

Signal Conditioner System for Geotechnical Sensors



Features

- Convenient low cost interface for most makes of data logger
- Enables sensors to be externally powered
- Precision resistors to reduce temperature effects
- Rugged fully encapsulated electronics
- Application specific, low power design
- Rechargeable internal battery pack

Applications

The signal conditioner system is used in conjunction with HI Cell or ANZSI cells. This unit is a data logger interface system for strain gauged or analogue sensors. It features an in-built bridge completion network for remote data acquisition.

Technical Specifications

Range	+/- 199999 μ V	Resolution	1 μ V
Accuracy	+/-1 count or +/-0.1%	Excitation	2.0 Volts DC
Gauge Factor	G.F. 2.0	Temperature Range	0° to 50°C overall drift better than 1 μ V/C°
Amplifier	Gain 100 +/-0.1%	Input Circuits	Up to 12 selectable inputs, 120 ohm half or full bridge, internal dummy for 120 ohm quarter bridge
Calibration	Shunt calibration of internal 120 ohm half bridge simulated 1000 μ V offset	Power Supply	Internal Ni-Cd battery pack. 12 hours continuous life from full recharge, cannot be recharged in hazardous zone

Operating Principle

The interface performs several functions. It provides twelve, half bridge completion networks plus a reference half bridge which also implements compensation using one of the cell's common wires. A 2V adjustable voltage regulator supplies power to the cell via the bridge completion network. It is usually set to 2V with a HI Cell connected to the circuit.

The interface offers an efficient solution when data from a variety of geotechnical sensors needs to be logged over time.

The interface has an internal battery pack with a capacity of 1200mAH which will operate the system for about ten hours continuously from a fully charged condition. An internal constant current circuit enable correct charging of the batteries at 120mA from an external "plug pack" of 9V DC. It is permissible to carry out charging while the interface system is operating.

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