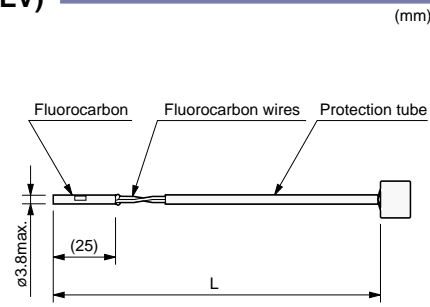
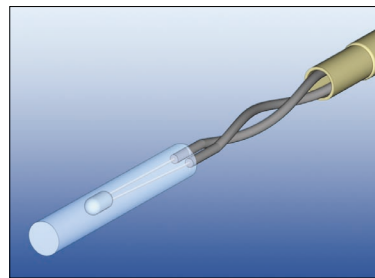


Automobiles

for Automotive (EV,HEV)

A1 for Electric Motors (EV, HEV)



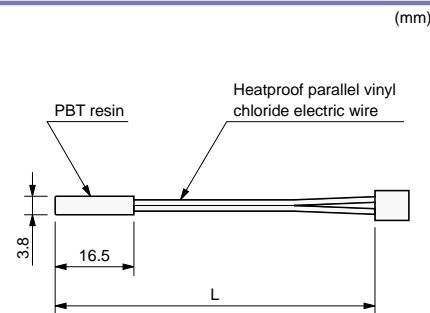
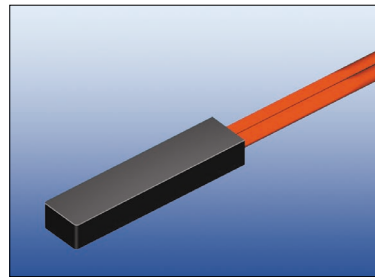
Features
High & low temperature proof, oil proof and solvent proof because of fluoro resin sealing.

Applications
Electric motors for EV, HEV and their inverter temperature measurement etc.

Operating temperature range
-40°C to 200°C(250°C for a short time)

Thermal time constant
Approx. 4 sec. (in liquid)

A2 for Batteries



Features
Standard plastic casing solution for low temperature range.

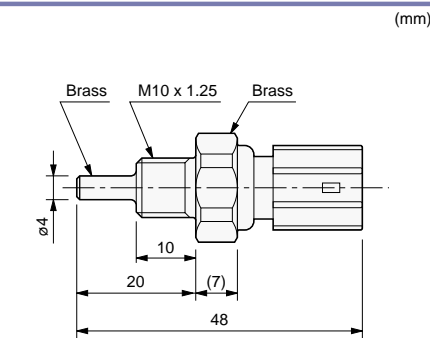
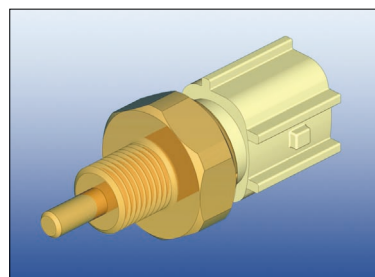
Applications
Battery temperature measurement for EV and HEV.

Operating temperature range
-40°C to 80°C

Thermal time constant
Approx. 4 sec. (in liquid)

for Automotive (Engine)

A3 for Water Temperature



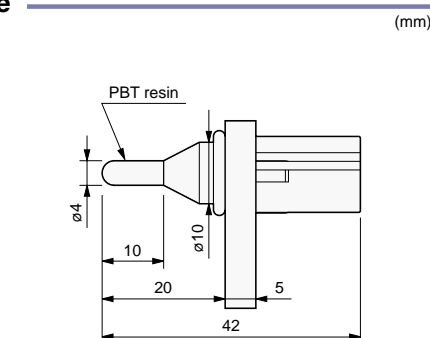
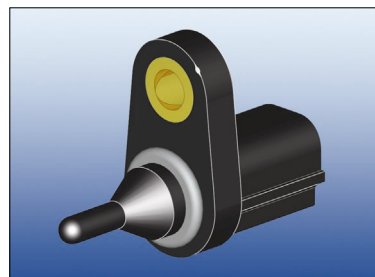
Features
Direct coupler type with durable NSII thermistor element. Available for each car maker standards.

Applications
Water and Oil temperature detection for automotive and motorcycles etc.

