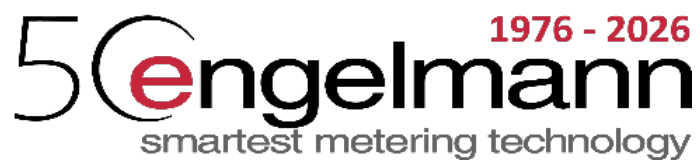


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50 **Engelmann**  
1976 - 2026  
smartest metering technology

# Product catalog '26



## Content

### Compact heat / cooling meter

<b>SensoStar E</b>	single-jet flow sensor	4
<b>SensoStar I</b>	ISTA multi-jet flow sensor	7
<b>SensoStar Q</b>	inline multi-jet flow sensor	10
<b>SensoStar A</b>	Allmess/Itron multi-jet flow sensor	13
<b>SensoStar T</b>	Techem multi-jet flow sensor	14
<b>SensoStar M</b>	Minol multi-jet flow sensor	15
<b>SensoStar U</b>	with ultrasonic flow sensor	16
<b>SensoStar UC</b>	Premium composite with ultrasonic flow sensor	28
<b>Accessories for compact heat/cooling meter SensoStar U</b>		30
<b>Modules and accessories for all compact heat/cooling meter</b>		31

### Combined heat / cooling meter

<b>SensoStar C</b>	Calculator for heat/cooling meter	32
	Options calculator SensoStar C	34
<b>Ultrasonic flow meter</b>		35
	Gaskets for ultrasonic flow meters	36
<b>Woltmann flow meter</b>		37
<b>Temperature Sensors</b>		38
<b>Accessories for combined heat/cooling meter</b>		39

### Heat cost allocator

<b>HCA e2</b>	Heat cost allocator	44
<b>Unifix</b>	Heat cost allocator	45
	Accessories for Unifix	46
<b>Mounting accessories</b>		47

### Water meter

<b>WaterStar M</b>	Water meter	49
	Accessories for water meter	51
<b>FAW</b>	radio attachment module	54

### Smoke Detector

<b>Smoke Detector</b>	54
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### Engelmann Connect

<b>ComStar</b>	56
<b>Engelmann Connect Platform DSP</b>	57

### More

<b>Service fees and trainings</b>	58
<b>Delivery and payment terms</b>	59
<b>Return form</b>	60
<b>Contact</b>	63

## 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.

## 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 <small>(Approval: Germany, Austria and Switzerland)</small>	
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.

## 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 <small>(Approval: Germany, Austria and Switzerland)</small>	
Surcharge heat and cooling meter (incl. programming)	
Temperature sensors $\varnothing$ 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.

## 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 <small>(Approval: Germany, Austria and Switzerland)</small>	
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 (Approval: Germany, Austria and Switzerland)	
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	

**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 <small>(Approval: Germany, Austria and Switzerland)</small>	
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	

**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.

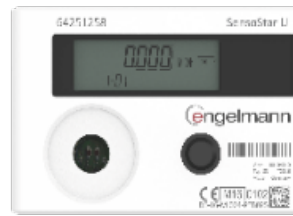
<b>Options for compact heat and cooling meters SensoStar M (installed at factory)</b>	
Installation in forward flow	
Surcharge for glycol meters (solar systems) - Standard Ethylene glycol 30%	
Surcharge cooling meter (incl. programming), only available with removable calculator <small>(Approval: Germany, Austria and Switzerland)</small>	
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	

## 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.

<b>Options for compact heat and cooling meters SensoStar U qp 0,6 - 2,5 (installed at factory)</b>	
Installation in forward flow	
Surcharge cooling meter (incl. programming) <small>(Approval: Germany, Austria and Switzerland)</small>	
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 select if integrated or outside)	
AGFW temperature sensors 27,5 mm (length 1,5 m) for direct mounting (only compatible with ultrasonic compact meters up to DN25). 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	
<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 Ø [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.

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	BDBD000212	
U	3,5	150	25	G1 1/4B	5,2	Module slot	BDED000213	
U	3,5	190	20	G1B	5,2	Module slot	BDCD069502	
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)	BDBD000219	
U	3,5	150	25	G1 1/4B	5,2	M-Bus (module installed)	BDED000220	
U	3,5	190	20	G1B	5,2	M-Bus (module installed)	BDCD069556	
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)	BDBD000234	
U	3,5	150	25	G1 1/4B	5,2	Radio (integrated)	BDED000236	
U	3,5	190	20	G1B	5,2	Radio (integrated)	BDCD069613	
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.

