Portable, Modular Signal Conditioning Modules

Figure 1. SCC-TC01 and SCC-TC02 Thermocouple Input Modules (thermocouple plug not included)

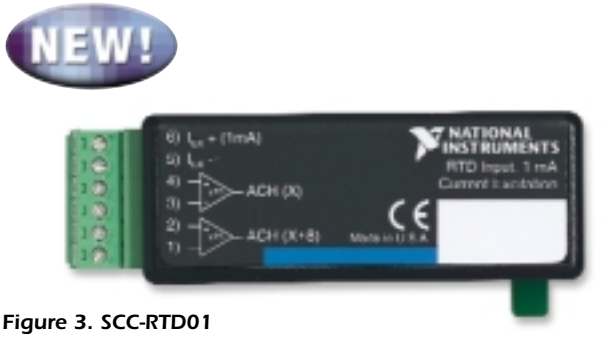

Figure 3. SCC-RTD01

SCC-TC Series Thermocouple Inputs

Model	Ch	Description	Part Number
SCC-TC01	1	Thermocouple, spade connector	777459-03
SCC-TC02	1	Thermocouple input	777459-04

Table 1. SCC-TC Series Modules

The SCC-TC01 and SCC-TC02 are single-channel modules for conditioning a variety of thermocouple types, including J, K, T, B, E, N, R, and S, and millivolt inputs with a range of ±100 mV. The SCC-TC modules include a 2 Hz lowpass filter, instrumentation amplifier with a gain of 100, and buffered outputs for maximum scanning rates by the E Series DAQ device. The input circuitry of the SCC-TC modules also includes high-impedance bias resistors for open-thermocouple detection as well as handling both floating and ground-referenced thermocouples. The SCC-TC modules include an onboard thermistor for cold-junction compensation (See Figure 2).

When an SCC-TC is installed in the SC-2345, the thermocouple signal and the cold-junction signal are routed to two input channels of the E Series DAQ device, channels X and X+8, respectively, where X is any channel 0 through 7. For example, if an SCC-TC module is installed in socket J1 of the SC-2345, the thermocouple signal is measured on channel 0 while the cold-junction sensor output is measured on channel 8.

Two versions of the SCC-TC are available. The SCC-TC01 includes a two-prong uncompensated thermocouple jack that accepts any miniature or subminiature two-prong male thermocouple plug. The SCC-TC02 includes a removable screw terminal plug that includes an additional connection for grounding thermocouple shields.

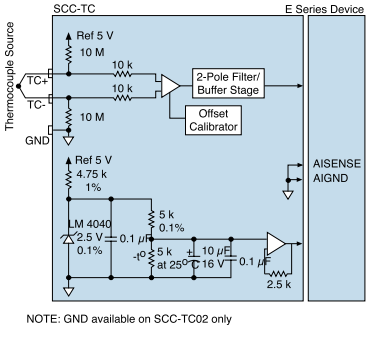

Figure 2. Block Diagram of SCC-TC01 and SCC-TC02

SCC-RTD01 RTD Input

Model	Ch	Description	Part Number
SCC-RTD01	2	2, 3, or 4-wire Pt RTD	777459-18

Table 2. SCC-RTD01 RTD Input Module

The SCC-RTD01 is a dual-channel module that accepts 2, 3, or 4-wire Platinum RTDs. Each channel of the SCC-RTD01 has an amplifier with a gain of 25 and a 30 Hz lowpass filter. In addition, each module has a 1 mA excitation source for powering the RTDs.

When the SCC-RTD01 is inserted into the SC-2345, the two output voltages are routed to two input channels of the E Series DAQ device, channels X and X+8, where X is any channel 0 through 7. For example, if installed into the J1 socket of the SC-2345, the output voltages are routed to input channels 0 and 8 of the E Series DAQ device (See Figure 4).

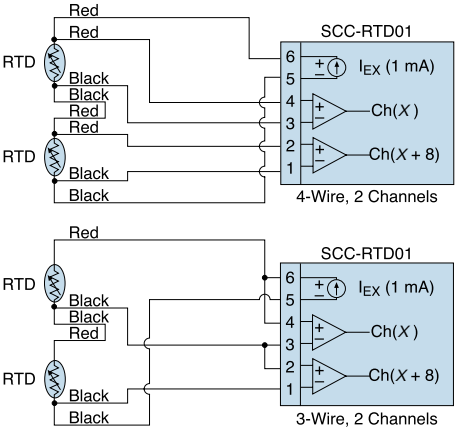

Figure 4. Block Diagram of the SCC-RTD01

Portable, Modular Signal Conditioning Modules

Figure 5. SCC-SG Strain-Gauge Input Modules

SCC-SG Series Strain-Gauge Inputs

Model	Ch	Description	Part Number
SCC-SG01	2	120 Ω, quarter-bridge strain gauges	777459-13
SCC-SG02	2	350 Ω, quarter-bridge strain gauges	777459-14
SCC-SG03	2	Half-bridge strain gauges	777459-15
SCC-SG04	2	Full-bridge strain gauges	777459-16
SCC-SG11	2	Shunt calibration	777459-17

Table 3. SCC-SG Series Modules

The SCC-SG Series consists of dual-channel strain gauge modules for conditioning quarter, half, and full-bridge strain gauges. Each module is designed for a specific type of strain gauge configuration. Each channel of an SCC-SG module includes an instrumentation amplifier, a 1.6 kHz lowpass filter, and a potentiometer for bridge offset nulling. Each module also includes a single 2.5 V excitation source.

