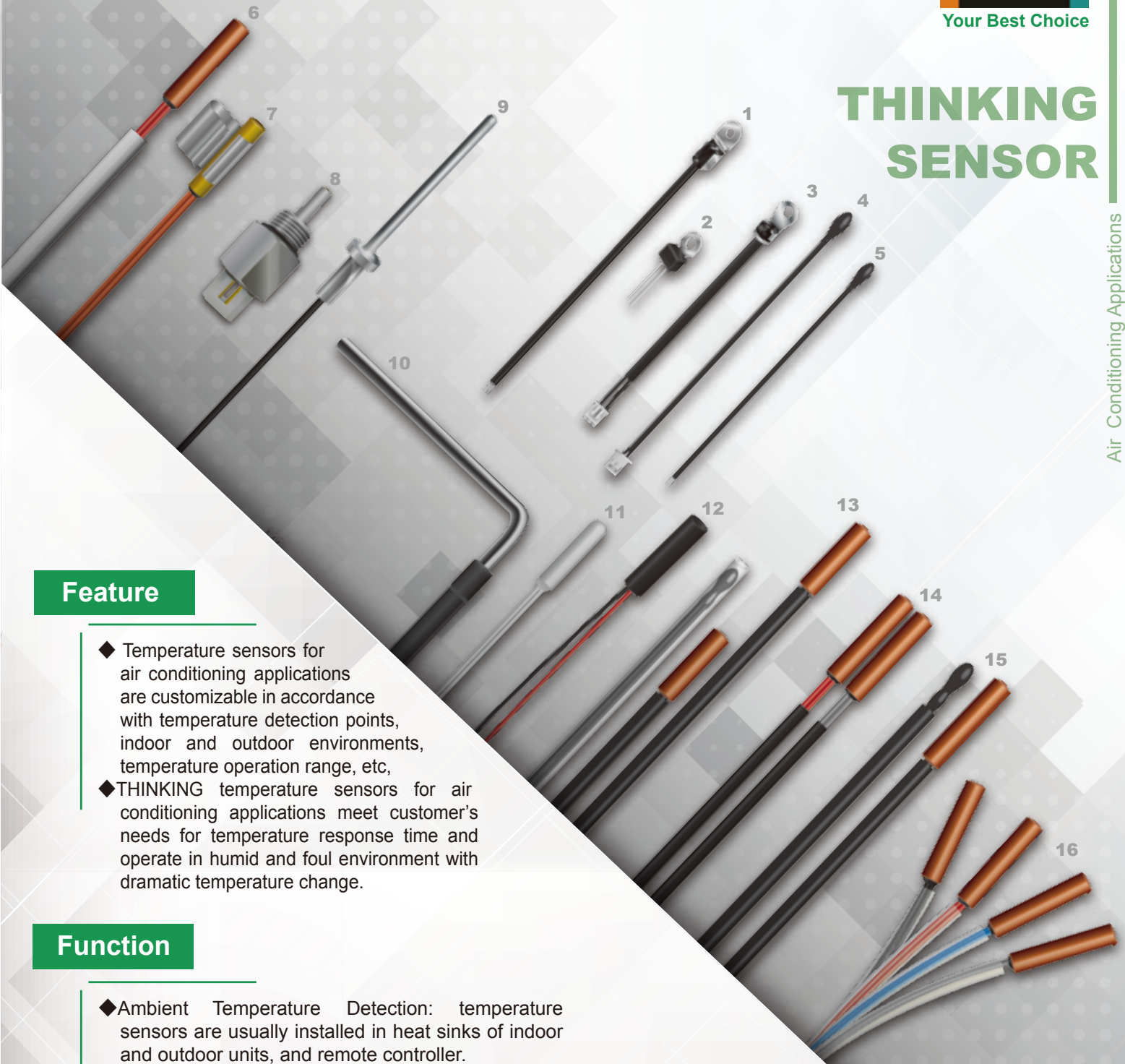


Air Conditioning Applications



THINKING SENSOR

Air Conditioning Applications



Feature

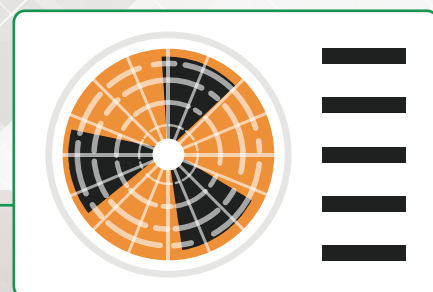
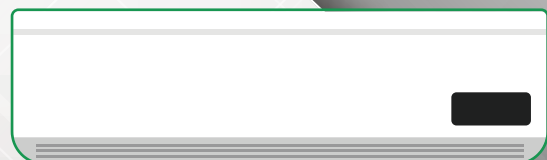
- ◆ Temperature sensors for air conditioning applications are customizable in accordance with temperature detection points, indoor and outdoor environments, temperature operation range, etc,
- ◆ THINKING temperature sensors for air conditioning applications meet customer's needs for temperature response time and operate in humid and foul environment with dramatic temperature change.

Function

- ◆ Ambient Temperature Detection: temperature sensors are usually installed in heat sinks of indoor and outdoor units, and remote controller.
- ◆ Temperature Detection of Copper Tube: detection points vary with models of air conditioners, and detection points can be fan coil in indoor and outdoor units, exhaust pipe of compressor, low pressure pipe, etc.
- ◆ Water Temperature Detection: temperature detection of cold water and hot water in central air conditioning and heating system.

Application

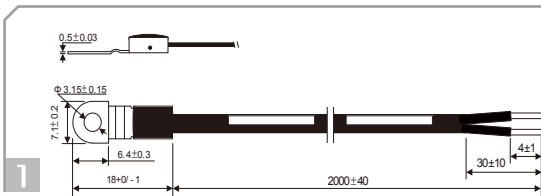
Floor standing type air conditioner, single-split type air conditioner, multi-split type conditioner, central air conditioning and heating system, cabinet air conditioner, etc.



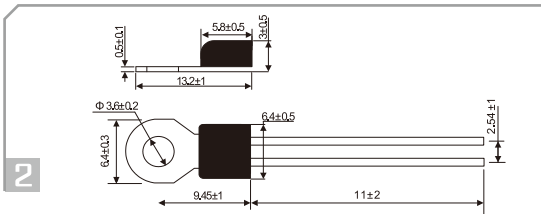
Screw-On Type

