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Find the *DynamicSignals / Kinetic Systems V215-VC11* at our website: *Click HERE*

32-Channel, 16-bit Scanning ADC

A multichannel ADC with optional input filters

V215

Features

- **32-channel capability with differential inputs**
- **16-bit resolution**
- **Programmable gain (1 to 1024) per channel**
- **Programmable number of active channels**
- **Self-scan and triggered scan operation**
- **Dual-ported buffer memory**
- **Options with 6 Hz low-pass filter**
- **Options available with temperature reference inputs**

Typical Applications

- **Powertrain/engine testing**
- **Temperature measurements**
- **General-purpose data acquisition**



General Description

The V215 is a single width, C-size, register-based, VXIbus module that can digitize as many as 32 analog voltage channels. The resulting digital data can be read over the VXIbus. The module contains a 16-bit analog-to-digital converter capable of resolving one part in 65,536. The number of active (scanned) channels is software programmable. There are two software-selectable scan modes: continuous and single-scan. With continuous mode, VXIbus Read cycles are asynchronous with the conversion process, eliminating any overhead due to testing for "converter busy." If it is desirable to synchronize scanning and reading, single-scan mode can be used. In this mode, an interrupt is generated after the last channel has been converted. In addition, the external trigger input may be used to synchronously trigger a single scan on multiple V215s.

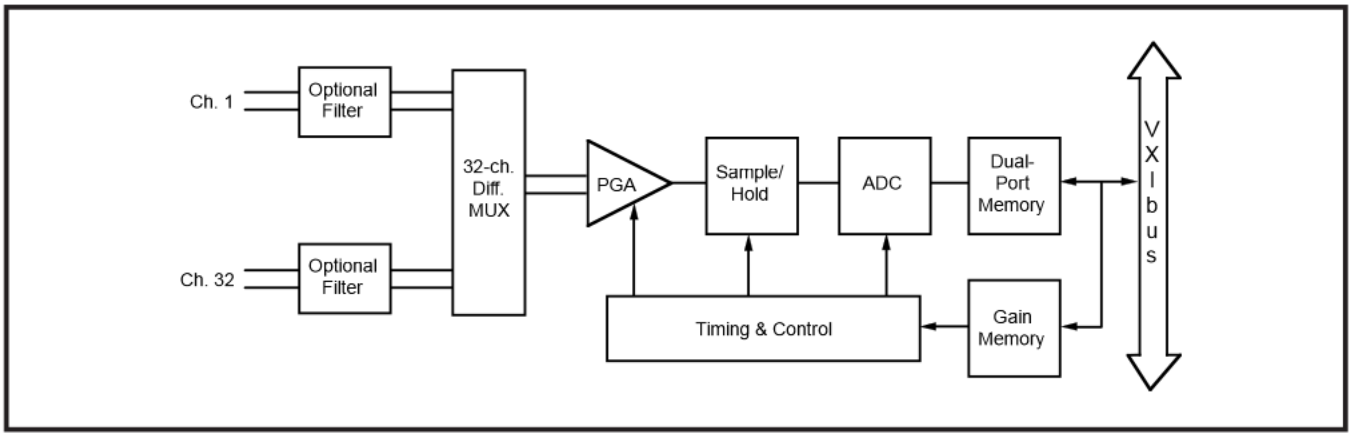
The V215 contains a 4-bit, 32-word memory which can be loaded on a channel-by-channel basis with an appropriate gain factor for each differential input signal. Eleven gain factors, from 1 to 1024, are available. This allows one V215 to measure a wide variety of input signal types (such as thermocouples, high-level inputs, etc.). Once channel scanning is initiated, each channel's input is selected, the pre-loaded gain factor is applied to it, the amplified signal is converted, and the resultant binary information is stored in the on-board memory. Conversions take place at the rate of one every 250 µs (all 32 channels in 8 ms). The memory is configured in a dual-ported fashion to facilitate the retrieval of data with block transfer operations.

