VTI Instruments

Scalable, Open-Architecture Data Acquisition Solutions

Integrated Data Acquisition Signal Conditioning Systems

VXI
The **bus** you can trust

LXI

Precision Performance.
Accurate Data.
Repeatable Results.

## Reliable Measurements. First Time. Every Time.

Qualification and performance testing is rigorous and unforgiving. Retests are expensive in both time and money. More often, they're not even feasible. Test data must be captured correctly the first time. Thus, the reliability of the data acquisition system, the accuracy of the measurements, and integrity of the data must be faultless for each and every test. The risk is too high to compromise on the test instruments.

That's why for decades, customers worldwide have relied on VTI.

Our customers depend on us to deliver highly accurate data when they are faced with their most critical testing needs. VTI systems deliver the highest performance available in a scalable, open-architecture platform. With powerful software tools that aid the developer in the setup and control of test configurations, errors are minimized. These high-performance systems, whether LXI or VXI, have been proven to consistently deliver accurate, repeatable data in applications worldwide.

Combine all transducer types into one, easy-to-use system
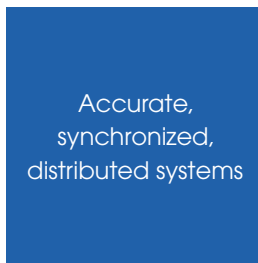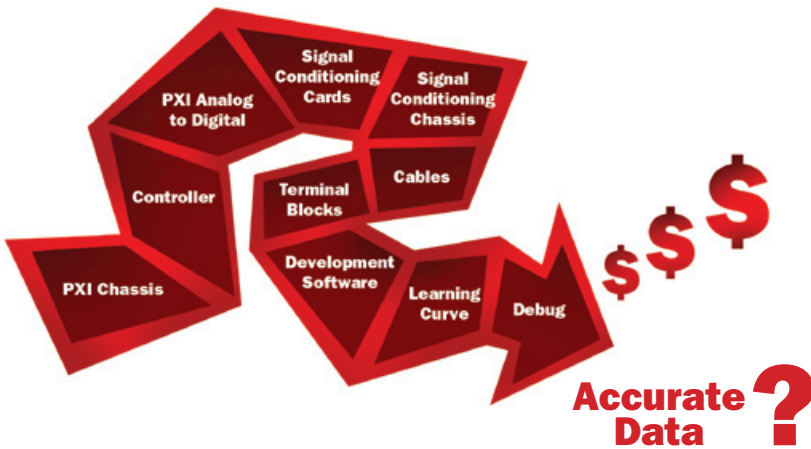
Accurate, synchronized, distributed systems

Scalable from ten to tens of thousands of channels

Integrated signal conditioning and end-to-end calibration guarantees data accuracy

Signal Conditioning Cards

PXI Analog to Digital

Signal Conditioning Chassis

Cables

Controller

Terminal Blocks

PXI Chassis

Development Software

Learning Curve

Debug

$$$

Accurate Data **?**

complex | time consuming | expensive | prone to data errors

The VTI Way: Integrated Data Acquisition Solution

faster

easier

error free

EX1048A **+** DAC Express **=** READY

Guarantee Accurate Results

Cut Development Time. Improve Test Integrity. Reduce Total Cost of Ownership.

Each of VTI's modular instruments is designed with configuration flexibility using industry standard interfaces, which minimize obsolescence by supporting forward-looking and backward compatibility.

- Integrated solutions eliminate external cabling, simplify field installation and setup, and reduce concerns associated with electrical noise and maintenance.

- Powerful, turnkey software speeds setup and eliminates programming time, debugging and program validation.

- DAC Express© is fully documented, reducing training time and assuring consistency of test duplication.

- Longevity – advanced industry standard designs outlive current test requirements.

- Open-architecture platforms enable seamless integration with other devices including VXIbus, GPIB, PXI and LXI.

www.vtiinstruments.com

Integrated DAQ Solutions.
Powerful Software Tools.

Stress/Strain

Data Logging

Temperature/Voltage

Closed Loop Control

Proven Hardware for Precision Measurements

- End-to-end self-calibration assures repeatable, accurate results

- High-density, scalable instruments easily handle high channel count applications

- Integrated signal conditioning and excitation optimizes input device performance and accuracy

- Advanced filtering on each channel

- Web-based monitor and control

- Easily aggregate multiple instruments to increase throughput

- Leverage the power of LXI to create high channel count systems

- Independent filtering per channel ensures signal integrity

Next-Generation Instrumentation Performance

Fully synchronized, distributed measurements

- Open-architecture platforms that are compatible

- LXI Class A technology delivers a seamless interface for external devices

- IEEE 1588 – deterministic synchronization and triggering

- Easily enables run-time test configurations

- Full-featured programmability ensures that run-time test configurations, such as analog and digital filtering, gain ranges, bridge completion, and excitation sources, are easily defined
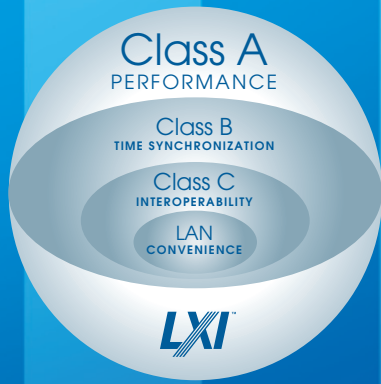
Measurement Solutions

	EX1000A EX1000A-TC	EX1016A EX1032A	EX1048A	EX10SC	EX1266	EX1629	VT1413C VT1415A VT1419A	VT1432B VT1433B
Voltage	●	●		●	●	●	●	●
Voltage (>15V)				●	●		●	
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	Medium	Medium	Medium	Slow	Slow	Medium	Medium	Fast

Powerful Software for Fast Setup and Real-Time Data Monitoring

While our instruments are compatible with standard programming environments, our DAC Express and VTIcoda turnkey software programs are designed by experienced test engineers to accelerate test setup and simplify data acquisition, monitoring and analysis. These programming-free environments feature intuitive GUIs and provide auto instrument discovery and facilitate easy channel configuration. Data display formats are user-selectable for optimum visualization of test parameters.

