

Temperature Sensor Water Heater & Residential Heating Appliances



THINKING SENSOR

Water Heater & Residential Heating Appliances

Feature

- ◆ THINKING temperature sensor operates under high temperature and humid environment or environment requiring long sunlight exposure.
- ◆ Products with different response time are available, the fastest response time of this application is 2 seconds.
- ◆ According to different requirements of heating applications, customizable temperature sensor is available.
- ◆ Various electrical characteristics are available for your choice.

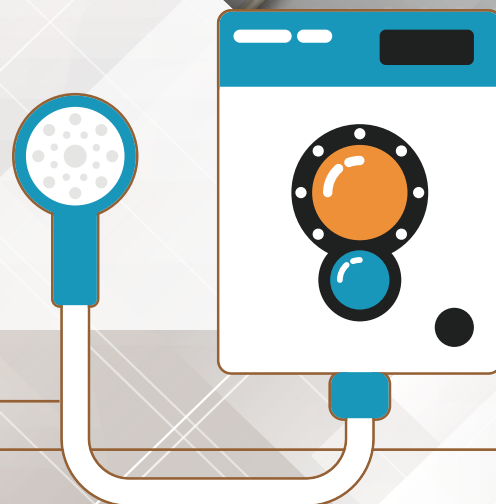
Function

- ◆ Solar water heating equipment: water temperature detection of solar panel, boiler, and heater.
- ◆ Electric heater: temperature detection of ambient environment, floor, and hot air entrance.
- ◆ Gas water heater: Temperature detection of hot water pipe and water temperature of boiler.

Application

Solar water heater, gas water heater, electric water heater, electric heater, underfloor heating equipment, central heating system, etc.

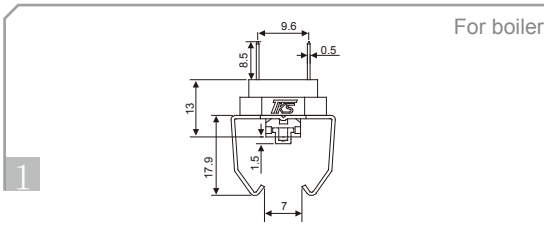
Thinking Electronic Industrial Co., Ltd.



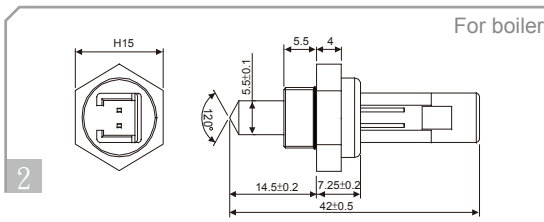
Metal Case Type

Feature: Material of metal case is the same as that of detected object for water resistance, more accurate temperature detection, and faster response time. Stainless steel material offers better stability for the product and usually directly contacts hot water or boiler.

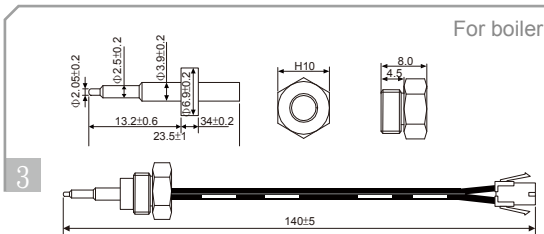
Application: The sensor usually detects hot water pipe of water heater or detects water temperauter of hot water boiler.



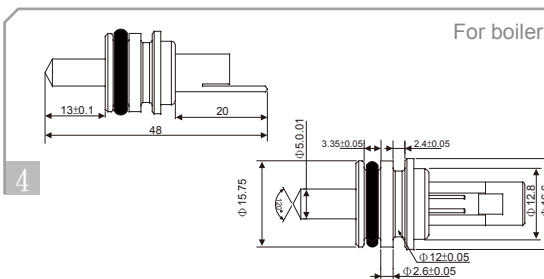
Component | Terminal+plastic body (NTC chip+nickel plated brass cap)+stainless steel clip
Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -40~+150°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R25°C=10KΩ±1% **B Value** | B25/85=3435K±1%
Thermal Time Constant | Around 2 seconds (heating board)
Hi-Pot Test | AC 1500V 10mA(Max)



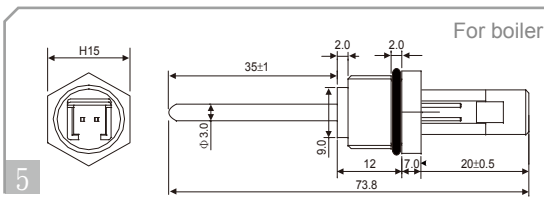
Component | Sensing top (NTC chip+nickel plated brass cap)+connector
Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -40~+150°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R25°C=10KΩ±3.8% **B Value** | B25/85=3435K±1.5%
Thermal Time Constant | Around 3 seconds (in water)
Hi-Pot Test | AC 1500V 10mA(Max)



