SCIM5B

Isolated SCIM5B Analog Signal Conditioning Products

Features

- 1.5KV Isolation
- ±0.03% Accuracy
- 160dB CMR
- 95dB NMR
- ANSI/IEEE C37.90.1 Transient Protection
- ±1µ V/°C Drift
- Output noise as low as 150iVrms
- 250VAC Protection for Field I/O
- -40°C to +85°C Operating Temperature Range
- CSA , FM , CE and ATEX Compliant

SCIM5B Modules

BEE INSTRUMENTS offers cost-effective, isolated industrial signal conditioning modules. The SCIM5B analog modules are form, fit, and functional equivalents to similar products from other manufacturers. The product range includes a complete selection of backpanels, interface cables, racks, fuses, jumpers, power supplies, and other accessories.

Improved SCIM5B Analog Modules

Each SCIM5B module provides a single channel of isolated analog input or output. Input modules interface toalmost all types of external sensors. The modules filter, isolate,attenuate amplify, and convert the input signal to a high-level analog voltage output. The output modules accept a high-level analog voltage signal from a host std control system, then buffer, isolate, and amplify and provides a process current or voltage output to field devices. Over 350 different SCIM5B modules are available encompassing a wide selection of isolated analog input and output functions. Analog inputs include voltage and current in narrow and wide bandwidths, thermocouple, RTD, accelerometer, potentiometer, strain gage, frequency and 2-wire transmitter. Custom I/O ranges are also available. All modules are CSA and FM Compliant for safe operation in Class I, Division 2, Groups A, B, C, and D hazardous environments. They are also CE and ATEX compliant.

Accessories include addressable and non-addressable single, dual, 8- and 16-channel backpanels which include on-board temperature sensors and cold junction thermocouple compensation, power supplies, mounting racks, interface cables,etc.

SCIM5B modules offer several advantages when compared with competitive parts, while maintaining lower price:

- 50 times better noise rejection by using a 6-pole filter with 95dB NMR, versus a three-pole filter with 60dB NMR
- Low output noise
- True 3-way isolation
- CMR of noise **better** than competing models.

Features

- Designed for Industrial Process Plant Environments
- Protects User Equipment from Lightning and Heavy Equipment Power-Line Voltage,Ground loops etc
- Great Reduction in Electrical Noise in Measuring & Control systems
- Convenient System Expansion and Repair
- Easy and safe for systems Equipment

Custom Signal Conditioning

Custom modules are available: consult factory for minimum quantity and pricing details on custom input ranges, output ranges, bandwidth, and other key parameters.
Signal Conditioning Module with other stringent spectification than listed one are also available. Consult factory for pricing and availablilty.
Higer isolation levels are also available on special request

SCIM5B Selection Guide

ANALOG VOLTAGE INPUT MODULES, NARROW BANDWIDTH (4Hz BW)

MODEL	INPUT RANGE	OUTPUT RANGE	
SCIM5B30-01	±10mV	1, 2, 8	
SCIM5B30-02	±50mV	1, 2, 8	
SCIM5B30-03	±100mV	1, 2, 8	
SCIM5B30-04	±10mV	3, 4, 8	
SCIM5B30-05	±50mV	3, 4, 8	
SCIM5B30-06	±100mV	3, 4, 8	
SCIM5B30-07	±1V	1, 2, 8	High Input impedance
SCIM5B31-01	±1V	1, 2, 8	
SCIM5B31-02	±5V	1, 2, 8	
SCIM5B31-03	±10V	1, 2, 8	
SCIM5B31-04	±1V	3, 4, 8	
SCIM5B31-05	±5V	3, 4, 8	
SCIM5B31-06	±10V	3, 4, 8	
SCIM5B31-07	±20V	1, 2, 8	
SCIM5B31-08	±20V	3, 4, 8	
SCIM5B31-09	±40V	1, 2, 8	
SCIM5B31-10	±40V	3, 4, 8	

