# Model 4500-17

## Cable Splicing

Instruction Manual

GEOKON®


Document Revision: Initial | Release date: 7/15/25

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# 1. INTRODUCTION

GEOKON Splice Kits are designed for the field splicing of GEOKON instrumentation cables. They offer a quick and permanent solution used to create and encapsulate a cable splice. There are several different variations available, each designed for a specific cable diameter, or specific cable types (such as strain relief cable, thermistor string cable, and vented cable).

Splice kits for armored cable, high temperature cable, and settlement system cables are also available. View the manuals of available splice kit models at geokon.com/Cables.

## 1.1 SPLICE KIT MODEL LIST

| Model Number | Description |
|---|---|
| 4500-17-1 | Splice kit for 0.187" - 0.313" cable |
| 4500-17-1-SR | Splice kit for 0.187" - 0.313" strain relief cable.<br>**Note:** Cable with internal strain relief fiber can use Model 4500-17-1. |
| 4500-17-2 | Splice kit for 0.335" - 0.375" cable |
| 4500-17-2-THERM | Splice kit for 0.335" - 0.375" thermistor string cable |
| 4500-17-2-VENT | Splice kit for 0.335" - 0.375" vented cable |
| 4500-17-3 | Splice kit for 0.500" - 0.625" cable |
| 4500-17-3-THERM | Splice kit for 0.500" - 0.625" thermistor string cable |

***TABLE 1:*** *Splice Kit Model List*

## 2. COMPONENTS

Each kit consists of a clear PVC tube, end caps with chord grips installed, Posi-Lock connectors, and the epoxy kit(s). Each epoxy kit includes epoxy compound, a wooden mixing paddle, and a mesh sleeve (not used).

**Note:** The quantity of Posi-Lock connectors and epoxy compound, as well as the size of the splice tube assembly will vary by model number.

The strain relief cable splice kit (Model 4500-17-1-SR) will also include two strain relief clamps.

The vented cable splice kit (Model 4500-17-2-VENT) will also include a barbed plastic tube union for the vent line.


***FIGURE 1:*** *PVC Splice Tube and End Caps*


***FIGURE 2:*** *Epoxy Kit*

***FIGURE 3:*** *Posi-Lock Connectors*

***FIGURE 4:*** *Strain Relief Clamps (Only with Model 4500-17-1-SR)*

***FIGURE 5:*** *Barbed Tube Union (Only with Model 4500-17-2-VENT)*

# 3. INSTALLATION

## 3.1 SPLICING THE CONDUCTORS

Ensure the cable ends are free of debris during this process. Further precaution should be taken when working with vented cables to prevent water or debris from getting into the vent tube.

1. Loosen the cable grip fitting, then push the cable through the fitting and out the other end.


***FIGURE 6:*** *Initial Cable Insertion*

2. Strip the outer jacket of the cable back 38 to 50 mm (1.5 to 2"). Various tools can be used for this operation; the jacket must be removed without nicking the inner conductors or a vent line. Remove inner plastic and foil (if applicable).

**Note:** For cables with a large quantity of conductors, GEOKON recommends staggering the conductor wire lengths.

3. Strip the jackets of the inner conductors back 6 mm (0.25").

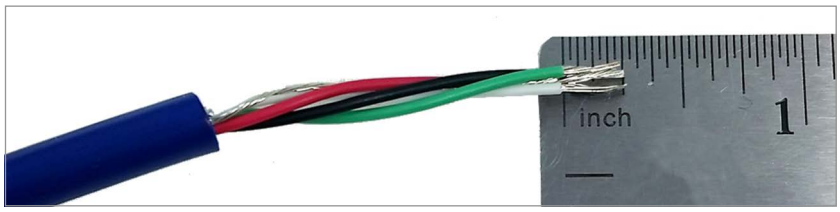


***FIGURE 7:*** *Cable and Conductor Jackets Stripped Back*

4. Loosen the cable grip fitting on the other end cap and push the other cable through the fitting. Repeat Step 2 and 3 on the second cable.

**Note:** If conductor lengths were staggered on the first cable, confirm the conductors on the second cable are also staggered accordingly.

