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Find the *DynamicSignals / Kinetic Systems V246-BCB2* at our website: *Click HERE*

V246

8-channel Bridge Signal Conditioner

The V246 is a single-width, C-size, register-based, fully programmable, VXIbus module that provides eight channels of bridge signal conditioning.

It accommodates transducers that represent one, two, or four active arms of a bridge circuit.



A full-featured, high-accuracy, bridge signal conditioner

APPLICATIONS

Automotive body engineering tests
Automotive safety tests
Rocket engine testing
Wind tunnel data acquisition
Air bag testing
General-purpose bridge measurements
General-purpose temperature measurements

FEATURES

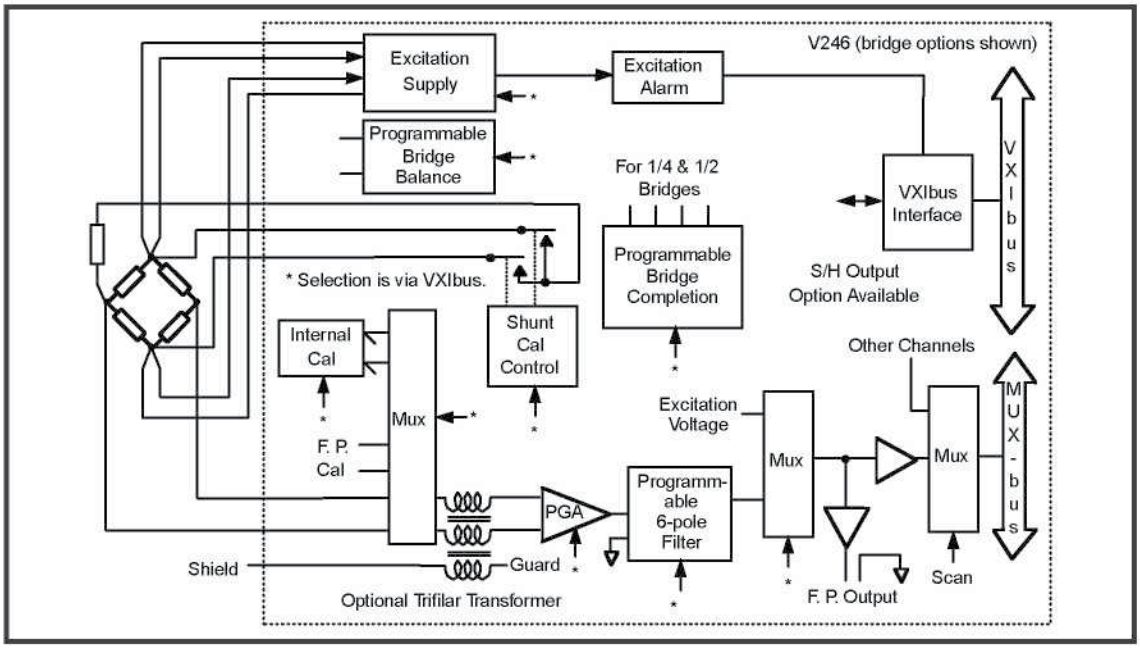
- Bridge completion for one, two, or four active arms using precision Vishay metal-foil resistors; RTD options available
- Programmable shunt calibration and excitation; current monitoring, RTD options
- 6-pole, low-pass filters with programmable cutoff frequency: 20, 200,1000, or 2000 Hz; or bypass
- Programmable bridge balance
- 10-wire transducer hookups
- Optional simultaneous sampling
- Optional trifilar-wound input transformers provide excellent high-frequency CMRR

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GENERAL DESCRIPTION

The V246 is a single-width, C-size, register-based, fully programmable, VXIbus module that provides eight channels of bridge signal conditioning. It accommodates transducers that represent one, two, or four active arms of a bridge circuit. An option is available for 3- or 4-wire RTDs. This module is intended for use as a front-end signal conditioner for the KineticSystems V207 and V208 ADC Subsystem modules, as well as with other VXIbus-based converter products. This combination permits the digitization of properly conditioned inputs from high-frequency strain gages, RTDs and other bridge-type sensors. No intermodule wiring is necessary since this module is fully compatible with the KineticSystems MUX-bus™.

The V246 Signal Conditioner provides bridge completion, excitation, anti-aliasing filtering, and amplification for bridge-type inputs. It contains provisions for 2-point shunt calibration, automatic voltage and excitation calibration, as well as excitation alarms. Bridge offsets of up to 70 mV may be nulled with a 12-bit DAC current source. Each channel may be programmed independently. A removable termination housing is available for convenient wiring of sensor leads. The V246 supports both static and dynamic configuration. It may be accessed using A24/A16, D16 data transfers.



