



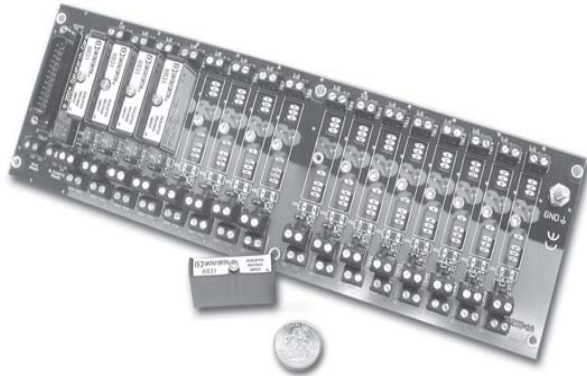
SensorLex® 8B Isolated Analog Signal Conditioning Products

**8B**



**8 B**

## SensorLex® 8B Isolated Analog Signal Conditioners



### 8B Modules

Dataforth's SensorLex® 8B line of isolated analog signal conditioners includes 20 family groups with a total of 135 models that interface to a wide variety of voltage, current, temperature, position, frequency, and strain measuring devices. Housed in a package only one-fifth the size of competing products, the 8B offers fully functional Instrument Class® performance with superior specifications such as  $\pm 0.05\%$  accuracy,  $\pm 0.02\%$  linearity, 5-pole filtering, 1500Vrms isolation, low output noise and much more.

### 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

- $\pm 0.05\%$  Accuracy (Typical)
- $\pm 0.02\%$  Linearity
- 1500Vrms Transformer Isolation & up to 240Vrms Field-side Protection
- ANSI/IEEE C37.90.1 Transient Protection
- 5V Power (30mA Typical)
- 5-Pole Low-Pass Filtering
- Up to 120dB CMR
- 70dB NMR at 60Hz
- $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  Operating Temperature
- C-UL-US Listed (Class I, Division 2, Groups A, B, C, D)
- CE Compliant
- ATEX Compliance Pending
- Manufactured per RoHS Directive 2002/95/EC

### ► Applications

- Designed for Embedded Applications
  - PC/104 Embedded Solutions
  - Compact PCI Systems
  - VMEbus Systems
  - PXI Systems
- Protects User Equipment from Lightning and Industrial Equipment Power-Line Voltage
- Reduces Electrical Noise in Measured Signals
- Convenient System Expansion and Repair

## ▶ 8B Selection Guide

## VOLTAGE INPUT MODULES, 3Hz BANDWIDTH Page 104

| MODEL   | INPUT RANGE | OUTPUT RANGE |
|---------|-------------|--------------|
| 8B30-01 | ±10mV       | ±5V          |
| 8B30-02 | ±50mV       | ±5V          |
| 8B30-03 | ±100mV      | ±5V          |
| 8B30-04 | ±10mV       | 0 to +5V     |
| 8B30-05 | ±50mV       | 0 to +5V     |
| 8B30-06 | ±100mV      | 0 to +5V     |
| 8B31-01 | ±1V         | ±5V          |
| 8B31-02 | ±5V         | ±5V          |
| 8B31-03 | ±10V        | ±5V          |
| 8B31-04 | ±1V         | 0 to +5V     |
| 8B31-05 | ±5V         | 0 to +5V     |
| 8B31-06 | ±10V        | 0 to +5V     |
| 8B31-07 | ±20V        | ±5V          |
| 8B31-08 | ±20V        | 0 to +5V     |
| 8B31-09 | ±40V        | ±5V          |
| 8B31-10 | ±40V        | 0 to +5V     |
| 8B31-12 | ±60V        | ±5V          |
| 8B31-13 | ±60V        | 0 to +5V     |

## CURRENT INPUT MODULES, 3Hz Page 106

| MODEL   | INPUT RANGE | OUTPUT RANGE |
|---------|-------------|--------------|
| 8B32-01 | 4 to 20mA   | 0 to +5V     |
| 8B32-02 | 0 to 20mA   | 0 to +5V     |

## ISOLATED TRUE RMS INPUT MODULES Page 108

| MODEL   | INPUT RANGE | OUTPUT RANGE |
|---------|-------------|--------------|
| 8B33-01 | 0 to 100mV  | 0 to +5V     |
| 8B33-02 | 0 to 1V     | 0 to +5V     |
| 8B33-03 | 0 to 10V    | 0 to +5V     |
| 8B33-04 | 0 to 150V   | 0 to +5V     |
| 8B33-05 | 0 to 300V   | 0 to +5V     |
| 8B33-06 | 0 to 1A     | 0 to +5V     |

