

## Description

These 2-wire, head-mount transmitters accept a temperature input from a standard ISA thermocouple. They convert the input to a proportional 4-20mA signal for interface with an indicator, recorder, or similar readout device.

**Linearizing Capabilities**—Despite its compact size, the TLX provides the added advantage of characterizing the signal to compensate for thermocouple non-linearities. It provides an output that is linear with temperature, which eliminates the need for costly linearized receiving instruments.

**Complete Temperature Assemblies**—Moore Industries offers a complete line of sensors, thermowells, and fittings for use with the TLX and TNX. For details, see the Temperature Systems data sheet (#3.99).

## Ordering Specifications

To order, use the bold face data from the "Ordering Specifications" section of the Specifications table (see back page). For assistance, refer to the model number example located at the bottom of the table.

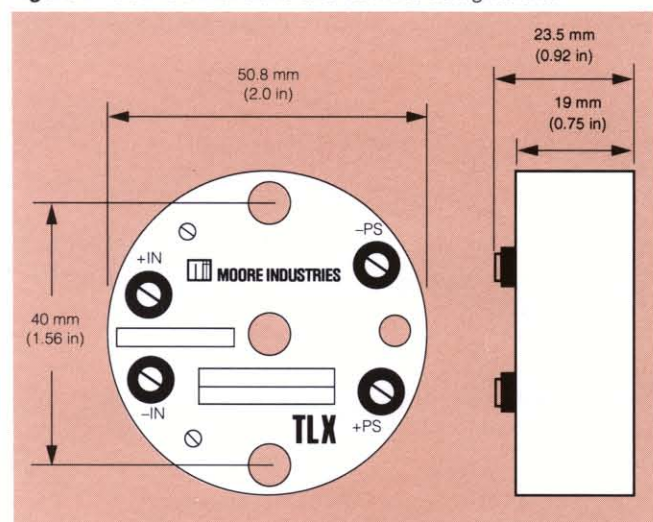


**Exceptionally compact hockey-puck housings** fit in a wide variety of temperature connection heads for mounting in harsh and hazardous environments.


## Features

- **Accurate and stable.**  $\pm 0.1\%$  of span accuracy makes these units the perfect choice where precise, yet low-cost, temperature measurements are required.
- **Mounts in standard connection heads.** Compact housing installs quickly and securely in standard thermowell connection heads.
- **Safe for hazardous locations.** Intrinsic safety approvals and explosion-proof/flameproof connection heads provide protection in hazardous areas.
- **Easy access adjustments.** Potentiometers conveniently located on the front panel make calibration quick and simple.


**Figure 1.** Outline Dimensions and Terminal Designations.



### Certifications

 **BASEEFA** (CENELEC) Intrinsically Safe, EEX ia IIC T4; Type N, Ex NII T6 (TNX only); Flameproof, EEx d IIC T6

**SAA** Intrinsically Safe Ex ia IIC T4

 **CE:** Conformant - EMC Directive 89/336/EEC EN 50081-2, 1993 and EN 50082-2, 1995

# TLX & TNX

Low-Cost Thermocouple Transmitters

## Specifications

<p><b>Performance Accuracy:</b> ±0.1% of span for J- and K-type thermocouples; ±0.1% of span for R- and S-type thermocouples from 600-1600°C (includes the effects of linearity, hysteresis &amp; repeatability); for other thermocouple types, consult the factory</p> <p><b>Linearity (TLX only):</b> 0.1% of span for standard ranges</p> <p><b>Ripple:</b> Less than 5mV peak-to-peak, typical</p> <p><b>Power Supply and Load Effect:</b> Negligible within specified limits</p> <p><b>Load Capability:</b> (Supply Voltage - 12V) ÷ 0.02A = ohms</p>	<p><b>Performance (continued) Burnout Protection:</b> Upscale to 28mA is standard (see -DD option)</p> <p><b>Output Current Limiting:</b> 150% of span maximum</p> <p><b>Ambient Temperature Range:</b> -20°C to +70°C (+4°F to +158°F)</p> <p><b>Effect on Amplifier:</b> For inputs above 10mV: ±0.01% of span/°C change, typical; ±0.02% of span/°C change max.</p> <p>For inputs from 5-10mV: ±0.02% of span/°C change, typical; ±0.04% of span/°C max (with 5-10mV inputs, less than 5mV span drift not guaranteed)</p>	<p><b>Ambient Temperature Effect on Cold Junction Compensation:</b> 1°C max. error per 25°C ambient change over 15-70°C</p> <p><b>Indicators</b> LED indicates adequate power supplied for operation</p> <p><b>Adjustments Type:</b> External multiturn potentiometers</p> <p><b>Zero and Span:</b> TLX, ±5% of span; TNX, ±25% of span</p> <p><b>Weight</b> 113 grams (4 ounces)</p>
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## Ordering Specifications

