

# K Series Ultrasonic Heat-Cool Metering



KD Series

KE Series

## Product Description

The K Series Ultrasonic Heat-Cool Metering Series is designed to operate effectively with many Schneider Electric Buildings BMS systems using communication with LON, M-Bus, Modbus, BACnet or as pulse output.

The K Series meters are designated as KD (deluxe) and KE (economy) models. KD meters offer a feature-rich solution for heat, cool and flow metering. KE models offer fewer features at a lower price point.

Heat metering is an essential way to monitor and save energy and offers a reliable way to determine heat energy consumed

in offices and buildings. Versions for hot and chilled water are available.

In many cases, it is not adequate to simply monitor energy supplied by utility companies using primary meters. Secondary metering offers valuable information that can be used to manage consumption, target potential energy savings and assign accurate costs to individual energy users.

These flow meters use the ultrasonic method to provide accuracy. Patented technology and no moving parts means that these devices have low maintenance requirements.

## Available Products

K	Category <input type="checkbox"/>	Meter Type <input type="checkbox"/>	Pipe Reference <input type="checkbox"/>	Flow Direction <input type="checkbox"/>	Example: K <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	D = Deluxe E = Economy	K = Heat & Cool** F = Flow	See Pipe Reference Table for details. 00, 05, 10, 15, 20, 25, 30, 35, 40*, 45*, 50*, 55*, 60*, 65*	F = Inflow***	

\* Deluxe products only. \*\*Requires **KAOPTC** when display of cool or heat only is required. \*\*\*Can be changed to return via keypad.  
 Note: Meters sold without communication modules. See the Options and Accessories table on page 2 for options.  
 Shipped with a 24VAC power supply, temperature sensor set (1.5 meter cable) and temperature sensor pocket well set. See Options and Accessories table if a 230VAC power supply is needed.

## Pipe Reference Table

Pipe	KD Compatible	KE Compatible	qp nom. (m³/h)	qi min. (m³/h)	qs max. (m³/h)	Connection Size	Connection Type	Length (mm)	Meter Factor (pulses/liter)	Material (pipe connection)
00	Y	Y	1.5	0.015	3.0	G¾B (R½)	Threaded	110	100	Brass
05	Y	Y	2.5	0.025	5.0	G1B (R¾)	Threaded	190	60	Brass
10	Y	Y	3.5	0.035	7.0	G5/4B (R1)	Threaded	260	50	Brass
15	Y	Y	6	0.06	12	G5/4B (R1)	Threaded	260	25	Brass
20	Y	Y	6	0.06	12	DN25	Flange	260	25	Stainless steel
25	Y	Y	10	0.1	20	G2B (R1½)	Threaded	300	15	Brass
30	Y	Y	10	0.1	20	DN40	Flange	300	15	Stainless steel
35	Y	Y	15	0.15	30	DN50	Flange	270	10	Stainless steel
40	Y	N	25	0.25	50	DN65	Flange	300	6	Stainless steel

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## Pipe Reference Table (cont.)

Pipe	KD Compatible	KE Compatible	qp nom. (m³/h)	qi min. (m³/h)	qs max. (m³/h)	Connection Size	Connection Type	Length (mm)	Meter Factor (pulses/liter)	Material (pipe connection)
45	Y	N	40	0.4	80	DN80	Flange	300	5	Stainless steel
50	Y	N	60	0.6	120	DN100	Flange	360	2.5	Stainless steel
55	Y	N	100	1.0	200	DN100	Flange	360	1.5	Stainless steel
60	Y	N	150	1.5	300	DN150	Flange	500	1.0	Stainless steel
65	Y	N	250	2.5	500	DN150	Flange	500	0.6	Stainless steel