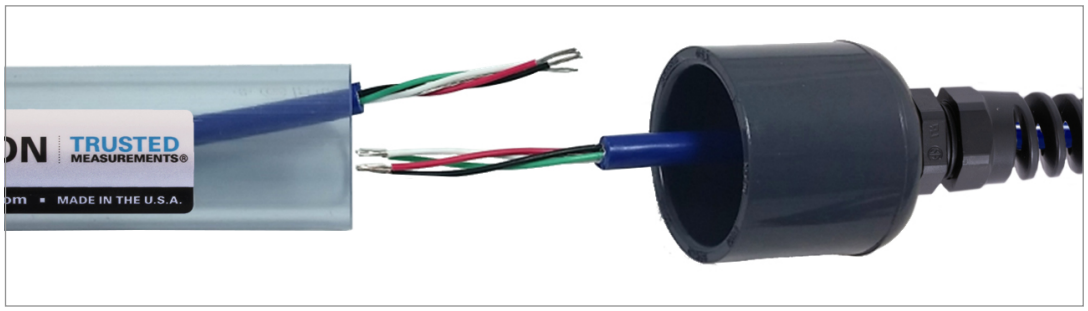


***FIGURE 8:*** *Both Cables Prepared*

5. **Strain Relief Cable Splicing Only:** Follow the additional step below based on the type of strain relief cable being used.
   - **Internal Strain Relief Wire:** Slide the strain relief clamps onto one of the strain relief wires. Slide the other wire through the clamps, overlapping by at least 1.5”. Tighten the nuts on the clamps until they firmly grip the cable.
   - **Internal Strain Relief Fiber:** Take the fiber from both cables and knot them together.

**Note:** These methods will allow the cable connections to maintain slack.

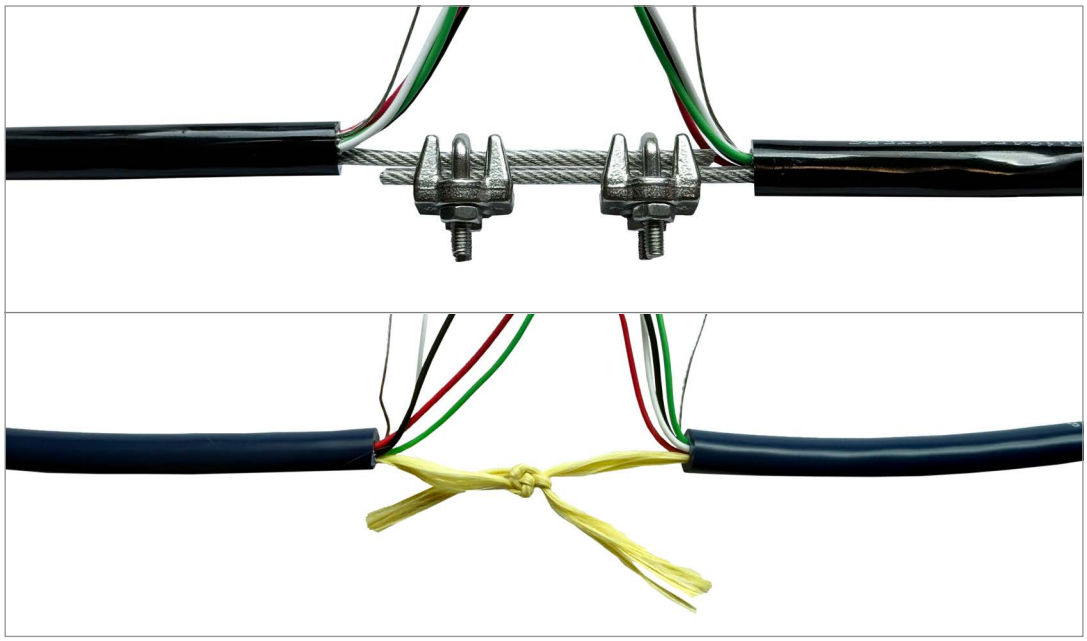

***FIGURE 9:*** *Strain Relief Cable Secured, Wire (Top) and Fiber (Bottom) Variations Shown*

6. Following the Posi-Lock connector instructions shown in Figure 10, connect the individual conductors of the two cables together. Make sure to connect color to color and connect the ground wires together. When tightening the Posi-Lock connectors, tighten finger tight only. The completed connection is shown in Figure 11.

