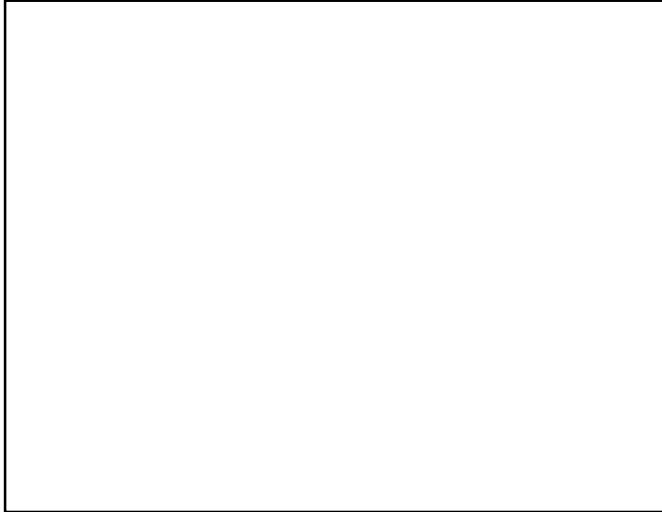


ADAM-3021

Isolated DC-output Signal Conditioning Module



Introduction

The ADAM-3021 is one of the most cost-effective, field-configurable, isolation-based signal conditioners available for protecting processed signals from harmful effects of ground loop, motor noise, and other electrical interference. ADAM-3021 accepts high level analog signals at its input and provides isolated voltage or current signals for its output.

The ADAM-3021 features the new optical isolation technique providing 1000 V_{DC} isolation with low power consumption and extreme accuracy and stability within a wide range of operating environments. ADAM-3021 has a maximum $\pm 177.7 \mu\text{V}/^\circ\text{C}$ temperature drift using only 0.8 W of power. The ADAM-3021 offers superior performance at the lowest price for any signal conditioner or in-house design.

The ADAM-3021 provides three-way isolation. The power supply that drives the module's input circuitry and output circuitry is internally isolated, enabling ADAM-3021 to offer true channel-to-channel isolation.

The ADAM-3021 is powered by a single +24 V_{DC}. Power can be easily connected from the adjacent modules, making the wiring simple and easy to maintain. The ADAM-3021 can be DIN-Rail mounted, and is built to operate in environments with high humidity and wide temperature variation.

Applications

- Signal isolation for process control
- Signal conditioning for motor control
- Signal transmitter (0-20 mA, 4-20 mA)
- Signal conditioning for DCS and PLC

Features

- 1000V, fully isolated
- Optical isolation technique
- Easy input/output range configuration
- Flexible DIN-rail mounting
- Low power consumption, 0.8 W
- Temperature range -10 to 70°C
- Operates from single +24 V_{DC}

Specifications

Voltage Output Mode

Input	Output
$\pm 5 \text{ V}$, $\pm 10 \text{ V}$	$\pm 10 \text{ V}$

Current Output Mode

Input	Output
0-5 V, 0-10 V	0-20 mA
1-5 V, 2-10 V	4-20 mA

General

- **Input Bandwidth:** 1 kHz
- **Isolation (three-way):** 1000 V_{DC}
- **Output Impedance:** <50 Ω
- **Current Load Resistor:** 0 to 500 Ω (source)
- **Accuracy:** $\pm 0.1\%$ of full range (typical)
- **Stability (temperature drift):** $\pm 177.7 \mu\text{V}/^\circ\text{C}$
- **Common Mode Rejection:** 100 dB @ 50 Hz / 60 Hz
- **Operating Temperature:** -10 to 70°C

Power

- **Range:** 24 V_{DC} $\pm 10\%$
- **Consumption:** 0.85 W

Ordering Information

- ☐ **ADAM-3021:**
Isolated DC-output Signal Conditioning Module
- ☐ **ADAM-3920:**
20-pin wiring Adapter
- ☐ **ADAM-3937:**
37-pin wiring Adapter
- ☐ **ADAM-4350:**
Intelligent Calibrator
- ☐ **PWR-245:**
Switching Power Supply for DIN-Rail Mounting