## LINEARIZED 2- OR 3-WIRE RTD MODULES (0 to +5V OUTPUT, 3Hz BW) Page 110

| MODEL   | TYPE    | INPUT RANGE                         |
|---------|---------|-------------------------------------|
| 8B34-01 | 100Ω Pt | -100°C to +100°C (-148°F to +212°F) |
| 8B34-02 | 100Ω Pt | 0°C to +100°C (+32°F to +212°F)     |
| 8B34-03 | 100Ω Pt | 0°C to +200°C (+32°F to +392°F)     |
| 8B34-04 | 100Ω Pt | 0°C to +600°C (+32°F to +1112°F)    |

## LINEARIZED 4-WIRE RTD MODULES (0 to +5V OUTPUT, 3Hz BW) Page 112

| MODEL   | TYPE    | INPUT RANGE                         |
|---------|---------|-------------------------------------|
| 8B35-01 | 100Ω Pt | -100°C to +100°C (-148°F to +212°F) |
| 8B35-02 | 100Ω Pt | 0°C to +100°C (+32°F to +212°F)     |
| 8B35-03 | 100Ω Pt | 0°C to +200°C (+32°F to +392°F)     |
| 8B35-04 | 100Ω Pt | 0°C to +600°C (+32°F to +1112°F)    |

## POTENTIOMETER INPUT MODULES (0 to +5V OUTPUT, 3Hz BW) Page 114

| MODEL   | INPUT RANGE | OUTPUT RANGE |
|---------|-------------|--------------|
| 8B36-01 | 0 to 100Ω   | 0 to +5V     |
| 8B36-02 | 0 to 500Ω   | 0 to +5V     |
| 8B36-03 | 0 to 1kΩ    | 0 to +5V     |
| 8B36-04 | 0 to 10kΩ   | 0 to +5V     |

## THERMOCOUPLE INPUT MODULES (0 to +5V OUTPUT, 3Hz BW) Page 116

| MODEL | TYPE | INPUT RANGE                           |
|-------|------|---------------------------------------|
| 8B37J | J    | -100°C to +760°C (-148°F to +1400°F)  |
| 8B37K | K    | -100°C to +1350°C (-148°F to +2462°F) |
| 8B37T | T    | -100°C to +400°C (-148°F to +752°F)   |
| 8B37R | R    | 0°C to +1750°C (+32°F to +3182°F)     |
| 8B37S | S    | 0°C to +1750°C (+32°F to +3182°F)     |

## STRAIN GAGE INPUT MODULES Page 118

| MODEL   | INPUT RANGE | EXCITATION VOLTAGE | SENS  | OUTPUT RANGE | BW   |
|---------|-------------|--------------------|-------|--------------|------|
| 8B38-01 | ±10mV       | +3.333V            | 3mV/V | ±5V          | 8kHz |
| 8B38-02 | ±30mV       | +10.0V             | 3mV/V | ±5V          | 8kHz |
| 8B38-05 | ±20mV       | +10.0V             | 2mV/V | ±5V          | 8kHz |
| 8B38-06 | ±10mV       | +3.333V            | 3mV/V | 0 to +5V     | 8kHz |
| 8B38-07 | ±30mV       | +10.0V             | 3mV/V | 0 to +5V     | 8kHz |
| 8B38-08 | ±20mV       | +10.0V             | 2mV/V | 0 to +5V     | 8kHz |
| 8B38-31 | ±10mV       | +3.333V            | 3mV/V | ±5V          | 3Hz  |
| 8B38-32 | ±30mV       | +10.0V             | 3mV/V | ±5V          | 3Hz  |
| 8B38-35 | ±20mV       | +10.0V             | 2mV/V | ±5V          | 3Hz  |
| 8B38-36 | ±10mV       | +3.333V            | 3mV/V | 0 to +5V     | 3Hz  |
| 8B38-37 | ±30mV       | +10.0V             | 3mV/V | 0 to +5V     | 3Hz  |
| 8B38-38 | ±20mV       | +10.0V             | 2mV/V | 0 to +5V     | 3Hz  |

## CURRENT OUTPUT MODULES, 100Hz BANDWIDTH Page 120

| MODEL   | INPUT RANGE | OUTPUT RANGE |
|---------|-------------|--------------|
| 8B39-01 | 0 to +5V    | 4 to 20mA    |
| 8B39-02 | ±5V         | 4 to 20mA    |
| 8B39-03 | 0 to +5V    | 0 to 20mA    |
| 8B39-04 | ±5V         | 0 to 20mA    |
| 8B39-07 | ±5V         | -20 to 20mA  |

