Bulletin 931 Analog Signal Conditioners

Analog Signal

Analog Signal Conditioners are designed for use with Rockwell Automation I/O systems to provide reduced installation and maintenance costs in process applications. The products are available with single, 2-way or 3-way isolation and provide the following functionality.

• Isolation of analog measurement and control signals
• Conversion of analog signals from Voltage to Current (i.e., 0-10V to 4-20 mA)
• Amplification, linearization and transmission of low-level sensor signals (i.e., mV signals from thermocouples)
• Transmission of analog signals over long distances
• Provide local status indications and alarms via relay contact closures based on the analog signals
• Multiple products are approved to be used in hazardous location environments - UL (Class 1, Div 2) and ATEX (Zone 2)

Typical Applications

• Feed and Conveyor Control
• Boiler and Heat Control
• Water & Effluent Treatment
• Machine Speed and Power
• Product Thickness and Alignment
• Batch, Mixing and Weighing
• Crystalization Control
• Valve Position Control
• Tanks and Silos – Inventory Control
• Chemical Dosing
• Safety Interlocks and Shutdown
• Pollution Control
• Refrigeration and Storage
• Dust Control

Rockwell Automation is pleased to introduce the Allen-Bradley® Bulletin 931 Analog Signal Conditioner product line. This new offering provides a wide range of products for use wherever temperature, pressure, speed, weight, level, and flow are measured and controlled as part of a continuous or batch production process.

Your facility or working environment needs to operate in a specific manner to reach maximum efficiency and profitability. The Bulletin 931 Analog Signal Conditioners are designed to help you convert, isolate and amplify signals in your applications and can isolate between multiple field measurement devices on a common power supply to help prevent interference that can occur due to ground loops or common mode noise.

In addition, these DIN rail-mounted analog signal conditioners are compatible with all types of integrated PLC and DCS I/O systems and can be integrated with our PlantPAx™ Process Automation System to leverage a single control platform for batch, drives, motion control, process and safety.
### Catalog Number | Description | Width (mm) | Input Ratings | Output Ratings | Power
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#### Current/Voltage
- **931H-A1A1N-IP** Passive Isolator, 1 Channel | 6.0 | 0(4)...20 mA | 0(4)...20 mA | ILP<sup>4</sup>  
- **931H-A2A2N-DC** Active Converter, 3 Way | 6.1 | 0...20 mA, 4…20mA, 0…10 VDC | 0...20 mA, 4…20mA, 0…10 VDC | AUX  
- **931S-A1A1N-IP1** Passive Isolator, 1 Channel | 17.5 | 0(4)...20 mA | 0(4)...20 mA | ILP<sup>4</sup>  
- **931S-A1A1N-IP2** Passive Isolator, 2 Channel | 17.5 | 0(4)...20 mA | 0(4)...20 mA | ILP<sup>4</sup>  
- **931S-A2A5N-OP** Passive Isolator, Splitter | 12.5 | 20...20 mA | 20...20 mA | OLP<sup>4</sup>  
- **931S-C1A2D-OP** Passive Converter | 12.5 | 0...20 mA, 4…20mA, 0…5 VDC, 0…10 VDC | 0...20 mA, 4…20mA, 0…10 VDC | AUX  
- **931S-C5D5-B** Active Converter, 3 Way | 12.5 | ±0.1mA±0.1mA, ±20mA±20mA | ±0.1mA±0.1mA, ±20mA±20mA | AUX  

#### Temperature - RTD
- **931H-P2C1D-DC** Thermocouple, Type J | 6.1 | Type J (0…700°C) | 0...20 mA, 4…20mA, 0…10 VDC | AUX  
- **931H-P2A2N-OP** Active Converter, PT100/RTD | 6.0 | PT100, 2 or 3 cond (0…100°C) | 4...20 mA | OLP<sup>4</sup>  

#### Temperature - Thermocouple
- **931H-T1C1D-DC** Thermocouple, Type J | 6.1 | Type J (0…700°C) | 0...20 mA, 4…20mA, 0…10 VDC | AUX  
- **931S-T9C2D-DC** Universal Thermocouple, 3 Way | 17.5 | Type K, J, T, E, N, R, S, B (-200…+1820°C) | 0...20 mA, 4…20mA, 0…10 VDC | AUX  

#### Line Monitoring
- **931S-A3C2D-DC** Active Converter, Monitoring | 22.5 | 0…1A or 0…5A or 0…10A (AC) | 0...20 mA, 4…20mA, 0…10 VDC | AUX  
- **931S-A4C2D-DCH** Active Isolator, Hall-Effect Monitoring | 22.5 | 0…20A or 0…25A or 0…30A (AC/DC) | 0...20 mA, 4…20mA, 0…10 VDC | AUX  
- **931S-C2R1D-DC2R** Isolator, 3 Way, Limit Value Monitoring | 17.5 | 24…70 / 70…140 / 140…210 / 210…260 V (AC/DC) | 2 Relays | AUX  
- **931S-V1R1D-MC1R** Isolator, 3 Way, Monitoring | 17.5 | 24…70 / 70…140 / 140…210 / 210…260 V (AC/DC) | 1 Relay | ILP<sup>4</sup>  

#### Application Specific
- **931S-C9C7C-BC6** Active Converter, 3 Way, Universal | 45.0 | Current/Voltage: -20…50mA; -200…500mV, -20…50 VDC; TC: B, E, J, K, L; RTD: PT100, Cu10, Cu25, Cu50, Cu100 2/3/4 cond; Pot: 100Ω…100kΩ; Res.: 10Ω…5kΩ Freq.: 2Hz…100kHz | 0...20mA, -10…10 VDC (programmable); 2 Relays | AUX<sup>2</sup>  

#### Universal
- **931U-CABLE** Programming Cable | NA | NA | NA | NA  

#### Accessories
- **931H-E81** End Barrier | 1.5 | NA | NA | NA  

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<sup>1</sup> All non-marked AUX are 24VDC  
<sup>2</sup> Input Loop Powered  
<sup>3</sup> Output Loop Powered  
<sup>4</sup> These ranges are scalable  
<sup>5</sup> Software Programmable

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Rockwell Automation offers a breadth of quality Allen-Bradley® components to fit your specific needs. In order to assist you with your component selection, we offer a variety of configuration and selection tools.

- **Local Distributor**  
  Call 1.800.223.3354 to contact your local Distributor today.  

- **On-Line Product Directory**  
  Our extensive product portfolio is designed to improve your processes through every stage of your manufacturing cycle.  

- **Product Selection Toolbox**  
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- **Catalogs**  
  Within our catalogs you’ll find an extensive selection of essential Allen-Bradley component products.  
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