kamstrup

Data sheet

TemperatureSensor 83

4-wire temperature sensors with connection head for use with heat and cooling meters

- Delivered as a set of two paired temperature sensors
- Pocket sensor with quick response to temperature changes
- Exchangeable Pt500 sensor insert
- High water resistance (IP68)
- Support of temperature offset adjustment

MID 2014/32/EU

CE M23 0200

EN 1434

DK-BEK 1178 – 06/11/2014

DK 268 23

EN 1434

Contents

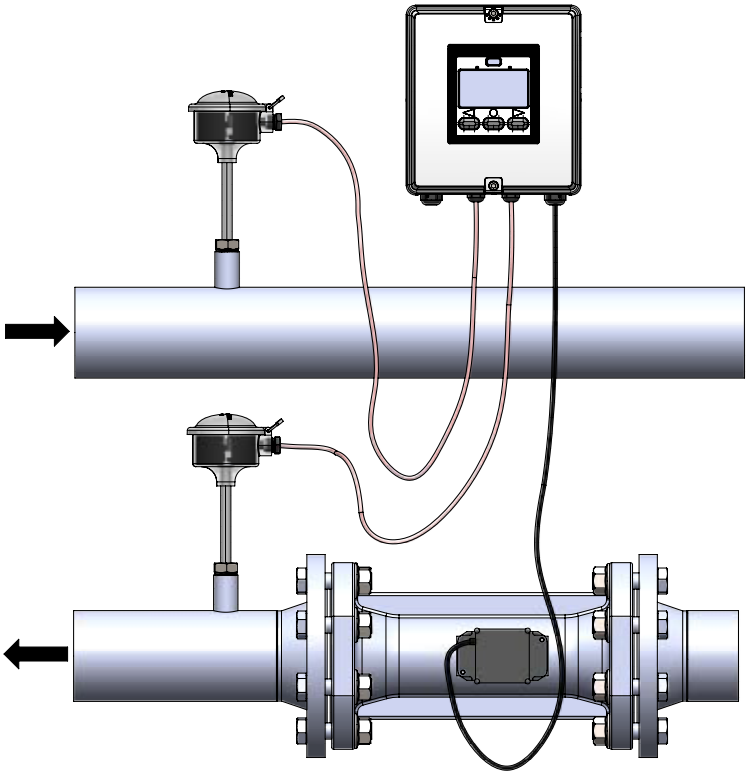
Application

TemperatureSensor 83 consists of two paired temperature sensors and is used together with thermal energy meters for measuring the inlet and outlet temperatures. The temperature sensors have built-in platinum resistors of which the electric resistance changes according to the temperature. A measurement of the resistance value thus provides an analogue expression of the temperature.

TemperatureSensor 83 can be connected to the calculator with either 2-wire or 4-wire connection. For TemperatureSensor 83 with 4-wire connection, it applies that the resistance of the cable does not influence the temperature measurement. By default, this means that a better temperature measurement is achieved than when using 2-wire connection. TemperatureSensor 83 with 4-wire connection is thus typically used in large installations where an improved temperature measurement provides greater opportunities for optimising the operational conditions and with it the production costs. At the same time, TemperatureSensor 83 with 4-wire connection provides greater flexibility with regard to making an optimal cabling as the cables in this case do not need to be equally long.

TemperatureSensor 83 consists of a pair of Pt500 temperature sensors (insert) and different suitable pockets in lengths 65, 90, 140 and 180 mm. It is thus possible to exchange the Pt500 temperature sensor pair in the installation without turning off the water, because the pocket can remain in the installation. TemperatureSensor 83 is approved for IP68 and is thus especially suited to be used for both heat and cooling measurements.

