DATALOGGERS AND PERIPHERALS

GEOKON®

MODEL 8600 SERIES



Model 8600-1 Datalogger (right) and the Model 8032 16 Channel Multiplexer (left).

APPLICATIONS

The Model 8600 Series Dataloggers are ideally suited for remote, unattended monitoring of a variety of sensors in geotechnical, hydrologic, meteorologic and oceanographic fields. Applications include:

- Dam monitoring
- Tunnel and underground excavation monitoring
- Structural monitoring
- Water and stream levels
- Pump tests
- In-Place Inclinometer readout
- Alarm actuation



Model 8600-2 Datalogger.

COMPATIBILITY AND RELIABILITY

The Model 8600 Series Dataloggers are designed around the Campbell Scientific, Inc. (CSI) Model CR6 Measurement and Control System. Although primarily manufactured for use with vibrating wire sensors and thermistors, the Model 8600 Series can be configured, at GEOKON factory, to read MEMS sensors, Carlson type sensors, voltage type sensors, 4–20 ma sensors, and numerous other specialty sensor types.

The Model 8600-1 and 8600-2 Dataloggers are housed in a NEMA 4X fiberglass reinforced polyester enclosure, designed for use in harsh environments with wide temperature tolerance, resistance to moisture and humidity and protection against lightning damage.

CAPACITY AND MEMORY

The Model 8600-1 has ports to connect up to 6 external multiplexers (Model 8032) and can read up to 96 vibrating wire sensors and 96 thermistors or, optionally, up to 256 two-wire sensors. The Model 8600-2 incorporates an integral Model 8032 Multiplexer for reading 16 vibrating wire sensors and 16 thermistors or up to 32 two-wire sensors. Where additional capacity is required it is possible to connect up to eight multiplexers, in a "daisy-chained" fashion, to each multiplexer input port on the datalogger.

Standard memory storage capacity for the Model 8600 Series is 128 MB of battery-backed SRAM. Also included is a Micro SD card drive for extended memory requirements.

COMMUNICATIONS AND CONTROL

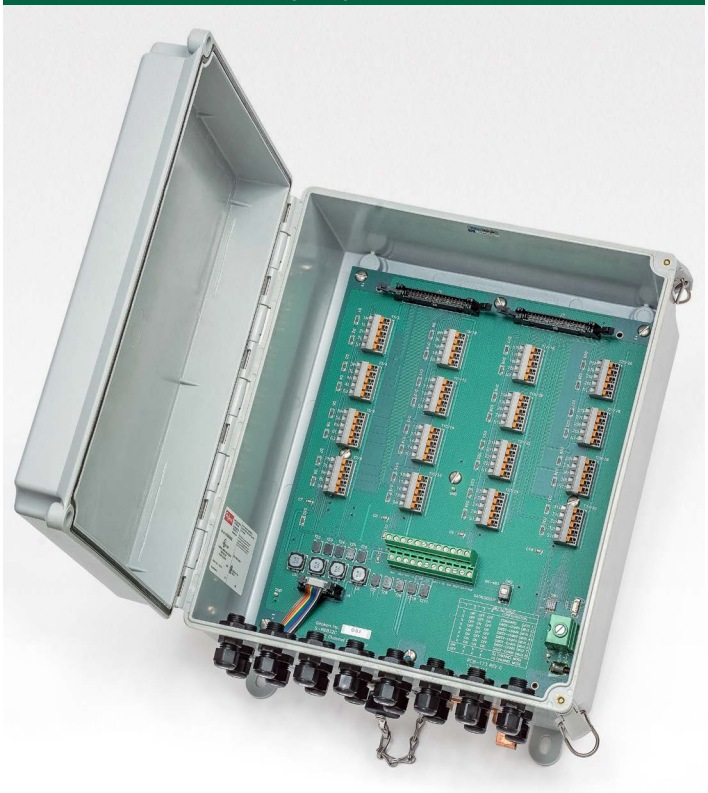
The Model 8600 Series are designed for use with Windows® based computers with a USB port. Communication is accomplished by a direct connection with the datalogger, or via RS-485 or Ethernet interfaces. Additional communication methods are available, such as: Short Haul Modems, Landline Telephone Modems, Cellular Modems, Radio Modems, and Satellite.

