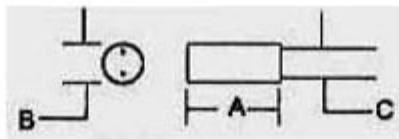


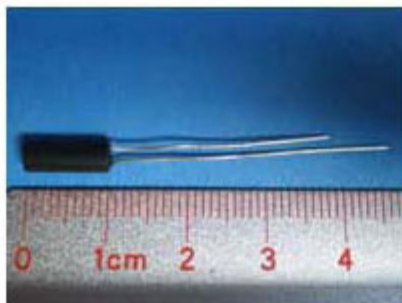
PRC100.12 Std. Ref. Series 100 Ohm @ 0°C ±.12% T.C. +3850 .25W Wire Wound Probe Style Sensor



PRC100.12

Electrical & Physical Specifications:

A-Length:	11.43mm (.450")
B-Diameter:	3.96mm (.156")
Lead dimensions:	.023" dia. x .63" long (min.)
Max Power:	.1W
RTC from 0°C to +100°C:	+3850PPM/°C



Engineering Attributes:

RESISTANCE & TOLERANCES

100Ω @ 0°C. ±.12% Tol (or ± .3°C & 138.50 Ω @ +100°C.
± .22% (or ± .8°C.) per DIN 43760, Class B.

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. with no load.

POWER RATINGS VS. AMBIENT TEMPERATURE RANGE

The PRC100 is an ideal compensator to offset drift or negative self-generating change in resistance resulting from an excitation of power to .25W @ +125°C. to zero power @ +125°C.

THERMAL TIME CONSTANT

The time required for our PRC100 to indicate 63.2% of a new impressed temp. 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-tinned copper

Protective Seal: Moisture & solvent resistant epoxy

CUSTOM APPLICATIONS

PRC100 custom sensors are also available in any Ohmic value from 50Ω to 5KΩ in tolerances from ± 0.03% (1/4 Din) to ± 0.24% (DIN x 2) You can click the link to view our entire [PRC100 Custom Series](#)

and see if your specs are compatible with any of the part types from this series.

[Click here for PRC100 Tracking Chart](#)

PRC100 Standard Reference Series Overview

A series of varying resistor styles and sizes available, depending on the desired application. All part types in this series read 100Ω @ 0°C. ±.12% with an average sensitivity of 0.00385Ω/Ω/°C. These low-cost sensors track like platinum standards but are much more versatile. They are linear tracking special-purpose

temperature sensors with TCR characteristics to +6000 ppm/°C. & follow the well defined curve and linear slope of platinum. All part types are in stock & ready for immediate delivery

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** : $RT = R_0[1+At+Bt^2+C(t-100^\circ\text{C.}) t^3]$

For range **0°C. to +150°C** : $RT = R_0(1+At+Bt^2)$

Constants in this equation:

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

$R_t = R_0[1+At+Bt^2]$

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

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

$R_t = 100 \times 1.386284$

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

$R_t = R_0[1+At+Bt^2+C(t-100) t^3]$

$R_t = 100[1+(-.1519128)+(.00104032)+(.00003918656)]$

$R_t = 100 \times .8491667$

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

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

*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 how ever 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= R_t/R_0)

Details

SKU	PRC100.12 Std. Ref. Series
Type	Probe
Length	11.43mm (.450")
Lead Dimensions	.023" dia. x .630" long (min.)
Diameter	3.96mm (.156")
TCR Char.	+3850 ppm/°C. between 0°C & +100°C.
Power Rating	0-.1W
Res. & Tol. at 0° C	100Ω ±0.12%
Temperature	-65°C. to +150°C.
Resistance	100Ω @ 0°C
Tolerance	±.12%
Stability	to ±.005%/yr. at +25°C
Max Watts	.1
Max Volts	-
Lead Free	Yes