GEOKON®

Model 6140

Vertical IPI String

Quick Start Guide

For those familiar with Geotechnical instrumentation and its installation, the following guide may be used. For more detailed information than is provided in this Quick Start Guide, please refer to the Model 6140 Instruction Manual (geokon.com/6140) and the Installation Video (geokon.com/Inclinometer-Videos#6140-install).

1. PRELIMINARY TESTS

Prior to installation, check the sensors for proper operation by completing the steps below.

For strings containing fewer than 100 sensors, skip to Step 4.

1. Place the string sections in order. Do not remove from the cartons.
2. Connect the string sections together. Connectors are marked with color-coded tape between each section.

Note: When making cable connections, line up the orientation dot on the outside of the male connector with the two orientation dots on the outside of the female connector.

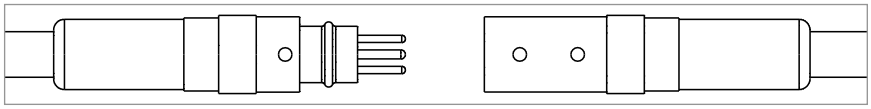


FIGURE 1: *Cable Connection Detail*

3. Repeat this process until the entire string is connected. The aircraft suspension cable does not need to be connected at this time.
4. Connect the readout cable.
5. Connect the IPI string to a data logger or PC.
6. Tilting the shipping carton from one side to another should yield increasing or decreasing readings for all sensors. The temperature indicated on the readout should be close to ambient. Repeat this process with the remaining cartons.

Once the preliminary tests are complete, disconnect the string from the readout device and disconnect the string sections from each other (if applicable). **When disconnecting, do not pull by the cable, grip the connectors and pull apart carefully.**

2. INSTALLATION

2.1 CONNECT THE SUSPENSION WEIGHT

Install weight(s) if required. Refer to the Model 6140 Instruction Manual (geokon.com/6140) for more detail/references on weight requirements.

If it is unclear whether additional weight is required, begin installation without any weight attached. If difficulties occur (such as resistance or drag on the string) remove the string, attach one weight, and reattempt installation. Repeat this process if additional weight is necessary.

The suspension weight connection described below is used both for attaching a weight to the string and for attaching one weight to another.

1. Remove the suspension weight locking pin by depressing the barb and pulling on the ring.

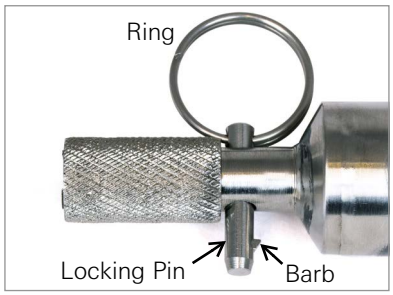


FIGURE 2: *Locking Pin Details*

2. Retract the spring sleeve on the suspension weight and mate the ball stud of the terminal sensor to the receiver on the weight, then release the spring sleeve.
3. Reinsert the locking pin to prevent the sleeve from accidentally retracting during use.



FIGURE 3: *Completed Connection*

2.2 SENSOR ORIENTATION

All sensors should be oriented in the same direction when installed in the casing. The MEMS device monitors both A and B directions (Figure 4).

Point the A+ direction in the same direction as the anticipated movement, e.g., towards the excavation being monitored or downslope for slope evaluation applications.

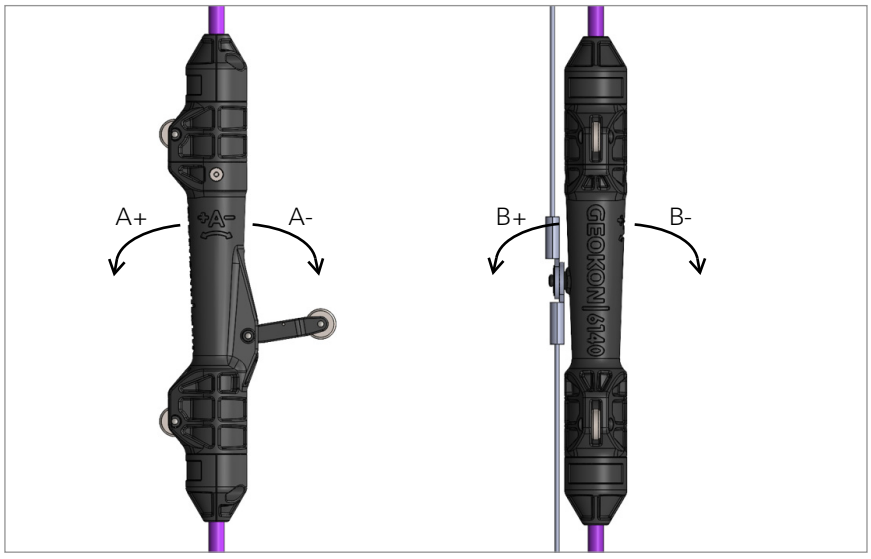


FIGURE 4: *A & B Directions*

2.3 INSTALLING THE SENSORS IN THE CASING

GEOKON recommends the height of the top of the casing from ground level be no higher than 0.5 meters (20 inches). This facilitates an easier install with less potential for twisting of the signal cable and sensors.

