Product Specifications

Thermocouple Modules

A thermocouple input (TC) module includes three independent input channels. Each input channel receives variable voltage signals from each point, performs thermocouple linearization and cold-junction compensation, and converts the result to degrees Celsius or Fahrenheit. Each channel then transmits 16-bit signed integers representing 0.125 degrees per count to the three main processors on demand. In TMR mode, a value is then selected using a mid-value selection algorithm to ensure correct data for every scan.

Each thermocouple input module is programmable to support one thermocouple type, selected from J, K and T for standard thermocouple input modules and from J, K, T and E for

isolated thermocouple input modules. The isolated module allows users to select upscale or downscale burnout detection with the TriStation software. For non-isolated modules, upscale or downscale burnout detection depends on the field termination selected.

Triplicated temperature transducers residing on the field termination panel support cold-junction compensation. Each channel of a thermocouple input module performs auto-calibration using internal precision voltage references. On the isolated module, a faulting cold-junction transducer is annunciated by a cold-junction indicator on the front panel.

Each module performs complete ongoing diagnostics on each channel.

Failure of any diagnostic on any channel activates the Fault indicator, which in turn activates the chassis alarm signal. The module Fault indicator merely reports a channel fault, not a module failure. The module continues to operate properly with as many as two faulty channels.

The thermocouple input module supports hot-spare capability which allows online replacement of a faulty module. The thermocouple input module requires a separate external termination panel (ETP) with a cable interface to the Tricon backplane.

Each module is mechanically keyed to prevent improper installation in a configured chassis.

Model Number	3706A	3708E
Type	TMR	TMR
Number of input signals	32 differential, DC coupled	16 differential, isolated
Isolated points	No	Yes
Input update rate	50 ms, maximum[1]	50 ms
Thermocouple types supported[2]	J, K, T	J, K, T, E
Accuracy/temp range	See Table A	See Table B
Input resistance (load)	22 MΩ (DC), typical	30 MΩ (DC), minimum
Noise rejection		
Common mode	-85 dB @ 0-60 Hz, minimum -95 dB @ DC, typical	-90 dB @ 0-60 Hz, minimum -100 dB @ DC, minimum
Normal mode	-17 dB @ 60 Hz	-3 dB @ 8 Hz, typical -17 dB @ 60 Hz, typical
Common mode range	±10 VDC max. (channel-to-channel or channel-to-ground)	±200 VDC, max (channel-to-channel or channel-to-ground)
Leg-to-leg isolation	200 KΩ, typical	20 KΩ, typical
Input point protection	110 VAC, continuous	110 VAC, continuous
Reference junction compensation range	32°-140°F (0°-60°C)	32°-140°F (0°-60°C)
Diagnostic indicators	PASS, FAULT, ACTIVE	PASS, FAULT, ACTIVE, CJ FAULT
Color code	Tan	Deep Yellow

1. Inputs frozen for 1 second upon insertion of spare module.
2. Must be selected with TriStation.