RG-GFCI Ground Fault Protected Power Connection Kit

Installation instructions

Description

The RG-GFCI Ground Fault protected power connection kit is suitable for use with 120VAC WSR Self-regulating Heating Cables. This kit ensures compliance with HTD, NEC and CEC requirements for ground fault protection of equipment. This kit does not protect people against the hazards of shock. This kit includes material for one power connection. All WSR heating cables are suitable for pipe heat tracing applications. WSR-CR cables can be used for both pipe heat tracing and roof and gutter de-icing applications. For additional technical support call HTD Heat Trace, Inc. at 908-788-5210.

Additional Materials Required

- Grounded, 15 amp, 120 Volt receptacle (receptacle must be approved for wet locations if exposed to weather).
- Additional cable ties may be required for roof and gutter applications.
- Your application may require additional mounting accessories such as H07600 fiberglass tape for pipe heat tracing applications or RG-C clips and/or RG-GB gutter brackets for roof and gutter de-icing applications.

Tools Required:

Needle nose pliers, diagonal cutters, , utility knife, screwdriver, heat gun, scissors, crimp tool.

Kit Components:

A. 1”x6” Cloth Tape (qty.1)

B. Zip ties (qty 2)

C. 3/4”x8” black heat-shrinkable tube (qty 1)

D. 3/4”x5” black heat shrinkable tube (qty 1)

E. Uninsulated braid crimp (qty 1)

F. Insulated bus wire crimps (qty 2)

G. 1/8”x1” black heat shrinkable tubes (qty 2)

H. 1/2”x1” black heat-shrinkable tube (qty 1)

I. 1/3”x1-1/2” black heat shrinkable tube (qty 1)

J. Mastic strips (qty 2)

K. Pipe Tracing warning labels (qty 2)

L. De-icing and snow melting equipment labels (qty 2)

M. Plug-in ground fault equipment protection device (qty 1)

Warning:

These components are electrical devices and must be installed correctly to ensure proper operation and to prevent shock or fire. Carefully follow all of the installation instructions and read these important warnings.

- To minimize the danger of fire from sustained electrical arcing, ground fault protection equipment must be used on each heating cable circuit. Arcing may not be stopped by conventional circuit protection.
- Component approvals and performance are based on the use of specified parts only. Do not substitute parts or use vinyl electrical tape
- The heating cable core is conductive and can short. It must be properly insulated and kept dry.
- The braid of this heating cable must be connected to a suitable grounding terminal.
- Installer should apply label on a flat surface within 3 inches of supply connections.
- Keep ends of heating cable and kit components dry before installation
- Damaged bus wires can overheat or short. Do not break braid or bus wire strands when scoring the jacket or core.
- Bus wires will short if they contact each other. Keep bus wires separated.
- Heat-damaged components can short. Use a heat gun or a torch with a soft, yellow, low-heat flame, not a blue focused flame. Keep the flame moving to avoid overheating, blistering, or charring the heat shrink tubes. Avoid heating other components. Replace any damaged parts.
- Use only fire-resistant insulation materials such as fiberglass
- Leave these installation instructions with the user for future reference
- De-energize all power circuits before installation or servicing

Caution:

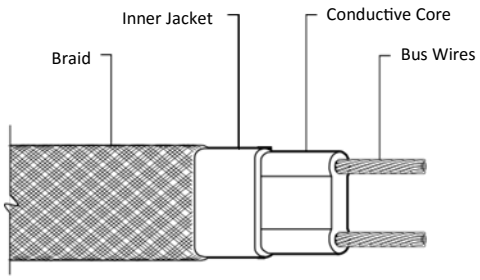
Charring or burning the heat-shrinkable tubes in this kit will produce fumes that may cause eye, skin, nose and throat irritation.

