

Isolated Analog Signal Converter $\pm 75\text{mV}$ to 20mA

Features:

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Key Features

- **Bidirectional Current Shunt Measurement:** Interfaces $\pm 75\text{ mV}$ DC bidirectional current shunts, converting forward and reverse current flow to a standardized $4\text{--}20\text{ mA}$ output (12 mA zero center)
- **2-Way Galvanic Isolation:** Up to 1 kV RMS optical and magnetic isolation protects downstream PLCs and controllers
- **True Analog Signal Isolation:** Preserves dynamic current fluctuations and direction with a pure linear amplifier stage
- **No PWM or Digital Reconstruction:** Pure continuous analog processing without sampling ripple, ADC quantization, or conversion artifacts
- **Fast Dynamic Response:** Minimal signal processing latency ($< 50\text{ ms}$) for real-time bidirectional current monitoring
- **High Noise Immunity:** Exceptional rejection of high-frequency inverter switching noise and common-mode transients

- **High Conversion Accuracy:** Precision linear calibration delivering < ±0.5% F.S. accuracy @ 25 °C
- **Compact Industrial Enclosure:** 35 mm DIN rail and wall-mount compatible housing (110 mm × 74 mm × 22 mm)
- **1-Year Warranty:** Full 1-year warranty against manufacturing defects
- **Factory Customizable:** Custom millivolt spans (e.g. ±50mV, ±60mV, ±100mV) available on request

Ordering Information

Product Code	Description
AC-B75mV-420	Isolated Analog Signal Converter ±75mV to 20mA
AC-75mV-420	Isolated Analog Signal Converter 75mV to 20mA
SPD-20MA	4-20mA Surge Protection Device SPD 4 to 20mA
USS20M24V-D	Current Source Simulator 0/4 to 20mA
SPD-24V-DC	Surge Protection Device 24V DC SPD

Applications

- **Bidirectional Battery Charge/Discharge Monitoring:** Accurately monitors net energy flow in solar energy storage, UPS battery banks, and electric vehicle charging systems.
- **Four-Quadrant DC Motor Drives:** Measures forward, reverse, and regenerative braking currents in heavy industrial drives.
- **Plating & Electrolysis Directional Monitoring:** Tracks current polarity and amplitude in reversible electrochemical processes.
- **SCADA & PLC Integration:** Safely provides bidirectional DC current data to standard single-ended analog PLC inputs without requiring bipolar input cards.
- **Control Panel Building:** Compact 35 mm DIN rail mounting for clean and space-efficient cabinet wiring.

Specifications

Parameter	Value
Mounting Type	35 mm DIN Rail Mounting
Dimensions	110 mm x 74 mm x 22 mm (L x W x H)
Enclosure Material	Industrial ABS plastic
Operating Temperature	$-10\text{ }^{\circ}\text{C}$ to $+60\text{ }^{\circ}\text{C}$
Storage Temperature	$-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$
Relative Humidity	5% to 95% RH (non-condensing)

Electrical Specifications

Parameter	Specification
Power Supply	24V DC (15 ~ 28V DC)
Conversion Accuracy	$< \pm 0.5\%$ of Full Scale @ $25\text{ }^{\circ}\text{C}$
Temperature Drift	$< 100\text{ ppm / }^{\circ}\text{C}$
Galvanic Isolation	1,000 V RMS (Input / Output)

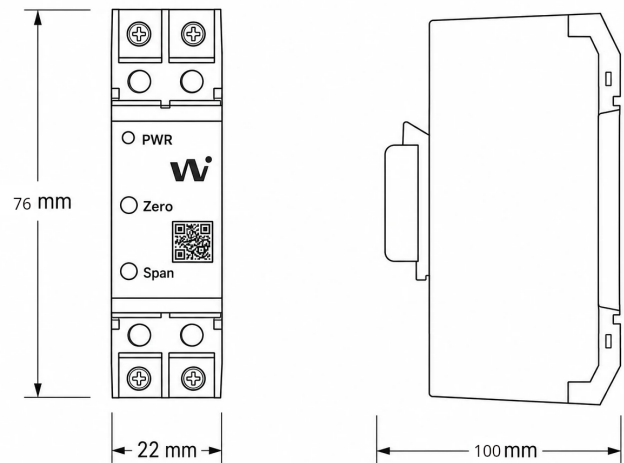
Input/Output Specifications

Parameter	Value
Input Signal Range	±75 mV DC (Bidirectional Current Shunt)
Output Signal Range	4–20 mA DC (12 mA zero point, Load ≤ 500 Ω)
Response Time	< 1 ms

