	G1 ¼B	1"	ER30492-00
compatible to qp 10 m <sup>3</sup> /h	G2B	1 1/2"	ER30493-00

### Ball valves with installation point (M10x1 socket)

for temperature sensors 5,0 mm and 5,2 mm



Type	Connection 2 x IG		Article number
KHS-0,6/1,5	3/4"		ER30495-00
KHS-2,5	1"		ER30496-00
KHS-3,5/6	1 1/4"		ER30505-00
KHS-6	1 1/2"	Hint: Please use temp.sensors with sufficient immersion depth (e.g. AGFW 38 mm)	0050400037
KHS-10	2"		0050400034

### Ball valves with coupling ring (incl. gasket)



Type	Connection coupling ring	Connection internal thread	Article number
KH-0,6/1,5	G¾B	3/4"	0500000032
KH-2,5	G1B	1"	0500000033
KH-3,5/6	G1 ¼B	1 1/4"	0500000034
KH-10	G2B	2"	0500000035

### Ball valve AGFW with coupling ring

with AGFW temperature sensor connection M 10 x 1



KH-11	G2B	1 1/2"	0050400049
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Hint: Please use temp.sensors with sufficient immersion depth









### Installation kit ISTA EAS locking screw M10x1



Type	Order unit	Article number
Installation kit ISTA EAS locking screw M10x1 Content: 2 x locking screw + 2 x seal	1	0200000091

\*The accessories for heat meters have no drinking water approval according to DVGW and KTW.

## Accessories

Article number	further accessories		
050000072	Wireless M-Bus Bluetooth Receiver		
050000063	Wireless M-Bus USB Stick with antenna		
1100703300	Pulse Converter for integration of external pulse devices into the Engelmann radio system 3 pulse inputs, wM-Bus, prepared for power supply OMS 4 Mode 5		
910000001	Opto Coupler Opto coupler with USB interface incl. 1 optical head holder		
ER30468-00	Engelmann mounting wrench compatible for all multi-jet including Type A, EAS overflow cap		
050000074	Accessory kit: wall-mounting support with adhesive pad, 50-pieces package	Only for SensoStar compact meters with detachable calculator	
Article number	Software		
910000301	Software Device Monitor - parameterisation and read-out of data of Engelmann devices		
910000273	Wireless M-Bus Read-out Software - Software for walk-by-readout of wireless M-Bus devices		
910000315	Licence Configuration App*		

\*Single-user licence

## Engelmann heat cost allocator HCAe2

- Approved to German HKVO; according to DIN EN 834:2017-02
- Optical interface
- Storage of 132 monthly and half-monthly values
- Clip-on remote temperature sensor
- 1-sensor mode (programmable)



### Optional with wireless M-Bus

- Wireless M-Bus interface EN13757-4
- AMR (according to OMS) or Walk-by Read-out

Type	IR-interface	Device type	Option	Variation	Article number*	
HCAe2 OMS 4 Mode 5	yes	2-sensor device	Radio	without heat conductor	510000001	
HCAe2 OMS 4 Mode 7*	yes	2-sensor device	Radio	without heat conductor	510000500	

\*Attention: only short telegramm possible

- Order unit 40 pcs. per article

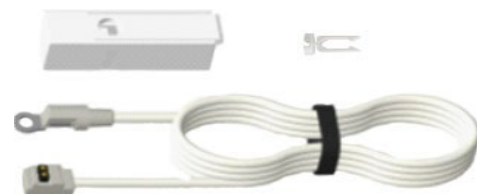
### Heat conductor



Accessories	Article number	
Heat conductor HCAe2	005120030	

- Order unit 40 pcs.

### Remote sensor



Type	Article number	
Remote sensor complete 2,0 m	025120006	
Remote sensor complete 5,0 m	025120011	

- Order unit 10 pcs. per article

\*The shown article numbers are examples. Changes occur if options are added.