Customer Service:

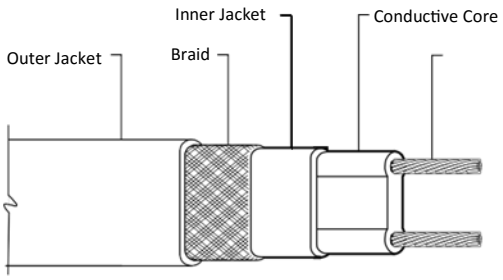
908-788-5210

support@htdheattrace.com

Heating Cable Construction Identification



Heating Cable with Braid only (WSR-C)



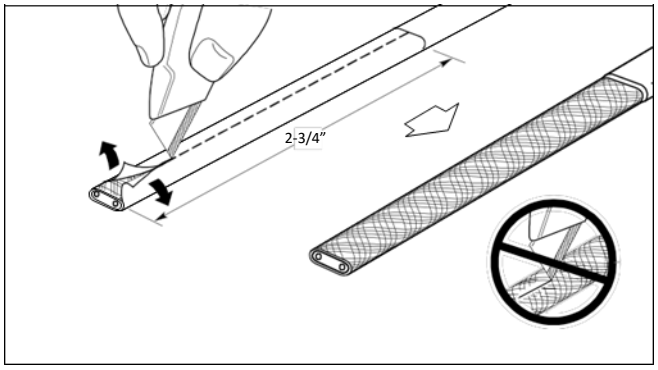
Heating Cable with Braid and Outer Jacket

(WSR-CR, WSR-CT)

Note:

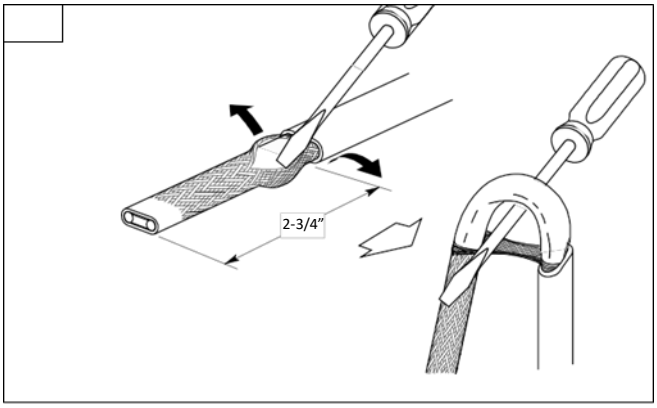
Instructions generally show heating cable with braid and outer jacket. Cables without outer jacket appear slightly different.

1. Slide the 5” and 8” pcs of black heat-shrinkable tubing over the unterminated end of the plug-in cord
2. Cleanly cut off each end of the heating cable
3. Lightly score completely around and down outer jacket 2-3/4”

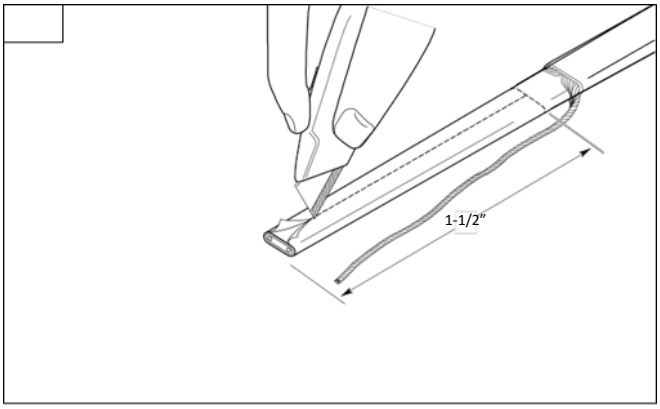


4. Bend heating cable to break jacket at score and peel off outer jacket.

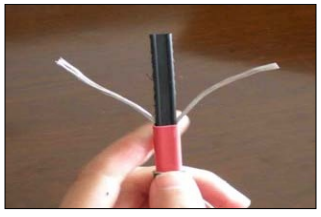
5. Push Braid Back to loosen slightly. Gently spread apart braid as shown. Bend heating cable and work through opening in braid.