The SCC-SG11 is a dual-channel shunt calibration module for use with the SCC-SG Series modules. Each channel includes two terminals for wiring the 301 kΩ, 1%, 1/4 Ω resistor across any two points of your bridge. You enable shunt calibration for both channels of a module by writing a logic high to the digital line controlling the SCC-SG11. You disable shunt calibration by writing a logic low to the same digital line.

When an SCC-SG module is installed in the SC-2345, the strain-gauge signals are routed to two input channels of the E Series DAQ device, channels X and X+8 respectively, where X is any channel 0 through 7.

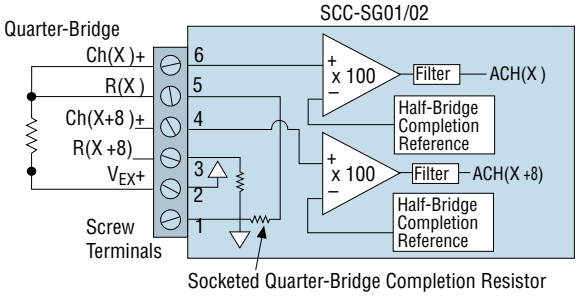

Figure 6. Block Diagram of the SCC-SG01/SCC-SG02

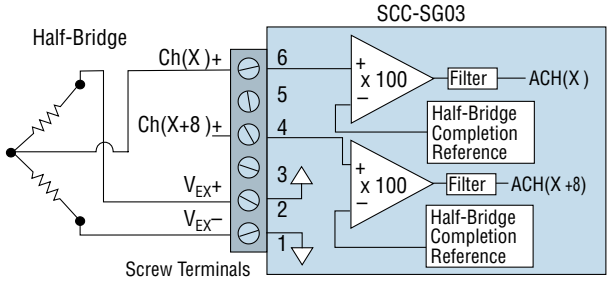

Figure 7. Block Diagram of the SCC-SG03

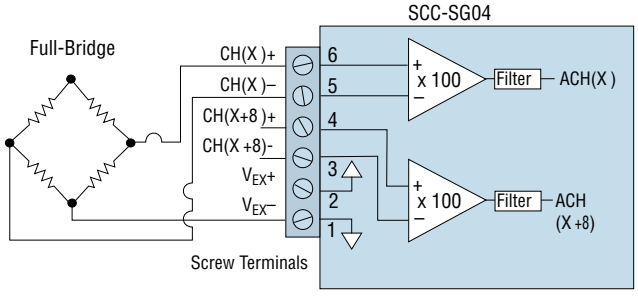

Figure 8. Block Diagram of the SCC-SG04

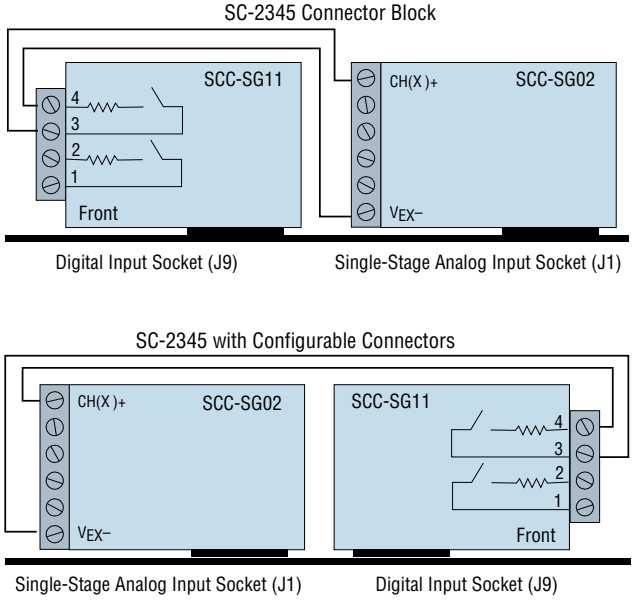

Figure 9. Using the SCC-SG11 Shunt Calibration Module with the SCC-SG02

Portable, Modular Signal Conditioning Modules

Figure 10. SCC-ICP01 Accelerometer Input Module

Figure 12. SCC-AI Series Isolated Analog Input Modules

SCC-ICP01 Accelerometer Input

Model	Ch	Description	Part Number
SCC-ICP01	1	Accelerometer Input	777459-19

Table 4. SCC-ICP01 Accelerometer Input Module

The SCC-ICP01 is a single-channel module that accepts ICP compatible sensors such as accelerometers and microphones. The SCC-ICP01 has an amplifier with a gain of two, a 0.8 Hz highpass filter and a 19 kHz 3-pole Bessel lowpass filter. The maximum input range is ±5 V. In addition, this module has a 4 mA current source to power an ICP compatible accelerometer or microphone.