<b>Options for compact heat and cooling meters SensoStar U qp 3,5 (installed at factory)</b>	
Installation in forward flow	
Surcharge cooling meter (incl. programming) <small>(Approval: Germany, Austria and Switzerland)</small>	
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 indicate whether symmetrical or asymmetrical)	
AGFW temperature sensors 27,5 mm (length 1,5 m) for direct mounting (only compatible with ultrasonic compact meters up to DN25). 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	

## 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
- 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
U	6,0	150	32	G1 1/2B	5,0	Module slot	BDEE 168147
U	6,0	260	32	G1 1/2B	5,0	Module slot	BDGE 168150
U	6,0	150	32	G1 1/2B	5,0	M-Bus (module installed)	BDEE 168148
U	6,0	260	32	G1 1/2B	5,0	M-Bus (module installed)	BDGE 168151
U	6,0	150	32	G1 1/2B	5,0	Radio (integrated)	BDEE 168149
U	6,0	260	32	G1 1/2B	5,0	Radio (integrated)	BDGE 168152
<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
U	6,0	150	32	G1 1/2B	5,0	Module slot	BDEE 168153
U	6,0	260	32	G1 1/2B	5,0	Module slot	BDGE 168156
U	6,0	150	32	G1 1/2B	5,0	M-Bus (module installed)	BDEE 168154
U	6,0	260	32	G1 1/2B	5,0	M-Bus (module installed)	BDGE 168157
U	6,0	150	32	G1 1/2B	5,0	Radio (integrated)	BDEE 168155
U	6,0	260	32	G1 1/2B	5,0	Radio (integrated)	BDGE 168158

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
U	6,0	150	32	G1 1/2B	5,2	Module slot	BDEE 168159
U	6,0	260	32	G1 1/2B	5,2	Module slot	BDGE 168167
U	6,0	150	32	G1 1/2B	5,2	M-Bus (module installed)	BDEE 168160
U	6,0	260	32	G1 1/2B	5,2	M-Bus (module installed)	BDGE 168168
U	6,0	150	32	G1 1/2B	5,2	Radio (integrated)	BDEE 168166
U	6,0	260	32	G1 1/2B	5,2	Radio (integrated)	BDGE 168169
<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
U	6,0	150	32	G1 1/2B	5,2	Module slot	BDEE 168170
U	6,0	260	32	G1 1/2B	5,2	Module slot	BDGE 168173
U	6,0	150	32	G1 1/2B	5,2	M-Bus (module installed)	BDEE 168171
U	6,0	260	32	G1 1/2B	5,2	M-Bus (module installed)	BDGE 168174
U	6,0	150	32	G1 1/2B	5,2	Radio (integrated)	BDEE 168172
U	6,0	260	32	G1 1/2B	5,2	Radio (integrated)	BDGE 168175
<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
U	6,0	150	32	G1 1/2B	6,0	Module slot	BDEE 160821
U	6,0	260	32	G1 1/2B	6,0	Module slot	BDGE 160822
U	6,0	150	32	G1 1/2B	6,0	M-Bus (module installed)	BDEE 168176
U	6,0	260	32	G1 1/2B	6,0	M-Bus (module installed)	BDGE 168179
U	6,0	150	32	G1 1/2B	6,0	Radio (integrated)	BDEE 168177
U	6,0	260	32	G1 1/2B	6,0	Radio (integrated)	BDGE 168180
<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
U	6,0	150	32	G1 1/2B	6,0	Module slot	BDEE 168186
U	6,0	260	32	G1 1/2B	6,0	Module slot	BDGE 168189
U	6,0	150	32	G1 1/2B	6,0	M-Bus (module installed)	BDEE 168187
U	6,0	260	32	G1 1/2B	6,0	M-Bus (module installed)	BDGE 168190
U	6,0	150	32	G1 1/2B	6,0	Radio (integrated)	BDEE 168188
U	6,0	260	32	G1 1/2B	6,0	Radio (integrated)	BDGE 168191

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.

