Smart and Programmable Linearized Transmitters

TCTX62 includes: TX62 transmitter, TX-60-DISPLAY, TX60-KEYPAD, TX60-ERH housing with glass window, 12" Type K thermocouple probe. Additional industrial protection heads shown online.

Shown smaller than actual size.

TX60 Series

2 YEAR WARRANTY

- **2 Wire 4 to 20 mA Output**
- **TX62 and TX64 Models for Thermocouple and RTDs**
- **TX63 Models for mV, mA, V, Resistance**
- **Input to Output Isolation**
- **Linearized Output**
- **Set Zero and Span to Any Desired Range No Minimum Span**
- **Hardened to EMI/RFI Interference**
- **Rugged, Sealed, Industrial Design**
- **Probe Assembly and Housing Options**

The TX62, TX63, TX64 programmable transmitters provide an isolated 4 to 20 mA signal linearized to temperature or process input. The TX62 and TX63 smart transmitters provide the same functions as the TX64 with the additional feature of smart communications. Smart communications lets one calibrate, reconfigure or check status right at the transmitter via the TX60-HH or from a remote location with the TX60-RS232. The TX60-HH is a battery operated handheld terminal that connects to the output of the transmitter anywhere along the pair of loop wires. The TX60-RS232 connects the same way and provides a 25-pin RS232 connection for use with a remote PC.

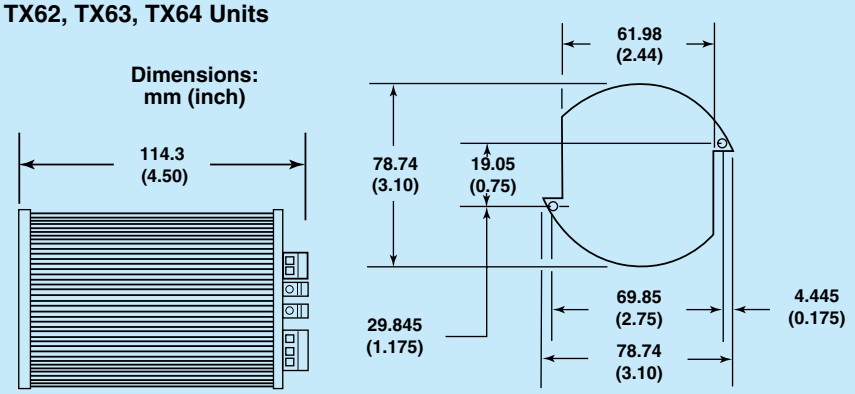
Common Specifications

Reference Condition Accuracy: Equal to transmitter repeatability
Turn-On Time: Less than 5 seconds after power-up
Ambient Temperature Gradient: Automatic compensation to 20°C/hour change
Update Time: 0.15 sec; digital, 1 second
Response to Step Input: Analog 0.25 second typical; digital 1 second, typical to 95% of final value, 5 seconds to stated accuracy
Operating Temperature Range: -40 to 75°C (-40 to 167°F)
Storage Temperature Range: -50 to 85°C (-58 to 185°F)
Ambient Temperature Stability: Self-correcting over operating temperature range
Automatic Diagnostics: Every 3 seconds, self-checks for zero, span, cold junction, calibration references, malfunction and sensor failure
Fail safe: Analog, user settable to 21 mA, 3.9 mA or "OFF", digital
Interchangeability: All units interchangeable without field calibration
EMI/RFI Immunity: <0.5% rdg (SAMA PMC 33.1c test) 20 kHz to 1000 MHz, 10 V/meter
Isolation: 850 Vdc or peak ac
Common Mode Rejection: 120 dB
Reverse Polarity Protection: 42 Vdc applied with either polarity
Power and Load: Supply voltage, 12 to 42 Vdc; minimum supply voltage under load, Vs = 12 + R (load in kΩ) X 23 mA; for digital operation, R(load) = 250 Ω minimum
Weight: 340 g (12 oz)

Unit	Input Signal	Program Features
TX62	Temperature	Smart
TX64	Temperature	Standard

