

INTEGRATED DATA ACQUISITION SIGNAL CONDITIONING SYSTEMS

sentinel**EX**

RELIABLE DATA FIRST TIME EVERY TIME





Interoperability and Flexibility without Compromise

VTI delivers precision instrumentation for the world's most demanding test applications. Our solutions provide reliable data, first time, every time. VTI's mission critical data acquisition solutions are used to monitor and record data that characterizes the physical integrity and performance of aircraft, engines, large structures, and complex electronic systems. Knowing that we serve a wide range of applications, from critical infrastructure to flight safety and troop security, defines our ongoing commitment to product performance and quality.

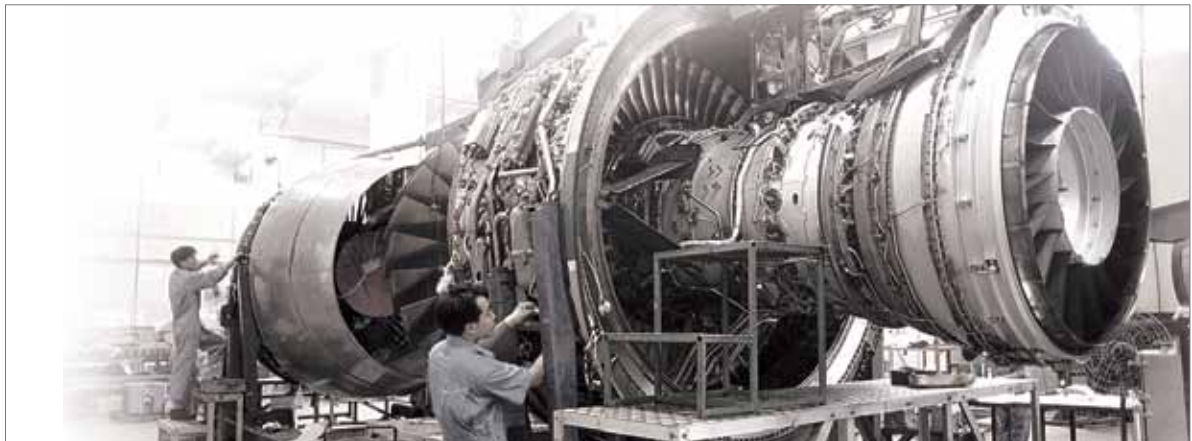
For over 20 years, we have developed and provided precision integrated data acquisition solutions. Our recently expanded sentinelEX Integrated Data Acquisition Family builds upon this with solutions capable of delivering complete corporate-wide coverage spanning a broad range of applications and measurement types.

- Personalized hardware configurability and customization
- Unmatched signal integrity and measurement performance
- Speeds ranging from dynamic, high-speed to steady state
- Applications ranging from several channels to thousands of channels
- Complete application space coverage regardless of the type of measurement type or transducer

Platform Independent Solutions

The sentinelEX product family delivers complete application space coverage with solutions designed to meet your challenging, and changing, data acquisition requirements. Solution set interoperability ensures that test system investments are maximized by using hardware that can be tailored to meet unique requirements, and by leveraging a common software Application Programming Interface (API).

MEASUREMENT SOLUTIONS							
	EMX Series	EX1000A EX1000A-TC	EX1016A EX1032A	EX1048A	EX10SC	EX1266	EX1629
Voltage	●	●	●		●	●	●
Voltage (> 15 V)	●				●	●	
Thermocouple	●	●	●	●	●	●	
RTD/Thermistor	●				●	●	
Bridge (Strain/Pressure)	●				●		●
Load/Force	●				●		●
Frequency/RPM	●				●	●	
Resistance	●				●	●	
Digital I/O	●	●	●	●		●	●
Analog Output	●					●	
RTD Simulator	●					●	
Shock/Vibration/Acceleration	●						
Acoustics	●						
Deterministic Control	●						
Isolation	●				●		
Measurement Speed	Fast	Medium	Medium	Medium	Slow	Slow	Medium





EMX Series

Precision Reconfigurable Modular Instrumentation

The EMX series, VTI's latest addition to the sentinelEX product family, delivers unprecedented speed, measurement performance, and hardware customization. Advanced system-on-a-chip (SoC) hardware enhancement, coupled with open-platform software tools, allows unparalleled hardware optimization for real-time data manipulation.

