



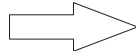
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Data Sheet: T1F-16TMST-DS Rev. C

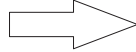
Terminator I/O

T1F-16TMST Thermistor Module
(use base T1K-16B or T1K-16B-1)

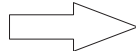
Insert Module into Base



Install Assembly on DIN Rail



Slide Assembly into Position



← Module Specifications

← Wiring and Dimensions

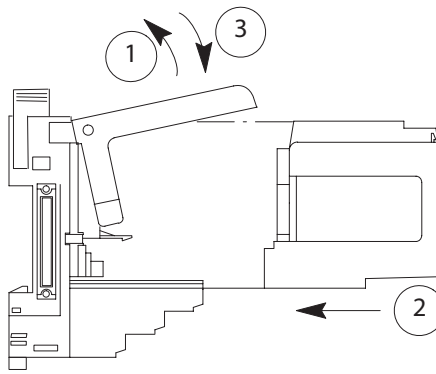
← Setting Module Jumpers

WARNING: To minimize the risk of potential safety problems, you should follow all applicable local and national codes that regulate the installation and operation of your equipment. These codes vary from area to area and it is your responsibility to determine which codes should be followed, and to verify that the equipment, installation, and operation are in compliance with the latest revision of these codes.

Equipment damage or serious injury to personnel can result from the failure to follow all applicable codes and standards. We do not guarantee the products described in this publication are suitable for your particular application, nor do we assume any responsibility for your product design, installation, or operation.

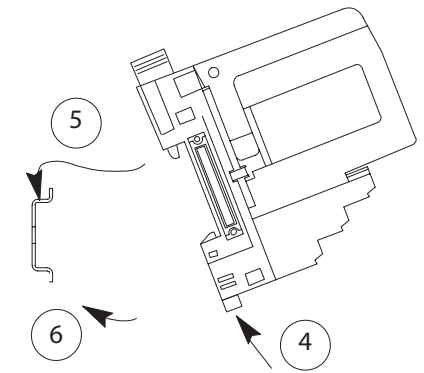
If you have any questions concerning the installation or operation of this equipment, or if you need additional information, please call us at 770-844-4200.

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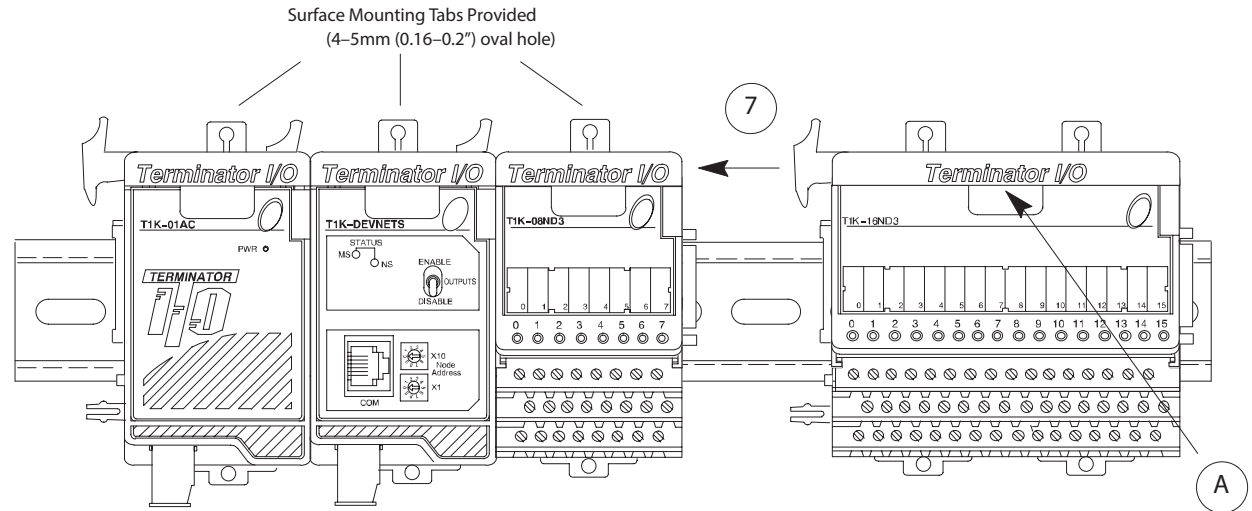
Insert Module into Base

1. Pull base arm back to allow space for module to enter base
2. Align module slides with base track
3. Press module firmly into base



Install Assembly on DIN Rail

4. Make sure the locking tab is in the latched position
5. Hook upper tab over upper flange of DIN rail
6. Tilt assembly toward DIN rail until module snaps securely to DIN rail



Slide Assembly into Position on DIN Rail

7. Slide the module assembly on the DIN rail until the clip arm attaches securely to the adjacent module.

A. To remove the module from the base, lift the center of the base arm slightly outward and upward to release the module. Lifting the base arm further will eject the module.
B. To remove the module assembly from the DIN rail, lift the clip arm up and slide the module assembly away from the adjacent module. Use a small screwdriver to pull the locking tab to the down position.

