

# 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.

## Available Products

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

\* Deluxe products only.

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             | Y             |
| KAMODR   | X      | Modbus RTU (RS-485) Output Module                                                           | Y             | N             |
| 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                                                         | Y             | Y             |
| KASENB   |        | Temperature Sensor Set, 3.0 m Cable                                                         | Y             | Y             |
| KASENC   |        | Temperature Sensor Set, 5.0 m Cable                                                         | Y             | N             |
| KASEND   |        | Temperature Sensor Set, 10.0 m Cable                                                        | 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 (KDCxxx) and legacy (MC with KA602KIT) Cooling meters     | Y             | N             |
| KADHCAL  |        | Replacement calculator for Deluxe (KDHxxx) and legacy (MH) Heating meters                   | Y             | N             |

\* Can be used with one communication module only. Not compatible with LON nor Modbus TCP.

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

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## Specifications

| Operating Environment                         |                                                                                |
|-----------------------------------------------|--------------------------------------------------------------------------------|
| 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%<br>KE: Flow 2%, Temperature 4%                     |
| Power supply                                  | 24 Vac (or 230 Vac option)                                                     |
| Flow range                                    | KD: 1.5 to 250 m³/h<br>KE: 1.5 to 15 m³/h                                      |
| Temperature sensor                            | 2-wire                                                                         |
| Measuring units                               | KD: mWh, kWh, GJ or Gcal<br>KE: mWh, kWh or GJ                                 |
| Module slots<br>(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                                                                 |
| Regulatory Information                        |                                                                                |
| Protection class                              | KD: Calculator IP65, Flow sensor IP65<br>KE: Calculator IP54, Flow sensor IP68 |
| Heat meter approval                           | MID, EN1434                                                                    |
| Cool meter approval                           | BEK-1178, EN1434                                                               |
| Warranty                                      |                                                                                |
| 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.

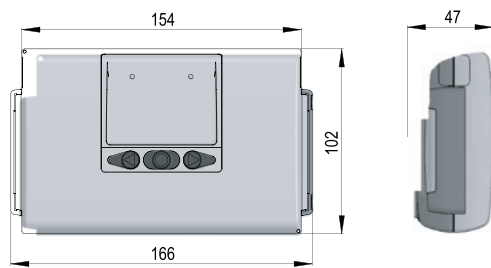
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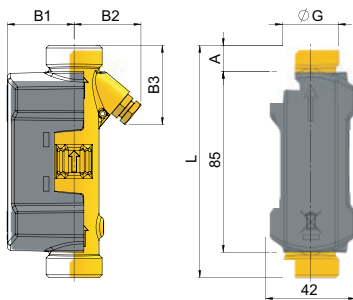
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## KD Series Dimensions

## D Series Calculator (mm)

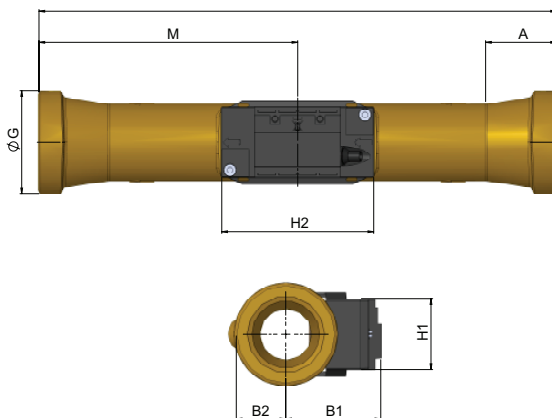


## KDC/KDK/KDF Series Flow Sensors



| 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 $\frac{1}{2}$ B (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.