## Mounting accessories

### Standard parts



Type	Article number	Order unit	
Flat head tapping screw M4x80 DIN 7985	0051200008	1000	
Flat head tapping screw M4x60 DIN 7985	0051200007	1000	
Flat head tapping screw M4x40 DIN 7985	0051200006	1000	
Flat head tapping screw M3x25 DIN 7985	0051200017	1000	
Sheet-metal lens head screw 4,2x25	0051200013	1000	
Welded stud M3x10 DIN 32501	0051200014	1000	
Welded stud M3x12 DIN 32501	0051200015	1000	
Welded stud M3x15 DIN 32501	0051200016	1000	
Locking nut M3	0051200033	1000	

### Plate radiators and special radiators



Welded stud M3x10 DIN 32501	0051200014	1000	
Welded stud M3x12 DIN 32501	0051200015	1000	
Welded stud M3x15 DIN 32501	0051200016	1000	
Shank nut M3x8,5	0051200002	1000	
Locking nut M3	0051200033	1000	

### Sectional radiators



Spread angle M4 53/65	0051200031	100	
Spread angle M4 38/50	0051200004	100	
Spread angle M4 23/35	0051200027	100	

### Tube radiators



Slide nut tube (36 mm)	0051200009	100	
Slide nut tube (45 mm)	0051200010	100	

### Accordion radiators



Spread angle bracket complete	0251200003	100	
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## Aluminium radiator



Type	Article number	Order unit	
Mounting kit aluminum radiator	0251200004	100	
Sheet-metal lens head screw 4,2x25	0051200013	1000	

## Convectors



Convector clip complete	0051200011	10	
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## Heat conductor adapter HCAe2 wide

For special types of radiators with special designs or large limbs intervals, this adapter is required additionally.  
Installation behind the standard heat conductor  
Dimensions in mm: 90,7 X 60 X 4 (HxBxT)



Heat conductor adapter HCAe2 wide	0051200035	1	
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## Mounting gauge



Mounting gauge	0151200000	1	
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## Optical head holder



Optical head holder	0051200044	1	
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## Seal



Safety seal HCAe2 for replacement (50 pcs)	0500000087	1 Pack	
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## Optical extension HCAe2

Optical extensions to cover incurred color damages after conversion of tubes or changes of HCA of other manufactures

1 Pack contains 10 pcs.



Optical extension HCAe2 one-piece(length: 35 mm)	0500000088	1 Pack	
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## Radio-integrated water meter **WaterStar M** with single-jet flow sensor

- Single-jet water meter with inductive impeller scanning
- Cold or warm water
- 360° rotatable display
- Horizontal and vertical installation
- OMS conform (OMS 3 Mode 5 or OMS 4 Mode 7)
- Mode T1 and C1 selectable
- 15 monthly values submittable by radio



Type	Nominal size Q3	Length [mm]	DN	Thread connection	Pipe diameter	Article number	
<b>Cold water till 30° C</b>							
WaterStar M	2,5	80 mm	15	3/4"	1/2"	1102500030	
WaterStar M	2,5	110 mm	15	3/4"	1/2"	1102500031	
WaterStar M	2,5	130 mm	15	3/4"	1/2"	1102500032	
WaterStar M	2,5	130 mm	20	1"	3/4"	1102500033	
WaterStar M	4,0	130 mm	20	1"	3/4"	1102500034	
WaterStar M	2,5	115 mm	15	3/4"	1/2"	1102500035	
WaterStar M	2,5	115 mm	15	3/4" - 7/8"	1/2"	1102500036	
<b>Warm water till 90° C</b>							
WaterStar M	2,5	80 mm	15	3/4"	1/2"	1102500001	
WaterStar M	2,5	110 mm	15	3/4"	1/2"	1102500002	
WaterStar M	2,5	130 mm	15	3/4"	1/2"	1102500003	
WaterStar M	2,5	130 mm	20	1"	3/4"	1102500004	
WaterStar M	4,0	130 mm	20	1"	3/4"	1102500005	
WaterStar M	2,5	115 mm	15	3/4"	1/2"	1102500006	
WaterStar M	2,5	115 mm	15	3/4" - 7/8"	1/2"	1102500007	