Application



Approvals and verification

MID approval DK-0200-MI004-046

Temperature range	θ: 2....150 °C
Temperature difference	$\Delta\Theta$: 3....140 K

Danish cooling approval TS 27.02 017

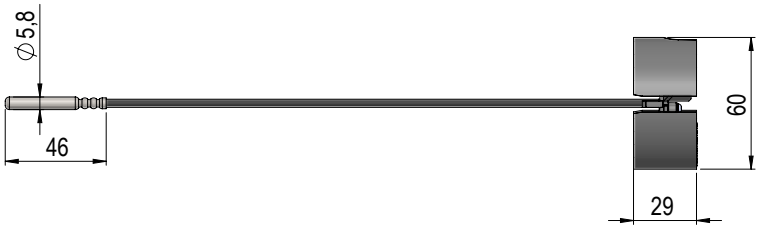
Temperature range	θ: 2....150 °C
Temperature difference	$\Delta\Theta$: 3....140 K

Pairing and verification according to EN1434-5:2015.

Construction

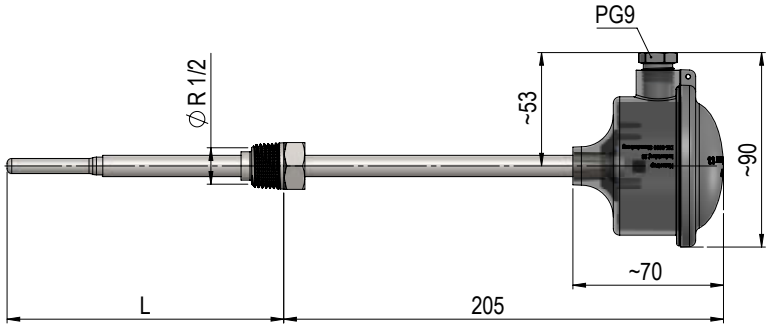
Dimensional sketch

Pt500 temperature sensor (insert)



Sensor pocket with connection head

Length (L): 65, 90, 140 or 180 mm



Technical data

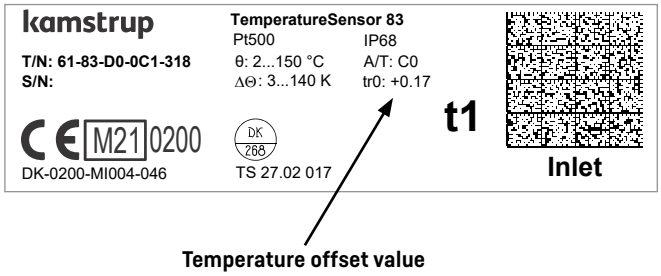
Component	Pt500 according to EN60751
Time constant τ0.5 when mounted in pocket	Max 8 s
Diameter of temperature sensor	ø5.8 mm
Length of temperature sensor sleeves	46 mm
Material for temperature sensor sleeves	AISI 316L, W.-no. 1.4404
Cross section of silicone cable	0.22 mm²
Pocket lengths	65 mm, 90 mm, 140 mm, 180 mm
Material for pocket	AISI 304L, W.-no. 1.4306/1.4307
Connection	R½
Material for connection head	PC
Material for cover	PC

Application area

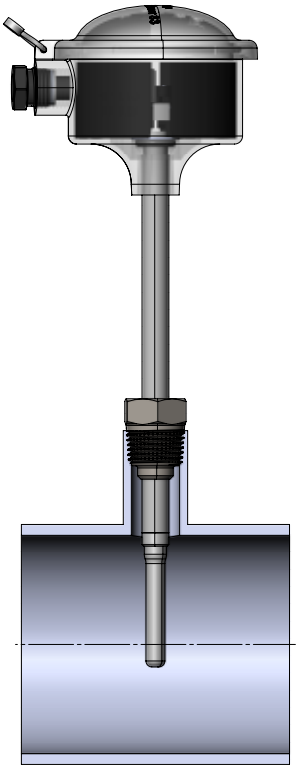
Ambient temperature	-10 °C...70 °C
Storage and transport temperatures	-25 °C...70 °C
Medium	District heating water
Medium temperature	0...150 °C, for a short period 160 °C
Humidity	< 98 % rF condensing
IP class	IP 68
Approved mechanical classes	M1, M2
Approved pressure stages	PN16, PN25
Maximum flow velocity	3 m/s

