

Measurement Has Never Been This Easy ${}^{\scriptscriptstyle \rm M}$



Data Acquisition, Oscilloscope, Power Analyzer



AstroNova Test & Measurement Capture Critical Data Accurately & Reliably

Since 1969, AstroNova Test & Measurement has been a pioneer in the data acquisition industry. Building a strong legacy with our high quality, U.S. made products, our customers have come to rely on us for all their data recording requirements.

As engineers, we understand the importance of your data capture applications, which is why we design our products with both precision and user experience in mind. Through the years, we have developed a reputation for our accurate, turnkey products and unrivaled technical support engineers, known for providing expert support whenever it is needed.

Our company is committed to innovation and adaptation, ensuring we meet the ever-changing needs of our customers. Our customers know they can look to us for products that offer revolutionary solutions for data acquisition. Whatever our customers' data acquisition requirements, we offer the total solution for their tailored applications.

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AstroNova Data Acquisition Systems Comparison Chart



	DXS-100 Daxus	DDX-100 SmartCorder	тмх
Operation	Operation Standalone, connected to a PC, or distributed		All-in-one
Display	External PC	Built-in 15" touch panel	Built-in 17" touch panel
Maximum Sample Rate 200 kS/s/ch		200 kS/s/ch	800 kS/s/ch and 50 MS/s/ch with optional 2-ch scope card
Input module slots	2	2	3 (6 with TMX-E or TMX-R)
Max. Channels	48 per system, up to 480 networked	48 per system, up to 480 with DXS-100	Up to 96 with TMX-E or TMX-R
Dimensions	12.8" W x 7" D x 4.7" H (324mm W x 180 mm D x 120mm H)	11.8" H x 14.4" W x 6.6" D (300mm H x 366mm W x 168mm D)	14.5" H x 19" W x 7.5" D (368 mm H x 48.3 W x 19.1cm D)
Weight	7 lbs (3.2kg)	18.5 lbs (8.4 kg) with 2 modules	37 lbs (15.8 kg) with 3 modules
Input Power	14-24 VDC or 100-240 VAC with included adapter, 12-72 VDC with optional adapter	100-264 VAC	100-264 VAC or 24 VDC
Internal Storage	500 GB hard drive standard, up to 1.6 TB SSD (optional)	500 GB hard drive standard, up to 1.6 TB SSD (optional)	1 TB capture drive standard, up to 1.6 TB SSD (optional)
Connectivity	Ethernet USB (for WiFi or transferring data and setups) Optional WiFi adapter Optional GPS and CAN inputs	Ethernet USB 3.0 Optional WiFi adapter Optional GPS and CAN inputs	Ethernet USB 3.0 (4) VGA (for external monitor) Optional Video Capture Optional CAN inputs
Input module types	Universal inputs (isolated) High Voltage (isolated) Voltage (non-isolated) Power (isolated) Strain and bridge (isolated) RTD & resistance (isolated) Thermocouple (isolated) Events (digital input) ICP & piezoelectric (isolated)	Universal inputs (isolated) High Voltage (isolated) Voltage (non-isolated) Power (isolated) Strain and bridge (isolated) RTD & resistance (isolated) Thermocouple (isolated) Events (digital input) ICP & piezoelectric (isolated)	Universal inputs (isolated) High Voltage (isolated) Voltage (non-isolated) Power (isolated) Strain and bridge (isolated) RTD & resistance (isolated) Thermocouple (isolated) Events (digital input) ICP & piezoelectric (isolated)
Typical applications	Digital IO, relay, & counter Distributed applications Condition monitoring Test cells	Digital IO, relay, & counter Field Test and Troubleshooting Maintenance Power Monitoring	Digital IO, relay, & counter R&D Verification and Validation Troubleshooting and repair





Why Choose AstroNova Test & Measurement?

Innovative	AstroNova (formerly Astro-Med) has been developing innovative Test & Measurement products since 1969.
Easy-To-Use	Designed with the user in mind from firmware to software, all-in-one data acquisition systems are easy to use, saving time and money.
Reliability	Constructed for durability and portability, products are rugged and ideal for mobile use.
Flexibility	Our systems support a wide variety of sensors. Universal input modules reduce the cost of testing by providing the flexibility to connect multiple sensor types to a single module.
Commitment	We are committed to providing total customer satisfaction. Our technical support engineers are available for on-site training and startup assistance whether on-site or via remote conference calls and video calls.

Collaboration Our approach is partnering with our customers to understand their needs first, then propose solutions based on their unique challenges.

Supported Throughout Your Equipment's Lifetime

Technical Support

Our worldwide Field Sales Engineer team is available to visit your facility for one-on-one consultation to review your specific application and recommend the correct set-up for your production needs.

Our dedicated Sales and Support Engineers are ready to answer any questions and provide 24/7 support through our intuitive paging system at our facility in the USA, ensuring a response around the clock. To help you get started, AstroNova includes easy-to-use, quick-start guides with each system. On-site start-up assistance is available upon request.

Repair

If needed, AstroNova is prepared to repair your equipment. Our return process makes repairs quick and simple. Upon arrival of your device, your feedback will be reviewed, device examined and a recommended course of action will be determined. During the repair process, a device can be loaned to keep you up and running.





Upgrade

AstroNova is continuously evolving. By innovating and enhancing devices, we allow you to do more and perform better. In doing so, we give you a chance to be a part of technology evolution and upgrade your equipment. Whether it is hardware or software, we will ensure your devices remain current to meet your ever-changing requirements.

Warranty

AstroNova Test & Measurement equipment is covered by a one-year warranty on all parts and labor. An extended warranty is available for an additional fee.



Distributed and Stand-Alone Data Acquisition

The DAXUS® DXS-100 is a versatile data acquisition solution for local or distributed measurements. Units can be connected directly to a host PC, operate as stand-alone high-speed data loggers, or deployed as part of a distributed measurement system spanning large distances. The built-in hard drive and internal battery ensure data is saved during network or power outages. Its small size and rugged packaging make it ideal for use in the lab, field, or production environment.

- Stand-alone or networked operation
- 200 kS/s per channel max sample rate
- Up to 48 channels per unit and 480 channels networked
- GPS, IRIG, NTP synchronization
- Rechargeable battery operation
- 500 GB standard or up to 1.6 TB solid state drive
- Rackmount kit available
- On-board signal processing reduces post processing with no latency
- WiFi, Ethernet, and cellular capable

Product Overview

Acquire

Daxus units feature two slots that accept a variety of input modules. Each system can acquire up to 48 channels with sampling rates up to 200 kS/s per channel or as low as one sample per minute for long term monitoring. Multiple Daxus units can be stacked to increase the number of channels, and all inputs can be synchronized by sharing clock signals or via GPS or IRIG2.

The Daxus system supports three different sampling rates per channel which allow you to acquire high speed and low-speed data simultaneously and reduce file sizes. You can also create triggers to start and stop recording based on any input channel, event (e.g. external trigger signal), or a specific date and time.

The Utility / DIO port contains alarm inputs, alarm outputs, programmable outputs, and inputs for external sample clocks eliminating the need for a separate digital I/O module. Optional interfaces include IRIG for synchronizing data across multiple units, GPS for time and location, and CAN for vehicle applications. Selecting these options does not require you to give up a slot for input modules.

The Daxus architecture provides advanced digital signal processing (DSP) technologies that allow you to configure custom filters and perform frequency measurements on a per channel basis.

Reduce testing costs and increase flexibility with the UNIV-4 universal input module. The UNIV-4 alleviates that need for dedicated modules by allowing you to perform voltage, DC bridge, thermocouple, RTD, and IEPE accelerometer measurements in a single module.

Visualize



Two Daxus systems mounted inside of a rack

Scope Mode is a powerful feature that allows you to acquire and save data at low sample rates while capturing high speed snapshots based on user defined triggers. This is particularly useful for capturing intermittent signals or analyzing the timing between signals. Icons on the real-time display indicate when a scope capture has occurred and trigger events are embedded in the data file. High-speed data from scope captures is saved in separate files and can be viewed in a scope-like display with high time-base resolution and cursor measurements without interrupting long term trending.

Analyze

Daxus provides powerful tools to help you analyze data quickly and easily.

- The **derived channel** feature allows you to create up to six calculated channels or combine any four channels based on user-defined equations. Derived channels are calculated in real-time and can be displayed and recorded along with the original input channels in real-time or review mode. You can also apply advanced filtering options post-capture.
- ^g To aid in analyzing acquired data, cursors provide built-in measurements such as average, Min-Max, Peak-Peak, slope, RMS, Sum, Std Deviation, and others. You can also configure Fourier Transform Windows for viewing and analyzing frequency content in real-time.

Advanced counter functions based on DSP technologies allows many common frequency measurements and eliminates the need for a separate counter / timer module – regardless of the input module type. Available functions include frequency, duty cycle, edge separation, quadrature encoder, gated pulse counter, pulse width, and more.

Analysis and control functions can be extended and automated using Python scripting or LabVIEW.



Back of the Daxus system

Store

With Daxus, all data is stored locally on an internal hard drive and streamed across the network on demand. This ensures that critical data is always captured regardless of network reliability. Choose from a 500 GB hard disk drive (standard) or optional solid-state drives for rugged environments and faster read/ write spreads.

Store derived channels, events, and notations along with measurement data to reduce post-processing and recall important events. Export only the channels or timeframe selected to ASCII using the application Daxus software. AstroNova also provides the free AstroVIEW X software for viewing data from any AstroNova data acquisition system and exporting to other common file formats.

The built-in Lithium-Ion battery automatically charges when the system is connected to power and provides backup power for continued operation and no loss of data in the event of a power outage.

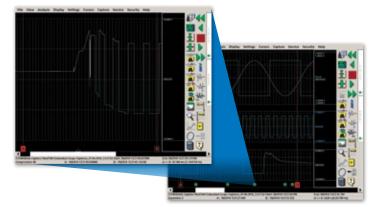
Print

Daxus PC software enables the user to print data to a PDF file or printer in real-time, scope, or review modes.

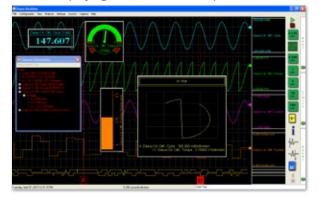
Configure

Each Daxus chassis features two slots for signal input module, to configure your Daxus system wide variety of input modules.

Channel meters provide a way to view any channel as a digital readout, bar meter, moving needle, or analog gauge making it easy to view current values at a glance. Visualize the relationships between inputs by plotting them in XYY plots. Channel meters

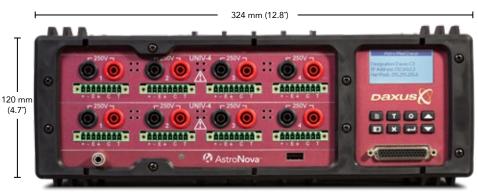


Displaying the embedded scope mode



and XYY plots can be sized and placed anywhere on the display for easy viewing. For viewing data on the go, AstroNova offers the Daxus mobile app which allows viewing data in real-time, review data files, and receive alerts on a smartphone or tablet.





Daxus[®] DXS-100 System Specifications

System		Battery		
Connectivity	Gigabit Ethernet (10/100/1000Base-T),	Battery Type	Lithium Ion (rechargeable)	
	WiFi optional	Charge Time	4 Hours	
Input Module Slots	2	Battery Life	20 minutes on single charge	
Link Ports	Multiple unit synchronization for higher channel counts	Physical		
Digital I/O	8 Digital, alarms, programmable I/O	Enclosure	Aluminum	
Data Acquisition		Dimensions (inches)	324 mm W x 180 mm D x 120 mm (12.8″ W x 7″ D x 4.7″ H) with endca	
Recording Method	Internal disk drive	Weight	3.2 kg (7 lbs.)	
Maximum Sample Rate	200 kS/s per channel	Compliance	3.2 kg (7 153.)	
Minimum Sample Rate	1 sample/100 seconds	Safety	EN 61010-1:2010, UL 61010-1:2012	
Multiple Sample Rates	up to 3 different rates, simultaneously	Surety	CSA C22.2:2012	
Total Capacity	500 GB (400 GB or up to 1.6 TB SSD)	EMC	FCC Part 15, Subpart B, Class A,	
General	40 Europe deble to 400	Power Harmonics	EN 61326 IEC1000-3-2	
Maximum Channels	48 Expandable to 480	Environmental		
Pre-capture Filter	Lowpass, highpass, bandpass, bandstop	Operating Temp	32 to 104 °F (0 to 40 °C)	
Advanced DSP	RMS, Integration, Differentiation	Storage Temp	-20 to 60 °C (-4 to 140 °F)	
Post-capture Filter	Lowpass, highpass, bandpass,	Operating Humidity	10% to 90% non condensing	
•	bandstop	Shock	MIL-810-F Method 516.5, Procedure	
Counter Modes, DSP	Gated time frequency counter, cycle based frequency counter, pulse	Vibration	MIL-810-F Method 514.5, Procedure	
	counter, pulse width detector, period width detector, duty cycle detector, quadrature counter, edge separator (module dependent)	*With solid state drive option		
Math Functions	Addition, Subtraction, Multiplication, Division, Trigonometric, Statistical and other general math functions			
Calibration	Semi-automated to external reference		A	
Additional Features				
GPS	For time and location			
IRIG Timestamp	IRIG timecodes IRIG A,B,E,G,NASA 36			
CAN Bus	Support for CAN signal acquisition, 2 Can Bus Networks			
Wireless	With USB to WiFi Adapter Only			
Unit DC Power			A Company of the second	
Input Voltage	9-36 VDC or 43-101 VDC			
Power Consumption	60 W Max (35W Typical)			
Unit AC Power (Adapter	Included)	-1		
Input voltage	100-240 VAC			
Frequency	50 - 60 Hz			
a 1	19V DC	Contra Contra		
Output voltage	70W			

View real-time data with the Daxus mobile app

Daxus[®] Options and Accessories

Part Number	Model	Description
Chassis & Modules		
42870000	DXS-100	DXS-100 multi-channel data acqusition system with built-in hard drive
32950005	ISEV-4 DAX	4-Channel Isolated Voltage Module (accepts up to 250 Vrms)
32950000	UNIV-4 DAX	4-Channel Universal Module up to 250Vrms, DC Bridge, Thermocouple, RTD and IEPE/ICP Inputs
32950030	IHVM-4 DAX	4-Channel High Voltage Module (accepts up to 600 Vrms or 1000 VDC)
32950035	IHVM-4P DAX	4-Channel High Voltage Power Measurent Module (accepts up to 600 Vrms or 1000 VDC)
32950010	ITCU-16 DAX	16-Channel Thermocouple Module for Daxus with CJC and Open Thermocouple Detection
32950020	NIDX-16 DAX	16-Channel Non-Isolated Differential Module, +/- 40V Screw Terminal Inputs, 10V Analog
32730020		Outputs
27432050	BLNK-D DAX	Blank Module (covers 1 module slot)
Options		
31862964	DAX-SSD400	DAX-SSD400 Solid-State Drive Option, 400 GB
31862968	DAX-SSD800	DAX-SSD800 Solid-State Drive Option, 800 GB
31862966	DAX-SSD1600	Optional Solid-State Drive (SSD) Upgrade, 1.6 TB
42662100	DAX-33D1000	DAX-IR/GPS IRIG A, B, E, G, NASA 36 time codes with GPS location and timing
		DAX-IN/GPS ING A, B, E, G, NASA 38 time codes with GPS location and timing DAX-CAN/GPS CAN Bus Interface with GPS location and timing
42662200	DAX-CAN/GPS	
32930000	DAX-OCBB	Options Card Breakout Box provides two analog outputs, two relays, two CAN Bus ports, one IRIG input and two general purpose I/O's
Accessories		
27535000	DAX-ANT	DAX-ANT GPS Antenna
27537000	DAX-WIFI	DAX-WIFI Wireless USB Adaptor
32950502	ADP-T	Thermocouple Adapter for UNIV-4
32950503	ADP-R	RTD Adapter for UNIV-4
32950501	ADP-I	IEPE Adapter for UNIV-4
32940000	DCP-12	DCP-12 Power Module, 9-36V DC Input Voltage
32940000	DCP-72	DCP-12 Power Module, 43-101V DC Input Voltage
42798100	-	
	DAX-RACK	DAX-RACK Rack-mount kit for Daxus
Software	DAY ON	
14004910	DAX-SW	Daxus Offline Software additional license for one user
14180100	DAX-SWSL	Daxus Offline Software site license (5 users)
14004930	FDAS	FlexPro 9 Data Analysis Software (Standard Edition)
14180200	FDAS-PRO	FlexPro 9 Data Analysis Software (Professional Edition)
Service		
EW-DAX	EW-DAX	12-Month Extended Warranty with Quick-Swap Loaner
Cases		
42737000	SC-DAX	SC-DAX Soft Carry Case for Daxus
41047300	HC-DAX	HC-DAX Hard Pelican Transport Case
Lead Sets and Probe	es	
13442000	GL-40	General Use Lead Set contains 2 each — probe handles, right angle to straight plug test lead, test clips, and medium alligator clips (1 red, 1 black)
13441003	LC-40	Test Leads/Clips pair of test leads and pincer clips (1 red, 1 black)
13441201	LC-40S	Test Leads/Spades pair of test leads with spade connector for # 8 screw
26487100	CLM-420A	4 to 20 mA Current Loop Adaptor for current loop measurements
24661201	SL261	Current Probe reads AC or DC current, 100 A maximum
24661200	MR411	Current Probe reads AC or DC current, 600 A maximum
24661100	MR521	Current Probe reads AC or DC current, 1500 A maximum
24661300	MN255	Current Probe reads AC current, 240 A maximum
24661400	SR759	Current Probe reads AC current, 1200 A maximum
24661500	JM875	Current Probe reads AC current, 3000 A maximum
24661600	FP300A	Flexible Current Probe reads AC current, 300 A maximum
24661700	FP300A	Flexible Current Probe reads AC current, 300 A maximum
24661620	FP6000A	Flexible Current Probe reads AC current, 6000 A maximum
25765000	ADP-4810	High Voltage Probe reads up to 1000 Vrms
10532211	BNC-BAN-I	Connector insulated Female BNC to standard insulated double Banana plug
12360007	CABLE-BNC	Cable, Male BNC to Male BNC, 12" (30.5 cm) length





