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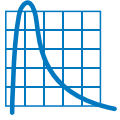
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T H E R M O M E T R I C S
A C O M M I T M E N T T O E X C E L L E N C E

NTC Type JW, JC

Thermometrics Clip-On Pipe and Surface Sensors



Features

- Suitable for use in conditions of high condensation and occasional immersion in water
- 0 - 100°C operating range
- Low temperature gradient (<1.8°F at 140°F (<1°C at 60°C))
- Sensing element electrically isolated from shoe (isolation >20M Ω at 500V)
- Type JC meets IP44 standard
- Range of clips for pipe diameters 0.51 in to 1.18 in (13 mm to 30 mm). (Consult factory for additional size options.)
- Self-adjusts to irregular pipe surfaces
- Fast time response (1.5s typical) for JC and 3.0s for JW
- Water resistant version (Type JW) meets IP46 standard (with connector tabs encapsulated)
- Offers cost benefits over traditional immersion probes
- Typical applications include gas boiler control, domestic water systems, air conditioners, radiator inlet-outlet, electric showers, vending machines, chiller and refrigeration units

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Type JW Specifications

Description

NTC or PTC chip thermistor on a ceramic/metal shoe assembly sealed in a polymer housing and provided with flexible twin cable connections. The housing is fitted with a spring metal clip for pipe attachment.

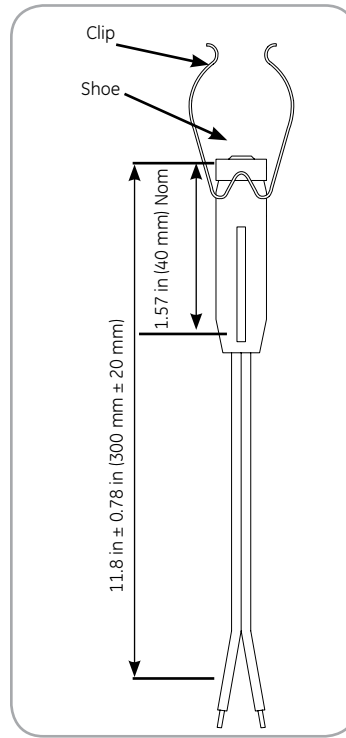
Options

- Other resistance - temperature characteristics
- Other wire lengths
- Special pipe sizes

General Data

- Minimum operating temperature: 32°F (0°C)
- Maximum temperature: 212°F (100°C) (sensor) 185°F (85°C) (housing)
- Dissipation factor: $\geq 2\text{mW/K}$ (mounted on copper pipe at 77°F (25°C))
- Isolation voltage: 500 VDC
- Clip force: <50N for mounting / de-mounting on pipe
5N will not cause rotation on pipe
- Shoe material: Plated brass
- Body material: Nylon
- Pack quantity & MOQ: 200 pcs

| Response Time (seconds) | |
|-------------------------|--|
| NTC | ≤ 4 (to 90% voltage change) |
| PTC | ≤ 4 to TNF 41°F (5°C) (sensor applied to pipe at TNF 73.4°F (23°C)) |



NTC Type JW dimensions

Ordering Information

The code number to be ordered may be specified as follows:

| Code | Type |
|------|--|
| JW | Resin-Coated Thermistor With PVC Wires |
| | Code Pipe Diameter Range in mm |
| | 13 13 - 15 |
| | 17 17 - 18.5 |
| | 20 20 - 22 |
| | 28 28-30 |
| JW - | _____ Typical model number |

NTC Data

For codes, see below.

| Code | Nominal Resistance | | | Tolerances | | | | | | | | |
|-------------|--------------------|--------|--------|------------|--------|--------|---------|------|------|---------|----|-----|
| | 77°F | 140°F | 185°F | 77°F | 140°F | 185°F | B 25/85 | | | | | |
| | (25°C) | (60°C) | (85°C) | (25°C) | (60°C) | (85°C) | ±% | ±°C | ±% | ±°C | ±% | ±°C |
| JW103C3R5/X | 9983 | 2500 | 1079 | 6.46 | 1.48 | 5.00 | 1.40 | 5.90 | 1.87 | 3960±1% | | |

PTC Data

- Maximum applied voltage: 30V
- Maximum applied voltage for temperature sensing: 2.5V

