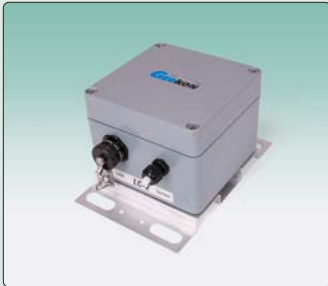# LC-2 Series Dataloggers

Applications

The LC-2 Series Dataloggers are used to read all GEOKON® vibrating wire instruments. Sensors that can be read and monitored include…

- **Piezometers**
- **Precision water level sensors**
- **Crackmeters**
- **Settlement systems**
- **Temperature sensors**

● *Model 8002-16-1 (LC-2×16) Sixteen-Channel, Model 8002-4-1 (LC-2×4) Four-Channel and Model 8002-1-1 (LC-2) Single-Channel Dataloggers.*

● *Model 8002-1-2 with Model 8002-7 Aluminum Mounting Bracket installed.*

● *Model 8002-4-2 with Model 8002-8 Aluminum Mounting Bracket installed.*

Operating Principle

The Model 8002 LC-2 Series Dataloggers are designed to read both the vibrating wire element and the integral thermistor of any **GEOKON** vibrating wire sensor.

The LC-2 (internal hard wired transducer connection), LC-2A (10-pin transducer connector option) are designed to be standalone, single-channel dataloggers, which makes them especially useful for the remote and continuous monitoring of isolated sensors.

The LC-2×4 and LC-2x4A are a self-contained, four-channel versions (vibrating wire with thermistor) of the LC-2, and the LC-2×16 and LC-2x16A are sixteen-channel (vibrating wire with thermistor) versions.

Standard LC-2 Dataloggers are housed inside Fiberglass NEMA 4X enclosures, which makes them very robust, weather-proof and particularly well-suited to operation in harsh environments. Waterproof single and four-channel LC-2 dataloggers housed inside rugged PVC enclosures are also available (Models LC-2WP and LC-2x4WP). Low power consumption provides long battery life and the condition of the main batteries is reported as an element in the data array.

Data memory consists of 320K bytes of EEPROM. This translates into a memory storage capacity of 16,000 arrays for the LC-2 and LC-2A, 10,666 arrays for the LC-2×4 and LC-2x4A, and 3,555 arrays for the LC-2×16 and LC2x16A. Each array consists of the datalogger ID, day (Julian or month/day format), time (HHMM), seconds, main battery voltage, datalogger temperature, vibrating wire sensor reading (in engineering units), the sensor temperature and array number. The array transmission is in comma delineated ASCII text, for easy importation into popular spreadsheet programs.

Up to 6 intervals may be specified from a logarithmic table, with a maximum of 255 iterations. The programmed intervals can be started or stopped once at preset times of the day.

Power

The Model 8002 LC-2 Series Dataloggers are powered by easily accessible alkaline or lithium (optional) D cells. Additional power options, including internal and external 12 V batteries and solar panels, are available (please contact **GEOKON** for more information).

Communications

The Model 8002 LC-2 Series Dataloggers are available with an RS-232 Serial Interface or with a direct USB 2.0 connection; patch cords are supplied for this purpose.

Software

Agent Software simplifies the task of configuration, communication, monitoring, data collection and data reduction using the Model 8002 (LC-2) Series Dataloggers. Please see the Model 8800-GNA Agent Software data sheet for more information.

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Technical Specifications

• *Model 8002-WP-2 (LC-2WP) Waterproof Single-Channel Datalogger.*

• *Model 8002-WP-4 (LC-2x4WP) Waterproof Four-Channel Datalogger.*

	Single-Channel	Four-Channel	Sixteen-Channel
	LC-2, LC-2A, LC-2WP	**LC-2×4, LC-2×4A, LC-2x4WP**	**LC-2×16, LC-2x16A**
Measurement Accuracy	±0.05% F.S. (450-4000 Hz)	±0.05% F.S. (450-4000 Hz)	±0.05% F.S. (450-4000 Hz)
Measurement Resolution	1 part in 20,000	1 part in 20,000	1 part in 20,000
Program Memory	24K FLASH	24K FLASH	24K FLASH
Data Memory	320K EEPROM	320K EEPROM	320K EEPROM
Data Connection	RS-232, USB or RS-485	RS-232, USB or RS-485	RS-232, USB or RS-485
Storage Capacity (Arrays)	16,000 [1]	10,666	3,555
Temperature Range	−30˚C to +50˚C	−30˚C to +50˚C	−30˚C to +50˚C
Temperature Measurement	*(accuracy)* 2.0% F.S. *(resolution)* 0.1 °C	*(accuracy)* 2.0% F.S. *(resolution)* 0.1 °C	*(accuracy)* 2.0% F.S. *(resolution)* 0.1 °C
Communication Speed	9600 bps	9600 bps	9600 bps
Communication Parameters	8 data bits, no parity, 1 stop bit	8 data bits, no parity, 1 stop bit	8 data bits, no parity, 1 stop bit
Power Supply	3 VDC (2 Alkaline 'D' cells)	3 VDC (2 Alkaline 'D' cells)	3 VDC (4 Alkaline 'D' cells)
Communication Current	< 100 mA	< 100 mA	< 100 mA
Measurement Current	< 250 mA	< 250 mA	< 250 mA
Quiescent Current	< 500 µA	< 500 µA	< 500 µA
Scan Interval	3 – 86,400 sec (24 hrs)	10 – 86,400 sec (24 hrs)	30 – 86,400 sec (24 hrs)
Operating Time [2]	<4 days to >12 years, depending on scan interval and battery chemistry	<3 days to >7 years, depending on scan interval and battery chemistry	<5 days to >16 years, depending on scan interval and battery chemistry
Sensor Connection	*(LC-2, LC-2WP)* Hard wired *(LC-2A)* 10-pin Connector	*(LC-2×4, LC-2x4A)* Hard wired *(LC-2×4A)* 10-pin Connector (LC-2x4WP) 6-pin Waterproof Connector	*(LC-2×16)* Hard wired *(LC-2×16A)* 10-pin Connector
L × W × H **H × Ø**	*(LC-2, LC-2A)* 122 × 120 × 91 mm *(LC-2WP)* 229 × 168 mm	*(LC-2x4, LC-2x4A)* 260 × 160 × 91 mm *(LC-2x4WP)* 432 × 141 mm	342 × 301 × 160 mm [3]

[1] *8,000 arrays when used with Agent software.*
[2] *Assumes a constant temperature of 25°C. Battery life is shortened by temperature extremes. Refer to the instruction manual for details*
[3] *Does not include mounting feet.*

Ordering Information

Data Connection	Single-Channel LC-2, LC-2A, LC-2WP	Four-Channel LC-2×4, LC-2×4A, LC-2x4WP	Sixteen-Channel LC-2×16, LC-2x16A
RS-232	8002-1-1, 8002-1A-1, 8002-WP-1	8002-4-1, 8002-4A-1, 8002-WP-4-USB	8002-16-1, 8002-16A-1
USB	8002-1-2, 8002-1A-2, 8002-WP-2	8002-4-2, 8002-4A-2, 8002-WP-4-RS232	8002-16-2, 8002-16A-2
RS-485	8002-1-3, 8002-1A-3	8002-4-3	8002-16-3

*PLEASE NOTE: THE MODEL 8002-WP WATERPROOF DATALOGGERS ARE NOT CE APPROVED.