

# Spiral Sensor



## Operation

The spiral sensor, connected to an inclinometer control cable and read-out, is lowered to the bottom of the casing. Spiral readings are recorded at 1.5-meter (or 5-foot) intervals as the sensor is drawn to the top of the casing. Readings are displayed in arc minutes. In a full spiral survey, the sensor is drawn through the casing four times, with its orientation changed 90° each time.

After the spiral readings have been recorded, DMM for Windows is used to process the readings, assigning a spiral value to each depth of the inclinometer survey.

Finally, DigiPro for Windows processes the spiral set along with inclinometer data when it generates a graph.

## Advantages

**Verifies Installation:** The spiral sensor can be used to verify that casing was installed without spiral.

**Improves Accuracy:** Spiral correction can improve accuracy and ease interpretation of data. In some cases, spiral correction allows use of inclinometer casing that would otherwise be abandoned or replaced.

**Works with Digitilt System:** The spiral sensor is compatible with inclinometer control cable and Digitilt indicators. No additional equipment is required.

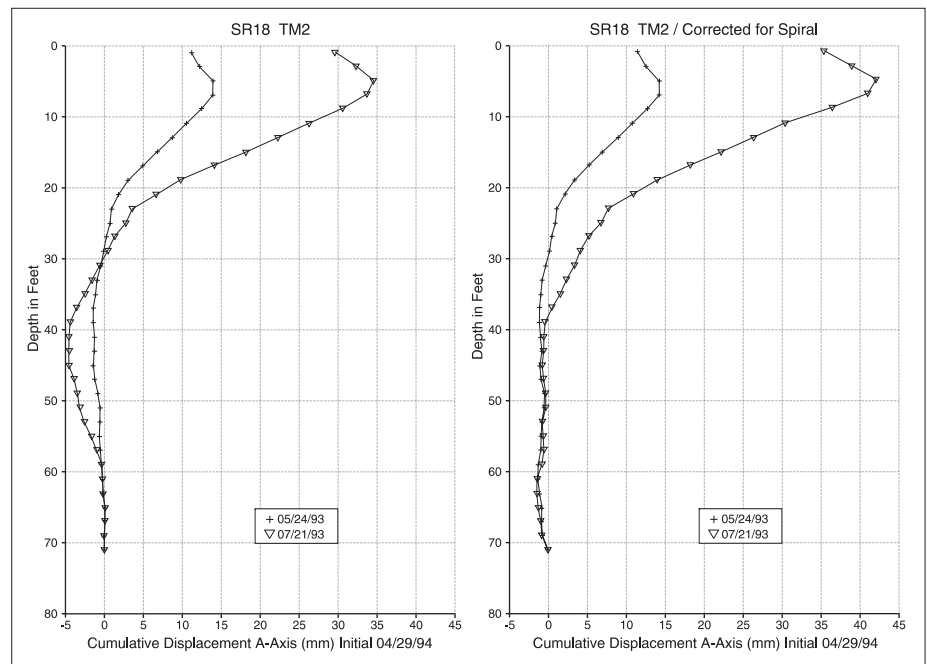
## Application

Inclinometer casing controls the orientation of the inclinometer probe. If the casing is twisted during installation, the orientation of the probe will vary, and the resulting data will indicate an incorrect magnitude of movement in the A and B directions.

The spiral sensor tracks grooves in the casing and measures the relative alignment of its top and bottom wheels. These measurements can then be used to correct inclinometer readings.

Spiral surveys are not required for most inclinometer installations, but they are recommended when:

- The installation is very deep.
- Inclinometer readings indicate movement in an unlikely direction.
- Difficulties were experienced during installation of the casing and it is thought that the casing was twisted.



Displacement graphs generated by DigiPro software. Spiral corrections were applied to graph on right.

## SPECIFICATIONS

**Description:** Sensor measures spiral in inclinometer casing. Spiral data is used to calculate corrections for inclinometer data obtained from spiraled casing.

**Sensor Type:** Rotary potentiometer measures the relative alignment of the upper and lower wheels of the sensor.

**Gauge Length:** 1.5 m (metric) or 5' (English).

**Range:** Sensor is calibrated for  $\pm 3^\circ$  of rotation over its gauge length and has a maximum rotation of  $\pm 4^\circ$  over its gauge length.

**Accuracy:**  $\pm 10$  arc minutes over gauge length of sensor.

**Compatible Casing:** 85 and 70 mm casing (3.34 and 2.75" casing).

**Overall Length:** 1.7 m (5.6').

**Weight:** 3.6 kg (8 lb).

**Materials:** Stainless steel and aluminum.

**Compatible Readouts:** Any Digitilt indicator, including the Digitilt DataMate and the Digitilt 09.

## ORDERING INFORMATION

**Metric Spiral Sensor . . . . . 50900115**

Spiral Sensor with 1.5-meter wheel base. Includes manual, tools and accessories, and carrying case. Does not include control cable, indicator, or data reduction software.

**English Spiral Sensor . . . . . 50900100**

Spiral Sensor with 5-foot wheel base. Includes manual, tools and accessories, and carrying case. Does not include control cable, indicator, or data reduction software.

**DMM for Windows . . . . . Download**

DMM for Windows is available free from Slope Indicator's website: [www.slopeindicator.com](http://www.slopeindicator.com).

**DigiPro Software . . . . . 50310000**

DigiPro software processes spiral data and applies spiral corrections to inclinometer data sets. A trial version of the software can be downloaded from [www.slopeindicator.com](http://www.slopeindicator.com). Please refer to DigiPro data sheet for details.