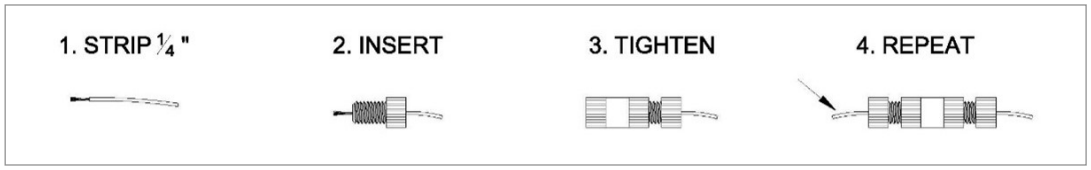


***FIGURE 10:*** *Posi-Lock Instructions*

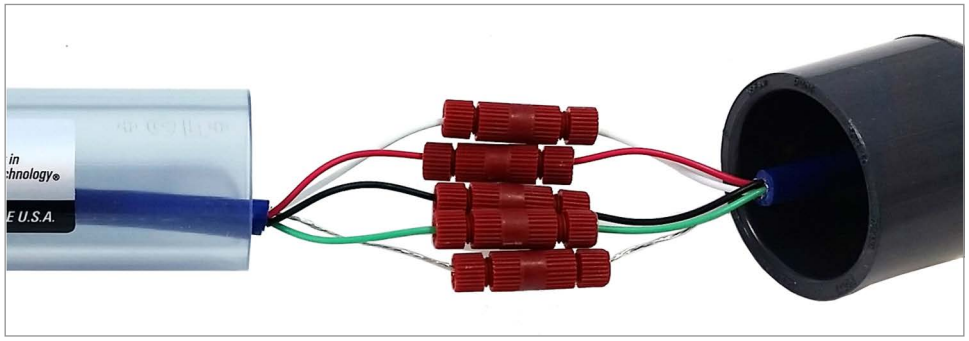

***FIGURE 11:*** *Posi-Lock Connectors Attached to Conductors*

7. **Vented Cable Splicing Only:** Push the end of both vent lines onto the barbed plastic tube union.
8. Position the Posi-Lock connections in the center of the clear tube.
9. Snugly tighten the cable grip fitting to secure the cable.

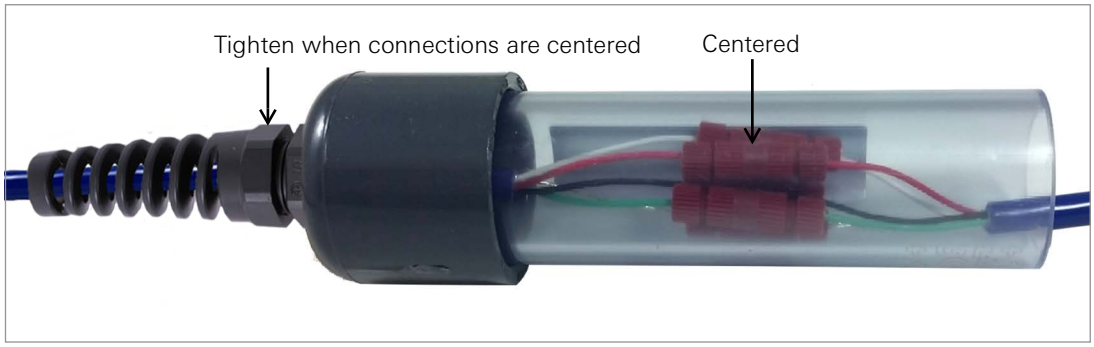


***FIGURE 12:*** *Posi-Lock Connectors Centered Inside the Tube, Tighten Fitting*

10. Take readings at the readout station to confirm the sensor and the thermistor are reading properly.

## 3.2 PREPARE EPOXY AND ENCASE SPLICE

Preview all steps below before mixing. The following steps must be performed quickly to prevent premature curing.

**Note:** Some Models will come with two epoxy kits, complete mixing and poring the first kit before starting the second kit.

**Caution!** Wear disposable gloves when working with epoxy.

1. Mix the epoxy kit according to the mixing steps on the instructions provided with the kit.
2. Fill the tube with epoxy. Slightly tilt the tube as it is filling to let the air pockets escape.
3. Hold the tube vertically and fill it to the top.
4. Put a bit of epoxy on the outer rim of the tube where the second cap will be installed.
5. Push the cap onto the tube and snugly tighten the cable grip fitting to secure the cable. Allow the splice to lay horizontally, this ensures that the epoxy fully encases both cap ends.