When the SCC-ICP01 is inserted into the SC-2345, the single output voltage is routed to one input channel of the E Series DAQ device, channel X, where X is any channel 0 through 7. For example, if installed into the J1 socket of the SC-2345, the output voltage is routed to input channel 0 of the E Series DAQ device (See Figure 11).

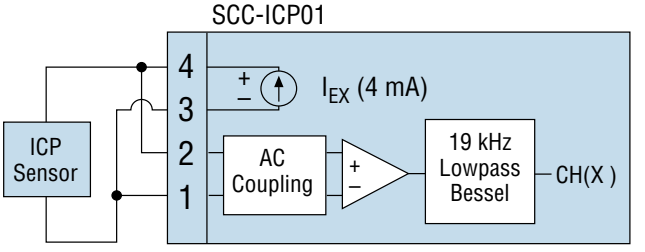

Figure 11. SCC-ICP01 Accelerometer Input Module

ICP®, is a registered trademark of PCB Piezotronics, Inc., Depew, New York. ICP is used in the designation of SCC-ICP01 to indicate that the product is compatible with ICP technology. NI and the SCC-ICP01 are not affiliated with, licensed or approved by, or otherwise connected with PCB Piezotronics, Inc.

SCC-AI Series Isolated Analog Inputs

Model	Ch	Input Range	Bandwidth	Part Number
SCC-AI01	2	±42 V	10 kHz	777459-20
SCC-AI02	2	±20 V	10 kHz	777459-21
SCC-AI03	2	±10 V	10 kHz	777459-22
SCC-AI04	2	±5 V	10 kHz	777459-23
SCC-AI05	2	±1 V	10 kHz	777459-24
SCC-AI06	2	±100 mV	10 kHz	777459-25
SCC-AI07	2	±50 mV	10 kHz	777459-26
SCC-AI13	2	±10 V	4 Hz	777459-27
SCC-AI14	2	±5 V	4 Hz	777459-28

Table 5. SCC-AI Isolated Analog Input Modules

The SCC-AI Series modules are dual-channel isolated analog input modules for reading input voltages from ±50 mV to ±42 V. Each channel of an SCC-AI module includes an instrumentation amplifier, a lowpass filter, and a potentiometer for calibration. These modules are installation rated for Category II, and provide safety working isolation of 300 V per module.

When an SCC-AI module is installed in the SC-2345, the input signals are routed to two input channels of the E Series DAQ device, channels X and X+8 respectively, where X is any channel 0 through 7.

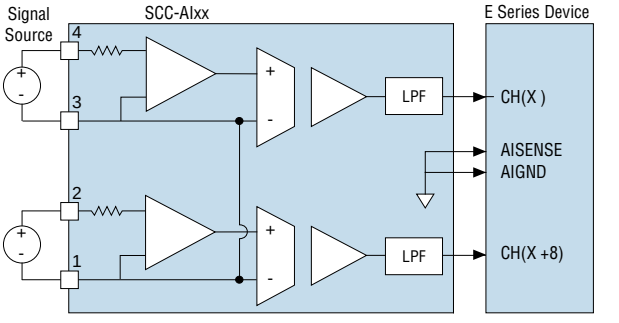

Figure 13. Block Diagram of SCC-AI Series

Portable, Modular Signal Conditioning Modules

Figure 14. SCC-A10 Voltage Attenuator Module

SCC-A10 Voltage Attenuator

Model	Ch	Description	Part Number
SCC-A10	2	Attenuator input	777459-06

Table 6. SCC-A10 Module

The SCC-A10 is a dual-channel module that accepts input voltage sources up to 100 V. Each channel of the SCC-A10 includes a 10:1 attenuation circuit and differential instrumentation amplifier with low-impedance outputs for maximum scanning rates by the DAQ device. The attenuation circuit includes high-impedance bias resistors, so you can connect floating or ground-referenced inputs to the SCC-A10 without adding external bias resistors. The SCC-A10 also provides overvoltage protection (up to 250 V_{rms}) for your DAQ system.

When an SCC-A10 module is installed in the SC-2345, the attenuated input signals are routed to two input channels of the E Series DAQ device, channels X and X+8 respectively, where X is any channel 0 through 7.