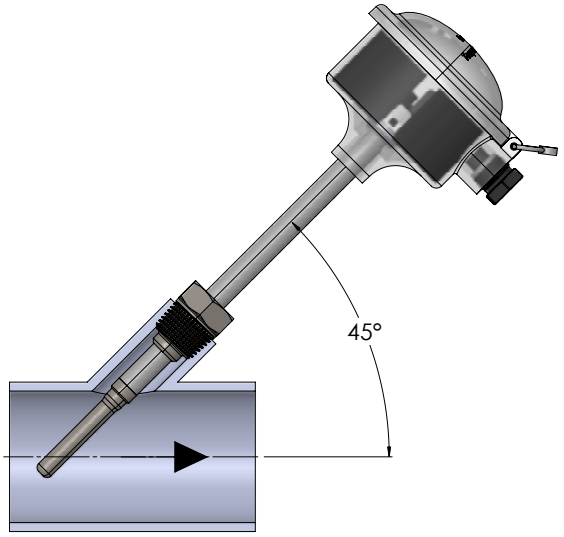
Optimise the accuracy of inlet and outlet temperatures through offset adjustment

The heat/cooling meters MULTICAL® 303, MULTICAL® 403, MULTICAL® 603 and MULTICAL® 803 have an offset adjustment function that enables the adjustment of the inlet and outlet temperatures by up to ± 0.99 K. The offset adjustment value is determined in connection with the factory calibration of Kamstrup TemperatureSensor 83, and when this value is embedded in the meter, the deviation of the inlet and outlet temperatures will typically be less than ± 0.1 K. As both the inlet and outlet temperatures are adjusted with the same value, the offset adjustment does not influence the calculation of the consumed energy.

