

# 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°C at 60°C)
- Sensing element electrically isolated from shoe (isolation >2MΩ 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

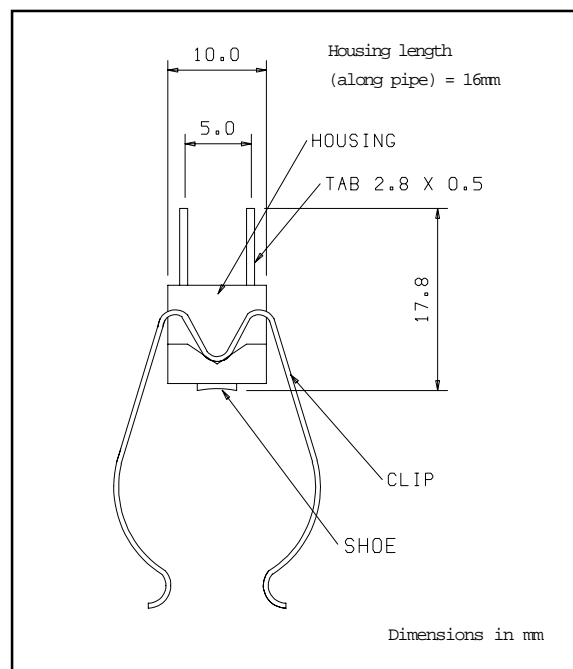
### GENERAL DATA:

**Minimum operating temperature** ..... 0°C  
**Maximum temperature** ..... 100°C (sensor)  
 ..... 85°C (housing)  
**Dissipation factor** ..... ≥2mW/K  
 ..... (mounted on copper pipe at 25°C)  
**Isolation voltage** ..... 500V d.c.  
**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

Sensor type	Response time (seconds)
NTC	≤1.8 (to 90% voltage change)
PTC	≤2 (to T <sub>NF</sub> + 5°C - sensor applied to pipe at T <sub>NF</sub> + 23°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)

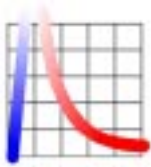
Data sheet D-JC-3

**THERMOMETRICS UK**  
 Crown Industrial Estate, Priorswood Rd  
 Taunton, Somerset TA2 8QY UK  
 Tel +44 (0)1823 335200  
 Fax +44 (0)1823 332637  
 Email: info@thermometrics.com

**THERMOMETRICS NEW JERSEY**  
 808 US Highway 1  
 Edison, New Jersey 08817-4695 USA  
 Tel +1 (732) 287 2870  
 Fax +1 (732) 287 8847  
 Email: sales@thermometrics.com

**THERMOMETRICS ST MARYS**  
 967 Windfall Road  
 St Marys, Pennsylvania 15857-3397 USA  
 Tel +1 (814) 834 9140  
 Fax +1 (814) 781 7969  
 Email: sales-pa@thermometrics.com

**THERMOMETRICS KOREA**  
 #302 3rd floor Bethel Bldg,  
 324-1 Yangjae-dong, Seocho-Ku, Seoul, Korea  
 Tel +82 (0)2 5765232, 5233  
 Fax +82 (0)2 576 5234  
 Email: thmkorea@bora.dacom.co.kr



# NTC THERMISTORS: TYPE JC

## CLIP-ON PIPE SENSOR

### 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 <sub>NF</sub>	-20 to T <sub>NF</sub> - 20°C		25°C		T <sub>NF</sub> - 5°C		T <sub>NF</sub> + 5°C		T <sub>NF</sub> + 23°C		Identification Dots
		Ω	V d.c.	Ω	V d.c.	Ω	V d.c.	Ω	V d.c.	Ω	V d.c.	
JC 060 X	60°C	<=250	2.5	<=100	0.2	<=570	2.5	>=570	2.5	>=10000	2.5	White/Grey
JC 070 X	70°C	<=250	2.5	<=100	0.2	<=570	2.5	>=570	2.5	>=10000	2.5	White/Brown
JC 080 X	80°C	<=250	2.5	<=100	0.2	<=570	2.5	>=570	2.5	>=10000	2.5	White/White

### 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

**THERMOMETRICS UK**  
 Crown Industrial Estate, Priorswood Rd  
 Taunton, Somerset TA2 8QY UK  
 Tel +44 (0)1823 335200  
 Fax +44 (0)1823 332637  
 Email: info@thermometrics.com

**THERMOMETRICS NEW JERSEY**  
 808 US Highway 1  
 Edison, New Jersey 08817-4695 USA  
 Tel +1 (732) 287 2870  
 Fax +1 (732) 287 8847  
 Email: sales@thermometrics.com

**THERMOMETRICS ST MARYS**  
 967 Windfall Road  
 St Marys, Pennsylvania 15857-3397 USA  
 Tel +1 (814) 834 9140  
 Fax +1 (814) 781 7969  
 Email: sales-pa@thermometrics.com

**THERMOMETRICS KOREA**  
 #302 3rd floor Bethel Bldg,  
 324-1 Yangjae-dong, Seocho-Ku, Seoul, Korea  
 Tel +82 (0)2 5765232, 5233  
 Fax +82 (0)2 576 5234  
 Email: thmkorea@bora.dacom.co.kr