Hint: there are at maximum 12 single-packed water meters in a package

## Radio-integrated water meter **WaterStar M** with multi-jet flow sensor

- multi-jet water meter with inductive impeller scanning
- Cold or warm water
- 360° rotatable display
- Horizontal and vertical installation
- OMS conform (OMS 3 Mode 5 or OMS 4 Mode 7)
- Mode T1 and C1 selectable
- 15 monthly values submittable by radio



### Measuring capsule

for radio-integrated water meter WaterStar M with multi-jet flow sensor

Type	Nominal size Q3	MID designation	Specification	Housing diameter	Article number	
Cold water till 30° C						
WaterStar M	2,5	TE 1	Techem Vario S	64,5 mm	1102500039	
WaterStar M	2,5	IST	Ista Koax 2"	64,5 mm	1102500037	
WaterStar M	2,5	MET	Brunata HT3	64,5 mm	1102500040	
WaterStar M	2,5	MOC	Elster Modulmeter MOC / MOE	64,5 mm	1102500042	
WaterStar M	2,5	A34	Allmess UP 6000	64,5 mm	1102500038	
Warm water till 90° C						
WaterStar M	2,5	TE 1	Techem Vario S	64,5 mm	1102500010	
WaterStar M	2,5	IST	Ista Koax 2"	64,5 mm	1102500008	
WaterStar M	2,5	MET	Brunata HT3	64,5 mm	1102500011	
WaterStar M	2,5	MOC	Elster Modulmeter MOC / MOE	64,5 mm	1102500013	
WaterStar M	2,5	A34	Allmess UP 6000	64,5 mm	1102500009	

### Converter solution

for radio-integrated water meter WaterStar M with multi-jet flow sensor

Type	Nominal size Q3	MID designation	Specification	Housing diameter	Article number	
Cold water till 30° C						
WaterStar M	2,5	DM1	Deltamess	64,5 mm	1102500043	
WaterStar M	2,5	MB3	Minol Minomess	64,5 mm	1102500045	
WaterStar M	2,5	HT2	Brunata	64,5 mm	1102500044	
WaterStar M	2,5	WE1	Wehrle, Zenner Neptun	64,5 mm	1102500046	
WaterStar M	2,5	MUK	Sensus PolluMuk	64,5 mm	1102500041	
WaterStar M	2,5	WGU	Wassergeräte	64,5 mm	1102500047	
Warm water till 90° C						
WaterStar M	2,5	DM1	Deltamess	64,5 mm	1102500014	
WaterStar M	2,5	MB3	Minol Minomess	64,5 mm	1102500016	
WaterStar M	2,5	HT2	Brunata	64,5 mm	1102500015	
WaterStar M	2,5	WE1	Wehrle, Zenner Neptun	64,5 mm	1102500017	
WaterStar M	2,5	MUK	Sensus PolluMuk	64,5 mm	1102500012	
WaterStar M	2,5	WGU	Wassergeräte	64,5 mm	1102500018	

Hint: there are at maximum 12 single-packed water meters in a package

## Accessories for water meter **WaterStar M**

### Connections for water meters

- consists of: 1x nipple, 1x nut, 1x seal



Type	Specification	Int.thread (nut)	Ext.thread (nipple)	Gasket	Article number	
Water meter connection	raw brass	¾"	½"	vulcanised fiber gasket	0051700005	
Water meter connection	raw brass	1"	¾"	vulcanised fiber gasket	0051700006	

### Valve meter (VZ) connectors chromium-plated

- for single-jet + multi-jet valve meter fittings
- till 3/4" consists of: 1x connector, 1x inlet pipe, 1x vulcanised fiber gasket
- larger than 3/4": the thread must be sealed by the customer with hemp or Loctite®
- not applicable to angle seat valves



