VTI Instruments

AMETEK PROGRAMMABLE POWER

EX1400 SERIES

ADVANCED, FULL-FEATURED, PRECISION DATA ACQUISITION

The VTI Instruments EX1400 Product family features an advanced, full-featured data acquisition series designed to acquire precision data from temperature, strain, and voltage sensors. It is designed to provide the highest level of performanceand ease of use for any data acquisition application.

EX1401

16-CHANNEL ISOLATED THERMOCOUPLE AND VOLTAGE MEASUREMENT INSTRUMENT

FEATURES

- Typical accuracies of ±0.20°C
- 16-channel isolated universal thermocouple/ voltage inputs
- 20K samples/second/channel sample rate
- 24-bit ADC per channel
- 1000 V channel-channel isolation
- 500 V channel-ground isolation

EX1402

16-CHANNEL ISOLATED HIGH VOLTAGE MEASUREMENT INSTRUMENT

FEATURES

- 24-bit SAR ADC per Channel
- 128k samples/second/channel sample rate
- 1000V channel-channel isolation
- 500V channel-ground isolation
- Input voltage ranges peak: ±420V/±10V/±1V
- 3-Pin screw terminal input connector

EX1403A

16-CHANNEL BRIDGE AND STRAIN GAUGE MEASUREMENT INSTRUMENT

FEATURES

- 24-bit, delta-sigma ADC, simultaneous sampling
- Programmable Sample Rate up to 128kSPS
- Full, Half & Quarter Bridge with 120Ω, 350Ω & 1kΩ bridge completion
- 2-Wire & 4-Wire Ohms/RTD
- Bridge Zero Balancing
- Strain Lead Wire Calibration
- Shunt Calibration: 50kΩ, 100kΩ & External provided by User
- TEDS Support

OTHER COMMON FEATURES INCLUDE:

- Data logger acquisition mode
- Built-in parallel data streaming
- Full-featured embedded web interface
- LXI Ethernet interface
- 8-bit bank isolated digital I/O
- Compact 1U half-rack form factor
- IEEE-1588 synchronization
- Power over Ethernet+ (PoE+)
- Built-In-Self-Test (BIST)
- Driver support: IVI, Linux, Labview, driverless REST interface

APPLICATIONS:

EX1401: Battery and fuel cell test / Thermal data acquisition / Gas turbine test / HALT/HASS / In-vehicle automotive test / Electric motor test / Wind tunnel evaluation / Rocket motor reliability / Health monitoring

EX1402: Battery and fuel cell test / Data acquisition / Gas turbine test / HALT/HASS / Health monitoring

EX1403A: Airframe structural and fatigue test / Rocket and satellite structural test / Wind tunnel flight load test / General purpose bridge measurements / Load frame materials testing

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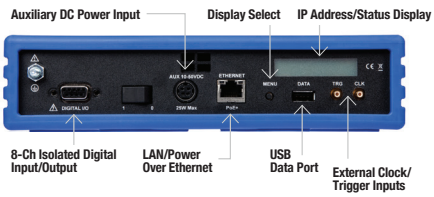
EX1400 SERIES

ADVANCED, FULL-FEATURED PRECISION DATA ACQUISITION

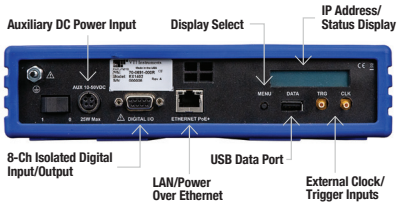
EX1401



EX1401 GENERAL SPECIFICATIONS

ADC	24-bit Sigma Delta	
Acquisition Speed	20Ksa/S	
Digitial IO Channels	8	
Measurment Type	Thermocouples, ±10V	
Ranges	0.01V, 0.1V, 1V, 10V	
Transducers	All TC types	
Input Type	Differential	
Input Connector Type	Mini TC	
Isolation	500V to Ground, 1000V channel-to-channel	
Filtering Options	Digital programmable	
Resolution	±0.01 V	1.7 uV
	±0.1 V	150 nV
	±1.0 V	13.5 nV
	±10.0 V	1.7 nV
	Thermocouple	< 0.001 °C
Power Requirements	10VDC-50VDC, 12 W typical, 15 W max	
PoE+	12 W typical, 15 W max	
Accuracy - Typical	±0.01 V Range	± (0.050% + 5uV) Max: ± (0.145% + 9uV)
	±0.1 V Range	± (0.020% + 7uV) Max: ± (0.035% + 15uV)
	±1.0 V Range	± (0.020% + 40uV) Max: ± (0.030% + 50uV)
	±10.0 V Range	± (0.020% + 400uV) Max: ± (0.030% + 500uV)
	TC Type J, K, T, E, N	± (0.020% + 0.2°C) Max: ± (0.040% + 0.4°C)
	TC Type S, R	± (0.020% + 0.6°C) Max: ± (0.040% + 1.3°C)
	TC Type B	± (0.020% + 0.9°C) Max: ± (0.040% + 1.8°C)
Interface	Ethernet LXI	
Clock Sync	External 10MHz clock, and IEEE-1588 PTP-V2	
Data Logging	Stream over Ethernet and / or Stream to USB	
Onboard Memory	256Mb	