## Options and Accessories

Model	Option	Description	KD Compatible	KE Compatible
KA420A	X	Analog Output Module, Dual 4-20 mA	Y	Y
KABACN	X	BACnet MS/TP (RS-485) Output Module	Y	Y
KADLON	X	LON Output Module for Deluxe (D) Display	Y	N
KAMBUS	X	Wired M-Bus Output Module	Y	Y
KAMODT	X	Modbus TCP (IP) Output Module	Y	N
KAMODR	X	Modbus RTU (RS-485) Output Module	Y	Y
KAD230V		230 VAC Input Power Supply for Deluxe (D) Display	Y	N
KAD24V		24 VAC Input Power Supply for Deluxe (D) Display	Y	N
KAE230V		230 VAC Input Power Supply for Economy (E) Display	Y*	Y
KAE24V		24 VAC Input Power Supply for Economy (E) Display	Y*	Y
KABATD		D-Cell Battery With Cable and Connector	Y**	Y**
KASENA		Temperature Sensor Set, 1.5 m Cable for heat-cooling	Y	Y
KASENB		Temperature Sensor Set, 3.0 m Cable for heat-cooling	Y	Y
KASENC		Temperature Sensor Set, 5.0 m Cable for heat-cooling	Y	N
KASEND		Temperature Sensor Set, 10.0 m Cable for heat-cooling	Y	N
KAPO65		Temperature Sensor Pocket Well, R1/2 x 65 mm Long x 5.8 mm Diameter, S-Steel, Pair	Y	Y
KAPO90		Temperature Sensor Pocket Well, R1/2 x 90 mm Long x 5.8 mm Diameter, S-Steel, Pair	Y	Y
KADBRK		Mounting Bracket for Deluxe (D) Display	Y	N
KAEBRK		Wall Mounting Bracket for Economy (E) Display	N	Y
KADCB05		Signal cable, extension, 5 meters, for Deluxe (D) Display	Y	N
KADCB10		Signal cable, extension, 10 meters, for Deluxe (D) Display	Y	N
KADBOX		Signal cable extender (joiner) box, for Deluxe (D) Display	Y	N
KAOPTC		IR Optical to USB Data Cable	Y	Y
KA602KIT		Kit to connect legacy Cooling (MC) and Heat/Cool (MK) meters to a new generation calculator	Y	N
KADKCAL		Replacement calculator for Deluxe (KDKxxx) and legacy (MK with KA602KIT) Heat/Cool meters	Y	N
KADFCAL		Replacement calculator for Deluxe (KDFxxx) Flow meters	Y	N
KADCCAL		Replacement calculator for Deluxe (KDC**) and legacy (MC with KA602KIT) Cooling Meters	Y	N
KADHCAL		Replacement calculator for Deluxe (KDH**) and legacy (MH) heating meters	Y	N

\* Can be used with one communication module only.

\*\* Can be used with one Mbus communication module or without communication module only.

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## Specifications

<b>Operating Environment</b>	
Ambient temperature range	5 to 55 °C (41 to 131 °F)
Fluid temperature	2 to 130 °C (37 to 266 °F)
Accuracy	KD: Flow 1%, Temperature 4% KE: Flow 2%, Temperature 4%
Power supply	24 Vac (or 230 Vac option)
Flow range	KD: 1.5 to 250 m <sup>3</sup> /h KE: 1.5 to 15 m <sup>3</sup> /h
Temperature sensor	2-wire
Measuring units	KD: mWh, kWh, GJ or Gcal KE: mWh, kWh or GJ
Module slots (select communication option)	KD: 2 slots, KE: 1 slot
Flow sensor cable length	KD: 2.5m*, KE: 1.5m
Battery**	D-cell***
Battery lifetime	Up to 16 years
<b>Materials</b>	
Housing, threaded	DZR brass (dezincification resistant brass), CW602N
Housing, flanged	Stainless steel, W. no. 1.4308
Transducer (membrane)	Stainless steel, W. no. 1.4404
O-ring	Ethylene Propylene (EPDM)
Reflector base/reflector	Thermoplastic, 30 % glass fiber reinforced Polyethersulfone (PESU 30% GF) and stainless steel (qp 6.0 and 10 m <sup>3</sup> /h)/ stainless steel (qp 3.5, 15...100 m <sup>3</sup> /h)
Measuring tube	Thermoplastic, 30% glass fiber reinforced Polyethersulfone (PESU 30% GF)
<b>Regulatory Information</b>	
Protection class	KD: Calculator IP65, Flow sensor IP65 KE: Calculator IP54, Flow sensor IP68
Heat meter approval	MID, EN1434
Cool meter approval	BEK-1178, EN1434
<b>Warranty</b>	
Limited warranty	2 years

\* Cable extension accessory available to extend up to 10 m.

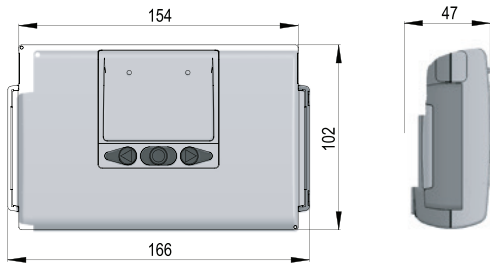
\*\* Accessory, sold separately.