Applications Worldwide and Global Support

VTI's overall design philosophy delivers cost-effective solutions that leverage a unique combination of precision accuracy, high performance, modularity and reusability. With support from the industry's leading test instrumentation company, VTI's customers have complete confidence in their test results and the assurance of the lowest total cost of ownership.

www.vtiinstruments.com

Class A
PERFORMANCE

Class B
TIME SYNCHRONIZATION

Class C
INTEROPERABILITY

LAN
CONVENIENCE

LXI

LXI Class Definition

Device Identification over the Web

Open-Architecture Solutions –
The Freedom to Choose

Open Hardware –
Maximize Performance, Minimize Risk **LXI**

VTI cofounded LXI*, an industry standard for Ethernet-based test instrumentation, and is also the industry leader in VXI- and VME-based switch modules. VTI switching solutions incorporate LXI Class A technology, the superset of the LXI specification that delivers backplane-like performance in the footprint of a box. Why buy "LXI-lite" (Class B or C) products when you can have it all?

- Distributed data acquisition systems over LAN

- Synchronized measurement data to IEEE 1588 precision

- Highly deterministic hardware-based triggering using the LXI Trigger-Bus

- Protection against PC bus obsolescence

- Assurance of multi-vendor instrument interoperability

- Scalable solutions that optimize rack space

*LAN eXtensions for Instrumentation

Open Software –
Expedite System Readiness **VXIbus LXI VMEbus Technology**
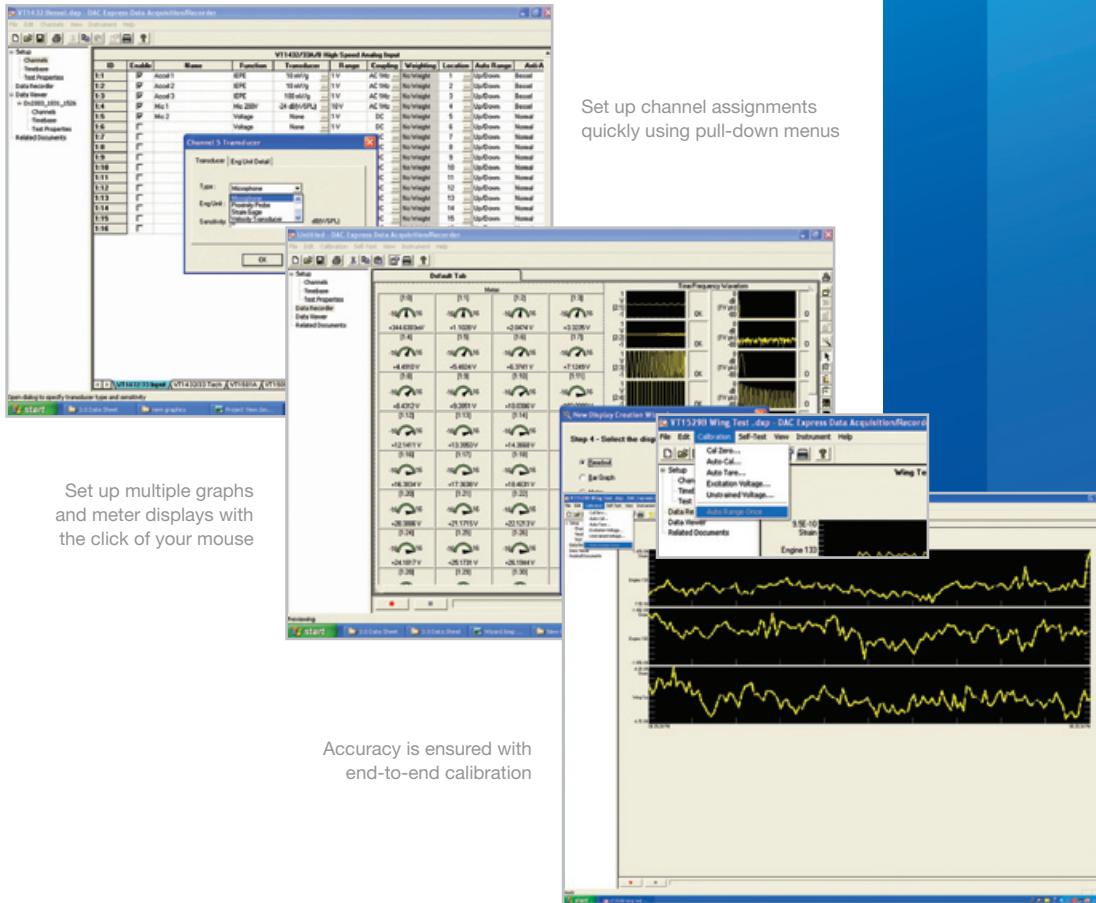
The most significant investment of any automated test project resides in the system software. VTI's commitment to delivering open-architecture solutions extends to software utilities and tools that reduce development time while allowing the flexibility to choose the application development environment.

- An API that conforms to the industry standard IVI specification

- Transportable front panels that monitor and control instruments from anywhere, on any web-enabled device

- OS independence with drivers that work seamlessly in Linux and Windows

- C++ LabView™, LabWindows™/CVI, Visual Basic driver support

- Automatic instrument discovery

Turnkey DAC Express for Faster Setup and Acquisition

DAC Express is one of the most powerful data recording/logging software packages available. It quickly and easily provides setup, monitoring and recording functions for test applications. If your measurements include noise, vibration, temperature, pressure, strain, voltage, digital states, rpm or other transducer-based parameters – and you're feeling the pressure of time – a DAC Express system is the right solution for you.