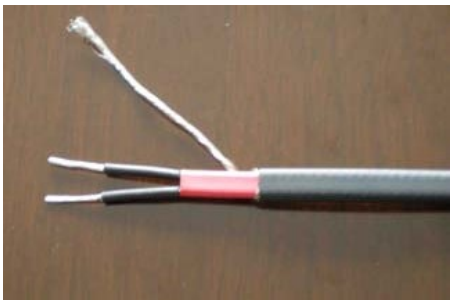
6. Straighten Braid and twist into “pigtail”. Position braid on one side of cable. Lightly score completely around and then down inner jacket 1-1/2”



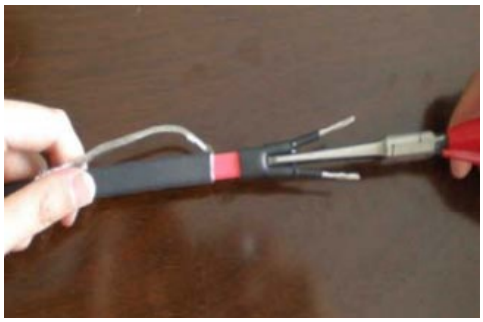
7. Using a utility knife, shave the outer matrix material from conductors. Peel exposed wires back from the center of the matrix and then cut the center matrix away.



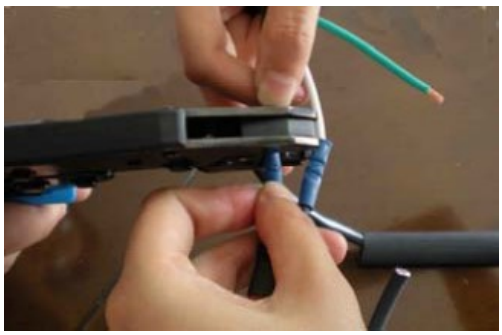
8. Slide the two 1/8”x1” pieces of heat-shrinkable tube over the conductors and shrink using continuous motion. Ensure that tubes remain up against the conductive core.



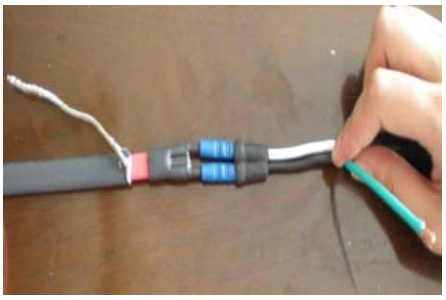
9. Center the 1/2”x1” heat shrinkable tube over the end of the heating cable as shown. Heat tube evenly until it shrinks and adhesive flows out of both ends. Immediately after shrinking, and while the heat-shrinkable tubing is still hot, pinch with pliers between wires and hold for 10 seconds to ensure seal.



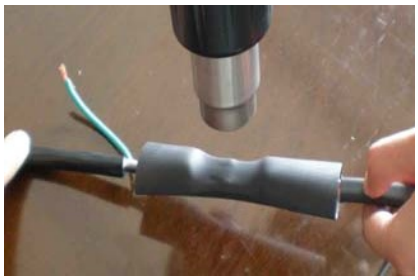
10. Trim bus wires to 1/4” in length and using the insulated crimps, connect to the black and white wires of the Ground fault protection unit.

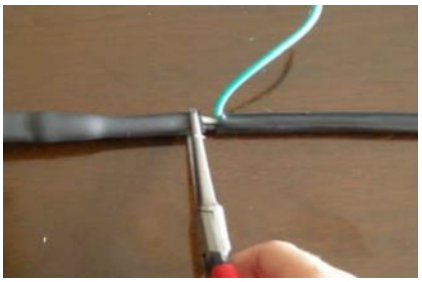


11. Remove release paper from mastic strips and wrap each joint between crimp and ground fault protection unit wires. Squeeze mastic together.

