

The SC20 is a two-channel bridge signal conditioner. It is packaged in a 3U (5.25") high, 220 mm (8.7") deep, module. It accommodates transducers that represent 1, 2 or 4 active arms of a bridge circuit.

Up to 16 SC20 modules (32 channels) can be installed in a single V710 termination panel.

APPLICATIONS

Acoustic and vibration measurements
 Rocket motor tests
 High frequency dynamic tests
 Automotive testing
 Tests using bridge-type sensors

SC20 Wideband Bridge Signal Conditioner



Adds bridge signal conditioning to ADC modules

FEATURES

- Two-channel-per-card packaging for maximum versatility
- Up to 16 SC20 Conditioners can be inserted in a V710 Active Termination Panel
- Used with the V200 or V213 ADC modules
- 90 kHz bandwidth when used with a V200 ADC sampling at 200,000 samples/s
- Accommodates 1, 2 or 4 active bridge arms
- Programmable shunt calibration
- Programmable bridge balance
- Programmable excitation with 0, 2.5, 5 or 10 V selection
- Excitation regulation and sensing per channel for maximum stability
- 10-wire transducer hookups can be accommodated
- Excitation alarm
- Optional trifilar-wound transformer for excellent high-frequency CMRR

GENERAL DESCRIPTION

The SC20 is a two-channel bridge signal conditioner. It is packaged in a 3U (5.25") high, 220 mm (8.7") deep, module. It accommodates transducers that represent 1, 2 or 4 active arms of a bridge circuit. Up to 16 SC20 modules (32 channels) can be installed in a single V710 termination panel. Therefore, two 16-channel V200 Sigma-Delta ADC modules or one V213 module can be used with a single chassis of SC20 bridge conditioners. Strain gages, RTDs and other bridge-type sensors can be accommodated.

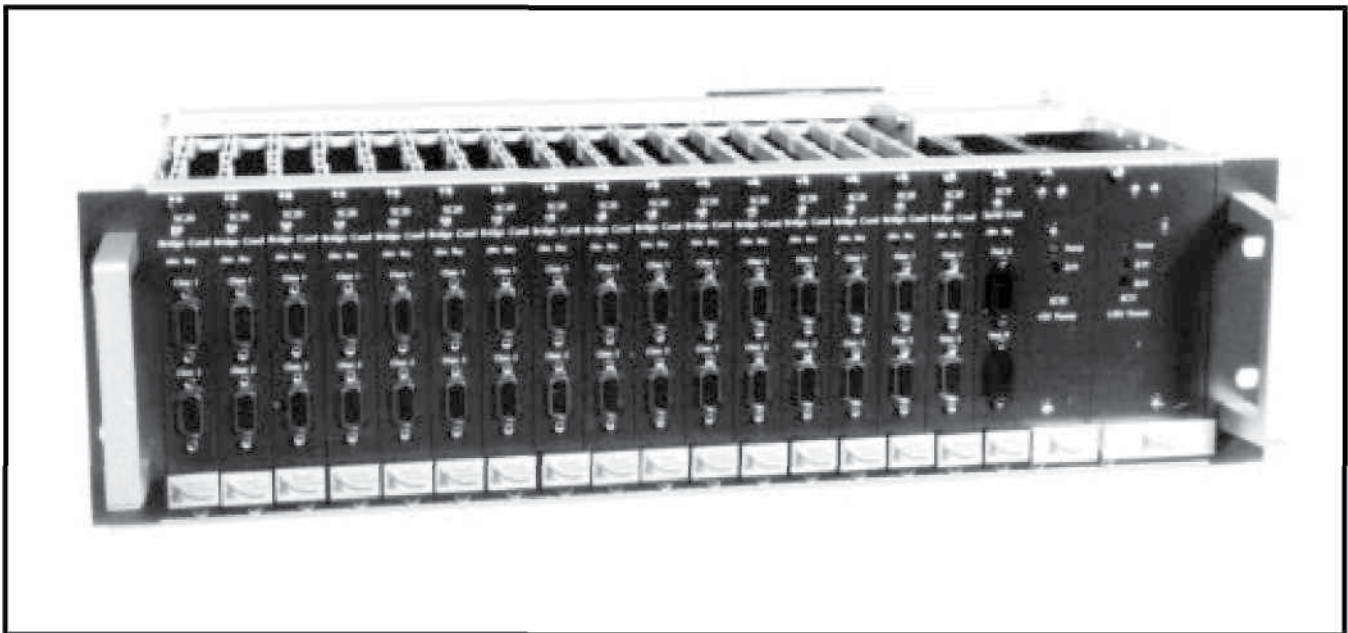
When used with a V200, this bridge conditioner can achieve a signal bandwidth of 90 kHz, with the V200 sampling at 200,000 samples/s. The SC20 and V200 form an ideal combination for high-bandwidth measurements as the high sample rate, high-rolloff digital filters to prevent signal aliasing, simultaneous sampling (an ADC per channel), programmable gain and AC/DC coupling are already built into the V200 ADC module. When used with a V213, anti-alias filtering is as provided by that module.