Set up channel assignments quickly using pull-down menus

Set up multiple graphs and meter displays with the click of your mouse

Accuracy is ensured with end-to-end calibration

- Intuitive GUI. No programming required

- Combine synchronized multichannel analog, digital, and frequency measurements

- File sizes up to 2 Giga samples per channel

- Combine dynamic and static measurements

- Multifunction data logging

- Automatic instrument discovery of connected devices

- Simulation mode supports virtual setup before hardware is available

- Real-time display customizes easily to optimize visualization

- Easily export data to MATLAB™, Excel™ and other standard programs

www.vtiinstruments.com

5

Intuitive software saves you valuable time.
VTI performance hardware gives you confidence
in your measurements.

Time Is Precious

When your new product introduction date is set in stone and you aren't finished testing, you can't afford to waste time with tedious programming tasks. DAC Express is fast to set up because it requires no programming. Connected hardware is auto-identified and ready for assignment to measurements.

The Right Data The First Time

Performance validation testing of a new product requires a data acquisition system with answers you can trust. Non-repeatable results are not results at all. With features like superior self-calibration and certified accurate measurements, VTI's hardware provides all the measurement performance and reliability you need.

Data Logger Configuration

You can easily configure a wide mix of channel types using DAC Express. Common measurements, such as temperature and strain, can be streamed to disk while on-line monitoring displays show key values for the operator. Sometimes you need more than just analog data. If your job requires recording digital states, relay settings, shaft rpm, pulse train rates, or similar parameters in addition to analog signals, this system is the answer.

Automatic Instrument Discovery

If VTI's data acquisition instruments are powered up and connected to your PC, DAC Express will automatically identify those resources for you. All installed signal conditioning is also identified so there is no question about which signals you can measure.

No Hardware Yet? No Problem!

Get a head start even before you have hardware. Use the DAC Express "simulate" mode to preconfigure instruments, then install the instruments when they're available.

No Programming Required

The intuitive software user interface simplifies the time-consuming tasks of:

- Configuring hardware
- Conditioning transducers
- Setting measurement rates
- Developing display routines
- Creating data files
- Exporting data for analysis and report generation

It's as simple as 1-2-3:

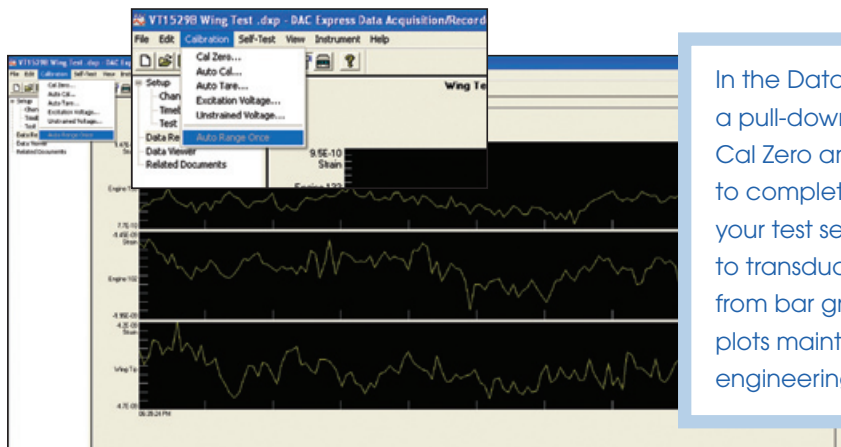**1.** Setup

2. Record

3. View

Set Up Channels With Table/Menu Pull-Downs

Simply click on the tabs at the bottom of the screen to display the available measurement channels (shown below). This example screen shows three high-speed inputs connected to accelerometers and two connected to microphones.

Select transducers from the pull-down menus are shown in the highlighted window. The additional tabs allow you to select several types of signal conditioning for low-speed measurements such as temperature, voltage, resistance, or strain. For the few transducers not defined, you can easily convert the measured voltages to engineering units using a built-in mx+b linearization routine (provided in a separate setup window).
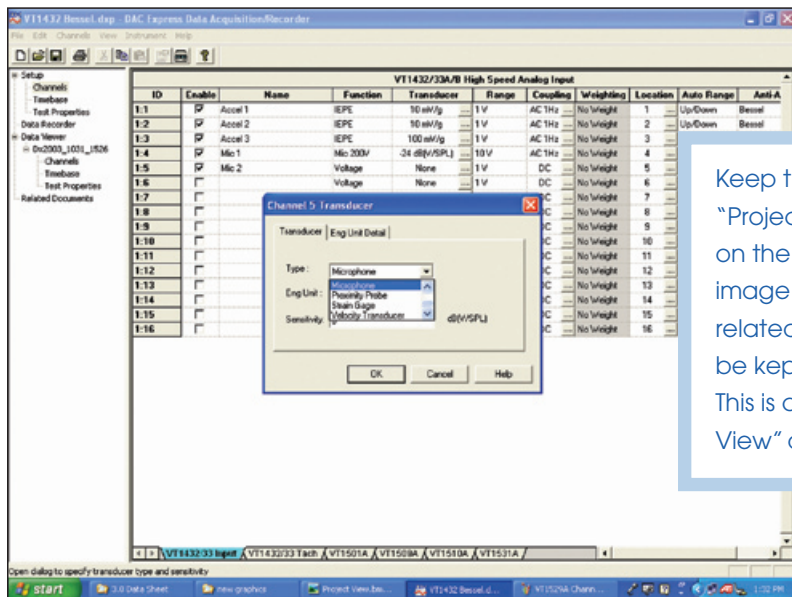
Keep things organized with "Project View." The tree view on the left side of the screen image shows the steps and related documents that can be kept with a specific test. This is called the "Project View" of your test.