All versions of the V215 are precalibrated for ±10 V inputs. The V215-VC11 and -VD11 options include a single-pole low-pass filter at the input of each channel. These filters provide a -3 dB cutoff frequency of 6 Hz. To facilitate the use of this module in temperature monitoring systems, the V215-VB11 and -VD11 options are available. On these options, both channels 1 and 17 are configured to power and receive an isothermal reference signal from a KineticSystems Model V792-ZA11 32-channel Isothermal Panel. For monitoring 4-20 mA current loop signals, it is common practice to mount a precision 250 Ω resistor external to the module (i.e., at a terminal strip). This allows the input to the V215 to be disconnected without disrupting the current loop. The loop must not exceed the maximum common-mode voltage rating of the V215. The KineticSystems Model 1854 Termination Panel may be used for this purpose.

All input signals are brought to the module through a pair of 36-pin AMP rectangular connectors mounted on the front panel. These connectors mate directly with the KineticSystems Model 5944-Z1A mating connectors and with the 5855-Series of cable assemblies. The external trigger is brought in through a single-pin LEMO connector. An LED flashes whenever the module is addressed, and an ACTIVE light indicates when the module is powered and scanning is activated. An interrupt LED is illuminated whenever an interrupt is pending.

The V215 supports both static and dynamic configuration. Access to the converted data is through memory locations indicated by the Offset Register within the VXIbus Configuration Register set, using A24/A16, D16 data transfers.

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Item	Specifications
Inputs	
Number of input channels	32 differential inputs
Input signal range	±10 V dc, maximum
Input protection	±35 V, continuous; ±300 V for 100 µs
Common-mode input voltage	±10.5 V dc, maximum
Common-mode rejection	-110 dB at dc to 1 Hz; -6 dB/octave rolloff to -70 dB at 1 kHz
Input impedance	22 MΩ
Drift	
G = 1 to 16	±0.0013% FSR/°C, maximum
G = 32 to 256	±0.0018% FSR/°C, maximum
G = 512	±0.0030% FSR/°C, maximum
G = 1024	±0.0057% FSR/°C, maximum
Filtering (-VC11, -VD11 Options)	
Input filter	single-pole, low-pass RC type
-3dB cutoff frequency (f_c)	6 Hz
A/D Converter	
Resolution	16 bits (one part in 65,536)
Linearity error	±0.003% of Full Scale Range
Differential linearity error	±0.003% of Full Scale Range
Drift	±0.0018% FSR/°C, maximum
Quantization error	±½ LSB, typical
Conversion time	250 µs
On-board memory	32 16-bit words
Input connector type	36P AMP Rectangular
Power requirements	
+5 V	2.7A, typical
+24 V	80 mA, typical
-24 V	79 mA, typical
Environmental and Mechanical	
Temperature range	
Operational	0°C to +50°C
Storage	-25°C to +75°C
Relative humidity	0 to 85%, non-condensing to +40°C
Cooling requirements	10 CFM
Dimensions	340 mm x 233.35 mm x 30.48 mm (C-size VXIbus)
Front panel potential	Chassis ground

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Ordering Information

Model V215-VA11 32-channel, 16-bit A/D Converter; without filters or compensation reference
Model V215-VB11 32-channel, 16-bit A/D Converter; without filters, with compensation reference
Model V215-VC11 32-channel, 16-bit A/D Converter; with filters, without compensation reference
Model V215-VD11 32-channel, 16-bit A/D Converter; with filters and compensation reference

Related Products

Model 5855-Axyz Cable—36P AMP Rectangular to Unterminated
Model 5855-Bxyz Cable—36P AMP Rectangular to 50S Amphenol Ribbon
Model 5855-Cxyz Cable—36P AMP Rectangular to 36P AMP Rectangular
Model 5857-Axyz Cable—1-contact LEMO to Unterminated
Model 5857-Bxyz Cable—1-contact LEMO to 1-contact LEMO
Model 5857-Hxyz Cable—1-contact LEMO to BNC shielded
Model 5910-Z1A Connector—1-contact LEMO
Model 5944-Z1A Connector—36P AMP Rectangular
Model V765-ZA11 Rack-mount Termination Panel
Model V792-ZA11 Rack-mount Isothermal Panel

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