

LXinstruments GmbH
Rudolf-Diesel-Str. 36
71154 Nufringen
Germany



TECHNICAL PRODUCT INFORMATION

Test & measurement instruments

- high - quality
- moderate prices
- excellent precision

Your contact:

Technical support, services, demo & rental equipment, price information
& quotes, consulting:

Tel.: +49(0)7032 / 895 93-3

Mail: sales@lxinstruments.com

Web: www.lxinstruments.com

Shop: www.lxinstruments.com/shop

EX1400 SERIES

ADVANCED, FULL-FEATURED, PRECISION DATA ACQUISITION

The AMETEK VTI Instruments EX1400 Product family features an advanced, full-featured data acquisition series designed to acquire precision data from temperature, strain, and voltage sensors. Would rather put something common here like: The EX1400 family of instruments is designed to provide the highest level of performance and ease of use for any data acquisition application.



EX1401

**16-CHANNEL ISOLATED
THERMOCOUPLE AND VOLTAGE
MEASUREMENT INSTRUMENT**

FEATURES

- > Typical accuracies of $\pm 0.20^{\circ}\text{C}$
- > 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: $\pm 420\text{V}/\pm 10\text{V}/\pm 1\text{V}$
- > 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 120 Ω , 350 Ω & 1k Ω bridge completion
- > 2-Wire & 4-Wire 0hms/RTD
- > Bridge Zero Balancing
- > Strain Lead Wire Calibration
- > Shunt Calibration: 50k Ω , 100k Ω & 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

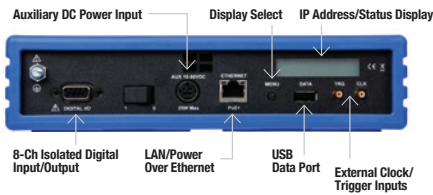
APPLICATIONS:

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

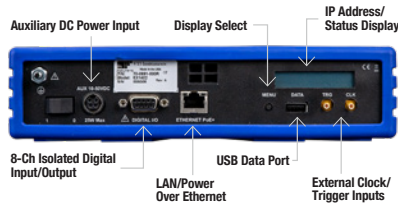
EX1401



EX1401 GENERAL SPECIFICATIONS

ADC	24-bit Sigma Delta	
Acquisition Speed	20Ksa/S	
Digital IO Channels	8	
Measurement Type	Thermocouples, $\pm 10V$	
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	$\pm 0.01 V$	1.7 μV
	$\pm 0.1 V$	150 nV
	$\pm 1.0 V$	13.5 nV
	$\pm 10.0 V$	1.7 nV
	Thermocouple	$< 0.001 ^\circ C$
Power Requirements	10VDC-50VDC, 12 W typical, 15 W max	
PoE+	12 W typical, 15 W max	
Accuracy - Typical	$\pm 0.01 V$ Range	$\pm (0.050\% + 5\mu V)$ Max: $\pm (0.145\% + 9\mu V)$
	$\pm 0.1 V$ Range	$\pm (0.020\% + 7\mu V)$ Max: $\pm (0.035\% + 15\mu V)$
	$\pm 1.0 V$ Range	$\pm (0.020\% + 40\mu V)$ Max: $\pm (0.030\% + 50\mu V)$
	$\pm 10.0 V$ Range	$\pm (0.020\% + 400\mu V)$ Max: $\pm (0.030\% + 500\mu V)$
	TC Type J, K, T, E, N	$\pm (0.020\% + 0.2^\circ C)$ Max: $\pm (0.040\% + 0.4^\circ C)$
	TC Type S, R	$\pm (0.020\% + 0.6^\circ C)$ Max: $\pm (0.040\% + 1.3^\circ C)$
	TC Type B	$\pm (0.020\% + 0.9^\circ C)$ Max: $\pm (0.040\% + 1.8^\circ C)$
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	

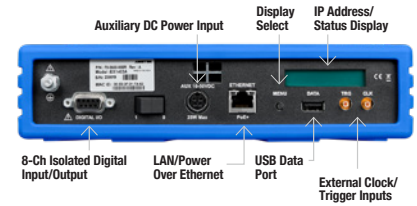
EX1402



EX1402 GENERAL SPECIFICATIONS

ADC	24-bit SAR	
Acquisition Speed	128Ksa/S	
Digital IO Channels	8	
Measurement Type	$\pm 420V$	
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	$\pm 1V$	150 nV
	$\pm 10V$	1.7 μV
	$\pm 420V$	63 μV
Power Requirements	110VDC-50VDC, 12 W typical, 15 W max	
PoE+	12 W typical, 15 W max	
Accuracy - Typical	1V Range	$\pm [(0.03\% + 9PPM/^\circ C)R_{dng} + 0.002\%R_{ng} + 2\mu V/^\circ C]$
	10V Range	$\pm [(0.03\% + 10PPM/^\circ C)R_{dng} + 0.002\%R_{ng} + 5\mu V/^\circ C]$
	420V Range	$\pm [(0.05\% + 25PPM/^\circ C)R_{dng} + 0.002\%R_{ng} + 66\mu V/^\circ C]$
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	
Digital IO Channels	8	
Measurement Type	Full, Half & Quarter Bridge with 120 Ω , 350 Ω & 1k Ω bridge completion, 2-Wire & 4-Wire Ω / RTD, 0-20K Ω	
Ranges	200 Ω , 2K Ω , 20K Ω	
Transducers	120 Ω , 350 Ω , 1K Ω , 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 $\pm 10kV$	
Filtering Options	Digital programmable	
Resolution	0.1V	15 nV
	1V	150 nV
	10V	1.7 μV
	Strain $\frac{1}{4}$ & $\frac{1}{2}$ (40k $\mu\epsilon$ Vexc=5V GF=2)	0.005 $\mu\epsilon$
	200 Ω	30 $\mu\Omega$
	2K Ω	300 $\mu\Omega$
Power Requirements	20K Ω	3 m Ω
	10VDC-50VDC, 12 W typical, 15 W max	
	12 W typical, 15 W max	
	0.1V Range	$\pm [(0.10\% + 140PPM/^\circ C)R_{dng} + 9\mu V + 1\mu V/^\circ C]$
	1V Range	$\pm [(0.10\% + 60PPM/^\circ C)R_{dng} + 53\mu V + 5\mu V/^\circ C]$
	10V Range	$\pm [(0.10\% + 10PPM/^\circ C)R_{dng} + 442\mu V + 50\mu V/^\circ C]$
Accuracy - Typical	$\frac{1}{4}$ Bridge 120 Ω	$\pm [(0.10\% + 140PPM/^\circ C)R_{dng} + 15\mu\epsilon + 14\mu\epsilon/^\circ C]$
	$\frac{1}{2}$ & $\frac{1}{4}$ Bridge 350 Ω & 1k Ω	$\pm [(0.10\% + 140PPM/^\circ C)R_{dng} + 15\mu\epsilon + 6\mu\epsilon/^\circ C]$
	2/4Wire-Ohms & RTD(Ω)	$\pm [(0.05\% + 140PPM/^\circ C)R_{dng} + 0.01\%R_{ng}]$
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	