

INTRODUCTION

Thank you for choosing an HK Instruments PTE-Cable series passive temperature sensor. The PTE-Cable series is intended for use in commercial environments in HVAC/R applications. PTE-Cable senses temperatures in a wide range. It is well protected from the environment by its stainless steel sleeve which is crimped on to premium quality silicone rubber cable. Inside the sleeve, the temperature sensor is protected against condensation, ensuring long service life. The cable is halogen-free and oil resistant. PTE-Cable has a high protection rating of IP67.

The design approach has been to offer user-friendly and premium quality products with economical pricing. PTE products are available with wide range of sensor types: NTC10k, NTC20k, PT1000, Ni1000 and Ni1000-LG.

WARNING

- READ THESE INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO INSTALL, OPERATE OR SERVICE THIS DEVICE.
- Failure to observe safety information and comply with instructions can result in PERSONAL INJURY, DEATH AND/OR PROPERTY DAMAGE.
- To avoid electrical shock or damage to equipment, disconnect power before installing or servicing and use only wiring with insulation rated for full device operating voltage.
- To avoid potential fire and/or explosion do not use in potentially flammable or explosive atmospheres.
- Retain these instructions for future reference.
- This product, when installed, will be part of an engineered system whose specifications and performance characteristics are not designed or controlled by HK Instruments. Review applications and national and local codes to assure that the installation will be functional and safe. Use only experienced and knowledgeable technicians to install this device.

APPLICATIONS

PTE-Cable is commonly used in HVAC systems for:

- measuring temperature in ventilation units
- measuring temperature in hard-to-reach places
- measuring temperature in harsh environments
- general process control

SPECIFICATIONS

Performance

Accuracy:

NTC10k
 $\pm 0.25\text{ }^{\circ}\text{C}$ @ $25\text{ }^{\circ}\text{C}$
 NTC20k
 $\pm 0.25\text{ }^{\circ}\text{C}$ @ $25\text{ }^{\circ}\text{C}$
 Pt1000
 $\pm 0.3\text{ }^{\circ}\text{C}$ @ $0\text{ }^{\circ}\text{C}$
 Ni1000
 $\pm 0.4\text{ }^{\circ}\text{C}$ @ $0\text{ }^{\circ}\text{C}$
 Ni1000-LG
 $\pm 0.4\text{ }^{\circ}\text{C}$ @ $0\text{ }^{\circ}\text{C}$

Protection standard:
 IP67

Technical Specifications

Environment:

Operating temperature: $-60\ldots180\text{ }^{\circ}\text{C}$
 Short-term temperature: up to $250\text{ }^{\circ}\text{C}$

Physical

Sleeve material:

Stainless steel

Cable material:

Silicone rubber

Sleeve dimensions:

Outer diameter: 6 mm

Length: 50 mm

Cable length:

2.0 m (custom lengths available on request)

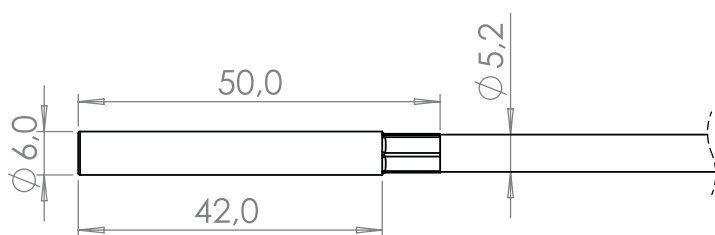
Conformance

Meets the requirements for CE marking:
 RoHS Directive 2011/65/EU
 WEEE Directive 2012/19/EU

COMPANY WITH
 MANAGEMENT SYSTEM
 CERTIFIED BY DNV GL
 = ISO 9001 = ISO 14001 =



DIMENSIONAL DRAWINGS



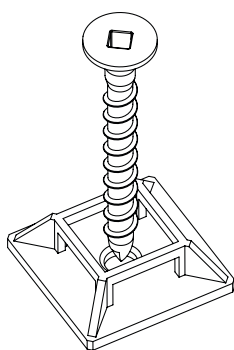
INSTALLATION

- 1) Mount the sensor in the desired location (see step 1).
- 2) Connect the sensor to the system.
- 3) The sensor is now ready to be used.

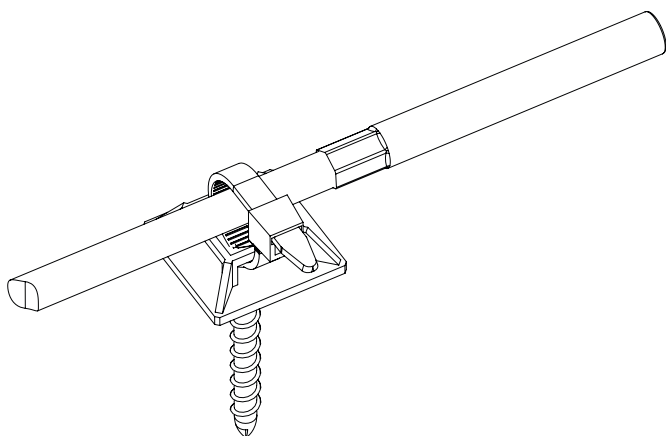
STEP 1: MOUNTING THE SENSOR

- 1) Select the mounting location.
- 2) Mount the sensor with an optional adhesive mounting plate (Figure 1) or as you choose.