For codes see below.

| T_{NF} | (-20 to T_{NF} -20°C) | | 25°C | | $T_{NF} - 5°C$ | | $T_{NF} + 5°C$ | | $T_{NF} + 23°C$ | |
|---------------|-------------------------|-----|------------|-----|----------------|-----|----------------|-----|-----------------|-----|
| | Ω | VDC | Ω | VDC | Ω | VDC | Ω | VDC | Ω | VDC |
| JW 060/X 60°C | ≤ 250 | 2.5 | ≤ 100 | 0.2 | ≤ 570 | 2.5 | ≥ 570 | 2.5 | ≥ 10000 | 2.5 |
| JW 070/X 70°C | ≤ 250 | 2.5 | ≤ 100 | 0.2 | ≤ 570 | 2.5 | ≥ 570 | 2.5 | ≥ 10000 | 2.5 |
| JW 080/X 80°C | ≤ 250 | 2.5 | ≤ 100 | 0.2 | ≤ 570 | 2.5 | ≥ 570 | 2.5 | ≥ 10000 | 2.5 |

Clip size is specified in the code above as shown in the table below, e.g., JW103C3R5/17

Type JC Specifications

Description

A range of temperature sensing elements on a ceramic/metal shoe assembly, held in a polymer housing and provided with connector tabs. The housing is fitted with a spring metal clip for pipe attachment. The elements available are NTC, PTC, SLN (silicon linear PTC) and PRT (Pt).

Options

- Other resistance – temperature characteristics
- Special pipe sizes
- Waterproof version – JW (see page 2)

General Data

- Minimum operating temperature: 32°F (0°C)
- Maximum temperature: 212°F (100°C) (sensor) 185°F (85°C) (housing)
- Dissipation factor: =2mW/K (mounted on copper pipe at 77°F (25°C))
- Isolation voltage: 500 VDC
- Clip force: <50N for mounting/de-mounting on pipe 5N will not cause rotation on pipe
- Shoe material: Plated brass
- Body material: Nylon
- Pack quantity & MOQ: 200 pcs

NTC Data

For codes, see below.

| Code | Nominal Resistance | | | | | Tolerances | | | | B 25/85 K | Identification color dot | |
|-------------|--------------------|---------------|---------------|--------------|---------------|---------------|------|------|------|--------------|-----------------------------|-----|
| | 77°F 25°C | 140°F 60°C | 185°F 85°C | 77°F 25°C | 140°F 60°C | 185°F 85°C | ±% | ±°C | ±% | | | ±°C |
| | Ω | Ω | Ω | ±% | ±°C | ±% | ±°C | ±% | ±°C | | | |
| JC502C3R5/X | 4990 | 1250 | 540 | 6.46 | 1.48 | 5.00 | 1.40 | 5.90 | 1.87 | 3960 ± 1% | Orange | |
| JC103C3R5/X | 9983 | 2500 | 1079 | 6.46 | 1.48 | 5.00 | 1.40 | 5.90 | 1.87 | 3960 ± 1% | None | |
| JC103C4R5/X | 9925 | 3000 | 1441 | 6.26 | 1.67 | 5.00 | 1.60 | 5.77 | 2.09 | 3435 ± 1% | Yellow | |

PTC Data

- Maximum applied voltage: 30V
- Maximum applied voltage for temperature sensing: 2.5V

For codes, see below.

| | T _{NF} | -20°C to T _{NF} -20°C | | 77°F (25°C) | | T _{NF} -5°C | | T _{NF} + 5°C | | T _{NF} + 23°C | | Identification dots |
|---------|-----------------|--------------------------------|-----|-------------|-----|----------------------|-----|-----------------------|-----|------------------------|-----|---------------------|
| | | Ω | VDC | Ω | VDC | Ω | VDC | Ω | VDC | Ω | VDC | |
| JC060/X | 60°C | <=250 | 2.5 | <=100 | 0.2 | <=570 | 2.5 | >=570 | 2.5 | >=10000 | 2.5 | White/Gray |
| JC070/X | 70°C | <=250 | 2.5 | <=100 | 0.2 | <=570 | 2.5 | >=570 | 2.5 | >=10000 | 2.5 | White/Brown |
| JC080/X | 80°C | <=250 | 2.5 | <=100 | 0.2 | <=570 | 2.5 | >=570 | 2.5 | >=10000 | 2.5 | White/White |