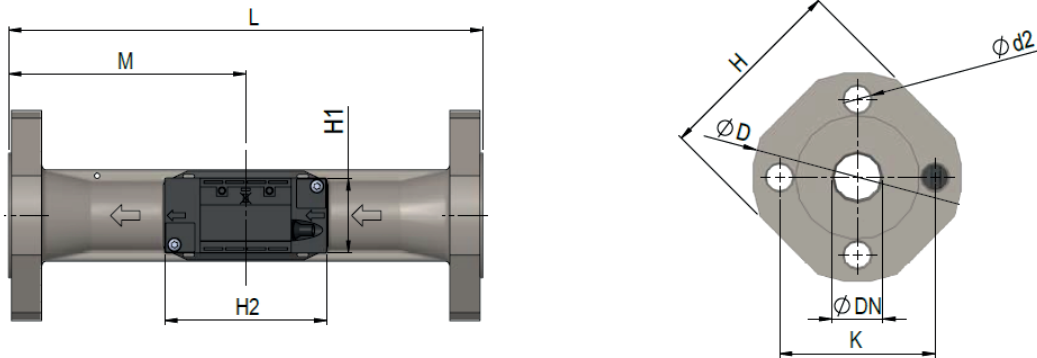
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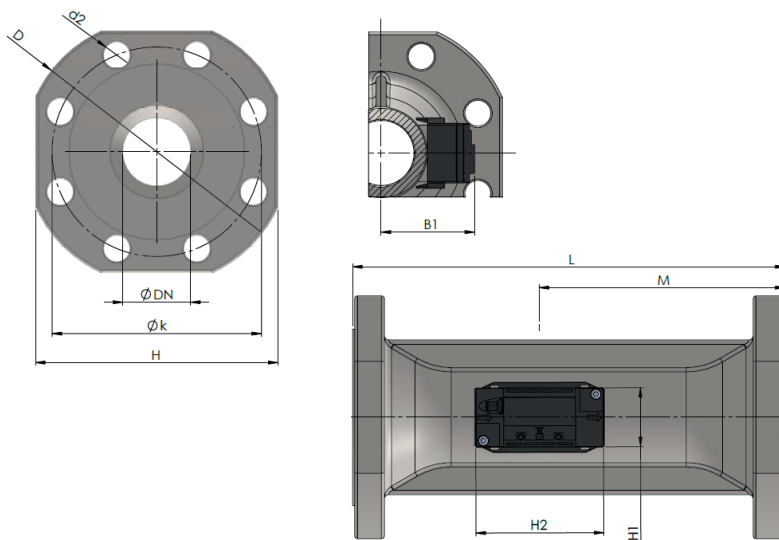
## KD Series Dimensions (cont.)

## KDC/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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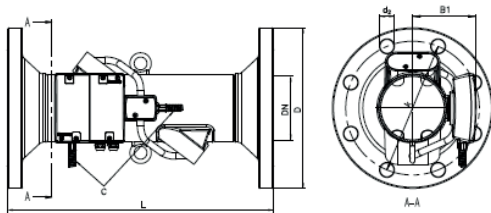
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## KD Series Dimensions (cont.)

## KDC/KDK/KDF Series Flow Sensors (cont.)

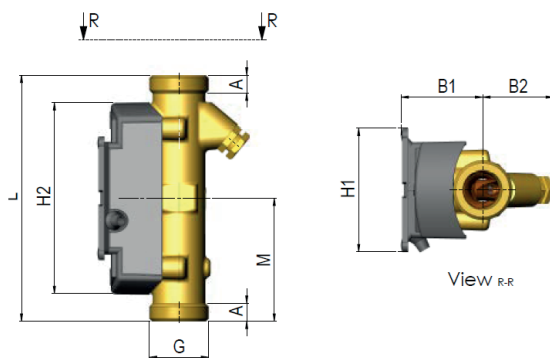
## Flow Sensor DN150 (mm)



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

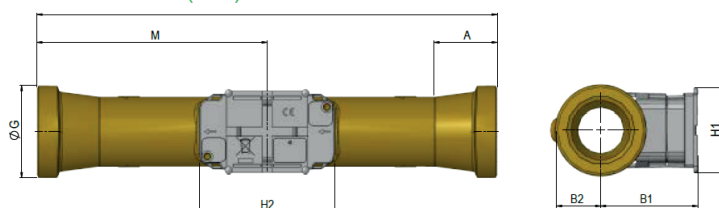
| Pipe Ref. | Nom. Diameter | PN (bar) | Nom. Flow $q_p$ (m <sup>3</sup> /h) | L   | D   | k   | B1  | E   | Steel Tube Length C | Bolts |        |                | Approx. Weight (kg) |
|-----------|---------------|----------|-------------------------------------|-----|-----|-----|-----|-----|---------------------|-------|--------|----------------|-------------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

## KDH Series Dimensions

G $\frac{3}{4}$ B and G1B (mm)

| Pipe Ref. | Thread EN ISO 228-1                 | L   | M   | H2 | A  | B1 | B2 | H1 | Approx. Weight (kg) |
|-----------|-------------------------------------|-----|-----|----|----|----|----|----|---------------------|
| 00        | G $\frac{3}{4}$ B ( $q_p$ 0.6; 1.5) | 110 | L/2 | 86 | 8  | 37 | 32 | 55 | 0.41                |
| 05        | G1B ( $q_p$ 2.5)                    | 190 | L/2 | 86 | 12 | 40 | 35 | 55 | 0.67                |