Feature: Screw-on design is for easy installation

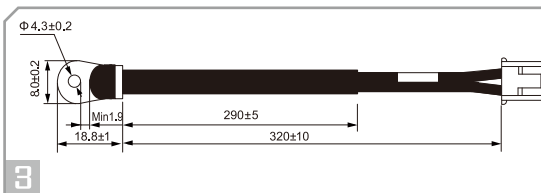
Application: The product is installed on metallic surface for temperature detection, and is generally installed in compressor or collant.



Component | Sensing top (terminal+NTC chip+epoxy)+lead wire
Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -30~+125°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R25°C=210KΩ±3% **B Value** | B25/50=3950K±1%
Thermal Time Constant | Around 20 seconds
Hi-Pot Test | AC 1500V 10mA(Max)



Component | Terminal+NTC chip in plastic case
Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -40~+105°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R25°C=10KΩ±1% **B Value** | B25/85=3435K±1%
Thermal Time Constant | Around 20 seconds (heating plate)
Hi-Pot Test | AC 1500V 10mA(Max)

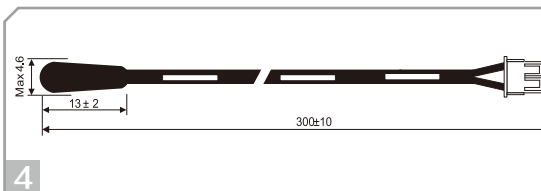


Component | Sensing top (terminal+NTC chip+epoxy)+lead wire+tube +terminal+housing
Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -20~+105°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R25°C=10KΩ±5% **B Value** | B25/50=3950K±2%
Thermal Time Constant | Around 20 seconds (heating plate)
Hi-Pot Test | AC 1500V 10mA (Max)

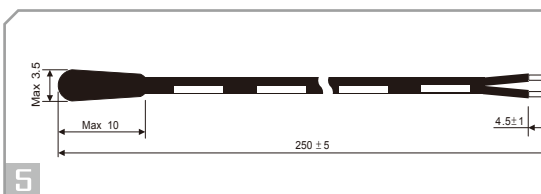
Epoxy Coating Type

Feature: Epoxy coated sensing top is a simple design and resistant to humidity, and the sensor usually detects air temperature directly.

