SCM7B

Isolated Process Control Signal Conditioning Products



SCM7B Modules

SCM7B Isolated Process Control Signal Conditioning modules include a complete selection of backpanels, DIN-rail mounting accessories, interface cables, and rack mounting hardware. Each SCM7B module provides a single channel of isolated analog input or output. Various input modules accept analog voltage or current signals from all types of field sensors and sources, filter, isolate, amplify, linearize, and convert these input signals to high-level analog outputs suitable for use in a process control system. Output modules accept high-level analog voltage signals from a process control system, then buffer, isolate, filter, and amplify before providing a current or voltage output to a field device.

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.

FEATURES

- ±0.03% Accuracy (typ)
- ±0.01% Linearity
- 1500Vrms Transformer Isolation and 120Vrms Field-side Protection
- ANSI/IEEE C37.90.1 Transient Protection
- 14 - 35VDC Wide Supply Voltage
- 5-Pole Low-pass Filtering
- Low Peak and RMS Noise
- Low Drift Input Circuitry for Long-term Stability
- Up to 160dB CMRR
- 85dB NMR at 60Hz, 80dB at 50Hz
- –40°C to +85°C Operating Temperature
- Backpanels Allow Use of Industry-standard Digital I/O, Solid-State Relay Modules
- DIN-rail Mounting
- CSA C/US Certified (Class I, Division 2, Groups A, B, C, D)
- CE and ATEX Compliant
- Manufactured per RoHS III Directive 2015/863

BENEFITS

- Small Form-factor for High-density Applications
- Protects User Equipment from Lightning and Heavy Equipment Power-line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair
- Signal Filtering in Noisy Environments
- Simplifies Sensor Interface and Signal Conditioning Design
- Provides Isolation of External Sensors
- Breaks Ground Loops
- Reduces EMC Concerns

APPLICATIONS

- Analog Signal Conditioning
- Analog Signal Isolation
- Analog Signal Filtering
- Industrial Process Control
- Test and Measurement
- System and Signal Monitoring
- Temperature Measurement
- Torque Measurement
- Civil Engineering
- Geotechnical Monitoring

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SCM7B Selection Guide

†OUTPUT RANGES AVAILABLE

Output Range	Part No. Suffix	Example
+1 to +5V	NONE	SCM7B30-01
0 to +5V	A	SCM7B30-01A
0 to +10V	D	SCM7B30-01D

‡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

ISOLATED VOLTAGE-INPUT MODULES

MODEL	INPUT RANGE	OUTPUT RANGE
SCM7B21	±10V	±10V
SCM7B30-01	0 to +10mV	†
SCM7B30-02	0 to +100mV	†
SCM7B30-03	0 to +1V	†
SCM7B30-05	+1 to +5V	†
SCM7B30-06	±10mV	†
SCM7B30-07	±100mV	†
SCM7B30-08	±1V	†
SCM7B31-01	0 to +10V	†
SCM7B31-02	±5V	†
SCM7B31-03	±10V	†
SCM7B31-04	0 to +5V	†
SCM7B31-05	0 to +20V	†
SCM7B31-06	±20V	†
SCM7B31-07	0 to +50V	†
SCM7B31-08	±50V	†

ISOLATED BIPOLAR VOLTAGE-OUTPUT MODULES

MODEL	INPUT RANGE	OUTPUT RANGE
SCM7B22	±10V	±10V of Span

ISOLATED PROCESS CURRENT-INPUT MODULES

MODEL	INPUT RANGE	OUTPUT RANGE
SCM7B32-01	4-20mA	†
SCM7B32-02	0-20mA	†

ISOLATED PROCESS VOLTAGE-INPUT MODULES

MODEL	INPUT RANGE	OUTPUT RANGE
SCM7B33-01	+1 to +5V	†
SCM7B33-02	0 to +5V	†

ISOLATED LINEARIZED 100Ω Pt RTD-INPUTS MODULES**

MODEL	INPUT RANGE	OUTPUT RANGE
SCM7B34-01	–100°C to +100°C (–148°F to +212°F)	†
SCM7B34-02	0°C to +100°C (+32°F to +212°F)	†
SCM7B34-03	0°C to +200°C (+32°F to +392°F)	†
SCM7B34-04	0°C to +600°C (+32°F to +1112°F)	†
SCM7B34-05	–50°C to +350°C (–58°F to +662°F)	†