## G5/4B and G2B (mm)



| Pipe Ref. | Thread EN ISO 228-1             | L   | M   | H2 | A    | B1 | B2 | H1 | Approx. Weight (kg) |
|-----------|---------------------------------|-----|-----|----|------|----|----|----|---------------------|
| 10        | G1 $\frac{1}{4}$ B ( $q_p$ 3.5) | 260 | L/2 | 89 | 16   | 58 | 20 | 55 | 1.5                 |
| 15        | G1 $\frac{1}{4}$ B ( $q_p$ 6.0) | 260 | L/2 | 89 | 16   | 60 | 20 | 55 | 1.6                 |
| 15        | G2B                             | 300 | L/2 | 89 | 40.2 | 63 | 29 | 55 | 2.5                 |

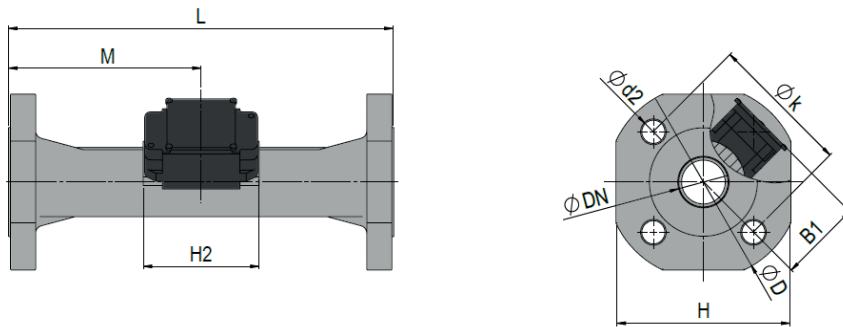
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## KDH Series Dimensions (cont.)

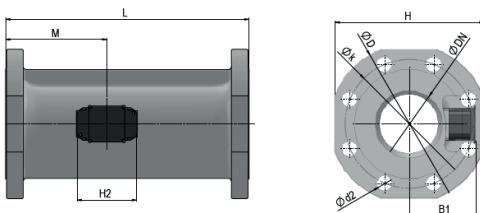
## DN20 to DN50 (mm)



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> |                     |
| 20        | DN25          | 260 | L/2 | 89 | 58   | 115 | 106 | 85  | 4     | M12    | 14             | 5.0                 |
| 30        | DN40          | 300 | L/2 | 89 | <D/2 | 150 | 136 | 110 | 4     | M16    | 18             | 8.3                 |
| 35        | DN50          | 270 | 155 | 89 | <D/2 | 165 | 145 | 125 | 4     | M16    | 18             | 10.1                |

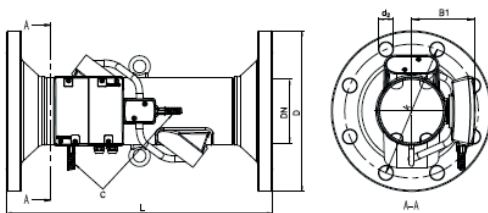
## Flow Sensor DN65 to DN100 (mm)



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> (m³/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                  |

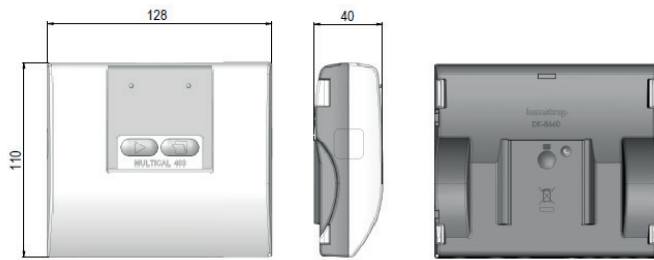
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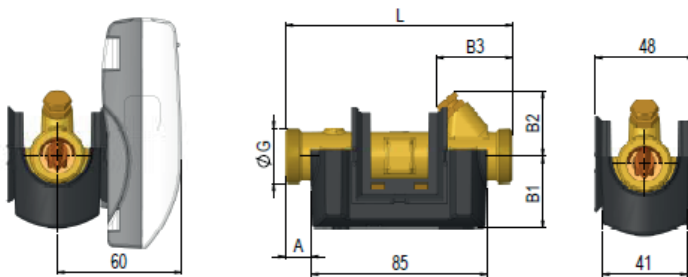
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## KE Series Dimensions

