

V530 Pressure Scanner Interface

The V530 is a single-width, C-size, register-based, VXIbus module that provides a high-performance interface to electronic pressure scanners.

Versions of the module are available for scanners from either Pressure Systems, Inc. (PSI) or Scanivalve Corporation.



Interfaces PSI and Scanivalve analog multiplexed pressure scanners

APPLICATIONS

Jet aircraft engine test cells
Rocket engine test cells
Wind tunnel data systems

FEATURES

- 1024 channel capability with 16-bit resolution
- Interfaces for PSI and Scanivalve pressure scanning subsystems
- ADC and channel control for other external multiplexed devices
- Internal buffer memory
- 50,000 channel/s sample rate

GENERAL DESCRIPTION

The V530 is a single-width, C-size, register-based, VXIbus module that provides a high-performance interface to electronic pressure scanners. Versions of the module are available for scanners from either Pressure Systems, Inc. (PSI) or Scanivalve Corporation. The V530 accepts analog signals (± 2.5 V or ± 5 V full scale) from the pressure scanners, and furnishes the multiplexer controls for the scanners. It contains a scan table that can be down-loaded from software. The scan table is held in a 1024 by 16-bit random access memory, allowing the V530 to monitor up to 1024 pressure channels in a user-selected order. The module also contains scan control circuitry, a multiplexer for the analog signals from the pressure scanners, a sample/hold amplifier, and a 16-bit ADC. The digital values from the ADC are loaded in a second 1024 by 16-bit RAM. The data memory is fully dual-ported so that read operations do not conflict with the conversion process.

Each V530 (in conjunction with the pressure scanners) provides an aggregate sample rate of 50,000 channels/s (128 channels in 2.56 ms or 1024 channels in 20.48 ms, for example). It can be software configured (via the scan table) to monitor any number of pressure channels up to a maximum of 1024. System performance requirements dictate the number of pressure scanning units that can be chained to a single V530. This module can be used in a single-scan or an autoscan mode. In single-scan mode, a scan can be initiated by software command. Channels selected by the Scan Table are scanned, and the Converted Data Memory is written. Reading can be accomplished at the next scan period or as the result of an interrupt. In autoscan mode, reading is totally asynchronous. The latest data for any particular channel is read from the dual-port Converted Data Memory. A gate signal applied through a front-panel mounted LEMO connector, also provides external control of the scan cycle.

When used in combination with pressure scanner interfaces, the V530 has a sample rate of 50,000 channels/s. In a 512-channel system, with one V530, one complete scan requires 10.24 ms. However, if four V530s are used, each 128-channel group is scanned in parallel, and the scan time is reduced to 2.56 ms.

The V530 supports both static and dynamic configuration. Access to the data is through memory locations indicated by the Offset Register within the VXIbus Configuration Register set, using A24/A16, D16 data transfers.

Item	Specification
Channel Capacity	1024 channels
Scanner Suppliers Accommodated Model V530-EA11 Model V530-EB11	Pressure Systems, Inc. Scanivalve Corporation
Inputs Full scale input range Model V530-EA11 Model V530-EB11 Input protection Common-mode input voltage Common-mode rejection Input impedance Drift	± 2.5 V ± 5 V ± 17 V ± 15 V -80 dB minimum; -100 dB, typical (dc to 60 Hz) 2x 1012 Ω 11 μ V/ $^{\circ}$ C, typical
A/D Converter Resolution Linearity error Differential linearity error Drift Quantization error Conversion time	16 bits (one part in 65,536) 0.003% of FSR 0.003% of FSR ± 6 ppm of FSR/ $^{\circ}$ C, typical $\pm 1/2$ LSB, typical 20 μ s/channel
Front Panel Connectors Input signals, MUX control External sync, clock Power supply (-EA11 only)	50S "D" Single contact LEMO receptacle, shell size 00 9P "D"
Mating Connectors Input signals, MUX control External sync, clock Power supply (-EA11 only)	KineticSystems Model 5935-Z1A KineticSystems Model 5910-Z1A KineticSystems Model 5931-Z1A

Scanner Supplier	Interface Type	Description
PSI	S1600-HD-RK	16 channels per S1600 module, 128 channels per rack
PSI	S3200-RK-50	32 channels per S3200 module, 192 channels per rack
PSI	84-IFC	Each interface supports 16 BP or ESP scanners
Scanivalve	ZOC12	16 or 32 channels per module; cable serviced
Scanivalve	ZOC14	16 or 32 channels per module; cable serviced
Scanivalve	ZOC16/16Px	16 channels per module; 128 channels per rack
Scanivalve	ZOC22/32Px	32 or 64 channels per module; cable serviced
Scanivalve	ZOC23/32Px	32 or 64 channels per module; cable serviced



RELATED PRODUCTS

Model 5851-Exyz	Cable—50P "D" to 50S "D"
Model 5857-Axyz	Cable—1-contact LEMO to Unterminated
Model 5 85 7-Bxyz	Cable— 1 -contact LEMO to 1 -contact LEMO
Model 5857-Hxyz	Cable—1-contact LEMO to BNC shielded
Model 5862-Fxyz	Cable—V530 to PSI Pressure Scanner
Model 5862-Jxyz	Cable—V530 to Scanivalve Pressure Scanner
Model 5 910-Z1A	Connector— 1 -contact LEMO
Model 5931-Z1A	Connector— 9P "D"
Model V530-0001	±18 V Power Supply (required for PSI Scanner systems only)

ORDERING INFORMATION

MODEL	DESCRIPTION
V530-EA11	Pressure Scanner Interface for PSI Scanners
V530-EB11	Pressure Scanner Interface for Scanivalve Scanners

Updated October 24, 2005

Copyright © 2005 KineticSystems Company, LLC. All rights reserved.

KineticSystems Company, LLC

900 N. State St.
Lockport, IL 60441-2200

Toll-Free (US and Canada):

phone 1-800-DATA NOW
1-800-328-2669

Direct:

phone +1-815-838-0005
fax +1-815-838-4424

Email:

mkt-info@kscorp.com

To find your local sales representative or distributor or to learn more about KineticSystems' products visit:

www.kscorp.com