## 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
- 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 Ø [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.

<b>Options for compact heat and cooling meters SensoStar U qp 6 - 10 (installed at factory)</b>	
Installation in forward flow	
Surcharge cooling meter (incl. programming) <small>(Approval: Germany, Austria and Switzerland)</small>	
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 (only compatible with ultrasonic compact meters up to DN25). Please specify symmetrical or asymmetrical installation.	
AGFW temperature sensors 38,0 mm (length 1,5 m) for direct mounting (only compatible with 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	
<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	

## 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
- 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 with 1,5 m connecting cable (symmetrical)</b>							
U	15,0	200	50	4-hole FL	5,0	Module slot	BDHG179681
U	15,0	270	50	4-hole FL	5,0	Module slot	BDKG179698
U	15,0	200	50	4-hole FL	5,0	M-Bus (module installed)	BDHG179682
U	15,0	270	50	4-hole FL	5,0	M-Bus (module installed)	BDKG179699
U	15,0	200	50	4-hole FL	5,0	Radio (integrated)	BDHG179683
U	15,0	270	50	4-hole FL	5,0	Radio (integrated)	BDKG179700
<b>Return flow temperature sensor 1,5 m integrated, forward flow temperature sensor with 1,5 m connecting cable (asymmetrical)</b>							
U	15,0	200	50	4-hole FL	6,0	Module slot	BDHG179684
U	15,0	270	50	4-hole FL	6,0	Module slot	BDKG179711
U	15,0	200	50	4-hole FL	6,0	M-Bus (module installed)	BDHG179685
U	15,0	270	50	4-hole FL	6,0	M-Bus (module installed)	BDKG179712
U	15,0	200	50	4-hole FL	6,0	Radio (integrated)	BDHG179691
U	15,0	270	50	4-hole FL	6,0	Radio (integrated)	BDKG179713
<b>Forward and return flow temperature sensor outside with 1,5 m connecting cable (symmetrical)</b>							
U	15,0	200	50	4-hole FL	6,0	Module slot	BDHG179692
U	15,0	270	50	4-hole FL	6,0	Module slot	BDKG179714
U	15,0	200	50	4-hole FL	6,0	M-Bus (module installed)	BDHG179693
U	15,0	270	50	4-hole FL	6,0	M-Bus (module installed)	BDKG179715
U	15,0	200	50	4-hole FL	6,0	Radio (integrated)	BDHG179694
U	15,0	270	50	4-hole FL	6,0	Radio (integrated)	BDKG179721
<b>Return flow temperature sensor 1,5 m integrated, forward flow temperature sensor with 1,5 m connecting cable (asymmetrical)</b>							
U	15,0	200	50	4-hole FL	AGFW 38 mm	Module slot	BDHG179695
U	15,0	270	50	4-hole FL	AGFW 38 mm	Module slot	BDKG179722
U	15,0	200	50	4-hole FL	AGFW 38 mm	M-Bus (module installed)	BDHG179696
U	15,0	270	50	4-hole FL	AGFW 38 mm	M-Bus (module installed)	BDKG179723
U	15,0	200	50	4-hole FL	AGFW 38 mm	Radio (integrated)	BDHG179697
U	15,0	270	50	4-hole FL	AGFW 38 mm	Radio (integrated)	BDKG179724

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

<b>Options for compact heat and cooling meters SensoStar U qp 15 (installed at factory)</b>	
Installation in forward flow	
Surcharge cooling meter (incl. programming) <small>(Approval: Germany, Austria and Switzerland)</small>	
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 (only compatible with ultrasonic compact meters up to DN25). Please specify symmetrical or asymmetrical installation.	
AGFW temperature sensors 38,0 mm (length 1,5 m) for direct mounting (only compatible with 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	
<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	

## Compact heat meters with ultrasonic flow sensor

### SensoStar UC (Ultrasonic Composite)

- 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	BIAA184478
U	1,5	110	15	G3/4B	5,0	Module slot	BIAB184472
U	0,6	110	15	G3/4B	5,0	M-Bus (module installed)	BIAA184479
U	1,5	110	15	G3/4B	5,0	M-Bus (module installed)	BIAB184473
U	0,6	110	15	G3/4B	5,0	Radio (integrated)	BIAA184480
U	1,5	110	15	G3/4B	5,0	Radio (integrated)	BIAB184474