Type	Specification	Ext.thread	Type	Installation depth	Article number	
VZ connectors	chromed	½"		40 mm	0051700009	
VZ connectors	chromed	½"		60 mm	0051700010	
VZ connectors	chromed	½"		100 mm	0051700012	
VZ connectors	chromed	¾"		40 mm	0051700013	
VZ connectors	chromed	¾"		60 mm	0051700014	
VZ connectors	chromed	¾"		100 mm	0051700016	

Spare parts	Article number	
Valve meter cap (VZ hand wheel) 28,5 mm chromed	0051700021	
Valve meter shut-off valve 1/2"	0051700022	

### Accessories for measuring cartridges



Type	Specification	Article number	
Extension, complete with O-Ring , length 40 mm	for coaxial meters 2"	0051700001	
Extension, complete with O-Ring , length 20 mm	for coaxial meters 2"	0051700002	



Flow direction inverter incl. moulded seal and O-Ring	for coaxial meters 2"	0051700003	
Moulded seal UPMG 2" (46 x 56,5 x 3,9 mm)	for coaxial meters 2"	0051700004	
Conversion kit, MB2 to MB1	for Minol	0051700007	

## Accessories for water meter **WaterStar M**

### Valve meter fitting for single-jet water meters

- for Q3 = 2,5
- incl. pressure piece, O-Ring, nut, 2 gaskets



Type	Specification	Thread	Article number	
Valve meter fitting for single-jet, length 80 mm	chromed	½"	0051700023	

### Valve meter fitting for multi-jet water meter coax 2"

- for flush-mounted shut-off valves with interchangeable measuring cartridge
- especially suitable for installation on dwelling shut-off valves
- the shut-off valve is integrated in the fitting
- incl. pressure piece, O-Ring, nut, 2 gaskets



Valve meter fitting for coax 2"	chromed		0051700024	
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### Valve meter - flap rose

- 2 Halves being clicked together



Valve meter flap rose	chromed	65x32x6,5	0051700026	
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### Bathtub meter fitting

- for Q3 = 2,5



Bathtub meter fitting for single-jet, length 80 mm, incl. gaskets	chromed	½"	0051700025	
Adapter for bathtub meter fitting, incl. vulcanised fiber gasket for int.thread	chromed		0051700027	

### Rosette (squared) for flush-mounted box



Rosette 137 X 137 Ø 65 mm	chromed		0051700028	
Dummy cap for rosette for all multi-jets	chromed		0051700029	
Flush-mounted box adapter rings (distance rings)			0051700030	

### Rosette (one-piece) for multi-jets

- for housing diameter 64,5 mm
- plastic shaft, can be sawn off if required



Rosette Ø 125 mm for multi-jet, shaft length = 50 mm	chromed		0051700031	
Rosette Ø 125 mm for multi-jet, shaft length = 100 mm	chromed		0051700032	
Dummy cap for rosette - also fits the two-piece and three-piece rosette	chromed		0051700036	

### Rosette (two-piece) for coax 2"

- for housing diameter 64,5 mm



Cuff for coax 2", shaft length = 63 mm	chromed		0051700033	
Rosette for coax 2", Ø 125 mm, for cuff	chromed		0051700034	
Rosette for coax 2", Ø 140 mm, for cuff	chromed		0051700035	

### Rosette (three pieces) for multi-jets

- for housing diameter 64,5 mm
- Length 60 mm



Cuff with rosette round (140 mm outer diameter) and distance piece	0051700037	
Cuff with rosette squared (137 mm edge length) and distance piece	0051700038	

### Distance piece for existing rosette



Distance piece for coax 2" (IØ ca. 64,50 mm, AØ ca. 87,50 mm)	0051700039	
Distance piece for coax 2" (IØ ca. 64,50 mm, AØ ca. 70 mm)	0051700040	
Distance piece for Brunata HT3 (IØ ca. 64,50 mm, AØ ca. 66,2 mm)	0051700041	

### Tap meter set

- incl. vulcanised fiber gaskets



Tap meter - connecting coupling 3/4" with sealing preparation	0051700042	
Tap meter - coupling nut and hose connector	0051700043	
Tap meter - cap blue	0051700044	
Tap meter - cap red	0051700045	