ANALOG CURRENT INPUT MODULES, 4Hz AND 1kHz BANDWIDTH

MODEL	INPUT RANGE	OUTPUT RANGE	BW
SCIM5B32-01	4 to 20mA	1, 2, 3, 4 , 8	4Hz
SCIM5B32-02	0 to 20mA	1, 2, 3, 4 , 8	4Hz
SCIM5B392-11	4 to 20mA	0 to +5V	1kHz
SCIM5B392-12	4 to 20mA	±5V	1kHz
SCIM5B392-13	4 to 20mA	0 to +10V	1kHz
SCIM5B392-14	4 to 20mA	±10V	1kHz

ISOLATED TRUE RMS INPUT MODULES

MODEL	INPUT (rms)	OUTPUT RANGE
SCIM5B33-01	0-100mV	3, 4, 5, 6, 7
SCIM5B33-02	0-1V	3, 4, 5, 6, 7
SCIM5B33-03	0-10V	3, 4, 5, 6, 7
SCIM5B33-04	0-150V	3, 4, 5, 6, 7
SCIM5B33-05	0-300V	3, 4, 5, 6, 7
SCIM5B33-06	0-1A	3, 4, 5, 6, 7
SCIM5B33-07	0-5A	3, 4, 5, 6, 7

LINEARIZED 2- OR 3-WIRE RTD INPUT MODULES (0 to +5V OUTPUT†, 4Hz BW)

MODEL	TYPE**	INPUT RANGE	OUTPUT RANGE
SCIM5B34-01	100Ω Pt	–100°C to +100°C (–148°F to +212°F)	1, 2, 3, 4 , 8
SCIM5B34-02	100Ω Pt	0°C to +100°C (+32°F to +212°F)	1, 2, 3, 4 , 8
SCIM5B34-03	100Ω Pt	0°C to +200°C (+32°F to +392°F)	1, 2, 3, 4 , 8
SCiM5B34-04	100Ω Pt	0°C to +600°C (+32°F to +1112°F)	1, 2, 3, 4 , 8
SCIM5B34-05	100Ω Pt	–100°C to +200°C (–148°F to +392°F)	1, 2, 3, 4 , 8
SCIM5B34C-01	10Ω Cu at 0°C	0°C to +120°C (+32°F to +248°F)	1, 2, 3, 4 , 8
SCIM5B34C-02	10Ω Cu at 25°C	0°C to +120°C (+32°F to +248°F)	1, 2, 3, 4 , 8
SCIM5B34C-03	10Ω Cu at 0°	0°C to +160°C (+32°F to +320°F)	1, 2, 3, 4 , 8
SCIM5B34N-01	120Ω Ni	0°C to +300°C (+32°F to +572°F)	1, 2, 3, 4 , 8

LINEARIZED 4-WIRE RTD INPUT MODULES (0 to +5V OUTPUT†, 4Hz BW)

MODEL	TYPE**	INPUT RANGE	OUTPUT RANGE
SCIM5B35-01	100Ω Pt	–100°C to +100°C (–148°F to +212°F)	1, 2, 3, 4 , 8
SCIM5B35-02	100Ω Pt	0°C to +100°C (+32°F to +212°F)	1, 2, 3, 4 , 8
SCIM5B35-03	100Ω Pt	0°C to +200°C (+32°F to +392°F)	1, 2, 3, 4 , 8
SCIM5B35-04	100Ω Pt	0°C to +600°C (+32°F to +1112°F)	1, 2, 3, 4 , 8
SCIM5B35-05	100Ω Pt	–100°C to +200°C (–148°F to +392°F)	1, 2, 3, 4 , 8
SCIM5B35C-01	10Ω Cu at 0°C	0°C to +120°C (+32°F to +248°F)	1, 2, 3, 4 , 8
SCIM5B35C-02	10Ω Cu at 25°C	0°C to +120°C (+32°F to +248°F)	1, 2, 3, 4 , 8
SCIM5B35C-03	10Ω Cu at 0°C	0°C to +160°C (+32°F to +320°F)	1, 2, 3, 4 , 8
SCIM5B35N-01	120Ω Ni	0°C to +300°C (+32°F to +572°F)	1, 2, 3, 4 , 8

POTENTIOMETER INPUT MODULES (4Hz BW)