Application: The product is generally installed in evaporator of indoor unit to detect temperature.



Component | Sensing top (NTC chip+epoxy)+lead wire+terminal +housing
Moisture Resistance | 40°C 95 % RH X 1000 hours
Operation Temperature | -20~+105°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R25°C=10KΩ±2% **B Value** | B25/50=3950K±2%
Thermal Time Constant | Around 5 seconds (in water)

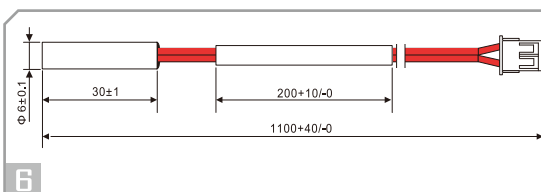


Component | Sensing top (NTC chip+epoxy)+lead wire
Moisture Resistance | 40°C 95 % RH X 1000 hours
Operation Temperature | -30~+105°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R25°C=10KΩ±1% **B Value** | B25/50=3450K±1%
Thermal Time Constant | Around 5 seconds (in water)

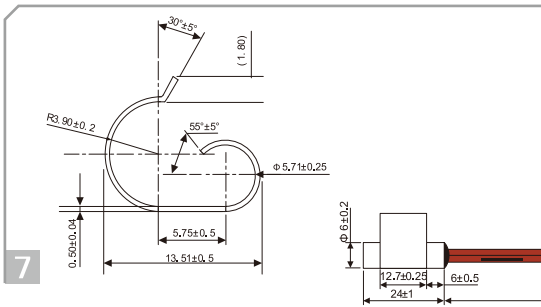
Metal Case Type

Feature: Material of metal case is the same as that of detected object for more accurate temperature detection and increase of product stability.

Application: The product detects temperatures of fan coil in indoor and outdoor units, exhaust pipe of compressor, and low pressure pipe. Temperature sensor made of stainless-steel material is suitable for above-mentioned applications, and can be installed in inlet and outlet pipes of central air conditioning system for water temperature detection.

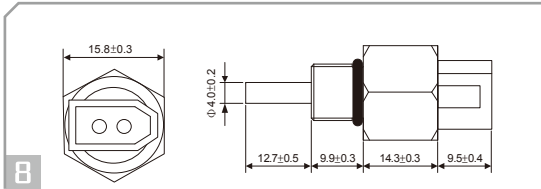


Component | Sensing top (NTC chip+copper cap)+lead wire+tube +terminal+housing
Moisture Resistance | 40°C 95 % RH X 1000 hours
Operation Temperature | -30~+125°C
Insulation Test | DC 500V 100MΩ (Min)
R Value | R110°C=1.28KΩ±5% **B Value** | B100/110=4400K±3%
Thermal Time Constant | Around 10 seconds (in water)
Hi-Pot Test | AC 1500V 10mA (Max)



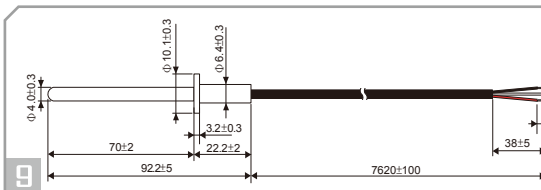
Component | Sensing top (NTC chip+brass cap+clip)+lead wire +terminal+housing

Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -30~+105°C
Insulation Test | DC 500V 100MΩ (Min)
R Value | R25°C=30 KΩ±3% **B Value** | B25/50=3900 K±2%
Thermal Time Constant | Around 10 seconds (in water)
Hi-Pot Test | AC 1500V 10mA (Max)



