AstroNova®
Test & Measurement

ITCU-12

Universal Thermocouple Module

MODULE OVERVIEW

The ITCU-12 is a 12-channel thermocouple input module for the AstroNova TMX data acquisition systems. The ITCU-12 is ideal for high channel count applications requiring high accuracy.



MODULE HIGHLIGHTS

- **12 thermocouple inputs**
- **Supports all common thermocouple types**
- **Direct connectivity with standard Type U Mini-TC connectors**
- **High accuracy (<1 deg C J-Type)**
- **16-bit resolution**
- **250 Vrms or DC Cat II rated isolation**
- **50/60 Hz noise rejection**
- **Cold junction compensation**

ORDERING INFORMATION

Module Part Number: 32850010

ITEM	PART NO.	DESCRIPTION
HC-TMX	41047010	Hard Transport Case for TMX
HC-TMXE	41047020	Hard Transport Case for TMX and Expansion Chassis
SC-TMX	41047000	Soft Carry Case for TMX

ITCU-12 DETAILED SPECIFICATIONS

Channels per Module	12
Connector	Type U miniature thermocouple
Rated Isolation	250 VRMS or DC, Cat II.
Thermocouple types	J,K,E,T,N,B,R,S,C
Cold Junction Compensation	Yes
A/D	24 bit Sigma Delta (one per channel)
Anti-Aliasing Filter	Inherent
Resolution	0.01 °C
Bandwidth/Sample Rate	6 Hz update rate (TC sampled at 3 Hz) [1600 Hz / 800 Hz]
Absolute Max Input	+/- 10V
Specified Range Type K:	-200 to 1372 °C
Specified Range Type E:	-200 to 1000 °C
Specified Range Type T:	-200 to 400 °C
Specified Range Type N:	-200 to 1300 °C
Specified Range Type B:	600 to 1820 °C (250 to 1820 on menu)
Specified Range Type R:	0 to 1767 °C (-20 to 1768 on menu)
Specified Range Type S:	0 to 1767 °C (-20 to 1768 on menu)
Specified Range Type C:	0 to 2316 °C
Accuracy (25°C) J (<0) +/- 3.0 °C [+/- 3.0 °C]	
Accuracy (25°C) J (0 to 1200)	+/- 1.0 °C [+/- 1.5 °C]
Accuracy (25°C) K (<0)	+/- 2.5 °C [+/- 2.5 °C]
Accuracy (25°C) K (0 to 1372)	+/- 1.5 °C [+/- 2.0 °C]
Accuracy (25°C) E (<-100)	+/- 2.0 °C [+/- 2.0 °C]
Accuracy (25°C) E (-100 to 1000)	+/- 1.0 °C [+/- 1.5 °C]
Accuracy (25°C) T (<-100)	+/- 3.0 °C [+/- 3.0 °C]
Accuracy (25°C) T (-100 to 400)	+/- 1.0 °C [+/- 1.5 °C]
Accuracy (25°C) N (<-50)	+/- 1.5 °C [+/- 2.0 °C]
Accuracy (25°C) N (-50 to 1300)	+/- 0.8 °C [+/- 1.5 °C]
Accuracy (25°C) B	+/- 4.5 °C [+/- 4.5 °C]
Accuracy (25°C) R	+/- 4.0 °C [+/- 4.0 °C]
Accuracy (25°C) S	+/- 4.0 °C [+/- 4.0 °C]
Accuracy (25°C) C (W5ReM26Re)	+/- 2.5 °C [+/- 3.0 °C]
Accuracy (25°C) 100 Mv	+/- 0.05% of attenuator [+/- 0.35% of attenuator]
Cold Start Drift	+/- 0.002% of attenuator
Compensation Error	Included in above accuracy specification
Intrinsic Noise (pk-pk, J,N)	< 0.15 °C [< 2.0 °C]
Intrinsic Noise (pk-pk, K,E,T)	< 0.10 °C [< 1.7 °C]
Intrinsic Noise (pk-pk, B,R,S)	< 1.0 °C [< 5.0 °C]
Intrinsic Noise (pk-pk, C)	< 0.5 °C [< 3.0 °C]
Intrinsic Noise (pk-pk, 100 mV)	< 0.007 % of attenuator [< 0.04 % of attenuator]
IMR	> 110 dB @ DC
Linearization	NIST ITS-90

Note: Specified accuracy does not include probe errors. Specifications in square brackets [] apply to 800 Hz TC input sampling. Fast mode sampling applies to V:1.8 system software and V:1.2 DSP software and above. Ext CJC option available for module purchases made after October 2012.

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