

T112 Module — 8 Channel Thermocouple/mV Input

SPECIFICATION

Input Type: Multiplexed thermocouple or millivolt (any combination)

A-to-D Converter: Integrating type.
(integration period = 20ms(50Hz)
or 16.66ms (60Hz)

A-to-D Resolution: >15 bit

Channel-to-Channel Isolation:

Isolation technique: Multiplexed
solid state switches.

Voltage rating: 110V AC rms,
±150V DC

Internal Ranges: 4 different mV ranges
12 Thermocouple types

Converter Scan Rate: 1.2 secs per
channel (2.6 seconds worst case)*

Integration Period: selectable for 50 or
60Hz rejection

Calibration Values: Stored in T112
EEROM

Break protection: Up or Down scale
(software selectable for each channel)

Break Protection Current: 2.5µA pulsed
for 80ms at scan rate (after
measurement)

Break Protection Time: 3.3mV/sec.

Common Mode Rejection: 120dB
(50Hz to 5kHz)

Series Mode Rejection: 60dB @ 50Hz

Thermocouple Input CJC Rejection:
30:1 typically

* The scan rate extends for every new
range selected due to additional inter-
nal measurements required.

Order Code. T112/TAG -----
(if the TAG is not specified it will be
supplied blank)

DESCRIPTION

The T112 eight channel thermocouple
input module provides an isolated inter-
face to eight thermocouple or bipolar
millivolt inputs. Thermocouple type,
ranging and cold junction compensa-
tion (CJC) is provided individually on
each channel.

Serviceability is enhanced by using two
special temperature sensing 8-way
plug and socket connectors housed in
a double height box. All T112 modules
are completely interchangeable since
calibration data is module-dependent
and stored in EEROM. The high accu-
racy of the CJC is maintained by using
a direct temperature measurement un-
derneath each termination pair on the
connector.

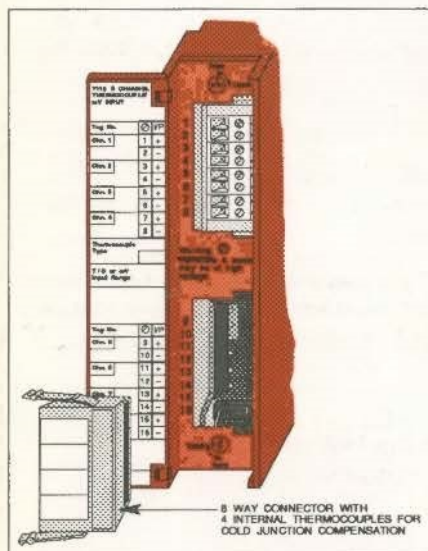


Figure 14 T112 8-Channel Thermo-
couple Input Module

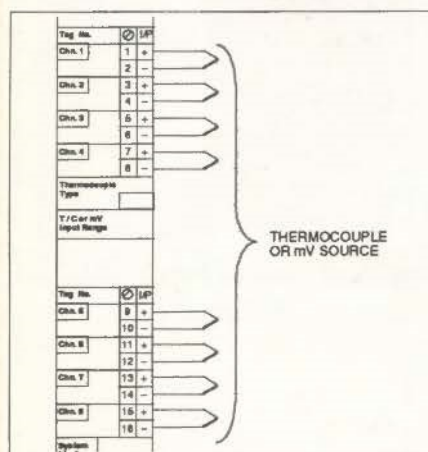


Figure 15 T112 Input Connections

Thermocouple Type T/C	Range Specifications (50Hz ¹)		Temperature Stability		
	Range (°C)	Resolution (°C)	Accuracy ² (±°C)	Gain (PPM/°C)	Offset (°C/°C)
J	-210 to 1200	0.05	0.4	45	0.043
K	-270 to 1372	0.05	0.4	50	0.075
T	-270 to 400	0.035	0.3	68	0.075
S	-50 to 1767	0.078	0.7	68	0.225
R	-50 to 1767	0.07	0.6	68	0.2
E	-270 to 1000	0.04	0.4	45	0.033
B	0 to 1820	0.055	0.5	100	0.3
N	0 to 1300	0.05	0.4	50	0.075
W	1000 to 2300	0.11	1.0	50	0.15
W ₃	0 to 2490	0.11	1.0	50	0.15
W ₅	0 to 2320	0.11	1.0	50	0.15
MoRe	0 to 1990	0.075	0.6	68	0.213

Table 6 T112 Standard Thermocouple Inputs

Input Range (mV)	Range Specifications (50 Hz ¹)		Temp. Stability	
	Resolution (µV)	Accuracy ² (±µV)	Gain (PPM/°C)	Offset (µV/°C)
-100 to 100	4.6	100	45	2.3
-65 to 65	3	65	50	2.3
-30 to 30	1.4	30	68	2.3
-15 to 15	0.7	15	100	2.3

Table 7 T112 Millivolt Inputs

Note 1 For operation at 60Hz, multiply figures for Resolution and Accuracy by a factor of 1.2.

Note 2 These figures represent the worst case resolution averaged over full range.