Combining best-in-class noise immunity, unmatched excitation flexibility, aggressive anti-aliasing filters, and low distortion frequency performance with unsurpassed uptime through embedded self-test and self-calibration results in one common solution delivering unsurpassed system level measurement confidence. Modular and scalable, the EMX series is easily customized to meet changing application needs, all within the common sentinelEX family framework.



EMX Series

Precision Reconfigurable Modular Instrumentation

DYNAMIC SIGNAL ANALYSIS/NVH

MODEL NAME	DESCRIPTION
EMX-4150	144 kSa/s DSA instrument, 16 independent channels, <500 μ V DC measurement performance, optimized for AC and DC coupled transducers, 24-bit, advanced hardware system-on-a-chip (SoC) and FPGA personalization, compatible with ICP signal conditioning accessories, internal self-test/self-calibration.
EMX-4250	204.8 kSa/s DSA instrument, 16 independent channels, 24-bit, exceptional general purpose digitizer optimized for AC coupled transducers, advanced hardware system-on-a-chip (SoC) and FPGA personalization, compatible with ICP signal conditioning accessories, internal self-test/self-calibration.
EMX-4350	409.6 kSa/s DSA instrument, 4 independent, differential channels, >98 dB distortion and 0.01 dB flatness, CMRR of -160 dB, <500 μ V DC measurement performance, aggressive anti-aliasing filters, programmable 2 mA to 20 mA excitation, 24-bit, advanced hardware system-on-a-chip (SoC) and FPGA personalization, internal self-test/self-calibration.
EMX-1434	192 kSa/s arbitrary waveform source, 4 independent channels, integrated tachometer, synchronized DSA source and rotational measurement capability, 8 channels DIO, internal self-test/self-calibration.
EMX-3241	ICP/voltage signal conditioning breakout box (BoB), 16 independent channels, excitation and signal conditioning for a wide variety of accelerometers, acoustics, and other transducers.

BRIDGE/TEMPERATURE/VOLTAGE/ISOLATION

MODEL NAME	DESCRIPTION
EMX-5290	144 kSa/s strain and voltage instrument, 12 independent channels, 24-bit, internal bridge completion and shunt calibration, independent regulated bridge excitation, TEDS support, internal self-test/self-calibration.
EMX-1481	128 kSa/s isolated thermocouple and voltage instrument, 12 independent channels, 500 V isolation, ± 0.1 $^{\circ}$ C accuracy, 24-bit, real-time open transducer detection, ± 10 V signal capability, internal self-test/self-calibration.
EMX-1480	128 kSa/s non-isolated thermocouple and voltage instrument, 12 independent channels, ± 0.1 $^{\circ}$ C accuracy, 24-bit, real-time open transducer detection, ± 10 V signal capability, along with internal self-test/self-calibration.
EMX-1581	128 kSa/s isolated RTD and voltage instrument, 12 independent channels, 500 V isolation, ± 0.001 $^{\circ}$ C accuracy, 24-bit, programmable excitation to 480 μ A, ± 10 V signal capability, internal self-test/self-calibration.
EMX-1580	128 kSa/s non-isolated RTD and voltage instrument, 12 independent channels, ± 0.001 $^{\circ}$ C accuracy, 24-bit, programmable excitation to 480 μ A, ± 10 V signal capability, internal self-test/self-calibration.

EMX Series

Precision Reconfigurable Modular Instrumentation

PYRO/SHOCK/HIGH-SPEED

MODEL NAME	DESCRIPTION
EMX-6010	10 MSa/s high-speed instrument, 8 independent channels, 16-bit, 1 MHz bandwidth, aggressive anti-aliasing filters > -80 dB per octave, 10x oversampling, and extensive on-board signal processing capabilities, advanced hardware system-on-a-chip (SoC) and FPGA personalization, internal self-test/self calibration.