ADP-I, ICP P/N: 32950501 IEPE Adapter for UNIV-4 Module

ADP-T, TC P/N: 32950502 Thermocouple Adapter for UNIV-4 Module





ADP-4810 P/N: 25765000 High Voltage Probe Reads Up to 1000 Vrms

CLM-420A P/N: 26487000 4 to 20 mA Current Adapter for Current Loop Measurements





MR521 P/N: 24661100 Current Probe Reads AC or DC Current,1500 A Maximum

MN255 P/N: 24661300 Current Probe Reads AC Current, 240 A Maximum





FP300A P/N: 24661600 Flexible Current Probe Reads AC Current, 300 A Maximum

FP3000A P/N: 24661700 Flexible Current Probe Reads AC Current, 3000 A Maximum







GL-40 P/N: 13442000 General Use Lead Set

SC-DAX P/N: 42737000 Soft Carry Case for Daxus





ADP-R, RTD P/N: 32950503 DAX-OCBB P/N: 32930000 RTD Adapter for UNIV-4 Module



SL261 P/N: 24661201 Current Probe Reads AC or DC Current, Current Probe Reads AC or DC Current, 100 A Maximum



SR759 P/N: 24661400 Current Probe Reads AC Current, 1200 A Maximum



FP6000A P/N: 24661620 Flexible Current Probe Reads AC Current, 6000 A Maximum



Options Card Breakout Box



MR411 P/N: 24661200 600 A Maximum



JM875 P/N: 24661500 Current Probe Reads AC Current, 3000 A Maximum

HC-DAX P/N: 41047300 Hard Case for Daxus



SMARTCORDER[®] **DDX**-100





Part Number #42960100

Compact, Lightweight & Intelligent Data Acquisition

The SmartCorder[®] DDX-100 is a compact, lightweight and extremely portable all-in-one data acquisition system. As the successor to the Dash series, the DDX-100 includes everything needed to acquire, vizualize, analyze and store data in one device. Weighing just 18.5 lbs. (8.6 kg), it is AstroNova's lightest all-in-one system.

- 200 kS/s per channel max sample rate
- Up to 48 channels, expandable to 480 with Daxus
- On-board signal processing reduces post processing with no latency
- GPS, IRIG, NTP synchronization
- AC or rechargeable battery operation
- Automate common tasks with Python or LabVIEW
- 500 GB standard or optional 1.6 TB solid state drive

Product Overview

The SmartCorder[®] DDX-100 is the perfect data acquisition system for testing, troubleshooting, and monitoring in the field, in the lab, and on the plant floor.

With the DDX-100, users can capture up to 48 channels and record weeks or even months of data at a time. For higher channel count applications, the DDX-100 can be combined with Daxus data distributed data acquisition systems to record hundreds of channels of synchronized data.

The DDX-100 comes complete with intuitive software, making it easy for users to get up and running guickly. The on-board signal processing allows for real-time calculations, allowing users to save time and make decisions faster.

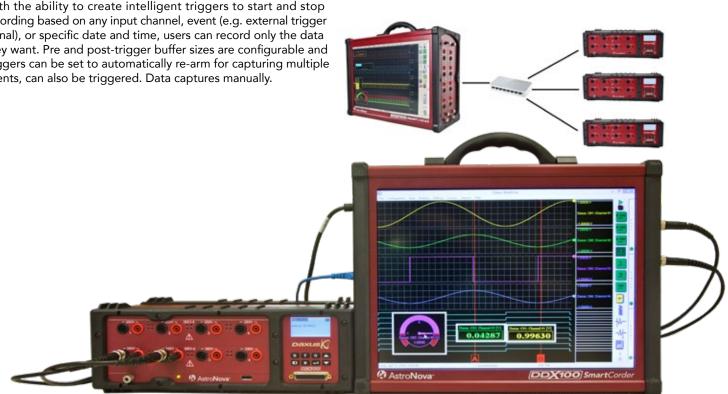
Equipped with the IHVM-4P input module, the DDX-100 is ideal for power quality measurements and is capable of performing 16 power measurements using only 4 inputs.

Acauire

The DDX-100 features two slots that accept a variety of input modules. Each system can acquire up to 48 channels with sampling rates up to 200 kS/s per channel or as low as 0.01 samples per second for long term monitoring. The number of channels is expandable to 480 using AstroNova's Daxus distributed data acquisition platform, and all inputs can be synchronized by sharing clock signals or via GPS or IRIG.

The DDX-100 supports three different sampling rates per channel which allows users to acquire high speed and low speed data simultaneously, reducing file sizes.

With the ability to create intelligent triggers to start and stop recording based on any input channel, event (e.g. external trigger signal), or specific date and time, users can record only the data they want. Pre and post-trigger buffer sizes are configurable and triggers can be set to automatically re-arm for capturing multiple events, can also be triggered. Data captures manually.



The Utility/DIO port contains alarm outputs and inputs as well as programmable outputs and inputs for external sample clocks, eliminating the need for a separate digital I/O module. Optional interfaces include IRIG for synchronizing data across multiple units, GPS for time and location, and CAN (up to 16 channels). Selecting these options does not require users to surrender a slot for input modules.

Expandable for Increased Capability

The Daxus family of data acquisition systems is designed for compatibility. SmartCorder DDX-100 and Daxus easily integrate to:

- Increase Channel Counts
- Provide Networked Recording Capability
- Record Signals from Multiple Locations
- Record Dozens of Signals in a Single Application
- Combine for Distributed Data Acquisition

Channel meters allow users to view any channel as a digital readout, bar meter, moving needle, or analog gauge, making it easy to view current values at a glance. Users are able to visualize the relationships between inputs by plotting them in XYY plots. Channel meters and XYY plots can be sized and placed anywhere on the display for easy viewing.

Analyze

The DDX-100 provides powerful tools to help users analyze data quickly and easily. The built-in digital signal processing (DSP) capabilities allow users to create derived channels, apply custom filters, and perform frequency or counter measurements on a per-channel basis.

The derived channel feature provides users with the ability to create calculated channels based on user-defined equations and up to four input channels. Derived channels are calculated in real-time and can be displayed and recorded along with the original input channels in real-time or review mode.

To aid in analyzing acquired data, cursors provide built-in measurements such as average, Min-Max, Peak-Peak, Slope, RMS, Sum, Std Deviation, and more. Users can also configure Fourier Transform windows for viewing and analyzing frequency content.

Advanced counter and timing functions provide common frequency measurements and eliminate the need for a separate counter/timer module, regardless of the input module type. Available functions include frequency, duty cycle, edge separation, guadrature encoder, gated pulse counter, pulse width, and more.

User Notes can also be added during an acquisition and are saved as part of the data file for review.

Data Review allows users to review captured data while still recording. The user-defined cursors offer the option to perform measurements in real-time, scope and review modes. Select from standard measurements including average, Min-Max, Peak -Peak, Slope, RMS, and others.

Users can review data on their PC using the optional DDX Offline Software, with the option to extend and automate analysis and control functions using Python scripting and LabVIEW.

Store

With all data stored locally on an internal hard drive, users have the option to choose from a 500 GB hard disk drive (standard) or up to a 1.6 TB optional solid state drive (recommended).

The DDX-100 comes with a built-in Lithium-Ion battery that automatically charges when the system is connected to power and provides backup power for continued operation (45 minutes typical) with no loss of data.

Storing derived channels, events and notations, along with measurement data, users can easily reduce post-processing and recall important events. Using the included application software, users are also able to export only the channels or time frame selected to ASCII.

AstroNova provides free AstroVIEW X software for viewing data from any AstroNova data acquisition system on a PC with the option to export to other common file formats.

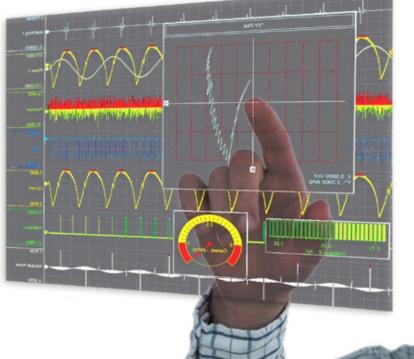
Print

The SmartCorder DDX-100 software enables users to print data to a PDF file in real-time, scope, or review modes.

SmartCorder[®] DDX-100 System Specifications

System		Unit Power	
Display	15" touch panel with 1024x768 resolution	Input Voltage	100-240 VAC, 50/60 Hz (47 Hz to 63 Hz)
Connectivity	Gigabit Ethernet (10/100/1000Base-T),	Maximum Power	120 Watt Max. (90 Watt typical)
	Wi-Fi optional	Battery	
Input Module Slots	2	Туре	Lithium-Ion (rechargeable)
Data Acquisition		Charge Time	4 hours
Recording Method	Internal disk drive	Battery Life	Up to 1 hour on a single charge
Maximum Sample Rate	200 kS/s per channel		(45 minutes typical)
Minimum Sample Rate	1 sample/100 seconds	Physical	
Multiple Sample Rates	Pp to 3 different rates simultaneously	Dimensions (inches)	11.8" H x 14.4" W x 6.6" D
Total Capacity	500 GB (400 GB or up to 1.6 TB SSD)		(300 mm H x 366 mm W x 168 mm D)
General		Weight	18.5 lbs. (8.4 kg) including signal input modules
Maximum Channels	48 Expandable to 480	Compliance	Input modules
Pre-capture Filter	Lowpass, highpass, bandpass, bandstop	Safety	EN 61010-1:2010, UL 61010-1:2012,
Advanced DSP	RMS, Integration, Differentiation	5140	CSA C22.2:2012
Post-capture Filter	Lowpass, highpass, bandpass, bandstop	EMC	FCC Part 15, Subpart B, Class A, EN 61326
Counter Modes, DSP	Gated time frequency counter, cycle based frequency counter, pulse counter, pulse width detector, period width detector, duty cycle detector, quadrature counter, edge separator (module dependent)	Power Harmonics	IEC1000-3-2
		Environmental	
		Operating Temp	32 to 104 °F (0 to 40 °C)
		Storage Temp	-20 to 60 °C (-4 to 140 °F)
		Operating Humidity	10% to 90% non condensing
Math Functions	Addition, Subtraction, Multiplication,	Shock	MIL-810-F Method 516.5, Procedure I*
	Division, Trigonometric, Statistical and	Vibration	MIL-810-F Method 514.5, Procedure I*
	other general math functions	*With solid state drive option	n
Calibration	Semi-automated to external reference		
Additional Features			
GPS	For time and location		
IRIG Timestamp	IRIG timecodes IRIG A,B,E,G,Nasa 36		
CAN Bus	Support for CAN signal acquisition, 2 Can Bus Networks		
Wireless	With USB to WiFi Adapter Only		

SmartCorder[®] DDX-100 can be configured to measure 8 channels of "Universal" signals including Voltage (250 VRMS or DC), Thermocouple, DC Bridge, RTD and IEPE Accelerometer inputs. High Voltage (600 VRMS or DC) or up to 32 channels of 40 VFS are also available.







SmartCorder[®] DDX-100 Options and Accessories

Part Number	Model	Description
Chassis & Modules		
42960100	DDX-100	Multi-Channel Data Acquisition System Chassis accepts up to two Input Modules (Windows 10)
32950605	ISEV-4 DDX	4-Channel Isolated Voltage Module (accepts up to 250 Vrms)
32950600	UNIV-4 DDX	4-Channel Universal Voltage Module for up to 250 Vrms, DC Bridge, Thermocouple, RTD and IEPE
32950630	IHVM-4 DDX	4-Channel High Voltage Module (accepts up to 600 Vrms or 1000 VDC)
32950635	IHVM-4P DDX	4-Channel High Voltage Power Measurent Module (accepts up to 600 Vrms or 1000 VDC)
32950610	ITCU-16 DDX	16-Channel Thermocouple Module for DDX-100 with CJC and Open Thermocouple Detection
32950620	NIDX-16 DDX	16-Channel Non-Isolated Differential Module, +/- 40V Screw Terminal Inputs, 10V Analog Outputs
32950690	BLNK-D DDX	Blank Module (covers 1 module slot)
Options	1	
42662100	DAX-IR/GPS	DAX-IR/GPS IRIG A, B, E, G, NASA 36 time codes with GPS location and timing
42662200	DAX-CAN/GPS	DAX-CAN/GPS CAN Bus Interface with GPS location and timing
32930000	DAX-OCBB	Options Card Breakout Box provides two analog outputs, two relays, two CAN Bus ports, one IRIG input and two general purpose I/O's
41284004	DDX-SSD400	Optional Solid-State Drive (SSD) Upgrade, 400 GB Capture Drive & 400 GB System Drive
41284008	DDX-SSD800	Optional Solid-State Drive (SSD) Upgrade, 800 GB Capture Drive & 400 GB System Drive
41284016	DDX-SSD1600	Optional Solid-State Drive (SSD) Upgrade, 1.6 TB Capture Drive & 400 GB System Drive
Accessories		
27535000	DAX-ANT	DAX-ANT GPS Antenna
27537000	DAX-WIFI	DAX-WIFI Wireless USB Adaptor
32950502	ADP-T	Thermocouple Adapter for UNIV-4
32950503	ADP-R	RTD Adapter for UNIV-4
32950501	ADP-I	IEPE Adapter for UNIV-4
Software		
14004912	DDX-SW	DDX-100 SMARTCORDER Offline Software
14004930	DDX-SWSL	DDX-100 SMARTCORDER Offline Software Site License (5 Users)
14180100	FDAS	FlexPro 9 Data Analysis Software (Standard Edition)
14180200	FDAS-PRO	FlexPro 9 Data Analysis Software (Professional Edition)
Service		
EW-DDX	EW-DDX	12-Month Extended Warranty with Quick-Swap Loaner
Cases		
41047200	SC-DDX	Soft Carry Case for DDX-100 SMARTCORDER
41047220	HC-DDX	Hard Pelican Carry Case for DDX-100 SMARTCORDER
Lead Sets and Probe		
13442000	GL-40	General Use Lead Set contains 2 each — probe handles, right angle to straight plug test lead, test clips, and medium alligator clips (1 red, 1 black)
13441003	LC-40	Test Leads/Clips pair of test leads and pincer clips (1 red, 1 black)
13441201	LC-40S	Test Leads/Spades pair of test leads with spade connector for # 8 screw
26487100	CLM-420A	4 to 20 mA Current Loop Adaptor for current loop measurements
24661201	SL261	Current Probe reads AC or DC current, 100 A maximum
24661200	MR411	Current Probe reads AC or DC current, 600 A maximum
24661100	MR521	Current Probe reads AC or DC current, 1500 A maximum
24661300	MN255	Current Probe reads AC current, 240 A maximum
24661400	SR759	Current Probe reads AC current, 1200 A maximum
24661500	JM875	Current Probe reads AC current, 3000 A maximum
24661600	FP300A	Flexible Current Probe reads AC current, 300 A maximum
24661700	FP3000A	Flexible Current Probe reads AC current, 3000 A maximum
24661620	FP6000A	Flexible Current Probe reads AC current, 6000 A maximum
25765000	ADP-4810	High Voltage Probe reads up to 1000 Vrms
10532211	BNC-BAN-I	Connector insulated Female BNC to standard insulated double Banana plug
12360007	CABLE-BNC	Cable, Male BNC to Male BNC, 12" (30.5 cm) length