The Model 8600 Series have 4 Control (C) ports that can be used for switch closure, pulse counting, high frequency and RS-232/RS-485/SDI-12/TTL communications.

POWER

The Model 8600 Series are powered by an internal 12 V, 7.0 Ah Gel Cell that is maintained by an external regulated, AC powered, waterproof (IP67) charger (supplied). Alternatively, a larger external battery, or a solar panel, can be connected to provide power to the system (please contact GEOKON for details).

MODEL 8032 MULTIPLEXER (MUX)



- Model 8032-16-1S 16-channel Multiplexer
- Model 8032-32-1S 32-Channel Multiplexer (Not Shown)
- Model 8032-32-5 32-Channel Multiplexer with daisy chain option (Not Shown)

APPLICATIONS

The Model 8032 Multiplexer expands the number of channels that can be read by the Model 8600 Series Dataloggers.

SUMMARY

The Model 8032 Multiplexer consists of an integral terminal board and multiplexer board, with mechanical relays, to allow switching of the gauge connections in the Model 8600 Series Datalogger systems.

Two configurations are supported; 16 channels of 4 conductors or 32 channels of 2 conductors. Each channel is protected by an integrated lightning protection system to protect against lightning or EMI/RFI induced transients. Optional manual switches permit manual measurements using a portable readout in tandem with those taken automatically with the datalogger.

The Model 8032 is housed in a Nema 4X weather-proof enclosure, with appropriately sized cable entries, for use with the Model 8600-1. The Model 8600-2 incorporates the 8032 Multiplexer board within its own enclosure. The Model 8032 is a low-power device that can be located at a considerable distance from the datalogger. However, there are distance limits, under normal operating conditions, mostly due to the voltage drop in by the connecting cable over its length, which affects the control signals.



- Model 8032-25 16-channel Manual Switch installed on the Model 8032-16-1S Multiplexer
- Model 8032-26 32-channel version (similar, but not shown)

MULTIPLEXER TECHNICAL SPECIFICATIONS

Switching Current	1 A (max)
Contact Resistance	0.1 ohm (max)
Insulation Resistance	> 1 G ohm
Switch Life	> 200,000 cycles
Temperature Range	–40 °C to +60 °C
L × W × H*	342 × 301 × 160 mm

*Does not include mounting feet

SOFTWARE

Windows® based LoggerNet® software provides the user with complete control over the datalogger by allowing the user to create the program which is executed by the datalogger. Please visit https://www.campbellsci.com/loggernet for more information.

DATALOGGER TECHNICAL SPECIFICATIONS

	8600-1	8600-2
Analog Inputs	12 single-ended or 6 differential with ±5000 mV, ±1000 mV, ±200 mV ranges 24 bit ADC	12 single-ended or 6 differential with ±5000 mV, ±1000 mV, ±200 mV ranges 24 bit ADC
Analog Accuracy	±(0.04% of reading + 2 microvolts), 0-40 °C	±(0.04% of reading + 2 microvolts), 0-40 °C
Analog Resolution	50 µV (±200 mV range, differential measurement, input reversal, 5 Hz f_{N1})	50 µV (±200 mV range, differential measurement, input reversal, 5 Hz f_{N1})
Analog Outputs	±2.5 V or ±2.5 mA ranges 12 bit DAC	±2.5 V or ±2.5 mA ranges 12 bit DAC
Static Frequency-Analyzed Vibrating Wire	12 V p-p 100–6000 Hz (Spectral analysis technique)	12 V p-p 100–6000 Hz (Spectral analysis technique)
Vibrating Wire Accuracy	±0.013% of reading	±0.013% of reading
Vibrating Wire Resolution	0.001 Hz RMS	0.001 Hz RMS
Thermistor Accuracy	±0.25% of reading	±0.25% of reading
Temperature Range	–40 °C to +70 °C	–40 °C to +70 °C
Battery	12 V, 7 Ah Gel Cell	12 V, 7 Ah Gel Cell
L × W × H	392 × 352 × 161 mm	502 × 461 × 263 mm

GEOKON | TRUSTED MEASUREMENTS

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