



Quick Reference Guide



Temperature Controller (TX7-D2, TX7-ST)

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INTRODUCTION

Thank you for purchasing EAPL'S TX7-ST/TX7-D2 Digital Temperature Controller. This instruction manual describes every aspect of installation, set-up, and operation of the TX7-ST/TX7-D2 Temperature controller. If you run into difficulties and need technical assistance, feel free to call our technical support at (080) 8567561 available between 9 AM – 5:30PM IST or visit our web site at www.eaplindia.com.

EAPL, an ISO 9001 company, leaders in Timer Technology Brings to you a new range of micro controller temperature controller. High reliability, accuracy, compactness are some of the striking design features.

Uncompromising quality with cost effectiveness has been the watchword at EAPL.

For Customer Use

Enter below the serial Number which is located on the timer cabinet. Retain this information for future reference.

Model No:

Serial No:

Batch No:

Date of Purchase:

Purchase Point:

Accessories

- Temperature Controller TX7-ST/TX7-D2 - 1 no.
- Quick Reference Guide
- Protective Cover
- End Plate/Spacer

NOTE: Please acknowledge that we reserve the right to make changes in product performance or specifications without prior notice. Also please note that we bear no responsibility for mistakes, misprints or omissions of the instruction manual Specifications.

Salient Feature

- Beeping of buzzer when PV exceeds + 20 °C from set temperature.
- Blinking of "888" on front display for thermocouple open and reverse.
- Access for calibration provided.
- Relay OFF during programming mode and during thermocouple open/reverse condition.
- "RUN/PRG" switch to select program mode or run mode.
- "ADVANCE" switch to increment the digit selected.
- "SELECT" switch to shift to the next digit.
- Process value / set value indication by 3 digits, 7 segment LED display.
- During "RUN" mode by pressing "ADVANCE" switch set temperature can be seen.

Ordering Information

Model	Function	Sensor	Range
TX7-ST	Self Tune	J type	0-450 degree C
TX7-ST	Self Tune	K type	0-999 degree C
TX7-ST	Self Tune	PT100 Sensor	0-300 degree C
TX7-D2	On – Off Control	J type	0-450 degree C
TX7-D2	On – Off Control	PT100 Sensor	-100 to +300 degree C
TX7-D2	On – Off Control	K type	0-999 degree C

Specification for TX7-D2 (PT-100) & TX7-ST (PT-100)

	<u>TX7-D2 (PT-100)</u>	<u>TX7-ST (PT-100)</u>
Operating Voltage Range	-15% to + 10% of rated voltage	
Rated supply voltage	240V AC	
Rated frequency	50 Hz \pm 5%	
Power consumption	4VA/1W	
Control output	1 c/o contact rated for 5A@250V AC /28 V DC resistive load	
Display Accuracy	\pm 3 degree C	
Hysteresis	1 degree C to 20 degree C	
Input	Pt100(RTD)	
Recovery Time	1 sec minimum	
Ambient Temperature	Operating: + 5 degree C to + 45 degree C Storage : - 10 degree C to + 85 degree C	
Insulation Resistance	>100 M ohms@500V DC	
Humidity	Upto 85% RH @ 40 degree C	
Dielectric Strength	a)2.5 KV AC ,50HZ for 1 min(between current carrying &non current carrying parts) b)1.5 KV AC,50HZ for 1 min(between contacts and control circuit) c)1 KV A, 50HZ for 1 min(between non continuous relay contacts)	
Connections	Screw type terminals with self lifting clamps	

Specification for TX7-D2 J Type & K Type

	<u>TX7-D2 (J TYPE)</u>	<u>TX7-D2 (K TYPE)</u>
Operating Voltage Range	-15% to + 10% of rated voltage	
Rated supply voltage	240V AC	
Rated frequency	50 Hz \pm 5%	
Power consumption	4VA/1W	
Control output	1 c/o contact rated for 5A@250V AC /28 V DC resistive load	
Display Accuracy	\pm (0.8% of full scale) \pm 1digit	\pm (0.5% of full scale) \pm 1digit
Hysteresis	1 degree C to 20 degree C variable	
Input	J-Type Thermocouple	K-Type Thermocouple
Recovery Time	1 sec minimum	
Variation due to temperature	0.25 degree C per degree change in ambient temperature	
Ambient Temperature	Operating: + 5 degree C to + 45 degree C Storage : - 10 degree C to + 85 degree C	
Insulation Resistance	>100 M ohms@500V DC	
Humidity	Upto 85% RH @ 40 degree C	
Dielectric Strength	a)2.5 KV AC ,50HZ for 1 min(between current carrying &non current carrying parts) b)1.5 KV AC,50HZ for 1 min(between contacts and control circuit) c)1 KV A, 50HZ for 1 min(between non continuous relay contacts)	
Connections	Screw type terminals with self lifting clamps	

