

Surface Temperature Sensor

Hose/Band Clamp Type

R Type



- ▶ Resistance/Thermocouple Elements
- ▶ Easy and quick installation (Use a hose to fix the sensor to the outer surface)
- ▶ Detachable and reusable for the temporary or long-term monitoring.
- ▶ Adjustable diameter to fit for the pipes of different sizes

The **I category temperature sensor** is the device to measure surface temperature of an object such as pipe, bar, tube, dusts or vessel walls. The typical sensing element can be in RTD (Resistance Temperature Detector) or thermocouple (T/C).

The HAWK **R model** hose clamp surface temperature sensor is a sensor designed to be attached to pipes, tubes, or cylindrical surfaces by using a hose clamp (also called a band clamp). It works by holding the sensing element tightly against the pipe surface, ensuring good thermal contact for accurate measurement.

Specifications

Sensing Element:

K(Ni-Cr, Ni-Al)...0/+1200°C,
E(Ni-Cr, Ni-Cu)...-200/+900°C,
J(Fe, Ni-Cr)...-50/750°C,
T(Cr, Ni-Cr)...-200/+350°C,
N(Ni-Cr-Si, Ni-Si)...0/1200°C,
Platinum 100Ω/500Ω/1000Ω,
Nickel 120Ω, Copper 10Ω,
Single, Double or Tripple Resistance,
Element.

Clamp Material:

SS304, SS316, SS316L

Transition Style:

Standard, Spring or Armor.

Insulation/Conductor:

Fiberglass, PVC or PTFE.

Wire Termination:

Plain Leads-not stripped, Stripped.
Lead 3mm, Spade lug,
Standard Male Plug, Mini Male Plug,
Standard Female Socket,
Mini Female Socket,
Terminal Pin or others.

Tolerance (°C)-PT100:

JIS/DIN

ClassA	ClassB
$\pm(0.15+0.002 t)$	$\pm(0.3+0.005 t)$

ASTM

ClassA	ClassB
$\pm(0.13+0.0017 t)$	$\pm(0.25+0.0042 t)$

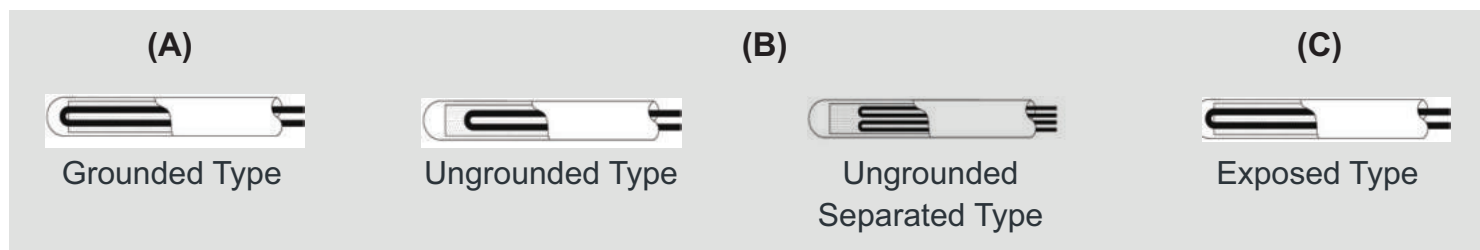
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Tolerance Thermocouple

	JIS C1605/DIN(IEC 584-2)			ASTM E230
Code	Class 1	Class 2	Class 3	STD / SP
K-TYPE	-40°C~375°C ±1.5°C	-40°C~333°C ±2.5°C	-167°C~40°C ±2.5°C	STD...±0.75% or ±2.2°C(4°F)
	375°C~1000°C ±0.004 · t	333°C~1200°C ±0.0075 · t	-200°C~-167°C ±0.0015 · t	SP...±0.4% or ±1.1°C(2°F)
N-TYPE	-40°C~375°C ±1.5°C	-40°C~333°C ±2.5°C	-167°C~40°C ±2.5°C	STD...±0.75% or ±2.2°C(4°F)
	375°C~1000°C ±0.004 · t	333°C~1200°C ±0.0075 · t	-200°C~-167°C ±0.0015 · t	SP...±0.4% or ±1.1°C(2°F)
E-TYPE	-40°C~375°C ±1.5°C	-40°C~333°C ±2.5°C	-167°C~40°C ±2.5°C	STD...±0.5% or ±1.7°C(3.1°F)
	375°C~800°C ±0.004 · t	333°C~900°C ±0.0075 · t	-200°C~-167°C ±0.0015 · t	SP...±0.4% or ±1°C(1.8°F)
J-TYPE	-40°C~375°C ±1.5°C	-40°C~333°C ±2.5°C	-	STD...±0.75% or ±2.2°C(4°F)
	375°C~750°C ±0.004 · t	333°C~750°C ±0.0075 · t	-	SP...±0.4% or ±1.1°C(2°F)
T-TYPE	-40°C~125°C ±0.5°C	-40°C~133°C ±1°C	-67°C~40°C ±1°C	STD...±0.75% or ±1°C(1.8°F)
	125°C~350°C ±0.004 · t	133°C~350°C ±0.0075 · t	-200°C~-67°C ±0.0015 · t	SP...±0.4% or ±0.5°C(0.9°F)