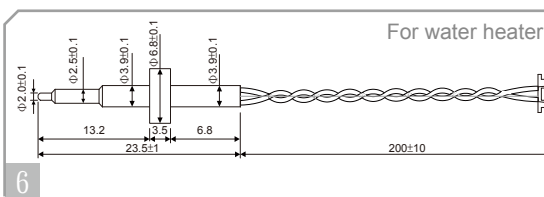
Component | Sensing top (NTC chip+stainless steel cap+brass ring +brass nut)+lead wire+terminal+housing
Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -40~+120°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R25°C=10KΩ±2% **B Value** | B25/85=3435K±1.5%
Thermal Time Constant | Around 3 seconds (in water)
Hi-Pot Test | AC 1500V 10mA(Max)



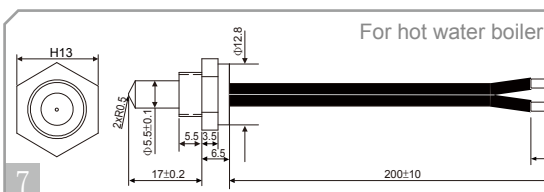
Component | Sensing top (NTC chip+nickel plated brass cap +washer)+terminal
Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -20~+110°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R25°C=10KΩ±3.8% **B Value** | B25/85=3435K±1.5%
Thermal Time Constant | Around 3 seconds (in water)
Hi-Pot Test | AC 1500V 10mA(Max)



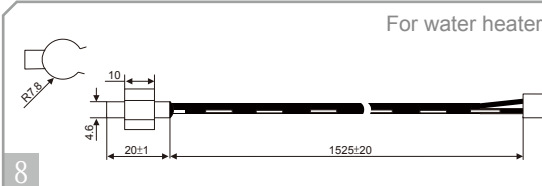
Component | Sensing top (NTC chip+stainless steel cap+washer)+terminal
Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -40~+150°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R25°C=100KΩ±1% **B Value** | B25/85=3435K±1.5%
Thermal Time Constant | Around 3 seconds (in water)
Hi-Pot Test | AC 1500V 10mA(Max)



Component | Sensing top (NTC chip+stainless steel cap +brass ring)+lead wire+terminal+housing
Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -20~+120°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R50°C=3.485KΩ±3% **B Value** | B0/100=3450K±2%
Thermal Time Constant | Around 2 seconds (in water)
Hi-Pot Test | AC 1500V 10mA(Max)

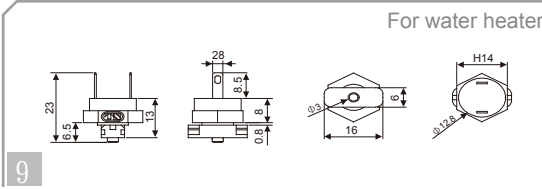


Component | Sensing top (NTC chip+brass cap)+lead wire
Thermal Time Constant | 40°C 95% RH X 1000 hours
Operation Temperature | -40~+125°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R50°C=3.485KΩ±3% **B Value** | B0/100=3450K±2%
Thermal Time Constant | Around 3 seconds (in water)
Hi-Pot Test | AC 1500V 10mA(Max)



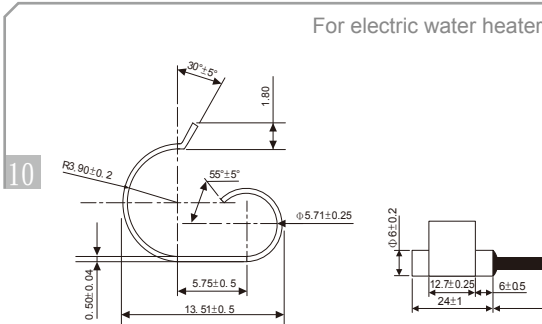
Component | Sensing top (NTC chip+copper cap+clip)+lead wire +terminal+housing

Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -40~+105°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R25=10KΩ±3% **B Value** | B25/85=3975K±3%
Thermal Time Constant | Around 10 seconds (in water)
Hi-Pot Test | AC 1800V 10mA(Max)



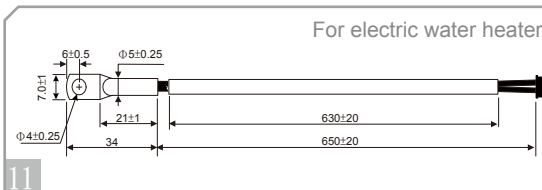
Component | Terminal+plastic body (NTC chip+nickel plated brass cap)