INTEGRATED CHASSIS/CONTROLLERS

MODEL NAME	DESCRIPTION
EMX05	5-slot (1 hybrid slot) rugged conduction cooled chassis, integrated Gigabit Ethernet LXI interface, dust- and splash-proof, extended temperature range, IEEE 1588 distributed chassis/instrument synchronization, DC power.
EMX09	9-slot (1 hybrid slot) flexible 4U chassis, integrated Gigabit Ethernet LXI interface, smart panel display for health monitoring and control, IEEE 1588 distributed chassis/instrument synchronization, AC and DC power options.
EMX18	18-slot (8 hybrid slot) 4U chassis integrated Gigabit Ethernet LXI interface, multifunction power switch/diagnostic display, IEEE 1588 distributed chassis/instrument synchronization, high-speed switched serial backplane.

EX1000A EX1629 Series

High-Density Temperature, Strain, and Voltage Instrumentation



Ideally suited for high channel count temperature, bridge, and voltage measurements, the EX1000A/EX1629 series instruments deliver superior measurement accuracy and repeatability across a wide range of applications. Fully integrated independent signal conditioning paths, advanced cold-junction compensation (CJC), independent 24-bit A/D converters per channel, extensive software selectable filtering, and complete end-to-end self-calibration ensure reliable data first time, every time.

MODEL NAME	DESCRIPTION
EX1000A	1 kSa/s precision voltage (± 10 V) instrument, 48 channel, independent signal conditioning per channel, 1 U compact footprint, programmable low pass filter per channel, internal self-test/self-calibration.
EX1000A-TC	1 kSa/s precision thermocouple and voltage (± 10 V) instrument, 48 channel, independent selection of thermocouple or voltage on a per channel basis, independent signal conditioning per channel, ± 0.2 °C accuracy, independent programmable low pass filter per channel, internal self-test/self-calibration.
EX1016A	1 kSa/s precision thermocouple and voltage instrument, 16 thermocouple channels / 32 voltage channels (± 10 V), independent selection of thermocouple or voltage on a per channel basis, independent signal conditioning per channel, ± 0.2 °C accuracy, independent programmable low pass filter per channel, internal self-test/self-calibration.
EX1032A	1 kSa/s precision thermocouple and voltage instrument, 32 thermocouple channels / 16 voltage channels (± 10 V), independent selection of thermocouple or voltage on a per channel basis, independent signal conditioning per channel, ± 0.2 °C accuracy, independent programmable low pass filter per channel, internal self-test/self-calibration.
EX1048A	1 kSa/s precision thermocouple, 48 thermocouple channels, independent signal conditioning per channel, ± 0.2 °C accuracy, 1 U compact footprint, independent programmable low pass filter per channel, internal self-test/self-calibration.
EX1629	25 kSa/s precision strain/bridge and voltage instrument, 48 independent channels, 24-bit ADC per channel, integrated TEDS, independent bipolar excitation, ± 15 V measurement range, extensive software selectable filtering, internal self-test/self-calibration.
EX10SC	Signal conditioning accessory, 16 channel, individually configurable for voltage, thermocouple, RTD, current, frequency, strain/bridge, thermistor, or pressure. Compatible with EX1000A, EX1016A, and EX1032A.