\*\*\* Communication limitations apply. See Options and Accessories table.

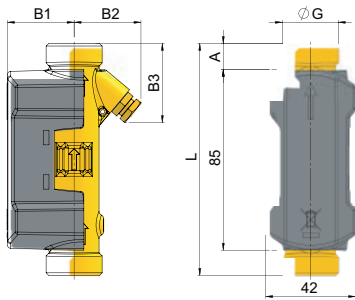
Note: Meter is not suitable to measure water with glycol concentrations.

## KD Series Dimensions

### D Series Calculator (mm)

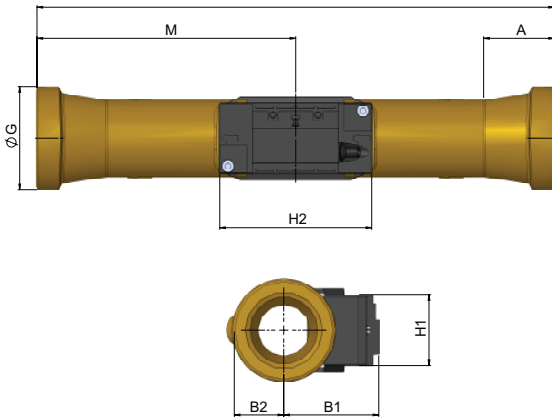


## KDK/KDF Series Flow Sensors



Pipe Ref.	Thread EN ISO 228-1	L	A	B1	B2	B3	Approx. Weight (kg)*
00	G $\frac{3}{4}$ B (q <sub>p</sub> 1.5)	110	12	35	32	38	0.6
05	G1B (q <sub>p</sub> 2.5)	190	52	38	38	78	0.9

\* Including the electronics box and 2.5 m signal cable.



Pipe Ref.	Thread EN ISO 228-1	L	M	H2	A	B1	B2	H1	Approx. Weight (kg)*
10	G1 $\frac{1}{4}$ B (q <sub>p</sub> 3.5)	260	L/2	88	16	51	20	41	1.9
15	G1 $\frac{1}{2}$ (q <sub>p</sub> 6.0)	260	L/2	88	16	53	20	41	2.0
25	G2B (q <sub>p</sub> 10)	300	L/2	88	40.2	55	29	41	2.9

\* Including the electronics box and 10 m signal cable.

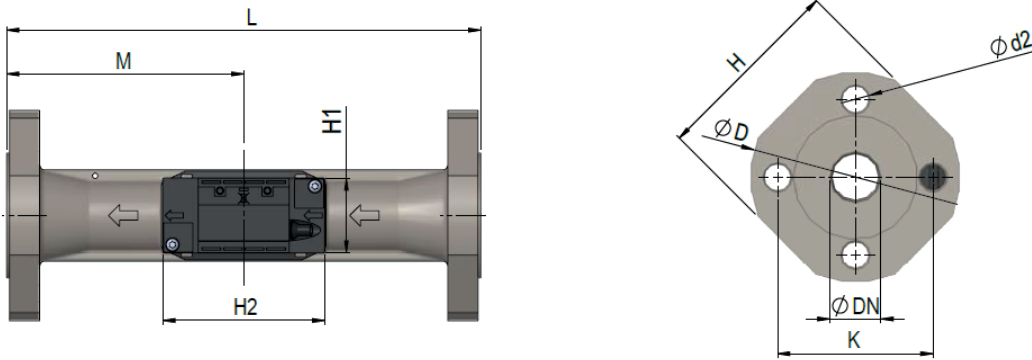
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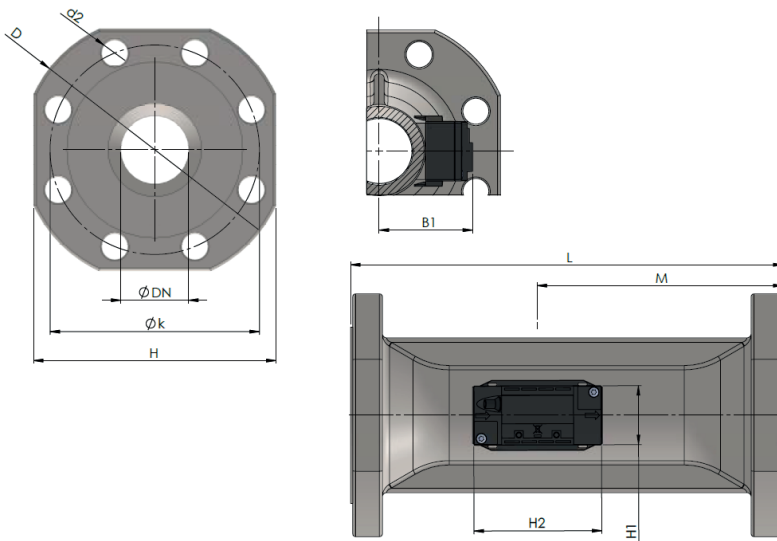
KD Series Dimensions (cont.)