## VOLTAGE INPUT MODULES, 1kHz BANDWIDTH Page 122

| MODEL   | INPUT RANGE | OUTPUT RANGE |
|---------|-------------|--------------|
| 8B40-01 | ±10mV       | ±5V          |
| 8B40-02 | ±50mV       | ±5V          |
| 8B40-03 | ±100mV      | ±5V          |
| 8B40-04 | ±10mV       | 0 to +5V     |
| 8B40-05 | ±50mV       | 0 to +5V     |
| 8B40-06 | ±100mV      | 0 to +5V     |
| 8B41-01 | ±1V         | ±5V          |
| 8B41-02 | ±5V         | ±5V          |
| 8B41-03 | ±10V        | ±5V          |
| 8B41-04 | ±1V         | 0 to +5V     |
| 8B41-05 | ±5V         | 0 to +5V     |
| 8B41-06 | ±10V        | 0 to +5V     |
| 8B41-07 | ±20V        | ±5V          |
| 8B41-08 | ±20V        | 0 to +5V     |
| 8B41-09 | ±40V        | ±5V          |
| 8B41-10 | ±40V        | 0 to +5V     |
| 8B41-12 | ±60V        | ±5V          |
| 8B41-13 | ±60V        | 0 to +5V     |



## ► 8B Selection Guide (Continued)

### 2-WIRE TRANSMITTER INTERFACE MODULES Page 124

| MODEL   | INPUT RANGE | OUTPUT RANGE |
|---------|-------------|--------------|
| 8B42-01 | 4 to 20mA   | 0 to +5V     |
| 8B42-02 | 4 to 20mA   | +1 to +5V    |

### DC LVDT INPUT MODULES, 1kHz BANDWIDTH Page 126

| MODEL   | INPUT RANGE | OUTPUT RANGE |
|---------|-------------|--------------|
| 8B43-01 | ±1V         | ±5V          |
| 8B43-02 | ±2V         | ±5V          |
| 8B43-03 | ±3V         | ±5V          |
| 8B43-04 | ±4V         | ±5V          |
| 8B43-05 | ±5V         | ±5V          |
| 8B43-11 | ±1V         | 0 to +5V     |
| 8B43-12 | ±2V         | 0 to +5V     |
| 8B43-13 | ±3V         | 0 to +5V     |
| 8B43-14 | ±4V         | 0 to +5V     |
| 8B43-15 | ±5V         | 0 to +5V     |

### FREQUENCY INPUT MODULES Page 128

| MODEL   | INPUT RANGE | OUTPUT RANGE |
|---------|-------------|--------------|
| 8B45-01 | 0 to 500Hz  | 0 to +5V     |
| 8B45-02 | 0 to 1kHz   | 0 to +5V     |
| 8B45-03 | 0 to 2.5kHz | 0 to +5V     |
| 8B45-04 | 0 to 5kHz   | 0 to +5V     |
| 8B45-05 | 0 to 10kHz  | 0 to +5V     |
| 8B45-06 | 0 to 25kHz  | 0 to +5V     |
| 8B45-07 | 0 to 50kHz  | 0 to +5V     |
| 8B45-08 | 0 to 100kHz | 0 to +5V     |

### LINEARIZED THERMOCOUPLE INPUT MODULES (0 to +5V OUTPUT, 3Hz BW) Page 130

| MODEL    | TYPE | INPUT RANGE                           |
|----------|------|---------------------------------------|
| 8B47J-01 | J    | 0°C to +760°C (+32°F to +1400°F)      |
| 8B47J-02 | J    | -100°C to +300°C (-148°F to +572°F)   |
| 8B47J-03 | J    | 0°C to +500°C (+32°F to +932°F)       |
| 8B47J-12 | J    | -100°C to +760°C (-148°F to +1400°F)  |
| 8B47K-04 | K    | 0°C to +1000°C (+32°F to +1832°F)     |
| 8B47K-05 | K    | 0°C to +500°C (+32°F to +932°F)       |
| 8B47K-13 | K    | -100°C to +1350°C (-148°F to +2462°F) |
| 8B47K-14 | K    | 0°C to +1200°C (+32°F to +2192°F)     |
| 8B47T-06 | T    | -100°C to +400°C (-148°F to +752°F)   |
| 8B47T-07 | T    | 0°C to +200°C (+32°F to +392°F)       |

### VOLTAGE OUTPUT MODULES, 100Hz BANDWIDTH Page 132

| MODEL   | INPUT RANGE | OUTPUT RANGE |
|---------|-------------|--------------|
| 8B49-01 | 0 to +5V    | ±5V          |
| 8B49-02 | ±5V         | ±5V          |
| 8B49-03 | ±5V         | 0 to +5V     |
| 8B49-04 | 0 to +10V   | ±10V         |
| 8B49-05 | ±10V        | ±10V         |
| 8B49-06 | ±10V        | 0 to +10V    |
| 8B49-07 | ±5V         | ±10V         |

