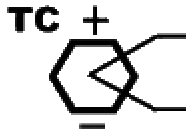


Thermocouple Module



The TTC218--S is a 7/8 channel thermocouple/mV input module for the Toshiba T2 Series PLC. This module is capable of receiving seven (7) type K, J, or E thermocouple inputs or eight (8) -100 to +100 mV inputs. Features include:

- ◆ 16 Bit Resolution.
- ◆ 1 ms Conversion Time/Channel.
- ◆ Linearization (for thermocouples).
- ◆ Cold Junction Compensation (for thermocouples).
- ◆ Burn-out Detection (for thermocouples).
- ◆ Average Value Calculation.

The TTC218--S modules mount in any T2E or T2N I/O slot. Several modules can be mounted in T2E or T2N racks to meet a variety of requirements.

For more information contact Toshiba's nearest programmable controller distributor, visit the Toshiba Houston website, www.tic.toshiba.com, or call Toshiba International Corp., Houston, Texas: 1-800-231-1412, 713-466-0277.

Specifications

ITEM	SPECIFICATION																																																																																												
Part Number	TTC218--S																																																																																												
Input Type	mV Input	Thermocouple Input																																																																																											
		Type K	Type J	Type E																																																																																									
Input Signal Range	-100 to 100 mV	-200 to 1200 °C	-200 to 800 °C	-200 to 600 °C																																																																																									
No. Of Input Channels	8 channels	7 channels	7 channels	7 channels																																																																																									
I/O Registers Assigned	8 (X 8W)																																																																																												
Input Impedance	1 MΩ or more																																																																																												
Resolution	16 Bit																																																																																												
Overall Accuracy	±2%/FS at 25 °C ±5%/FS: 0 - 55 °C																																																																																												
Functions	Cold Junction Compensation (TC input) Gain/Offset Adjustment (mV input) Burn-out Detection (TC Input)		Linearization (TC Input) Signal Averaging																																																																																										
A/D Conversion Table	<p>(a) mV input</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th></th> <th>Analog signal</th> <th>Digital value</th> <th>Resolution</th> </tr> </thead> <tbody> <tr> <td>Maximum</td> <td style="text-align: center;">100.2396 mV</td> <td style="text-align: center;">32767</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">3.125 μV / bit</td> </tr> <tr> <td>Full scale (+)</td> <td style="text-align: center;">100 mV</td> <td style="text-align: center;">32000</td> </tr> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">0 mV</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Full scale (-)</td> <td style="text-align: center;">-100 mV</td> <td style="text-align: center;">-32000</td> </tr> <tr> <td>Minimum</td> <td style="text-align: center;">-100.24 mV</td> <td style="text-align: center;">-32768</td> </tr> </tbody> </table> <p>(b) Type K input</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th></th> <th>Temperature</th> <th>Digital value</th> <th>Resolution</th> </tr> </thead> <tbody> <tr> <td>Maximum</td> <td style="text-align: center;">1370 °C</td> <td style="text-align: center;">27400</td> <td rowspan="6" style="text-align: center; vertical-align: middle;">0.05 °C / bit</td> </tr> <tr> <td>Full scale (+)</td> <td style="text-align: center;">1200 °C</td> <td style="text-align: center;">24000</td> </tr> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">0 °C</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Full scale (-)</td> <td style="text-align: center;">-200 °C</td> <td style="text-align: center;">-4000</td> </tr> <tr> <td>Minimum</td> <td style="text-align: center;">-270 °C</td> <td style="text-align: center;">-5400</td> </tr> <tr> <td>Burn-out</td> <td style="text-align: center;">-</td> <td style="text-align: center;">32767</td> </tr> </tbody> </table> <p>(c) Type J input</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th></th> <th>Temperature</th> <th>Digital value</th> <th>Resolution</th> </tr> </thead> <tbody> <tr> <td>Maximum</td> <td style="text-align: center;">1200 °C</td> <td style="text-align: center;">24000</td> <td rowspan="6" style="text-align: center; vertical-align: middle;">0.05 °C / bit</td> </tr> <tr> <td>Full scale (+)</td> <td style="text-align: center;">800 °C</td> <td style="text-align: center;">16000</td> </tr> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">0 °C</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Full scale (-)</td> <td style="text-align: center;">-200 °C</td> <td style="text-align: center;">-4000</td> </tr> <tr> <td>Minimum</td> <td style="text-align: center;">-210 °C</td> <td style="text-align: center;">-4200</td> </tr> <tr> <td>Burn-out</td> <td style="text-align: center;">-</td> <td style="text-align: center;">32767</td> </tr> </tbody> </table> <p>(d) Type E input</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Temperature</th> <th>Digital value</th> <th>Resolution</th> </tr> </thead> <tbody> <tr> <td>Maximum</td> <td style="text-align: center;">1000 °C</td> <td style="text-align: center;">20000</td> <td rowspan="6" style="text-align: center; vertical-align: middle;">0.05 °C / bit</td> </tr> <tr> <td>Full scale (+)</td> <td style="text-align: center;">600 °C</td> <td style="text-align: center;">12000</td> </tr> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">0 °C</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Full scale (-)</td> <td style="text-align: center;">-200 °C</td> <td style="text-align: center;">-4000</td> </tr> <tr> <td>Minimum</td> <td style="text-align: center;">-270 °C</td> <td style="text-align: center;">-5400</td> </tr> <tr> <td>Burn-out</td> <td style="text-align: center;">-</td> <td style="text-align: center;">32767</td> </tr> </tbody> </table>					Analog signal	Digital value	Resolution	Maximum	100.2396 mV	32767	3.125 μV / bit	Full scale (+)	100 mV	32000	0	0 mV	0	Full scale (-)	-100 mV	-32000	Minimum	-100.24 mV	-32768		Temperature	Digital value	Resolution	Maximum	1370 °C	27400	0.05 °C / bit	Full scale (+)	1200 °C	24000	0	0 °C	0	Full scale (-)	-200 °C	-4000	Minimum	-270 °C	-5400	Burn-out	-	32767		Temperature	Digital value	Resolution	Maximum	1200 °C	24000	0.05 °C / bit	Full scale (+)	800 °C	16000	0	0 °C	0	Full scale (-)	-200 °C	-4000	Minimum	-210 °C	-4200	Burn-out	-	32767		Temperature	Digital value	Resolution	Maximum	1000 °C	20000	0.05 °C / bit	Full scale (+)	600 °C	12000	0	0 °C	0	Full scale (-)	-200 °C	-4000	Minimum	-270 °C	-5400	Burn-out	-	32767
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Power Consumption	300 mA or less (5 Vdc)																																																																																												
External Power	24 Vdc ±10%, 120 mA																																																																																												
Weight	300 grams																																																																																												
NOTES:	<p>1. Input type is set by writing to the buffer memory and setting jumpers on the module for voltage or current.</p> <p>2. New T2 Series I/O modules have not be tested for compatibility with EX100 Series PLCs. If use of these modules is required in an EX100 system, the EX100 CPU should be upgraded to a T2E CPU.</p> <p>3. The T1-40 expansion racks (TBU102 &TBU104) are limited to 16 I/O registers maximum</p>																																																																																												