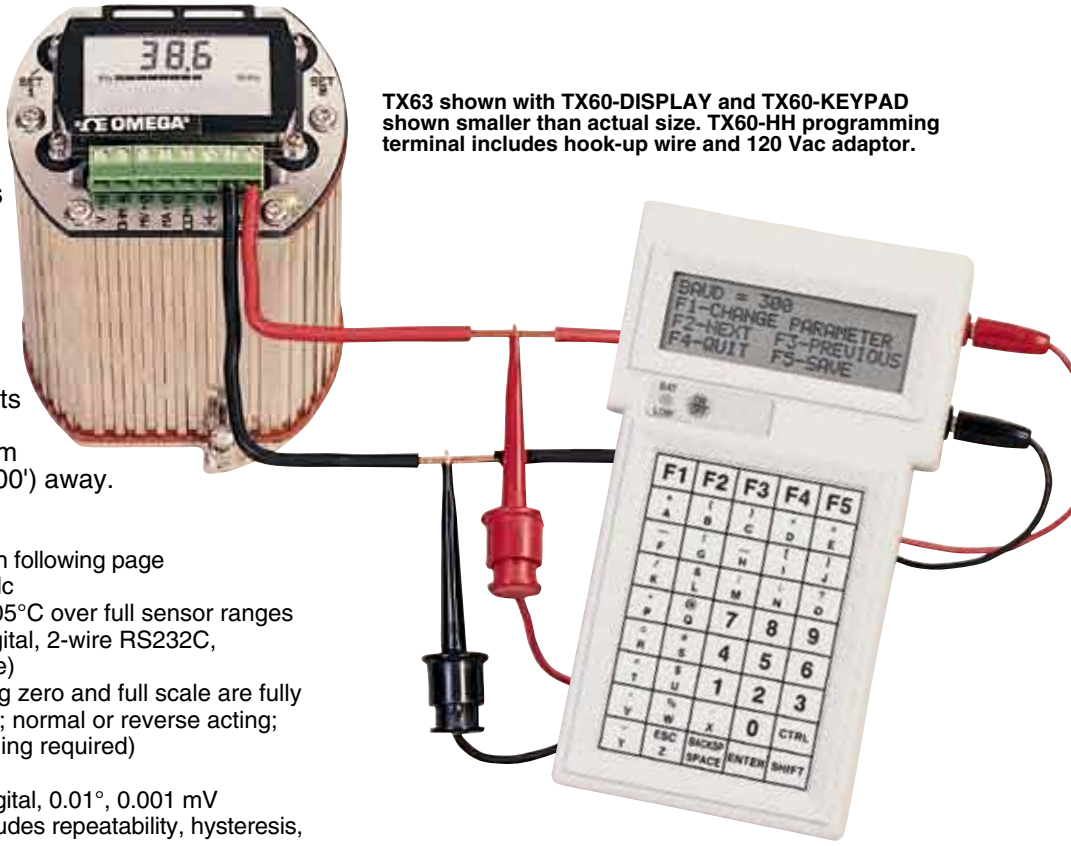
TX62, TX63, TX64 Units

Dimensions: mm (inch)



TX62

- **Smart Transmitter**
- **J, K, T, E, R, S, B, N T/C, RTD and mV Inputs**



TX63 shown with TX60-DISPLAY and TX60-KEYPAD shown smaller than actual size. TX60-HH programming terminal includes hook-up wire and 120 Vac adaptor.

The TX62 "Smart" transmitter provides unmatched accuracy of any 2-wire transmitter in its class. OMEGA® guarantees NIST-traceable calibration for a full 2 years. "Smart Communication" lets you calibrate, reconfigure or check status right at the transmitter or from a remote location up to 1524 m (5000') away.

TX62 Specifications

Input Types and Ranges: See chart on following page
Millivolt Input Range: -15 to 160 mVdc
Linearization: Conforms to within ±0.05°C over full sensor ranges
Output: Analog, 2-wire 4 to 20 mA; digital, 2-wire RS232C, 300 baud (with TX60-RS232C interface)
Output Ranging Adjustments: Analog zero and full scale are fully adjustable, over 100% of sensor range; normal or reverse acting; digital mode, °C, °F, K, R, mV (no ranging required)
Minimum Output Range: None
Output Resolution: Analog, 2.1 µA; digital, 0.01°, 0.001 mV
Transmitter Accuracy: See chart; Includes repeatability, hysteresis, load and ambient temperature effect
Digital Output Accuracy: ±0.04% of the millivolt or Ω equivalent reading, or the accuracy from the range table, whichever is greater

Can be mounted in TX60-ERH housing, refer to How to Order Chart. Additional protection heads available.

TX63

- **Smart Transmitter**
- **mA, mV, Vdc, and Resistance Inputs**

The TX63 extends "Smart" technology to signal conditioners. The same power that digital processing brought to "Smart" transmitters is available now for signal conditioning. The TX63 accepts a variety of inputs: volts, millivolts, milliamps, potentiometers, and resistance. The TX63 can linearize almost any input. Square, square root and logarithmic functions are easily selected. For more difficult linearization tasks, a 21-point custom linearization curve can be entered by the user.

