GEONET NETWORK LOGGERS + DATA HOSTING SYSTEM

GEOKON®

Cellular Addressable Logger

GEOKON® server + OpenAPI

Secure Cellular/Wi-Fi/ Satellite Connection

Wi-Fi® Tilt Logger

Satellite 8-Channel VW Logger

Secure data access and visualization via GEOKON AGENT software or optional third party software

GeoNet Network Loggers + Wireless Data Hosting System with Cloud integration and secure data access

APPLICATIONS

Typical applications include:

- Groundwater monitoring
- Tailings dams
- Mining/slope stability

- Structural monitoring of buildings, bridges, excavations and tunnels
- Historical structures
- Remote transportation and pipeline corridors

INTRODUCTION

GEOKON Model 8920, 8930, and 8950 Series Loggers offer a high-value, networked data collection option for all GEOKON vibrating wire instruments and digital sensor (MEMS IPI and VW) strings. Each logger comes from the factory ready for deployment and may commence with data acquisition in minutes.

The Model 8950 Satellite Loggers feature real-time, bidirectional communication on a global network and standardized, low profile antennas.

Sensor data is collected and transferred via a cellular, Wi-Fi, or satellite network to a secure cloud-based storage platform where it can be accessed through the GEOKON OpenAPI. Industry leading data visualization software, such as Vista Data Vision, or the free GEOKON Agent program can be used with the OpenAPI for data viewing and reporting. Commissioning, billing and configuration are accomplished via the easy to use GEOKON API Portal.

The portal allows users to activate loggers, change settings, configure sensor channels, and view current logger status.

The API Portal can be found at api.geokon.com and the GEOKON Agent program can be downloaded at www.geokon.com/software.

Other available models include: A digital high power logger capable of reading up to 500 GEOKON MEMS sensors or any other sensor that utilizes RS-485 MODBUS communication protocol. A tilt logger that combines the functionality of a biaxial tiltmeter and a GeoNet logger.

Model 8960 Digital Vibrating Wire interfaces can be connected to GeoNet Multi-Channel and Addressable Loggers to expand the capacity of the logger. Multiple VW interfaces can be daisy-chained together to bus the data to a single Logger. The bus limit is 32 units or 64 Channels. Refer to the Model 8960 data sheet for more information.

TILT LOGGER SPECIFICATIONS

Range[1]	±90°
Resolution[2]	0.00025° (0.004 mm/m)
Precision[3]	±0.0075° (±0.13 mm/m)
Nonlinearity	±0.005° across ±30° range (±0.09 mm/m)
Temperature Dependent Uncertainty	±0.001° across ±5° range (±0.016 mm/m) ±0.0016° across ±15° range (±0.026 mm/m) ±0.0026° across ±30° range (±0.042 mm/m)
Axis	2
Data Memory	32 MB
Storage Capacity	500,000 readings
Thermistor Accuracy	1% (0.5 °C thermistor point match)
Thermistor Resolution	0.032 °C
Scan Interval	Min: 10 minutes; Max: 24 hours
Data Transmission Interval	8920, 8930: Min: 10 minutes; Max: 24 hours 8950: Min: 2 hours; Max: 24 hours
Power Supply	Mains power or solar
Operating Temperature	−40 °C to +65 °C (range varies by power source)
Enclosure	Die-cast aluminum; 120 × 122 × 91 mm

[1]Calibrated Range: ±30°
[2]99% confidence interval (i.e. 99 out of 100 individual readings fall within this tolerance).
[3]Includes random walk (changes between consecutive readings that have no discernible cause) and seismic noise during testing.

