

# Downhole Water Level Dataloggers

## Applications

The Level 1000 and Level 2000 accurately monitor and record water levels and temperatures. They are ideally suited for...

- Water level monitoring
- Well monitoring
- Environmental studies
- Waste water treatment
- Flood analysis
- Groundwater monitoring
- Irrigation canals
- Lake and wetland studies
- Storm water studies
- Landfill and hazardous site analysis



• The Model Level 2000 Water Level and Temperature Datalogger.



• The Level 1000 Water Level and Temperature Datalogger.

## Operating Principle

The Level 1000 and Level 2000 are battery powered down-hole water level and temperature recorders. The Level 1000 is a sealed (absolute) all-in-one submersible pressure transducer with built-in datalogger, which is designed to be hung in the well using a stainless steel suspension wire. The Level 2000 is a vented (gauge) version, which employs a vented cable to the atmosphere via a moisture trap located at the well head.

The Level 1000-1 and Level 2000-1 both employ rugged designs and are constructed from 303 stainless steel, allowing for use in harsh environments and making them well suited for use at waste water treatment facilities, in monitoring wells, irrigation canals, lakes and wetlands and other water level applications.

For use in saline environments, or where other chlorides may be present (such as those derived from de-icing salts), the Level 1000-2 and Level 2000-2, constructed from 316 stainless steel, are recommended.

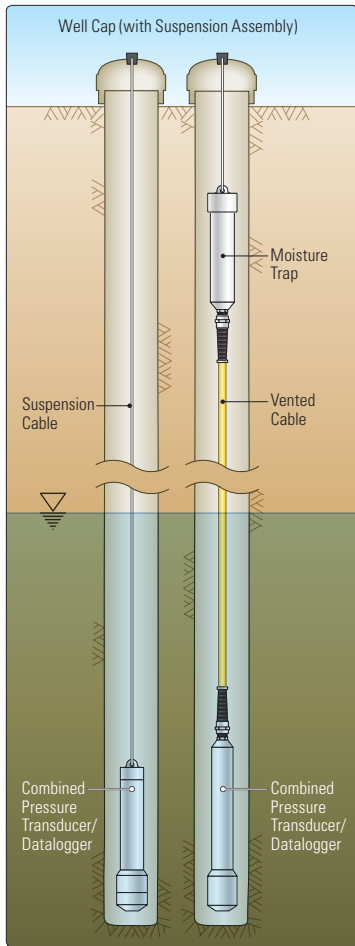
Both models incorporate an accurate semi-conductor pressure transducer, for water level measurements,

and an internal temperature sensor for temperature measurements, eliminating the need for a separate temperature recorder.

User-friendly software allows configuration of the datalogger scan interval (from every two seconds, for rapid changes in water level, up to one reading every twelve hours), start and stop times, data retrieval and for the display of level measurements in feet, inches, meters, centimeters, millimeters or psi.

Both Models can be started and stopped directly from the computer and data retrieval is quick and easy via any available COM or USB port, and each has the ability to record and store up to 16,383 readings in non-volatile memory, providing maximum data security even if the battery becomes discharged.

The Level 2000 cable incorporates an integral vent tube, thus eliminating the need for barometric compensation. The Level 1000 is not vented and would require the use of a second unit (placed above water level) if barometric compensation is required.



• Typical Level 1000 (left) and Level 2000 (right) installations.



• Data Recorder Software screen shot.

## Data Collection

A serial cable connection can be made by removing the back plug from the Level 1000 datalogger or, in the case of the Level 2000 datalogger, by removal of the back plug from the desiccant chamber at the top of the borehole.

## Technical Specifications

Temperature Sensor	Internal Semiconductor
Temperature Range	0 to +80 °C
Temperature Resolution	0.1 °C
Calibrated Accuracy	±0.5 °C
Pressure Sensor	Semiconductor (strain gauge)
Nominal Range	(Level 1000) 30 psi (Level 2000) 15 psi
Level Resolution	(Level 1000) 0.05 psi (Level 2000) 0.02 psi
Calibrated Accuracy	±0.3% F.S. @ 25 °C
Memory	16,383 per channel
Sample Rate	2 seconds up to 12 hours
Required Interface Package	IFC110 or IFC200
Baud Rate	2,400
Typical Battery Life	1 year
Operating Environment	0 °C to +80 °C, 0 to 100% RH
Submersible	Yes
Material	(Level 1000-1/2000-1) 303 SS (Level 1000-2/2000-2) 316 SS
Length × Diameter	(Level 1000) 145 × 32 mm (Level 2000) 232 × 32 mm (combined pressure transducer and datalogger) 181 × 31 mm (moisture trap)

## Software

The Windows®-based software package streamlines data collection, display and analysis, and a variety of powerful tools allows one to examine, export, and print professional looking data at the click of a mouse.

## Software Features

Multiple Graphs	Simultaneously analyze data from several units or deployments; easily switch to a single data series
Graphical Cursor	One click displays readings by time, value, parameter or sample number
Data Table	Instantly access tabular view for detailed dates, times, values, and annotations
Scaling Options	Autoscale function fits data to the screen, or allows user to manually enter their own values
Formatting Options	Change colors, line styles, plotting options, show or hide channels quickly
Statistics	Calculate averages, min, max, standard deviation, at the touch of a button
Export Data	Export data in a variety of common formats, or switch to Excel® with a single click
Calibration†	Provision to store, and update, calibration parameters
Logger Configuration	Easy set up and launch of dataloggers with immediate or delayed start, preferred sample rate, and device ID
Communications	Automatically sets up communications port, or lets user select configuration

†GEOKON® recommends an annual calibration cycle.