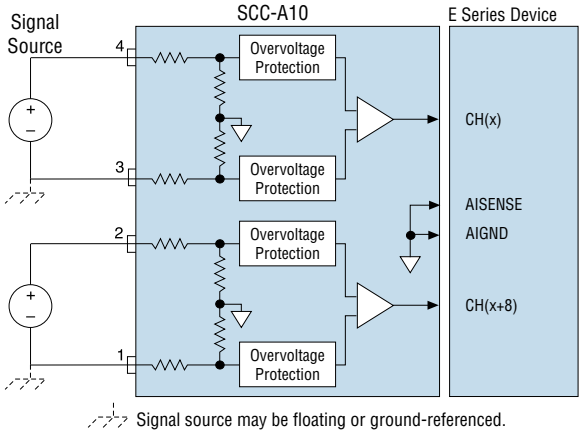

Figure 15. Block Diagram of SCC-A10

Figure 16. SCC-CI20 Current Input Module

SCC-CI20 Current Input

Model	Ch	Description	Part Number
SCC-CI20	2	0-20 mA current input	777459-05

Table 7. SCC-CI20 Current Input Module

The SCC-CI20 (Figure 16) is a dual-channel module that accepts two 0 to 20 mA or 4 to 20 mA current loop inputs. Each independent channel of the SCC-CI20 includes a precision 249 Ω current conversion resistor that converts a 0 to 20 mA signal into a 0 to 5 V signal. Each channel includes a differential instrumentation amplifier with low-impedance outputs for maximum scanning rates by the E Series DAQ device, and bias resistors for handling both floating and ground-referenced current sources. The SCC-CI20 also includes two spare 249 Ω replacement resistors.

When the SCC-CI20 is installed in the SC-2345, the two output voltages are routed to two input channels of the E Series DAQ device, channels X and X+8, where X is any channel 0 through 7. For example, if installed into the J1 socket of the SC-2345, the output voltages are routed to input channels 0 and 8 of the E Series DAQ device.

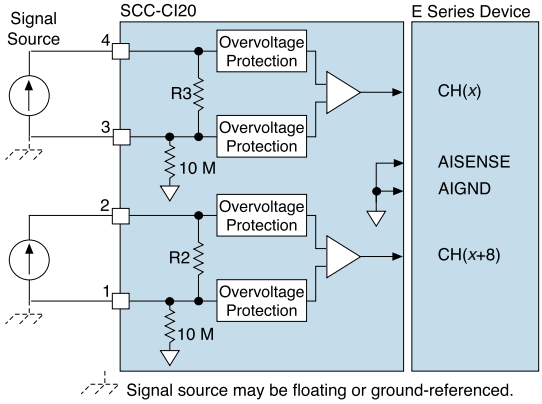

Figure 17. Block Diagram of SCC-CI20

Portable, Modular Signal Conditioning Modules

Figure 18. SCC-LP01 Lowpass Filter Module

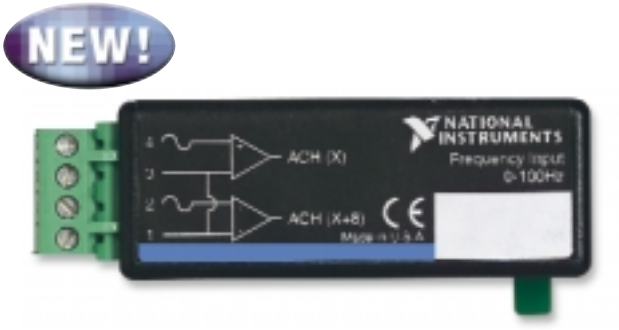

Figure 20. SCC-FV01

SCC-LP Series Lowpass Filters

Model	Ch	Description	Part Number
SCC-LP01	2	Lowpass filter (25 Hz)	777459-07
SCC-LP02	2	Lowpass filter (50 Hz)	777459-08
SCC-LP03	2	Lowpass filter (150 Hz)	777459-09
SCC-LP04	2	Lowpass filter (1 KHz)	777459-10

Table 8. SCC-LP Series Lowpass Filter Modules

The SCC-LP Series (Figure 18) consists of dual-channel, lowpass filter modules that accept two ±10 V signals. Each channel has a fourth-order Butterworth filter. The cut-off frequency is specific to the module and applies to both channels of the module.

When the SCC-LP Series module is inserted into the SC-2345, the two output voltages are routed to two input channels of the E Series DAQ device, channels X and X+8, where X is any channel 0 through 7. For example, if installed into the J1 socket of the SC-2345, the output voltages are routed to input channels 0 and 8 of the E Series DAQ device (See Figure 19).