In the Data Recorder mode, a pull-down menu controls Cal Zero and Auto Cal to completely calibrate your test setup from A/D to transducer. All displays from bar graphs to XY plots maintain calibrated engineering units.

Select Measurement Rates

Once you've created the channel connections, you can set the sample rates in the timebase screen (not shown). The channel measurement rate for high-speed digitizer channels can be set independently from that of the scanning A/D channels. You can also set the length of the test and the triggering conditions before starting the test.

Just Press "Record"

It's as simple as that. Measurements will start and stop based on the criteria specified in the timebase setup. But, there's more to good data acquisition than just recording. DAC Express supports many powerful data monitoring, display and export features.

www.vtiinstruments.com

7

Applications

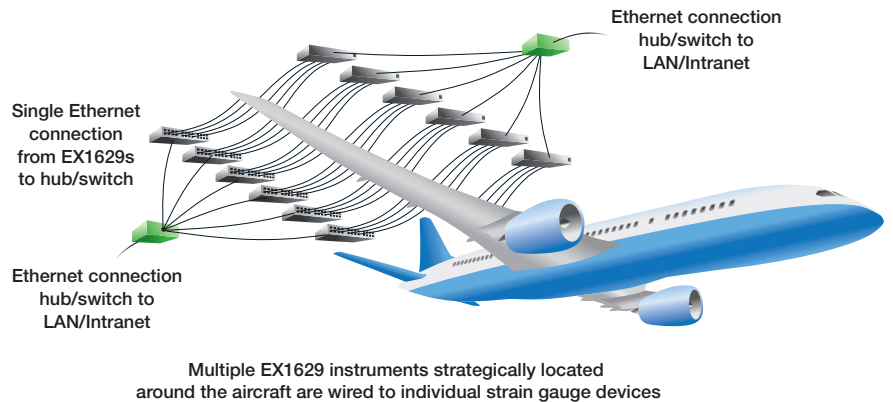## Aircraft Structural Test

The Challenge

Accurately measure and synchronize over 3,000 channels of strain gauge inputs distributed across a commercial airframe.

The Solution

The EX1629 high-performance strain gauge instrument delivered exceptional measurement accuracy in a distributed topology that simplified setup and configuration.

Key application features include:

- Independent 24-bit A/D per channel
- Complete end-to-end self-calibration
- Integrated TEDS support
- Precision onboard excitation
- LXI-based Ethernet connectivity
- Trigger bus device synchronization

Ethernet connection hub/switch to LAN/Intranet

Single Ethernet connection from EX1629s to hub/switch

Ethernet connection hub/switch to LAN/Intranet

Multiple EX1629 instruments strategically located around the aircraft are wired to individual strain gauge devices

## Small Turbofan Testing

The Challenge

Accurately measure and synchronize high-level voltages with a single platform.

The Solution

The EX1000A and EX1048A High-Performance Voltage and Temperature instruments provided the flexibility of measuring low-level as well as high-level voltages levels in a distributed topology, along with simplified setup and configuration.

Key application features include:

- Quick and reliable connectorization
- Adjacent channel noise immunity
- Multiple gain range capability
- Complete end-to-end self-calibration
- LXI-based Ethernet connectivity
- IEEE 1588 bus device synchronization
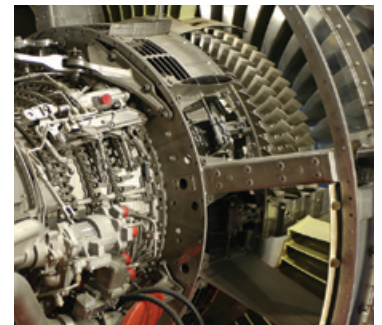
Solid Rocket Motor Reliability Testing
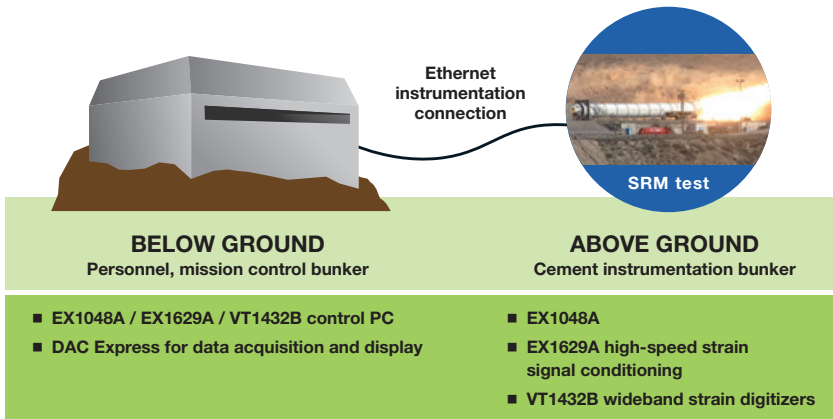
The Challenge

Maintain measurement stability and accuracy in a hostile environment located 1500 meters from the safety of the bunker.

The Solution

Thermocouple, strain gauge and high-speed signals were acquired using the EX1048A, EX1629 and VT1432B/EX2500, respectively. The instrumentation design permitted operation under these harsh conditions without sacrificing accuracy or reliability.

Key application features include:

- End-to-end self-calibration
- Open-thermocouple detection
- RJ-45 connectivity

- Independent filtering per channel
- Scalability
- DAC Express intuitive software

Ethernet instrumentation connection

SRM test

BELOW GROUND	ABOVE GROUND
Personnel, mission control bunker	Cement instrumentation bunker

- **EX1048A / EX1629A / VT1432B control PC**
- **DAC Express for data acquisition and display**

- **EX1048A**
- **EX1629A high-speed strain signal conditioning**
- **VT1432B wideband strain digitizers**

Rail Car Load Testing

The Challenge

Place measurement instrumentation at specific locations within a moving rail car and gather data from load sensors.