DIGITAL LOGGER SPECIFICATIONS

Data memory	32 MB
Storage Capacity	Varies by sensor sting connected
MEMS Sensors Limits per Model:	ADR: 64 sensors DHP: 250 MEMS or 500 Model 6140 MEMS Sensors
Communication Protocol	RS-485 Modbus
Thermistor Accuracy	1% (0.5 °C thermistor point match)
Thermistor Resolution	0.032 °C
Scan Interval	Min: 10 minutes; Max: 24 hours
Data Transmission Interval	8920, 8930: Min: 10 minutes; Max: 24 hours 8950: Min: 2 hours; Max: 24 hours
Power Supply	Mains power or solar
Operating Temperature	−40 °C to +85 °C (range varies by power source)
Enclosure	ADR: Die-cast aluminum; 120 × 122 × 91 mm DHP: Die-cast aluminum; 299 × 173 × 90 mm IP 68 rated to 1.5 m (5 feet)

TRUSTED MEASUREMENTS™

VW LOGGER SPECIFICATIONS

Trueness	0.082 Hz
Frequency Precision²	±0.146 Hz (99% CI)
Frequency Resolution	±0.002 Hz
Thermistor Accuracy	1% (0.5 °C thermistor point match)
Thermistor Resolution	0.032 °C
Scan Interval	Min: 10 minutes; Max: 24 hours
Data Transmission Interval	8920, 8930: Min: 10 minutes; Max: 24 hours 8950: Min: 2 hours; Max: 24 hours
Power Supply	Mains power or solar
Operating Temperature	−40 °C to +85 °C (range varies by power source)
VW Frequency Range	400-6,500 Hz
Dimensions (L × W × H)	120 × 122 × 91 mm (single-channel, addressable, tilt) 160 × 260 × 91 mm (four-channel) 180 × 280 × 101 mm (eight-channel)

SUPPORTED CELLULAR FREQUENCIES

	Band	Frequency (MHz)	Uplink (MHz)	Downlink (MHz)
03G¹	5	850	824 – 849	869 – 894
	2	1900	1850 – 1910	1930 – 1990
LTM¹	2	1900	1850 – 1910	1930 – 1990
	4	1700	1710 – 1755	2110 – 2155
	8	900	880 – 915	925 – 960
	28	700	703 – 748	758 – 803

¹GeoNet Cellular Gateways are compatible with all major networks except Verizon

WI-FI SPECIFICATIONS

Protocol	IEEE 802.11 b/g/n IEEE 802.11 d
Band Support	Station Mode: 2.4 GHz, Channel 1-13 Access Point Mode: 2.4 GHz, Channel 1-11

ORDERING INFORMATION

Example Part Number: 8920-LTM-01C-CBL

MODEL:
8920: Cellular
8930: Wi-Fi
8950: Satellite

CELLULAR NETWORK (Applicable to Model 8920 only):
LTM: LTE-M
03G: 3G

LOGGER TYPE:
01C: Vibrating Wire
04C: 4-Channel Vibrating Wire
08C: 8-Channel Vibrating Wire
ADR: Addressable
DHP: Digital High Power
TLT: Tilt

SENSOR CONNECTION:
CBL: Cable Gland
NAP: Not Applicable

ACCESSORIES

8900-SOL-10W-BRJ: GeoNet Series Solar Panel, 10W, unregulated, for charging through barrel jack connector.

8900-SOL-10W-USB: GeoNet Series Solar Panel, 10W, unregulated, for charging through USB port.

CHG-11: AC Charger

COM-169: USB 2.0 A Male to C Male Cable

SUP-514: Desiccant pack, 10 grams

8800-7B: External 12V battery conversion cable, 3 m length, barrel jack connector.

8800-7BV: As above, customer-specified cable length.

8020-7-1: Solar Panel, 20W, regulated. For use with 12V battery. Includes side-of-pole mounts, charge controller, and 4.5 m interconnect cable with battery clips.

AVAILABLE MODELS*

Cellular
Single-Channel
VW Logger

Cellular
Four-Channel
VW Logger

Cellular
Eight-Channel
VW Logger

Cellular
Addressable
Logger

Cellular
Tilt Logger

Cellular
Digital High
Power Logger

*Wi-Fi and Satellite Loggers are similar, but not shown