Unit	Input	Output	Power	Options	Housing
<p><b>TLX</b> (output linear with temp.)</p> <p><b>TNX</b> (output linear with input)</p>	<p>See Table 1 for typical Standard inputs</p> <p><b>Custom Input Ranges:</b> To order a custom °C or °F range (within the limits of the available T/C types), specify the range next to the T/C type in the model number</p>	<p><b>4-20MA</b> into 600 ohms with 24Vdc power supply</p>	<p><b>12-42DC</b> <b>12-28DC</b> (order for Intrinsically Safe units)</p>	<p><b>-DD</b> Downscale drive</p> <p><b>-ISE</b> BASEEFA approved Intrinsically Safe (12-28DC power required)</p> <p><b>-N</b> BASEEFA approved Type N (N2HG or N2LS housing required)</p> <p><b>-SAA</b> approved Intrinsically Safe (12-28DC power required)</p>	<p><b>HPP</b> Hockey-puck housing</p> <p><b>CCP</b> Clip for mounting HPP in CH7 enclosure</p> <p><b>CPP</b> Clip for mounting HPP in 2HG and 2LS</p> <p><b>CH4</b> HPP in cast iron connection head</p> <p><b>CH5</b> HPP in cast aluminum connection head</p> <p><b>CH6</b> HPP in plastic connection head</p> <p><b>CH7</b> HP in explosion-proof connection head</p> <p><b>2HG*</b> HPP in 2-hub, high glass window, explosion-proof enclosure</p> <p><b>2LS*</b> HPP in 2-hub, solid cover explosion-proof enclosure</p> <p>*F prefix—add to order CENELEC flameproof approved (<b>F2LS</b>)</p> <p>N prefix—add to order U.K. Type N approved enclosure (<b>N2LS</b>)</p> <p>P suffix—enclosure comes equipped with a base plate and U-bolts for mounting on a 2-inch pipe (<b>2LSP</b>)</p>

**When ordering, specify:** Unit / Input / Output / Power / Options [Housing]

**Model number example:** TLX / J0-100C / 4-20MA / 12-42DC / -DD [HPP]

**Table 1.** Examples of Standard Input Range Codes for J, K, T, E, R and S Thermocouple Types and Ranges

<p><b>J0-100C</b> (J, 0-100°C) <b>J0-200C</b> (J, 0-200°C) <b>J0-400C</b> (J, 0-400°C) <b>J0-500C</b> (J, 0-500°C) <b>J0-200F</b> (J, 0-200°F) <b>J0-300F</b> (J, 0-300°F) <b>J0-400F</b> (J, 0-400°F) <b>J0-500F</b> (J, 0-500°F) <b>J0-700F</b> (J, 0-700°F) <b>J0-1000F</b> (J, 0-1000°F)</p>	<p><b>K0-100C</b> (K, 0-100°C) <b>K0-200C</b> (K, 0-200°C) <b>K0-300C</b> (K, 0-300°C) <b>K0-400C</b> (K, 0-400°C) <b>K0-600C</b> (K, 0-600°C) <b>K0-800C</b> (K, 0-800°C) <b>K0-1000C</b> (K, 0-1000°C) <b>K0-1200C</b> (K, 0-1200°C) <b>K0-400F</b> (K, 0-400°F) <b>K0-750F</b> (K, 0-750°F) <b>K0-1000F</b> (K, 0-1000°F) <b>K0-1500F</b> (K, 0-1500°F) <b>K0-2000F</b> (K, 0-2000°F)</p>	<p><b>T0-200C</b> (T, 0-200°C) <b>T0-400F</b> (T, 0-400°F)</p>	<p><b>E0-500C</b> (E, 0-500°C) <b>E0-300F</b> (E, 0-300°F) <b>E0-400F</b> (E, 0-400°F) <b>E0-750F</b> (E, 0-750°F) <b>E0-1000F</b> (E, 0-1000°F) <b>E0-1800F</b> (E, 0-1800°F)</p>	<p><b>R0-1600C</b> (R, 0-1600°C)</p>	<p><b>S0-1500C</b> (S, 0-1500°C)</p>
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Other Standard and Special Ranges are available for all thermocouple types, consult the factory for details.



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