EX1200 Series

General Purpose Data Acquisition Instrumentation



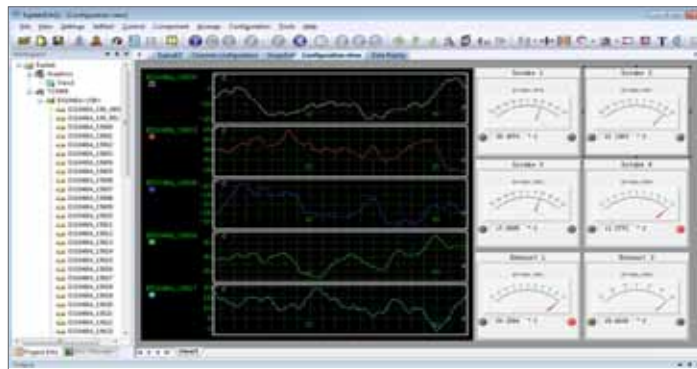
Optimized performance and scalability can be found in the EX1200 series precision switch, measure, and I/O instrument. This cost-effective solution is ideal for a wide range of common data acquisition signal types and transducer inputs, combining measurement accuracy with flexible configuration alternatives.

MODEL NAME	DESCRIPTION
EX1262	2-slot, 1U half-rack instrument with integrated 6.5 digit DMM, internal 300 V measurement bus, Ethernet interface, built-in webserver and LXI trigger bus.
EX1266	6-slot, 1U instrument with integrated 6.5 digit DMM, internal 300 V measurement bus, Ethernet interface, built-in webserver and LXI trigger bus.
EX1268	16-slot, 3U instrument with integrated 6.5 digit DMM, internal 300 V measurement bus, Ethernet interface, built-in webserver and LXI trigger bus.
EX1200-3048	48-channel, dual (1x24) 2-wire, 300 V / 2 A multiplexer. Unmatched performance for density - 60 W, 125 VA switching, 40 MHz bandwidth.
EX1200-3048S	48-channel, dual (1x24) 2-wire, 250 V, high-speed FET multiplexer, 250 V switching, infinite life and are ideal for applications that require high-speed switching over prolonged periods like battery tests and thermocouple and RTD switching.
EX1200-3072	72-channel, dual (1x36) 2-wire, 300 V / 2 A multiplexer. Best-in-class performance at this density - 60 W, 125 VA switching, 40 MHz bandwidth.
EX1200-3096	96-channel, dual (1x48) 2-wire, 100 V / 1 A multiplexer.
EX1200-7500	64-channel, time-stamped 8-bit 8-port DIO and relay driver (300 mA sink and upto +60 V) with 2.5 MHz clock rate. Large on-board memory (2 MB) and extensive synchronization and triggering.
EX1200-1538	The only solution capable of delivering 8-channels of independent 1 MHz frequency / 32-bit counter inputs, 16 channels of isolated digital I/O, and 2 channels of isolated analog output (DAC) in a single instrument.
EX1200-3604	4-channel independent, isolated, 500 kSA/s, 16-bit current (20 mA) and voltage (+20 V) source with extensive triggering capability. Connect in series to achieve up to 160 mA or 160V output.
EX1200-3608	8-channel independent, isolated, 500 kSA/s, 16-bit current (20 mA) and voltage (+20 V) source with extensive triggering capability. Connect in series to achieve up to 160 mA or 160V output.

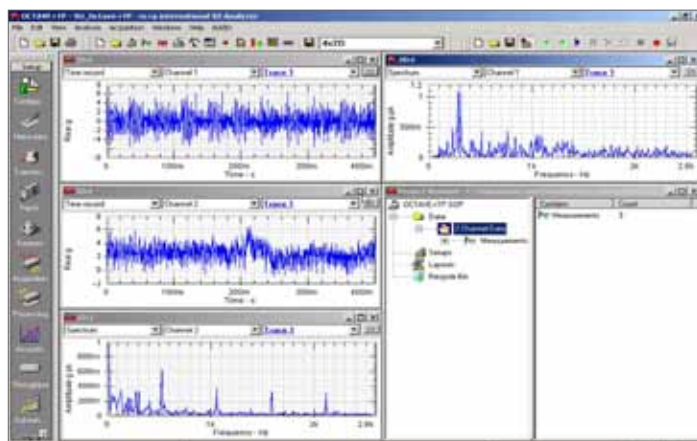
Software

Turn key Data Acquisition, NVH, and DSA Software Solutions

VTI's intuitive turn key data acquisition software solutions offer broad application space coverage ranging from general purpose data logging to specialized applications such as acoustic analysis. These proven solutions can easily scale from tens to thousands of channels, address time and frequency domain requirements, display data in a variety of formats, monitor alarm conditions, and perform specialized analysis.