ADP-I, ICP P/N: 32950501 IEPE Adapter for UNIV-4 Module

ADP-T, TC P/N: 32950502 Thermocouple Adapter for UNIV-4 Module





ADP-4810 P/N: 25765000 High Voltage Probe Reads Up to 1000 Vrms

CLM-420A P/N: 26487000 4 to 20 mA Current Adapter for Current Loop Measurements





MR521 P/N: 24661100 Current Probe Reads AC or DC Current,1500 A Maximum

MN255 P/N: 24661300 Current Probe Reads AC Current, 240 A Maximum





FP300A P/N: 24661600 Flexible Current Probe Reads AC Current, 300 A Maximum

GL-40 P/N: 13442000

General Use Lead Set

FP3000A P/N: 24661700 Flexible Current Probe Reads AC Current, 3000 A Maximum



FP6000A P/N: 24661620 Flexible Current Probe Reads AC Current, 6000 A Maximum





RTD Adapter for UNIV-4 Module



SL261 P/N: 24661201 Current Probe Reads AC or DC Current, Current Probe Reads AC or DC Current, 100 A Maximum



SR759 P/N: 24661400 Current Probe Reads AC Current, 1200 A Maximum



ADP-R, RTD P/N: 32950503 DAX-OCBB P/N: 32930000 Options Card Breakout Box



MR411 P/N: 24661200 600 A Maximum



JM875 P/N: 24661500 Current Probe Reads AC Current, 3000 A Maximum



SC-DDX P/N: 41047200 Soft Carry Case for DDX-100

UNIV-4





Universal Module

The UNIV-4 is a 4-channel universal input module that measures voltage, temperature, strain, pressure, acceleration, current, and more. This module accepts voltages up to 250 Vrms and a wide variety of sensors including thermocouples, RTD's, bridge-based sensors, and accelerometers. Ideal for mixed signal applications, the UNIV-4 provides maximum flexibility for acquiring different types of inputs with a single module.

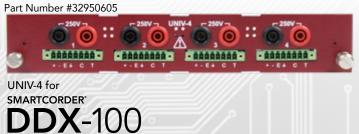
- 4 Universal inputs
- Accepts thermocouple, RTD, bridge based sensors, and IEPE type sensors
- Simultaneous sampling at up to 200kS/s/ch
- 16-bit resolution
- High accuracy
- Built-in counter and timer functions
- 250 VRMS or DC Cat II isolation











UNIV-4 Specifications

COMMON SPECIFICATIONS	
Channels Per Module	4
Rated Isolation	250 VRMS or DC, CAT II (iso-commo
Frequency Counter Capability	All channels. Software selectable.
Counter Modes	Gated time frequency counter, cycle quadrature counter, pulse width de
Frequency ctr range (menu)	Up to 80 KHz
Frequency ctr range (spec'd)	2 - 40 KHz
Frequency ctr accuracy	± 0.07% of Measurement + .002 Hz
Min counter input amplitude	25% of span for freq and pulse cour
Pulse counter range	4000000000 maximum. (16 bit displa
Pulse width accuracy	.002% of measurement + .00167% c
Pulse width range	25 μs – 2500000
Edge separation accuracy	.002% of measurement + .00167% c
Edge separation range	25 μs – 5000000 μs
Period width accuracy	.001% of measurement + .00167% c
Period width range	25 μs – 100000 μs (10 Hz – 40 KHz)
Duty cycle accuracy	.5% (Inputs in the 1 Hz - 5 KHz range
Counter Timebase	50 MHZ
Cold Start Drift	0.1% of attenuator (60 min.)

SINGLE ENDED INPUT	
Connector	Guarded banana jacks (red/black)
Input	Single-ended, AC/DC coupled
Sample Rate	200 kS/s/ch
A/D	16 bit SAR (one per channel)
Anti-Aliasing Filter	4 pole Bessel
Bandwidth	40 KHz (-3dB)
AC Coupled 3dB Point	< 0.54 Hz (0.47 Hz typ)
Off Ground Measurements	Yes
Zero Suppression	Digital.
Attenuator Ranges	1, 10, 100, 200 and 400 Volt
Measurement Ranges	± 400 V (400 VFS or 800 VFS w/ zero ± 100 V (100 VFS or 200 VFS w/ zero ± 1 V (1 VFS or 2 VFS w/ zero offset
Max Rated Input	250 Vrms or DC, Cat II
Max Transient Input	\pm 800 V peak (not to exceed 250Vrr
DC Accuracy (25°C)	± 0.06% of attenuator
Overshoot	< 0.25%
Intrinsic Noise (pk-pk)	< 0.02% of attenuator + .02% of spa < 0.16% of attenuator + .02% of spa
IMR at 60 Hz	Better than -80 dB
Min Input Impedance	> 1 Megohm

non to chassis and other iso-commons)

le-based frequency counter, pulse event counter, gated pulse event counter, etector, period width detector, duty cycle detector, edge separation detector.

unters, 90% of span for all other modes lay resolution)

of span + 0.7 µs

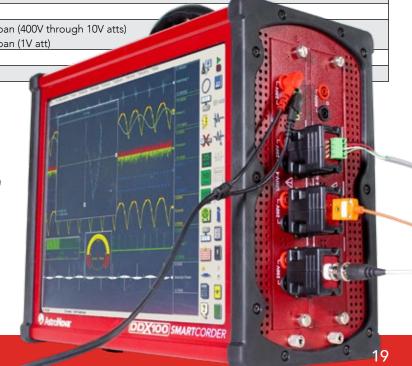
of span + 0.7 µs

of span + 0.7 µs

ge with 5% - 95% duty cycles)

ro offset), ± 200 V (200 VFS or 400 VFS w/ zero offset), ro offset), ± 10 V (10 VFS or 20 VFS w/ zero offset), t. 0.1V min span)

ns)



UNIV-4 Specifications

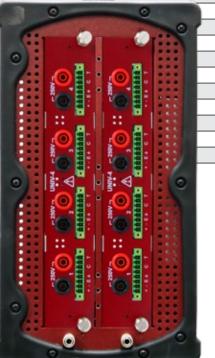
_	
DIFFERENTIAL INPUT	
Connector	8 wire screw terminal
Input	Differential, DC coupled
Sample Rate	200 kS/s/ch
A/D	16 bit SAR (one per channel)
Anti-Aliasing Filter	4 pole Bessel
Bandwidth	35 KHz
Measurement Ranges	± 1000 mV, ± 100 mV, ± 20 mV
Max Transient Input	± 20 V (no damage)
Common Mode Voltage	± 10 V
Zero Suppression	digital.
DC Accuracy (25°C)	± 0.06% of attenuator
Overshoot	< 0.25%
Intrinsic Noise	< 0.02% of attenuator + .02% of span (1000 mV Att), < 0.05% of attenuator + .02% of span (100 mV Att) < 0.18% of attenuator + .02% of span (20 mV Att)
Input Impedance	> 300 KΩ (150 KΩ balanced to isolated common)
CMR at 60 Hz	> 85 dB
Excitation	DC Voltage - adjustable, 0.1 to 10 V. 30 mA maximum
Excitation Accuracy	0.05 V voltage mode
RESISTANCE INPUT	(32950503 ADP-R option)
Connector	4 wire screw terminal
Input	Differential, DC coupled
Sample Rate	2.5 samples/sec
A/D	24 bit SigmaDelta (one per channel)
Anti-Aliasing Filter	Inherent
Measurement Ranges	0 to 1500 Ω
Max Transient Input	± 20 V (no damage)
Accuracy	0.03% of measurement + 0.04 Ω
DCVM INPUT	
Connector	8 wire screw terminal
Input	Differential, DC coupled
Sample Rate	2.5 samples/sec
A/D	24 bit SigmaDelta (one per channel)
Anti-Aliasing Filter	
Measurement Ranges	-10 mV to + 100 mV
Max Transient Input	$\pm 20 \text{ V} (\text{no damage})$
Common Mode Voltage	± 20 v (no damage) ± 10V
Zero Suppression	Digital.
DC Accuracy (25°C)	20 V (no damage) 0.04% of attenuator
Intrinsic Noise (pk-pk)	< 0.005% of attenuator
Input Impedance	> 300 K Ω (150 K Ω balanced to isolated common)
RTD INPUT	(32950503 ADP-R option)
Connector	4 wire screw terminal
	Differential, DC coupled
Input Sample Rate	2.5 samples/sec
A/D	2.5 samples/sec 24 bit SigmaDelta (one per channel)
Anti-Aliasing Filter	Inherent
	Pt100(385) -200 to 800°C,
Measurement Ranges	Pt100(383) -200 to 800°C, Pt100(3916) -200 to 630°C (-200 to 800 on menu)
May Transiant Insut	
Max Transient Input	± 20 V (no damage)
Resolution	0.01 *C
Supported RTD Probe types	Pt 100 - 385 (DIN 43760, IEC751 and ASTM 1137), Pt 100 - 3916 (JIS C1604), Pt 100 - 3926 (reference grade) – future
DC Accuracy (25°C)	Pt 100 - 3920 (reference grade) – future Pt 100 - 385 0.04% of measurement + 0.1°C, Pt 100 - 3916 0.1% of measurement + 0.2°C
Linearization	Yes

UNIV-4 Specifications

HERMOCOUPLE INPUT	(32950502 ADP-T needed fo	or internal CJC)	
Connector	Type U miniature thermocouple	Accuracy (25°C) J (< 0)	± 3.0°C.
nput	Differential, DC coupled	Accuracy (25°C) J (0 to 1200)	± 1.0°C.
iample Rate	2.5 samples /sec	Accuracy (25°C) K (< 0)	± 3.0°C.
VD	24 bit SigmaDelta (one per	Accuracy (25°C) K (0 to 1372)	± 1.0°C.
	channel)	Accuracy (25°C) E (< -100)	± 3.0°C.
Anti-Aliasing Filter	Inherent	Accuracy (25°C) E (-100 to 1000)	± 1.5°C.
pecified Range Type J:	-210 to 1200°C	Accuracy (25°C) T (< -100)	± 2.5°C.
pecified Range Type K:	-200 to 1372°C	Accuracy (25°C) T (-100 to 400)	± 1.5°C.
pecified Range Type E:	-200 to 1000°C	Accuracy (25°C) N (< -50)	± 3.0°C.
pecified Range Type T:	-200 to 400°C	Accuracy (25°C) N (-50 to 1300)	± 1.5°C.
pecified Range Type N:	-200 to 1300°C	Accuracy (25°C) B	± 4.5°C.
pecified Range Type B:	600 to 1820°C (250 to 1820 on menu)	Accuracy (25°C) R	± 5.5°C.
pecified Range Type R:	0 to 1767°C (-20 to 1768	Accuracy (25°C) S	± 5.5°C.
	on menu)	Accuracy (25°C) C (W5ReM26Re)	± 3.0°C.
pecified Range Type S:	0 to 1767°C (-20 to 1768	Cold Junction Compensation	Both internal and external
	on menu)	Compensation Error	Included in accuracy
pecified Range Type C:	0 to 2316°C		specification
Max Transient Input	± 20 V (no damage)	Linearization	NIST ITS-90
Common Mode Voltage	± 10V	Input Impedance	> 300 KΩ (150 KΩ balance
Resolution	0.01°C	_	to isolated common)
hermocouple types	J,K,E,T,N,B,R,S,C		
EPE (LIVM) INPUT	(32950501 ADP-I option)		
Connector	Isolated BNC		
nput	Single Ended, AC coupled wit	h constant current excitation	
ample Rate	200 kS/s/ch		
VD			
ν υ	16-bit SAR (one per channel)		
Anti-Aliasing Filter	16-bit SAR (one per channel) 4 pole Bessel		
	i		~
Anti-Aliasing Filter	4 pole Bessel		0
Anti-Aliasing Filter Neasurement Ranges	4 pole Bessel ± 10 V (1 to 20 VFS)		Q
Anti-Aliasing Filter Measurement Ranges Max Transient Input	4 pole Bessel ± 10 V (1 to 20 VFS) ± 30 V (no damage)	00	
Anti-Aliasing Filter Measurement Ranges Max Transient Input Accuracy (25°C)	4 pole Bessel ± 10 V (1 to 20 VFS) ± 30 V (no damage) ± 0.1% of attenuator	of span	
Anti-Aliasing Filter Measurement Ranges Max Transient Input Accuracy (25°C) Dvershoot	4 pole Bessel ± 10 V (1 to 20 VFS) ± 30 V (no damage) ± 0.1% of attenuator < 0.25%	of span	
Anti-Aliasing Filter Measurement Ranges Max Transient Input Accuracy (25°C) Dvershoot ntrinsic Noise (pk-pk)	4 pole Bessel ± 10 V (1 to 20 VFS) ± 30 V (no damage) ± 0.1% of attenuator < 0.25% < 0.02% of attenuator + .02%	of span	
Anti-Aliasing Filter Measurement Ranges Max Transient Input Accuracy (25°C) Dvershoot ntrinsic Noise (pk-pk) Min Input Impedance	4 pole Bessel ± 10 V (1 to 20 VFS) ± 30 V (no damage) ± 0.1% of attenuator < 0.25% < 0.02% of attenuator + .02% > 1 Megohm	of span	
Anti-Aliasing Filter Measurement Ranges Max Transient Input Accuracy (25°C) Dvershoot ntrinsic Noise (pk-pk) Min Input Impedance MR at 60 Hz	4 pole Bessel ± 10 V (1 to 20 VFS) ± 30 V (no damage) ± 0.1% of attenuator < 0.25% < 0.02% of attenuator + .02% > 1 Megohm Better than -85 dB	of span	
Anti-Aliasing Filter Measurement Ranges Max Transient Input Accuracy (25°C) Dvershoot Intrinsic Noise (pk-pk) Min Input Impedance MR at 60 Hz Excitation	4 pole Bessel ± 10 V (1 to 20 VFS) ± 30 V (no damage) ± 0.1% of attenuator < 0.25% < 0.02% of attenuator + .02% > 1 Megohm Better than -85 dB 4.5 mA DC current		
Anti-Aliasing Filter Measurement Ranges Max Transient Input Accuracy (25°C) Dvershoot Intrinsic Noise (pk-pk) Min Input Impedance MR at 60 Hz Excitation Excitation	4 pole Bessel ± 10 V (1 to 20 VFS) ± 30 V (no damage) ± 0.1% of attenuator < 0.25% < 0.02% of attenuator + .02% > 1 Megohm Better than -85 dB 4.5 mA DC current 20%		
Anti-Aliasing Filter Measurement Ranges Max Transient Input Accuracy (25°C) Dvershoot Intrinsic Noise (pk-pk) Min Input Impedance MR at 60 Hz Excitation Excitation Accuracy (25°C) Excitation Compliance Voltage	4 pole Bessel ± 10 V (1 to 20 VFS) ± 30 V (no damage) ± 0.1% of attenuator < 0.25% < 0.02% of attenuator + .02% > 1 Megohm Better than -85 dB 4.5 mA DC current 20% 20V (Approx 24V open circuit)		







IHVM-4P

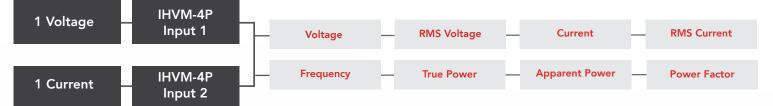




4-Channel Isolated High Voltage Power Module

4-Channel Isolated High Voltage Module accepts up to 600 Vrms or 1000 VDC (Cat III) or 1,000 Vrms or DC (Cat II) with 16 selectable measurements including power quality.