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	Length [mm]	DN	Connection	Temp.sensor Ø [mm]	Option	Article number*
U	0,6	110	15	G3/4B	5,2	Module slot	BIAA184481
U	1,5	110	15	G3/4B	5,2	Module slot	BIAB184475
U	0,6	110	15	G3/4B	5,2	M-Bus (module installed)	BIAA184482
U	1,5	110	15	G3/4B	5,2	M-Bus (module installed)	BIAB184476
U	0,6	110	15	G3/4B	5,2	Radio (integrated)	BIAA184483
U	1,5	110	15	G3/4B	5,2	Radio (integrated)	BIAB184477

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.

Options for compact heat and cooling meters <b>SensoStar UC qp 0,6 - 1,5</b> (installed at factory)	
Installation in forward flow	
Surcharge cooling meter (incl. programming) <small>(Approval: Germany, Austria and Switzerland)</small>	
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 select if integrated or outside)	
AGFW temperature sensors 27,5 mm (length 1,5 m) for direct mounting (only compatible with ultrasonic compact meters up to DN25). 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	
<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 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.

## 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 Switzerland</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.

Options  
**SensoStar C**

installed at factory

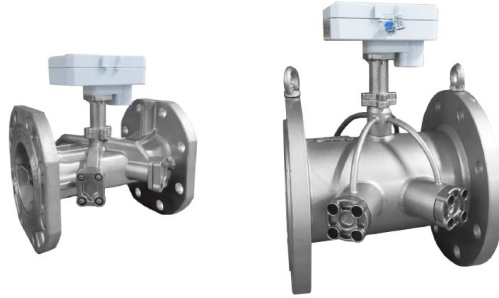
Installation in forward flow	
Glycol meters (solar systems) - Standard Ethylene glycol 30%	
Heat and cooling meter (incl. programming)	
3 pulse inputs (for meters with Radio or M-bus)	
2 pulse output (module installed) – Battery lifetime 10 years	
LoRaWAN module	
NB-IoT module	
Modbus module	
Battery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

### 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	350	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 and article numbers for cooling metery (may) vary

The gaskets are not included in the scope of delivery.

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

## Ultrasonic flow sensor FlowStar U gaskets

PN16							
Name	FlowStar U article number	Number of screws	DN	Hole diameter	Bolt circle	Article number	
Flanschdichtung DN100 PN10-16 D220 X 115 X 1,	1500034219	8	100	18	180	0050000250	
Flanschdichtung DN125 PN10-16 D250 X 141 X 1,	1500034220	8	125	18	210	0050000251	
Flanschdichtung DN150 PN10-16 D285 X 169 X 1,	1500034221	8	150	22	240	0050000252	
Flanschdichtung DN200 PN16 D340 X 220 X 1,5	1500034222	12	200	22	295	0050000253	
Flanschdichtung DN250 PN16 D405 X 274 X 1,5	1500034223	12	250	26	355	0050000254	
Flanschdichtung DN300 PN16 D460 X 325 X 1,5	1500034224	12	300	26	410	0050000255	

PN25							
Name	FlowStar U article number	Number of screws	DN	Hole diameter	Bolt circle	Article number	
Flanschdichtung DN50 PN10-40 D165 X 61 X 1,5	1500034213 1500034214 1500034201 1500034202 1500034215	4	50	18	125	0050000260	
Flanschdichtung DN65 PN10-40 D185 X 77 X 1,5	1500034216 1500034207 1500034203 1500034217	4	65	18	145	0050000261	
Flanschdichtung DN80 PN10-40 D200 X 90 X 1,5	1500034218 1500034208 1500034204	8	80	18	160	0050000262	
Flanschdichtung DN100 PN25-40 D235 X 115 X 1,	1500034205	8	100	22	190	0050000263	
Flanschdichtung DN125 PN25-40 D270 X 141 X 1,	1500034206	8	125	26	220	0050000264	
Flanschdichtung DN150 PN25-40 D300 X 169 X 1,	1500034209	8	150	26	250	0050000265	
Flanschdichtung DN200 PN25 D360 X 220 X 1,5	1500034210	12	200	26	310	0050000266	
Flanschdichtung DN250 PN25 D425 X 274 X 1,5	1500034211	12	250	30	370	0050000267	
Flanschdichtung DN300 PN25 D485 X 325 X 1,5	1500034212	12	300	30	430	0050000268	