### Connections for washbasin meters



Washbasin meter - upper part incl. vulcanised fiber gasket	0051700046	
Washbasin meter - lower part incl. vulcanised fiber gasket	0051700047	



### Alternative for the lower part

Washbasin meter - lower part: Flexible metal hose 300 mm incl. vulcanised fiber gasket	0051700048	
Washbasin meter - lower part: Flexible metal hose 450 mm incl. vulcanised fiber gasket	0051700049	

### Mounting key for measuring capsules



Mounting key for multi-jet meters (with space for pulse output)	0051700050	
Mounting key for Allmess adapter	0051700051	
Further mounting keys		

### Flush-mounted housing for measuring capsules

- with brass housing and brass dummy cap
- with O-Ring and plastic mounting aid



Type	Length [mm]	Thread	Article number
For measuring capsules coax 2"			
Flush-mounted special housing for flush-mounted box (coax 2")	80	3/4" AG	0051700052
Flush-mounted housing, only internal thread	110	1/2" IG	0051700053
Flush-mounted housing, only internal thread	110	3/4" IG	0051700054
Flush-mounted housing, combined: thread + solder connection (15 mm)	110	1/2" AG	0051700055
Flush-mounted housing, combined: thread + solder connection (18 mm)	110	3/4" AG	0051700056
Flush-mounted housing, only solder connection (22 mm)	110		0051700057
Further flush-mounted housings			
UP 3 - housing for HT3 (incl. dummy cap, O-Ring, mounting aid)	110	1/2" IG	0051700058
UP 3 - housing for HT3 (incl. dummy cap, O-Ring, mounting aid)	110	3/4" IG	0051700059
UP 3003 - housing for HT3 (replacement Allmess 3003) (incl. dummy cap + O-Rings) for flush-mounted box			0051700060

## Radio module wireless M-bus (FAW)

for Wehrle Modularis water meters

- Wireless M-Bus 868
- Compatible to Wehrle Modularis water meters
- Protection class: IP 68
- Optical interface (parameterisation)
- Direct mounting (without cable)
- Backflow detection
- Plug-on detection
- Detection of manipulation (if demounted or influenced by a magnet)
- Lifetime: 12 + 1 years
- Can be switched to OMS 4 Mode 7



Type	Article number	
FAW*	1100800001	
FAW programming	9100000364	

\*Order unit 10 pcs.

## Smoke Detector C1

- Type C smoke detectors can be remotely inspected according to DIN 14676
- Integrated Wireless M-Bus 868 MHz
- C1 Mode
- OMS 4 Mode 7
- For Walk By and AMR reading
- AES 128 Bit encrypted
- Screw mounting with 1 / 2 screws
- Environment detection
- Smoke inlet alarm
- Lifetime: 10 + 1 years



Type		Order unit	Article number	
Smoke Detector C1*	Engelmann Masterkey	20 pieces per package	9101800002	

\*Order unit 20 pcs (1 package)

## Smoke Detector C2 AMS

- Type C smoke detectors can be remotely inspected according to DIN 14676
- Integrated Wireless M-Bus 868 MHz
- C2 Mode
- OMS 4 Mode 5
- For Walk By and AMR reading
- AES 128 Bit encrypted
- Screw mounting with 1 / 2 screws
- Environment detection
- Smoke inlet alarm
- Lifetime: 10 + 1 years



Type		Order unit	Article number	
Smoke Detector C2 AMS	Masterkey	20 pieces per package	9101800012	

- **Order unit 20 pcs (1 package)**

## Accessories for Smoke Detector C2 AMS

Type		Order unit	Article number	
Software for Smoke Detector C2 AMS	Software pack, manual, licence		0051800001	
Optical head USB for Smoke Detector C2 AMS			0051800002	

