



NTC THERMISTORS: TYPE JC

CLIP-ON PIPE SENSOR

DESCRIPTION:

A range of temperature sensing elements on a ceramic / metal shoe assembly and held in a polymer housing and provided with connector tabs. The housing is fitted with a spring metal clip for pipe attachment. A water resistant version is also available, incorporating a foam seal and sealed wire outlet holes. The elements available are NTC, PTC, SLN (silicon linear PTC) and PRT (Pt).

FEATURES:

- Fast time response (1.5s typical)
- Low temperature gradient ($<1^{\circ}\text{C}$ at 60°C)
- Sensing element electrically isolated from shoe (isolation $>2\text{M}\Omega$ at 500V)
- Water resistant version meets IP44 standard (with connector tabs encapsulated)
- Range of clips for pipe diameters 13 to 30mm
- Self-adjusts to irregular pipes
- 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

GENERAL DATA:

Minimum operating temperature 0°C

Maximum temperature 100°C (sensor)
..... 85°C (housing)

Dissipation factor $\geq 2\text{mW/K}$
..... (mounted on copper pipe at 25°C)

Isolation voltage 500V d.c.

Clip force:

..... $<50\text{N}$ for mounting / de-mounting on pipe
..... 5N will not cause rotation on pipe

Shoe material Plated brass

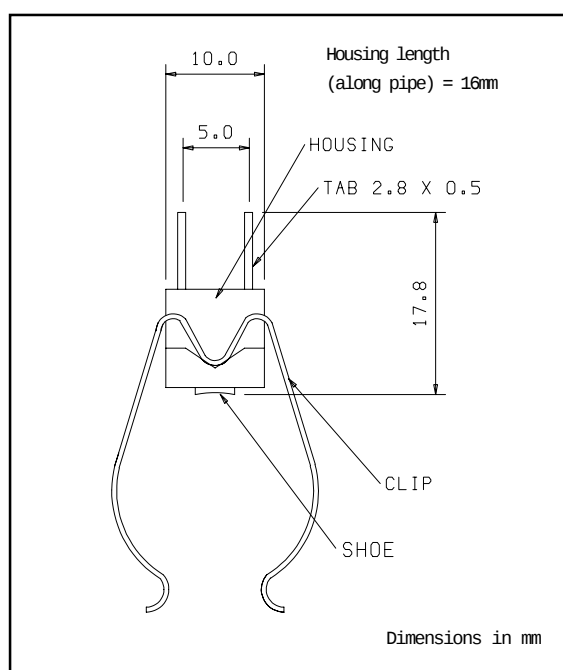
Body material Nylon

Pack quantity & MOQ 200 pcs

Sensor type	Response time (seconds)
NTC	≤ 1.8 (to 90% voltage change)
PTC	≤ 2 (to $T_{NF} + 5^{\circ}\text{C}$ - sensor applied to pipe at $T_{NF} + 23^{\circ}\text{C}$)
SLN	≤ 3 (to 63.2% temperature change)
PRT	≤ 3 (to 63.2% temperature change)



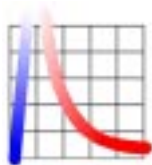
DIMENSIONS:



OPTIONS:

- Other resistance - temperature characteristics
- Special pipe sizes
- Waterproof version - JW (see separate data sheet)

Data sheet D-JC-3



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NTC DATA:

For codes see below.

Code	Nominal resistance			Tolerances						B 25/85 K	Identification colour dot
	25°C	60°C	85°C	25°C		60°C		85°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 to T _{NF} - 20°C		25°C		T _{NF} - 5°C		T _{NF} + 5°C		T _{NF} + 23°C		Identification Dots
		Ω	V d.c.	Ω	V d.c.	Ω	V d.c.	Ω	V d.c.	Ω	V d.c.	
JC060/K	60°C	<=250	2.5	<=100	0.2	<=570	2.5	>=570	2.5	>=10000	2.5	W hite/G rey
JC070/K	70°C	<=250	2.5	<=100	0.2	<=570	2.5	>=570	2.5	>=10000	2.5	W hite/B rown
JC080/K	80°C	<=250	2.5	<=100	0.2	<=570	2.5	>=570	2.5	>=10000	2.5	W hite/W hite

SILISTOR DATA:

Code JC202SLN1/X

Measurements made at 1mA

	25°C	60°C	85°C
Resistance Ω	1980 - 2020	2577.1 - 2641.3	3024.2 - 3146.5
Temperature Deviation	±1.27°C	±2.28°C	±3.0°C

For resistances at other temperatures use:

$$R_T = R_{25} (1 + \alpha (T-25) + \beta (T-25)^2)$$

Where: $\alpha = 7.88 \cdot 10^{-3} \text{ K}^{-1}$; $\beta = 1.937 \cdot 10^{-5} \text{ K}^{-2}$ and T°C

PRT DATA:

Tolerance Class A

Code JC102PRTA/X

Refer to separate tables for RvT

	0	25	60	85
Resistance Ω	1000	1097	1232	1328
Temperature Deviation °C	0.15	0.2	0.27	0.32

CODING FOR PIPE SIZE:

Clip size is specified by replacing X in the codes above as shown in the table on the right. To specify water-resistant version, add suffix M:

e.g. JC502C3R5/17M.

X	Pipe diameter range mm
13	13 - 15
17	17 - 18.5
20	20 - 22
28	28 - 30

Data sheet D-JC-3

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