

# Standard Thermocouple Modules

## Features

- ✔ Rugged Packaging
- ✔ 4000 Vrms Transient Isolation
- ✔ 12-bit Resolution
- ✔ Factory Calibrated, No User Adjustments
- ✔ Operating Temperature: 0 to 70 °C
- ✔ "T" Models Offer Channel-to-Channel Isolation

## Description

The thermocouple analog modules provide a single channel of optically isolated temperature-to-digital conversion. The modules offer wide nominal input and special over/under range capabilities. The 'T' module also includes 4000 Vrms transient channel-to-channel isolation which eliminates any ground loop problems. Modules plug into a Classic standard analog I/O rack and are secured by a captive screw.



## Part Numbers

Part	Description
AD5	J Thermocouple Input
AD5T	J Thermocouple Input, Isolated
AD8	K Thermocouple Input
AD8T	K Thermocouple Input, Isolated
AD17T	R Thermocouple Input, Isolated
AD18T	T Thermocouple Input, Isolated
AD19T	E Thermocouple Input, Isolated

# Standard Thermocouple Modules

## Specifications

	AD5	AD5T	AD8	AD8T
Thermocouple Type	J	J	K	K
Nominal Temperature Range °C	0° to 700°	0° to 700°	-100° to 924°	-100° to 924°
Nominal Temperature Range °F	32° to 1292°	32° to 1292°	-148° to 1695°	-148° to 1695°
Over/Under Range Capability °C	-20° to 1200°	-20° to 1200°	-125° to 1250°	-125° to 1250°
Over/Under Range Capability °F	- 4° to 2192°	- 4° to 2192°	-193° to 2282°	-193° to 2282°
Average Resolution	0.18 °C (0 to 700 °C) 0.36 °C (700 to 1200 °C)	0.18 °C (0 to 700 °C) 0.36 °C (700 to 1200 °C)	± 0.25 °C (-100 to 924 °C) ± 0.5 °C (924 to 1250 °C)	± 0.25 °C (-100 to 924 °C) ± 0.5 °C (924 to 1250 °C)
Accuracy*	± 3 °C (0 to 700 °C)	± 3 °C (0 to 700 °C)	± 3 °C (-100 to 924 °C)	± 3 °C (-100 to 924 °C)
Repeatability	± 1 °C	± 1 °C	± 1 °C	± 1 °C
Power Requirements	17 mA at +15 (+/- 0.25) VDC 12 mA at -15 (+/- 0.25) VDC	35 mA at +15 (+/- 0.25) VDC 35 mA at -15 (+/- 0.25) VDC	17 mA at +15 (+/- 0.25) VDC 12 mA at -15 (+/- 0.25) VDC	35 mA at +15 (+/- 0.25) VDC 35 mA at -15 (+/- 0.25) VDC

\*Accuracy may be improved by the use of "Set Offset" and "Set Gain" commands in the OPTOMUX command set.

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## Specifications (continued)

	AD17T	AD17T	AD18T	AD19T
Thermocouple Type	R	S	T	E
Nominal Temperature Range °C	0° to 960°	0° to 1034°	-200° to 224°	-100° to 435°
Nominal Temperature Range °F	32° to 1760°	32° to 1893°	-328° to 435°	-148° to 815°
Over/Under Range Capability °C	-50° to 1768°	-50° to 1768°	-200° to 400°	-100° to 900°
Over/Under Range Capability °F	-58° to 3214°	-58° to 3214°	-328° to 752°	-148° to 1652°
Average Resolution	0.23 °C (200 to 960 °C) 0.35 °C (960 to 1768 °C)	0.25 °C (200 to 1034 °C) 0.48 °C (1034 to 1768 °C)	0.1 °C (-200 to 244 °C) 0.14 °C (244 to 400 °C)	0.13 °C (-100 to 435 °C) 0.23 °C (435 to 900 °C)
Accuracy*	± 5 °C (200 to 960 °C) ± 3.5 °C (960 to 1768 °C)	± 5.2 °C (200 to 1034 °C) ± 4.2 °C (1034 to 1768 °C)	± 3 °C (-100 to 224 °C) ± 2 °C (224 to 400 °C)	± 3 °C
Repeatability	± 2.5 °C (200 to 960 °C) ± 1.8 °C (960 to 1768 °C)	± 2.6 °C (200 to 1034 °C) ± 2.1 °C (1034 to 1768 °C)	± 1.0 °C (-100 to 0 °C) ± 0.6 °C (0 to 224 °C) ± 0.4 °C (224 to 400 °C)	± 0.8 °C (-100 to 0 °C) ± 0.6 °C (0 to 435 °C) ± 0.5 °C (435 to 900 °C)
Power Requirements	30 mA at +15 (+/- 0.25) VDC 30 mA at -15 (+/- 0.25) VDC	30 mA at +15 (+/- 0.25) VDC 30 mA at -15 (+/- 0.25) VDC	30 mA at +15 (+/- 0.25) VDC 30 mA at -15 (+/- 0.25) VDC	30 mA at +15 (+/- 0.25) VDC 30 mA at -15 (+/- 0.25) VDC

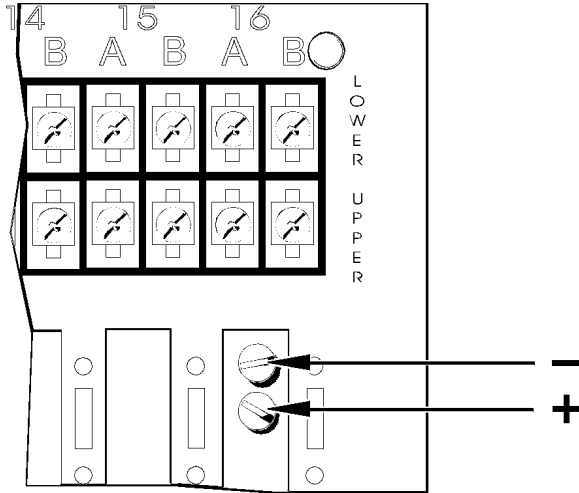
\*Accuracy may be improved by the use of "Set Offset" and "Set Gain" commands in the OPTOMUX command set.

## General Specifications

Isolation: Input-to-Output Input-to-Analog Supply*	4000 Vrms (Transient) 4000 Vrms
Cold Junction Compensated:	Yes
Open Thermocouple Detection:	Yes
Input Response Time:	5% of scale change in 8.5 ms 63% of scale change in 165 ms
Ambient Temperature: Operating Storage	0° to 70°C - 25° to 85°C
Resolution:	12 bits

# Standard Thermocouple Modules

## Connections



Model	T/C Type	Polarity/Color	
		+	-
AD5/AD5T	J	WHITE	RED
AD8/AD8T	K	YELLOW	RED
AD17T	R	BLACK	RED
AD18T	T	BLUE	RED
AD19T	E	PURPLE	RED
AD17T	S	BLACK	RED