## E Series Calculator (mm)

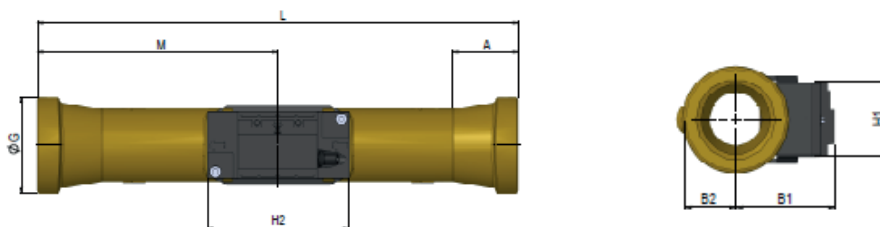


## Flow Sensor with G3/4 and G1 Thread Connection (mm)



| 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.

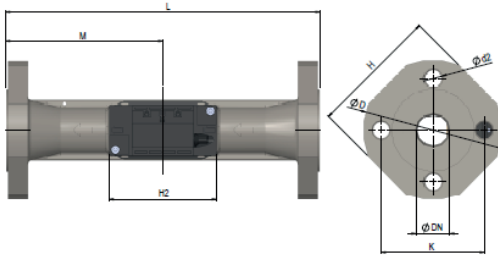
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## KE Series Dimensions, cont.

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

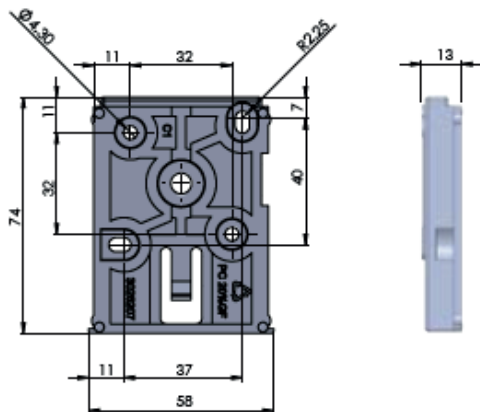


| Pipe Ref. | Nom. Diameter DN | L   | M   | H2 | D   | H   | K   | Bolts |             |                     | Approx. Weight (kg)* |
|-----------|------------------|-----|-----|----|-----|-----|-----|-------|-------------|---------------------|----------------------|
|           |                  |     |     |    |     |     |     | 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                  |

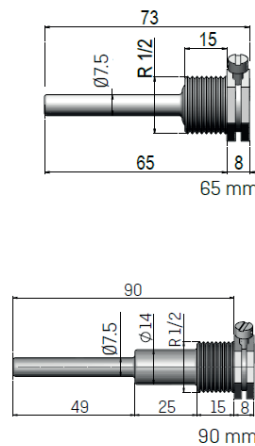
\* Weight of calculator, flow sensor, 3 m sensor pair, excluding packaging.

## Option &amp; Accessory Dimensions

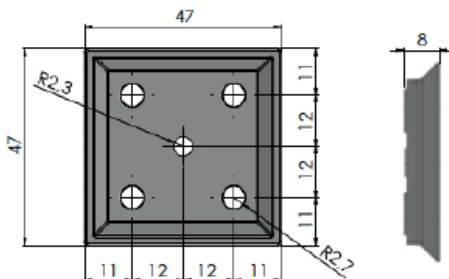
## Mounting Bracket for D Series Deluxe Display (mm)



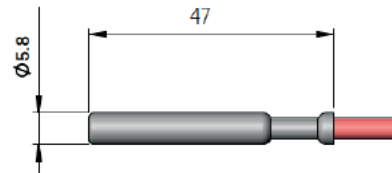
## Temperature Pockets with Thread R1/2 (mm)



## Mounting Bracket for E Series Economy Display (mm)



## Temperature Sensor (mm)



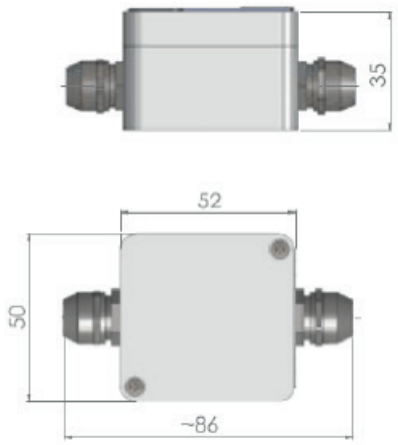
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## Option &amp; Accessory Dimensions (mm), cont.

## Cable Extender Box for D Series Deluxe Display (mm)



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