### VOLTAGE INPUT MODULES, 20kHz BANDWIDTH Page 134

| MODEL   | INPUT RANGE | OUTPUT RANGE |
|---------|-------------|--------------|
| 8B50-01 | ±20mV       | ±5V          |
| 8B50-02 | ±50mV       | ±5V          |
| 8B50-03 | ±100mV      | ±5V          |
| 8B50-04 | ±20mV       | 0 to +5V     |
| 8B50-05 | ±50mV       | 0 to +5V     |
| 8B50-06 | ±100mV      | 0 to +5V     |
| 8B51-01 | ±1V         | ±5V          |
| 8B51-02 | ±5V         | ±5V          |
| 8B51-03 | ±10V        | ±5V          |
| 8B51-04 | ±1V         | 0 to +5V     |
| 8B51-05 | ±5V         | 0 to +5V     |
| 8B51-06 | ±10V        | 0 to +5V     |
| 8B51-07 | ±20V        | ±5V          |
| 8B51-08 | ±20V        | 0 to +5V     |
| 8B51-09 | ±40V        | ±5V          |
| 8B51-10 | ±40V        | 0 to +5V     |
| 8B51-12 | ±60V        | ±5V          |
| 8B51-13 | ±60V        | 0 to +5V     |



► **8B Selection Guide (Continued)**

**ACCESSORIES Starts on Page 137**

| <u>MODEL</u> | <u>DESCRIPTION</u>                                       |
|--------------|----------------------------------------------------------|
| 8BP01        | Single channel DIN rail mount carrier                    |
| 8BP02        | Standard 2-channel backpanel                             |
| 8BP02-1      | 8BP02 without cold junction compensation sensor          |
| 8BP02-2      | 8BP02 with DIN rail mounting option                      |
| 8BP02-3      | 8BP02-1 with DIN rail mounting option                    |
| 8BP04        | Standard 4-channel backpanel                             |
| 8BP04-1      | 8BP04 without cold junction compensation sensor          |
| 8BP04-2      | 8BP04 with DIN rail mounting option                      |
| 8BP04-3      | 8BP04-1 with DIN rail mounting option                    |
| 8BP08        | Standard 8-channel backpanel                             |
| 8BP08-1      | 8BP08 without cold junction compensation sensor          |
| 8BP08-2      | 8BP08 with DIN rail mounting option                      |
| 8BP08-3      | 8BP08-1 with DIN rail mounting option                    |
| 8BP16        | Standard 16-channel backpanel                            |
| 8BP16-1      | 8BP16 without cold junction compensation sensor          |
| 8BP16-2      | 8BP16 with DIN rail mounting option                      |
| 8BP16-3      | 8BP16-1 with DIN rail mounting option                    |
| 8BPWR-2      | Power Supply Module                                      |
| SCMXPRT-001  | Power supply, 1A, 5VDC, 120VAC                           |
| SCMXPRE-001  | Power supply, 1A, 5VDC, 220VAC                           |
| SCMXPRT-003  | Power supply, 3A, 5VDC, 120VAC                           |
| SCMXPRE-003  | Power supply, 3A, 5VDC, 220VAC                           |
| PWR-4505     | Power supply, 5A, 5VDC, 85-264VAC                        |
| SCMXCA006-xx | System interface cable for backpanels                    |
| 8BXIF        | DB25 to screw terminal interface board                   |
| 8BXCJC       | Cold Junction Compensation sensor                        |
| 8BPT         | Non-isolated signal pass thru module                     |
| 8B-PROTO     | Breadboard kit                                           |
| SCMXRK-002   | 19-inch metal rack for mounting backpanels               |
| SCMXRAIL1-XX | DIN EN50022-35x7.5 (slotted steel), length -XX in meters |
| SCMXRAIL2-XX | DIN EN50035-G32 (slotted steel), length -XX in meters    |
| SCMXRAIL3-XX | DIN EN50022-35x15 (slotted steel), length -XX in meters  |

**\*THERMOCOUPLE ALLOY COMBINATIONS**

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

| <u>TYPE</u> | <u>MATERIAL</u>                     |
|-------------|-------------------------------------|
| J           | Iron vs. Copper-Nickel              |
| K           | Nickel-Chromium vs. Nickel-Aluminum |
| T           | Copper vs. Copper-Nickel            |
| R           | Platinum-13% Rhodium vs. Platinum   |
| S           | Platinum-10% Rhodium vs. Platinum   |

**\*\*RTD STANDARDS**

| <u>TYPE</u> | <u>ALPHA COEFFICIENT</u> | <u>DIN</u> | <u>JIS</u>      | <u>IEC</u> |
|-------------|--------------------------|------------|-----------------|------------|
| 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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