Figure 1 - Mounting with the plate



Attach the plate to the chosen surface and secure it with screws.



Insert a cable tie and the sensor, then tighten the cable tie.

RECYCLING/DISPOSAL

The parts left over from installation should be recycled according to your local instructions. Decommissioned devices should be taken to a recycling site that specializes in electronic waste.



WARRANTY POLICY

The seller is obligated to provide a warranty of five years for the delivered goods regarding material and manufacturing. The warranty period is considered to start on the delivery date of the product. If a defect in raw materials or a production flaw is found, the seller is obligated, when the product is sent to the seller without delay or before expiration of the warranty, to amend the mistake at his/her discretion either by repairing the defective product or by delivering free of charge to the buyer a new flawless product and sending it to the buyer. Delivery costs for the repair under warranty will be paid by the buyer and the return costs by the seller. The warranty does not comprise damages caused by accident, lightning, flood or other natural phenomenon, normal wear and tear, improper or careless handling, abnormal use, overloading, improper storage, incorrect care or reconstruction, or changes and installation work not done by the seller or his/her authorized representative. The selection of materials for devices prone to corrosion is the buyer's responsibility, unless otherwise is legally agreed upon. Should the manufacturer alter the structure of the device, the seller is not obligated to make comparable changes to devices already purchased. Appealing for warranty requires that the buyer has correctly fulfilled his/her duties arisen from the delivery and stated in the contract. The seller will give a new warranty for goods that have been replaced or repaired within the warranty, however only to the expiration of the original product's warranty time. The warranty includes the repair of a defective part or device, or if needed, a new part or device, but not installation or exchange costs. Under no circumstance is the seller liable for damages compensation for indirect damage.

TEMPERATURE SENSOR ELEMENT: RESISTANCE TABLE

Resistance (Ω)					
	NTC10 $\beta = 3976$	NTC20 $\beta = 3976$	Pt1000 EN 60751	Ni1000 DIN 43760	Ni1000-LG DIN 43760
200 °C	72,1	144,2	1 758,6	2 406,6	2 137,0
175 °C	115,2	230,4	1 666,3	2 189,3	1 963,0
150 °C	194,6	389,2	1 573,2	1 986,3	1 799,3
125 °C	351,1	702,1	1 479,5	1 796,3	1 645,1
100 °C	385,4	1 371	1 385,2	1 617,8	1 500,0
90 °C	919,1	1 838	1 347,2	1 549,3	1 444,4
80 °C	1 253	2 506	1 309,0	1 482,5	1 390,1
70 °C	1 740	3 480	1 270,8	1 417,2	1 337,1
60 °C	2 464	4 927	1 251,7	1 353,4	1 285,4
50 °C	3 564	7 128	1 194,0	1 291,1	1 235,0
40 °C	5 279	10 559	1 155,5	1 230,1	1 185,7
30 °C	8 026	16 051	1 116,8	1 170,6	1 137,6
29 °C	8 382	16 763	1 112,9	1 164,7	1 132,9
28 °C	8 756	17 512	1 109,1	1 158,5	1 128,1
27 °C	9 150	18 299	1 105,2	1 153,0	1 123,4
26 °C	9 564	19 128	1 101,3	1 147,1	1 118,7
25 °C	10 000	20 000	1 097,4	1 141,3	1 114,0
24 °C	10 459	20 918	1 093,5	1 135,5	1 109,3
23 °C	10 942	21 885	1 089,7	1 129,7	1 104,6
22 °C	11 452	22 903	1 085,8	1 123,9	1 100,0
21 °C	11 988	23 977	1 081,9	1 118,1	1 095,3
20 °C	12 554	25 108	1 078,0	1 112,4	1 090,7
15 °C	15 885	31 770	1 058,6	1 083,8	1 067,6
10 °C	20 268	40 536	1 039,1	1 055,5	1 044,8
5 °C	26 088	52 175	1 019,6	1 027,6	1 022,3
0 °C	33 890	67 780	1 000,0	1 000,0	1 000,0
-5 °C	44 458	88 915	980,5	927,7	978,0
-10 °C	58 925	117 850	960,9	945,8	956,2
-15 °C	78 958	157 920	941,3	919,2	934,7
-20 °C	107 030	214 060	921,6	893,0	913,5
-25 °C	146 880	293 750	901,9	867,0	892,5
-30 °C	204 190	408 380	882,2	841,5	871,7
-40 °C	411 750	823 500	842,7	791,3	830,8
-50 °C	884 150	1 768 300	803,0	742,6	790,9
-60 °C	2 039 700	4 079 400	763,2	695,2	751,8

Beta (β) constant mentioned is of type 25/85