## 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	G $\frac{3}{8}$ B	050000002	
SE-EAS-V	130	20	G1B	050000003	

### 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	G $\frac{3}{8}$ B	050000000	
SE-EAS-3KH	130	20	G1B	050000001	

### 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 $\frac{1}{2}$ B	0500000051	
SE-PS-V	260	25	G1 $\frac{1}{2}$ B	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 $\frac{1}{2}$ B	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)

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

## 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	G $\frac{3}{4}$ B	0050000106	
SE-PS-3KH	130	20	G1B	0050000107	
SE-PS-3KH	190	20	G1B	0500000031	
SE-PS-3KH	150	25	G1 $\frac{1}{4}$ B	0500000052	
SE-PS-3KH	260	25	G1 $\frac{1}{4}$ B	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	G1 $\frac{1}{4}$ B	0500000029	
SE-PS-4KH	260	25	G1 $\frac{1}{4}$ B	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- $\frac{3}{4}$	110	15	G $\frac{3}{4}$ B	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	003000071
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	003000073
Insulating shell ultrasonic heat/cooling meters: Universal insulation for ultrasonic meters with detachable calculators	110 - 190 mm	DN 15/20	10	003000081
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	003000082
Insulation ball valve 1": Shell for ball valve for heat/cooling meter till 1"		DN 15/20	10	003000072

\*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		
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	510000050	

\*Attention: only short telegramm possible

- Order unit 40 pcs. per article

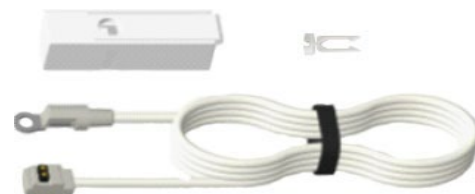
### Heat conductor



Accessories	Article number	
Heat conductor	005120030	

- Order unit 40 pcs.

### Remote sensor



Type	Article number	
Remote sensor complete, 2.0 m (remote sensor, cover, 1 security seal, 1 lock nut M3, 1 adhesive seal)	025120006	
Remote sensor complete, 5.0 m (remote sensor, cover, 1 security seal, 1 lock nut M3, 1 adhesive seal)	025120011	

- Order unit 10 pcs. per article

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

## Heat cost allocator Unifix

- Compatible with various back plates
- Approved to German HKVO; according to DIN EN 834:2017-02
- Storage of 24 monthly and half-monthly values
- Clip-on remote temperature sensor
- 1-sensor mode (programmable)
- OMS conform (OMS 3 Mode 5 or OMS 4 Mode 7)
- Mode T1 and C1 selectable
- 15 monthly values submittable by radio



Type	Gerätetyp	Variation	Article number*	
<b>QR-code printed</b>				
Unifix without seal & adapter	2-sensor device	without heat conductor	5101200001	
Unifix Engelmann	2-sensor device	without heat conductor	5101200002	
Unifix Sontex	2-sensor device	without heat conductor	5101200003	
Unifix Qundis P2	2-sensor device	without heat conductor	5101200004	
Unifix Qundis P3	2-sensor device	without heat conductor	5101200005	
Unifix Techem	2-sensor device	without heat conductor	5101200006	
Unifix Caleffi	2-sensor device	without heat conductor	5101200007	
<b>Sticker on device</b>				
Unifix without seal & adapter w. sticker	2-sensor device	without heat conductor	5101200021	
Unifix Engelmann w. sticker	2-sensor device	without heat conductor	5101200022	
Unifix Sontex w. sticker	2-sensor device	without heat conductor	5101200023	
Unifix Qundis P2 w. sticker	2-sensor device	without heat conductor	5101200024	
Unifix Qundis P3 w. sticker	2-sensor device	without heat conductor	5101200025	
Unifix Techem w. sticker	2-sensor device	without heat conductor	5101200026	
Unifix Caleffi w. sticker	2-sensor device	without heat conductor	5101200028	

- Order unit 40 pcs.