Operating temperature range
-40°C to 150°C (200°C type available)

Thermal time constant
Approx. 2 sec. (in liquid)

A4 for Intake Air Temperature



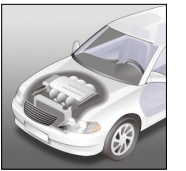
Features
Direct coupler type with one-piece plastic casing. Good for Engine control.

Applications
Intake air temperature detection for automotive and motorcycles etc.

Operating temperature range
-40°C to 150°C (200°C type available)

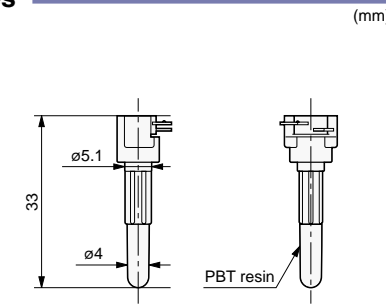
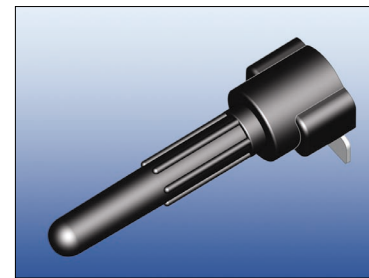
Thermal time constant
Approx. 8 sec. (in liquid)

※ Above-described shapes are just for example, customized designs are available.



for Automotive (Engines)

A5 for Intake Air for Motorcycles



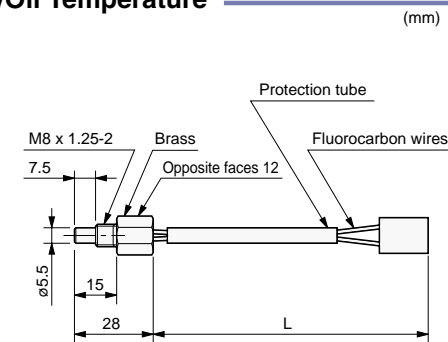
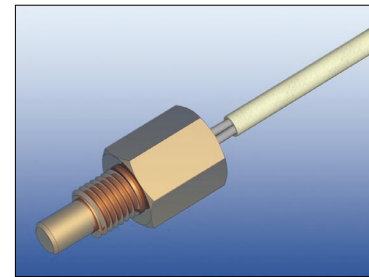
Features
Small and light weight. Good to combine with other components.

Applications
Intake air temperature detection for motorcycles etc.

Operating temperature range
-40°C to 120°C

Thermal time constant
Approx. 6 sec. (in liquid)

A6 for Engine Temperature/Oil Temperature



Features
Good for narrow fixation area and medium temperature range.

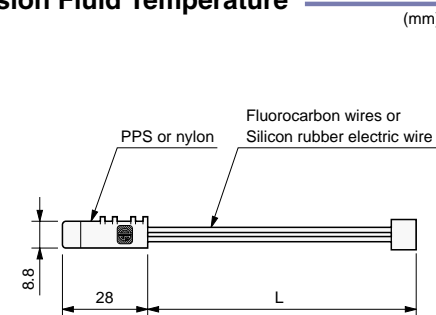
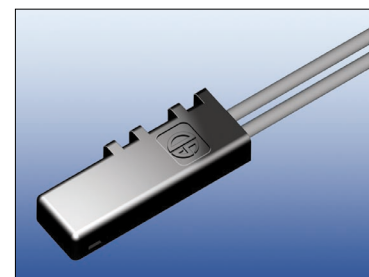
Applications
Water, oil and engine temperature for motorcycles or multi-purpose engines etc.

Operating temperature range
-40°C to 150°C (200°C for a short time)

Thermal time constant
Approx. 2 sec. (in liquid)

for Automotive (Drive Trains / Exhaust)

A7 for Automatic Transmission Fluid Temperature



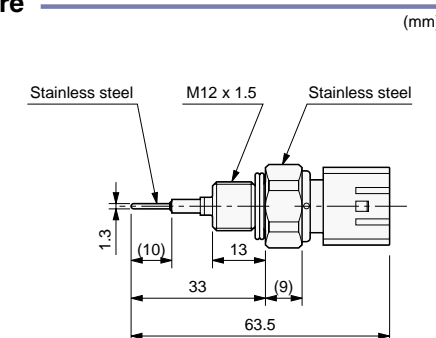
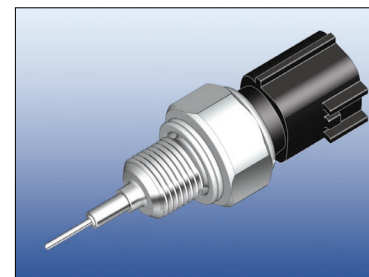
Features
Standard solution of insulating oil temperature measurement.