- Acquire 8 power quality measurements with only one pair of voltage and current
- 4 high voltage inputs (up to 1,000 V)
- Multiple input ranges provide maximum resolution
- Simultaneous sampling up to 50 kS/s/ch
- 16-bit Resolution
- Built-in counter and timer functions



Part Number #32950035



Part Number #32950635



IHVM-4P Specifications

INPUTS	
Input Channels Per Module	4
Viewable Channels Per Module	16 (includes processed math chan
Connector	Guarded banana jacks (red/black)
Input	Differential, DC coupled
Bandwidth	14 kHz (-3dB)
Rated Isolation	600 VRMS or DC, Cat III (channel to
Sample Rate	50 kS/s/ch
A/D	16 bit SAR (one per channel)
Anti-Aliasing Filter	4 pole Bessel
Cold Start Drift	< 0.02% att + .02% span (60 min.)
Off Ground Measurements	Yes
Zero Suppression	Digital.
Attenuator Ranges	40, 200 and 1000 Volt
Measurement Ranges	± 1000 V (1000 VFS or 2000 VFS w/ ± 40 V (40 VFS or 80 VFS w/ zero o
Minimum Span	2VFS
Max Rated Input	600 Vrms or DC, Cat III, 1000V DC,
DC Accuracy (25°C)	± 0.06% of attenuator
Overshoot	< 0.1%
Intrinsic Noise (pk-pk)	< 0.047% of attenuator + .013% of < 0.005% of attenuator + .024% of
IMR at 60 Hz	Better than -75 dB
Crosstalk	Better than -80 dB
Minimum Input Impedance	> 10 Megohm
ADVANCED PROCESSING	
Power Calculations	True power, apparent power, powe
Math Functions	Differentiation, integration, time b
COUNTER TIMER FUNCTIONS	
Frequency Counter Capability	All channels. Software selectable.
Counter Modes	Gated time frequency counter, cyc period width detector, duty cycle o
Counter Modes (Power Mode)	Cycle based frequency counter (0.
Frequency Ctr Range (Menu)	Up to 20 kHz
Frequency Ctr Range (Spec'd)	2 – 12 kHz (Standard Mode)
Min Counter Input Amplitude	\pm 0.07% of Measurement + .002 H
Pulse Counter Range	4000000000 maximum. (16 bit dis
Pulse Width Accuracy	.002% of measurement + .00167%
Pulse Width Range	25 μs – 2500000
Edge Separation Accuracy	.002% of measurement + .00167%
Edge Separation Range	25 μs – 5000000 μs
Period Width Accuracy	.001% of measurement + .00167%
Period Width Range	25 μs – 100000 μs (10 Hz – 30 KHz)
Duty Cycle Accuracy	.5% (Inputs in the 1 Hz - 5 kHz rang
Counter Timebase	50 MHz



nels)

chassis and other channels), 1000 VDC, Cat II (channel to chassis and other channels)

v/ zero offset), \pm 200 V (200 VFS or 400 VFS w/ zero offset), offset.)

, Cat II

of span (40V att), < 0.013% of attenuator + .02% of span (200V att), of span (1000V att)

ver factor, cycle based RMS voltage and cycle based RMS current (Power Mode) based RMS, Cycle Based RMS (Std Mode)

/cle based frequency counter, pulse width detector, detector.

.1 Hz resolution, 1.0 Hz minimum)

Hz (Standard Mode) splay resolution)

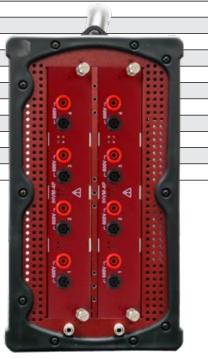
6 of span + 0.7 μs

% of span + 0.7 μs

of span + 0.7 μs

ge with 5% - 95% duty cycles)





IHVM-4





4-Channel Isolated High Voltage Module

The IHVM-4 is a high voltage input module for the Daxus® DXS-100 and SmartCorder® DDX-100 data acquisition systems. The IHVM-4 is ideal for high voltage measurements at up to 200 kS/s.

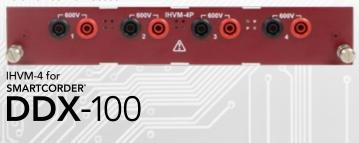
- 4 high voltage inputs (up to 1,000 V)
- Multiple input ranges provide maximum resolution
- Simultaneous sampling up to 200 kS/s/ch
- 16-bit Resolution
- Built-in counter and timer functions



GL-40 P/N: 13442000



Part Number #32950630





IHVM-4 Specifications

INPUTS	
Input Channels Per Module	4
Viewable Channels Per Module	16 (includes processed math channe
Connector	Guarded banana jacks (red/black)
Input	Differential, DC coupled
Bandwidth	35 kHz (-3dB)
Rated Isolation	600 VRMS or DC, Cat III (channel to ch
Sample Rate	200 kS/s/ch
A/D	16 bit SAR (one per channel)
Anti-Aliasing Filter	4 pole Bessel
Cold Start Drift	< 0.02% att + .02% span (60 min.)
Off Ground Measurements	Yes
Zero Suppression	Digital.
Attenuator Ranges	40, 200 and 1000 Volt
Measurement Ranges	± 1000 V (1000 VFS or 2000 VFS w/ z ± 40 V (40 VFS or 80 VFS w/ zero off
Minimum Span	1VFS (2VFS when counters are in us
Max Rated Input	600 Vrms or DC, Cat III, 1000V DC, 0
DC Accuracy (25°C)	± 0.06% of attenuator
Overshoot	< 0.25%
Intrinsic Noise (pk-pk)	< 0.18% of attenuator + .05% of spa < 0.015% of attenuator + .025% of s
IMR at 60 Hz	Better than -70 dB
Crosstalk	Better than -80 dB
Min Input Impedence	> 10 Megohm
COUNTER TIMER FUNCTIONS	
Frequency Counter Capability	All channels. Software selectable.
Counter Modes	Gated time frequency counter, cycle quadrature counter, pulse width det
Frequency Ctr Range (Menu)	Up to 80 kHz
Frequency Ctr Range (Spec'd)	2 – 30 kHz
Frequency Ctr Accuracy	\pm 0.07% of Measurement + .002 Hz
Min Counter Input Amplitude	25% of span for freq and pulse cour
Pulse Counter Range	4000000000 maximum. (16 bit displ
Pulse Width Accuracy	.002% of measurement + .00167% c
Pulse Width Range	25 μs – 2500000
Edge Separation Accuracy	.002% of measurement + .00167% c
Edge Separation Range	25 μs – 5000000 μs
Period Width Accuracy	.001% of measurement + .00167% c
Period Width Range	25 μs – 100000 μs (10 Hz – 30 kHz)
Duty Cycle Accuracy	.5% (Inputs in the 1 Hz - 5 kHz range
Counter Timebase	50 MHz

els)

assis and other channels), 1000 VDC, Cat II (channel to chassis and other channels)

zero offset), \pm 200 V (200 VFS or 400 VFS w/ zero offset), ffset.)

se)

Cat II

an (40V att), < 0.045% of attenuator + .02% of span (200V att), span (1000V att)

le based frequency counter, pulse event counter, gated pulse event counter, etector, period width detector, duty cycle detector, edge separation detector.

nters, 90% of span for all other modes blay resolution) of span + 0.7 μs

of span + 0.7 µs

of span + 0.7 µs

e with 5% - 95% duty cycles)





ITCU-16





Thermocouple and Low-Voltage Module

The ITCU-16 is a high-accuracy 16-channel thermocouple input module for the Daxus® DXS-100 and SmartCorder[®] DDX-100 data acquisition systems. The ITCU-16 is ideal for high channel count applications requiring high accuracy.



- Direct connectivity with standard Mini-TC connectors
- High accuracy (<1 deg C typical)
- High resolution (24-bit)
- 300 Vrms, Cat II rated isolation
- Open thermocouple detection (OTD)
- 50/60 Hz noise rejection •
- High sample rate mode (50 samples/sec)
- Cold junction compensation

ITCU-16 Specifications

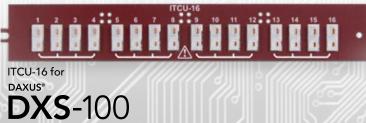
GENERAL	
Channels Per Module	16
Connector	Type U miniature thermocouple
Rated Isolation	300 VRMS or DC, Cat II group to
Isolation voltage	3500 VDC group to chassis and g
Update rates	1.0 Hz (Slow), 10 Hz (Medium), 50
Absolute Max Input	+/- 10V (60 seconds - between a
A/D	Muxed 24 bit Sigma Delta (one p
Anti-Aliasing Filter	Inherent
50 Hz / 60 Hz Notch Filter	(1.0 Hz rate only)
Resolution	0.01 °C
Open thermocouple detection	Yes
Thermocouple types	J,K,E,T,N,B,R,S,C
IMR	> 110 dB @ DC
Linearization	NIST ITS-90
Frequency Counter Capability	No
Cold Start Drift	+/- 0.0025% of attenuator
Cold Junction Compensation	Selectable internal or external
Compensation Error	Included in accuracy specificatio

IEASUREMENT RANGES	
vpe J	-21

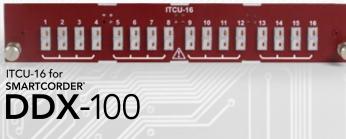
MEASUREMENT RANG	ES	ACCURACY (@25 °C)	(1.0 Hz Update Ra
Type J	-210 to 1200 °C	Туре Ј (<0)	+/- 2.0 °C
Гуре К	-200 to 1372 °C	Type J (0 to 1200)	+/- 0.9°C
Туре Е	-200 to 1000 °C	Туре К (<0)	+/- 2.5 °C
Гуре Т	-200 to 400 °C	Type K (0 to 1372)	+/- 0.9 °C
ype N	-200 to 1300 °C	Туре Е (<-100)	+/- 2.5 °C
уре В	600 to 1820 °C (250 to 1820 on menu)	Type E (-100 to 1000)	+/- 1.0 °C
Гуре R	0 to 1767 °C (-20 to 1768 on menu)	Туре Т (<-100)	+/- 2.5 °C
ype S	0 to 1767 °C (-20 to 1768 on menu)	Type T (-100 to 400)	+/- 1.0 °C
/ре С	0 to 2316°C	Туре N (<-50)	+/- 2.0 °C
oltage	100 mv	Type N (-50 to 300)	+/- 0.9 °C
		Туре В	+/- 1.0 °C
NTRINSIC NOISE		Туре R	+/- 2.0 °C
,K,E,T,N,C (pk-pk)	< 0.2 °C (1.0 Hz Update Rate)	Туре S	+/- 2.0 °C
6 (pk-pk)	< 0.1 °C (1.0 Hz Update Rate)	Type C (W5ReM26Re)	+/- 2.5 °C
R,S (pk-pk)	< 0.23 °C (1.0 Hz Update Rate)	Voltage	+/-0.01% of attenuato

INTRINSIC NOISE	
J,K,E,T,N,C (pk-pk)	< 0.2 °C (1.0 Hz Update Rate)
B (pk-pk)	< 0.1 °C (1.0 Hz Update Rate)
R,S (pk-pk)	< 0.23 °C (1.0 Hz Update Rate)
Voltage	< 0.0009 % of attenuator (1.0 Hz Update Rate)

Part Number #32950010



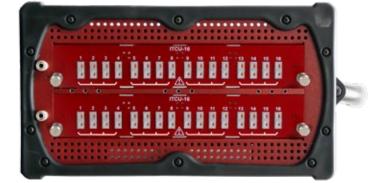
Part Number #32950610





o chassis and group to group.	
group to group.	
0 Hz (Fast) (approx)	
any input terminal of a group of 4 channels)	
per group of 4 channels)	





NIDX-16



High Density Analo

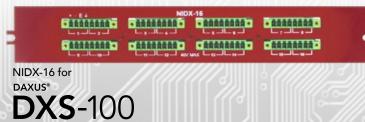


16-Channel Non-Isolated Differential Voltage Module

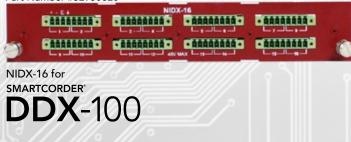
The NIDX-16 input module provides 16 non-isolated differential voltage inputs and two analog (voltage) outputs for the Daxus® DXS-100 and SmartCorder® DDX-100 data acquisition systems. Connections for this module are made via screw terminals.

- 16 voltage inputs (30 Vrms or ± 40 V DC max) and two voltage outputs (\pm 10V)
- Simultaneous sampling up to 20 kS/s/ch
- 16-bit resolution
- 0.04% accuracy (10V, 20V, and 40V attenuators)
- Built-in counter and timer functions
- Screw terminal or BNC connections with adaptor

Part	Number	#32950020



Part	Number	#32950620
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NIDX-16 Specifications

ANALOG INPUTS			
Channels Per Module	16		
Connector	8 wire screw terminals (8 connectors		
Input	Differential, DC coupled		
Bandwidth	4.5 kHz (-3dB)		
Sample Rate	20 kS/s		
A/D	16 bit SAR (one per channel)		
Anti-Aliasing Filter	4 pole Bessel		
Cold Start Drift	< 0.4% att (60 min.) - analog		
Off Ground Measurements	Yes		
Zero Suppression	Digital.		
Attenuator Ranges	40, 20, 10, 5, 1, 0.5 Volt		
Minimum Span	0.1 VFS		
Measurement Ranges	± 40 V (40 VFS or 80 VFS w/ zero offset), ± 5 V (5 VFS or 10 VFS w/ zero offset), ±		
Max Rated Input	30 Vrms or 40 VDC		
Max Common Mode Voltage	± 60 V		
DC Accuracy (25°C)	< 0.12% of attenuator (0.5V attenuat < 0.08% of attenuator (5V attenuator		
Overshoot	< 0.5%		
Intrinsic Noise (pk-pk)	< 0.05% of attenuator + 1mV (0.5V, 1 < 0.03% of attenuator (20V and 40V a		
CMR at 60 Hz	Better than -70 dB (0.5 & 1V attenuat Better than -65 dB (5V, 10V, 20V and		
Min Input Impedance	> 500 Kohm		
COUNTER TIMER			
Frequency Counter Capability	All channels. Software selectable.		
Counter Modes	Gated time frequency counter, cycle quadrature counter, pulse width dete		
Frequency Ctr Range (menu)	Up to 8 kHz		
Frequency Ctr Range (spec'd)	2 – 3 kHz		
Frequency Ctr Accuracy	± 0.07% of Measurement + .002 Hz		
Min Counter Input Amplitude	25% of span for freq and pulse count		
Pulse Counter Range	400000000 maximum. (16 bit displa		
Pulse Width Accuracy	.002% of measurement + .00167% of		
Pulse Width Range	100 µs – 335000 µs		
Edge Separation Accuracy	.002% of measurement + .00167% of		
Edge Separation Range	100 µs – 5000000 µs		
Period Width Accuracy	.001% of measurement + .00167% of		
Period Width Range	100 μs – 100000 μs (10 Hz – 3 KHz)		
Duty Cycle Accuracy	.5% (Inputs in the 3 Hz - 3 KHz range		
Counter Timebase	50 MHz		
ANALOG OUTPUT			
Output Voltage Capability	Yes, two channels. One associated w		
Output Voltage Range Output Voltage Accuracy	Up to ± 10V ± 0.04V		
Output DAC Resolution/Speed	12 bit / 1 MHz maximum		
Output Voltage Current	Up to 120 mA (Per output channel)		
Output Voltage Modes	DC, Arbitrary, Sine, Square and Pulse		
Arbitrary Memory Length	32K per channel		
- e-			
	Automatican Television		

s with 2 channels	per connector)
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, \pm 20 V (20 VFS or 40 VFS w/ zero offset), \pm 10 V (10 VFS or 20 VFS w/ zero offset), 1 V (1 VFS or 2 VFS w/ zero offset), ± 0.5 V (0.5 VFS or 2 VFS w/ zero offset)

tor), < 0.10% of attenuator (1V attenuator), or), < 0.04% of attenuator (10V, 20V and 40V attenuators)

1V and 5V attenuators), < 0.04% of attenuator (10V attenuator), attenuators)

ators)

40V attenuators

based frequency counter, pulse event, counter, gated pulse event counter, ector, period width detector, duty cycle detector, edge separation detector.

ters, 90% of span for all other modes ay resolution) f span + 0.7 µs

f span + 0.7 µs

f span + 0.7 µs

with 5% - 95% duty cycles)

with ch 1-8 and the other ch 9-16.

e Train



ISEV-4





4-Channel Isolated High Voltage Module

The ISEV-4 input module provides four isolated voltage inputs with double banana connectors.