### Alu-Wärmeleiter

Accessories	Article number*	
Heat conductor	0051200030	

- Order unit 40 pcs.

## Accessories Unifix

### Sealing

For each variant, except Engelmann, you need an adapter in addition to an seal



Type	Article number	Order unit	
Pack sealing ES	0251200050	50	
Pack sealing Sontex	0251200051	50	
Pack sealing Qundis P2	0251200052	50	
Pack sealing Qundis P3	0251200053	50	
Pack sealing Techem	0251200054	50	
Pack sealing Caleffi	0251200055	50	

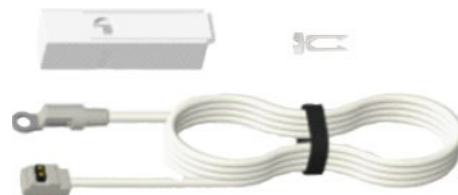
### Adapter

For each variant, except Engelmann, you need a seal in addition to an adapter



Type	Article number	Order unit	
Pack adapter Sontex	0251200151	50	
Pack adapter Qundis P2	0251200152	50	
Pack adapter Qundis P3	0251200153	50	
Pack adapter Techem	0251200154	50	
Pack adapter Caleffi	0251200155	50	

### Remote sensor



Type	Article number*	
Remote sensor complete, 2.0 m (remote sensor, cover, 1 security seal, 1 lock nut M3, 1 adhesive seal)	0251200006	
Remote sensor complete, 5.0 m (remote sensor, cover, 1 security seal, 1 lock nut M3, 1 adhesive seal)	0251200011	

- Order unit 10 pcs.

## 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	

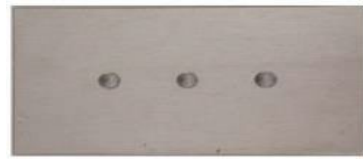
## Convectors



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

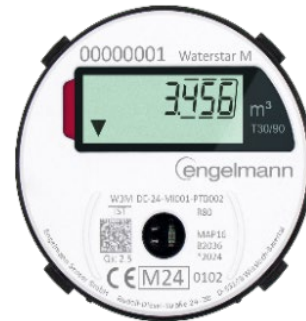


Type	Nominal size Q3	Length [mm]	DN	Thread connection	Pipe diameter	Article number	
<b>Cold water till 30° C</b>							
WaterStar M	2,5	80 mm	15	3/4"	1/2"	1102500030	
WaterStar M	2,5	110 mm	15	3/4"	1/2"	1102500031	
WaterStar M	2,5	130 mm	15	3/4"	1/2"	1102500032	
WaterStar M	2,5	130 mm	20	1"	3/4"	1102500033	
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

MB2 and Minol Micro (M7L) are available on request

## 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	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	



Flow direction inverter incl. moulded seal and O-Ring	for coaxial meters 2"	0051700003	
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## Accessories for water meter **WaterStar M**

### 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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### 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	
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### 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	

### Connections for washbasin meters



Washbasin meter connection incl. vulcanised fiber gasket	0052500010	
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### 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 housing, only internal thread	110	1/2" IG	0051700053
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

## 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 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

### ComStar

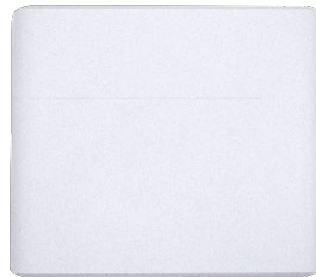
Data collector for remote reading of OMS-compliant devices via wireless M-Bus

- Forwarding of the consumption data is realised via LPWAN technologies (Low Power Wide Area

Network):

- LTE-M

- The ComStar uses MQTT (Message Queuing Telemetry Transport) for its configuration as well as for the communication with the backend



Gateway		Article number	
ComStar (1 Bat.)	ComStar with 1 battery	0021300100	
ComStar (1 Bat.) Connectivity	ComStar with 1 batterie incl. SIM card & DSP access*	0021300103	
ComStar (2 Bat.)	ComStar with 2 batteries	0021300101	
ComStar (2 Bat.) Connectivity	ComStar with 2 batteries incl. SIM card & DSP access	0021300104	