Applications
ATF temperature detection for automotive etc.

Operating temperature range
-40°C to 165°C

Thermal time constant
Approx. 20 sec. (in liquid)

A8 for EGR Gas Temperature



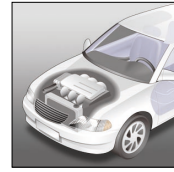
Features
Quick response as thermocouples. Good for medium temperature range.

Applications
Water, Intake air and EGR gas temperature detection for automotive etc.

Operating temperature range
-40°C to 180°C (250°C for short term)

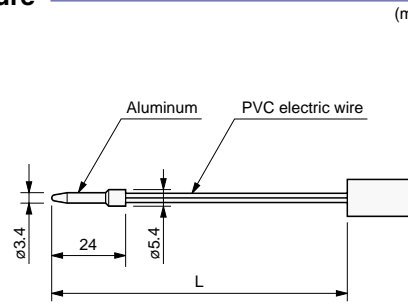
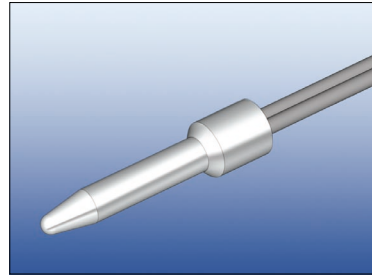
Thermal time constant
Less than 1 sec. (in liquid)

※ Above-described shapes are just for example, customized designs are available.



for Automotive (Car Air Conditioner)

A9 for Evaporator Temperature



(mm)

Features

Standard Aluminum protection cap solution.

Applications

Evaporator temperature detection for automotive etc.

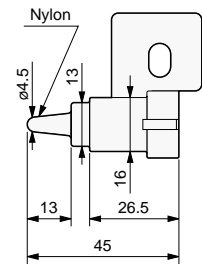
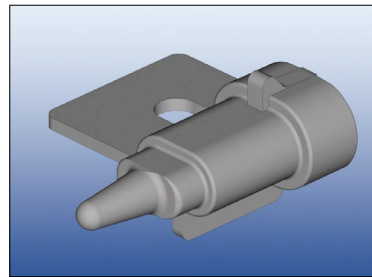
Operating temperature range

-40°C to 80°C

Thermal time constant

Approx. 3 sec. (in liquid)

A10 for Outside Air Temperature



(mm)

Features

Direct coupler type with one-piece resin casing.

Applications

Outside temperature detection for automotive etc.

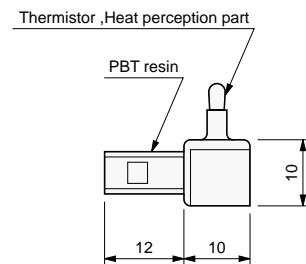
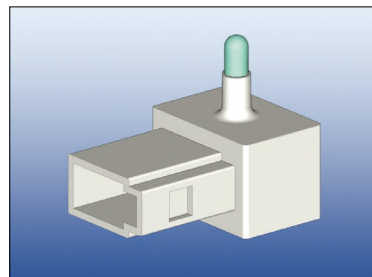
Operating temperature range

-40°C to 120°C

Thermal time constant

Approx. 10 sec. (in liquid)

A11 for Room Temperature



(mm)

Features

Direct coupler type with exposed element head.

Applications

Room temperature detection for automotive etc.