ADP-4810 High Voltage Probe Part Number: 25765000

- 4 high voltage inputs (250 Vrms or ± 400 V DC)
- Simultaneous sampling at up to 200 kS/s/ch
- Full 16-bit resolution over the selected input range
- 0.04% accuracy (10V, 20V, and 40V attenuators)
- 250 Vrms or DC Cat II Rated Isolation
- Built-in counter and timer functions

Part Number #32950005



DAXUS*

Part Number #32950605



ISEV-4 Specifications

ANALOG INPUTS	
Channels Per Module	4
Connector	Guarded banana jacks (red/black)
Input	Single-ended, AC/DC coupled
Bandwidth	40 kHz (-3dB)
Sample Rate	200 kS/s/ch
Rated Isolation	250 VRMS or DC, Cat II (iso-commo
A/D	16 bit SAR (one per channel)
Anti-Aliasing Filter	4 pole Bessel
Cold Start Drift	< 0.1% of attenuator (60 min.)
AC Coupled 3dB Point	< 0.54 Hz
Off Ground Measurements	Yes
Zero Suppression	Digital.
Attenuator Ranges	1, 10, 100, 200 and 400 Volt
Measurement Ranges	± 400 V (400 VFS or 800 VFS w/ zero of ± 200 V (200 VFS or 400 VFS w/ zero of ± 100 V (100 VFS or 200 VFS w/ zero of ± 10 V (10 VFS or 20 VFS w/ zero offset ± 1 V (1 VFS or 2 VFS w/ zero offset. 0.
Max Rated Input	250 Vrms or DC, Cat II
Max Transient Input	± 800 V peak (not to exceed 250Vrr
DC Accuracy (25°C)	± 0.06% of attenuator
Overshoot	< 0.25%
Intrinsic Noise (pk-pk)	< 0.02% of attenuator + .02% of spa (400V through 10V atts) < 0.16% of attenuator + .02% of spa
IMR at 60 Hz	Better than -85 dB
Min Input Impedance	> 1 Megohm
COUNTER TIMER	
Frequency Counter Capability	Yes, all channels. Software selectab
Counter Modes	Gated time frequency counter, cycl quadrature counter, pulse width de
Frequency Ctr Range (menu)	Up to 80 kHz
Frequency Ctr Range (spec'd)	2 – 40 kHz
Frequency Ctr Accuracy	\pm 0.07% of Measurement + .002 Hz
Min Counter Input Amplitude	25% of span for freq and pulse cou
Pulse Counter Range	4000000000 maximum. (16 bit disp
Pulse Width Accuracy	.002% of measurement + .00167% of
Pulse Width Range	25 μs – 2500000
Edge Separation Accuracy	.002% of measurement + .00167% of
Edge Separation Range	25 μs – 5000000 μs
Period Width Accuracy	.001% of measurement + .00167% of
Period Width Range	25 μs – 100000 μs (10 Hz – 40 kHz)
Duty Cycle Accuracy	.5% (Inputs in the 1 Hz - 5 kHz range
Counter Timebase	50 MHz



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e with 5% - 95% duty cycles)			
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TMX





Full Featured, Easy to Use, All-in-One Data Acquisition

The TMX[®] is an all-in-one, out of the box DAQ solution designed to acquire, visualize and analyze data. Tested to MIL-STD-810F standards, it will withstand the rigors of field testing, production environments and lab work. With its user-friendly software, the TMX has proven itself year after year, becoming a trusted and reliable solution for critical industry-leading applications around the world.

- 800 kS/s per channel max sample rate
- 50 MS/s with optional scope card
- Up to 96 channels
- Audio and video inputs synchronized with analog and digital data
- GPS, IRIG, NTP synchronization
- Automate common tasks with Python or LabVIEW
- Available 18-ch TMX with 3 universal isolated voltage modules (TMX-18) and rack mount version (TMX-R)
- Enhanced security via Windows 10 and hard drive

Product Overview

Rugged and easy-to-use, the TMX all-in-one data acquisition system is a complete solution with everything you need to acquire, visualize, and analyze data quickly. All TMX models offer a modular and scalable architecture allowing systems to be set for your specific application. Operation of the TMX is guick and effortless with its intuitive user interface, 17 inch multi-touch display and variety of input modules.

The TMX and its user-friendly software have proven itself year after year, becoming a trusted and reliable solution for critical applications around the world. It is ideal for a variety of uses including maintenance and troubleshooting, R&D, verification and validation. Tested to MIL-STD-810F standards, it will withstand the rigors of field testing, production environments and lab work.

Acquire

The modular architecture of TMX allows for customization for your specific application.

TMX offers a variety of changeable input modules for acquiring The utility/DIO port provides an alarm output line that can be high-voltage, temperature, pressure, strain, digital input, and used to trigger an external process when user-defined alarm more at rates up to 800 kS/s/ch synchronized with optional video conditions occur. With the DIOC-16 module, you can control and audio inputs. up to 8 analog and 32 digital outputs.

Built-in signal conditioning simplifies signal connections and eliminates the need for additional hardware. The optional CAN

All TMX models come up with a 17" touch display for viewing interface also allows you to display and record CAN data along data. This allows data to be viewed as a scrolling chart or a with analog and digital signals. variety of indicators such as analog gauges, meters, bar graphs, and digital readouts on a per-channel basis. Scope Mode allows TMX systems are available in multiple configurations and the you to view high-speed data in a layout that is familiar to users number of channels can be increased up to 96 with the of oscilloscopes. TMX-E expansion chassis.

With full-featured software, TMX offers a wide array of advanced features. Setup is quick and effortless complete with icon and menu-based software.

> The TMX AstroDock accessory makes it easy to transfer and share large amounts of data.



Features Include:

- Advanced triggering capabilities to start and stop recording based on changes in your input signals. Use AND/OR operators to ensure that you trigger only on events needed provide networked recording capability
- Embedded scope mode with intelligent triggering allows for long term trending and simultaneous capture of high-speed events. The two-channel scope card also extends sampling rate to 50 MS/s for both channels
- Up to four independent sampling rates per channel to optimize file sizes by assigning higher sample rates to critical signals
- Circular data buffer allows you to set and record large amounts of pre-trigger data
- Advanced filtering options such as low pass, high pass, RMS, band pass and band stop filtering

Measure

Visualize

Set your alarms to provide a visual indicator when signals exceed user-specified limits and control digital and analog outputs based on alarms.

For data review, the TMX allows you to review or transfer previously acquired data without interrupting the current acquisition. Our QuickLook data compression technology allows you to scroll through GB of data in seconds.



Analvze

The TMX platform provides powerful analysis capabilities that make it easy to analyze data anywhere.

Place cursors to automatically determine time between events and calculate average, Min/Max, RMS, Sum, Std. Deviation, and many other common statistics. You can also apply advanced filtering options or count user-defined events.

The derived channel feature minimizes the need for post- processing by allowing for custom channel creation using advanced real-time math functions and built-in digital signal processing (DSP) technologies. These channels can be stored along with sensor data and are available for post-processing modification.

TMX makes transferring data easy through built-in Ethernet and USB 3.0. For sharing data with colleagues, each TMX includes free AstroView X software, which allows reviewing and converting data into common formats.

With the TMX Offline software, create setups, transfer files, review, and analyze data on any Windows PC.

Store

All TMX systems feature a dedicated 1 TB removable drive (solid-state drive optional available) to record data. Removable drives provide enhanced security by allowing you to exchange drives for recording classified and non-classified data easily. Additional drives can be purchased for archiving data.

The optional AstroDock unit provides an easy way to connect TMX data drives to a Windows PC.

Print

Print screen captures of your data to a Windows-compatible printer via USB 3.0. For applications requiring printed charts, AstroNova offers the Real-Chart Network Printer, RC-300, printing up to 32 channels on 16.3" wide format chart paper. The Real-Chart Network Printer prints annotations for permanent record.

Automate and Integrate

The TMX software supports Python scripting for automating common tasks and increasing productivity. Available LabVIEW drivers make it easy to communicate with and control TMX systems for integrated test procedures and test cell applications.



TMX Chassis		
Maximum Number of Modules	3 (TMX) or 6 with TMX-E 6 (TMX-R)	
Event Inputs (TTL)	16	
Color Display		
Туре	Active matrix color LCD (TFT)	
Viewing Area	13.3″ H x 10.6″ W Diagonal 17" (43.2 cm)	
Resolution	1280рх х 1024рх	
Touch	Full screen, resistive	
Compliance / Environmental		
Operating Temp.	0°C to 40°C (32°F to 104°F)	
Operating Humidity	10% to 90% non condensing	
Storage Temp.	-20°C to 60°C (-4°F to 140°F)	
Shock	MIL-STD-810F Method 516.5, Procedure I	
Vibration	MIL-STD-810F Method 514.5, Procedure I	
Safety	IEC 61010-1:2010 (3rd edition) IEC 61010-2-030:2010 EMC: IEC 61326-1 Ed. 2.0 (2012)	



Record 30 fps video synchronized with analog data



Modules Over 8 Modules

Physical		
Enclosure	Aluminum with armored end caps	
Dimensions	14.5" H x 19" W x 7.5" D (36.8 cm x 48.3 cm x 19.1 cm) (without handle)	
Weight	37 lbs. (16.78 kg) for TMX (including 3 modules)	
Interface		
Ethernet	Gigabit Ethernet (10/100/1000 Base-T), RJ-45 connector	
Display Port	For displaying data on an external monitor. VGA adapter included	
USB 3.0	For external peripherals and file export (4 ports per unit)	
Expansion Port	For connection of optional TMX-E	
System Power		
Input Voltage Range	102 to 264 VAC or 24 VDC at 11A	
Frequency Range	47 Hz to 63 Hz	
Power Consumption	300W	





TMX® Options and Accessories

Part Number	Model	Description	
Chassis			
42880030	ТМХ	TMX Data Acquisition System (Includes 3 module slots)	
42880430	TMX-R	Rack-mount TMX Data Acquisition System (includes 6 module slots, fits standard 19" rack)	
42885000	TMX-E	Expansion chassis (provides 3 additional module slots, requires TMX unit for operation)	
Complete Systems			
42880530	TMX-18	18-Channel TMX Data Acquisition System (fully equipped with 3 UNIV-6 input modules)	
Chart Printers	-		
40775300	Real-Chart RC-300R	Real-Chart Network Printer (Rack Mount)	
40775310	Real-Chart RC-300B	Real-Chart Network Printer in Benchtop Enclosure	
Input Modules			
32850000	UNIV-6	6-Channel Universal Module Voltage and DC Bridge	
32850030	IHVM-6	6-Channel High Voltage Module	
32850035	IHVM-6B	6-Channel High Voltage Module, 10 MΩ input impedance	
32850040	IBRM-6	6-Channel Isolated DC Bridge Module with internal half-bridge completion	
32850050	IEPE-6	6-Channel Isolated Piezoelectric Sensor Module (for ICP© type sensors)	
32850060	DIOC-16	16-Channel Digital I/O, Analog Output, Counter and Relay Module	
32850020	NIDV-16	16-Channel Non-isolated Differential Voltage Module (accepts up to 35 Vrms)	
32850010	ITCU-12	12-Channel Isolated Thermocouple Module with Cold Junction Compensation in each input	
32850070	IRTD-12	12-Channel RTD Module supports direct connections of Pt 100 RTD	
Options			
32884004	TMX-SSD400	Solid-state drive option, 400 GB Capture Drive & 400 GB System Drive	
32884008	TMX-SSD800	Solid-state drive option, 800 GB Capture Drive & 400 GB System Drive	
32884016	TMX-SSD1600	Option Solid-State Drive option, 1.6 TB Capture Drive & 400 GB System Drive	
Advanced Options			
27300200	TMX-SC	TMX 50 MS/s 2-ch scope option	
27300000	TMX-IR	IRIG Decoding Option supports IRIG A, B, E, G, NASA 36 time codes with GPS location and timing	
14104110	TMX-TTLIRB	IRIG B TTL, provides IRIG B TTL time synchronization	
14104300	TMX-CC	Compressed Capture for long-term recording with file size conservation while maintaining bandwidth	
27300100	TMX-CB	CAN Bus interface to view and record CAN Bus data and other analog signals	
42832500	AstroDock	PC Docking Station - use with TMX removable drives for data transfer. (drives and personal computer not included)	
14104100	TMX-VA	Video/Audio Acquisition Upgrade provides 30 fps video and 44.1 kHz audio (camera not included)	
26514001	TMX-M	Microphone/Headset for TMX-VA Audio Acquisition (requires TMX-VA option)	
Software			
14004600	TMX-OS	TMX Offline Software (1 user)	
14004601	TMX-OSSL	TMX Offline Software with Site License (5 users)	
14180100	FDAS	FlexPro 9 Data Analysis Software (Standard Edition)	
14180200	FDAS-PRO	FlexPro 9 Data Analysis Software (Professional Edition)	
Cases			
HC-TMX	14710002	Hard Transport Case for TMX	
SC-TMX	41047000	Soft Carry Case for TMX	
Additional Drives			
26801570	TMX-SYS	Additional System Drive Enclosure (includes TMX Windows® 10 System in a removable cartridge)	
26801350	TMX-DATA	Additional 1 TByte Data Capture Drive Enclosure (includes TMX data capture drive in a removable cartridge)	
Service			
EW-TMX	Extended Warranty	Additional 12 months of warranty coverage	





LC-40 P/N: 13441003 Test Leads/Clips: Pair of Test Lead and Pincer Clips (1 red, 1 black)

LC-40S P/N: 13441201 Test Leads/Spades: Pair of Test Leads with Spade Connector for # 8 Screw





MR411 P/N: 24661200 Current Probe Reads AC or DC Current, 600 A Maximum

MR521 P/N: 24661100 Current Probe Reads AC or DC Current,1500 A Maximum





JM875 P/N: 24661500 Current Probe Reads AC Current, 3000 A Maximum

FP300A P/N: 24661600 Flexible Current Probe Reads AC Current, 300 A Maximum





ADP-4810 P/N: 25765000 High Voltage Probe Reads Up to 1000 Vrms

GL-40 P/N: 13442000 General Use Lead Set





ASTRODOCK P/N: 13441201 Test Leads/Spades: Pair of Test Leads with Spade Connector for # 8 Screw

SC-TMX P/N: 41047000 Soft Carry Case for TMX



CLM-420A P/N: 26487000 4 to 20 mA Current Adapter for Current Loop Measurements



MN255 P/N: 24661300 Current Probe Reads AC Current, 240 A Maximum



FP3000A P/N: 24661700 Flexible Current Probe Reads AC Current, 3000 A Maximum



SL261 P/N: 24661201 Current Probe Reads AC or DC Current, 100 A Maximum



SR759 P/N: 24661400 Current Probe Reads AC Current, 1200 A Maximum



FP6000A P/N: 24661620 Flexible Current Probe Reads AC Current, 6000 A Maximum





UNIV-6



Universal Module

The UNIV-6 is a 6-channel input module for voltage and strain/bridge measurements. Modules accept voltages up to 250 Vrms (banana jack inputs) and support full bridge, half-bridge, and quarter bridge sensors. Provides maximum flexibility for acquiring different types of inputs with a single module.

