DOL 112-PT100 and DOL 112-PT1000 temperature sensor

DOL 112-PT100 and PT1000 are simple temperature sensors. They are well suited for use in environments where a sturdy design is required.
ATTENTION on the cable for DOL 112-PT100, as the resistance in the cable can give an offset to the temperature measurement.

Table relating to DOL 112 Temperature Sensor Checkup

°C	DOL 112-PT100 Ω	DOL 112-PT1000 Ω	°C	DOL 112-PT100 Ω	DOL 112-PT1000 Ω
-40	84.27	842.74	35	113.61	1136.08
-35	86.25	862.50	40	115.54	1155.41
-30	88.22	882.23	45	117.47	1174.70
-25	90.19	901.93	50	119.40	1193.97
-20	92.16	921.60	55	121.32	1213.21
-15	94.12	941.25	60	123.24	1232.42
-10	96.09	960.86	65	125.16	1251.60
-5	98.04	980.44	70	127.08	1270.75
0	100.00	1000.00	75	128.99	1289.87
5	101.95	1019.53	80	130.90	1308.97
10	103.90	1039.03	85	132.80	1328.03
15	105.85	1058.49	90	134.71	1347.07
20	107.79	1077.94	95	136.61	1366.08
25	109.73	1097.35	100	138.51	1385.06
30	111.67	1116.73			

Product survey

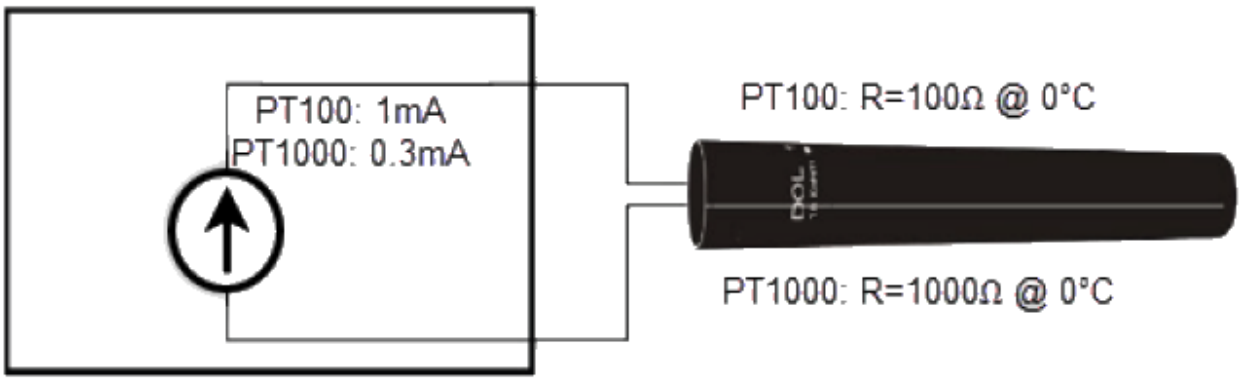
140382 DOL 112-PT100 temperature sensor

140393 DOL 112-PT1000 temperature sensor

Is used for measuring both inside and outside temperatures.

Cable length: 1.4 m

Electrical connection



Technical data

		DOL 112-PT100	DOL 112-PT1000
Electrical			
Measuring range	°C	-40 to +100	
Accuracy	°C	0 to 40°C: ±0.5°C	
Tolerance class		Class B, F0.3	
Time constant	T_{63}	5 min. at 0.5 m/s air speed	
Recommended measurement current	mA	1	0.3
Resistance at 25°C	Ω	109.73	1097.35
Mechanical			
Cable		Two-wire, 1.4 m, ø5 mm	
Environment			
Ambient temperature	°C	-40 to +100	
Protection class, electronics	IP	68	
Shipment			
Length, diameter	mm	75, ø14	
Weight incl. cable	g	80	