The Solution

The EX1000A and EX10SC provided the right combination of voltage and bridge measurement capability. Individual channel definition simplified transducer placement and field connectivity.

Key application features include:

- Individual channel configurability
- Simple field terminations
- Independent filtering per channel
- Scalability
- DAC Express intuitive software

Roller Coaster Performance Testing

The Challenge

Measure key performance characteristics to confirm operational integrity of the roller coaster cars.

The Solution

The EX1629 provides accurate transducer excitation and measurement in a single, high-performance package. During coaster test runs, accelerometers are strapped into the car and data is gathered to identify out-of-tolerance points on the rail system.

Key application features include:

- High-speed inputs
- Integrated bridge excitation
- Easy-to-use RJ-45 strain input connectors

- Software-selectable shunt calibration
- Simplified start-up using standard API
- Ability to operate under challenging environmental conditions

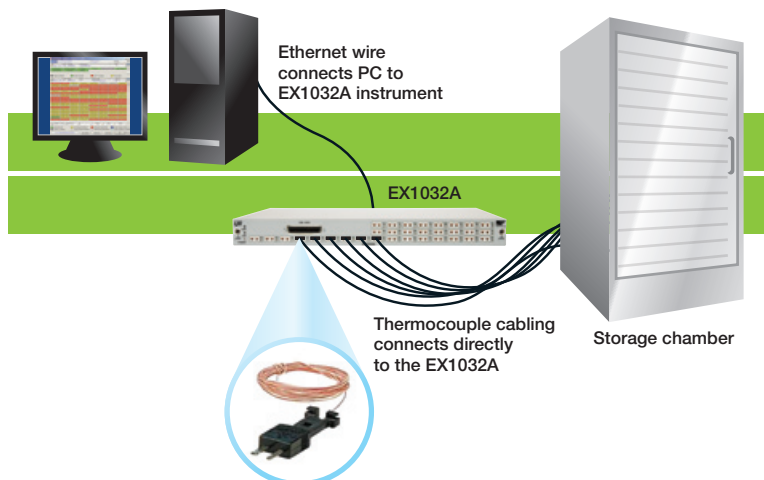## Critical Temperature Monitoring

The Challenge

Measure and control temperatures in coolers and freezers used for the storage of blood products. The critical nature of this application requires extremely accurate and stable temperature measurements.

The Solution

The EX1048A Precision Thermocouple instrument provides exceptional measurement accuracy and stability. LXI Class A capabilities include simplified measurement distribution and data synchronization.

Key application features include:

- 1,000 Sa/s
- Independent filtering per channel
- Visual open-thermocouple detection
- Stable cold junction compensation (CJC)
- LXI Class A certification

Ethernet wire connects PC to EX1032A instrument

EX1032A

Thermocouple cabling connects directly to the EX1032A

Storage chamber

Large-Scale Stress Screening
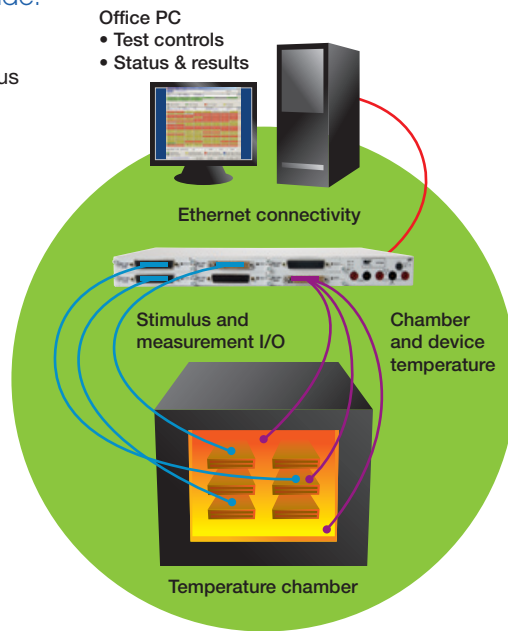
The Challenge

Generate stimulus signals while accurately measuring chamber temperatures and monitoring device response.

The Solution

The EX1266 provides the ability to generate a variety of outputs to the devices under test. The responses are then measured along with chamber and device temperatures.

Key application features include:

- Flexible signal routing and stimulus

- Embedded scan list test sequencing

- Wide variety of signal routing alternatives

- Compatible digital I/O and analog output modules

- LXI-based web access and control capabilities

Office PC
• Test controls
• Status & results

Ethernet connectivity

Stimulus and measurement I/O

Chamber and device temperature

Temperature chamber

Wind Turbine Health Monitoring

The Challenge

Measure run-time electrical and mechanical characteristics of wind turbines in remote locations.

The Solution

The EX1016A paired with the EX10SC provides the ability to measure numerous transducer inputs on a single platform. Temperature, pressure, RPM and current were acquired with the necessary isolation. The EX1629 allows the user to measure strain gauges which are then seamlessly integrated into the data stream.

Key application features include:

- Flexible per-channel input configuration

- Remote software-controlled bridge shunt calibration

- Remote instrument self-calibration

- Synchronization of different signal types

- Ethernet-based LXI data transmission from remote locations

www.vtiinstruments.com

11

Precision Thermocouple and Voltage
Instrumentation with Flexible Inputs

EX1016A

EX1032A

EX1048A

EX1000 Series

EX1000A • EX1000A-TC • EX1016A
EX1032A • EX1048A • EX10SC

Accurate. Powerful. Easy to Use.