MODEL	INPUT RANGE	OUTPUT RANGE
SCIM5B36-01	0 to 100Ω	1, 2, 3, 4 , 8
SCIM5B36-02	0 to 500Ω	1, 2, 3, 4 , 8
SCIM5B36-03	0 to 1kΩ	1, 2, 3, 4 , 8
SCIM5B36-04	0 to 10kΩ	1, 2, 3, 4 , 8

THERMOCOUPLE INPUT MODULES (0 to +5V OUTPUT†, 4Hz BW)

MODEL	TYPE	INPUT RANGE	OUTPUT RANGE
SCIM5B37J	J	–100°C to +760°C (–148°F to +1400°F)	1, 2, 3, 4 , 8
SCIM5B37K	K	–100°C to +1350°C (–148°F to +2462°F)	1, 2, 3, 4 , 8
SCIM5B37T	T	–100°C to +400°C (–148°F to +752°F)	1, 2, 3, 4 , 8
SCIM5B37E	E	0°C to +900°C (+32°F to +1652°F)	1, 2, 3, 4 , 8
SCIM5B37R	R	0°C to +1750°C (+32°F to +3182°F)	1, 2, 3, 4 , 8
SCIM5B37S	S	0°C to +1750°C (+32°F to +3182°F)	1, 2, 3, 4 , 8
SCIM5B37B	B	0°C to +1800°C (+32°F to +3272°F)	1, 2, 3, 4 , 8
SCIM5B37C	C	+350°C to +1300°C (+662°F to +2372°F)	1, 2, 3, 4 , 8
SCIM5B37N	N	–100°C to +1300°C (–148°F to +2372°F)	1, 2, 3, 4 , 8

STRAIN GAGE INPUT MODULES (±5V OUTPUT†, 4Hz or 10kHz BW)

MODEL		INPUT	EXCITATION	OUTPUT RANGE
10KHz	**4Hz**			
SCIM5B38-01	-31	±10mV Full Bridge Input,(3mV/V)	+3.333V	1, 2
SCIM5B38-02	-32	±30mV Full Bridge Input,(3mV/V)	+10.000V	1, 2
SCIM5B38-03	-33	±10mV Half Bridge Input,(3mV/V)	+3.333V	1, 2
SCIM5B38-04	-34	±30mV Half Bridge Input,(3mV/V)	+10.000V	1, 2
SCIM5B38-05	-35	±20mV Full Bridge Input,(2mV/V)	+10.000V	1, 2
SCIM5B38-06	-36	±33.3mV Full Bridge Input,(10mV/V)	+3.333V	1, 2
SCIM5B38-07	-37	±100mV Full Bridge Input,(10mV/V)	+10.000V	1, 2

ANALOG CURRENT OUTPUT MODULES, 400Hz AND 1kHz BANDWIDTH

MODEL	INPUT RANGE	OUTPUT RANGE	BW
SCIM5B39-01	0 to +5V	4 to 20mA	400Hz
SCIM5B39-02	±5V	4 to 20mA	400Hz
SCIM5B39-03	0 to +5V	0 to 20mA	400Hz
SCIM5B39-04	±5V	0 to 20mA	400Hz
SCIM5B39-05	0 to 20mA	0 to 20mA	400Hz
SCIM5B39-07	±10V	±20mA	275Hz
SCIM5B392-01	0 to +5V	4 to 20mA	1kHz
SCIM5B392-02	±5V	4 to 20mA	1kHz
SCIM5B392-03	0 to +10V	4 to 20mA	1kHz
SCIM5B392-04	±10V	4 to 20mA	1kHz

MATCHED PAIR SERVO/MOTOR CONTROLLER DRIVERS (1kHz BW)

MODEL	INPUT RANGE	INTERFACE	OUTPUT RANGE
SCIM5B392-0111	0 to +5V	4 to 20mA	0 to +5V
SCIM5B392-0212	±5V	4 to 20mA	±5V
SCIM5B392-0313	0 to +10V	4 to 20mA	0 to +10V
SCIM5B392-0414	±10V	4 to 20mA	±10V

ANALOG VOLTAGE INPUT MODULES, WIDE BANDWIDTH (10kHz BW)

