



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  $\Omega$  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.

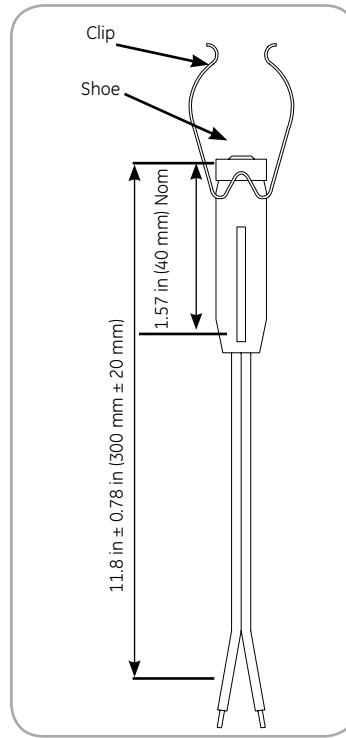
## Options

- 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	$\leq 4$ (to 90% voltage change)
PTC	$\leq 4$ 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
	<b>Code      Pipe Diameter Range in mm</b>
	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		$T_{NF} - 5°C$		$T_{NF} + 5°C$		$T_{NF} + 23°C$	
	$\Omega$	VDC	$\Omega$	VDC	$\Omega$	VDC	$\Omega$	VDC	$\Omega$	VDC
JW 060/X 60°C	$\leq 250$	2.5	$\leq 100$	0.2	$\leq 570$	2.5	$\geq 570$	2.5	$\geq 10000$	2.5
JW 070/X 70°C	$\leq 250$	2.5	$\leq 100$	0.2	$\leq 570$	2.5	$\geq 570$	2.5	$\geq 10000$	2.5
JW 080/X 80°C	$\leq 250$	2.5	$\leq 100$	0.2	$\leq 570$	2.5	$\geq 570$	2.5	$\geq 10000$	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 <sub>NF</sub>	-20°C to T <sub>NF</sub> -20°C		77°F (25°C)		T <sub>NF</sub> -5°C		T <sub>NF</sub> + 5°C		T <sub>NF</sub> + 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

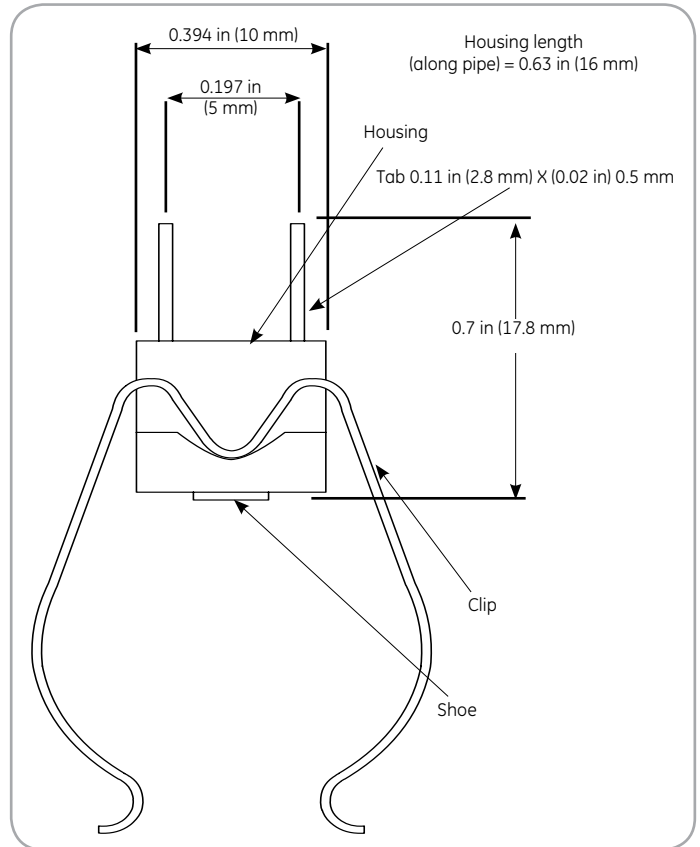
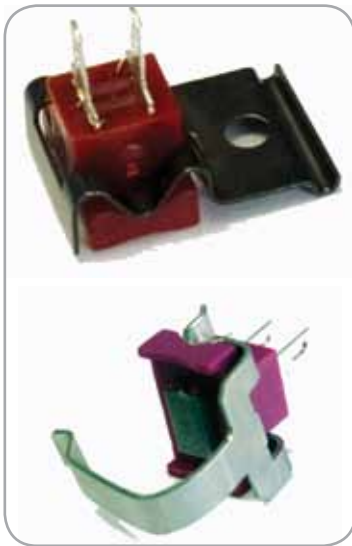
	77°F (25°C)	140°F (60°C)	185°F (85°C)
Resistance $\Omega$	1980 - 2020	2577.1 - 2641.3	3024.2 - 3146.5
Temperature Deviation	$\pm 2.29^\circ\text{F}$ ( $\pm 1.27^\circ\text{C}$ )	$\pm 4.10^\circ\text{F}$ ( $\pm 2.28^\circ\text{C}$ )	$\pm 5.4^\circ\text{F}$ ( $\pm 3.0^\circ\text{C}$ )

## 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 $\Omega$	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:

<b>Code</b>	<b>Type</b>
JC	Clip-On Pipe Sensor
	<b>Code</b> <b>Type</b>
	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)
	<b>Code</b> <b>Pipe Diameter Range in mm</b>
	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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