Moisture Resistance | 60°C 95% RH X 1000 hours
Operation Temperature | -40~+80°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R25=10KΩ±3.8% **B Value** | B25/85 =3435K±1.5%
Thermal Time Constant | Around 2 seconds (heating board)
Hi-Pot Test | AC 1500V 10mA(Max)



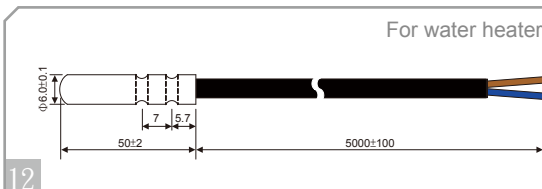
Component | Sensing top (NTC chip+brass cap+clip)+lead wire +terminal+housing

Moisture Resistance | 60°C 95% RH X 1000 hours
Operation Temperature | -40~+105°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R25=30KΩ±2% **B Value** | B25/50=3900K±2%
Thermal Time Constant | Around 10 seconds (in water)
Hi-Pot Test | AC 1500V 10mA(Max)



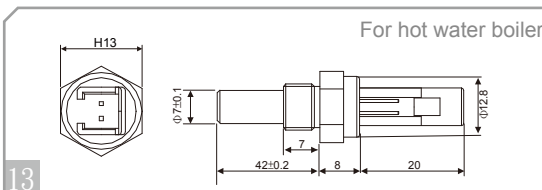
Component | Sensing top (NTC chip+copper cap)+lead wire+tube +terminal+housing

Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -30~+105°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R50=17.7 KΩ ± 4.5% **B Value** | B25/85=3992K±2%
Thermal Time Constant | Around 10 seconds (in water)
Hi-Pot Test | AC 1800V 10mA(Max)



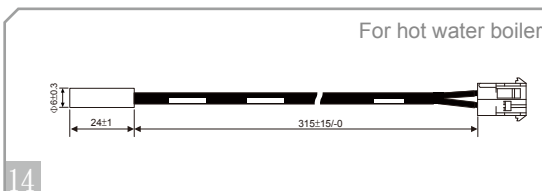
Component | Sensing top (NTC chip+stainless steel cap) +lead wire+terminal+housing

Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -20~+105°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R50=3.485KΩ±3% **B Value** | B0/100=3450K±2%
Thermal Time Constant | Around 10 seconds (in water)
Hi-Pot Test | AC 3750V 10mA(Max)



Component | Sensing top (NTC chip+silicon+heat shrink tube +stainless steel cap)+connector

Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -40~+200°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R25=10KΩ±3% **B Value** | B25/85=3975K±1.5%
Thermal Time Constant | Around 6.5 seconds (in water)
Hi-Pot Test | AC 1500V 10mA(Max)



Component | Sensing top (NTC chip+stainless steel cap) +lead wire+terminal+housing

Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -40~+80°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R100°C=6.7KΩ±2% **B Value** | B25/100°C=4100K±2%
Thermal Time Constant | Around 10 seconds (in water)
Hi-Pot Test | AC 1500V 10mA(Max)

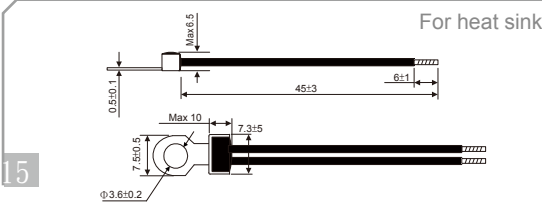


1. Temperature sensor is customizable in accordance with customer's needs, and THINKING provides consulting services for sensor design.
2. All specifications are subject to change without notice.
3. Please contact your sales representative if you have any questions.

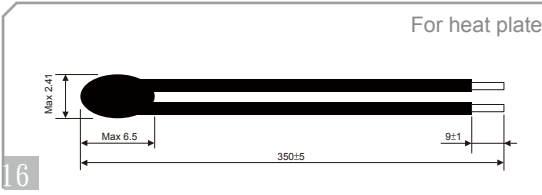
Other Structures

Feature: For sensing top, screw-on type is for easy installation. Epoxy coating type is with simple structure and responses fast. Plastic case type is highly water resistant and does not produce water stains easily. In addition, Pt sensor offers more accurate temperature detection and better product stability.

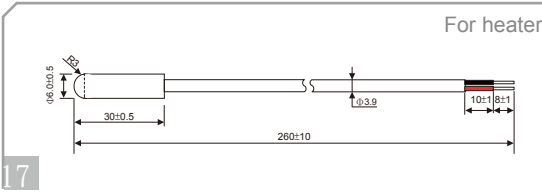
Application: Screw-on type and epoxy coating type are recommended for dryer environment, including heat sink of heater, heat plate, etc. Plastic case type is used for temperature detection of heater's air inlet and outlet and water temperature detection of central heating system. Pt sensor is installed in boiler of commercial central heating system for water temperature detection.



