

Two-Wire Transmitters

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TX70 Series



The TX70 Series 2-wire transmitters for thermocouples and RTD's feature dip switch selection for input type and range. With the thermocouple models, the user may select from J, K or T input with one model, or E, R or S with another. All models feature 80% zero and span adjustability within any user-selected input range. Models are available with any desired input, with either a 4 to 20 mA or 10 to 50 mA output signal. To scale the unit in the field, calibration equipment is required.

Ranging Example:

In the 0 to 500°C range for a Type K thermocouple and a minimum span of 100°C, the user may select any 100° span within that 0 to 500°C range, such as 14 to 114°C or 379 to 479°C.

Specifications

Maximum Lead Wire Effect: < 0.25/μV per Ω of thermocouple resistance; 1% of span error with up to 40 Ω per lead for RTD

Output Span: 4 to 20 mA or 10 to 50 mA, switch selectable

Minimum Output Current: 3.3 mA, typical

Max Output Current: 24 mA (20 mA range), 58 mA (50 mA range)

Supply Voltage Range: 4 to 20 mA: 12 to 80 Vdc; 10 to 50 mA: 12 to 60 Vdc

Burnout Protection: Upscale

Max Change in Supply Voltage Effect: 0.05% of span

Max Change in Load Effect: 0.05% of span

Stability: Zero-within 0.02% of span/°C or 2μV, whichever is greater; span-within 0.01% of span/°C

Accuracy: 0.5%, including linearity, hysteresis, stability

Zero and Span Adjustability: 80% of selected range

Repeatability: 0.05% of span

Response Time: 400 ms, max

Output Ripple: Less than 0.1% of span, rms

RFI Effect: Error less than 1% of span; 5 W, 470 MHz at 3"

Isolation: 600 Vdc or peak ac max, input to output

Operating Ambient Temperature: -40 to 80°C (-40 to 176°F)

Excitation Current, RTD: 1 mA, typical

Load: max load = (V_S-12)/0.02 for 20 mA range; (V_S-12)/0.05 for 50 mA range



Additional Power Supplies Available

Optional power supply, model U24Y101 shown smaller than actual size.



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

Model No.	Input Type	Maximum Range °F	Min. Span	Maximum Range °C	Min. Span
TX71	J	0 to 900°F 0 to 1400°F -350 to 1100°F	200°F 300°F 350°F	0 to 500°C 0 to 760°C -200 to 600°C	100°C 150°C 200°C
	K	0 to 900°F 0 to 1900°F 0 to 2500°F -450 to 900°F	200°F 400°F 500°F 400°F	0 to 500°C 0 to 1000°C 0 to 1370°C -270 to 500°C	100°C 200°C 300°C 200°C
	T	0 to 750°F -450 to 750°F	150°F 350°F	0 to 400°C -270 to 400°C	100°C 200°C
TX73	E	0 to 300°F 0 to 600°F 0 to 950°F 0 to 1800°F -450 to 0°F -340 to 300°F -450 to 650°F -450 to 1550°F	60°F 120°F 200°F 400°F 160°F 200°F 350°F 550°F	0 to 150°C 0 to 300°C 0 to 500°C 0 to 1000°C -270 to 0°C -270 to 150°C -270 to 350°C -270 to 850°C	30°C 60°C 100°C 200°C 100°C 150°C 200°C 300°C
		R/S	0 to 1700°F 0 to 3200°F	400°F 750°F	0 to 950°C 0 to 1760°C
TX75	RTD	0 to 1000°F 0 to 500°F 30 to 130°F*	200°F 100°F 20°F	0 to 600°C 0 to 300°C 0 to 50°C*	120°C 60°C 10°C

* Max Zero at 25°C (75°F)

To Order

Model No.	Description
TX71	J, K, T input; isolated
TX73	E, R, S input; isolated
TX75	RTD input; isolated

Notes: The TX70 series requires thermocouple or RTD input simulation to scale the output for a particular temperature range. To order unit scaled by OMEGA order **TX-SCALED**, for an additional cost and specify (1) input type, (2) low end of range, (3) high end of range (specify C or F). Thermocouple model output proportional to mV output of the thermocouple. Not linearized to temperature.

Ordering Example: TX71 isolated transmitter, TX-SCALED, scaling charge, calibrated for Type J thermocouple with range of 100 to 400°C. OCW-3 OMEGACARESM extends standard 1-year warranty to a total of 4 years.

Accessories

Model No.	Description
HEP-TX71-(*)	TX71 in explosion resistant housing with ¼" OD, 12" long, (K, J, T) ungrounded thermocouple probe with ½ NPT, TX70-RM
HEP-TX73-E	TX73 in explosion resistant housing with ¼" OD, 12" long, (E) ungrounded thermocouple probe with ½ NPT, TX70-RM
HEP-TX75	TX75 in explosion resistant housing with ¼" OD, 12" long, 100 Ω platinum RTD probe, TX70-RM

(*) Add thermocouple Type J, K, or T.

Ordering Example: HEP-TX71-J, TX71 explosion resistant housing and 12" ungrounded thermocouple, ¼" OD, J Type probe with ½ NPT, TX-SCALED, for J, 0 to 300°C.

Options (Additional Protection Heads available)

Model No.	Description
HEP-TX70*	Explosion resistant head
TX70-RM	Mounting ring
TX-SCALED	Scaling charge

* Requires mounting ring, TX70-RM.

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