KDK/KDF Series Flow Sensors (cont.)



Pipe Ref.	Nom. Diameter	L	M	H2	D	H	k	H1	Bolts			Approx. Weight (kg)*
									Qty.	Thread	d <sub>2</sub>	
20	DN25 (q <sub>p</sub> 6.0)	260	L/2	88	115	106	85	41	4	M12	14	4.5
30	DN40 (q <sub>p</sub> 10)	300	L/2	88	150	140	110	41	4	M16	18	7.4
35	DN50 (q <sub>p</sub> 15)	270	155	88	165	145	125	41	4	M16	18	8.5

\* Including the electronics box and 10 m signal cable.



Flange facing type B, raised face according to EN 1092-1, PN25

Pipe Ref.	Nom. Diameter	L	M	H1	H2	B1	D	H	k	Bolts			Approx. Weight (kg)*
										Qty.	Thread	d <sub>2</sub>	
40	DN65 (q <sub>p</sub> 25)	300	170	41	88	<H/2	185	168	145	8	M16	18	13.5
45	DN80 (q <sub>p</sub> 40)	300	170	41	88	<H/2	200	184	160	8	M16	18	17.1
50/55	DN100 (q <sub>p</sub> 60 and 100)	360	210	41	88	<H/2	235	220	190	8	M20	22	22.0

\* Including the electronics box and 10 m signal cable.

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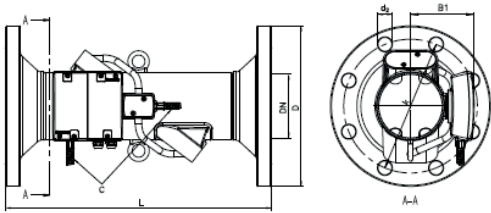
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KD Series Dimensions (cont.)

KDK/KDF Series Flow Sensors (cont.)

Flow Sensor DN150 (mm)



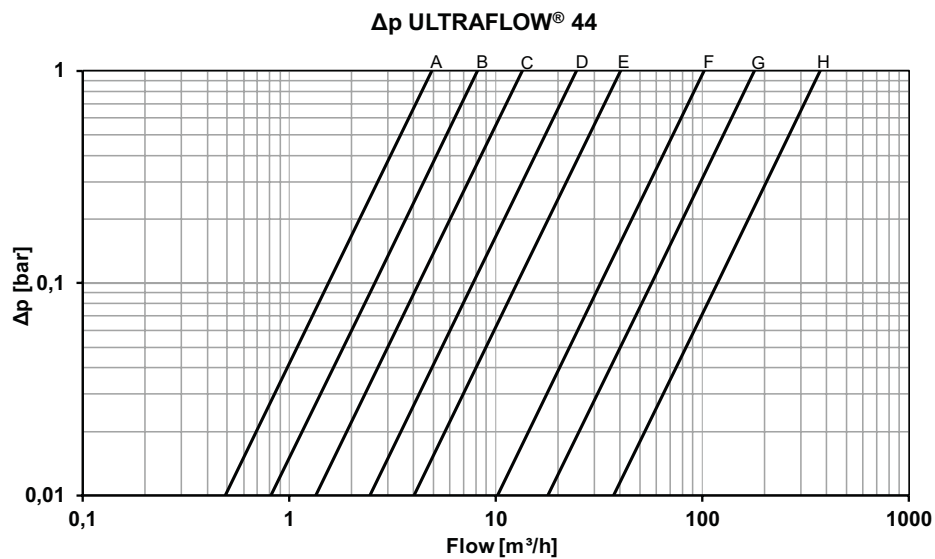
Flange EN 1092-1. Flange facing type B, raised face.