Specification for TX7-STJ Type & K Type

	<u>TX7-ST (J TYPE)</u>	<u>TX7-ST (K TYPE)</u>
Operating Voltage Range	-15% to + 10% of rated voltage	
Rated supply voltage	240V AC	
Rated frequency	50 Hz \pm 5%	
Power consumption	4VA/1W	
Control output	1 c/o contact rated for 5A@250V AC /28 V DC resistive load	
Display Accuracy	\pm (0.8% of full scale) \pm 1digit	\pm (0.5% of full scale) \pm 1digit
Input	J-Type Thermocouple	K-Type Thermocouple
Recovery Time	1 sec minimum	
Variation due to temperature	0.25 degree C per degree change in ambient temperature	
Ambient Temperature	Operating: + 5 degree C to + 45 degree C Storage : - 10 degree C to + 85 degree C	
Insulation Resistance	>100 M ohms@500V DC	
Humidity	Upto 85% RH @ 40 degree C	
Dielectric Strength	a)2.5 KV AC ,50HZ for 1 min(between current carrying &non current carrying parts) b)1.5 KV AC,50HZ for 1 min(between contacts and control circuit) c)1 KV A, 50HZ for 1 min(between non continuous relay contacts)	
Connections	Screw type terminals with self lifting clamps	

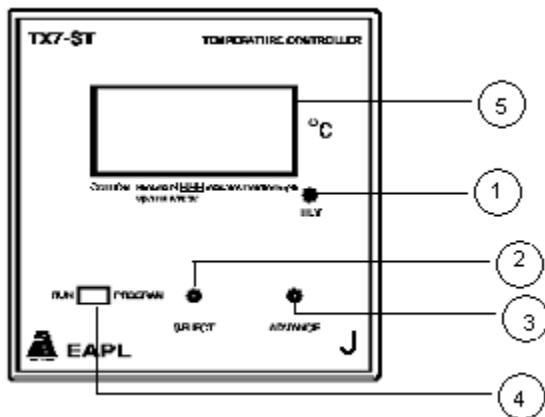
Operating Instructions



Caution

- Application of voltage other than the specified one will permanently damage the controller.

Front Panel



1 RELAY LED

It glows when the relay comes ON

2 SELECT

This button is used to shift to the next digit.

3 ADVANCE

This button is used to increment the digit selected.

4 RUN/PROGRAM

This is a slide switch to change the mode from run to program.

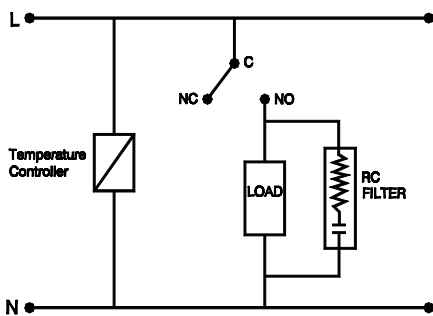
5 DISPLAY

It displays Process value / set value indication in 3 digits, 7 segment LED display.

Terminal Details

11, 12	: Power
1	: -ve of thermocouple
2	: +ve of thermocouple
7, 8, 9	: NO-C-NC

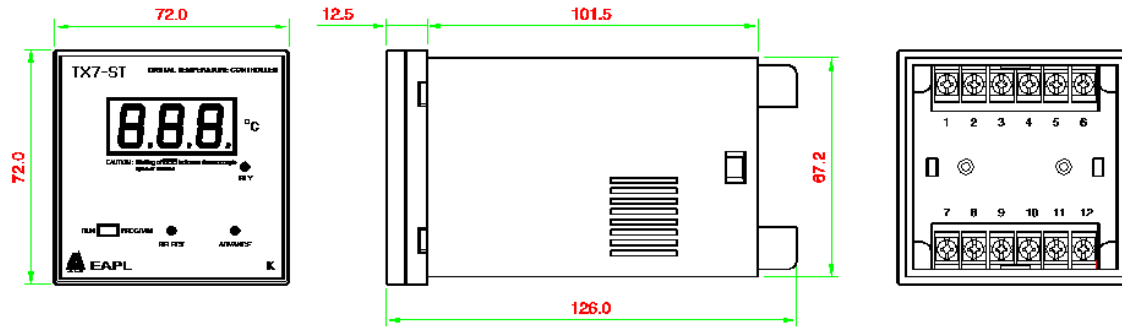
Connection Diagram



How to Set Temperature

- Connect rated source voltage to the terminals 11 & 12.
- Connect the thermocouple to the terminals 1 & 2 as per the polarity marked.
- Slide the "RUN/PRG" switch to "PRG" (Program mode)
- The required set value is programmed by using SELECT and ADVANCE Tact switch.
- Slide the "RUN/PRG" switch to "RUN" (Run mode)
- Process value is indicated by 3 digit, 7 segment LED displays.

Dimension



NOTE : ALL DIMENSIONS ARE IN mm.

How to Operate TX7-ST

- Apply rated source voltage to the terminals 11 & 12.
- Connect applicable thermocouple (J or K Type) to the terminals 1 & 2 as per the polarity marked.
- Connect the desired load through the control relay.
- On power application display shows the room temperature.
- Once process temperature crosses 50% set value relay ON-OFF action starts and only when the process value crosses set value relay is 100% off.

Note: To avoid noise interference pickup, we recommend using RC filter as close as possible across the load.

How to Operate TX7-D2

- Apply rated source voltage to the terminals 11 & 12.
- Connect the thermocouple to the terminals 1 & 2 as per the polarity marked.
- Connect the desired load through the control relay.
- On power application display shows the room temperature.
- Once the process temperature crosses the set temperature relay goes off.

How to Calibrate

- Keep the instrument powered ON for minimum of 30Mins before calibration.
- Connect the applicable sensor to 1 and 2 terminals of temperature controller.
- Vary pot through calibration hole provided on the cabinet so that the display shows ambient temperature. (Refer a temperature indicator).
- After Calibration, set different temperature using any standard temperature calibrator or EAPL make model TCAL-1000 and verify the accuracy.