ISOLATED LINEARIZED 120Ω Ni RTD-INPUTS MODULES**

MODEL	INPUT RANGE	OUTPUT RANGE
SCM7B34N-01	0°C to +300°C (+32°F to +572°F)	†
SCM7B34N-02	0°C to +200°C (+32°F to +392°F)	†

ISOLATED 2-WIRE XMTR INTERFACE MODULES WITH LOOP POWER

MODEL	INPUT RANGE	OUTPUT RANGE
SCM7B35-01	4-20mA	†
SCM7B35-02	4-20mA	+2V to +10V

ISOLATED POTENTIOMETER-INPUT MODULES

MODEL	INPUT RANGE	OUTPUT RANGE
SCM7B36-01	0 to 100Ω	†
SCM7B36-02	0 to 200Ω	†
SCM7B36-03	0 to 500Ω	†
SCM7B36-04	0 to 1kΩ	†
SCM7B36-05	0 to 5kΩ	†
SCM7B36-06	0 to 10kΩ	†

ISOLATED THERMOCOUPLE-INPUT MODULES

MODEL	TYPE‡	INPUT RANGE	OUTPUT RANGE
SCM7B37J-01	J	–100°C to +760°C (–148°F to +1400°F)	†
SCM7B37J-10	J	0°C to +200°C (+32°F to +392°F)	†
SCM7B37J-11	J	0°C to +400°C (+32°F to +752°F)	†
SCM7B37J-12	J	0°C to +600°C (+32°F to +1112°F)	†
SCM7B37J-13	J	+300°C to +600°C (+572°F to +1112°F)	†
SCM7B37K-02	K	–100°C to +1350°C (–148°F to +2462°F)	†
SCM7B37K-20	K	0°C to +300°C (+32°F to +572°F)	†
SCM7B37K-21	K	0°C to +600°C (+32°F to +1112°F)	†
SCM7B37K-22	K	0°C to +1200°C (+32°F to +2192°F)	†
SCM7B37K-23	K	+600°C to +1200°C (+1112°F to +2192°F)	†
SCM7B37T-03	T	–100°C to +400°C (–148°F to +752°F)	†
SCM7B37E-04	E	0°C to +900°C (+32°F to +1652°F)	†
SCM7B37R-05	R	0°C to +1750°C (+32°F to +3182°F)	†
SCM7B37S-06	S	0°C to +1750°C (+32°F to +3182°F)	†
SCM7B37B-07	B	0°C to +1800°C (+32°F to +3272°F)	†

ISOLATED PROCESS CURRENT-OUTPUT MODULES

MODEL	INPUT RANGE	OUTPUT RANGE
SCM7B39-01	+1V to +5V	4-20mA
SCM7B39-02	0 to +10V	0-20mA
SCM7B39-03	0 to +10V	4-20mA
SCM7B39-04	4-20mA	4-20mA

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SCM7B Selection Guide (Continued)

ISOLATED VOLTAGE-INPUT MODULES, WIDE BANDWIDTH

MODEL	INPUT RANGE	OUTPUT RANGE
SCM7B40-02	0 to +100mV	†
SCM7B40-03	0 to +1V	†
SCM7B40-07	±100mV	†
SCM7B40-08	±1V	†
SCM7B41-01	0 to +10V	†
SCM7B41-02	±5V	†
SCM7B41-03	±10V	†
SCM7B41-04	0 to +5V	†
SCM7B41-05	0 to +20V	†
SCM7B41-06	0 to +40V	†