MODEL	INPUT RANGE	OUTPUTRANGE	
SCIM5B40-01	±10mV	1, 2, 8	
SCIM5B40-02	±50mV	1, 2, 8	
SCIM5B40-03	±100mV	1, 2, 8	
SCIM5B40-04	±10mV	3, 4, 8	
SCIM5B40-05	±50mV	3, 4, 8	
SCIM5B40-06	±100mV	3, 4, 8	
SCIM5B40-07	±1V	1, 2, 8	High Input impedance
SCIM5B41-01	±1V	1, 2, 8	
SCIM5B41-02	±5V	1, 2, 8	
SCIM5B41-03	±10V	1, 2, 8	
SCIM5B41-04	±1V	3, 4, 8	
SCIM5B41-05	±5V	3, 4, 8	
SCIM5B41-06	±10V	3, 4, 8	
SCIM5B41-07	±20V	1, 2, 8	
SCIM5B41-08	±20V	3, 4, 8	
SCIM5B41-09	±40V	1, 2, 8	
SCIM5B41-10	±40V	3, 4, 8	

2-WIRE TRANSMITTER INTERFACE MODULES (100Hz BW)

MODEL	INPUT RANGE	OUTPUT RANGE
SCIM5B42-01	4mA to 20mA	+1V to +5V
SCIM5B42-02	4mA to 20mA	+2V to +10V
SCIM5B42-03	4mA to 20mA	0V to +5V
SCIM5B42-04	4mA to 20mA	0V to +10V

GENERAL PURPOSE INPUT MODULES, DC EXCITATION

MODEL	MAXIMUM INPUT	OUTPUT†
SCIM5B43-01	±1V	1, 2, 3, 4 , 8
SCIM5B43-02	±2V	1, 2, 3, 4 , 8
SCIM5B43-03	±3V	1, 2, 3, 4 , 8
SCIM5B43-04	±4V	1, 2, 3, 4 , 8
SCIM5B43-05	±5V	1, 2, 3, 4 , 8
SCIM5B43-06	±6V	1, 2, 3, 4 , 8
SCIM5B43-07	±7V	1, 2, 3, 4 , 8
SCIM5B43-08	±8V	1, 2, 3, 4 , 8
SCIM5B43-09	±9V	1, 2, 3, 4 , 8
SCIM5B43-10	±10V	1, 2, 3, 4 , 8

FREQUENCY INPUT MODULES

MODEL		INPUT RANGE	OUTPUT RANGE
±20mV HYST	±400mVHYST.		
SCIM5B45-01	SCM5B45-21	0 to 500Hz	1, 2, 3, 4 , 8
SCIM5B45-02	SCM5B45-22	0 to 1kHz	1, 2, 3, 4 , 8
SCIM5B45-03	SCM5B45-23	0 to 3kHz	1, 2, 3, 4 , 8
SCIM5B45-04	SCM5B45-24	0 to 5kHz	1, 2, 3, 4 , 8
SCIM5B45-05	SCM5B45-25	0 to 10kHz	1, 2, 3, 4 , 8
SCIM5B45-06	SCM5B45-26	0 to 25kHz	1, 2, 3, 4 , 8
SCIM5B45-07	SCM5B45-27	0 to 50kHz	1, 2, 3, 4 , 8
SCIM5B45-08	SCM5B45-28	0 to 100kHz	1, 2, 3, 4 , 8

LINEARIZED THERMOCOUPLE INPUT MODULES (0 to +5V OUTPUT†, 4Hz BW)