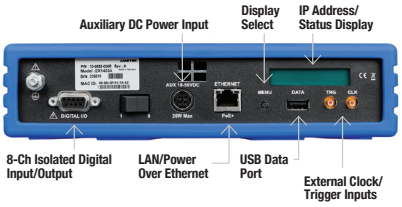
EX1402



EX1402 GENERAL SPECIFICATIONS

ADC	24-bit SAR	
Acquisition Speed	128Ksa/S	
Digitial IO Channels	8	
Measurment Type	±420V	
Ranges	1V, 10V, 420V	
Transducers	Voltage inputs	
Input Type	Differential	
Input Connector Type	3 Pin screw terminal block, 5mm pitch (0.197in) single row	
Isolation	500V to Ground, 1000V channel to channel	
Filtering Options	Digital programmable	
Resolution	±1V	150 nV
	±10V	1.7 uV
	±420V	63 uV
Power Requirements	110VDC-50VDC, 12 W typical, 15 W max	
PoE+	12 W typical, 15 W max	
Accuracy - Typical	1V Range	± [(0.03%+9PPM/°C)Rdng + 0.002%Rng + 2µV/°C]
	10V Range	± [(0.03%+10PPM/°C)Rdng +0.002% Rng+ 5µV/°C]
	420V Range	± [(0.05%+25PPM/°C)Rdng + 0.002% Rng+ 66µV/°C]
Interface	Ethernet LXI	
Clock Sync	External 10MHz clock, and IEEE-1588 PTP-V2	
Data Logging	Stream over Ethernet and / or Stream to USB	
Onboard Memory	256Mb	

EX1403A



EX1403A GENERAL SPECIFICATIONS

ADC	24-bit Sigma Delta	
Acquisition Speed	128Ksa/S	
Digitial IO Channels	8	
Measurment Type	Full, Half & Quarter Bridge with 120Ω, 350Ω & 1kΩ bridge completion, 2-Wire & 4-Wire Ω / RTD, 0-20KΩ	
Ranges	200Ω, 2KΩ, 20KΩ	
Transducers	120Ω, 350Ω, 1KΩ, 1/4, 1/2 and full bridge strain gauges	
Input Type	Differential	
Input Connector Type	RJ45	
Isolation	No Channel to ground isolation, ESD protected to ±10kV	
Filtering Options	Digital programmable	
Resolution	0.1V	15 nV
	1V	150 nV
	10V	1.7 uV
	Strain ¼ & ½ (40kµε Vexc=5V GF=2)	0.005µε
	200Ω	30 uΩ
	2KΩ	300 uΩ
	20KΩ	3 mΩ
Power Requirements	10VDC-50VDC, 12 W typical, 15 W max	
PoE+	12 W typical, 15 W max	
Accuracy - Typical	0.1V Range	± [(0.10%+53PPM/°C) Rdng + 9µV + 1µV/°C
	1V Range	± [(0.10%+63PPM/°C) Rdng + 53µV + 5µV/°C
	10V Range	± [(0.10%+28PPM/°C) Rdng + 442µV + 50µV/°C
	¼ Bridge 120Ω	± [(0.10%+53PPM/°C) Rdng + 15µε +14µε/°C
	½ & ¼ Bridge 350Ω & 1kΩ	± [(0.10%+53PPM/°C) Rdng + 15µε +6µε/°C
	2/4Wire-Ohms & RTD(Ω)	± [(0.05%+53PPM/°C) Rdng +(0.01%+0.001%/°C) Rng]
Interface	Ethernet LXI	
Clock Sync	External 10MHz clock, and IEEE-1588 PTP-V2	
Data Logging	Stream over Ethernet and / or Stream to USB	
Onboard Memory	256Mb	

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