ISOLATED LINEARIZED THERMOCOUPLE-INPUT MODULES

MODEL	TYPE‡	INPUT RANGE	OUTPUT RANGE
SCM7B47J-01	J	0°C to +760°C (+32°F to +1400°F)	†
SCM7B47J-02	J	–100°C to +300°C (–148°F to +572°F)	†
SCM7B47K-03	K	0°C to +1300°C (+32°F to +2372°F)	†
SCM7B47K-04	K	0°C to +600°C (+32°F to +1112°F)	†
SCM7B47T-05	T	0°C to +400°C (+32°F to +752°F)	†
SCM7B47T-06	T	–100°C to +200°C (–148°F to +392°F)	†
SCM7B47E-07	E	0°C to +900°C (+32°F to +1652°F)	†
SCM7B47R-08	R	+500°C to +1750°C (+932°F to +3182°F)	†
SCM7B47S-09	S	+700°C to +1750°C (+1292°F to +3182°F)	†
SCM7B47B-10	B	+800°C to +1800°C (+1472°F to +3272°F)	†
SCM7B47N-11	N	+200°C to +1300°C (+392°F to +2372°F)	†

†OUTPUT RANGES AVAILABLE

Output Range	Part No. Suffix	Example
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0 to +10V	D	SCM7B30-01D

‡THERMOCOUPLE ALLOY COMBINATIONS

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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	IEC
100Ω Pt	0.00385	DIN 43760	JIS C 1604-1989	IEC 751
120Ω Ni	0.00672			
10Ω Cu	0.004274			

ACCESSORIES

MODEL	DESCRIPTION
SCM7BXEV	1-channel Evaluation Backpanel
SCM7BP01	1-channel Backpanel
SCM7BP02	2-channel Backpanel
SCM7BP01-DIN	SCM7BP01 with DIN-rail Mounting Option
SCM7BP02-DIN	SCM7BP02 with DIN-rail Mounting Option
SCMXBEFE	DIN Base Element with Snap Foot
SCMXBE	DIN Base Element with Snap Foot
SCMXSE	DIN Side Elements
SCMXVS	DIN Connection Pins
SCMXRAIL1-XX	DIN EN 50022-35x7.5 (Slotted Steel), Length -XX in Meters
SCMXRAIL2-XX	DIN EN 50035-G32 (Slotted Steel), Length -XX in Meters
SCMXRAIL3-XX	DIN EN 50022-35x15 (Slotted Steel), Length -XX in Meters
SCM7BP04	4-channel Backpanel
SCM7BP04-DIN	SCM7BP04 with DIN-rail Mounting Option
SCM7BP08	8-channel Backpanel
SCM7BP08-DIN	SCM7BP08 with DIN-rail Mounting Option
SCM7BP16	16-channel Backpanel
SCM7BP16-DIN	SCM7BP16 with DIN-rail Mounting Option
SCMXRK-002	19" Rack for Mounting Backplanes
SCM7BXCA01	6" System Adapter Cable (DB25F to 26M)
SCM7BXCA02	3' System Adapter Cable (DB25F to DB25F)
SCMXCA004-XX	xx-Meter System Interface Cable (26F to 26F)
SCMXCA006-XX	System Interface Cable for Backpanels
8BXIF	DB25 to Screw Terminal Interface Board
SCM7BXR1	250Ω Current Conversion Resistor
SCM7BPT	Non-isolated Signal Pass thru Module
SCM7B-PROTO	Breadboard Kit

POWER SUPPLIES

PWR-PS5R7W	Power Supply, 24V, 0.3A, 100-240VAC-input
PWR-PS5R15W	Power Supply, 24V, 0.65A, 100-240VAC-input
PWR-PS5R30W	Power Supply, 24V, 1.3A, 100-240VAC-input
PWR-PS5R60W	Power Supply, 24V, 2.5A, 100-240VAC-input
PWR-PS5R120W	Power Supply, 24V, 5.0A, 100-240VAC-input

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