MODEL	TYPE‡	INPUT RANGE	OUTPUT RANGE
SCIM5B47J-01	J	0°C to +760°C (+32°F to +1400°F)	1, 2, 3, 4 , 8
SCIM5B47J-02	J	–100°C to +300°C (–148°F to +572°F)	1, 2, 3, 4 , 8
SCIM5B47J-03	J	0°C to +500°C (+32°F to +932°F)	1, 2, 3, 4 , 8
SCIM5B47K-04	K	0°C to +1000°C (+32°F to +1832°F)	1, 2, 3, 4 , 8
SCIM5B47K-05	K	0°C to +500°C (+32°F to +932°F)	1, 2, 3, 4 , 8
SCIM5B47T-06	T	–100°C to +400°C (–148°F)	1, 2, 3, 4 , 8
SCIM5B47T-07	T	0°C to +200°C (+32°F to +392°F)	1, 2, 3, 4 , 8
SCIM5B47E-08	E	0°C to +1000°C (+32°F to +1832°F)	1, 2, 3, 4 , 8
SCIM5B47R-09	R	+500°C to +1750°C (+932°F to +3182°F)	1, 2, 3, 4 , 8
SCIM5B47S-10	S	+500°C to +1750°C (+932°F to +3182°F)	1, 2, 3, 4 , 8
SCIM5B47B-11	B	+500°C to +1800°C (+932°F to +3272°F)	1, 2, 3, 4 , 8
SCIM5B47J-12	J	–100°C to +760°C (–148°F to +1400°F)	1, 2, 3, 4 , 8
SCIM5B47K-13	K	–100°C to +1350°C (–148°F to +2462°F)	1, 2, 3, 4 , 8
SCIM5B47K-14	K	0°C to +1200°C (+32°F to +2192°)	1, 2, 3, 4 , 8
SCIM5B47N-15	N	–100°C to +1300°C (–148°F to +2372°F)	1, 2, 3, 4 , 8

VOLTAGE OUTPUT MODULES, 50mA DRIVE CAPACITY (400 Hz BW)

MODEL	INPUT RANGE	OUTPUT RANGE
SCIM5B49-01	0 to +5V	±5V
SCIM5B49-02	±5V	±5V
SCIM5B49-03	±5V	0 to +5V
SCIM5B49-04	0 to +10V	±10V
SCIM5B49-05	±10V	±10V
SCIM5B49-06	±10V	0 to +10V
SCIM5B49-07	±5V	±10V

VOLTAGE ATTENUATOR SYSTEM

The SCMVAS is a two module system - see data sheet for selection of second module.

	INPUT RANGES		OUTPUT RANGE
MODEL	DCV MODULE	TRUE RMS MODULE	
SCIMVAS-M100	±100V (70VAC Max)	±141V (100VAC)	±1V
SCIMVAS-M200	±200V (141VAC Max)	±283V (200VAC)	±1V
SCIMVAS-M300	±300V (212VAC Max)	±424V (300VAC)	±1V
SCIMVAS-M400	±400V (282VAC Max)	±566V (400VAC)	±1V
SCIMVAS-M500	±500V (353VAC Max)	±650V (460VAC)	±1V
SCIMVAS-M600	±600V (424VAC Max)	not available	±1V
SCIMVAS-M650	±650V (460VAC Max)	not available	±1V
SCIMVAS-Mxxx	±1V to ±650V		
SCIMVAS-MPT	1 to 1		

MODEL	DESCRIPTION
SCIMVAS-PB8	Backpanel, 8-Channel
SCIMVAS-PB8D	Backpanel, 8-Channel, DIN Rail Mount
SCIMVAS-PB16	Backpanel, 16-Channel
SCIMVAS-PB16D	Backpanel, 16-Channel, DIN Rail Mount