Measuring Junction Type



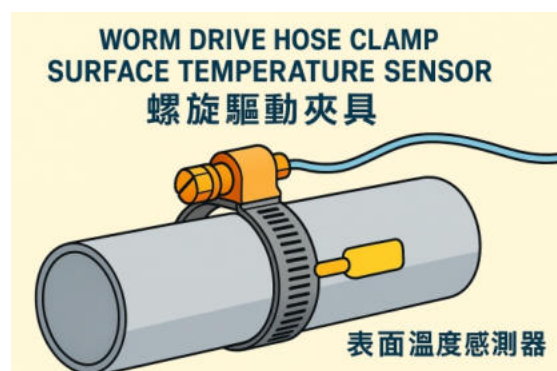
(A) The thermocouple is grounded to the protective tube. It is with fair response than unground type. It is not suitable for the noisy and dangerous location such as electromagnetic induction interfered by radio frequency.

(B) The thermocouple is covered with insulator. It responds slower than grounded type. For most applications, it can ensure a long-life. It is available in two control loop separately.

(C) The thermocouple is exposed. It is with rapid response, but not good in airtightness, insulation and mechanical strength.

Typical Applications

- ▶ Industrial pipelines (steam, hot water, coolant).
- ▶ HVAC systems (refrigeration, cooling, heating pipelines).
- ▶ Energy equipment (boilers, heat exchangers, solar systems).
- ▶ Food and pharmaceutical process pipeline monitoring.



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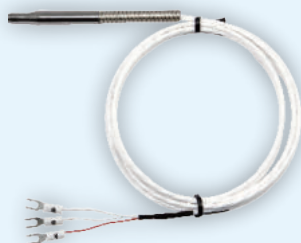


P-4I

Insulation/Conductor

F

PTFE insulation cable



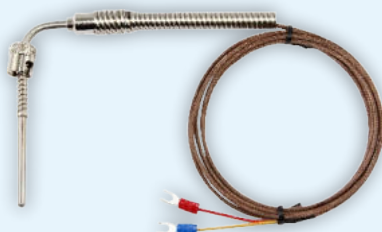
G

Glass coating shield SUS cover insulation cable



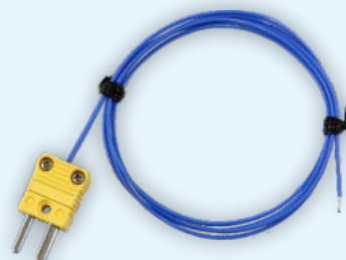
P

Fiberglass insulation cable



C

PVC insulation cable



Transition Type

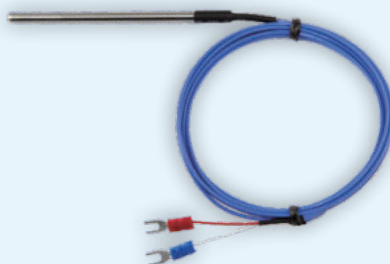
A

SS Armor Transition



P

Standard Transition



S

Spring Transition



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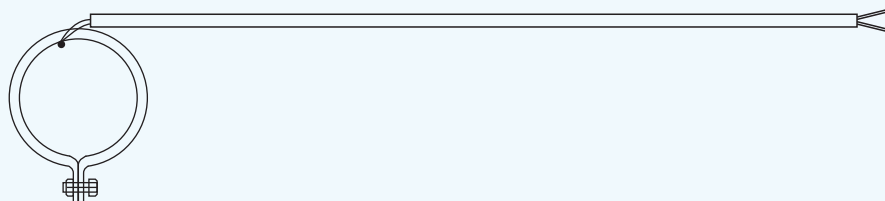
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Dimensions

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Options



ZC

Certificate of Accuracy (Factory)

ZE

Certificate of Accuracy (TAF)

ZI

Certificate of Accuracy (NIST)



ZY

Stainless Steel Tag Plate

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Order Information

P-4I

P-4I-R7C00 **K** **J3** **A** **010** **000** **N** **000** **G** **S** **2** **P** **100** **C** **L** **H-XX**

Option
ZC-Certificate of Accuracy (Factory)
ZE-Certificate of Accuracy (TAF)
ZI-Certificate of Accuracy (NIST)
ZY-Stainless Steel Tag Plate
 Please refer to the options and write down the code which you need.