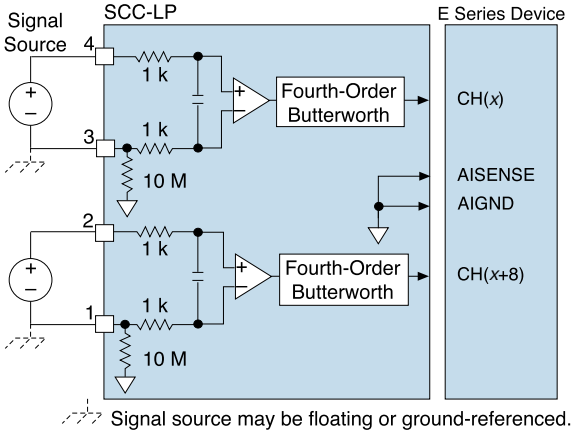

Figure 19. Block Diagram of SCC-LP Series

SCC-FV01 Frequency-to-Voltage Input

Model	Ch	Description	Part Number
SCC-FV01	2	Frequency-to-Voltage (0 to 100Hz)	777459-32

Table 9. SCC-FV01 Frequency-to-Voltage Input Module

The SCC-FV01 (Figure 20) is a dual-channel frequency-to-voltage conversion module that accepts ±10 V signals up to 100 Hz. The output scales linearly with the input frequency, and goes to 0 V with a DC input signal. Each channel triggers on the incoming signal using a threshold of 0 V and has a hysteresis of 200 mV. For isolated solutions, consider using the SCC-AI03 cascaded with the SCC-FV01.

When the SCC-FV01 module is inserted into the SC-2345, the two outputs are routed to two input channels of the E Series DAQ device, channels X and X+8, where X is any channel 0 through 7. For example, if installed into the J1 socket of the SC-2345, the outputs are routed to channels 0 and 8 of the E Series DAQ device. (See Figure 21).

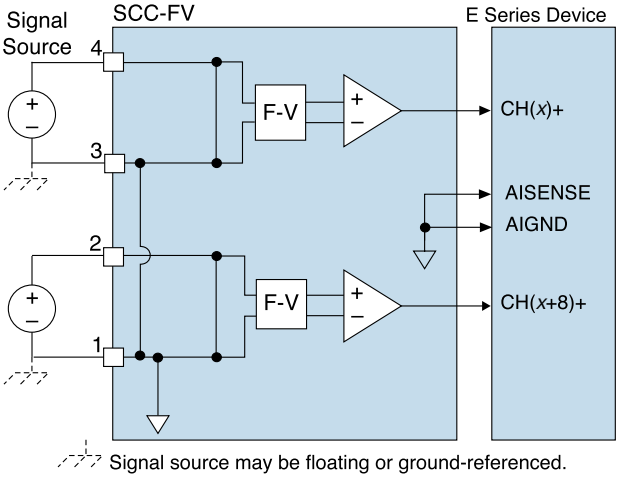

Figure 21. Block Diagram of the SCC-FV01

Portable, Modular Signal Conditioning Modules

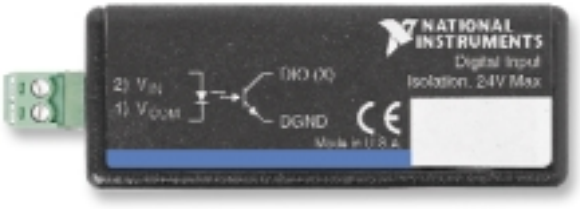

Figure 22. SCC-DI01 Optically Isolated Digital Input Module

Figure 24. SCC-DO01 Optically Isolated Digital Output Module

SCC-DI01 Optically Isolated

Model	CH	Description	Part Number
SCC-DI01	1	Isolated Digital Input	777459-11

Table 10. SCC-DI01 Module

SCC-DO01 Optically Isolated

Model	Ch	Description	Part Number
SCC-DO01	1	Isolated Digital Output	777459-12

Table 11. SCC-DO01 Module

Digital Input

The SCC-DI01 (Figure 22) is a single-channel optically isolated digital input module for sensing digital signals of up to 24 VDC, including TTL. This digital input module can sense both AC and DC signals and has a status LED for visual verification for the state of the module.

The SCC-DI01 is supported by connectors J9 through J16. When inserting an SCC-DI01, the digital signal is automatically routed to a DIO line of the E Series DAQ device. For example, socket J9 connects to digital line 0 of the data acquisition device. Because you can configure the E series DAQ devices for input or output on a line-by-line basis, you can have between one and eight SCC-DI01 modules per carrier.

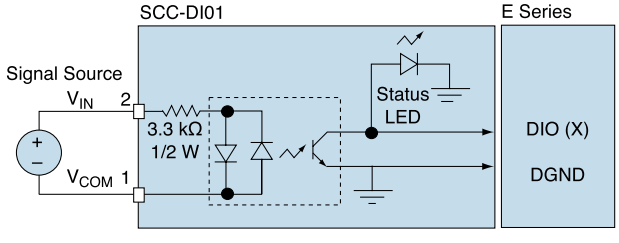

Figure 23. Block Diagram of SCC-DI01

Digital Output

The SCC-DO01 (Figure 24) is a single-channel optically isolated digital output module for switching external devices. The SCC-DO01 optical isolation circuitry handles up to 24 VDC and includes a status LED for visual verification of the module output status. The SCC-DO01 includes an external switch for power-up state configuration.