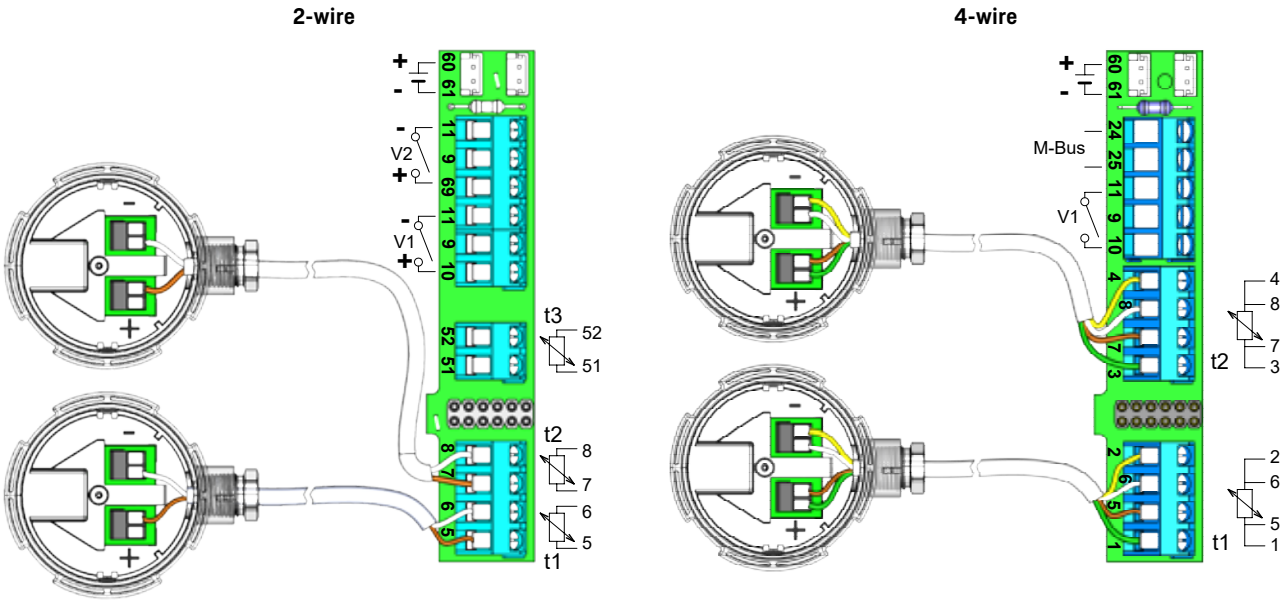


Mounting examples

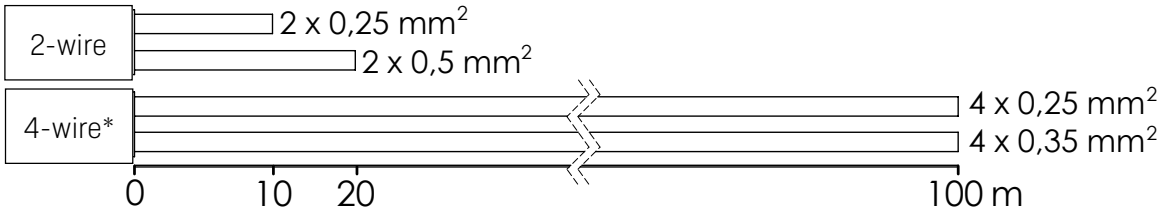




Electrical connection



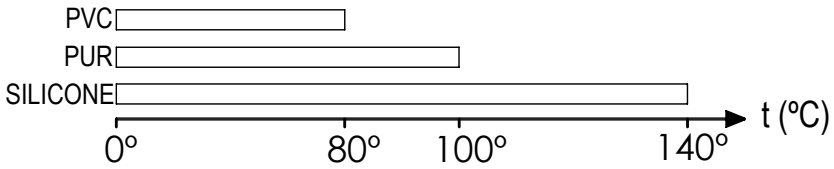
Connection cable



Note: When using 2-wire connection, the inlet and outlet sensors **must** be connected with equally long cables.

* MULTICAL® 603 and 803 are MID-approved for 100 m 4-wire connection cable.

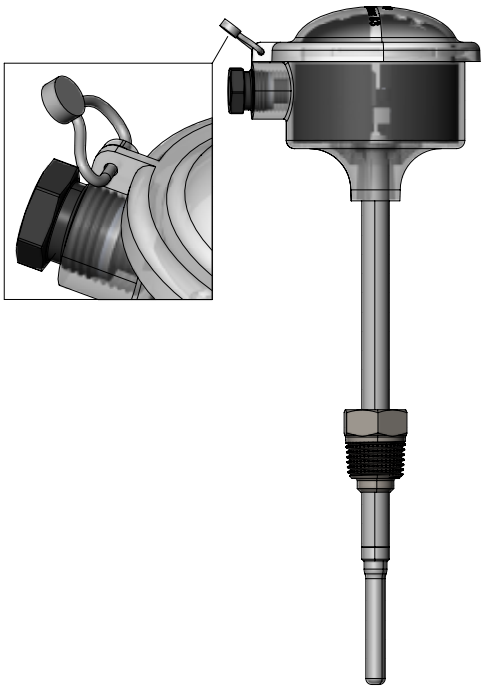
Mantle material



Typical values.

Connection cable dimension: ø5-10 mm (MULTICAL® max ø6 mm).

Sealing example



Ordering

Top number: 6183XXXXXX

Type number *	Description
61-83-D0-0C1-XXX	TemperatureSensor 83, length 65 mm (Pair of Pt500 temperature sensors inserted in 65 mm pocket)
61-83-D0-0C2-XXX	TemperatureSensor 83, length 90 mm (Pair of Pt500 temperature sensors inserted in 90 mm pocket)
61-83-D0-0C3-XXX	TemperatureSensor 83, length 140 mm (Pair of Pt500 temperature sensors inserted in 140 mm pocket)
61-83-D0-0C4-XXX	TemperatureSensor 83, length 180 mm (Pair of Pt500 temperature sensors inserted in 180 mm pocket)
61-83-D0-0CA-XXX	Paired Pt500 temperature sensor – Insert of TemperatureSensor 83

* The order number may vary due to local approvals

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