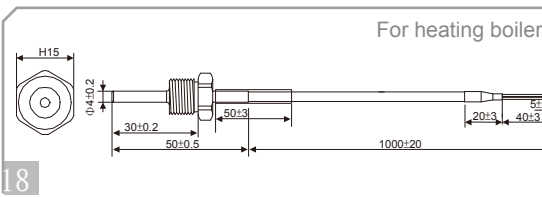
Component | Sensing top (terminal+epoxy+NTC chip)+lead wire
Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -40~+125°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R25°C=10KΩ±2% **B Value** | B25/100=3988K±1%
Thermal Time Constant | Around 15 seconds (heating board)
Hi-Pot Test | AC 1500V 10mA(Max)



Component | Sensing top (NTC chip+epoxy)+lead wire
Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -20~+105°C
Insulation Test | DC 100 V 50MΩ(Min)
R Value | R25°C=10KΩ±1% **B Value** | B25/100=3988K±1%
Thermal Time Constant | Around 5 seconds (in water)
Hi-Pot Test | AC 1000V 10mA(Max)

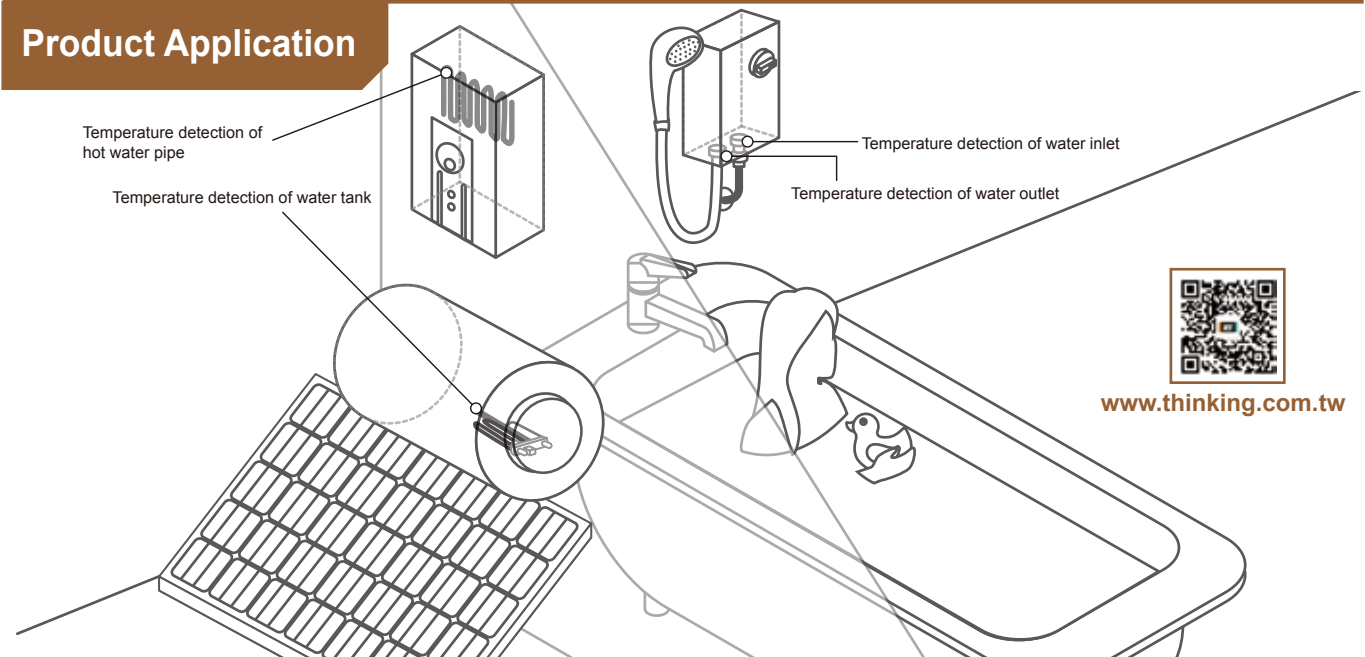


Component | Sensing top (NTC chip+plastic case)+lead wire
Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -10~+80°C
Insulation Test | DC 500V 100MΩ(Min)
R Value | R25°C=10KΩ±5% **B Value** | B25/85=3975K±3%
Thermal Time Constant | Around 20 seconds (in water)



Component | Sensing top (Pt chip+stainless steel screw cap)
 +lead wire+tube
Moisture Resistance | 40°C 95% RH X 1000 hours
Operation Temperature | -30~+80°C
Insulation Test | DC 50 V 50MΩ(Min)
R Value | R0°C=1000Ω (Class B)
Temperature Coefficient of Resistance | 3850 ppm/K

Product Application



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