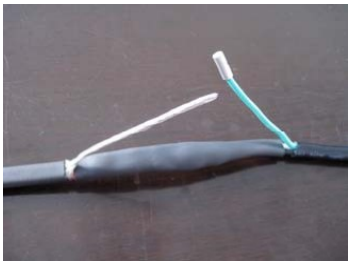


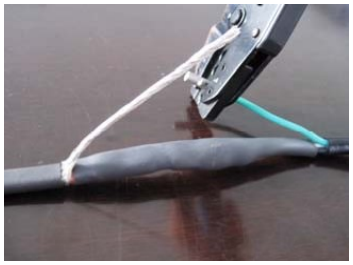
12. Center the 5” heat-shrinkable tube over the splice area ensuring that the tube extends over the end of the heating cable and the cord. Ensure that the green wire and the pigtailed braid are outside the heat shrunk area. Heat shrink while constantly moving the heat source until shrinking is complete and adhesive has melted out both sides of the heat-shrinkable tube. Total heating time is approximately 3 minutes. Pinch each end of the heat-shrinkable tubing while still hot to seal.

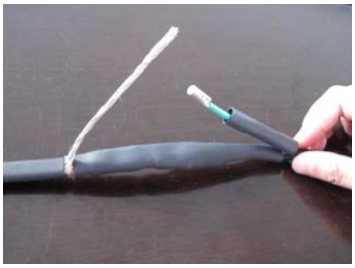




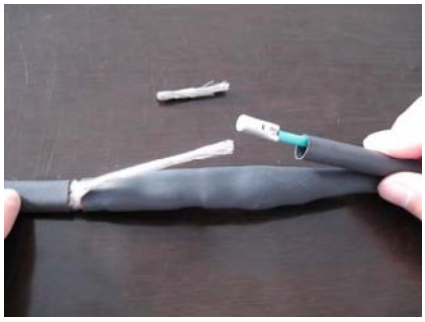
13. Crimp one side of the uninsulated crimp to the green wire and slide the 1/3”x1-12” heat-shrinkable tube over the green wire.



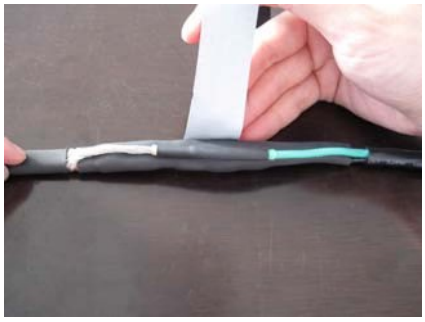




14. Trim Braid to midpoint of splice and crimp. Center the heat-shrinkable tube over the crimp and heat shrink while constantly moving the heat source until shrinking is complete and adhesive has melted out both sides of the heat-shrinkable tube.



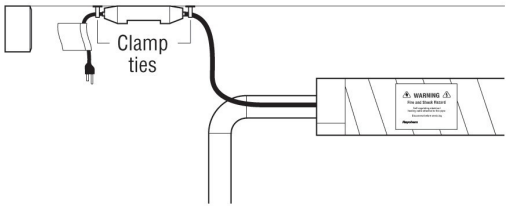
15. Wrap the cloth tape evely around the crimp and splice.



16. Center the 3/4”x8” heat-shrinkable tube over the splice ensuring that the tube extends over the entire splice area. Heat shrink while constantly moving the heat source until shrinking is complete and adhesive has melted out both sides of the heat-shrinkable tube. Total heating time is approximately 5 minutes.

HEAT TRACE

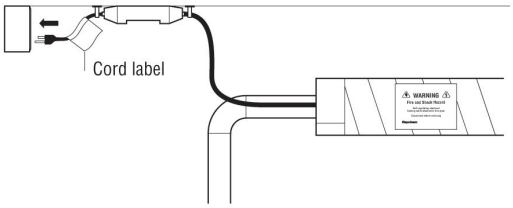
1a For pipe freeze protection



- To prevent damage to the ground-fault equipment protection device and to provide strain relief, use clamp ties to secure the device to the wall near the receptacle. Be careful not to damage either the cord or the ground-fault unit.