The EX1000 family of LXI Class A instruments are the most advanced, full-featured data acquisition solutions available on the market today. These scalable, standalone instruments provide superior measurement accuracy and repeatability thanks to fully integrated signal conditioning, advanced CJC, and end-to-end self-calibration.

Flexible Channel Configuration

A wide range of transducer types, including pressure, strain, temperature, position and voltage, can be combined in this flexible solution. Each input incorporates an independent signal conditioning path with software-selectable filters for maximum flexibility. Complete channel independence ensures data integrity regardless of sample speed or input overload conditions.

End-to-End Self-Calibration

Complete end-to-end self-calibration is provided for each signal path on a programmable basis. A highly accurate calibration source provides reference signals that are applied prior to analog filtering and gain circuits to compensate for drift, aging, or temperature variations. Self-calibration is simple and quick, and can be performed as often as desired.

Scalable for Synchronized High-Speed, High Channel Count Measurements

With LXI Class A-compliant features like a built-in hardware trigger subsystem, the EX1000 family supports easy integration and synchronization of multiple devices including existing VXIbus instrumentation.

Open Transducer Detection

Each channel is configured with open transducer detection functionality, providing a continuous indication of the channel's status. Open transducer detection can be activated or deactivated on a per-channel basis. The detection mechanism is embedded in the signal conditioning circuitry and accurately provides an open circuit indication in the event of a broken or intermittent transducer.

Cold Junction Compensation

The heart of any truly accurate thermocouple measurement system is the CJC implementation. These instruments combine multiple precision thermistors, a significant thermal mass, and careful parts placement to provide world-class measurement performance.

Unmatched Signal Conditioning Flexibility to meet your most demanding needs

The EX10SC modular signal conditioning platform expands measurement capabilities to address the most demanding industrial signal acquisition challenges. This extension is designed to ensure seamless integration and connectivity, with exceptional measurement flexibility. Signals from a wide variety of transducer types can be mixed and matched, on a per-channel basis, ensuring complete coverage from a single, high-performance measurement platform.

Isolation and Protection

Challenging measurement environments, such as areas with high levels of electrical noise or transient power surges, require unique protection capabilities. The EX10SC signal conditioning platform provides exceptional input protection and isolation across a wide range of operating conditions, protecting valuable instrumentation and ensuring measurement integrity.

Simply match the signal characteristics with the appropriate signal conditioning module, make connections with the easy-to-use termination access points, and start collecting data.

- Thermocouple
- RTD
- Thermistor
- Potentiometer
- Strain gauge
- Pressure
- High-level voltage
- Frequency
- Current

Simplified Installation, Setup and Control

The EX1000 family of instruments is ideal for distributed measurements, which reduce cabling and installation expenses. Connect directly to your network using industry standard Ethernet cable and switches.

An onboard, web-accessible user interface allows you to instantly verify communications and instrument functionality. IVI and VXI Plug and Play drivers provide a familiar application programming interface to further reduce integration and program development time.

Turnkey software operation using DAC Express, provides out-of-the-box functionality across the entire product family. This intuitive programming-free environment provides instrument setup, data logging, and a measurement display, which ultimately results in faster time to test.

Ordering Information

Model	Description
EX1000A	48-Channel precision voltage instrument
EX1000A-TC	48-Channel precision thermocouple and voltage instrument
EX1016A	16-Channel precision thermocouple instrument 32-Channel precision voltage instrument
EX1032A	32-Channel precision thermocouple instrument 16-Channel precision voltage instrument
EX1048A	48-Channel precision thermocouple instrument
EX10SC	16-Channel signal conditioning expansion chassis (Modules sold separately. See below)

EX10SC Modules

Model	Type	Input Range
EX10SC-8B32-02	Current input	0 to 20mA
EX10SC-8B33-03	RMS voltage	0 to 10V 0 to +5V
EX10SC-8B34-04	2/3-wire RTD (100Ω Pt)	0°C to +600°C (+32°F to +1112°F)
EX10SC-8B35-04	4-wire RTD (100Ω Pt)	0°C to +600°C (+32°F to +1112°F)
EX10SC-8B36-04	Potentiometer	0 to 10kΩ
EX10SC-8B38-01	Strain gauge	±10mV (excitation +3.333V / sense 3mV/V)
EX10SC-8B38-02	Strain gauge	±30mV (excitation +10.0V / sense 3mV/V)
EX10SC-8B41-01	Voltage input	±1V
EX10SC-8B41-03	Voltage input	±10V
EX10SC-8B41-07	Voltage input	±20V
EX10SC-8B41-09	Voltage input	±40V
EX10SC-8B41-12	Voltage input	±60V
EX10SC-8B42-01	2-wire transmitter	4 to 20mA
EX10SC-8B45-02	Frequency input	0 to 1kHz
EX10SC-8B45-05	Frequency input	0 to 10kHz
EX10SC-8B45-08	Frequency input	0 to 100kHz
EX10SC-8B47J-012	J-thermocouple	−100°C to +760°C (−148°F to +1400°F)
EX10SC-8B47K-013	K-thermocouple	−100°C to +1350°C (−148°F to +2462°F)
EX10SC-8B47T-06	T-thermocouple	−100°C to +400°C (−148°F to +752°F)

Accessories and Cable Assemblies

Model	Type
EX10SC-CBL01	24" EX10SC to EX10xx interconnect cable
EX10SC-RK001	Rackmount slide rails
70-0355-900	Rack mount kit for EX10XXA Series
70-0355-902	Table top kit for EX10XXA Series

High-Performance Remote Strain Gauge Measurement Instrument

EX1629

EX1629

The 48-channel EX1629 sets a new standard of performance for stress and fatigue testing. Independent 24-bit A/D converters on each channel, extensive software-selectable filtering, and independent signal conditioning paths provide exceptional accuracy and reliability.