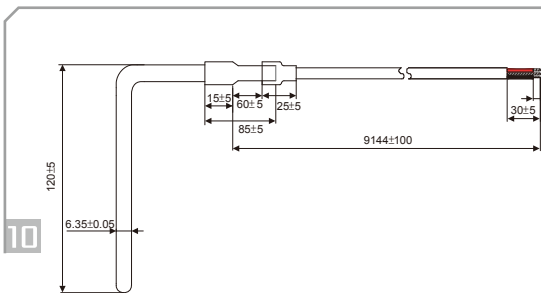
Component | Sensing top (NTC chip+stainless steel case)+terminal +housing

Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | 0~+105°C
Insulation Test | DC 500V 100MΩ (Min)
R Value | R25°C=10 KΩ±1% **B Value** | B25/85=3435K±1%
Thermal Time Constant | Around 10 seconds (in water)
Hi-Pot Test | AC 1500V 10mA (Max)



Component | Sensing top (NTC chip+stainless steel case)+lead wire

Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -20~+80°C
Insulation Test | DC 500V 100MΩ (Min)
R Value | R25°C=10 KΩ±1% **B Value** | B25/85=3435K±1%
Thermal Time Constant | Around 10 seconds (in water)
Hi-Pot Test | AC 1500V 10mA (Max)



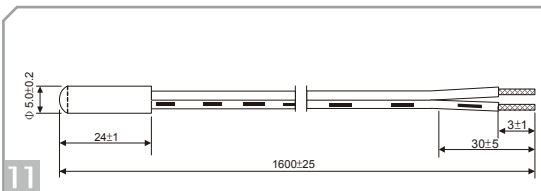
Component | Sensing top (NTC chip+stainless steel case)+tube +lead wire

Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -20~+105°C
Insulation Test | DC 500V 100MΩ (Min)
R Value | R25°C=10 KΩ±1% **B Value** | B25/85=3435K±1%
Thermal Time Constant | Around 90 seconds (in air)
Hi-Pot Test | AC 1500V 10mA (Max)

Plastic Case Type

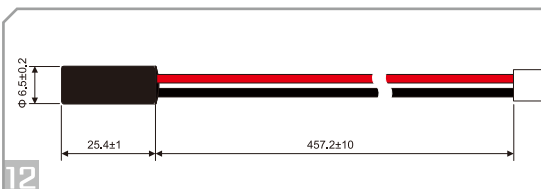
Feature: Plastic sensing top is encapsulated with insulation glue, and the sensor is highly resistant to water and corrosion.

Application: The product detects not only water temperature of central air conditioning and heating system but also indoor and outdoor ambient temperature.



Component | Sensing top (NTC chip+plastic case)+lead wire+tube +forming+terminal+housing

Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -40~+105°C
Insulation Test | DC 500V 100MΩ (Min)
R Value | R25°C=2.7 KΩ±3% **B Value** | B25/50=3860 K±1%
Thermal Time Constant | Around 20 seconds (in water)
Hi-Pot Test | AC 1500V 10mA (Max)



Component | Sensing top (NTC chip+plastic case)+lead wire+terminal +housing

Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -40~+105°C
Insulation Test | DC 500V 100MΩ (Min)
R Value | R25°C=10KΩ±5% **B Value** | B25/50= 3935K±1%
Thermal Time Constant | Around 20 seconds (in water)
Hi-Pot Test | AC 1500V 10mA (Max)

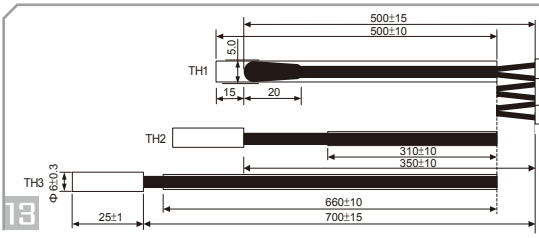


1. Temperature sensor is customizable in accordance with customer's needs, and THINKING provides consulting services for sensor design.
2. All specifications are subject to change without notice.
3. Please contact your sales representative if you have any questions.

Multiple Sensor Structure

Feature: Sensor is with various sensing tops and electrical characteristics for circuit design and assembly.

Application: The sensor is generally installed in split type air conditioner, indoor unit, and outdoor unit, and is designed based on customer's needs.