Type JC Specifications

Silistor Data

Code: JC202SLN1/X

Measurements made at 1 mA

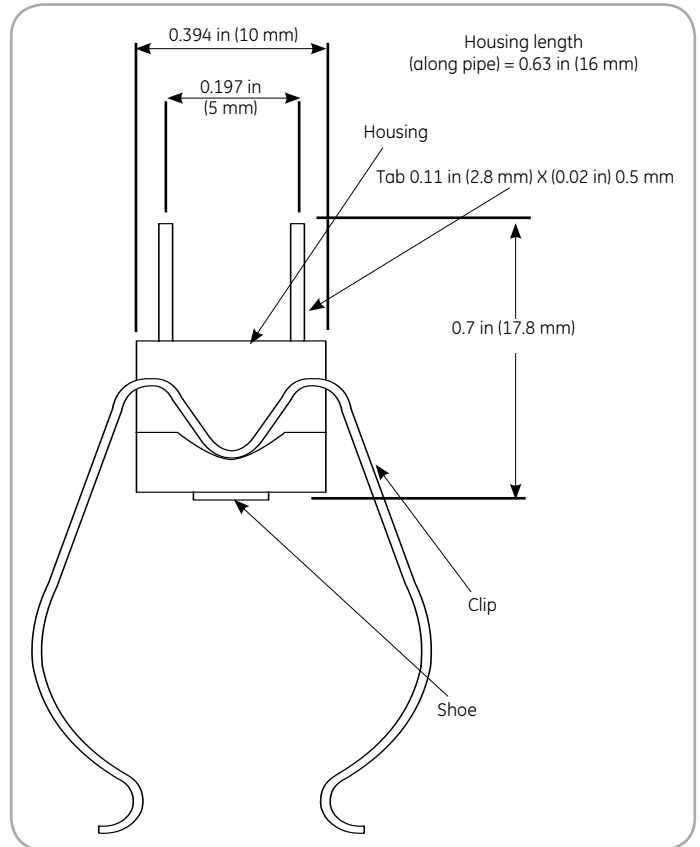
| | 77°F (25°C) | 140°F (60°C) | 185°F (85°C) |
|-----------------------|---|---|---|
| Resistance Ω | 1980 - 2020 | 2577.1 - 2641.3 | 3024.2 - 3146.5 |
| Temperature Deviation | $\pm 2.29^\circ\text{F}$ ($\pm 1.27^\circ\text{C}$) | $\pm 4.10^\circ\text{F}$ ($\pm 2.28^\circ\text{C}$) | $\pm 5.4^\circ\text{F}$ ($\pm 3.0^\circ\text{C}$) |

PRT Data

- Tolerance: Class A
- Code: JC102PRTA/X

Refer to separate tables for RVT

| | 32°F (0°C) | 77°F (25°C) | 140°F (60°C) | 185°F (85°C) |
|-----------------------|---|--|---|---|
| Resistance Ω | 1000 | 1097 | 1232 | 1328 |
| Temperature Deviation | $\pm 0.27^\circ\text{F}$ ($\pm 0.15^\circ\text{C}$) | $\pm 0.36^\circ\text{F}$ ($\pm 0.2^\circ\text{C}$) | $\pm 0.49^\circ\text{F}$ ($\pm 0.27^\circ\text{C}$) | $\pm 0.58^\circ\text{F}$ ($\pm 0.32^\circ\text{C}$) |



Ordering Information

The code number to be ordered may be specified as follows:

| | |
|-------------|--|
| Code | Type |
| JC | Clip-On Pipe Sensor |
| | Code Type |
| | X NTC (See NTC Data Table on page 3) |
| | |
| | PTC (See PTC Data Table on page 3) |
| | |
| | SLN (See Silistor Data Table) |
| | PRT (See PRT Data Table) |
| | Code Pipe Diameter Range in mm |
| | 13 13 - 15 |
| | 17 17 - 18.5 |
| | 20 20 - 22 |
| | 26 26 - 27.5 |
| | 28 28 - 30 |
| | F Flat Surface |

JC - ____ - ____ Typical model number

Clip Size is specified in the codes above as shown in the table on the top.

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