ACCESSORIES

MODEL	DESCRIPTION
SCIMPB01	Non-multiplexed, 16-channel backpanel.
SCIMPB01-1	Non-multiplexed, 16-channel backpanel, no CJC.
SCIMPB01-2	SCIMPB01 with DIN rail mounting option.
SCIMPB01-3	SCIMPB01-1 with DIN rail mounting option.
SCIMPB02	Multiplexed, 16-channel backpanel.
SCIMPB02-1	Multiplexed, 16-channel backpanel, no CJC.
SCIMPB02-2	SCIMPB02 with DIN rail mounting option.
SCIMPB02-3	SCIMPB02-1 with DIN rail mounting option.
SCIMPB03	Single channel backpanel. Mounting hardware not included.
SCIMPB03-2	SCIMPB03 with DIN rail mounting, hardware.
SCIMPB04	Dual channel backpanel. Mounting hardware not included.
SCIMPB04-1	Dual channel backpanel, DIN rail mount, no CJC.
SCIMPB04-2	SCIMPB04 with DIN rail mounting hardware.
SCIMPB04-3	SCIMPB04-1 with DIN rail mounting hardware. SCIMXBEFE Base element with snap foot.
SCIMXBE	Base element without snap foot.
SCIMXSE	Side element.
SCIMXVS	Connection pins.
SCIMPB05	Non-multiplexed, 8-channel backpanel.
SCIMPB05-1	Non-multiplexed, 8-channel backpanel, no CJC.
SCIMPB05-2	SCIMPB05 with DIN rail mounting option.
SCIMPB05-3	SCIMPB05-1 with DIN rail mounting option.
SCIMPB06	Multiplexed, 8-channel backpanel.
SCIMPB06-1	Multiplexed, 8-channel backpanel, no CJC.
SCIMPB06-2	SCIMPB06 with DIN rail mounting option.
SCIMPB06-3	SCIMPB06-1 with DIN rail mounting option.
SCIMPB07	8-channel high-density backpanel.
SCIMPB07-1	SCIMPB07, no CJC
SCIMPB07-2	SCIMPB07, DIN rail mount
SCIMPB07-3	SCIMPB07, no CJC, DIN rail mount
SCIMXEV	Single channel SCIM5B evaluation board.
SCIMXCA004-xx	System interface cable for both analog backpanels.
SCIMXRK-002	19-inch metal rack for mounting analog backpanels.
SCIMXIF	Ribbon cable to screw terminal interface board.
SCIMXIF-DIN	Universal Interface Board
SCIMXCJC	Encapsulated cold junction compensation circuit.
SCIM5BPT	Pass Thru
SCIMXJP-003	Package of 10 jumpers.
SCIMXFS-003	Package of 10, 4A fuses.
SCIMXR1	Precision 20W resistor for SCIM5B32 and SCIM5B42.
SCIM5B-PROTO	Breadboard Kit
SCIMXRAIL1-XX	DIN EN50022-35x7.5 (slotted steel), length -XX in meters.
SCIMXRAIL2-XX	DIN EN50035-G32 (slotted steel), length -XX in meters.
SCIMXRAIL3-XX	DIN EN50022-35x15 (slotted steel), length -XX in meters.
SCIMXPRT-001	Power supply, 5VDC, 1A ,120VAC U.S.
SCIMXPRE-001	Power supply, 5VDC, 1A, 220VAC European./ 240VAC
SCIMXPRT-003	Power supply, 5VDC, 3A, 120VAC U.S.
SCIMXPRE-003	Power supply, 5VDC,3A, 220VAC European./ 240VAC

NOTE:

†**OUTPUT RANGES AVAILABLE**

Output Range	Part No. Suffix	Example
1. –5V to +5V	Z	SCIM5B30-01Z
2. –10V to +10V	X	SCIM5B30-01X
3. 0V to +5V	NONE	SCIM5B30-04
4. 0V to +10V	D	SCIM5B30-04D
5. 4 to 20mA	C	SCIM5B33-01C
6. 0 to 20mA	E	SCIM5B33-01E
7. 0 to 1mA	B	SCIM5B33-01B
8. 1 to 5V	Y	SCIM5B33-01Y

‡ **THERMOCOUPLE ALLOY COMBINATIONS**

Standards: DIN IEC 584, ANSI MC96-1-82, JIS C 1602-1981

TYPE	MATERIAL
J	Iron vs. Copper-Nickel
K	Nickel-Chromium vs. Nickel-Aluminum
T	Copper vs. Copper-Nickel
E	Nickel-Chromium vs. Copper-Nickel
R	Platinum-13% Rhodium vs. Platinum
S	Platinum-10% Rhodium vs. Platinum
B	Platinum-30% Rhodium vs.Platinum-6%Rhodium
C	Tungsten-5% Rhenium vs. Tungsten-26%Rhenium
N	Nickel-14.2% Chromium-1.4% Silicon vs. Nickel-4.4% Silicon-0.1% Magnesium

****RTD STANDARDS**

TYPE	ALPHA\ COEFFICIENT	DIN	JIS
100WPt	0.00385	DIN	43760 JIS C 1604-1989
120WNi	0.00672		
10WCU	0.004274		