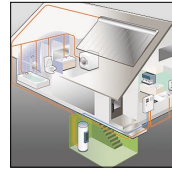
Operating temperature range

-40°C to 130°C

Thermal time constant

Less than 1 sec. (in liquid)

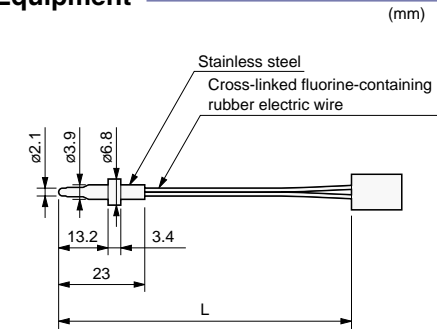
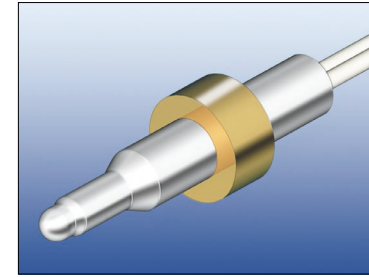
※ Above-described shapes are just for example, customized designs are available.



Water Related Equipment

for Water Related Equipment

B1 Standard Type for Water Equipment



(mm)

Features

Durable solution using NS type element. Smaller element is also applicable for faster response.

Applications

Instant water heater, heat pumps, coffee machines, toilet seat heating, floor heating and cogeneration systems etc.

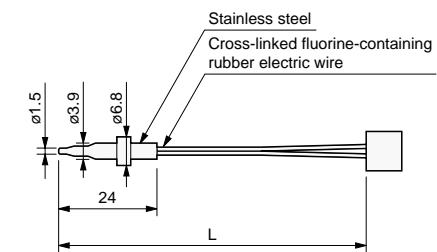
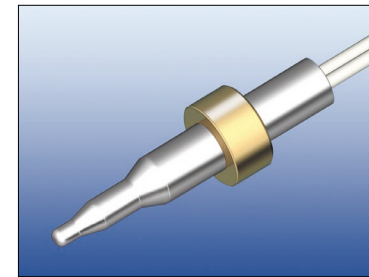
Operating temperature range

-20°C to 120°C

Thermal time constant

Less than. 2 sec. (in water, 90% response time)

B2 Quick Response Type for Water Equipment



(mm)

Features

Quicker response by using PSB-S5 element. Also applicable for a level detector.

Applications

Toilet seat heating. Water heater, floor heating and cogeneration systems etc.

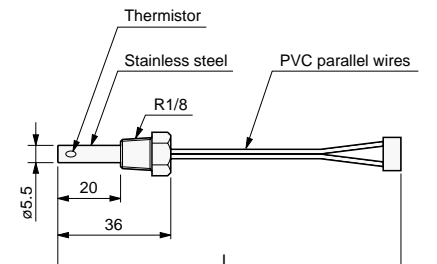
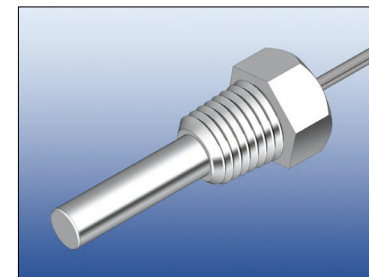
Operating temperature range

-20°C to 120°C

Thermal time constant

Less than 0.5 sec. (in water)

B3 for Boiler Temperature



(mm)

Features

Screw type water proof sensor.

Applications

Machine tools, medical devices, coffee machines and solar systems etc.

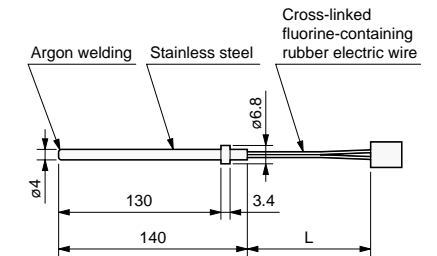
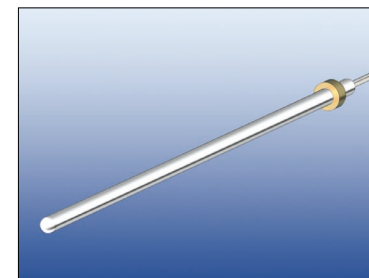
Operating temperature range

-20°C to 100°C

Thermal time constant

Approx. 5 sec. (in liquid)

B4 for Cogeneration Systems



(mm)

Features

Durable solution for water temperature detection using NS type element. Equipped with a fixing flange.

Applications

Cogeneration system equipment and water storage tanks for solar systems etc.

Operating temperature range

-20°C to 120°C

Thermal time constant

Less than 5 sec. (in water)

※ Above-described shapes are just for example, customized designs are available.