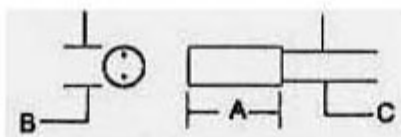




PRC100-1 Custom Series with your desired Ohmic value @ 0°C. .1W Wire Wound Probe Sensor



Electrical & Physical Specifications:

Diameter:	15.24mm (.600")
Length:	4.78mm (.188")
Lead dimensions:	.023" dia. x .630" long (min.)

PRC100-1



Engineering Attributes:

RESISTANCES & TOLERANCES

You can select any value from 50Ω to 5KΩ @ 0°C, in tolerances from ± 0.03% (1/4 Din) to ± 0.24% (DIN x 2)

TCR CHARACTERISTICS AVAILABLE:

From +3000ppm/°C, to +4000ppm/°C, (between 0°C, and +100°C,) in 50ppm steps w/ith the same linear tracking characteristics as the PRC100 Std. Ref. Series

STABILITY OF CALIBRATION

All PRC100 Sensors are closely matched & repeatable part-to-part. They have the ability to reproduce output readings consistently at the same temperature reference points under the same conditions & in the same direction.

STABILITY VS. TIME

The change in the original resistance (Ro) @ 0°C, is less than ±.1°C, or ±.038% after 10 cycles from 0°C, to +150°C,.

SHELF LIFE

Shelf life stability is ±0.002%/year @ 25°C, w/ith no load.

POWER RATINGS VS. AMBIENT TEMPERATURE RANGE

The PRC100 is ideal as a compensator to offset drift or negative self-generating changes in resistance as a result of an excitation of power to .25W @ +125°C, to zero power @ +125°C.

THERMAL TIME CONSTANT

The time required for our PRC100 sensor to indicate 63.2% of a new impressed temperature from a step change of 0°C, to +100°C, can be customized to your specs, as low as less than 1 second.

CONSTRUCTION DETAILS

Wire: Ni (Nickel), Co (Copper), Mn (Manganin) & Fe (Iron)

Substrate: epoxy or ceramic filled

Terminals: solderable hot-finned copper

Protective Seal: Moisture & solvent resistant epoxy



[Click here for PRC100 Tracking Chart](#)

[PRC100 Custom Series Overview](#)

A series of varying resistor styles and sizes available, depending on the desired application. These low-cost sensors track like platinum standards but are much more versatile. They are linear tracking special-purpose temperature sensors with TCR characteristics from +3000 ppm/°C. to 4000 ppm/°C & follow the well-defined curve and linear slope of platinum.

RESISTANCE TEMPERATURE CHARACTERISTIC (Rt)

Rt is defined by IEC standard, pub. 751: $\alpha = 0.00385 \text{ ohm/ohm/}^\circ\text{C.}^*$

For range **-40°C. to 0°C** : $RT = Ro[1+At+Bt^2+C(t-100^\circ\text{C.}) t^3]$

For range **0°C. to +150°C** : $RT = Ro(1+At+Bt^2)$

Constants in this equation:

A = 3.79782×10^{-3} **B** = 6.502×10^{-7} **C** = 4.3735×10^{-12}

$Rt = Ro[1+At+Bt^2]$

$Rt = 100[1+(3.79782 \times 10^{-3} \times 100)+(6.502 \times 10^{-7} \times 100^2)]$

$Rt = 100[1+.379782+.006502]$

$Rt = 100 \times 1.386284$

$Rt = 138.628 \text{ ohms at } 100^\circ\text{C.}$

$Rt = Ro[1+At+Bt^2+C(t-100) t^3]$

$Rt = 100[1+(-.1519128)+(6.00104032)+(4.00003918656) t^3]$

$Rt = 100 \times .8491667$

$Rt = 100[1+(3.79782 \times 10^{-3} \times -40)+(6.502 \times 10^{-7} \times -40^2) + (4.3735 \times 10^{-12} \times (-40-100) \times -40^3)]$

$Rt = 84.916 \text{ ohms at } -40^\circ\text{C.}$

*Theoretical curve & slope based on values of the International Practical Temperature Scale (IPTS-68 & 90).

Fixed points are in Degree Celsius (°C.) $R_0 = 0^\circ\text{C.}$ The other reference temperature used in the equation is +100°C however this can be replaced by any temperature desired with respect to the base temperature of 0°C. The PRC100 Std. Ref. follows a well-defined theoretical curve & linear slope from base 0°C. proving that most reference points are calculable within very close tolerances (Ratio=Rt/Ro)

Details

SKU	PRC100 (Custom Value) -1
Type	Probe
Length	15.24mm (.600")
Tab Dimensions	.023" dia. x .630" long (min.)
Diameter	4.78mm (.188")
TCR Char.	+3000ppm/°C. to +4000ppm/°C. between 0°C. and +100°C.
Temperature	65°C. to +150°C.
Resistance	50Ω to 5KΩ @ 0°C
Tolerance	to ±.03%
Stability	to ±.005%/yr. at +25°C
Max Watts	.25
Lead Free	Yes