- 6 voltage or strain/bridge inputs
- Simultaneous sampling at up to 800kS/s/ch
- 16-bit resolution
- 5 measurement ranges to maximize resolution
- Built-in counter and timer functions
- 250 VRMS or DC Cat II isolation

Part Number #32850000



Common Specifications	
Channels Per Module	6
Sample Rate	800 kS/s/ch (400 KS/s/ch when
Rated Isolation	250 VRMS or DC, Cat II (iso-cor
A/D	16-bit SAR (one per channel)
Frequency Counter Capability	Yes, first channel. Software sele
Anti-Aliasing Filter	4 pole Bessel
Counter Modes	Gated time frequency counter,
	width detector, duty cycle dete
Frequency ctr range (menu)	Up to 120 kHz
Frequency ctr range (spec'd)	2 - 100 kHz (48 Hz - 100 kHz for
Frequency ctr accuracy	+/- 0.07% of Measurement +.00
Min counter input amplitude	25% of span for freq and pulse
Pulse counter range	64000000 maximum. (16 bit dis
Pulse width accuracy	0.7 µs +.00167% of span
Pulse width range	10 μs - 40000 μs
Edge separation accuracy	.002% of measurement + .0016
Edge separation range	25 μs – 5000000 μs
Period width accuracy	.02% of measurement + .00167
Period width range	5 μs - 90000 μs (11 Hz - 200 kHz
Duty cycle accuracy	.5% (Inputs in the 15 Hz - 10 kH
Counter Timebase	50 MHz
Cold Start Drift	< 0.1% of attenuator (60 min.)
Single Ended Input	
Connector	Guarded banana jacks (red/bla
Input	Single-ended, AC/DC coupled
Anti-Aliasing Filter	4 pole Bessel
Bandwidth	100 kHz (-3dB) (400V, 200V and
AC Coupled 3dB Point	< 0.54 Hz
Off Ground Measurements	Yes
Zero Suppression	Yes
Attenuator Ranges	1, 10, 50, 200 and 400 Volt
Measurement Ranges	+/- 400 V (400 VFS or 800 VFS v
	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/
Measurement Ranges	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero
Measurement Ranges Max Rated Input	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero 250 Vrms or DC, Cat II
Measurement Ranges Max Rated Input Max Transient Input	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C)	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0%
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk)	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% o
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% o Better than -75 dB
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% of
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance Differential Input	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% of Better than -75 dB > 1 Megohm
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance Differential Input Connector	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% o Better than -75 dB > 1 Megohm 4 wire screw terminal
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance Differential Input Connector Input	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% o Better than -75 dB > 1 Megohm 4 wire screw terminal Differential, DC coupled
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance Differential Input Connector Input A/D	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ zero 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% o Better than -75 dB > 1 Megohm 4 wire screw terminal Differential, DC coupled 16 bit SAR (one per channel)
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance Differential Input Connector Input A/D Bandwidth	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ zero 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% o Better than -75 dB > 1 Megohm 4 wire screw terminal Differential, DC coupled 16 bit SAR (one per channel) 50 kHz
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance Differential Input Connector Input A/D Bandwidth Measurement Ranges	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ z +/- 1 V (1 VFS or 2 VFS w/ zero) 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% o Better than -75 dB > 1 Megohm 4 wire screw terminal Differential, DC coupled 16 bit SAR (one per channel) 50 kHz +/- 1000 mV, +/- 500 mV, +/- 50
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance Differential Input Connector Input A/D Bandwidth Measurement Ranges Max Transient Input	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ +/- 50 V (50 VFS or 100 VFS w/ 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% of Better than -75 dB > 1 Megohm 4 wire screw terminal Differential, DC coupled 16 bit SAR (one per channel) 50 kHz +/- 1000 mV, +/- 500 mV, +/- 500 mV, +/- 500 +/- 20V (no damage)
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance Differential Input Connector Input A/D Bandwidth Measurement Ranges Max Transient Input Common Mode Voltage	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero) 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% of Better than -75 dB > 1 Megohm 4 wire screw terminal Differential, DC coupled 16 bit SAR (one per channel) 50 kHz +/- 1000 mV, +/- 500 mV, +/- 50 +/- 20V (no damage) +/- 3V
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance Differential Input Connector Input A/D Bandwidth Measurement Ranges Max Transient Input Common Mode Voltage Zero Suppression	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ +/- 50 V (50 VFS or 100 VFS w/ 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% of Better than -75 dB > 1 Megohm 4 wire screw terminal Differential, DC coupled 16 bit SAR (one per channel) 50 kHz +/- 1000 mV, +/- 500 mV, +/- 50 +/- 3V Yes
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance Differential Input Connector Input A/D Bandwidth Measurement Ranges Max Transient Input Common Mode Voltage Zero Suppression DC Accuracy (25°C)	+/- 400 V (400 VFS or 800 VFS v +/- 50 V (50 VFS or 100 VFS w/ +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero) 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% of Better than -75 dB > 1 Megohm 4 wire screw terminal Differential, DC coupled 16 bit SAR (one per channel) 50 kHz +/- 1000 mV, +/- 500 mV, +/- 50 +/- 3V Yes +/- 0.07% of attenuator
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance Differential Input Connector Input A/D Bandwidth Measurement Ranges Max Transient Input Common Mode Voltage Zero Suppression DC Accuracy (25°C) Overshoot	+/- 400 V (400 VFS or 800 VFS v/ +/- 50 V (50 VFS or 100 VFS w/ +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero) 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% of Better than -75 dB > 1 Megohm 4 wire screw terminal Differential, DC coupled 16 bit SAR (one per channel) 50 kHz +/- 1000 mV, +/- 500 mV, +/- 50 +/- 3V Yes +/- 0.07% of attenuator < 1.0%
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance Differential Input Connector Input A/D Bandwidth Measurement Ranges Max Transient Input Common Mode Voltage Zero Suppression DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk)	+/- 400 V (400 VFS or 800 VFS v/ +/- 50 V (50 VFS or 100 VFS w/ +/- 50 V (50 VFS or 2 VFS w/ zero) 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% o Better than -75 dB > 1 Megohm 4 wire screw terminal Differential, DC coupled 16 bit SAR (one per channel) 50 kHz +/- 20V (no damage) +/- 3V Yes +/- 0.07% of attenuator < 1.0%
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance Differential Input Connector Input A/D Bandwidth Measurement Ranges Max Transient Input Common Mode Voltage Zero Suppression DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) Input Impedance	 +/- 400 V (400 VFS or 800 VFS v/ +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero) 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% o Better than -75 dB > 1 Megohm 4 wire screw terminal Differential, DC coupled 16 bit SAR (one per channel) 50 kHz +/- 1000 mV, +/- 500 mV, +/- 50 +/- 20V (no damage) +/- 3V Yes +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .09% o > 300 KΩ (150 KΩ balanced to
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance Differential Input Connector Input A/D Bandwidth Measurement Ranges Max Transient Input Common Mode Voltage Zero Suppression DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) Input Impedance CMR at 60 Hz	 +/- 400 V (400 VFS or 800 VFS v/ +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero) 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% of Better than -75 dB > 1 Megohm 4 wire screw terminal Differential, DC coupled 16 bit SAR (one per channel) 50 kHz +/- 1000 mV, +/- 500 mV, +/- 50 +/- 20V (no damage) +/- 3V Yes +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .09% of > 300 KΩ (150 KΩ balanced to i) > 85 dB
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance Differential Input Connector Input A/D Bandwidth Measurement Ranges Max Transient Input Common Mode Voltage Zero Suppression DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) Input Impedance CMR at 60 Hz Excitation	+/- 400 V (400 VFS or 800 VFS v/ +/- 50 V (50 VFS or 100 VFS w/ +/- 50 V (50 VFS or 100 VFS w/ 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% o Better than -75 dB > 1 Megohm 4 wire screw terminal Differential, DC coupled 16 bit SAR (one per channel) 50 kHz +/- 1000 mV, +/- 500 mV, +/- 50 +/- 20V (no damage) +/- 3V Yes +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator < 0.08% of attenuator < 1.0% < 0.08% of attenuator > 300 KΩ (150 KΩ balanced to i > 85 dB DC Voltage - adjustable, 0.1 to
Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Min Input Impedance Differential Input Connector Input A/D Bandwidth Measurement Ranges Max Transient Input Common Mode Voltage Zero Suppression DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) Input Impedance CMR at 60 Hz	 +/- 400 V (400 VFS or 800 VFS v/ +/- 50 V (50 VFS or 100 VFS w/ +/- 1 V (1 VFS or 2 VFS w/ zero) 250 Vrms or DC, Cat II +/- 800 V peak (not to exceed 2 +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .08% of Better than -75 dB > 1 Megohm 4 wire screw terminal Differential, DC coupled 16 bit SAR (one per channel) 50 kHz +/- 1000 mV, +/- 500 mV, +/- 500 +/- 20V (no damage) +/- 3V Yes +/- 0.07% of attenuator < 1.0% < 0.08% of attenuator + .09% of > 300 KΩ (150 KΩ balanced to > 85 dB

† CMV specification applies only when pins other than the + and – inputs are being used. When the Differential / DC Bridge inputs are used simply as a differential input, the isolation mode voltage of 250 V applies

uning	TMYE	or	TMX-R)
using		0I	1101/-1/)

mmon to chassis and other iso-commons)

lectable.

; cycle based frequency counter, pulse counter, pulse width detector, period ector

r cycle based frequency counter) 002 Hz

e counters, 90% of span for all other modes splay resolution)

67% of span + 0.7 μs

7% of span + 1.0 µs

)

Hz range with 20% - 80% duty cycles)

ack)

50V attenuators) 90 kHz (-3dB) (10V and 1V attenuators)

w/ zero offset), +/- 200 V (200 VFS or 400 VFS w/ zero offset), zero offset), +/- 10 V (10 VFS or 20 VFS w/ zero offset), o offset. 0.1V min span)

250Vrms)

of span (400V through 10V atts) < 0.17% of attenuator + .07% of span (1V att

) mV

of span (1000 mV &500mV Atts) < 0.14% of attenuator + .08% of span (50 mV Att) isolated common)

10 V. 30 mA maximum



6-Channel Isolated High Voltage Module

The IHVM-6 is a high voltage input module for the AstroNova TMX data acquisition systems. The IHVM-6 is ideal for high voltage measurements at up to 800 kS/s.

- 6 high voltage inputs
- Maximum 1,000 V input range
- 3 input ranges to maximize measurement resolution
- Simultaneous sampling at up to 800 kS/s/ch
- 16-bit resolution
- Built-in counter and timer functions

Inputs	
Input Channels Per Module	6
Connector	Guarded banana jacks (red/blac
Input	Differential, DC coupled
Bandwidth	60 kHz (-3dB)
Rated Isolation	600 VAC RMS or 1000 VDC, Cat
Sample Rate	800 kS/s/ch (400 kS/s/ch when u
A/D	16 bit SAR (one per channel)
Anti-Aliasing Filter	4 pole Bessel
Off Ground Measurements	Yes
Zero Suppression	Yes, digital.
Attenuator Ranges	40, 200 and 1000 Volt (1 VFS to 2
Measurement Ranges	+/- 1000 V (1000 VFS or 2000 VF +/- 40 V (1 to 40 VFS or 80 VFS v
Minimum Span	2VFS
Max Rated Input	600 VAC RMS or 1000 VDC Cat
DC Accuracy (25°C)	+/- 0.07% of attenuator
Overshoot	< 1.0%
Intrinsic Noise (pk-pk)	 < 0.11% of attenuator + .08% of attenuator + .08% of span (1000)
IMR at 60 Hz	Better than -65 dB (40V and 200
Crosstalk	Better than -80 dB
Min Input Impedence	> 4 Megohm (2 Megohm balan
Counter Timer Functions	
Frequency Counter Capability	Yes, first channel. Software sele
Counter Modes	Gated time frequency counter, width detector, duty cycle detector
Frequency ctr range (menu)	Up to 100 kHz
Frequency ctr range (spec'd)	2 – 30 kHz
Frequency ctr accuracy	+ 0.07% of Measurement + .002
Min counter input amplitude	25% of span for freq and pulse
Pulse counter range	640000000 maximum. (16 bit di
Pulse width accuracy	0.7 µs + .00167% of span
Pulse width range	10 μs – 40000 μs
Period width accuracy	.02% of measurement + .001679
Period width range	12.5 μs – 90000 μs (11 Hz – 80 kł
Duty cycle accuracy	.5% (Inputs in the 15 Hz - 10 kHz
Counter Timebase	50 MHz



ck)

t IV (channel to channel and channel to chassis) using TMX-E or TMX-R)

2000 VFS) FS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) w/ zero offset)

IV

f span (40V att) < 0.04% of attenuator + .08% of span (200V att) < 0.02% of DV att) DV attenuators) Better than -60 dB (1000V attenuator)

ced to internal isolated common)

ectable.

cycle based frequency counter, pulse counter, pulse width detector, period ctor.

2 Hz

counters, 90% of span for all other modes isplay resolution)

% of span + 1.0 µs

Hz)

z range with 20% - 80% duty cycles)



Universal Thermocouple Module

The ITCU-12 is a 12-channel thermocouple input • 12 thermocouple inputs module for the AstroNova TMX data acquisition systems. The ITCU-12 is ideal for high channel count applications requiring high accuracy.

- Supports all common thermocouple types
- Direct connectivity with standard Type U Mini-TC connectors
- High accuracy (<1 deg C J-Type)
- 16-bit resolution
- 250 Vrms or DC Cat II rated isolation
- 50/60 Hz noise rejection
- Cold junction compensation

Channels per Module	12
Connector	Type U miniature thermocouple
Rated Isolation	250 VRMS or DC, Cat II.
Thermocouple types	J,K,E,T,N,B,R,S,C
Cold Junction Compensation	Yes
A/D	24 bit Sigma Delta (one per chann
Anti-Aliasing Filter	Inherent
Resolution	0.01 °C
Bandwidth/Sample Rate	6 Hz update rate (TC sampled at 3
Absolute Max Input	+/- 10V
Specified Range Type K:	-200 to 1372 °C
Specified Range Type E:	-200 to 1000 °C
Specified Range Type T:	-200 to 400 °C
Specified Range Type N:	-200 to 1300 °C
Specified Range Type B:	600 to 1820 °C (250 to 1820 on me
Specified Range Type R:	0 to 1767 °C (-20 to 1768 on menu)
Specified Range Type S:	0 to 1767 °C (-20 to 1768 on menu)
Specified Range Type C:	0 to 2316 °C
Accuracy (25°C) J (<0) +/- 3.0 °C [+/- 3.0 °C]	
Accuracy (25°C) J (0 to 1200)	+/- 1.0 °C [+/- 1.5 °C]
	+/- 2.5 °C [+/- 2.5 °C]
Accuracy (25°C) K (<0) Accuracy (25°C) K (0 to 1372)	+/- 2.3 °C [+/- 2.3 °C] +/- 1.5 °C [+/- 2.0 °C]
	+/- 1.3 °C [+/- 2.0 °C] +/- 2.0 °C [+/- 2.0 °C]
Accuracy (25°C) E (<-100)	+/- 2.0 C [+/- 2.0 C]
Accuracy (25°C) E (-100 to 1000)	+/- 1.0 °C [+/- 1.5 °C]
Accuracy (25°C) T (<-100)	+/- 3.0 °C [+/- 3.0 °C]
Accuracy (25°C) T (-100 to 400)	+/- 1.0 °C [+/- 1.5 °C]
Accuracy (25°C) N (<-50)	+/- 1.5 °C [+/- 2.0 °C]
Accuracy (25°C) N (-50 to 1300)	+/- 0.8 °C [+/- 1.5 °C]
Accuracy (25°C) B	+/- 4.5 °C [+/- 4.5 °C]
Accuracy (25°C) R	+/- 4.0 °C [+/- 4.0 °C]
Accuracy (25°C) S	+/- 4.0 °C [+/- 4.0 °C]
Accuracy (25°C) C (W5ReM26Re)	+/- 2.5 °C [+/- 3.0 °C]
Accuracy (25°C) 100 Mv	+/- 0.05% of attenuator [+/- 0.35%
Cold Start Drift	+/- 0.002% of attenuator
Compensation Error	Included in above accuracy specifi
Intrinsic Noise (pk-pk, J,N)	< 0.15 °C [< 2.0 °C]
Intrinsic Noise (pk-pk, K,E,T)	< 0.10 °C [< 1.7 °C]
Intrinsic Noise (pk-pk, B,R,S)	< 1.0 °C [< 5.0 °C]
Intrinsic Noise (pk-pk, C)	< 0.5 °C [< 3.0 °C]
Intrinsic Noise (pk-pk, 100 mV)	< 0.007 % of attenuator [< 0.04 % of attenuator [< 0.0
IMR	> 110 dB @ DC
Linearization	NIST ITS-90
L	1

Note: Specified accuracy does not include probe errors. Specifications in square brackets [] apply to 800 Hz TC input sampling. Fast mode sampling applies to V:1.8 system software and V:1.2 DSP software and above. Ext CJC option available for module purchases made after October 2012.