Pipe Ref.	Nom. Diameter	PN (bar)	Nom. Flow $q_p$ (m <sup>3</sup> /h)	L	D	k	B1	E	Steel Tube Length C	Bolts			Approx. Weight (kg)
										Qty.	Thread	d <sub>2</sub>	
60/65	DN150	25	150 & 250	500	300	250	119	282	650	8	M24	26	37

Pressure Loss

Graph	Nom. Flow $q_p$ (m <sup>3</sup> /h)	Nom. diameter (mm)	$\Delta p@q_p$ (bar)	$k_v$ *	$q@0.25$ bar [m <sup>3</sup> /h]
A	15	DN15/DN20	0.09	4.9	2.4
B	2.5	DN20	0.09	8.2	4.1
C	3.5	DN25	0.07	13.4	6.8
D	6	DN25/DN32	0.06	24.5	12.3
E	10	DN40	0.06	40	20
E	15	DN50	0.14	40	20
F	25	DN65	0.06	102	51
G	40	DN80	0.05	179	90
H	60	DN100	0.03	373	187
H	100	DN100/DN125	0.07	373	187

\*  $q = k_v \times \sqrt{\Delta p}$

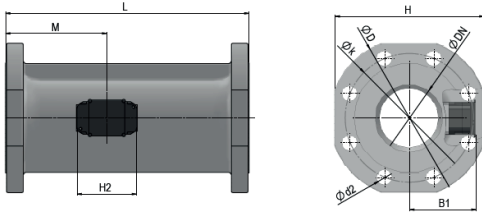


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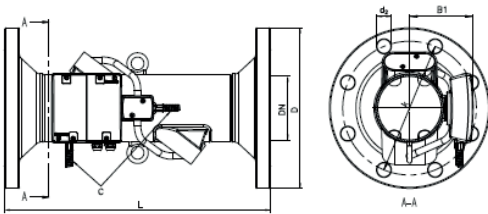
Flow Sensor DN65 to DN100 (mm)



Flange facing type B, raised face according to EN 1092-1, PN25

Pipe Ref.	Nom. Diameter	L	M	H2	B1	D	H	k	Bolts			Approx. Weight (kg)
									Qty.	Thread	d <sub>2</sub>	
40	DN65	300	170	89	<H/2	185	168	145	8	M16	18	13.2
45	DN80	300	170	89	<H/2	200	184	160	8	M16	18	16.8
50/55	DN100	360	210	89	<H/2	235	220	190	8	M20	22	21.7

Flow Sensor DN150 (mm)

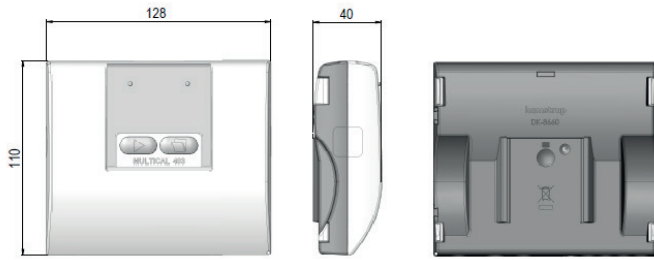


Flange EN 1092-1. Flange facing type B, raised face.

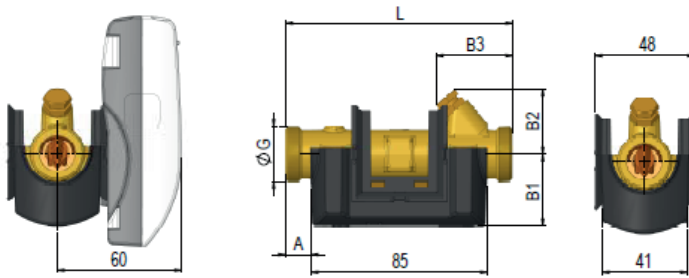
Pipe Ref.	Nom. Diameter	PN (bar)	Nom. Flow q <sub>p</sub> (m <sup>3</sup> /h)	L	D	k	B1	E	Steel Tube Length C	Bolts			Approx. Weight (kg)
										Qty.	Thread	d <sub>2</sub>	
60/65	DN150	25	150 & 250	500	300	250	119	282	650	8	M24	26	37