TX63 Specifications

Input Types and Ranges:
See range chart on following page
Linearization: Square, square-root and log to ±0.05% of input, custom linearization user programmable at 21 points
Output: Analog, 2-wire 4 to 20 mA; digital, 2-wire RS232C, 300 baud (with TX60-RS232C interface)
Output Ranging Adjustments: Analog zero and full scale are fully adjustable over 100% of sensor range; normal or reverse acting; digital mode, no ranging required
Minimum Scalable Range: None
Output Resolution: Analog, 2.1 µA; digital, 0.001 mV
Accuracy: See chart; includes repeatability, hysteresis, load and ambient temperature effect
Digital Output Accuracy: ±0.04% of the millivolt or Ω equivalent reading, or the accuracy from the range table, whichever is greater
Analog Accuracy: Digital accuracy plus ±4 µA
Repeatability: One-half the respective accuracy
Long-Term Stability: <0.05% rdg ±2.1 µA per year

TX64

- **Programmable**
- **J, K, T, E, R, S, B, N T/C, RTD and mV Inputs**

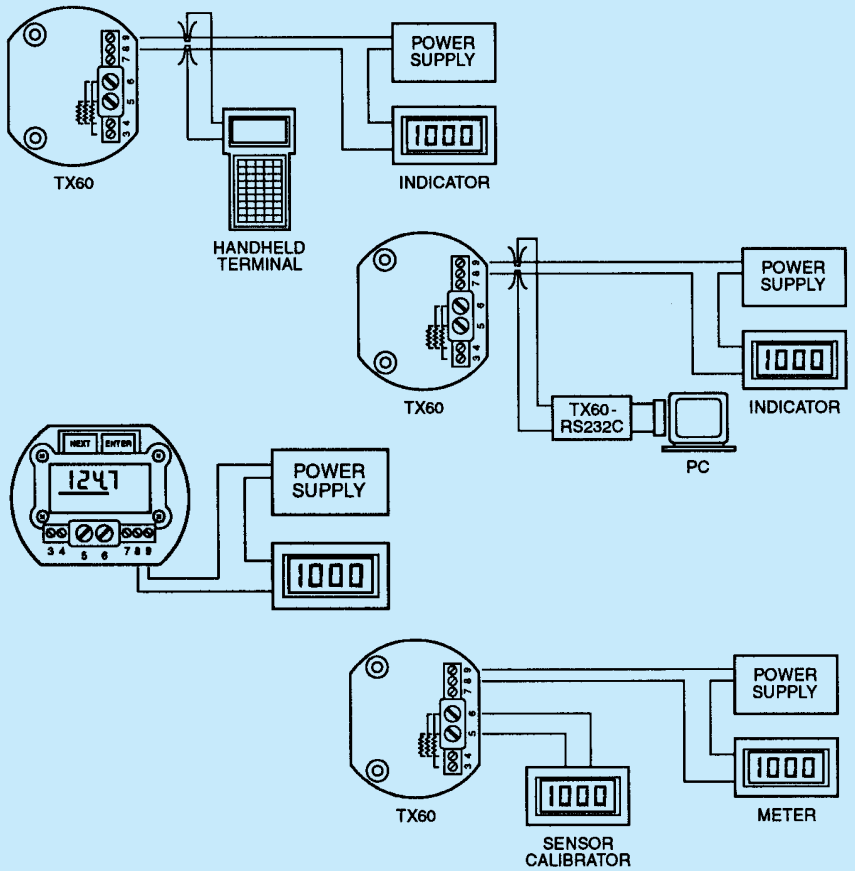
The TX64 combines the best features of conventional analog transmitters with the advances of digital technology. The result is a programmable 2-wire temperature transmitter that sets new standards of performance. The TX64 is the ideal replacement for conventional temperature transmitters. The high performance, low initial cost and substantially reduced maintenance means a significant overall cost savings for your process. The TX64 is extremely easy to use and does not require a handheld terminal.