Note: Pipe must be fully insulated.

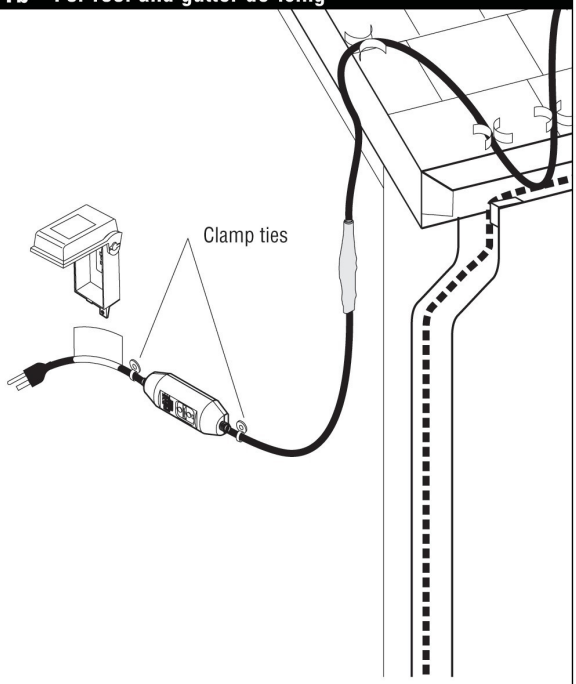
2a For pipe freeze protection (continued)



- Plug the heating cable into a 15-A, 120-Vac grounded outlet.
- Make sure that:
  - Cord label is readily visible.
  - Indicator light on the ground-fault equipment protection device is on.
  - Receptacle is properly weatherproofed (if outdoors).
  - Ground-fault equipment protection device and power connection splice will not be submerged.

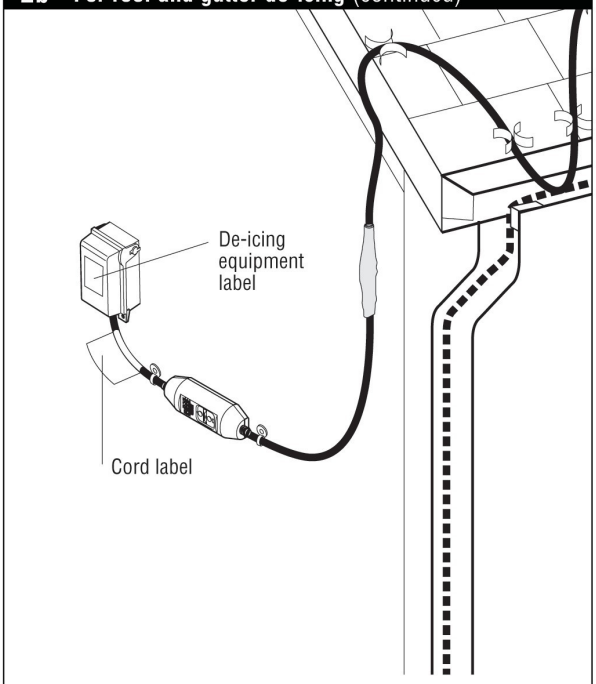
Note: Pipe must be fully insulated

1b For roof and gutter de-icing



- To prevent damage to the ground-fault equipment protection device and to provide strain relief, use clamp ties to secure the device to the wall near the receptacle. Be careful not to damage either the cord or the ground-fault unit.
- The device should be mounted high up, away from passersby to prevent damage to the unit and the risk of shock

2b For roof and gutter de-icing (continued)



- Plug the heating cable into a 15-A, 120-Vac grounded outlet approved for wet locations.
- Make sure that:
  - Cord label is readily visible.
  - Indicator light on the ground-fault equipment protection device is on.
  - Receptacle is properly weatherproofed.
  - Ground-fault equipment protection device and power connection splice will not be submerged.