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Hz) [1600 Hz / 800 Hz]
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16-Channel Non-Isolated Differential Voltage Module

The NIDV-16 input module provides 16 nonisolated differential voltage inputs and 12V DC for powering external transducers. Connections are made via two 25-pin D-sub connectors.

- 16 voltage inputs (30 Vrms or 50 V DC max)
- Simultaneous sampling at up to 200kS/s/ch
- 16-bit resolution
- 9 input ranges to maximize measurement resolution
- Built-in counter and timer functions including quadrature event counter
- Screw terminal or BNC connections with adaptor

Analog Inputs	
Channels Per Module	16
Connector	Two 25-pin D-sub male connectors
Input	Differential, DC coupled
Bandwidth	40 kHz (-3dB)
Isolation	No
Sample Rate	200 kS/s/ch (100 kS/s/ch when usin
A/D	16 bit SAR (one per channel)
Anti-Aliasing Filter	4 pole Bessel
Cold Start Drift	< 0.5% att (60 min.)
Off Ground Measurements	Yes
Zero Suppression	Yes, digital
Attenuator Ranges	200, 400 and 800 mV; 2, 4, 5, 10, 25
Measurement Ranges	+/- 200 mV (80 to 160 mVFS or 400 +/- 800 mV (800 mVFS or 1.6 VFS w zero offset) +/- 5 V (5 VFS or 10 VF +/- 25 V (20 VFS or 50 VFS w/ zero
Max Rated Input	30 Vrms or 50 VDC
Max Common Mode Voltage	+/- 60V
DC Accuracy (25°C)	+/- 0.07% of attenuator (800 mV, 2, +/- 0.15% of attenuator (200 mV at
Overshoot	< 1%
Intrinsic Noise (pk-pk)	< 0.1% of attenuator + 4 mV
CMR at 60 Hz	Better than -60 dB
Min Input Impedance	$>$ 500 K Ω (250 K Ω balanced to sign
Excitation	No
Auxiliary Power Output	Yes. 12V @ 200 mA (total of the two
Counter Timer	
Frequency Counter Capability	Yes, Software selectable on channe
Counter Modes	Gated time frequency counter, cyc detector, period width and duty cy
Frequency ctr range (menu)	2 - 50 kHz
Frequency ctr range (spec'd)	2 - 40 kHz (48 Hz - 100 kHz for cycle
Frequency ctr accuracy	+ 0.05% of Measurement + .002 H
Min counter input amplitude	25% of span for freq and pulse cou
Pulse counter range	64000000 maximum. (16 bit displa
Pulse width accuracy	1.5 μs +.00167% of span
Pulse width range	40 μs - 40000 μs
Edge separation accuracy	.002% of measurement + .00167%
Edge separation range	100 μs – 5000000 μs
Period width accuracy	.02% of measurement + .00167% of
Period width range	5 μs - 90000 μs (11 Hz - 50 kHz)
Duty cycle accuracy	.5% (Inputs in the 15 Hz - 10 kHz ra
Counter Timebase	50 MHz



g TMX-E or TMX-R)

and 50 V

0 mVFS w/ zero offset) +/- 400 mV (400 mVFS or 800 mVFS w/ zero offset) w/ zero offset) +/- 2 V (1.6 VFS or 4 VFS w/ zero offset) +/- 4 V (4 VFS or 8 VFS w/ FS w/ zero offset) +/- 10 V (10 VFS or 20 VFS w/ zero offset) o offset) +/- 50 V (50 VFS or 100 VFS w/ zero offset)

4, 5, 10, 25 and 50 V attenuators) +/- 0.1% of attenuator (400 mV attenuator) tenuator)

ial common)

o connectors)

els 1 and 2

le based frequency counter, pulse counter, quadrature counter, pulse width rcle detector

e based frequency counter)

Z

inters, 90% of span for all other modes

y resolution)

of span + 0.7 µs

of span with a maximum of 1.0 µs

nge with 20% - 80% duty cycles)

TMX® Extended Module Options

IRTD-12

Isolated RTD amplifier for Pt 100 Resistance Temperature Detectors (PRT's).

Delectors (FRTS).	
Connector	4 wire screw terminal (.150" pitch Phoenix)
Rated Isolation	150 VRMS or DC, Cat II (channel to chassis and channel to channel)
Bandwidth	6 Hz sample rate
Absolute Max Input	+/- 10V
Measurement Ranges:	Pt100(385) -200 to 800 C Pt100(3916) -200 to 630 C (-200 to 800 on menu) Pt100(3926) -200 to 630 C (-200 to 800 on menu) resistance 0 to 450 Ω
Minimum full scale	10 C
A/D	24 bit Sigma Delta (one per channel)
Anti-Aliasing Filter	Inherent
HW gain for span adjustment	No
Resolution	0.01 C
Accuracy (25°C)	0.05% of measurement + 0.1 C
Accuracy (resistance 25°C)	0.04% of measurement + 0.05 Ω
Cold Start Drift	< 0.2 Ω
Intrinsic	Noise (pk-pk) < 0.02 C
Intrinsic	Noise (resistance pk-pk)< 0.01 Ω
Linearization	yes
Connector	4 wire screw terminal
Supported RTD Probe types	Pt 100 - 385 (DIN 43760, IEC751 and ASTM 1137) Pt 100 - 3916 (JIS C1604) Pt 100 - 3926 (reference grade)
Excitation	1 mA constant current (+5%/-0%)
Channels Per Module	12
Frequency Counter Capability	No
Module Part Number	32850070
Note 1:	Specified accuracy does not include probe errors or 2-wire connection wire errors.
Note 2:	4-wire connection RTDs supported when through hole resistors (2 per channel) are removed from PCB.

IHVM-6B

6 Channel Isolated High voltage differential input module with 10 ${\rm M}\Omega$ input impedance.

input impedance.		
Channels Per Module	6	
Rated Isolation	600 VAC RMS or 1000 VDC, Cat IV	
	(channel to channel and channel to chassis)	
Sample Bata	800 kS/s/ch (400 kS/s/ch when	
Sample Rate	expansion unit is in use)	
A/D	16 bit SAR (one per channel)	
Anti-Aliasing Filter	4 pole Bessel	
HW gain for span adjustment	Yes Yes, first channel. Software selectable.	
Counter Capability		
Counter Modes	Gated time frequency counter, cycle based frequency counter, pulse counter, pulse width detector, period	
	width detector, duty cycle detector.	
Frequency ctr range (menu)	Up to 100 KHz	
Frequency ctr range (spec'd)	2 – 70 KHz (48 Hz - 70 KHz for cycle based frequency counter)	
Frequency ctr accuracy	+ 0.07% of Measurement + .002 Hz	
Min counter input amplitude	25% of span (OV center) for freq and	
_	pulse counters, 90% of span for others	
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	
Period width accuracy	.02% of measurement + .00167% of	
	span with a maximum of 1.00 µs	
Period width range	12.5 µs – 90000 µs (11 Hz – 80 KHz)	
Duty cycle accuracy	.5% (Inputs in the 15 Hz - 10 kHz range with 20% - 80% duty cycles)	
Connector	Guarded banana jacks (red/black)	
Input	Differential, DC coupled	
mput	Emercinaa, De coupieu	
Bandwidth	50 kHz (-3dB)	
Bandwidth	50 kHz (-3dB)	
Bandwidth Off Ground Measurements	50 kHz (-3dB) Yes	
Bandwidth Off Ground Measurements Zero Suppression	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset)	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset)	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges Measurement Ranges	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset)	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges Measurement Ranges Max Rated Input	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) 600 VAC RMS or 1000 VDC Cat IV	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges Measurement Ranges Max Rated Input Max Transient Input	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) 600 VAC RMS or 1000 VDC Cat IV +/- 2000 V peak	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges Measurement Ranges Max Rated Input	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) +/- 2000 V peak +/- 0.07% of attenuator (40V and 200V attenuators)	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C)	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) 600 VAC RMS or 1000 VDC Cat IV +/- 2000 V peak +/- 0.07% of attenuator (40V and 200V attenuators) +/- 0.12% of attenuator (1000v att)	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) 600 VAC RMS or 1000 VDC Cat IV +/- 2000 V peak +/- 0.07% of attenuator (40V and 200V attenuators) +/- 0.12% of attenuator (1000v att) < 1.0%	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C)	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) 600 VAC RMS or 1000 VDC Cat IV +/- 2000 V peak +/- 0.07% of attenuator (40V and 200V attenuators) +/- 0.12% of attenuator (1000v att)	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) 600 VAC RMS or 1000 VDC Cat IV +/- 2000 V peak +/- 0.07% of attenuator (40V and 200V attenuators) +/- 0.12% of attenuator (1000v att) < 1.0% < 0.12% of attenuator + .08% of span (40V att) < 0.04% of attenuator + .08% of span	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) 600 VAC RMS or 1000 VDC Cat IV +/- 2000 V peak +/- 0.07% of attenuator (40V and 200V attenuators) +/- 0.12% of attenuator (1000v att) < 1.0% < 0.12% of attenuator + .08% of span (40V att) < 0.04% of attenuator + .08% of span (200V att)	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) 600 VAC RMS or 1000 VDC Cat IV +/- 2000 V peak +/- 0.07% of attenuator (40V and 200V attenuators) +/- 0.12% of attenuator (1000v att) < 1.0% < 0.12% of attenuator + .08% of span (40V att) < 0.04% of attenuator + .08% of span	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) 600 VAC RMS or 1000 VDC Cat IV +/- 200 V peak +/- 0.07% of attenuator (40V and 200V attenuators) +/- 0.12% of attenuator (1000v att) < 1.0% < 0.12% of attenuator + .08% of span (200V att) < 0.04% of attenuator + .08% of span (200V att) < 0.02% of attenuator + .08% of span	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk)	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) 600 VAC RMS or 1000 VDC Cat IV +/- 200 V peak +/- 0.07% of attenuator (40V and 200V attenuators) +/- 0.12% of attenuator (1000v att) < 1.0% < 0.12% of attenuator + .08% of span (40V att) < 0.04% of attenuator + .08% of span (200V att) < 0.02% of attenuator + .08% of span (1000V att) < 0.02% of attenuator + .08% of span (1000V att) Better than -60 dB	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk)	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) 600 VAC RMS or 1000 VDC Cat IV +/- 200 V peak +/- 0.07% of attenuator (40V and 200V attenuators) +/- 0.12% of attenuator (1000v att) < 1.0% < 0.12% of attenuator + .08% of span (40V att) < 0.02% of attenuator + .08% of span (200V att) < 0.02% of attenuator + .08% of span (1000V att) < 0.02% of attenuator + .08% of span (200V att) < 0.02% of attenuator + .08% of span (200V att) < 0.02% of attenuator + .08% of span (200V att) > 10 Megohm (5 Megohm balanced	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Cold Start Drift Min Input Impedance	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) 600 VAC RMS or 1000 VDC Cat IV +/- 2000 V peak +/- 0.07% of attenuator (40V and 200V attenuators) +/- 0.12% of attenuator (1000v att) < 1.0% < 0.12% of attenuator + .08% of span (40V att) < 0.04% of attenuator + .08% of span (200V att) < 0.02% of attenuator + .08% of span (1000V att) < 0.02% of attenuator + .08% of span (1000V att) Better than -60 dB < 0.005% att + .06% span (60 min.) > 10 Megohm (5 Megohm balanced to internal isolated common)	
Bandwidth Off Ground Measurements Zero Suppression Attenuator Ranges Measurement Ranges Max Rated Input Max Transient Input DC Accuracy (25°C) Overshoot Intrinsic Noise (pk-pk) IMR at 60 Hz Cold Start Drift	50 kHz (-3dB) Yes digital. 40, 200 and 1000 Volt (1 VFS to 2000 VFS) +/- 1000 V (1000 VFS or 2000 VFS w/ zero offset) +/- 200 V (200 VFS or 400 VFS w/ zero offset) +/- 40 V (1 to 40 VFS or 80 VFS w/ zero offset) 600 VAC RMS or 1000 VDC Cat IV +/- 2000 V peak +/- 0.07% of attenuator (40V and 200V attenuators) +/- 0.12% of attenuator (1000v att) < 1.0% < 0.12% of attenuator + .08% of span (40V att) < 0.02% of attenuator + .08% of span (200V att) < 0.02% of attenuator + .08% of span (1000V att) < 0.02% of attenuator + .08% of span (200V att) < 0.02% of attenuator + .08% of span (200V att) < 0.02% of attenuator + .08% of span (200V att) > 10 Megohm (5 Megohm balanced	

IBRM-6

6 Channel Isolated differential / bridge input module with software selectable bridge completion, shunt calibration and TEDS support.

