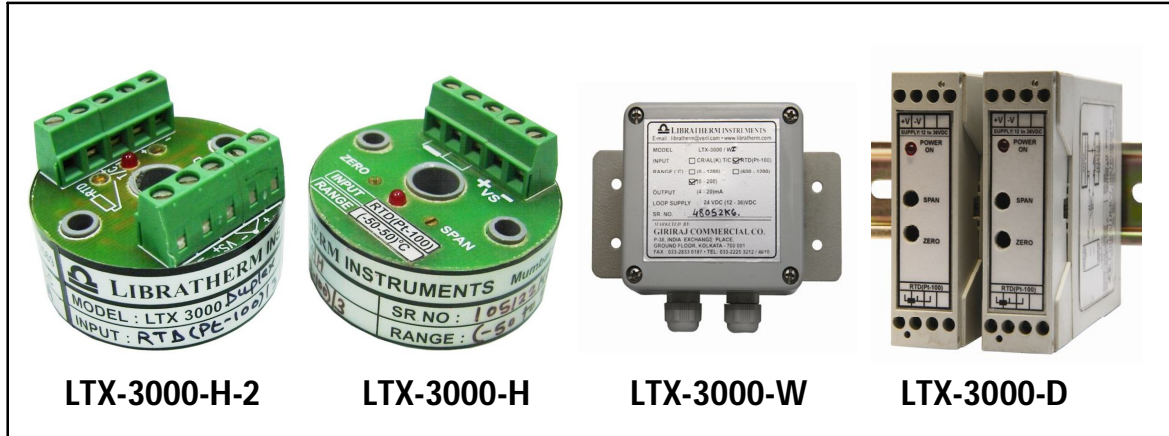


Two Wire Temperature Transmitters

(Product Code 18.1 To 18.8)



Model Wise Description:

Sr.No	Model	Product Description
18.1	LTX-3000-H	Two Wire Temperature Transmitter (Head Mounted)for Simplex Sensor
18.2	LTX-3000-H-2	Two Wire Temperature Transmitter (Head Mounted)for Duplex Sensor
18.3	LTX-3000-W	Two Wire Temperature Transmitter (In Weather proof IP 65 enclosure and field mounted)
18.4	LTX-3000-WS	Two Wire Temperature Transmitter with RTD (Pt-100) Sensor
18.5	LTX-3000-WI	Isolated Two Wire Temperature Transmitter (In Weather proof enclosure field mounted)
18.6	LTX-3000-D	Two Wire Temperature Transmitter (DIN Rail Mounted)
18.7	LTX-3000-DI	Isolated Two Wire Temperature Transmitter (DIN Rail Mounted)
18.8	LTX-3000-FLP	Two Wire Temperature Transmitter in Flame Proof Head

Description:

Libratherm offers Miniature Head Mount Two wire Temperature Transmitter Model LTX-3000-H, which accepts (Pt-100) or thermocouple or variable resistance signal as the input and provides dc current output of (4-20) mA proportional to mV or resistance values. These transmitters are extensively used to minimize the effect of electrical noise and to eliminate the need of long runs of special compensating and three wire cables since ordinary pair of copper wires can easily be used to transmit the measured temperature without the drop or loss of signal. In addition, transmitting the current signal is more advantageous, since it is less susceptible to industrial RFI/EMI noise compared to the voltage signal. These transmitters are linearly calibrated to the signal produced by a thermocouple or RTD sensors and not to the actual temperature.

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LTX-3000 require no separate power supply as it is powered by current drawn from the current loop itself and is thus intrinsically safe when used with appropriate barriers. It is very compact, economically priced and can be directly mounted inside standard heads of the thermocouple or RTD sensors. It can also be easily fitted inside the flame proof / weatherproof head or junction box. It is available for different thermocouples, RTD (Pt-100) duly calibrated for required temperature range with ZERO and SPAN adjustments for on site calibration. LTX-3000 is available in the standard size of 44mm OD and 26mm height (with the terminals) and center to centre mounting hole dimension of 33.0 mm so that it fits easily into the standard head.

The Transmitter is also available in DIN Rail compatible modules Model LTX-3000-D, in weatherproof enclosure Model LTX-3000-W, and in flameproof Model LTX-3000-FLP.

The Galavanically isolated versions are also available in DIN rail and weatherproof enclosure as the Model LTX-3000-DI and LTX-3000-WI respectively, where input and output are isolated.

Isolated versions are useful and recommended for the applications, where the transmitters are mounted away from the sensors. The isolation prevents further the RFI/EMI and ground line interference on the 4-20mA signal loop.

New Model LTX-3000-H-2 is available for duplex sensors and can be fitted in the standard Head.

Features:

- ❖ Two wire design (supply and output on the same lines).
- ❖ Accepts RTD (Pt-100) / thermocouple / millivolt input.
- ❖ (4-20) mA non-isolated and isolated output from the sensor.
- ❖ ZERO and SPAN adjustments for on-site calibration.
- ❖ Easily fits in std. thermocouple head (weather or flame proof or in explosion proof JB).
- ❖ Loop supply of 12 to 36VDC (with loop continuity LED)
- ❖ Saturation or open sensor current limited to 25mA.
- ❖ Reverse polarity protection.
- ❖ Available in both head mount and DIN rail mount.