Specifications

T1F-16TMST Thermistor Modules

Number of Channels	16
Resolution	+/- 0.1 °C or °F
Input Impedence	>1MΩ
Common Mode Range	0 – 5VDC
Absolute Max. Ratings	+/- 50 VDC
Converter Type	Charge balancing, 24-bit
Sampling Rate	140ms / channel
Master Update Rate	16 channels per scan max.
Input Points Required	512 discrete pts. or 16 dwords (d (double) word = 32 bit word) Network Interface dependent
Base Power Required	150mA @ 5VDC
Operating Temperature	0 to 60 °C (32 to 140 °F)
Storage Temperature	-20 to 70 °C (-4 to 158 °F)
Temperature Drift	25ppm / °C (max.)
Maximum Inaccuracy ¹	+/- 1 °C
Excitation Current	10uA
Electrical Isolation	1500VDC Field Wire to Backplane
Relative Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC 60068-2-6 (Test FC)
Shock	IEC 60068-2-27 (Test Ea)
Noise Immunity	EN61131-2:2007 ²
Weight	168g
Recommended Cable	PLTC3-18-15-XXX Belden 8761 or equivalent

Thermistor Input Ranges:

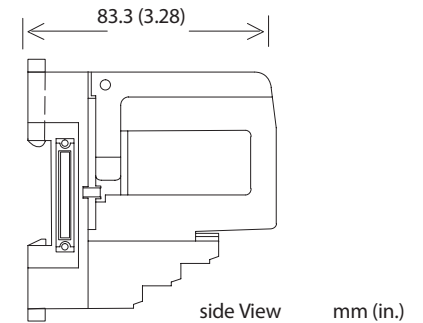
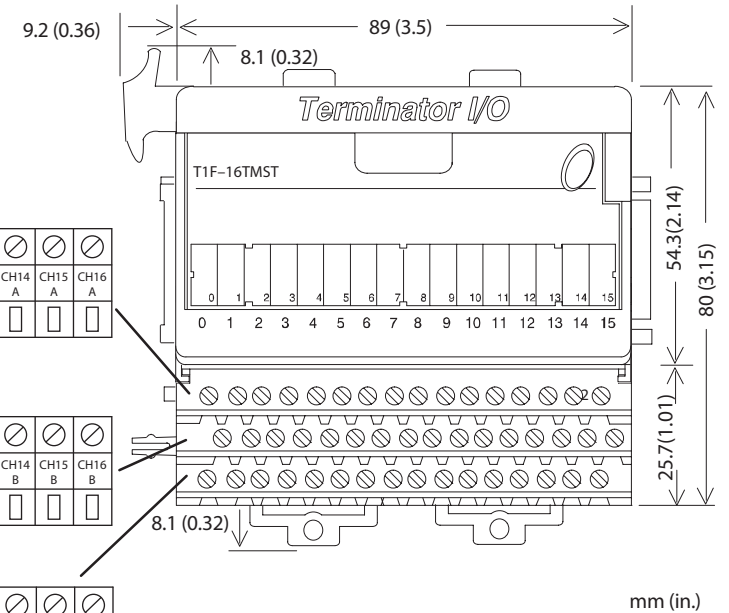
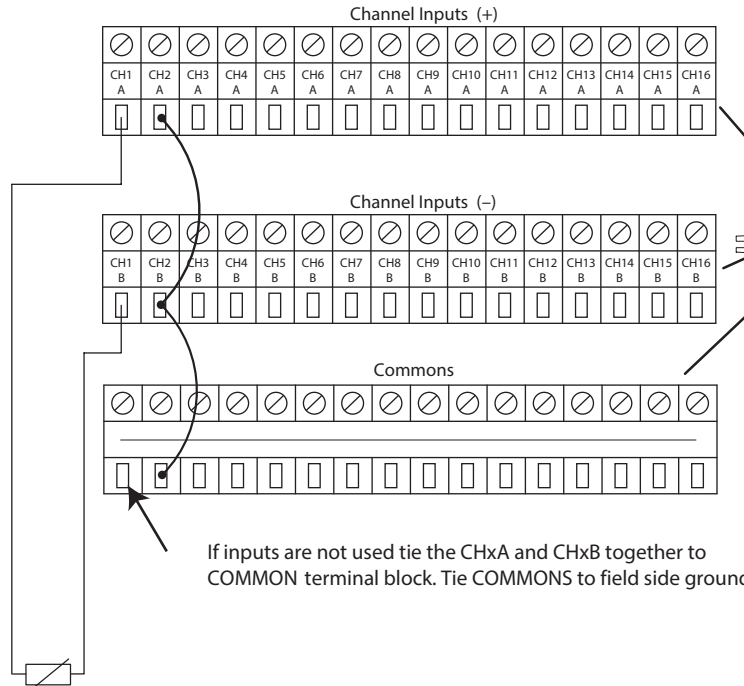
Input Ranges	10K-AN (Type 3)	10K-CP (Type 2)	5K	3K	2252	1.8K
	-40°C to 150°C	-40°C to 150°C	-40°C to 150°C	-40°C to 150°C	-40°C to 150°C	-40°C to 150°C
	-40°F to 300°F	-40°F to 300°F	-40°F to 300°F	-40°F to 300°F	-40°F to 300°F	-40°F to 300°F