The Model 6140-HOIST Installation/Removal Hoist is required to support strings greater than 50 sensors or more. The weight of the string will increase as more string sections are installed into the casing.

Important! Sensors must be held vertically above the casing so the weight of the string is placed on the aircraft cable. Hold the string by the sensors, not by the cable. Failure to do so will add stress to the signal cable and may damage the entire string (see Figure 5).

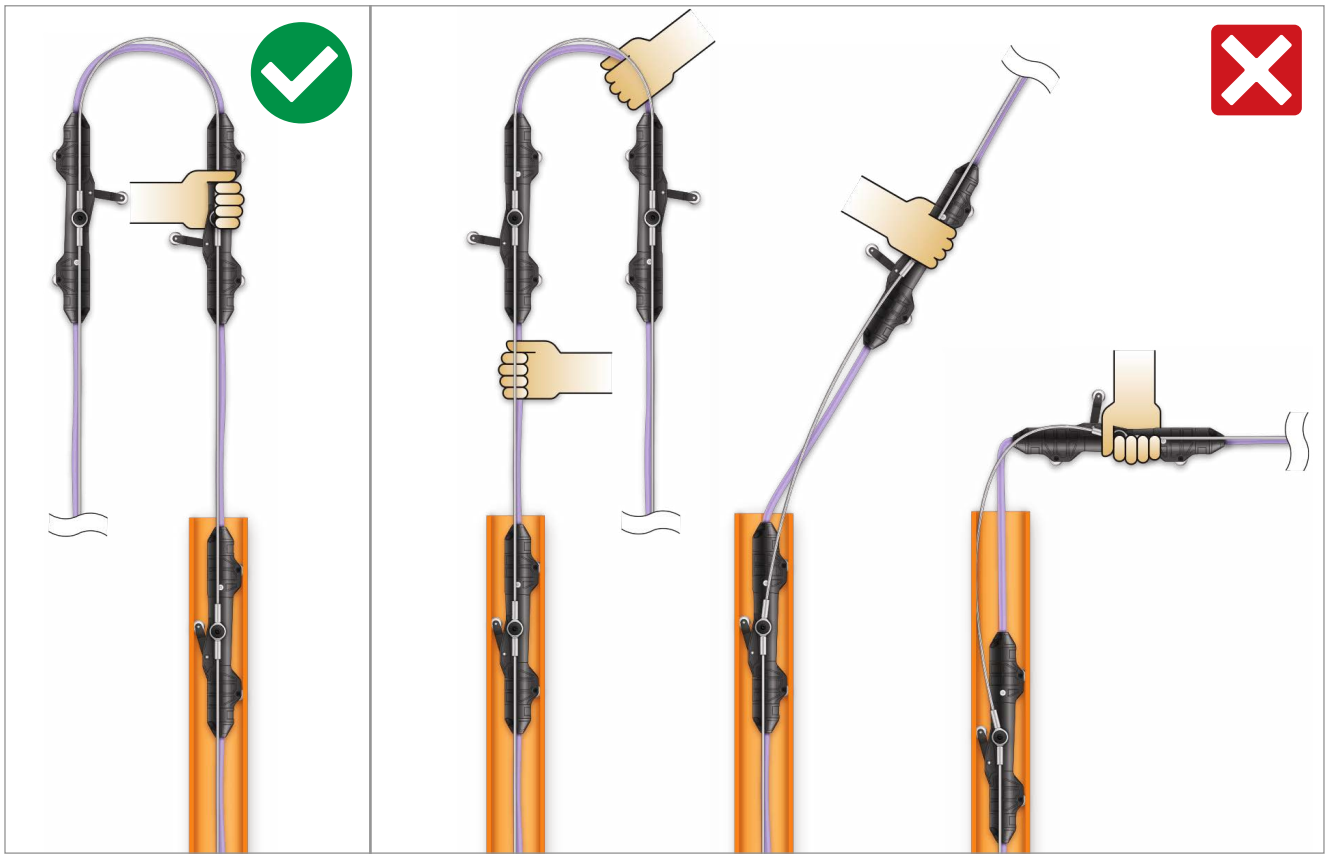


FIGURE 5: *Sensor Orientation*

Install the sensors directly from the shipping carton into the casing according to the following steps.

1. Insert the suspension weight(s) (if applicable) into the casing.
2. Insert the bottom sensor, make sure to position all three wheels of the sensor in the grooves of the casing. The sensor should be oriented in the casing as described above.
3. Install the next sensor of the string into the borehole, and each sensor thereafter, as previously described, until the topmost sensor of the string is reached.
4. Insert the sensor hold into the casing, then insert top sensor into the holder.



FIGURE 6: *Sensor Hold*

For strings containing 100 sensors or less, skip to Step 6.