The SCC-DO01 plugs into a connector between J9 and J16. When inserting an SCC-DO01, the digital signal is controlled by a DIO line of the E Series DAQ device. For example, socket J9 connects to digital line 0 of the data acquisition device. Because you can configure the E series DAQ devices for input or output on a line-by-line basis, you can have from one to eight SCC-DO01 modules per carrier.

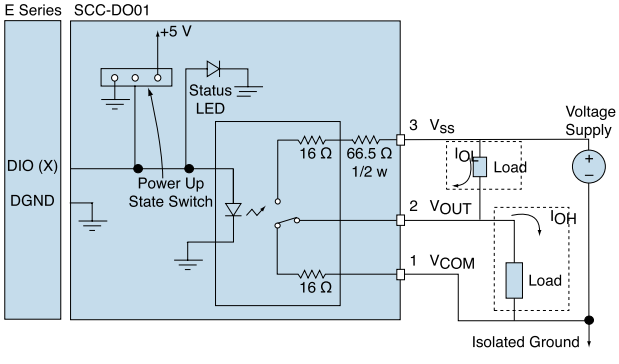

Figure 25. Block Diagram of SCC- DO01

Portable, Modular Signal Conditioning Modules

Figure 26. SCC-FT01 Feed-Through Module

SCC-FT01 Feedthrough

Model	Ch	Description	Part Number
SCC-FT01	1	Feedthrough	777459-01

Table 12. SCC-FT01 Module

The SCC-FT01 (Figure 26) is a feedthrough module that offers direct connection to analog input or output channels of the E Series DAQ device. The SCC-FT01 includes breadboard area for development of custom signal conditioning circuitry for analog input, analog output, digital I/O, and GPCTR channels of the E Series DAQ device.

If you install the SCC-FT01 into an analog input socket (J1 through J8) or analog output socket (J17 or J18) then you have direct connection to the corresponding channels of the E Series DAQ device. You can add custom conditioning to the SCC-FT01 for these analog inputs or outputs. You can also install the SCC-FT01 in a DIO or GPCTR socket of the SC-2345. You can add circuitry to connect to and condition the corresponding channels. When installed in any socket, the SCC-FT01 module has access to 5 VDC and ±15 V power, as well as a number of E Series signals.

If using the breadboard area for custom conditioning, you can cascade the SCC-FT01 with other SCC modules for dual-stage conditioning.

Specifications

Typical for 25 °C unless otherwise noted.

SCC-TC Series

Input Characteristics

Number of channels	1 differential
Input signals	J, K, T, B, E, N, R, and S-type thermocouples, ±100 mV
Input signal gain	100
Maximum input working voltage	±12 V of chassis ground
Overvoltage protection to DAQ device	±42 Vpk
Nonlinearity	±0.004% maximum
Gain error	±0.08% of reading, maximum
Input impedance	
Normal powered on	10 MΩ
Powered off or overload	10 kΩ
Open thermocouple detection current	250 nA maximum
Common-mode rejection ratio	110 dB minimum
Bandwidth	2 Hz, dual-pole RC filter
System noise	5 μV_{rms}, referred to input
Stability	
Offset temperature coefficient	±0.6 µV/°C maximum
Gain temperature coefficient	±0.0005%/°C
Cold-Junction Sensor	
Output	1.91V (at 0 °C) to 0.58 V (at 55 °C)
Accuracy (15 to 35 °C)	0.4 °C maximum

SCC-RTD01

Analog Input

Number of input channels	2 differential
Input range	±400 mVDC (fixed gain of 25 on each channel)
Maximum working voltage (signal + common mode)	Each input should remain within ±12 V of ground
Overvoltage protection	±42 Vpk/60 VDC (powered on or off)
Input impedance	1 MΩ in parallel with 4.7 nF (powered on or off)
Filter type	Lowpass 3-pole Sallen and Key filter z–3 dB cutoff frequency 30 Hz
System noise	4.5 mV_{rms} (referred to input)

Transfer Characteristics

Gain	25
Gain error	±1.2%
Gain-error temperature coefficient	±10 ppm/°C
Offset error	±250 mV RTI
Offset-error temperature coefficient	±1.6 mV/°C
Nonlinearity	10 ppm of full scale
Recommended warm-up time	5 minutes

Amplifier Characteristics

CMRR	110 dB at 60 Hz
Output range	±10 V

Excitation

Number of channels	1
Constant-current source	1 mA, ±0.4 µA or 0.04%
Maximum voltage level without losing regulation	24 V
Drift	±127 ppm/°C

