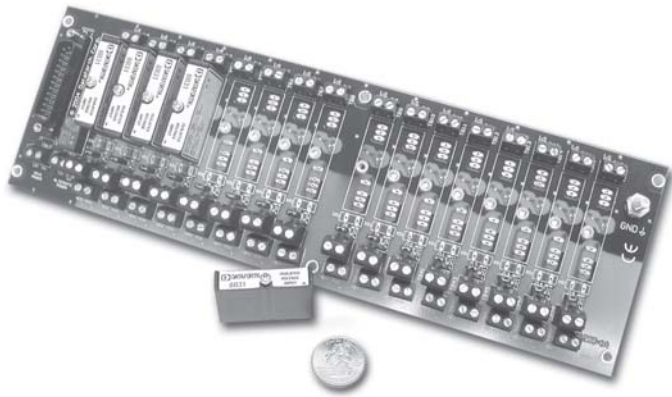




8B

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°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

► 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 |
| SCMXPRT-001 | Power supply, 1A, 5VDC, 220VAC |
| SCMXPRT-003 | Power supply, 3A, 5VDC, 120VAC |
| SCMXPRT-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 | | | |