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Thermocouple General Purpose Scanner Card Specifications

SPECIFICATION CONDITIONS

This document contains specifications and supplemental information for the Model 2001-TCSCAN Thermocouple General Purpose Scanner Card. Specifications are the standards against which the 2001-TCSCAN is tested. Upon leaving the factory, the 2001-TCSCAN meets these specifications.

THERMOCOUPLE ACCURACY¹

Thermocouple type	Range	Default resolution		Total absolute error – 1 year ²				
		2001 Multimeter	DMM6500	2001 Multimeter ³		DMM6500		
				18 °C to 28 °C	0 °C to 18 °C and 28 °C to 50 °C	Simulated or external CJC	Internal CJC (on scanner card)	Temperature coefficient in °C / °C
J	0 ° to 760 °C	0.1 °C	0.001 °C	±0.65 °C	±1.08 °C	0.20	0.65	0.03
	-200 °C to < 0 °C			±0.75 °C	±1.18 °C	0.20	0.65	0.03
K	0 °C to 1372 °C	0.1 °C	0.001 °C	±0.70 °C	±1.32 °C	0.20	0.70	0.03
	-200 °C to < 0 °C			±0.80 °C	±1.42 °C	0.30	0.70	0.03
T	0 °C to 400 °C	0.1 °C	0.001 °C	±0.68 °C	±1.22 °C	0.20	0.70	0.03
	-200 °C to < 0 °C			±0.78 °C	±1.32 °C	0.30	0.70	0.03
E	0 °C to 1000 °C	0.1 °C	0.001 °C	±0.67 °C	±1.11 °C	0.20	0.70	0.03
	-200 °C to < 0 °C			±0.77 °C	±1.21 °C	0.30	0.70	0.03
R	600 °C to 1768 °C	1.0 °C	0.010 °C	±1.31 °C	±3.06 °C	0.50	1.30	0.03
	0 °C to < 600 °C			±1.31 °C	±3.06 °C	1.00	1.30	0.03
S	600 °C to 1768 °C	1.0 °C	0.010 °C	±1.30 °C	±3.02 °C	0.50	1.30	0.03
	0 °C to < 600 °C			±1.30 °C	±3.02 °C	1.00	1.30	0.03
B	1100 °C to 1820 °C	1.0 °C	0.010 °C	±1.65 °C	±4.14 °C	0.50	1.65	0.03
	350 °C to < 1100 °C			±1.65 °C	±4.14 °C	1.50	1.65	0.06
N	0 °C to 1300 °C	–	0.001 °C	–	–	0.20	0.70	0.03
	-200 °C to < 0 °C			–	–	0.60	1.50	0.03

¹ Accuracy excludes probe errors.

² Specifications apply to channels 2 through 6. Add 0.06 °C for each adjacent channel away from channel 6.

³ These values use the internal CJC on the 2001-TCSCAN scanner card.

GENERAL SPECIFICATIONS

General	9 channels of 2-pole analog input, 1 cold junction sensor	
Operating environment	Specified for 0 °C to 50 °C, ≤ 80% relative humidity at 35 °C, altitude up to 2000 m (6562 ft)	
Storage environment	-40 °C to 70 °C	
Functions	DCV, ACV, 4-wire Ω, 2-wire Ω, thermocouple, 4-wire RTD, 2-wire RTD, frequency, thermistor ⁴ , digitize voltage ⁴ , and capacitance ⁴	
Thermocouple scan speeds	25 channels per second at 0.1 °C resolution (1 PLC); 43 channels per second at 1 °C resolution (0.1 PLC)	
Capabilities	Multiplex one of nine 2-pole or one of four 4-pole analog signals into a DMM and any variety of 2- or 4-pole analog signals	
Reference output (typical)	+200 μV / °C (+54.63 mV at 0 °C)	
Inputs	Maximum signal levels⁵	DC: 110 V DC, < 1 A switched, 30 VA maximum (resistive load) AC: 125 V AC _{RMS} or 175 V AC _{PEAK} , 1 A switched, 62.5 VA maximum (resistive load)
	Contact life	< 10 ⁵ operations at maximum signal level, > 10 ⁸ operations cold switching
	Contact resistance	< 1 Ω at the end of contact life
	Actuation time	2.5 ms maximum on or off
	Contact potential⁶	< ±500 nV typical per contact, 1 μV maximum
	Connector type	Screw terminal, #22 AWG wire size (0.062 O.D.)
	Isolation between any two terminals	> 10 ⁹ Ω, < 75 pF
	Common mode voltage	350 V _{PEAK} between any terminal and earth
Scanning multiple channels⁷	DCV or 2-wire Ω	> 90 channels per second
	Thermocouple, thermistor, or 2-wire RTD	> 85 channels per second
	4-wire Ω and 3- or 4-wire RTD	> 80 channels per second
	ACV	> 60 channels per second
	Alternating DCV and 2-wire Ω	> 85 channels per second
Environment	Indoor use only Altitude: 0 to 2000 m (0 to 6562 ft) above sea level Pollution degree: 2	
Dimensions	21 mm high × 72 mm wide × 221 mm deep (0.83 in. × 2.83 in. × 8.7 in.)	
Weight	283 g (10 oz)	
Safety	Complies with the European Union low-voltage directive.	
EMC	Complies with the European Union EMC directive.	

⁴ With the DMM6500 only.

⁵ Channels 5 and 10 have a maximum power of 0.25 W using factory-installed 120 Ω, 5%, 0.25 W resistors. User may replace with a jumper (see the manual for your multimeter).

⁶ Channels 5 and 10 have a contact potential is ±2 μV typical, 4 μV maximum.

⁷ Speeds apply to the DMM6500 only. See the DMM6500 specifications for additional details.

Specifications are subject to change without notice

2001-TCSCAN SCANNER CARD SCHEMATIC