Configuration

Figure 1 shows the terminal wiring of ADAM-3021. Positive power terminals 9 and 7 are internally connected, as are negative terminals 12 and 10. Power can be connected through the adjacent modules, making wiring much easier. ADAM-3021 uses single +24 V_{DC}. The tables below show the switch positions to configure input and output range. The I/O configuration switches are located inside the module. To reach the switches, you need to remove the DIN-rail bracket by sliding it down.

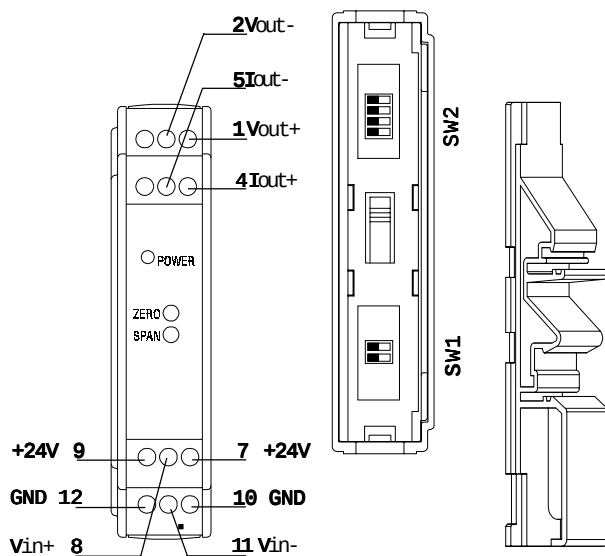


Figure 1: Terminal Wiring Diagram

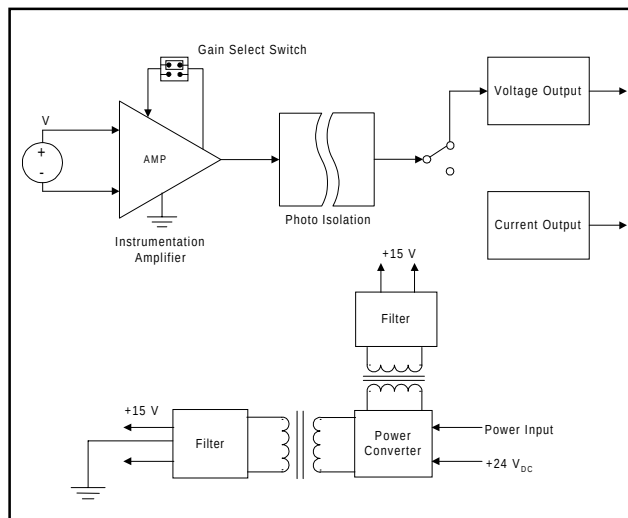


Figure 2: Block Diagram

Calibration

- 1 Disconnect power and set the input range (SW1) and output range (SW2) to the desired setting.
- 2 Apply the power and input the minimum input signal; adjust the variable resistor (VR) of zero for the minimum output signal.
- 3 Apply the maximum input signal and adjust the VR of span until the maximum output signal is reached.
- 4 Repeat steps 2 and 3 for maximum accuracy.

Note: ADAM-4350 provides a quick and easy way for calibration.

Table 1: Voltage Output Mode

Input Range (SW1)		
Range	1	2
±5 V	■	
±10 V		■

Output: ±10 V (SW2)			
1	2	3	4
■		■	
■		■	

Table 2: Current Output Mode

Input Range (SW1)		
Range	1	2
0~5 V	■	
0~10 V		■

Output: 0 - 20 mA (SW2)			
1	2	3	4
	■		■
	■		■

Switchkey: ■ = ON

Dimensions