Environment

Operating temperature	0 to 50 °C
Relative humidity	5 to 90% noncondensing

SCC-SG Series

Input Characteristics

Number of channels	2 differential
Input signal range	±100 mV
Output signal range	±10 V
Gain	100
Overvoltage protection	±42 Vpk/60 VDC
Input Impedance	10 MΩ powered on 10 kΩ powered off or overload
Gain error	±0.8% of reading maximum
Offset error	Adjustable to 0%
Bandwidth	1.6 kHz (single-pole RC filter)

Portable, Modular Signal Conditioning Modules

Specifications (Continued)

Excitation voltage ..... 2.5 V ±0.4%
Excitation current drive ..... 42 mA, based on two full-bridge 120 Ω strain guages
Excitation drift ..... 13 mV/°C

SCC-SG11 Shunt Calibration Module

Number of Channels 2
Control signal ..... 1 DIO channel
Resistor for each channel ..... 301 kΩ ±1%, socketed
Resistor temperature coefficient ..... ±100 ppm/°C

SCC-ICP01

Analog Input

Number of input channels ..... 1 differential
Input range ..... ±5 VAC (fixed gain of 2)
Input coupling ..... AC
-3 dB cutoff frequency ..... 0.8 Hz
Filter type ..... Lowpass 3-pole Bessel
-3 dB cutoff frequency ..... 19 kHz
Passband flatness ..... ±0.3 dB, 10 Hz–5 kHz
±1 dB, 5 Hz–10 kHz

Maximum working voltage

(signal + common mode) ..... Each input should remain within ±12 V of ground
Overvoltage protection ..... ±40 VAC + DC (powered on or off)
Input impedance ..... 0.39 MF in series with 5 MΩ (powered on or off)
System noise ..... 130 mV_{rms} (referred to input)

Transfer Characteristics

Gain 25
Gain error ..... ±1%
Gain-error temperature coefficient ..... ±10 ppm/°C
Offset error ..... ±3 mV RTI
Offset-error temperature coefficient ..... ±1.6 mV/°C
Nonlinearity ..... 10 ppm of full scale
Recommended warm-up time ..... 5 minutes

Amplifier Characteristics

CMRR ..... 80 dB at 60 Hz
Output range ..... ±10 V

Excitation

Number of channels 1
Constant-current source ..... 4 mA
Maximum voltage level without losing regulation ..... 24 V
Drift ..... ±127 ppm/°C

Environment

Operating temperature ..... 0 to 50 °C
Relative humidity ..... 5 to 90% noncondensing

SCC-AI Series Isolated Analog Input Modules

Input Characteristics

Number of channels ..... 2 differential, isolation per module
Input impedance ..... 1 MΩ (SCC-AI01, SCC-AI02)
100 MΩ (all others)

Safety Isolation

Working common mode voltage ..... 300 V, Category II
Differential maximum voltage ..... 250 VDC/AC
Gain error ..... Adjustable to 0%
Offset error ..... Adjustable to 0

Module	Input Range	Output Range	Gain	Bandwidth
SCC-AI01	±42 V	±8.4 V	0.2	10 kHz
SCC-AI02	±20 V	±10 V	0.5	10 kHz
SCC-AI03	±10 V	±10 V	1	10 kHz
SCC-AI04	±5 V	±10 V	2	10 kHz
SCC-AI05	±1 V	±10 V	10	10 kHz
SCC-AI06	±100 mV	±10 V	100	10 kHz
SCC-AI07	±50 mV	±10 V	200	10 kHz
SCC-AI13	±10 V	±10 V	1	10 kHz
SCC-AI14	±5 V	±10 V	2	10 kHz

SCC-A10

Input Characteristics

Number of channels ..... 2 differential
Input range ..... ±100 V
Output range ..... ±10 V
Overvoltage protection ..... 250 V_{rms} to DAQ device
Gain error ..... ±0.14% of reading, maximum
Offset error ..... ±6.5 mV maximum
Input impedance
Normal powered on or off ..... 1 MΩ
Bandwidth ..... 1 MHz

SCC-CI20

Input Characteristics

Number of channels ..... 2 differential
Input range ..... 0 to 20 mA
Output range ..... 0 to 5 V
Gain error ..... ±0.1% of reading maximum
Offset error ..... ±0.6 mV maximum
Input resistor ..... 249 Ω, 0.05%, 0.25 W
Bandwidth ..... 1 MHz

SCC-LP Series

Amplifier Characteristics

Number of input channels ..... 2 differential
Input signal range ..... ±10 V
Output signal range ..... ±5 V
Gain 0.5
Overvoltage protection ..... ±40 V
Input impedance ..... 10 GΩ in parallel with 10 pF powered on 10 KΩ powered off or overload
Gain error ..... Adjustable to 0%
Offset error (RTI) ..... 350 µV typical, 1.5 mV maximum