Item	Specification
Inputs Number of channels Impedance Input protection	 Eight differential channels 20 MΩ minimum, >100 MΩ typical ± 35 V, continuous
Gain Ranges	1, 2, 5, 10, 20, 50, 100, 200, 500, 1000
Frequency Response Filter type Cutoff frequencies	6-pole, Bessel or Chebyshev 20, 200, 1000 or 2000 Hz, programmable The filter may be bypassed for an extended frequency response to a -3dB point of 20 kHz.
Excitation - Bridge Options Line regulation Load regulation Temperature Coefficient	Independent excitation for each channel. Each channel provides +/- excitation and sense leads. Excitation voltages of 0 V, 2.5 V, 5 V, 10 V and 15 V are available. Open sense lines or an over-current condition will shut down the supply automatically and signal the error condition. Excitation calibration is also provided. 0.003 %/V 0.00025 V/mA 2 ppm/°C
Excitation - RTD Options Temperature Coefficient	Independent excitation for each channel. Each voltage excitation source monitors the voltage across a precision resistor in series with each RTD, producing a precision current source. Currents of 400 or 800 µA can be selected. The voltage across the series resistor can be measured to determine the exact current. 10ppm/°C
Bridge Completion (bridge options)	Eight channels of bridge completion are provided. 1/4-, 1/2- and full-bridge configurations are supported. A matched pair of 120 Ω or 350 Ω resistors are provided for 1/4-bridge completion.
Shunt Calibration (bridge options)	+/- shunt calibration is performed on each channel. The customer supplied resistors are installed in the termination assembly. Switching is performed under software control.
Gain/Offset Accuracy	Referred to input (RTI), after automatic calibration: Gain — Accuracy 1 — ±(200 µV+ 0.002% of reading) 2 — ±(200 µV+ 0.002% of reading) 10 — ±(100 µV + 0.002% of reading) 500 — ±(5 µV + 0.01% of reading) 1000 — ±(5 µV + 0.01% of reading)
Gain Stability	Better than 20 ppm/°C (typical)
Offset Voltage Stability	Less than 2 µV/°C RTI at a gain of 1000
Noise	Less than 5 µV RTI at a gain of 1000 0.5 µV rms RTI (typical) @ gain = 1000 and 20 Hz filter
Linearity	Better than 0.005% FSR
CMRR	Typically better than -110 dB, dc to 120 Hz. Optional trifilar-wound inputs provide excellent RF rejection to 100 MHz.
Bridge Balance (bridge options)	A 12-bit DAC provides the ability to remove bridge offsets of up to ±70 mV with a 350 Ω bridge.
I/O Connector Type	68P High Density
Power Requirements +5V +12V -12 V +24 V -24 V	3 A 200 mA 200 mA 350 mA 350 mA
Environmental and Mechanical Temperature range Operational Storage Relative humidity Cooling requirements Dimensions Front-panel potential	 0°C to 50°C -25°C to + 75°C 0 to 85% non-condensing to 40°C 10CFM 340 mm x 233.35 mm x 30.48 mm (C-size VXIbus) Chassis ground

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RELATED PRODUCTS

Model V207	16-bit, 500,000 Sample/second ADC Subsystem
Model V208	16-bit, 100,000 Sample/second ADC Subsystem
Model 5868-Bxyz	Cable—68S High Density to Unterminated
Model 5868-Fxyz	Cable—68P/68S High Density for V246 to V765
Model V750-ZA11	Termination Assembly for V246
Model V765-ZA11	Rack-mount Termination Panel
Model P200-246A	Simultaneous Sampling Factory Upgrade for V246

ORDERING INFORMATION

MODEL	DESCRIPTION
V246-wxy2	8-channel Bridge Signal Conditioner

w: Filter type
B = 6-pole Bessel
K = 6-pole Chebyshev

x: Front-end options

	Bridge Completion	Trifilar Transformers	
A	None	Provided	
B	120 Ω	Provided	
C	350 Ω	Provided	
D	None	Not provided	
E	120 Ω	Not provided	
F	350 Ω	Not provided	
G	RTD	Provided	(V246-wGy3)
H	RTD	Not Provided	(V246-wHy3)

y: Simultaneous sampling options
A = without simultaneous sampling
B = with simultaneous sampling

Example: A Model V246 8-channel Bridge Signal Conditioner module with 6-pole Bessel filters, trifilar-wound input trans formers, 350 D. bridge completion resistors, and simultaneous sampling would be ordered as: V246-BCB2.

Example: A Model V246 8-channel Bridge Signal Conditioner module with 6-pole Bessel filters, trifilar-wound input trans formers, 350 D. bridge completion resistors, and simultaneous sampling would be ordered as: V246-BCB2.

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