Applications:

- Carry thermocouple or RTD signals over long distance without noise and loss of accuracy.
- Eliminates use of costly compensating cable.
- Useful for converting other mV/Ohms signal to equivalent 4-20mA loop

Technical Specification:

Input	Thermocouple, mV, RTD (Pt-100) or resistance signal from displacement, position or level sensor.
Range	Subject to specified input (User should specify the required range).
Output	(4-20) mA, two wire and loop powered (calibrated linearly to the input signal).
Accuracy	± 0.5 % to +/- 1% of the calibrated range or better including linearity, Hysterisis, and compensation error.

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Calibration	On site using ZERO / SPAN presets (user settable using a small screw driver) Zero Adjustment : +/-25% of the range (20 Turns). Span Adjustment : +/- 25% of the range (20 Turns).
Loop supply (Vs)	24VDC nominal (12 to 36)VDC for non isolated versions and 24VDC +/- 10% for the isolated versions.
Loop Status	The built in Red LED indicates the continuity status of the loop. LED will not glow if the current loop is broken.
Loop Resistance	600 Ohms @ 24VDC (loop supply dependent).
Max. Load Resistance	RL Max = (Vs-12V) / 20 mA.
Isolation	Input and Output are Galvanically isolated (2KV) for isolated models
Burn Out Detection	The output shall saturate > 20mA (max. 25mA @ 24VDC loop supply)
Operating Temp.	10 °C - 70°C
Mounting	LTX-3000-H & LTX-3000-H-2: In Standard or Flameproof head, LTX-3000-D and DI : On 35 mm DIN rail. LTX-3000-W and WI : on-field or on site on the wall using 4 screws.
Sizes	LTX-3000-H and LTX-3000-H-2: 44 Dia. x 26 mm (H) LTX-3000-D and DI: 22 x 75 x 100 mm. LTX-3000-W and WI : 80 x 80 x 57 mm.

Input and Range Selection Table:

Code	Input	Range (°C)
A1	J type : Fe/Con thermocouple	0 to 400 °C
A2	J type : Fe/Con thermocouple	0 to 760 °C
A3	K type : Cr/Al thermocouple	0 to 400 °C
A4	K type : Cr/Al thermocouple	0 to 600 °C
A5	K type : Cr/Al thermocouple	0 to 800 °C
A6	K type : Cr/Al thermocouple	0 to 1000 °C
A7	K type : Cr/Al thermocouple	0 to 1200 °C
A8	Pt-100 (Alpha = 0.00385) DIN 43760	-100 to +100 °C
A9	Pt-100 (Alpha = 0.00385) DIN 43760	-50 to +50 °C
A10	Pt-100 (Alpha = 0.00385) DIN 43760	0 to 50 °C
A11	Pt-100 (Alpha = 0.00385) DIN 43760	0 to 100 °C
A12	Pt-100 (Alpha = 0.00385) DIN 43760	0 to 150 °C
A13	Pt-100 (Alpha = 0.00385) DIN 43760	0 to 200 °C
A14	Pt-100 (Alpha = 0.00385) DIN 43760	0 to 400 °C
A15	Pt-100 (Alpha = 0.00385) DIN 43760	-10 to 50 °C
A16	Any other – please specify in the remark column with required input and range.	

Ordering Information:

MODEL	A- INPUT and RANGE	B- CALIBRATION METHOD
LTX-3000-H LTX-3000-H-2 LTX-3000-W LTX-3000-WS LTX-3000-WI LTX-3000-D LTX-3000-DI LTX-3000-FLP	Any one of A1 to A16 as per the above table	B1- End Points Match B2- Best straight line Fit in the range

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Example:

MODEL	A- INPUT and RANGE	B- CALIBRATION METHOD
LTX-3000-H	A3	B1
LTX-3000-WI	A13	B1
LTX-3000-D	A7	B2
LTX-3000-FLP	A14	B2

Example	Ordering Code	Description
1	LTX-3000-H-A3-B1	This is head mount transmitter for K type thermocouple and calibrated in the range of 0 to 400°C – where 4mA = 0°C and 20mA = 400°C.
2	LTX-3000-WI-A13-B1	This is isolated field mount transmitter for Pt-100 sensor and calibrated in the range of 0 to 200°C – where 4mA = 0°C and 20mA = 200°C.
3	LTX-3000-D-A7-B2	This is DIN rail mount transmitter for K type thermocouple and calibrated in the range of 0 to 1200°C with best straight line fit calibration method.
4	LTX-3000-FLP-A14-B2	This is head mount temperature transmitter fitted in FLP head for Pt-100 sensor and calibrated in the range of 0 to 400°C with best straight line fit calibration method.

What is end point and best straight line fit Calibration methods?

In the end points match calibration method, the 4 mA and 20mA corresponds to the lower temperature and higher temperature of the specified range. For example for the 0-400 °C range, the 4mA = 0 °C and 20mA = 400 °C. Where as, in case of the best straight line fit calibration method, the non linearity of the thermocouple or Pt -100 curve is distributed on either side of the straight line drawn between 4 and 20mA. This will minimize the 4-20mA error due to non-linearity of the curve.

REMARK :

Connection Diagram LTX-3000-H and LTX-3000-D:

