

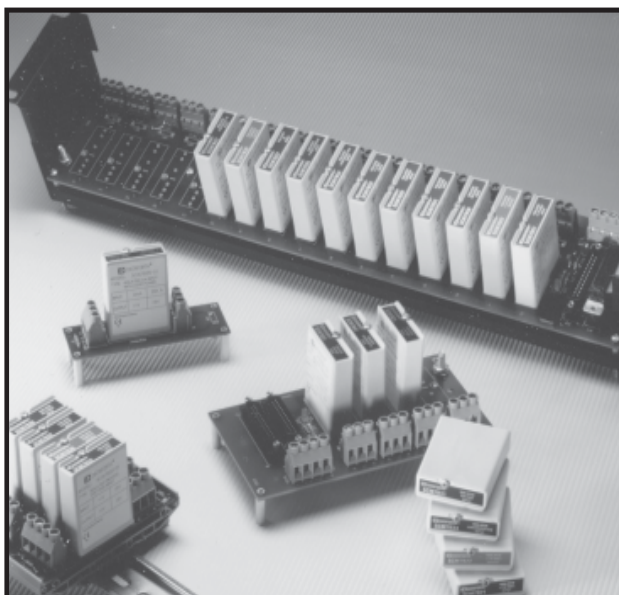


Isolated Process Control Signal Conditioning Products

SCM7B

## 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.

### ► Features

- $\pm 0.03\%$  Accuracy (Typical)
- $\pm 0.01\%$  Linearity
- 1500Vrms Transformer Isolation & 120Vrms Field-side Protection
- ANSI/IEEE C37.90.1 Transient Protection
- Wide Supply Voltage, 14 to 35VDC
- 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
- $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  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 Directive 2002/95/EC

### 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.

### ► SCM7B Selection Guide

#### ISOLATED VOLTAGE INPUT MODULES Page 68

| MODEL      | INPUT RANGE          | OUTPUT RANGE     |
|------------|----------------------|------------------|
| SCM7B21    | $\pm 10\text{V}$     | $\pm 10\text{V}$ |
| SCM7B30-01 | 0 to $+10\text{mV}$  | †                |
| SCM7B30-02 | 0 to $+100\text{mV}$ | †                |
| SCM7B30-03 | 0 to $+1\text{V}$    | †                |
| SCM7B30-05 | $+1$ to $+5\text{V}$ | †                |
| SCM7B30-06 | $\pm 10\text{mV}$    | †                |
| SCM7B30-07 | $\pm 100\text{mV}$   | †                |
| SCM7B30-08 | $\pm 1\text{V}$      | †                |
| SCM7B31-01 | 0 to $+10\text{V}$   | †                |
| SCM7B31-02 | $\pm 5\text{V}$      | †                |
| SCM7B31-03 | $\pm 10\text{V}$     | †                |
| SCM7B31-04 | 0 to $+5\text{V}$    | †                |
| SCM7B31-05 | 0 to $+20\text{V}$   | †                |
| SCM7B31-06 | $\pm 20\text{V}$     | †                |
| SCM7B31-07 | 0 to $+50\text{V}$   | †                |
| SCM7B31-08 | $\pm 50\text{V}$     | †                |

#### ISOLATED BIPOLAR VOLTAGE OUTPUT MODULES Page 70

| MODEL   | INPUT RANGE      | OUTPUT RANGE             |
|---------|------------------|--------------------------|
| SCM7B22 | $\pm 10\text{V}$ | $\pm 10\text{V}$ OF SPAN |

#### ISOLATED PROCESS CURRENT INPUT MODULES Page 72

| MODEL      | INPUT RANGE        | OUTPUT RANGE |
|------------|--------------------|--------------|
| SCM7B32-01 | 4 to $20\text{mA}$ | †            |
| SCM7B32-02 | 0 to $20\text{mA}$ | †            |

#### ISOLATED PROCESS VOLTAGE INPUT MODULES Page 72

| MODEL      | INPUT RANGE          | OUTPUT RANGE |
|------------|----------------------|--------------|
| SCM7B33-01 | $+1$ to $+5\text{V}$ | †            |
| SCM7B33-02 | 0 to $+5\text{V}$    | †            |

#### ISOLATED LINEARIZED $100\Omega$ Pt RTD INPUT MODULES \*\* Page 74

| MODEL      | INPUT RANGE                                                                                           | OUTPUT RANGE |
|------------|-------------------------------------------------------------------------------------------------------|--------------|
| SCM7B34-01 | $-100^{\circ}\text{C}$ to $+100^{\circ}\text{C}$ ( $-148^{\circ}\text{F}$ to $+212^{\circ}\text{F}$ ) | †            |
| SCM7B34-02 | $0^{\circ}\text{C}$ to $+100^{\circ}\text{C}$ ( $+32^{\circ}\text{F}$ to $+212^{\circ}\text{F}$ )     | †            |
| SCM7B34-03 | $0^{\circ}\text{C}$ to $+200^{\circ}\text{C}$ ( $+32^{\circ}\text{F}$ to $+392^{\circ}\text{F}$ )     | †            |
| SCM7B34-04 | $0^{\circ}\text{C}$ to $+600^{\circ}\text{C}$ ( $+32^{\circ}\text{F}$ to $+1112^{\circ}\text{F}$ )    | †            |
| SCM7B34-05 | $-50^{\circ}\text{C}$ to $+350^{\circ}\text{C}$ ( $-58^{\circ}\text{F}$ to $+662^{\circ}\text{F}$ )   | †            |

#### ISOLATED LINEARIZED $120\Omega$ Ni RTD INPUT MODULES \*\* Page 74

| MODEL       | INPUT RANGE                                                                                       | OUTPUT RANGE |
|-------------|---------------------------------------------------------------------------------------------------|--------------|
| SCM7B34N-01 | $0^{\circ}\text{C}$ to $+300^{\circ}\text{C}$ ( $+32^{\circ}\text{F}$ to $+572^{\circ}\text{F}$ ) | †            |
| SCM7B34N-02 | $0^{\circ}\text{C}$ to $+200^{\circ}\text{C}$ ( $+32^{\circ}\text{F}$ to $+392^{\circ}\text{F}$ ) | †            |



► **SCM7B Selection Guide (Continued)**

SCM7B

**ISOLATED 2-WIRE XMTR INTERFACE MODULES WITH LOOP POWER Page 76**

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

**ISOLATED POTENTIOMETER INPUT MODULES Page 78**

| 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 Page 80**

| MODEL       | TYPE <sup>†</sup> | 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 Page 82**

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

**ISOLATED VOLTAGE INPUT MODULES, WIDE BANDWIDTH Page 84**

| 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 Page 86**

| MODEL       | TYPE <sup>†</sup> | 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)  | †            |

**ACCESSORIES Page 89**

| 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 without 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 interface 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                                            |

**<sup>†</sup>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 |

**POWER SUPPLIES Page 226**

|           |                                           |
|-----------|-------------------------------------------|
| PWR-PS5RA | Power Supply, 24V, 0.3A, 100-240VAC Input |
| PWR-PS5RB | Power Supply, 24V, 0.6A, 100-240VAC Input |
| PWR-PS5RC | Power Supply, 24V, 1.3A, 100-240VAC Input |
| PWR-PS5RD | Power Supply, 24V, 2.1A, 100-240VAC Input |
| PWR-PS5RE | Power Supply, 24V, 4.2A, 100-240VAC Input |

**<sup>†</sup>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                               |
| 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           |           |                 |         |

## Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

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