This screenshot shows a software interface displaying a large table of data. The table has many columns, including what appears to be channel names, numerical values, and status indicators. The data is organized in a grid format.



EXPLab

General Purpose Data Acquisition

MODEL NAME	DESCRIPTION
EXPLab-Lite	General purpose, turn-key data acquisition software, support for up to 144 channels, automatic device discovery with intelligent configuration, support for multiple instrument types and configurations, extensive time domain displays and data viewing capabilities, and data logging.
EXPLab-Standard	Extends EXPLab-Lite capability with 384-channel support, real-time FFT displays, advanced data logging and triggering capabilities, and runtime alarms.
EXPLab-Professional	Extends EXPLab-Standard capability with 1000-channel support, post analysis functionality, advanced file management, and multiple client data publishing/display.
EXPLab-Enterprise	Extends EXPLab-Professional capability with unlimited channel support, remote monitoring and control, support for up to five (5) remote clients, and optional client support.
EXPLab-Standard-Analysis	Post analysis data acquisition capability including data import / export, data visualization including waterfall, video, images and scatter diagrams and well as analysis.
EXPLab-Advanced-Analysis	Extends EXPLab-Standard-Analysis capability with advanced data import/export capability, advanced filtering and analysis, and extended visualization and modeling features including chromatogram, 3D model and SRS diagrams, as well as optional MATLAB support.

VTIcoda

Large Scale Static Structural Test

MODEL NAME	DESCRIPTION
VTIcoda-Express	General purpose, turn-key data acquisition software with support for up to 96 channels, single client/server configuration, single instrument, automatic instrument identification, event logging, basic arithmetical operations, time domain displays and data viewing capabilities.
VTIcoda-Pro	Extends VTIcoda -Express with support for up to 240 channels plus support for multiple instrument types, full alarm management, running average, circular buffer, calculated stress and strain.
VTIcoda-Expert	Extends VTIcoda -Pro with support for over 240 channels with support for predicted and real-time stress, predicted alarms, multi-station configuration, FFT display, advanced mathematical functions.

X-Modal

Modal Analysis

MODEL NAME	DESCRIPTION
X-Modal	Comprehensive open-source Experimental Modal Analysis software package supporting unlimited channels, extensive modal parameter estimation algorithms, flexible data management capability, based on MATLAB open programming environment.

SO Analyzer

Accoustic/Impact/Rotational/Shock/Modal

MODEL NAME	DESCRIPTION
VTI DSA Pro SO Analyzer	Real-time FFT acquisition, analysis and reporting with data import/export, support for up to 16 channels, time history recording, off-line post processing, calculated channels.
VTI DSA +16	Extends VTI DSA Pro SO Analyzer capability with additional 16 channel support (up to 48 channels).
VTI DSA +16	Extends VTI DSA Pro SO Analyzer capability with additional 16 channel support (up to 112 channels).
VTI DSA +16	Extends VTI DSA Pro SO Analyzer capability with additional 16 channel support (up to 240 channels).
VTI Acoustic	Extends VTI DSA Pro SO Analyzer capability with real-time accoustic analyzer (fractional octave filters).
VTI Impact ODS	Guided impact, Geom and ODS.
VTI Pro Modal	Guided Impact, Geom, ODS & Advanced Modal analysis SDOF, MDOF, and MMV.
VTI MIMO	MIMO measurement and analysis including multiple source output.
VTI Rotate	Stepped sine on-line analysis wizard.
VTI Shock	Shock response post processing analysis.
VTI Intensity	Accoustic intensity measurement and analysis wizard.

VTI INSTRUMENTS

INTEGRATED DATA ACQUISITION SIGNAL CONDITIONING SYSTEMS

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