

# Isolated Miniature Transmitters

TX31



- Ultra-Low Profile Design
- Multi-Range Selectable
- Galvanic Isolation
- Long Term Stability
- Cast Aluminum Housing

The Model TX31 is an analog, isolated 2-wire head-mounted temperature transmitter that converts thermocouple input to the voltage, which is generated by the thermocouple sensor, linear, and highly accurate 4 to 20 mA output current. The transmitter comes in a variety of applications such as process control, automation system, and energy source management. The TX31 is performed by means of a DIP-switch array for coarse range setting, and 2 multi-turn potentiometers (ZERO and SPAN) which are used for the final fine-tuning. The TX31 is housed in a metal enclosure with a plastic top cover, fitting into DIN B connection heads, providing excellent RFI immunity. The TX31 accepts low-level signal from the thermocouple, filtered, amplified, and converter process current to reduce susceptibility transients and noise operations while allowing the same 2 wires to carry the transmitter power and output current signal simultaneously.



TX31 shown actual size.

PSR-24L shown smaller than actual size.

- Linearity Error:**  $\pm 0.1\%$  of voltage input span (not temperature input)
- Galvanic Isolation:** Input/output 1000 Vrms, continuous
- Cold-Junction Compensation:**  $\pm 2^\circ\text{C}$  max ( $T_{\text{amb}} = 5$  to  $50^\circ\text{C}$ )
- Load Capability:** 50 x (loop power - 12)
- Fine Adjustment:** 5% of zero and span
- RFI effect (5W, 470 MHz):**  $< \pm 10\%$  of span
- Response Time (0 to 90%):** 200 ms
- Housing Material:** Cast aluminum with epoxy coating and polycarbonate, UL94-V0 grade
- Connection:** M3, nickel coated brass; 22 to 12 AWG
- Operation Environment:**  $-20$  to  $70^\circ\text{C}$ ; 5 to 85 %, non-condensing
- Dimensions:** 27 H x 45 mm Dia. (1.06 x 1.77")
- Weight:** 65 g (2.3 oz)



OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.

T/C-Type	Low ( $^\circ\text{C}$ ) Limit	Upper ( $^\circ\text{C}$ ) Limit
J	0	600
E	0	600
K	0	1000
T	0	400
R	0	1600
S	0	1600
B	0	1600

## Specifications

( $V_{\text{LOOP}} = 24 \text{ VDC}$ ,  $T_{\text{AMB}} = 23 \pm 2^\circ\text{C}$ ,  $R_{\text{LOAD}} = 250 \Omega$ )

**Output:** 4 to 20 mA; Upscale  $< 26 \text{ mA}$ , Downscale  $< 3.8 \text{ mA}$

**Loop Power:** 12 to 32 Vdc; Reverse polarity protected

**Input Thermocouple:** J; E; K; T; R; S; B

**Supply Voltage Effect:**  $\pm 0.01\%/V$

**Temperature Coefficient:**  $\pm 0.02\% / ^\circ\text{C}$  ( $T_{\text{amb}} = 5$  to  $50^\circ\text{C}$ )

**Repeatability:**  $\pm 0.01\%$  of voltage input span

## To Order

Model No.	Description
TX31-(*)	Temperature transmitter
PSR-24S	Regulated power supply 24 Vdc, 400 mA, screw terminal
PSR-24L	Regulated power supply 24 Vdc, 400 mA, stripped leads
PSU-93	Unregulated power supply, 16 to 23 Vdc, 300 mA max, screw terminal

(\*) Insert thermocouple Type: J, E, K, T, R, S, and B, no additional charge.

**Ordering Example:** TX31-K, Type K temperature transmitter with a temperature range of 0 to  $1000^\circ\text{C}$ .

OCW-3, OMEGACARE<sup>SM</sup> extends standard 1-year warranty to a total of 4 years.