Wire Termination

P-Plain Leads-not stripped
S-Stripped Lead 3mm
L-Spade lug
T-Terminal Pin
M-Standard Male Plug
A-Mini Male Plug
F-Standard Female Socket
C-Mini Female Socket

Insulation / Conductor **C**-PVC **N**-Nickel **F**-PTFE **P**-Fiberglass
G-Glass Coating Shield **SUS** Cover

Lead/ Armor Length	000-Non 2C5-2 1/2" 04C-4"	06C-6" 09C-9" 12C-12"	15C-16" 18C-18" 24C-24"	050-50mm 100-100mm 900-900mm	1M1-1.1m 1M5-1.5m 10M-10m and so on...
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Transition Type **P**-Standard Transition **A**-Armor Transition **S**-Spring Transition

Wires 2-2 wires 3-3 wires 4-4 wires 6-6 wires 8-8 wires 0-non

Number of elements **S**-Single Element **D**-Double Elements **T**-Tripple Elements

Type of Junction **G**-Grounded **U**-Ungrounded **L**-Others **E**-Exposed **N**-None

Lagging Extension 000-Non

Shank Design N-None

Clamp Length 000-None

Clamp Diameter C25-1/4" C32-5/16" C38-3/8" 006-6mm 008-8mm 010-10mm 012-12mm and so on...

Clamp Material A-SS304 S-SS316 W-SS316L B-Brass

Sensor Class	J1-JIS/DIN Class 1	EA-JIS/DIN Class A-200/+100°C	LA-JIS/DIN Class A-30/+250°C	MA-JIS/DIN Class A-50/+450°C	HA-JIS/DIN Class A 0/+650°C
	J2-JIS/DIN Class 2	EB-JIS/DIN Class B-200/+100°C	LB-JIS/DIN Class B-30/+250°C	MB-JIS/DIN Class B-50/+450°C	HB-JIS/DIN Class B 0/+650°C
J3-JIS/DIN Class 3	AA-ASTM Class A-200/+100°C	BA-ASTM Class A-30/+250°C	CA-ASTM Class A-50/+450°C	DA-ASTM Class A 0/+650°C	
AT-ASTM Standard	AB-ASTM Class B-200/+100°C	BB-ASTM Class B-30/+250°C	CB-ASTM Class B-50/+450°C	DB-ASTM Class B 0/+650°C	
AP-ASTM Special					

Sensor Type **K**-K-Type **J**-J-Type **N**-N-Type **D**-D-Type **P**-Platinum 100Ω **D**-Platinum 1000Ω
E-E-Type **T**-T-Type **C**-C-Type **A**-Platinum 500Ω **I**-Nickel 120Ω **C**-Copper 10Ω

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Limited Warranty and Liability

HAWK GAUGE CO.,LTD warrants all its mechanical instruments to be free from defects in materials and workmanship. HAWK agrees to repair or replace any thermometers if returned to our factory, transportation charges prepaid, and after which examination reveals is to be defective due to faculty workmanship or material.

This warrant should not apply to subject to the following terms and conditions:

- A. The product has not been subjected to misuse, neglect, abuse , accident, incorrect mounting, improper use or misapplication such as negligence, accident, vandalism, shock or vibration.
- B. The performance of any system of which HAWK's products are a component part.
- C. The product has not been exposed to any other service, range or environment of greater severity than that for which the products were designed.
- D. The product has not been altered or repaired by anyone except HAWK GAUGE or its authorized service agencies.
- E. The serial number or date code has not been removed, defaced or changed.
- F. The actual pressure&temperature occurring exceed the values specified for HAWK Thermometer.

Unless otherwise specified in a manual or warranty card, or agree to in a writing signed by HAWK GAUGE office, HAWK Thermometer products shall be warranted for one years from the date of sale.

This warranty is in lieu of all other warranties expressed or implied, and of all obligations or liabilities on its part for damages including but not limited to consequential damages, following the use of misuse of instruments sold by it. No agent is authorized to assume for it any liability except as set forth above.

Note

HAWK GAUGE CO.,LTD reserves the right to make product improvements and change its specifications at any time stated throughout this brochure without notification. Please contact the factory on all critical dimensions and specifications for verification.

HAWK GAUGE is not expert in the customer's technical field and therefore doesn't warrant suitability of it's product for the application selected by customer.



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