¹ "Accuracy" pertains to module only and does not include tolerances of thermistor element, wiring resistance, etc. For example, 22 gauge wire is 0.016Ω/FT, 200 feet of wire adds 3.2Ω

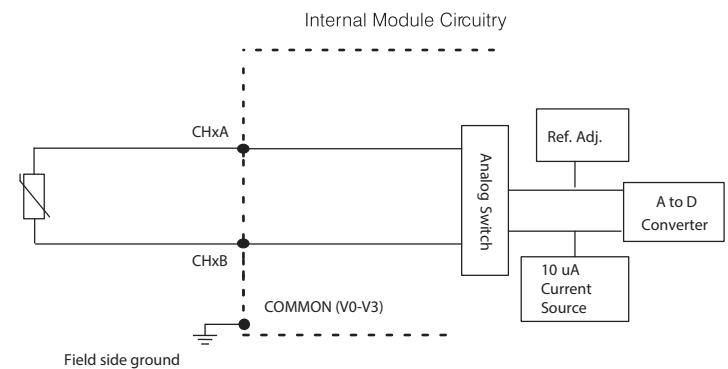
² Meets EMC & Safety Requirements

Wiring & Dimensions

Note: Apply the labels that come with the I/O module to the I/O base terminals to properly identify the base terminal points.



Equivalent Input Circuit



Setting Module Jumpers

Select Input Type (see Note 2)

Thermistor Input	Jumper		
	TMST-0	TMST-1	TMST-2
10K-AN (Type 3)			
10K-CP (Type 2)	X		
5K		X	
3K	X	X	
2252			X
1.8K	X		X
Future Use		X	X
Future Use	X	X	X

X = Jumper Installed

Blank Space = Jumper Removed

NOTES:

Note 1: The module comes from the factory with all of the Number of Channels jumpers installed for sixteen channel operation. Use the table to determine the proper settings.

Note 2: The module comes the factory with the Input Type jumpers selected for 10K-AN operation. Use the table to determine the proper settings.

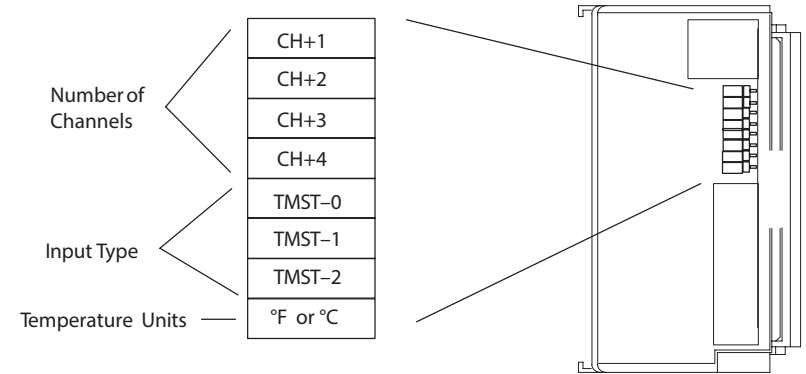
Select Number of Channels (see Note 1)

Number of Channels	Jumper			
	CH+1	CH+2	CH+3	CH+4
1				
2	X			
3		X		
4	X	X		
5			X	
6	X		X	
7		X	X	
8	X	X	X	
9				X
10	X			X
11		X		X
12	X	X		X
13			X	X
14	X		X	X
15		X	X	X
16	X	X	X	X

X = Jumper Installed

Blank Space = Jumper Removed

Jumpers Located Under Module Top Cover



Select Temperature Units

Temperature Units	Jumper
°F	X
°C	

X = Jumper Installed

Blank Space = Jumper Removed

T1F-16TMST Data Format: Data format for each of the 16 Thermistor input channels

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
-	-	-	-	-	-	-	BO	-	-	-	-	-	-	-	-	D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0

D15 to D0: 16-bit temperature data, D15 is the most significant bit (MSB). The temperature data has one implied decimal, so the readings are in tenths of degrees.

Negative temperature readings are represented in 2's complement format.

BO: Channel burn out bit; 1= channel thermistor sensor burn out or thermistor is disconnected from either input terminal

0= channel OK

-: Unused channel bits are all = 0