- Standalone compact 2U instruments

- 48 channels per box

- Sample rates up to 25 kSa/s

- 24-bit A/D converters per channel

- Per-channel, software-configurable signal conditioning

- Integrated TEDS support

- Per-channel bipolar excitation

- Complete end-to-end self-calibration

- Measure voltages up to 15 volts

Precision. Accuracy. High Performance.

Highest Accuracy. Lowest Overall Hardware Costs

The compact modular EX1629 delivers superior measurement accuracy at a cost-effective price per channel. This single instrument can perform both high-quality static and high-speed strain gauge measurements in critical test applications. The EX1629's flexible design makes it easy to reuse in future test programs, resulting in the highest return on your hardware investment. This design also keeps overall test hardware costs down.

Any Channel. Any Bridge or Voltage Input.

The EX1629 features software-configurable strain/voltage conditioning and excitation in a single 19-inch, 3 1/2 inch-high rackmount enclosure. This flexibility allows the connection of quarter bridge, half bridge, full bridge, or voltage inputs to any channel, minimizing setup time and wiring changes. There is no need to reconfigure hardware to make measurement changes.

Performance and measurement integrity are enhanced with independent bridge excitation per channel. Bridge excitation sources are not shared between channels; single channel failures do not affect other channels.

Easily Combine and Measure 10,000+ Channels

For large data acquisition applications, multiple EX1629s are easily synchronized together in a master-slave relationship via the external LXI Trigger Bus. Easy strain gauge wiring and conditioning for both static load and vibration testing greatly simplify high channel count test setup.

Reduce Errors and Field Wiring Costs

Integrated Transducer Electronic Data Sheet (TEDS) provides positive transducer identification, eliminating cabling errors. Extensive testing has qualified the standard RJ-45 telecom connector and cable as the ideal low-cost physical connection for strain gauges. This cuts cost and makes connections quicker.

Ethernet Interface Ideal for Distributed Environments

The EX1629 can be placed at strategic points throughout the test cell, minimizing cabling and setup time. For comprehensive, programming-free data recording, setup, management and viewing, use EX1629A instruments with one of VTI's full-featured, turnkey software solutions – DAC Express or VTIcoda.

Ordering Information

Model	Description
EX1629	48-Channel high-performance strain instrument

Multifunction Scanning Measurement and Switching System

EX1262

EX1266

EX1268

EX1200 Series

The EX1200 leverages the same technology that made SMIP the most successful modular switching platform for high-performance requirements in the military and aerospace markets. Now, VTI makes this powerful solution commercially available for functional test systems, process monitoring, signal switching, automotive ECM, cable harness and battery testing, and temperature/data logging. The primary functions of the EX1200 focus on signal switching, temperature/data logging, level detection, and scanning DMM.

- Standalone compact 1U instrument

- High-density switching subsystem

- Scanning 6.5 digit DMM

- Synchronized precision measurements

- Scalable (6 plug-in slots per chassis)

- Mix voltage and temperature channels

- Temperature channels support all thermocouple types (RTDs and thermistors)

- Built-in CJC

- Intuitive, web-based GUI for monitor and control

- Robust web-based interface simplifies setup and acquisition

High Density. Scalable. Cost Effective.

Easy Setup and Control

- Internal 5-wire DMM bus simplifies cabling

- Multiple calibration sets yield more accurate data across a temperature range.
  - Up to eight per module
  - Calibrate across multiple ambient temperatures
  - Minimize inaccuracies attributed to temperature deviations

- Full-featured switching scan list and tight synchronization with DMM minimizes processor overhead, increasing test throughput
  - Switch/measure can be tightly integrated onboard to minimize any latency in bus traffic
  - Smallest footprint available for switching/scanning applications – up to 576 2-wire multiplexer channels in a 1U footprint

- LXI Class A communications interface eliminates platform obsolescence and support cost concerns

Scalable Architecture. Small Footprint.

- Low cost-per-channel across a wide range of channel counts

- 1U provides granularity to address small channel requirements

- Multiple boxes 'daisy chain' together for larger applications

Ordering Information

Model	Description
EX1202	2-slot mainframe, 1/2 rack 1U, no internal DMM
EX1206	6-slot mainframe, 1 rack U, no internal DMM
EX1262	2-slot mainframe, 1/2 rack U with built-in 6.5 digit DMM
EX1266	6-slot mainframe, 1 rack U with built-in 6.5 digit DMM
EX1200-1538	Counter/timer/totalizer
EX1200-3048	48-Channel 2-wire 2 A multiplexer
EX1200-3048S	48-Channel 2-wire FET multiplexer
EX1200-3096	96-Channel 2-wire, 0.5 A multiplexer
EX1200-3608	8-Channel, +/- 20 V, 20 mA analog output
EX1200-4003	128-Crosspoint matrix, 2-wire, 2 A
EX1200-2002A	12-Channel 16 A SPDT switch
EX1200-5002	32-Channel 2 A SPDT switch
EX1200-7008	Resistance simulator
EX1200-7416	16-Channel comparator/interrupter
EX1200-7500	64-Channel digital I/O
EX1200-TB104	Terminal block with internal CJC (104 pin connector)
EX1200-TB200	Terminal block with internal CJC (200 pin connector)

Universal, Full-Featured, Single Platform VXI Solutions

Distribute your VXI-based Measurements

VTI leads the industry in VXIbus technology. Our modular-based systems handle all signal types for both high- and low-speed data acquisition through the use of integrated signal conditioning plug-ins that deliver unmatched performance. Since we recognize that your existing VXI investment is significant, we will continue to deliver the most comprehensive, precision, high-performance VXIbus instruments available.