TX64 Specifications

Thermocouple and RTD Linearization: To ±0.05°C
Output: 2-wire, 4 to 20 mA
Output Ranging Adjustments: Analog zero and full scale are fully adjustable over 100% of sensor range; normal or reverse acting
Minimum Scalable Range: None
Output Resolution: ±2.5 µA
Transmitter Accuracy: ±0.05% of the millivolt or Ω equivalent reading, or the accuracy from the table below, whichever is greater; plus ±0.05% of the span, if using a thermocouple sensor, allow a cold junction measurement error of ±0.5°C (±0.9°F), accuracy includes repeatability, hysteresis, load and ambient temperature
Transmitter Repeatability: One-half of accuracy
Cold Junction Compensation: Digital self-correction to ±0.5°C
Long Term Stability: < 0.05% of reading plus ±5 µA per year

Set-up: All transmitters may be shipped scaled for an application by ordering TX-SCALED. Field scaling options are shown below per transmitter. For the TX62 and TX63 the easiest field method is option 1; for TX64, option 3. (Option 4 is not recommended for normal use).

1. **Set-up with the TX60-HH handheld terminal (for the TX62, TX63)**
   The TX60-HH handheld terminal may be used in the field to communicate with the TX62 or TX63 transmitters. It provides full access to the transmitter's digital setup menus with a large, easy to read, four line display.
2. **Set-up with the TX60-RS232C interface and a personal computer (for TX62, TX63)**
   The TX60-RS232C interface allows full configuration with virtually any Personal Computer or RS232C based terminal.
3. **Set-up with the TX60-DISPLAY and TX60-KEYPAD (for the TX62, TX63, TX64)**
   The "Smart Display" and keypad, for use with all transmitters, lets you make all your selections.
4. **Set-up in the manual mode (for TX62, TX63, TX64)**
   Select a sensor or change the range with just a millimeter and a sensor simulator.



Input Types and Ranges—Models TX62 (Smart) and TX64 (Programmable)

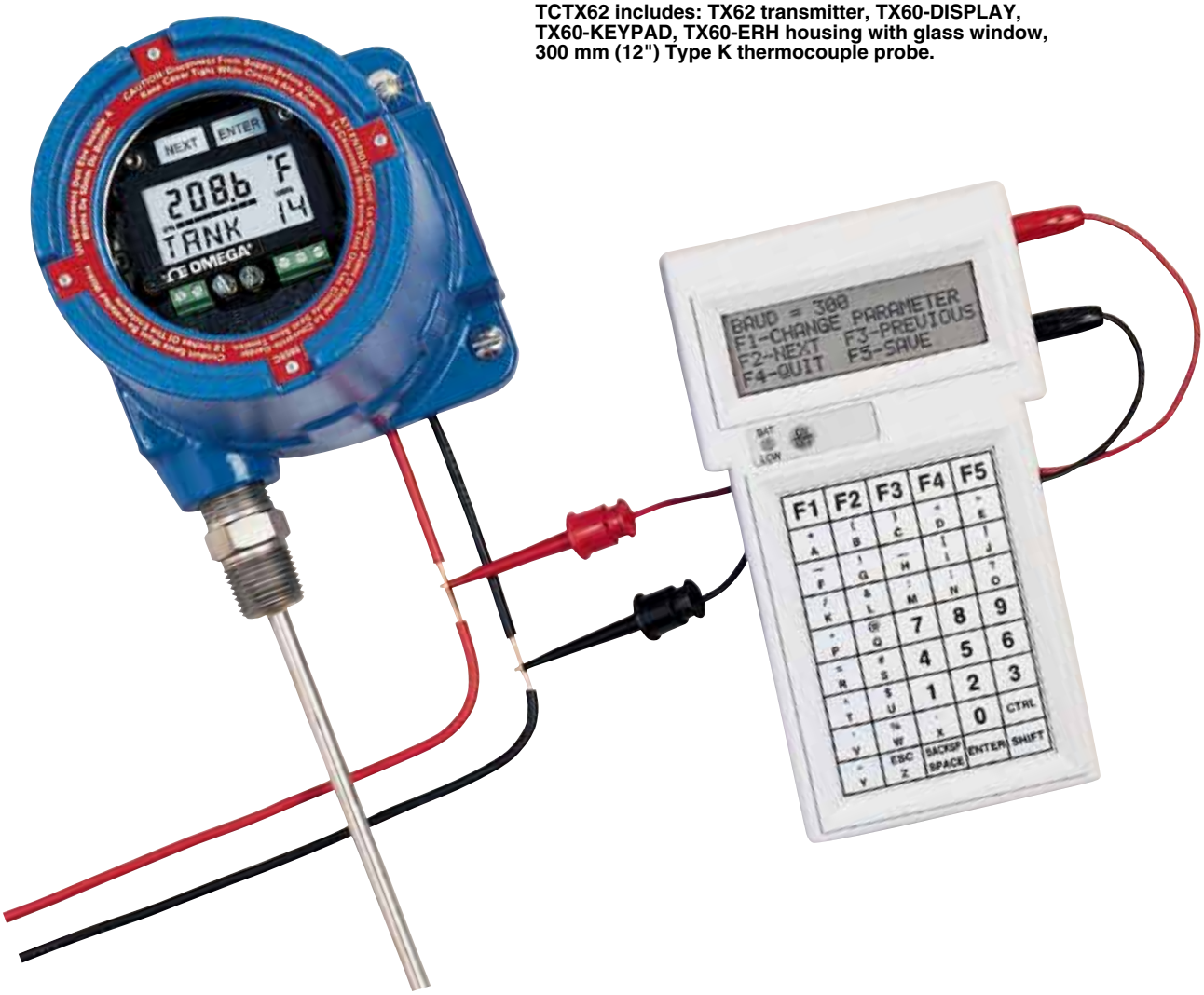
Input Type	Range	TX62 Accuracy	TX64 Accuracy
J	-210 to 1200°C (-346 to 2192°F)	±0.2°C (±0.36°F)	±0.3°C (±0.5°F)
K	-270 to 1372°C (-454 to 2502°F)	±0.2°C (±0.36°F)	±0.3°C (±0.5°F)
T	-270 to 400°C (-454 to 752°F)	±0.2°C (±0.36°F)	±0.3°C (±0.5°F)
E	-270 to 1000°C (-454 to 1832°F)	±0.2°C (±0.36°F)	±0.3°C (±0.5°F)
R	-50 to 1768°C (-58 to 3214°F)	±0.6°C (±1.08°F)	±0.8°C (±1.5°F)
S	-50 to 1768°C (-58 to 3214°F)	±0.6°C (±1.08°F)	±0.8°C (±1.5°F)
B	43 to 1820°C (109 to 3308°F)	±0.8°C (±1.44°F)	±0.8°C (±1.5°F)
N	0 to 1300°C (32 to 2372°F)	±0.2°C (±0.36°F)	±0.3°C (±0.5°F)
RTD, 100 Ω Pt, 385	-200 to 850°C (-328 to 1562°F)	±0.1°C (±0.18°F)	±0.14°C (±0.25°F)
RTD, 100 Ω Pt, 392	-200 to 850°C (-328 to 1562°F)	±0.1°C (±0.18°F)	±0.14°C (±0.25°F)
RTD, 120 Ω Ni	-80 to 320°C (-112 to 608°F)	±0.1°C (±0.18°F)	-
Millivolts	-15 to 160 mV dc	±0.008 mV	-

