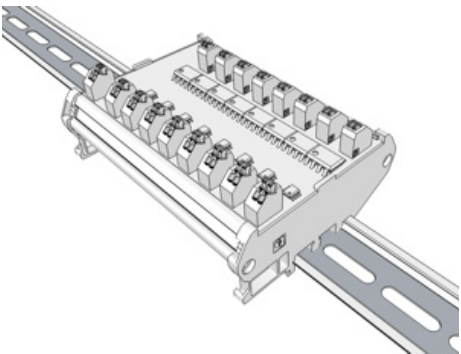# IsoBlock

Specification Sheet for Verivolt Galvanic-Isolated Module for Fuel-Cell and Battery Monitoring

OVERVIEW

The IsoBlock module has been designed to provide low-cost and high-quality isolated differential voltage measurements along a chain of fuel-cells or batteries. Our innovative modular architecture and isolation techniques allow users to connect multiple IsoBlock modules together serially, facilitating the monitoring of long fuel-cell or battery chains.

Each IsoBlock unit hosts eight separate isolated channels, each of which can be connected to separate measurement sources while providing a range of functional coverage up to 1200V. The input of each specific IsoBlock channel has its own isolated reference, and can be configured to suit user needs. All processed signals output from the IsoBlock unit are referenced in respect to the ground channel of the user's data acquisition system.

Verivolt designs its IsoBlock modules with consideration for user flexibility, exceptionally high channel-density and low power consumption.

SPECIFICATION

| Eletrical	
Accuracy	±2% Standard ±0.2% Optional
Bandwidth	DC – 100kHz (-3dB point)
Integrated channel noise (Referenced to input)	< 200 µV
Input-Output non-linearity	< 80 ppm
Differential input dynamic range per channel	±250mV, ±500mV, ±1V, ±2V, ±3V, ±6V, ±12V
Channel to channel isolation	± 1200V Working Voltage ± 3000V Surge Voltage
Isolation voltage from primary side to secondary side	± 1200V Working Voltage ± 3000V Surge Voltage
Gain temperature drift	±50 ppm/°C
Max total phase shift at 60Hz	< 0.05°
Max Input delay	< 2.8 µs
Common mode rejection	5V
Power Supply Voltage	108 dB at DC 95 dB at 50kHz
Output type	< ±500µV
Output Offset Voltage	> 1 MΩ
Differential Input impedance	> 2 GΩ
Output impedance	20 Ω
MERCHANICAL	
Mounting Type	DIN Rail
Connectivity (Connector for power and signals)	Screw terminals
Outer Dimensions	7" x 3.2" x 1.2"
Weight	218 g (7.7 oz)
ENVIORNMENT	
Operating temperature	– 25 to 70 °C
Storage temperature	– 40 to 80 °C

