

MODEL 6850



Model 6850-4 Electronic Readout.

APPLICATIONS

The Model 6850 is designed to measure horizontal deflections in two directions (2D models), and changes in the vertical distance between the top suspension point of the wire and the readout location (3D models). The system is suitable for measuring the tilting of large structures such as:

- Dams
- High-rise buildings
- Bridges

OPERATING PRINCIPLE

The Model 6850 Direct Pendulum System includes a pendulum weight, hanger, damping tank, measurement table, and readout. The inverted pendulum system includes a pendulum anchor, float tank and float, measurement table, and electronic readout.

The readout uses two high-resolution linear array CCDs (charge coupled device) as the basic sensors. Two collimated light sources at 90° to

each other are directed onto two photo-sensitive CCD screens. The shadow of the pendulum wire falls on the CCD sensors and an automatically generated scan of the CCD pixel map records and digitally stores the coordinates of the shadow in the built-in computer.

This information is then converted to an analog signal that enables the position of the pendulum wire to

be displayed in tenths of millimeter. The signal can also be transmitted via 4–20 mA output or RS-485 output to a remote readout site.

A Pendulum Optical Manual Readout with LED light beam, that's secured to a wall or mounted to a table, is also available where automated systems are not necessary, or where a manual reading back-up is required (see photographs, inset left).



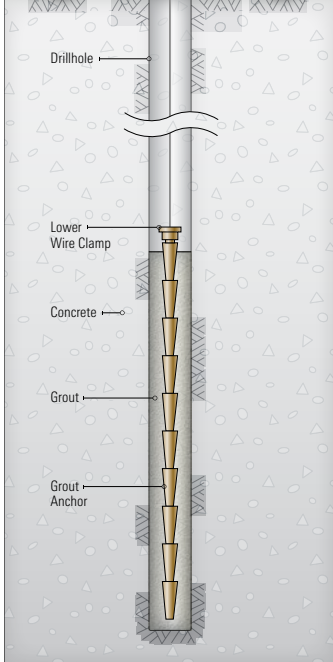
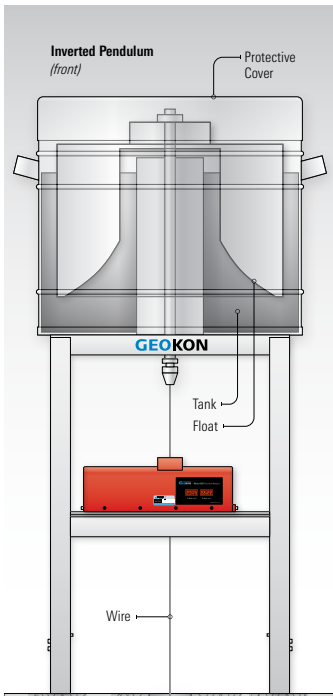
Model 6850 Optical Manual Readout

ADVANTAGES AND LIMITATIONS

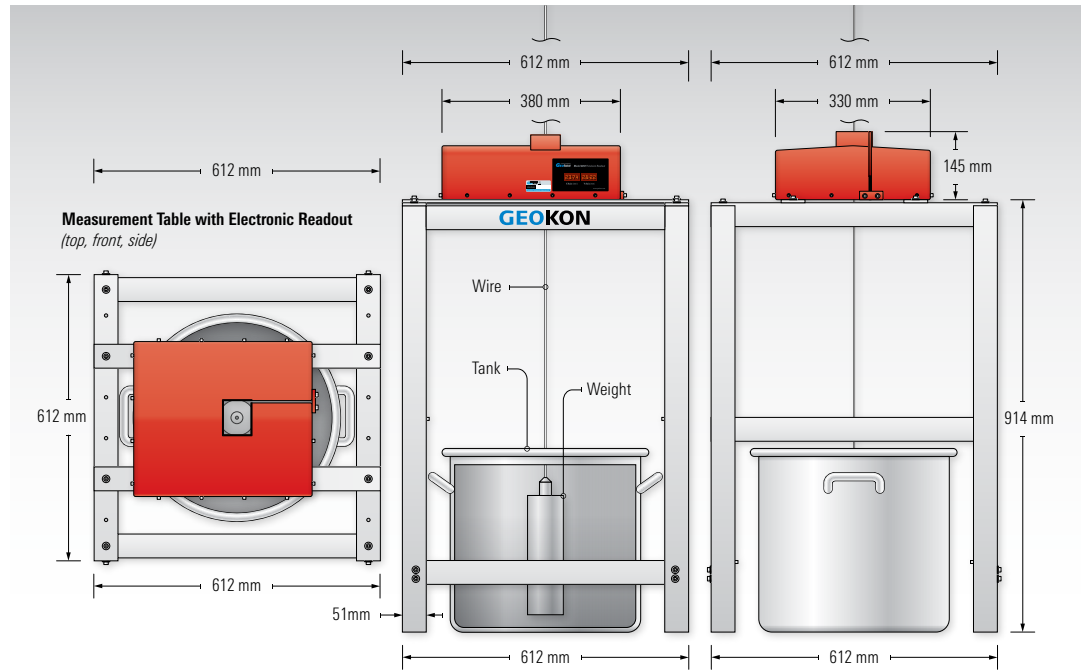
The Model 6850 Pendulum System can be used to make accurate measurements of horizontal deflections in two directions (2D models), and changes in the vertical distance between the top suspension point of the wire and the readout location (3D models).