## KE Series Dimensions

### E Series Calculator (mm)

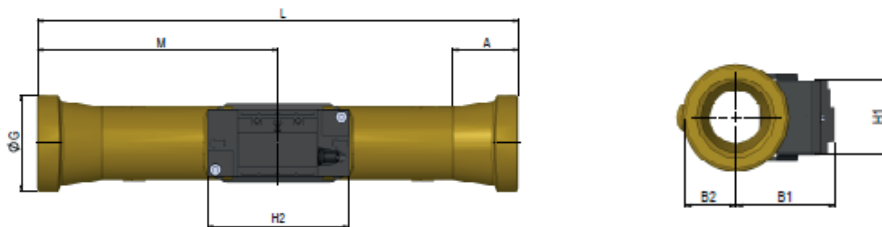


### Flow Sensor with G3/4 and G1 Thread Connection (mm)



Pipe Ref.	Thread G	L	A	B1	B2	B3	Approx. Weight (kg)*
00	G3/4B	110	12	35	32	38	0.9
05	G1B	190	22	38	38	78	1.2

### Flow Sensor G2/G5/4 Threaded Connection (mm)



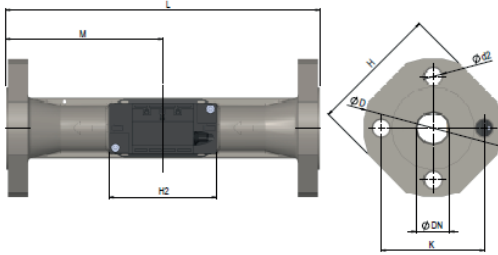
Pipe Ref.	Thread G	L	M	H2	A	B1	B2	H1	Approx. Weight (kg)*
10	G5/4B	260	130	88	16	51	20	41	2.0
15	G5/4B	260	130	88	16	53	20	41	2.1
25	G2B	300	150	88	40.2	55	29	41	3.0

\* Weight of calculator, flow sensor, 3 m sensor pair, excluding packaging.



KE Series Dimensions, cont.

Flow Sensor with DN25, DN40 and DN50 Flange Connection (mm)

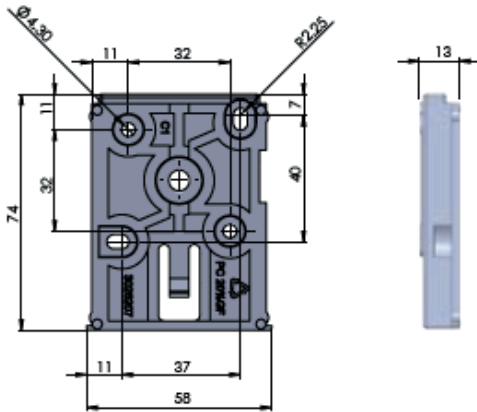


Pipe Ref.	Nom. Diameter DN	L	M	H2	D	H	K	Bolts			Approx. Weight (kg)*
								Qty.	Thread (mm)	d <sub>2</sub> (mm)	
20	DN25	260	130	88	115	108	85	4	M12	14	4.6
30	DN40	300	150	88	150	140	110	4	M16	18	7.5
35	DN50	270	155	88	165	145	125	4	M16	18	8.6

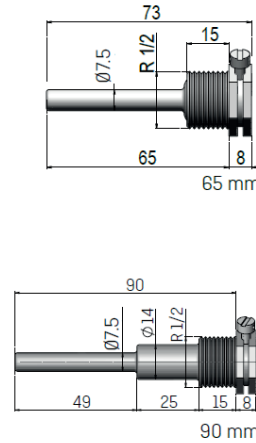
\* Weight of calculator, flow sensor, 3 m sensor pair, excluding packaging.

Option & Accessory Dimensions

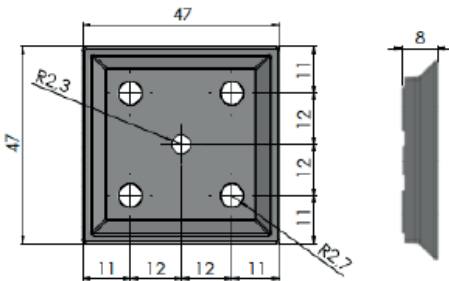
Mounting Bracket for D Series Deluxe Display (mm)



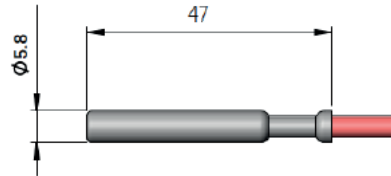
Temperature Pockets with Thread R1/2 (mm)



Mounting Bracket for E Series Economy Display (mm)



Temperature Sensor (mm)



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Option & Accessory Dimensions (mm), cont.

Cable Extender Box for D Series Deluxe Display (mm)