5. Connect the next section of the string to the section already in the borehole as follows:
    a. Using the supplied screwdriver, remove the screw and washer holding the aircraft cable to the top sensor of the current string section.
    b. Take the aircraft cable eyelet from the bottom sensor of the next string section and arrange over the existing eyelet.
    c. Secure both eyelets to the top sensor by reinstalling the screw and washer.

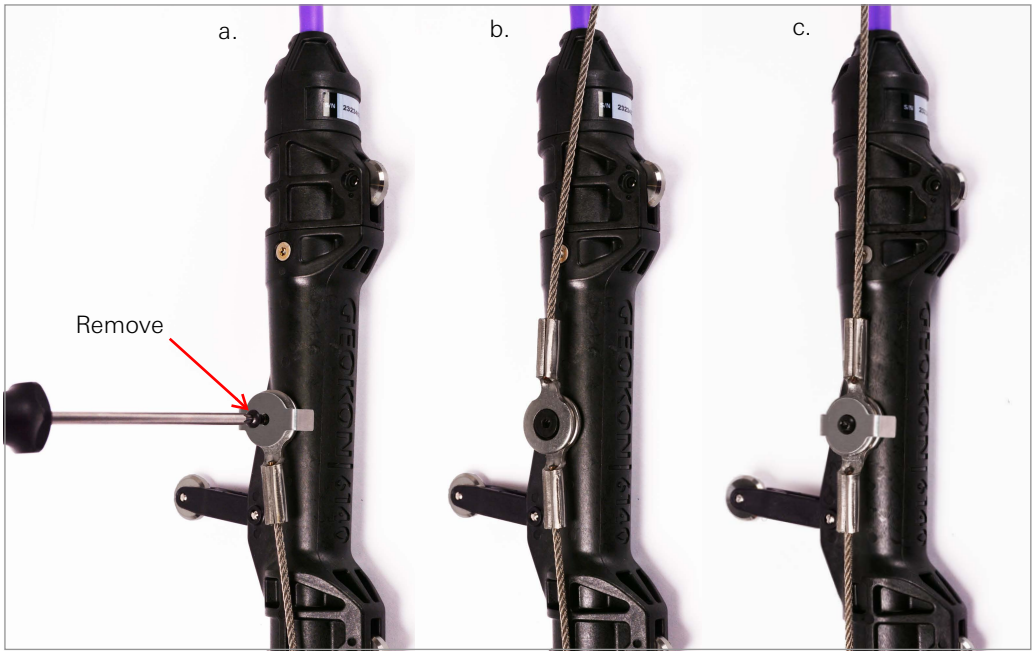


FIGURE 7: *Aircraft Cable Connection*

    d. Mate the male and female cable connectors (matching color-to-color) of the two string sections.
    e. Remove the sensor hold from the casing.

f. Install the next section of the string into the borehole, and each section thereafter, as previously described, until the topmost sensor of the string is reached.

g. Insert the sensor hold into the casing, then insert the top sensor into the holder.

6. Connect the readout cable.

7. Connect the aircraft cable from the top sensor to the eye bolt on the bottom of the suspension bracket using the quick link connector.

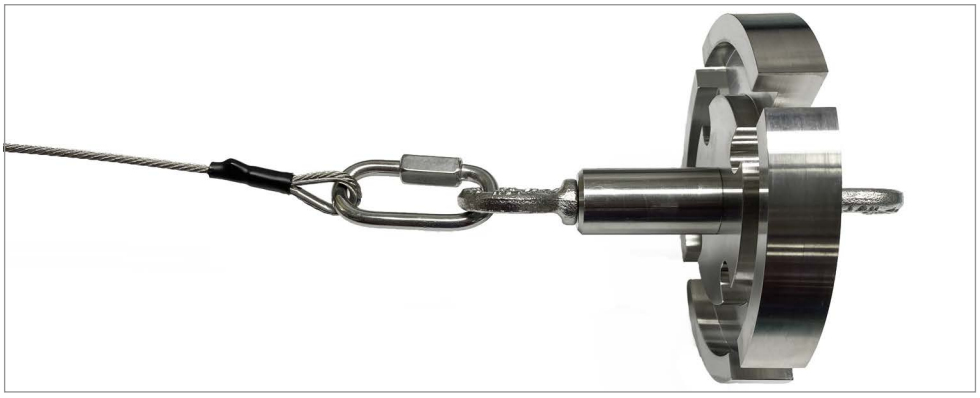


FIGURE 8: *Suspension Bracket Attachment*

8. Remove the sensor hold from the casing and install the top sensor into the borehole.

9. Position the suspension bracket on top of the casing.

Note: In order for the suspension bracket to be properly seated on the casing, the top rim of the casing must be clean and flat.

10. Connect the readout cable to a data logger or PC.

11. Readings may be taken immediately after installation; however, GEOKON recommends evaluating the data over a period of time to determine when the string has sufficiently stabilized to collect an accurate zero reading.

GEOKON®

GEOKON
48 Spencer Street
Lebanon, New Hampshire
03766, USA

Phone: +1 (603) 448-1562
Email: teamsales@geokon.com
Website: www.geokon.com

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