The electronic readout is designed to make accurate measurements of the relative movements of normal and inverted pendulums and can be

installed as a new system or as an electronic upgrade for an existing system. The electronics package provides both 4-20 mA and EIA RS-485 data outputs. The data can be stored locally or remotely in a Micro-1000 Datalogger, or other dataloggers, and thence by hard-wire or modem to a computer (IBM PC). It is suitable for use with pendulums with a wire diameter between 1.0 mm and 9.9 mm.



Model 6850 Inverted Pendulum System.



Model 6850 Direct Pendulum System.

READOUT SPECIFICATIONS

	6850-4 (2D)	6850-5 (3D)	6850-6 (2D)	6850-9/10 (2D, Optical)
Standard Ranges	(X axis) 0 to 50 mm (Y axis) 0 to 50 mm	(X axis) 0 to 50 mm (Y axis) 0 to 100 mm (Z axis) 0 to 50 mm	(X axis) 0 to 50 mm (Y axis) 0 to 100 mm	(X axis) 0 to 50 mm (Y axis) 0 to 50 mm
Resolution	0.01 mm	0.01 mm	0.01 mm	0.01 mm
Accuracy	better than 0.1 mm	better than 0.1 mm	better than 0.1 mm	0.2 mm
Communication Method	4–20 mA, EIA RS-485	4–20 mA, EIA RS-485	4–20 mA, EIA RS-485	N/A
Display	4-digit LED	4-digit LED	4-digit LED	N/A
Data Storage	2000 data sets	1200 data sets	2000 data sets	N/A
Power Supply	85–265 VAC, 50–60 Hz	85–265 VAC, 50–60 Hz	85–265 VAC, 50–60 Hz	N/A
Operating Temperature	–15 °C to +60 °C	–15 °C to +60 °C	–15 °C to +60 °C	N/A
Operating Humidity	100% relative humidity	100% relative humidity	100% relative humidity	N/A
Dimensions (L × W × D)	380 × 330 × 145 mm	425 × 375 × 190 mm	425 × 375 × 190 mm	356 × 356 × 100 mm

ORDERING INFORMATION

6850-1-1: Direct Pendulum System, 2D, 50 x 50 mm range
6850-1-2: Inverted Pendulum System, 2D, 50 x 50 mm range
6850-2-1: Direct Pendulum System, 3D, 50 x 100 x 50 mm range
6850-2-2: Inverted Pendulum System, 3D, 50 x 100 x 50 mm range
6850-3-1: Direct Pendulum System, 2D, 50 x 100 mm range
6850-3-2: Inverted Pendulum System, 2D, 50 x 100 mm range
6850-4: Pendulum Measurement

Electronics, 2D, 50 x 50 mm range
6850-4-1: Pendulum Measurement Electronics, 2D, 50 x 50 mm range, 18-36 VDC
6850-5: Pendulum Measurement Electronics, 3D, 50 x 100 x 50 mm range
6850-6: Pendulum Measurement Electronics, 2D, 50 x 100 mm range
6850-7: Manual Sighting/Reading Table, with wall brackets
6850-7: Manual Sighting/Reading Table, with wall brackets
6850-9: Pendulum Optical Manual

Readout with LED light beam, for 2D systems, includes mounting table and wall brackets
6850-10: Pendulum Optical Manual Readout with LED light beam, for 2D systems, for mounting above readout
6850-11: Pendulum Optical Manual Readout with LED light beam, for 2D systems, no mounting brackets
B6800-30: Drip Shield for Pendulum Measurement Electronics
6800-3: Pendulum Wire, stainless steel, 1.6 mm Ø