Component | Sensing top (NTC chip+epoxy, NTC chip+copper cap)
+lead wire+tube+tie+terminal+housing

Moisture Resistance | 40°C 95% RH X 1000 hours

Operation Temperature | -40~+105°C

Insulation Test | DC 500V 100MΩ(Min)

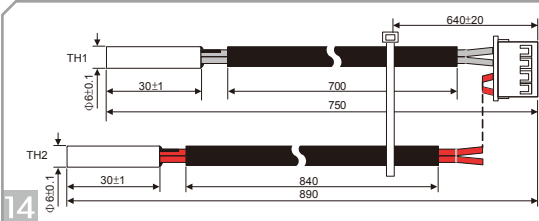
R Value | TH1/TH3 : R25=10KΩ±2%

B Value | TH1/TH3 : B25/85=3435K±1%

TH2 : R25=50KΩ±3%

TH2 : B25/85=3992K±1%

Thermal Time Constant | Around 15 seconds (in water)



Component | Sensing top (NTC chip+copper cap) +lead wire+tube
+tie+terminal+housing

Moisture Resistance | 40°C 95% RH X 1000 hours

Operation Temperature | -30~+105°C

Insulation Test | DC 500V 100MΩ(Min)

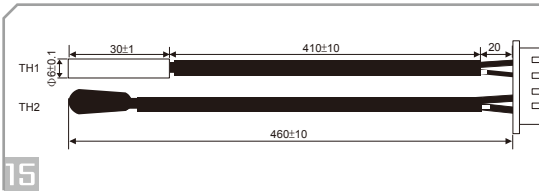
R Value | TH1 : R25°C=10KΩ±3%

B Value | TH1 : B25/50=3950K±2%

TH2 : R0°C=5.9KΩ±3%

TH2 : B0/25=3400K±1%

Thermal Time Constant | Around 15 seconds (in water)



Component | Sensing top (NTC chip+epoxy, NTC chip+copper cap)
+lead wire+tube+tie+terminal+housing

Moisture Resistance | 40°C 95% RH X 1000 hours

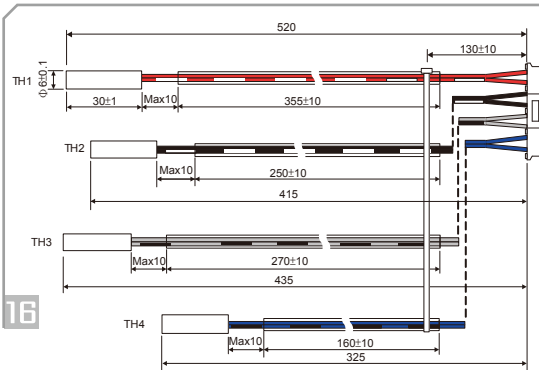
Operation Temperature | -40~+105°C

Insulation Test | DC 500V 100MΩ(Min)

R Value | R0°C=15 KΩ±2%

B Value | B0/100=3450 K±2%

Thermal Time Constant | Around 15 seconds (in water)



Component | Sensing top(NTC chip+copper cap) +lead wire+tube+tie
+terminal+housing

Moisture Resistance | 40°C 95% RH X 1000 hours

Operation Temperature | -20~+80°C

Insulation Test | DC 500V 100MΩ(Min)

R Value | R25°C=2KΩ±5%

B Value | B25/50=3500K±2%

Thermal Time Constant | Around 15 seconds (in water)

Hi-Pot Test | AC 1500V 10mA(Max)

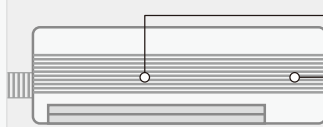
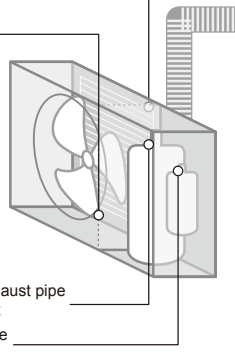
Product Application

Temperature detection of outdoor environment

Temperature detection of fan coil in outdoor Unit

Temperature detection of exhaust pipe of compressor in outdoor unit

Detection of low pressure pipe in outdoor unit



Temperature detection of evaporation in indoor unit

Temperature detection of fan coil in indoor unit

Temperature detection of indoor environment



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