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Test & Measurement

IEPE-6

6-Channel Isolated IEPE (ICP[®]) Sensor or Voltage Input Module for TMX Data Acquisition Systems

MODULE OVERVIEW

The IEPE-6 input module provides 6 voltage or isolated Integrated Electronics Piezo-Electric (IEPE / ICP[®]) sensor inputs with excitation.



MODULE HIGHLIGHTS

- Per-channel selectable voltage or IEPE inputs with excitation
- Simultaneous sampling at up to 800kS/s/ch
- 16-bit resolution
- 250Vrms or DC, Cat II isolation
- Three user-selectable measurement ranges to maximize resolution
- Built-in frequency counter
- Insulated BNC connections
- Support for Transducer Electronic Data Sheets (TEDS)

ORDERING INFORMATION

Module Part Number: 32850050

ITEM	PART NO.	DESCRIPTION
SC-TMX	41047000	Soft Carry Case for TMX
HC-TMX	41047010	Hard Transport Case for TMX
TMX-E	42885000	TMX Expansion Chassis for up to three additional Input Modules
TMX-OS	14004600	TMX Offline Software for 1 user
TMX-DAT	26801350	Additional 1 TB Data Capture Drive
AstroDock	42832500	PC Docking Station for use with TMX removable drives

IEPE-6 DETAILED SPECIFICATIONS

GENERAL	
Channels Per Module	6
Connector	Insulated BNC
Sample Rate	800 kS/s/ch (400 kS/s/ch when using TMX-E or TMX-R)
Bandwidth	60 KHz (-3dB) 1V and 5V attenuators 65 KHz (-3dB) 10V attenuator
A/D	16 bit SAR (one per channel)
Rated Isolation	250 VRMS or DC, Cat II (iso-common to chassis and other iso-commons)*
Max Transient Input	+/- 30 V (no damage)
Measurement Ranges	+/- 10 V +/- 5 V +/- 1 V (0.1 VFS minimum span)
Accuracy (25°C)	0.12 % of attenuator
Intrinsic Noise (pk-pk)	< 0.02% of attenuator + .14% of span (10 V att) < 0.05% of attenuator + .12% of span (5 V att) < 0.18% of attenuator + .1% of span (1 V att)
Input	SE AC coupled w/ constant current excitation or SE DC coupled w/o excitation
Coupling Time Constant	10 s (+/- 20%) (10µF / 1MΩ)
Anti-Aliasing Filter	4 pole Bessel
HW gain for span adjustment	Yes
Cold Start Drift	< 0.04% of attenuator + .07% of span (60 min)
Min Input Impedance	1 MΩ (SE DC coupled mode)
Overshoot	< 1%
IMR at 60 Hz	> 90 dB
Excitation	4.5 mA DC current
Excitation Accuracy (25°C)	20%
Excitation Compliance Voltage	20V (Approx 24V open circuit voltage)
Excitation Protection	Short Circuit Protected
TEDS Capability	Yes, Class I

* Isolation limited to 30 Vrms or 60V DC when non-insulated mating BNC connector used since hazardous voltage would otherwise be accessible.

COUNTER TIMER / MATH FUNCTIONS	
Frequency Counter Capability	Yes, first channel. Software selectable
Counter Modes	Gated time-frequency counter, cycle-based frequency counter, pulse counter, pulse width detector, period width detector, and duty cycle detector
Frequency ctr range (menu)	Up to 120 KHz
Frequency ctr range (spec'd)	2 - 70 KHz (48 Hz - 70 KHz for cycle-based frequency counter)
Frequency ctr accuracy	+ 0.01% of Measurement + .002 Hz
Min counter input amplitude	25% of span for freq and pulse counters, 90% of span for all other modes
Pulse counter range	64000000 maximum. (16-bit display resolution)
Pulse width accuracy	0.7 µs +.00167% of span
Pulse width range	10 µs - 40000 µs
Edge separation accuracy	.002% of measurement + .00167% of span + 0.7 µs
Edge separation range	100 µs - 5000000 µs
Period width accuracy	.02% of measurement + .00167% of span with a maximum of 1.0 µs
Period width range	20 µs - 80000 µs (12.5 Hz - 50 KHz)
Duty cycle accuracy	.5% (Inputs in the 15 Hz - 8 KHz range with 20% - 80% duty cycles)
Integration	Yes - Processing by DSP, menu selectable (1/80th of the sample rate.)
Differentiation	Yes - Processing by DSP, menu selectable (1/8th of the sample rate.)

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