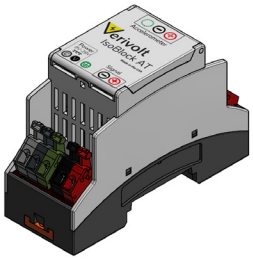
IsoBlock AT

Galvanicaly Isolated Isolation for Accelerometers



OVERVIEW

The IsoBlock AT-1c is a high performance isolated amplifier for standard Accelerometers. It powers the accelerometer units while traslates the output signal into a low impedance isolated output voltage signal.

Each IsoBlock AT unit hosts an isolated channel that can be connected to an accelerometer and is isolated to 5kV (1min) or 1.5kV indefinetly. The output signal from the IsoBlock unit is referenced in respect to the ground channel of the user's data acquisition system.

SPECIFICATION

IsoBlock AT	
Bandwidth (-3dB point)	(0.2Hz option) 1Hz - 50kHz
Voltage source to accelerometer	24V
Current source	2.5mA (Factory adjustable to other values 2-10mA)
Bias input range	5V to 23V
Channels per module	1

Eletrical	
Accuracy	0.2%
Settling Time at startup	90s
Isolation voltage from primary side to secondary side	±5 kV / 1 min.
Withstanding common mode surge voltage (sustained)	±1500 V
Rated voltage	±1000 V
Surge Voltage Category	CAT-III
Mechanical	
Mounting Type	DIN Rail
Connectivity (Connector for power in and signal out to/from the sensor)	Spring Cage connector
Outer Dimensions	1.4" x 3.5" x 2.5"
Weight	198 g (7.0 oz)

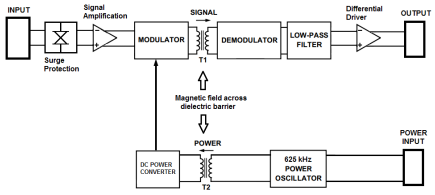
Performance	
Output voltage	±10 V
Common mode rejection at 60Hz	112 dB
Power Supply Voltage	9V to 28 V
Output type	Differential pair
Noise(Referenced to output)	< ± 3mV
Insulation impedance	> 10 GΩ || 2pF
Output impedance	100Ω
Environmental	
Operating temperature	– 25 to 70 °C
Storage temperature	– 40 to 85 °C

HARDWARE DESCRIPTION

The IsoBlock AT module is designed to power, isolate, amplify signals from an Accelerometer. The end result is a signal ready to connect to any data acquisition system, while galvanically isolating the source from it.

Each channel of the IsoBlock module has a galvanic isolation from the input to the output that can eliminate common mode voltages. In addition to that, each channel also has a protection stage at the input that guards it from surges.

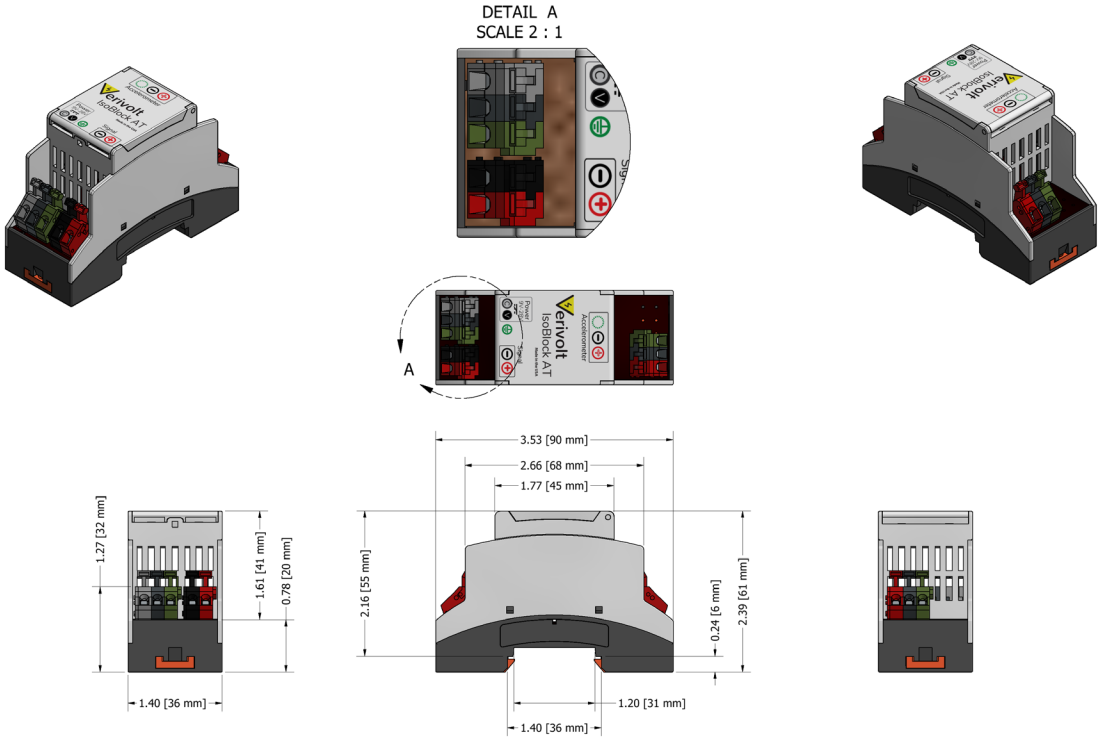
Following the input surge protection stage, there is an amplification stage that brings the input signal to a ±10V range. This signal is modulated into a magnetic field, and then transferred across a galvanic barrier. A demodulating stage recovers the original signal, followed by an anti-aliasing filter and a conditioning stage to output a ±10V differential pair. The figure below shows a block diagram of the process decribed above.



IsoBlock AT single channel block diagram.

Verivolt
650 Washington St, San Francisco, CA 94111
(708) 374-8658

MERCHANICAL DIMENSIONS



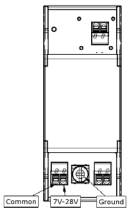
HARDWARE CONFIGURATION

A. Connect external power source to power the unit. For proper functioning the power supply should provide a voltage between 9V and 28V with at least 0.25A of continuous current and 0.5A surge during module start-up.

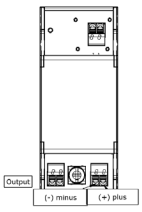
B. Securely connect accelerometer wires to input screw spring cage. Please make sure to follow signal orientation.

C. Securely connect one end of a twisted pair to the output terminals, and the other end to the inputs of your data acquisition unit

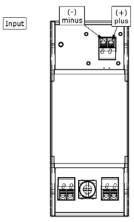
A



B



C



Standards and Certifications

CE

⚠ Warning

THIS SENSOR IS NOT A SAFETY DEVICE AND IS NOT INTENDED TO BE USED AS A SAFETY DEVICE. This sensor is designed only to detect and read certain data in an electronic manner and perform no use apart from that, specifically no safetyrelated use. This sensor product does not include self-checking redundant circuitry, and the failure of this sensor product could cause either an energized or de-energized output condition, which could result in death, serious bodily injury, or property damage.