Input Types and Ranges—Model TX63 (Smart)

Input Type	Range	Input Impedance	Accuracy
mA dc	-5.0 to 60.0 mA	2.75 Ω	±0.008 mA
mV dc	-15.0 to 160 mV	>10 MΩ	±0.01 mV
Vdc	-0.5 to 5.0 V	1 MΩ	±0.005 V
Potentiometer, 3-wire	0.0 to 1.0 kΩ	*	±0.15 Ω
Resistance, 2 or 3-wire	0.0 to 1.0 kΩ	*	±0.15 Ω

** 333 µA excitation current*

TCTX62 includes: TX62 transmitter, TX60-DISPLAY, TX60-KEYPAD, TX60-ERH housing with glass window, 300 mm (12") Type K thermocouple probe.



OMEGACARE℠ Extended Warranty Program

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

To Order

Model No.	Description
TX62	Smart temperature transmitter
TX64	Programmable temperature transmitter
TX60-ERH	Explosion-resistant housing
TX60-ERHG	Explosion-resistant housing with window
TX-SCALED	Scaling charge
PSR-24S	Regulated power supply, 24 Vdc, 400 mA, screw terminal
PSR-24L	Regulated power supply, 24 Vdc, 400 mA, UL, stripped leads
PSR-24L-230	Regulated power supply, 24 Vdc, 400 mA, stripped leads, 230 Vac input, CE
PSU-93	Unregulated power supply, 16 to 23 Vdc, 300 mA maximum, screw terminal

Comes complete with operator's manual.
***Ordering Examples: TX62** transmitter, **TX60-HH** handheld terminal; **TX60-ERHG** explosion resistant housing with glass window.*
***TX64,** standard transmitter and **TX-SCALED,** scaling charge, Type K, 0 to 1800°F.*
***OCW-3** OMEGACARE℠ extends standard 2-year warranty to a total of 5 years.*