HARDWARE DESCRIPTION

The IsoBlock module is designed to isolate a bank of differential unipolar input signals, while selectively removing their high-voltage common mode. With eight discrete channels per IsoBlock module, the device features channel-to-channel isolation as well as a channel-to-ground isolation, rated at 1200V. Each input's dynamic range is set to match one of seven standard values, or may be customized to specification, upon request.
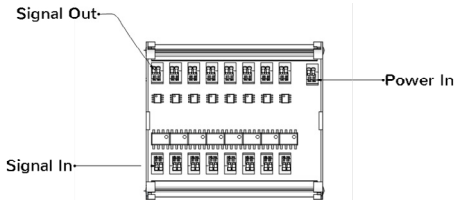
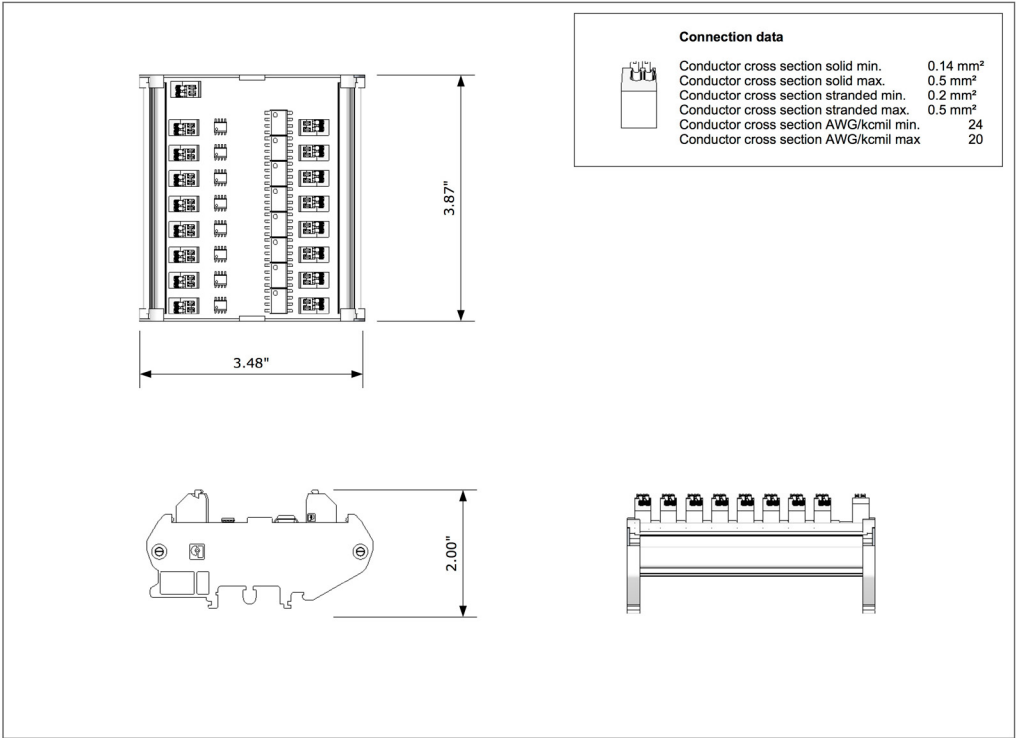*The figure above indicates the input, output and power polarity of the IsoBlock module.*

The IsoBlock module is designed to mount on standard NS-35 or NS-32 DIN rails with minimal preparation, providing users an indispensible monitoring utility with unparalleled flexibility.
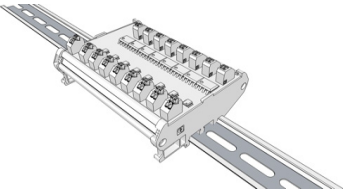
DIN Rail Mounting the Sensor

Verivolt's IsoBlock variable voltage monitoring module comes pre-assembled with a housing allowing for users to quickly and securely mount the device to industry-standard DIN rail guides. The flexible clip on the reverse of the unit's housing latches to the parallel rails of the DIN, affording the IsoBlock exceptional modularity and ease of deployment within integrated Systems.

MERCHANICAL DIMENSIONS

Connection data	
Conductor cross section solid min.	0.14 mm²
Conductor cross section solid max.	0.5 mm²
Conductor cross section stranded min.	0.2 mm²
Conductor cross section stranded max.	0.5 mm²
Conductor cross section AWG/kcmil min.	24
Conductor cross section AWG/kcmil max	20

3.87"
3.48"
2.00"

HARDWARE CONFIGURATION

A. Securely connect external power source to primary power unit, with respect to line polarity. For proper functioning the power supply should provide between 4.8V and 5.3V with at least .5A of current.

B. Securely connect wire in the 20-26 AWG range between the source of measurement and an available IsoBlock's input spring cage terminal. a cable of up to 3"diameter.

C. 1) Securely connect wire to the output terminals which correspond to the inputs used in Step 2.
2) Connect the leads from the out- put terminals to the inputs of your data acquisition unit.

Standards and Certifications
● CE
● RoHS Compliant

⚠ **DANGER**

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.