First LXI Class A Gigabit Ethernet Slot 0 Interface

EX2500A

- 40 MB/sec block transfer rates

- Embedded web interface for interactive control from anywhere in the world

- Onboard LXI Trigger Bus distributes the VXI backplane trigger lines

- Drop-in replacement for existing slot 0 interfaces

Synchronized Distributed Precision Measurement

The EX2500A slot 0 controller bridges VXI with LXI via an Ethernet interface. This facilitates new hardware compatibility with legacy systems while delivering the power and flexibility of LXI.

EX2500A

Ordering Information

Model	Description
EX2500A	LXI-VXI Gigabit Ethernet slot 0 interface
EX2500A-15	Includes TCXO timebase option
EX2500A-16	Includes OCXO timebase option

High-Performance Scanning A/D with Integrated Signal Conditioning
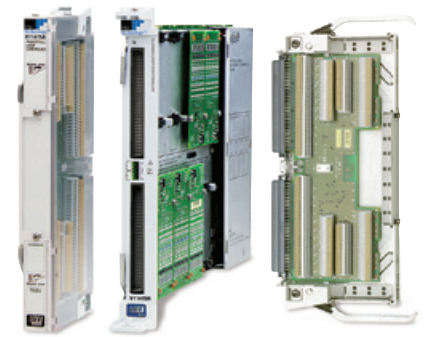
VT1413C

The 64-channel VT1413C is ideal for high-performance data acquisition applications that require a compact, single slot configuration. This instrument features high-speed scanning, 16-bit resolution, high accuracy, dual-ported FIFO buffer for fast data transfers, and a current value table for online data monitoring. Complete end-to-end self-calibration further enhances the measurement accuracy and stability of the instrument.

VT1413C

64-Channel A/D and Algorithmic Closed Loop Controller

VT1415A/ VT1419A/ VT1422A

VT1415A with Terminal Blocks

The VT1415A, VT1419A and VT1422A instruments build on the functionality of the VT1413C by adding closed loop control and remote channel multifunction DAC capabilities. These powerful data acquisition instruments can handle analog and digital input/output in both static and dynamic modes.

More Powerful Than PID Controllers

Because it's easier to configure than large custom control systems, the VT1415A/VT1419A/VT1422A fill a unique niche by providing both control and precise data acquisition functionality. The design includes an onboard DSP that assures all inputs, calculations, and outputs are completed between scan intervals, eliminating drift and jitter in the control algorithm. The user-programmable algorithms are easy to modify, eliminating latencies common in higher level software.

VT1501A–VT1538A

VT1413C with six SCPs

- Adjust individual signal gains
- Signal filtering reduces sensor-based noise
- Over-voltage protection
- Open transducer detection
- Combine SCPs for a wide variety of inputs

Plug-On Modules Optimize Signal Conditioning

Each signal conditioning plug-on (SCP) is a modular, high-density transducer interface for use with the VT1413C, VT1415A, VT1419A, and VT1422A series of scanning A/D data acquisition instruments. SCPs are typically configured in 8-channel increments to uniquely address specific transducer characteristics.

SCP configuration options include fixed and programmable gains, filtering, signal conditioning for thermocouples, RTDs and thermistors, bridge measurements, event counting, frequency, resistance, digital I/O and analog outputs.

Ordering Information

Model	Description
VT1413C	Scanning A/D converter, includes spring clamp terminal block
VT1413C-02	Scanning A/D converter, includes screw connector terminal block
VT1415A	Algorithmic closed loop controller, includes spring clamp terminal block
VT1415A-02	Algorithmic closed loop controller, includes screw connector terminal block
VT1415A-A3F	Interface to rackmount terminal panel, deletes spring clamp terminal block
VT1419A	Multifunction plus measurement and control module
VT1419A-011	Screw terminal block
VT1419A-013	Spring-clamp terminal block
VT1422A	Remote channel multi-function DAC module
VT1501A	8-Channel direct input SCP
VT1502A	8-Channel 7 Hz low-pass filter SCP
VT1503A	8-Channel programmable filter/gain SCP
VT1505A	8-Channel current source SCP
VT1506A	8-Channel 120 Ω strain completion & excitation SCP
VT1507A	8-Channel 350 Ω strain completion & excitation SCP
VT1508A	8-Channel x16 gain & 7 Hz fixed filter SCP
VT1509A	8-Channel x64 gain & 7 Hz fixed filter SCP
VT1510A	4-Channel sample & hold input SCP
VT1511A	4-Channel transient strain SCP
VT1512A	8-Channel 25 Hz fixed filter SCP
VT1513A	8-Channel ÷ 16 fixed attenuator & 7 Hz low-pass filter SCP
VT1518A	4-Wire resistance measurement SCP
VT1521	4-Channel high speed bridge SCP
VT1531A*	8-Channel voltage output SCP
VT1532A*	8-Channel current output SCP
VT1533A*	16-Bit digital I/O SCP
VT1536A*	8-Bit isolated digital I/O SCP
VT1538A*	Enhanced frequency/totalize/PWM SCP

* For use with VT1415A, VT1419A and VT1422A.

About VTI Instruments Corporation

VTI Instruments delivers precision instrumentation for electronic signal distribution, acquisition, and monitoring. ISO 9001 registered, the company serves the following key markets: aerospace, defense, and energy and power generation. VTI's technology allows its customers to optimize their capital investment through product longevity, while ensuring unmatched measurement integrity and data reliability. With offices in the U.S., Europe and Asia, worldwide product support is provided through a network of VTI-certified engineering representatives. VTI is a sponsor member of the VXI Consortium and a founding member of the LXI Consortium.

For more information visit www.vtiinstruments.com or email sales@vtiinstruments.com.

VTI
Instruments

VTI Instruments Corporation – World Headquarters, USA
Tel: +1 949 955 1894

VTI Instruments Corporation, Europe
Tel: +44 1295 660008

VTI Instruments Corporation, Asia
Tel: +91 80 4040 7900