Filter characteristics

Filter type ..... 4th order Butterworth
Stop-band attenuation rate ..... 80 dB/decade
Cutoff frequency ..... SCC-LP01 = 25 Hz
SCC-LP02 = 50 Hz
SCC-LP03 = 150 Hz
SCC-LP04 = 1KHz
Passband ripple ..... Fc = cutoff frequency

	Typical	Maximum
DC to 1/3Fc	0 ± 0.04 dB max	0 ± 0.1 dB max
DC to 1/2Fc	0 ± 0.06 dB max	0 ± 0.2 dB max
DC to 2/3Fc	-0.2 ± 0.25 dB max	-0.2 ± 0.4 dB max
DC to Fc	-3 ± 0.3 dB max	-3 ± 0.5 dB max

System noise
THD @ Fc ..... < -90dB
Wide band noise (DC to 1MHz, RTI) ..... 100 μV_{rms}
Narrow band noise (DC to 33KHz, RTI) ..... 6 μV_{rms}

Stability

Gain temperature coefficient ..... 10 ppm/°C typical
20 ppm/°C maximum
Offset drift (RTI) ..... 3.4 µV/°C typical
27 µV/°C maximum

Portable, Modular Signal Conditioning Modules

Specifications (Continued)

SCC-FV01 Frequency Input

Input Characteristics

Number of input channels	2 referenced single ended
Input range	100mVpk to 5Vpk
Input coupling	DC
Minimum input frequency	0Hz
Minimum input pulse width (5V pulse train)	1.5µs
Overvoltage protection	+/- 40VAC + DC (powered on or off)
Input Impedance	
Signal > threshold	400K Ω
Signal < threshold	10M Ω
Threshold	Zero Crossing
Hysteresis	200mV

Transfer Characteristics

Rise/Fall Time	80ms (0 to +63%)
Step Response	220ms @ 90% 360ms @ 99%
Output offset	5mV max
Output offset temperature coefficient	10ppm /°C
Gain error temperature coefficient	100ppm /°C
Non-linearity	+/- 0.05% full scale
Output Ripple	30mVp-p @ 10Hz
Output Range	0 to +10V
Recommended warm up time	5 minutes

SCC-DI01

Input Characteristics

Number of channels	1
Input range	24 VDC or 24 VAC

Digital logic levels

Level	Min	Max
Input low voltage (DC or Peak AC)	—	±1 V
Input high voltage DC 1 kHz AC	 ±2 VDC 4 V_{rms}	 ±30 VDC 24 VAC

Input current	
5 V input	1.5 mA
24 V input	7.0 mA
Isolation	24 VDC from computer ground

SCC-DO01

Output Characteristics

Number of channels	1
Compatibility	TTL-compatible
Supply voltage range	5 to 24 VDC

Digital logic levels

Level	Min	Max
Output low voltage (I_{out} = 25 mA)	—	0.4 V
Output high voltage (I_{out} = 25 mA)	22 VDC at V_{SS} = 24 V 3 VDC at V_{SS} = 5 V	— —

SCC-PWR Series

SCC-PWR01

Input	+5 VDC ±5% from an external source, or +5 VDC from E Series DAQ device
Output	+5 VDC, 100% efficiency ±15 VDC, 62% efficiency

SCC-PWR02

Input	90 to 264 VAC, 1 A maximum
Output	+5 VDC, 1 A ±15 VDC, ±0.3 A

SCC-PWR03

Input	7 to 42 VDC
Output	+5 VDC, 75% efficiency ±15 VDC, 46% efficiency

Physical

Dimensions	
SCC Modules	8.9 by 2.9 by 1.9 cm (3.5 by 1.2 by 0.7 in.)
SC-2345 connector block	24.1 by 26.2 by 3.94 cm (9.5 by 10.3 by 1.6 in.)
SC-2345 with configurable connectors	30.7 by 25.4 by 4.3 cm (12.1 by 10 by 1.7 in.)
External AC adapter (for SCC-PWR02)	15.5 by 8.5 by 4.8 cm (6.1 by 3.3 by 1.9 in.)
Connectors	
SC-2345 cable	68-pin male SCSI II
SCC input	Removable screw terminal or minithermocouple connector
SCC output	20-pin right-angle male connector

[1]Safe for use with the transients associated with local level mains supplies of up to 300 Volts Installation Category (Over-Voltage Category) II. 300 V CAT II local level mains supplies can see occasional transients of up to 1500V.

Certification and Compliance

SCC-AIxx	300 V, Cat II working voltage

European Compliance CE

EMC	EN 61326 Group I Class A, 10m, Table 1 Immunity
Safety	EN 61010-1

North American Compliance

EMC	FCC Part 15 Class A using CISPR

Australia & New Zealand Compliance

EMC	AS/NZS 2064.1/2 (CISPR-11)