Channels Per Module	6	Max Transient Input	+/- 20 V (no damage)
Rated Isolation	250 VRMS or DC, Cat II (iso-common	Common Mode Voltage	+/- 12V
	to chassis and other iso-commons)	Zero Suppression	Yes, digital
Sample Rate	800 kS/s/ch (400 kS/s/ch when	DC Accuracy (25°C)	+/- 0.07% of attenuator
	expansion unit is in use)	Overshoot	< 1.0%
A/D	16 bit SAR (one per channel)	Intrinsic Noise (pk-pk)	< 0.07% of attenuator + .14%
Anti-Aliasing Filter	4 pole Bessel		of span (1000 mV att)
HW gain for span adjustment	Yes		< 0.08% of attenuator + .14%
Counter Capability	Yes, first channel. Software selectable.		of span (500 mV att)
Counter Modes	Gated time frequency counter, cycle		< 0.1% of attenuator + .14%
	based frequency counter, pulse		of span (50 mV att)
	counter, pulse width detector, period width detector, duty cycle detector.	Input Impedance	$>$ 300 K Ω (150 K Ω balanced to
F			isolated common)
Frequency ctr range (menu)	Up to 70 kHz	CMR at 60 Hz	> 85 dB
Frequency ctr range (spec'd)	2 – 40 kHz (48 Hz - 40 kHz for cycle	Excitation	DC adjustable, 0.1 to 10 V. 30 mA
-	based frequency counter)		maximum
Frequency ctr accuracy	+ 0.07% of Measurement + .002 Hz	Excitation Accuracy	0.05 V
Min counter input amplitude	25% of span for freq and pulse	Excitation Output Noise	< 1.5 mV pp (50 KHz BW)
	counters, 90% of span for all other modes	Bridge Auto Balance	yes – Up to 10% of attenuator (limite
Pulse counter range	64000000 maximum. (16 bit display		by maximum span)
ruise counter runge	resolution)	Cold Start Drift	< 0.04% of attenuator +.1% of span
Pulse width accuracy	1 μs + .00167% of span		(60 min.)
Pulse width range	10 μs - 40000 μs	TEDS Capability	Yes, Class II
Period width accuracy	.02% of measurement + .00167% of	Internal ½ Bridge Completion	Yes – Software selectable
· · · · · · · · · · · · · · · · · · ·	span with a maximum of 1.00 µs	Shunt calibration	Yes – Software selectable external
Period width range	20 µs – 80000 µs (12.5 Hz – 50 KHz)	11 D.L. 0 L.V.	shunt calibration resistor
Duty cycle accuracy	.5% (Inputs in the 15 Hz - 10 KHz range	¹ / ₄ Bridge Completion Provision	Yes – Dedicated location on screw terminal header
	with 20% - 80% duty cycles)		2.05 lbs
Connector	10-wire screw terminal	Module Weight	
Input	Differential, DC coupled	Module Part Number	32850040
Bandwidth	50 KHz (40 KHz with spans less than		
	10 mVFS)		
Measurement Ranges	+/- 1000 mV		
5	+/- 500 mV		
	+/- 50 mV (2mV min span)		



DIOC-16

16 Channel digital input, digital output, analog output, relay and counter/totalizer module.

Channels Per Module	16
Connectors	One 4-pin 5.08mm One 9-pin 5.08mm for high voltage digital inputs One 37-pin D-sub female for TTL digital inputs and outputs One 25-pin D-sub female for DAC outputs and aux voltage outputs
Isolation	Yes - High voltage digital inputs and relays only.
Update Rate	200 KHz Max (100 KHz when expansion unit is in use)
Isolated Digital Inputs	8 (Operation at 10V minimum, 150V maximum, 5 μs min pulse width)
Isolated Input Max Burden	1 mA
Isolated In Transient Protection	250V
Digital Inputs	16 (TTL or switch closure with 4.7K pullup to 5V)
Digital Outputs	16 (TTL, +/- 7 mA)
Digital Output Modes	Direct (menu or host) controlled or arbitrary digital pattern (DPAT) generator
Number of 32-bit Counters	8 pairs (16 total)
Counter / Timer Modes -	Gated time frequency counter, cycle based frequency, pulse counter, gated pulse counter, quadrature counter (x1, x2, x4 encodings, with or without Z reset), pulse width detector, period width, duty cycle detector and edge separation timer.
Frequency ctr range	0.2 Hz – 500 KHz (47 Hz – 50 KHz for cycle based frequency counter)
Frequency ctr accuracy	+ 0.03% of MInsueasurement + .0002 Hz
Pulse counter range	400000000 maximum span. (16 bit display resolution)
Pulse counter speed	10 MHz maximum (50 ns min pulse width)
Pulse width accuracy	.003% of measurement + .00167% of span + 0.03 μs
Pulse width range	1 μs - 2500000 μs

Period width accuracy	.002% of measurement + .00167% of span + 0.02 μs
Period width range	1 μs – 5000000 μs (0.2 Hz – 1 MHz)
Edge seperation accuracy	.002% of measurement + .00167% of span + 0.02 μs
Edge seperation range	1 μs – 5000000 μs
Duty cycle accuracy	.5% (Inputs in the 0.2 Hz - 100 KHz range with 20% - 80% duty cycles)
Arbitrary Memory	256 Ksamp divided into 4 equal sections. First shared with DPAT generator
Analog DAC Outputs	4
DAC output voltage range	+/- 10V (not inclusive of voltage drop across DAC output impedance)
DAC output resistance	50 ohm (In series with output)
DAC output maximum current	10 mA
DAC output voltage accuracy	+/- 0.05 V
Output DAC resolution / speed	12 bit / 1 MHz maximum
Output DAC modes	Menu or host selected DC, sine, pulse, triangle, arbitrary waveform generator.
Relay outputs	2, normally open contacts
Relay withstand voltage	1500 VDC (contacts to TMX chassis)
Relay rated voltage / current	250 VAC / 250 VDC / 10 Amp
Auxiliary Power Output	Yes. 5V @ 100 mA, 3.3V @ 100 mA, 15V and -15V @ 10 mA
Module Part Number	32850060

IEPE-6

6 Channel Isolated differential / bridge input module with software selectable bridge completion, shunt calibration and TEDS support.

Channels Per Module	6
Rated Isolation	250 VRMS or DC, Cat II (iso-commor to chassis and other iso-commons)
Sample Rate	800 kS/s/ch (400 kS/s/ch when expansion unit is in use)
A/D	16 bit SAR (one per channel)
Anti-Aliasing Filter	4 pole Bessel
HW gain for span adjustment	Yes
Counter Capability	Yes, first channel. Software selectab
Counter Modes	Gated time frequency counter, cycle based frequency counter, pulse counter,
	pulse width detector, period width detector, 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
Period width accuracy	.02% of measurement + .00167% of span with a maximum of 1.00 μs
Period width range	20 μs – 80000 μs (12.5 Hz – 50 KHz)
Duty cycle accuracy	.5% (Inputs in the 15 Hz - 8 KHz rang with 20% - 80% duty cycles)
Connector	Insulated BNC
Input	SE AC coupled w/ constant current excitation or SE DC coupled w/o
excitation	
Coupling Time Constant	10 s (+/- 20%) (10μF / 1MΩ)
Bandwidth	60 kHz (-3dB) 1V and 5V attenuators 65 kHz (-3dB) 10V attenuator
Measurement Ranges	+/- 10 V +/- 5 V +/- 1 V (0.1 VFS minimum span)
Max Transient Input	+/- 30 V (no damage)





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Accuracy (25°C)	0.12 % of attenuator	
Cold Start Drift	< 0.04% of attenuator + .07% of span (60 min)	
Min Input Impedance	1 MΩ (SE DC coupled mode)	
Overshoot	< 1.0%	
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)	
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	
Integration	Yes – Processing by DSP, menu selectable (1/80 th of the sample rate.)	
Differentiation	Yes – Processing by DSP, menu selectable (1/8 th of the sample rate.)	
TEDS Capability	Yes, Class I	
Module Weight	2.1 lbs	
Module Part Number	32850050	

* Isolation limited to 30 Vrms or 60V DC when non-insulated mating BNC connector used since hazardous voltage would otherwise be accessible. Internal Note: Class I TEDS operation is currently only expected to work with template 0 and template 25 sensors.

$\overset{\text{everest}^{\circ}}{EV-5000}$





Mission-Critical Data Acquisition

8 Channel - Part Number #42956000

16 Channel - Part Number #42956100

The EV-5000 is ideal for mission-critical data acquisition applications where digital storage and paper printouts are required. Accepting analog inputs, the EV-5000 is engineered to be a direct replacement for the field-proven Everest[®] series of chart recorders; retaining its best features and allowing for greater accuracy, faster data acquisition rates and increased data storage capacity.

- Print on standard 16.3" (414 mm) Z-fold chart paper at speeds up to 200 mm/s
- High capacity hard drive
- IRIG or GPS inputs
- 8 single-ended isolated or 16 differential analog inputs
- Enhanced security via Windows[®] 10
- Easily installs in industry-standard 19" racks
- Review historical data while recording
- Optional 32 channel digital signal inputs via Ethernet

Product Overview

Acquire

The Everest EV-5000 provides 8 single-ended isolated or 16 differential analog inputs. These inputs can be sampled at up to 200 kHz per channel with channel-to-channel and channel-to-ground isolation. Additionally, individual 16-bit analog-to-digital converters allow for simultaneous sampling of all input channels. The EV-5000 accepts IRIG and GPS inputs for synchronization and time-stamping of acquired data.

Visualize

Waveform data is displayed using a waterfall chart on a high resolution 19" touch-screen display. The user interface is customizable with color-coding available for easy signal identification and color change for signals that exceed thresholds. Historical data can be viewed without interrupting the current acquisition.

Analyze

Custom filters and increased signal quality can be created with user-programmable digital signal processing. The touch-screen capability allows for instant markings on points of interest and annotation for later review.

Everest® EV-5000 System Specifications

Signal Inputs		Screen	
Channel configuration	8 isolated single-ended or 16	Dimensions	19" diagonal
options	non-isolated differential analog inputs	Resolution	1280 x 1024
Isolated Single-Ended		Printed Charts	
Max. channels	8	Chart width	16.3" (414 mm)
Sample rate	200 kS/s/ch	Resolution	300 dpi (12 dpm)
Band width	40 kHz (-3dB)	Printing speed	up to 200 mm/sec
Min. input impedance	>1 MΩ	Speed accuracy	+/-2% maximum
Input type	DC-coupled	Waveform size	170 mm max.
Connector	Shrouded Banana or BNC	Grids	from 2 to 16 individual grids
Max. rated input	± 250 V	Time marking tri-level	x1, x10, x100
Non-Isolated Differentia	al	Environmental Specs	
Max. Channels	16	Temperature	40°F to 105°F (5°C to 40°C)
Sample rate	20 kS/s/ch	Operating/Storage	10% to 90% non condensing
Band width	4 kHz (-3dB)	Humidity	
Min. input impedance	>500 ΚΩ	Storage Temperature	-4°F to +140°F (-20°C to 60°C)
Input type	DC-coupled	Compliance Safety	
Connector	D shell		010A-1, CSA C22.2 No.1010.1-92 EN
Max. rated input	± 40 V	FCC Part 15, Subpart B, IEC1000-3-2	Class A EN61326 Power Harmonics
System & connection		AstroNova is system cert	tified to ISO9001
Power consumption	600W	Physical Specifications	
Operating system	Windows [®] 10	Dimensions	21" H x 19" W x 18.6" D
Connection	Gigabit Ethernet (10/100/1000 Base-T) RJ45 connector USB 3.0	Weight	55 lbs. (25 Kg)

Store

The 500 GB removable hard drive is easily accessible from the front of the unit and provides an additional layer of security. Easily exchange hard drives for recording of classified and non-classified data.

Print

The EV-5000 uses our patented thermal array printing process to provide a highly detailed permanent record of tests. Additionally, EV-5000 paper charts include many features that make it easier to review acquired data:

- Print grids to eliminate paper skew
- Include annotations to highlight important events
- Label individual channels to identify important data
- Adjust trace thickness for readability

EVEREST[®] **VDiS**



Part Number #14004080

Everest[®] Visual Display Software

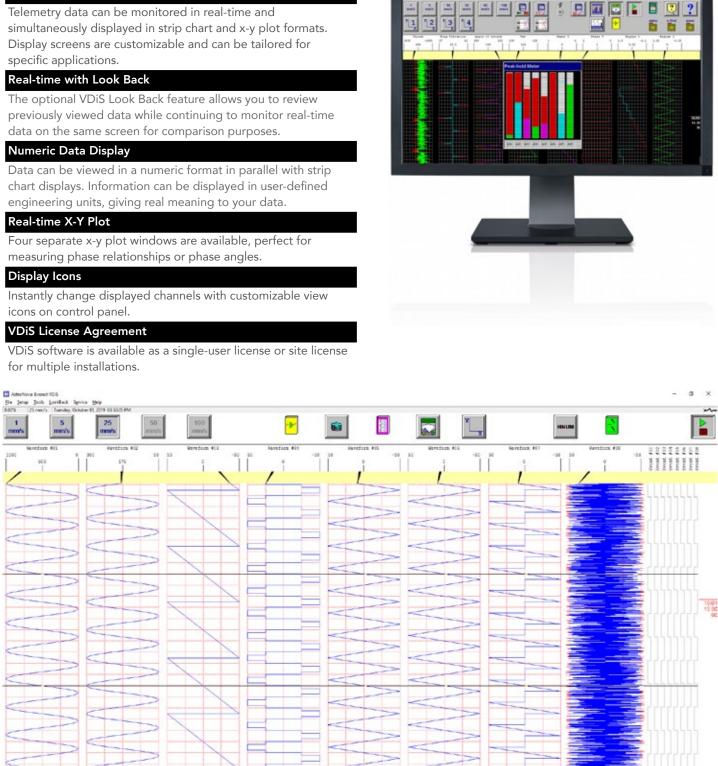
Developed for telemetry facilities and other applications requiring real-time data viewing, the Everest Visual Display Software (VDiS) is a powerful software application that transforms the PC into a virtual strip chart display.

The VDiS application supports either TCP or UDP protocols for digital signals via Ethernet. A complete digital data programming guide is included to get you up and running quickly. The open protocol of VDiS allows it to accept digital data from virtually any telemetry system. VDiS features several useful real-time display capabilities, including:

- Compatible with Windows[®] 10 and Windows[®] 7 operating systems
- Powerful Look Back feature stores data on your PC with post-processing conversion to CSV
- Real-time Display of up to 32 channels
- Display speeds from 1 mm/min to 200 mm/sec
- Discrete, overlap, or custom grid formats
- Numeric data and X-Y plot displays
- Compatible with third-party telemetry systems
- Customizable user interface
- Create view icons to instantly change which channels are displayed
- Combine with AstroNova Real-Chart RC-300 for printed charts in a modular system to provide both virtual and hard copy telemetry data.

VDiS Display Features

Real-time Display



Control Panel

The control panel is a customizable group of icon buttons located near the top of the display, below the menu bar. It can provide immediate access to virtually any function with one touch.

REAL-CHART RC-300

Real-Chart RC-300R Part Number #40775300 Real-Chart RC-300B Part Number #40775310

Network Printer

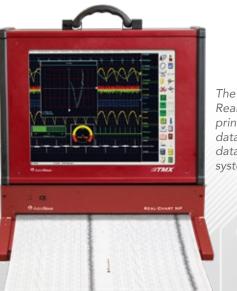
The Real-Chart RC-300 is a powerful printing platform designed to provide hard copy recording of telemetry data. It's an ideal wide format printer for aerospace or other applications where hard copy records are essential. Its 16.3-inch print width supports printing of up to 32 waveforms on separate grids along with alphanumeric annotation and a system log. Signals can also be displayed on an external monitor during printing. Adding an external display along with a keyboard and mouse allows the user to control the Real-Chart RC-300 locally. Use the Real-Chart RC-300 with AstroNova VDiS software to provide both virtual and hard copy records of telemetry data in a modular system.

• 300 dpi Print Resolution with 16.3 Inch Wide Charts

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AstroNo

- Control Multiple Real-Charts from Server via Ethernet
- Windows[®] 10 Operating System



The RC-300 RealChart can print real-time data from a TMX data acquisition system

RC-300

Printing	
Recording Method	Direct Thermal
Chart Widths	16.3-inch (414 mm)
Resolution	300 dpi (12 dpm)
Chart Speed	1mm/min to 200 mm/sec
Speed Accuracy	+/-2%
Maximum Waveform Size	170 mm
Grids	From 2 to 32 individual grids
Time Marking	Tri-level (x1, x10, x100) mark on chart edge; Grid time line controlled by the host
Annotation	System log printed automatically with data and speed
Channel ID	Each channel labeled with channel number
Trace Thickness	User-adjustable
Paper	Z-fold pack (400 sheets per pack)
Interface	
Ethernet	10/100/1000 BaseT (RJ45 connector) accepts digital signals and host control commands
Video	HDMI Port
USB 3.0	2 ports connect a mouse and keyboard for local control
Power	
Input Voltage Range	102 to 264 VAC

Z-Fold Chart Paper Packs - C-72

AstroNova has manufactured high-quality chart paper for decades, specializing in thermal sensitive materials. This premium-grade paper is always in stock, ready for shipment and suitable for most printing recorders in the market.

We use only the highest quality base paper with low-friction to minimize printhead wear, ensuring you get the most life out of your hardware. AstroNova provides the perfect match between machine and media. Our chart paper is precision-engineered offering you quality without compromise.

A AMONIC

For specific pricing and availability, please inquire with our customer service department.

394 Ft, 400 Sheets

Part Number: 41399000

Frequency Range	47 Hz to 63 Hz
Power Factor	0.99
Power Consumption	240W typical 500W maximum
Mechanical	
Configuration	Standard 19-inch rackmount or benchtop
Dimensions	7.0" H x 19.0" W x 21.2" D
Weight	37 lbs/16.78 kg without paper 42 lbs/19.05 kg with paper
Environmental	
Operating Temperature	40°F to 105°F (5°C to 40°C)
Operating/Storage Humidity	10% to 90% non-condensing
Storage Temperature	-4°F to 140°F (-20 to 60°C)
Compliance	
Safety	EN 61010-1:2001, UL61010A-1, CSA

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