Isolation & Protection Specifications

Parameter	Value	Standard / Notes
Galvanic Isolation	1,000 V RMS	Optical and magnetic isolation barrier
Reverse Polarity Protection	Integrated	Protects internal circuitry against reverse DC wiring
Transient Clamping	600W TVS	Surge and spike suppression across all ports

Mechanical Dimensions



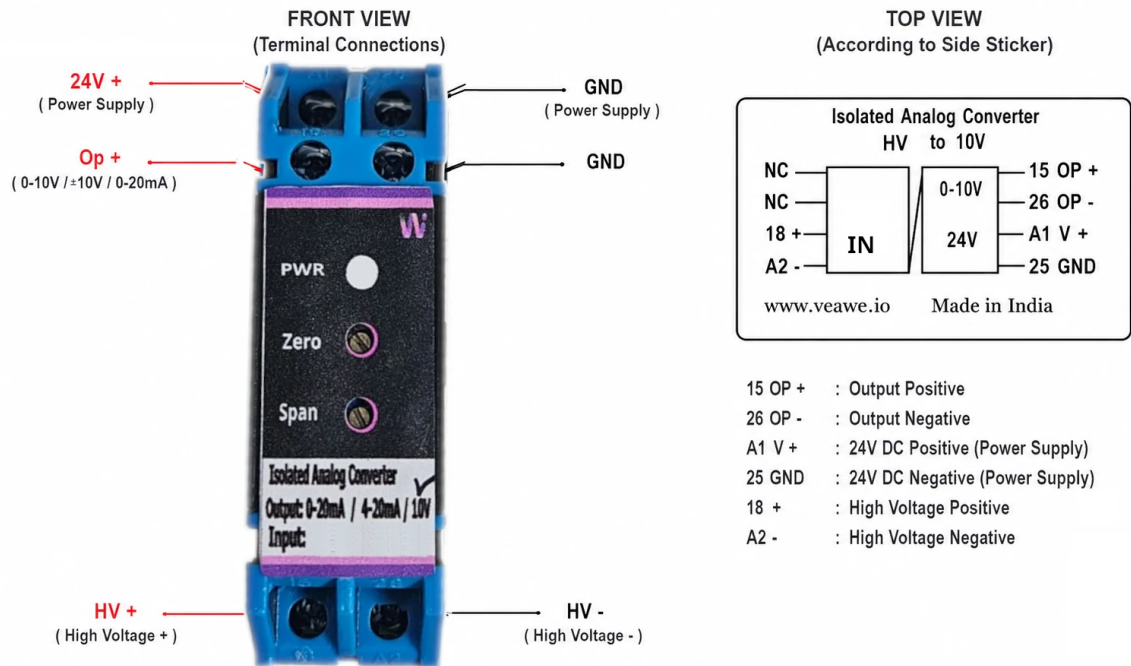
Terminal Details & Wiring

Pluggable industrial screw terminal block connections:

- **Terminal 18 (+) / Terminal A2 (-):** ±75 mV DC bidirectional shunt millivolt input signal
- **Terminal 15 (OP+) / Terminal 26 (OP-):** Isolated 4–20 mA DC analog output signal
- **Terminal A1 (V+) / Terminal 25 (GND):** 24V DC auxiliary power supply

Wiring Diagrams

Note: All images and connection diagrams shown are for illustrative purposes only and may differ from the actual product.



Revision History

Revision	Date	Description of Change
Rev 1.0	2026-09-09	Initial datasheet release for AC-B75mV-420

Get the latest version of this datasheet : [click here..](#)

Support

Website: www.veawe.io

Email: info@veawe.io