Sockets are provided for on-board bridge completion. High-precision 120 Ω and 350 Ω resistors are available. Shunt calibration is activated under program control. Shunt calibration resistors can be plugged into the module to accommodate various bridge requirements. Bridge excitation is programmable, with 0, 2.5, 5 and 10 V selection. The bridge excitation is non-isolated and balanced to ground (e.g. 10 V excitation is supplied to the legs of the bridge as +5 V and -5 V with respect to ground). Each SC20 channel contains a regulator for excitation, and individual remote sensing is provided for high excitation stability.

For applications that exhibit high electrical noise, an option is available that includes a trifilar-wound input transformer. This transformer provides excellent high-frequency common-mode rejection.

Connections are available to provide a full 10-wire bridge hookup. Each of the bridge channels is connected via a 15-contact "D" connector on the associated SC20 front panel. Setup and control of the SC20 are accomplished via a standard serial port on the SC15 Serial Controller module.

V710 Active Termination Panel (shown with 16 SC20 bridge conditioning modules)

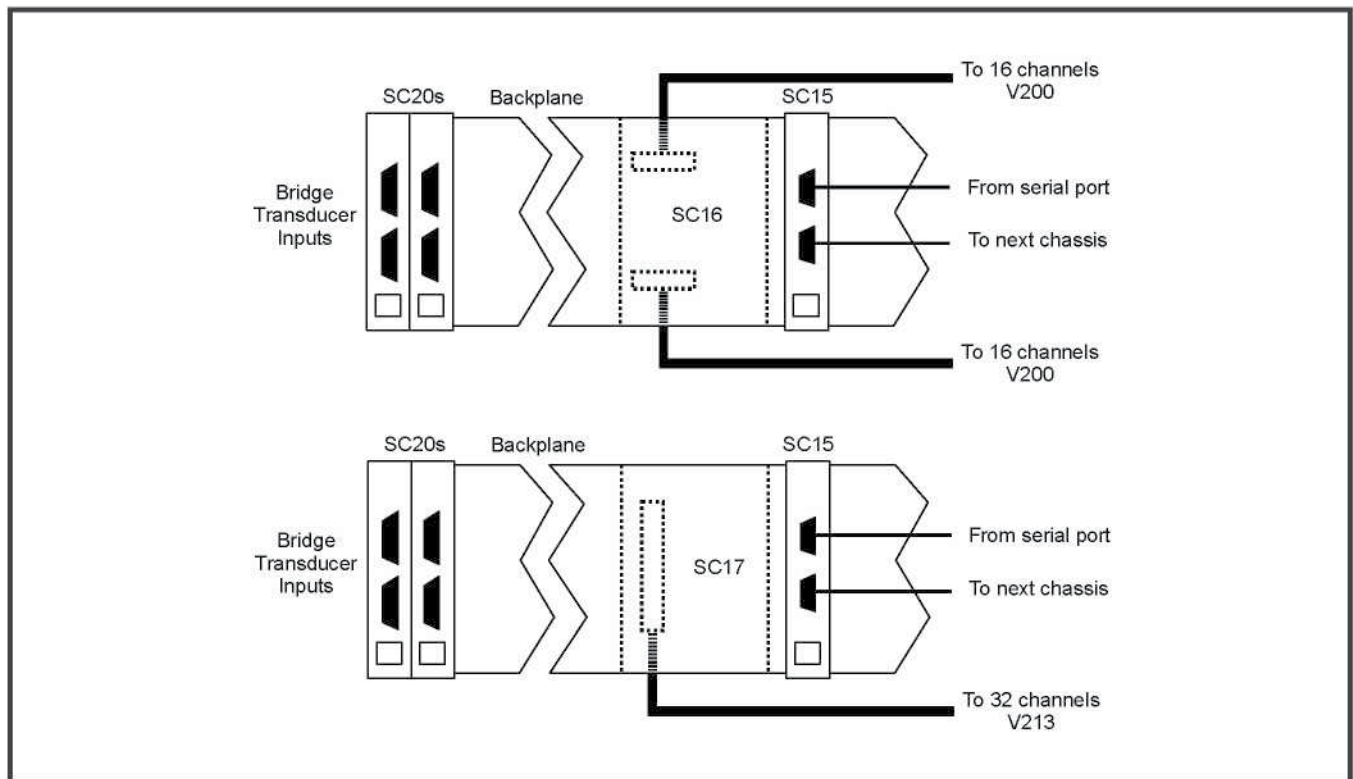


Item	Specification
Inputs	
Number of channels	2
Frequency Response	Controlled by the host ADC module
Excitation	Independent excitation for each channel. Each channel provides +/- excitation and sense leads. Excitation voltages of 0 V, 2.5 V, 5 V and 10 V are available. Open sense lines or an over-current condition will shut down the supply automatically and signal the error condition. Excitation calibration is also provided.
Line regulation	0.003 %/V
Load regulation	0.00025 V/mA
Temperature Coefficient	2 ppm/ $^{\circ}$ C