\*Unit price plus connectivity

Connectivity		Article number	
Connectivity incl. DSP*	120 Months	9100000328	

\*Unit prices apply per month and per gateway

Spare parts		Article number	
ComStar 1 Bat. Set	1 battery	0021300150	
ComStar 2 Bat. Set	2 batteries	0021300151	

Repeater		Article number	
Repeater	Single-Hop T1, S1, C1	0500000077	0500000077
Repeater	Single-Hop T1, S1, C1 w	0500000086	0500000086

## Engelmann Connect Platform



### 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 120 months



Engelmann Connect Platform	Contract term	Article number		
Connectivity incl. DSP*	120 months	910000328		
Surcharge Activation DSP		0701300001		

\*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.**

## Service fees and trainings

Service fees	Article number	
Minimum order value "200 EUR"	910000360	
Calibration certificate / Declaration of conformity	-	
Change of order	910000361	
Express order	910000362	
On site Expert	910000363	
FAW programming	910000364	
Setup Radio settings	910000365	
Private labelling including sample/approval	910000366	
Subsequent dispatch of AES Keys (3 months after delivery)	910000367	
Basic Training: 1 day in-house training at Engelmann: Basics for AMR System (price per person)	910000310	
Advanced Training: On-site at customer's place, incl. support of implementation at property (price per day plus travel expenses/allowances)	910000312	

## Delivery and payment terms

### Pricing

All prices in EUR plus VAT.

Delivery of the products is ex works (EXW) of Engelmann's premises, as per INCOTERMS 2010.

**This price list is valid from 01.04.2026**

All previous price lists lose their validity. Errors and omissions excepted. Prices subject to change.

### Terms and Conditions

The general Terms and Conditions of Engelmann Sensor GmbH apply, subject to error and change.

The most recent version can be found on

[www.engelmann.de/en/downloads/#\\_avb](http://www.engelmann.de/en/downloads/#_avb)

Shipping date: upon agreement

Incoterm: EXW (Incoterms 2010)

Payment: 45 days net

Bank information:

Commerzbank Sinsheim

IBAN: DE82 6704 0031 0201 0577 00

BIC: COBADEFFXXX

Sparkasse Heidelberg

IBAN: DE63 6725 0020 0051 4017 94

BIC: SOLADES1HDB

## Returns / cancellations / complaints

Dear customer,

should there be a reason for returning goods due to quality needs, please use this document for returning the product.

To enable us to help you as fast as possible we kindly ask you to follow the following steps and to return **this document** together with the goods and a copy of the invoice / delivery note.

**Please note: we cannot accept any returned products without the form for returned goods!**

(available for download on [www.engelmann.de/en/downloads/#formulare](http://www.engelmann.de/en/downloads/#formulare))

### Cancellation conditions

We accept cancellations\* of orders at the following conditions:

cancellation fees:

A. Order canceled within 2 working days after receipt of the order confirmation or earlier:

no cancellation fees

B. Order canceled 2 working days after receipt of the order confirmation and before delivery of the goods:

50 % of the net price

C. Order canceled after delivery of the goods is not possible:

100 % of the net price

\*This does not apply to orders for which the requested delivery date (outgoing Engelmann) is specified as "immediately" or when there is no delivery date specified. Then cancellation is not possible.

Service fees	Article number	
Minimum order value "100 EUR"	9100000360	
Calibration certificate / Declaration of conformity	-	
Change of order	9100000361	
Delivery preference	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	

Date: 01.04.2022



**Return Label**

to attach it outside the packaging



**TO:**  
**Engelmann Sensor GmbH**  
Rudolf-Diesel-Str. 24-28  
69168 Wieshole  
Germany

**From:**

\*Return-No: [Redacted]

Customer details			
Company name:	[Redacted]	Customer No:	[Redacted]
Street:	[Redacted]	Contact person:	[Redacted]
ZIP / City:	[Redacted]	Country:	[Redacted]
Phone:	[Redacted]	[Redacted]	[Redacted]

## Contact

### Orders und complaints

Please send your order form (www.engelmann.de - Downloads) by e-mail to sales@engelmann.de or contact our customer support. If you have any complaints contact qualitaetsmanagement@engelmann.de

### Sales Team International

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smartest metering technology