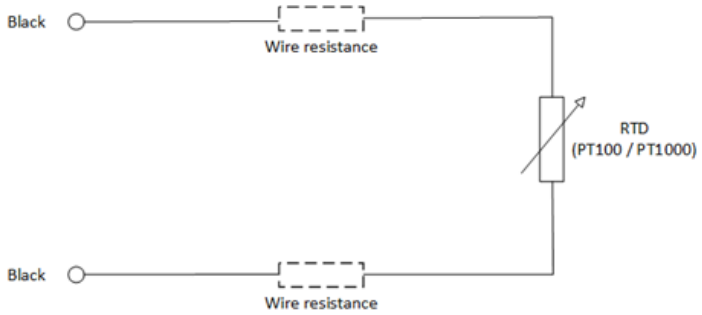
Difference between 2,3 and 4 wire DOL 112 PT100 and PT1000 description

PT100 refers to a type of Resistance Temperature Detector (RTD) sensor, which is commonly used to measure temperature. The numbers (100) indicate that the resistance of the RTD at 0°C is 100 ohms. PT100 sensors are made of platinum (Pt) and their resistance changes with temperature, allowing them to be used for accurate temperature measurements.

The key difference between PT100 2-wire, PT100 3-wire, and PT100 4-wire configurations lies in how the wires are connected, which affects the accuracy and compensation for the resistance of the connecting wires.

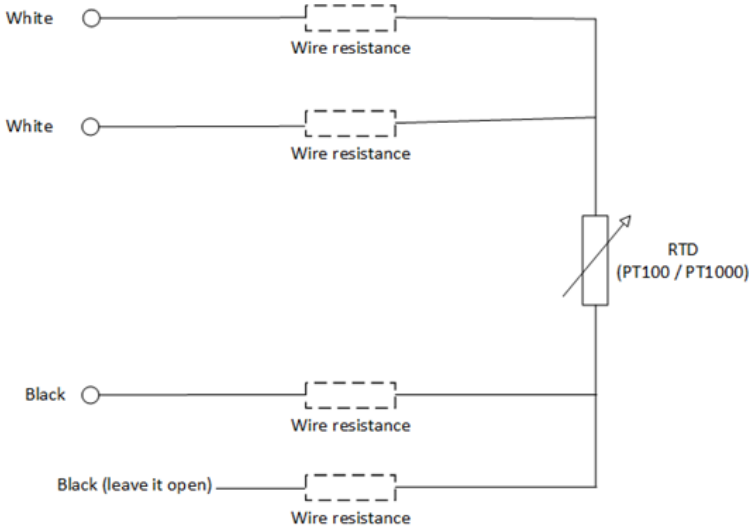
PT100 2-Wire Configuration:

In a 2-wire configuration, the PT100 sensor is connected to a measuring device using only two wires: one for the current source and one for the voltage measurement. The resistance of the connecting wires adds to the overall resistance of the PT100 sensor, which can lead to inaccuracies, especially over longer wire lengths. This configuration is the simplest but offers the least accurate results due to the lack of compensation for wire resistance.



PT100 3-Wire Configuration:

The 3-wire configuration aims to compensate for the added resistance of the connecting wires. It uses three wires: two wires for the current source and one wire for voltage measurement. By measuring the voltage drop across the sensor wires, the resistance of the connecting wires can be estimated and subtracted from the total measured resistance, resulting in increased accuracy compared to the 2-wire setup. This configuration is commonly used when a moderate level of accuracy is required.



PT100 4-Wire Configuration:

The 4-wire configuration provides the highest accuracy among the three options. It uses four wires: two wires for the current source and two wires for voltage measurement. The two pairs of wires are separate, with one pair carrying the current and the other pair carrying the voltage. This eliminates the effect of wire resistance entirely, ensuring that the measured resistance is almost entirely due to the PT100 sensor itself. The 4-wire setup is often used in precise temperature measurement applications where accuracy is critical.