Specifications subject to change without notice

Bridge Completion	Two channels of bridge completion are provided. 1/2-, 1/4- and full-bridge configurations are supported. The completion resistors plug into the SC20 PC card. 120, 350 and 1000 ohm resistor kits are available
Shunt Calibration	+/- shunt calibration is performed on each channel. The customer-supplied resistors are installed on the SC20 PC card. Switching is performed under software control.
Gain/Offset Accuracy	Controlled by the host ADC module
Gain Stability	Controlled by the host ADC module
Offset Voltage Stability	Controlled by the host ADC module
Noise	Controlled by the host ADC module
Linearity	Controlled by the host ADC module
CMRR	Controlled by the host ADC module
Bridge Balance	A 12-bit DAC provides the ability to remove bridge offsets of up to ± 70 mV with a 350Ω bridge
Input Connector Type	15-contact DSUB socket-type connector (3-row type with the same shell size as a DE9S connector)

Connections Between A V710 Termination Panel and a V200 or a V213 ADC



Specifications subject to change without notice

Related Products

Model V710	Active Termination Panel
Model 5938-Z1A	Connector - 15 Contact "DSUB" (3-row), Pins
Model SC26-AA11	V710 Load Module (Required to maintain power supply regulation whenever eight or less SC-series signal conditioning modules are installed in the V710 Active Termination Panel.)

ORDERING INFORMATION

MODEL	DESCRIPTION
SC20-AA11	Wideband Bridge Signal Conditioner with Trifilar Transformers
SC20-AB11	Wideband Bridge Signal Conditioner without Trifilar Transformers
SC20-0002	120 Ohm Bridge Completion Resistor Kit (Three resistors per kit)
SC20-0003	350 Ohm Bridge Completion Resistor Kit (Three resistors per kit)

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