## Smoke Detector C1 EI

- Type C smoke detectors can be remotely inspected according to DIN 14676
- Integrated Wireless M-Bus 868 MHz
- C1 Mode
- OMS 4 Mode 5
- For Walk By and AMR reading
- AES 128 Bit encrypted
- Screw mounting with 1 / 2 screws
- Environment detection
- Smoke inlet alarm
- Lifetime: 10 + 1 years

Typ		Order unit	Article number	
Smoke Detector C1 EI	Individual key per device	20 pieces per package	9101800022	

- **Order unit 20 pcs (1 package)**

## Engelmann Connect

### Gateway and Software

- Data transfer via GPRS
- Field communication via wireless M-Bus according to OMS Version 3.0.1 or 4.0.2
- Compatible with all Engelmann radio products and devices based on OMS specifications



Gateway		Article number	
Gateway GPRS	Gateway with 2 batteries	0021300001	
Gateway GPRS Essential	Gateway with 1 battery	0021300006	
Gateway GPRS Power	Gateway with power supply	0021300010	
Gateway & GMP	Gateway incl. SIM Card & GMP-access*	0021300016	
Gateway Essential & GMP	Gateway incl. SIM Card & GMP-access*	0021300017	
Gateway Power & GMP	Gateway incl. SIM Card & GMP-access*	0021300018	
Gateway ETHERNET	Gateway with Ethernet connection	0021300003	
Repeater	Single-Hop T1, S1, C1	0500000077	
Repeater	Single-Hop T1, S1, C1 with external power supply (230V)	0500000086	

\*Unit price plus Connectivity

Accessories		Article number	
External antenna, GSM	incl. Connection set (mounting pieces + "pig-tail")	0021300030	
External antenna, wireless M-Bus	incl. Connection set (mounting pieces + "pig-tail")	0021300031	
Power Supply Gateway	Power supply 230 V for Gateway	0021300040	

Spare parts		Article number	
Battery Gateway	1 Battery	0021300060	
Battery Repeater	1 Battery	0020400008	

Service fees		Article number	
Minimum order value "100 EUR"		9100000360	
Calibration certificate / Declaration of conformity		-	
Change of order		9100000361	
Express order		9100000362	
On site Expert		9100000363	
FAW programming		9100000364	
Setup Radio settings		9100000365	
Private labelling including sample/approval		9100000366	
Subsequent dispatch of AES Keys (3 months after delivery)		9100000367	
Basic Training: 1 day in-house training at Engelmann: Basics for AMR System (price per person)		9100000310	
Advanced Training: On-site at customer's place, incl. support of implementation at property (price per day plus travel expenses/allowances)		9100000312	



## Engelmann Connect Platform



### Gateway Management Platform (GMP)

- Configure your Gateways remotely from your office or anywhere else!
- Real-time feedback of Gateway configuration status
- Property / Gateway overview
- Contract term options: 24 months or 60 months



### Data Service Platform (DSP)

- Simple and efficient data collection- automatic merging of data from multiple Gateways as desired
- Automatic forwarding and flexible file options
- Visual display of expected and received devices
- Instant push notifications in the event of an error or breakdown
- All the information you need in 1 glance
- Contract term options: 24 months or 60 months
- In combination with Gateway Management Platform only



Engelmann Connect Platform	Contract term	Article number		
Connectivity incl. GMP*	60 months	9100000320		
Connectivity incl. GMP*	24 months	9100000322		
Connectivity incl. GMP and DSP*	60 months	9100000323		
Connectivity incl. GMP and DSP*	24 months	9100000324		
Surcharge Activation GMP / DSP		0701300001		
Surcharge Upgrade DSP		0701300002		

\*Unit price in EUR per month and per Gateway. If SIM cards are retrofitted on existing gateways, one time fees are charged.

**Before ordering SIM cards, the M2M framework agreement including SEPA direct debit mandate must be signed.**

\*The setup fee for the SIM card and 5 MB data volume are included in this price.

**The SIM card fee is collected annually in advance by SEPA direct debit mandate.**

## Contact

### Orders und complaints

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