***FIGURE 13:*** *Tighten Second Fitting*

6. Allow a few hours for the epoxy to cure. The cable splice is now complete.

# APPENDIX A. SPECIFICATIONS

## A.1 SPLICE KIT DIMENSIONS

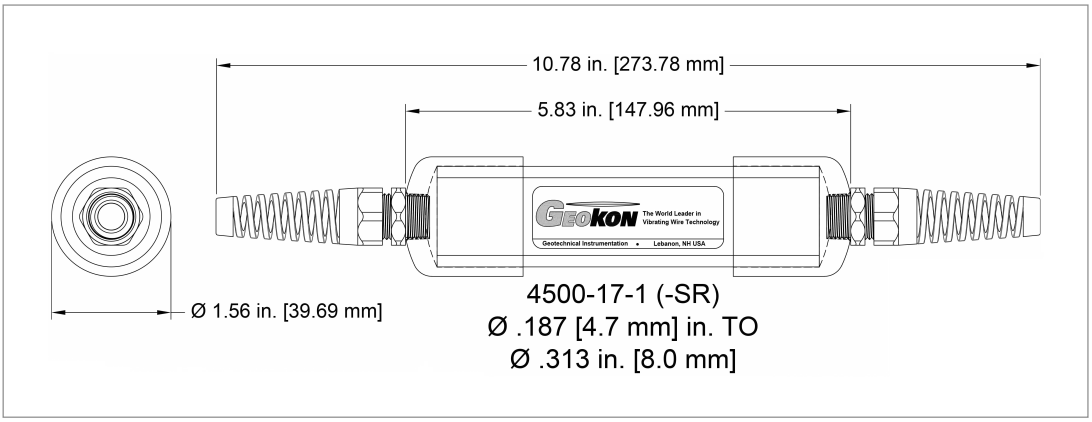


***FIGURE 14:*** *Model 4500-17-1 and 4500-17-1-SR for 0.187" - 0.313" cable*

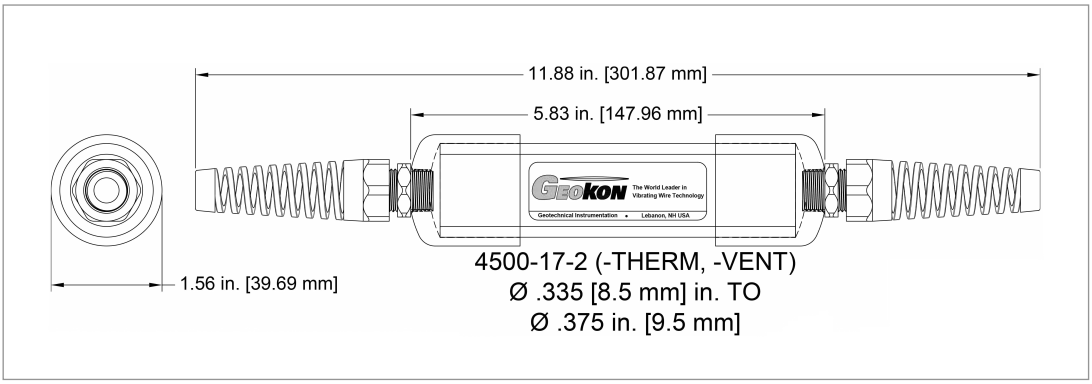


***FIGURE 15:*** *Model 4500-17-2, 4500-17-2-THERM, and 4500-17-2-VENT for 0.335" - 0.375" cable*

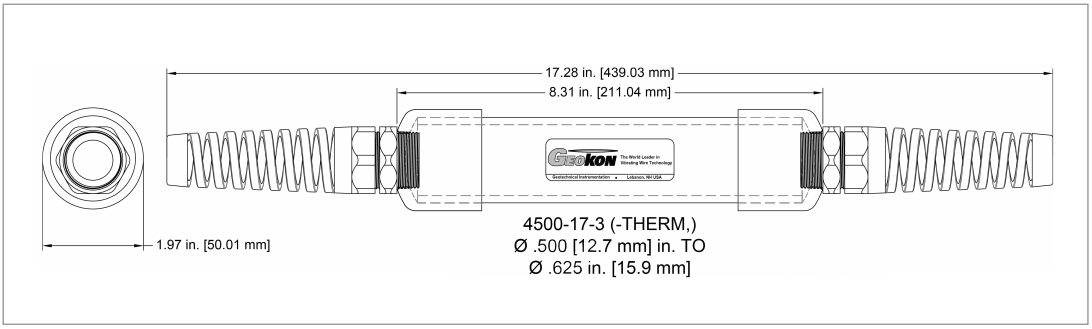


***FIGURE 16:*** *Model 4500-17-3 and 4500-17-3-THERM for 0.500" - 0.625" cable*

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