Ground-Fault Power Connection Kit Installation

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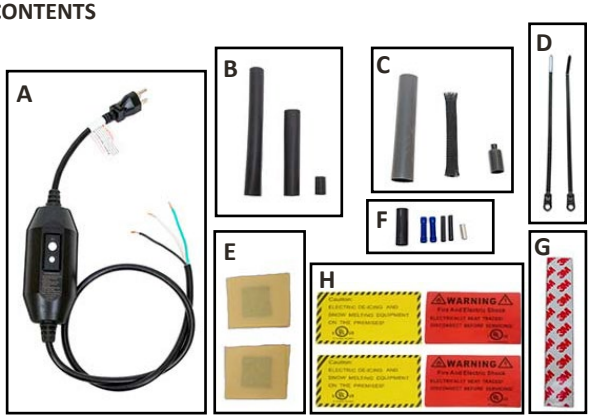
IMPORTANT: Read this manual before attempting to install your heating system. Incorrect installation could create damage and will invalidate your warranty.

TECHNICAL HELPLINE
1-800-308-8057

DESCRIPTION

ThermoSoft's Ground-Fault Power Connection Kit is designed for use with 120 Volt NeverFreeze® self-regulating pipe trace heating cables. It complies with NEC and CEC requirements. It is intended solely for outdoor use to prevent ice build-up, pipe freezing and gutter blockage.

CONTENTS



A – Plug-In Ground-Fault Protection Device

B – Black Shrink Tubes (8"x3/4", 5"x3/4", 1"x1/2")

C – End Seal Tubing Kit

D – Zip Ties (2 Total)

E – Mastic Strips

F – Black Shrink Tube (1 ½"x1/3"), Insulated Bus Wire Crimps, Black Shrink Tubes (1"x1/8"), Uninsulated Braid Crimp

G – Adhesive Tape (6"x1")

H – Long Shrink Tubes (2 total) (1/8" x5 ½")

TOOLS NEEDED

Installed per NFPA 70, National Electric Code (NEC), Article 426.

- Crimp tools LY2026-9" 6127 and LY2026-9" 6116
- Utility Knife
- Scissors
- Pliers
- Heat Gun

MATERIALS NEEDED

- Grounded, UL Listed 15-amp 120 Volt receptacle (APPROVED FOR WET LOCATIONS)
- Additional cable ties
- May require roof clips and/or downspout hangers

WARNING

ELECTRIC SHOCK HAZARD. Disconnect all power before installing or servicing heating cable and accessories. A qualified person must perform installation and service of heating cable and accessories. Heating cable must be effectively grounded in accordance with the National Electrical Code. Failure to comply can result in personal injury or property damage.

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- Follow all instructions and read all warnings carefully.
- Ground-fault equipment protection must be used on each cable branch unit. Conventional circuit protection may not be enough to stop electrical arcing.
- Approvals and performance are based only on the use of specified parts.
- Do not substitute parts or use vinyl or electrical tape.
- Stopped by conventional circuit protection??
- National codes
- Keep all components dry before and during installation.
- Do not embed heating cable in thermal insulation.
- Do not twist or roughly handle heating cable.
- Damages bus wires can short or overheat. Do not break braid or wire strands when scoring the jacket or core.
- Wires will short if they make contact with each other. Keep separated.
- Components damaged by heat may short. Use a heat gun or torch with a soft, yellow, LOW-HEAT flame and keep moving to avoid overheating, blistering, or charring the shrink tubes. Avoid heating other components and replace any damaged parts.
- Only use fire-resistant insulation materials.
- Leave this guide with user for future reference.
- De-energize all power circuits before installation and servicing.
- Conductive layer of heating device must be connected to a proper grounding terminal.
- Charring or burning tubes can produce fumes that can irritate skin, eyes, throat, and body.
- If you have any questions, stop install and call ThermoSoft® or consult a licensed electrician before moving forward.

Note: Always route and secure cable in all areas to avoid mechanical damage. Never submerge the ground-fault unit or power connection splice.

COME BACK AND DO FIGURE 1********

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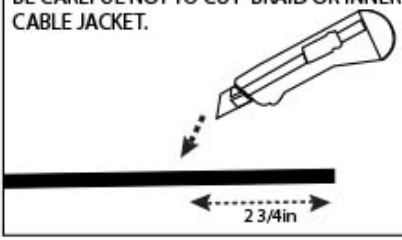
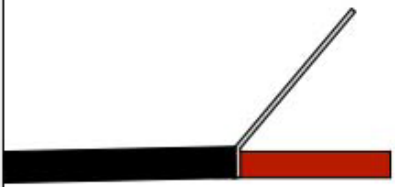
Step 1: Slide the 2 largest tubes (B) onto the end of the Plug-In Ground-Fault Protection Device (A) cord.

Step 2: Cut ends off of each cable. Score down and around outer jacket 2 3/4" lightly. BE CAREFUL NOT TO CUT BRAID OR INNER CABLE JACKET.

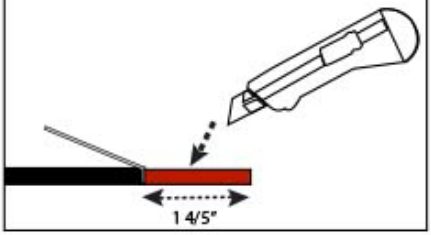


Step 3: After bending heating cable, jacket will break. Tear off to expose braid.

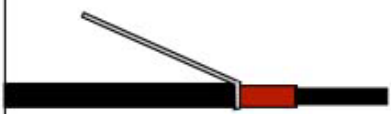
Step 4: Twist the braid into a "pigtail" on the side, exposing cable. Keep attached, to the side.



Step 5: Score 1 4/5" down and around inner jacket. Be careful not to cut wires.

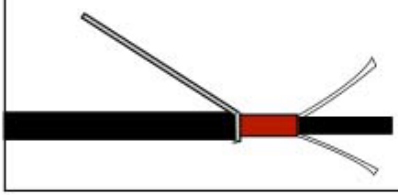


Step 6: Bend to break where scored and peel off outer jacket.



Step 7: Use a utility knife to CAREFULLY trim outer matrix to expose inner conductor wires.

Step 8: Peel white wires back from middle.



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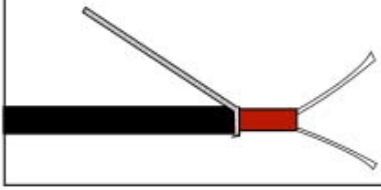
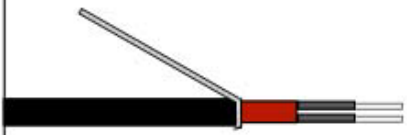
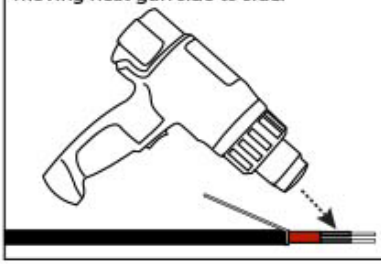
Step 9: Cut middle piece off between white cable conductors. Be careful not to cut bus wires.



Step 10: Slide small shrink tubes (F) onto white bus wires.

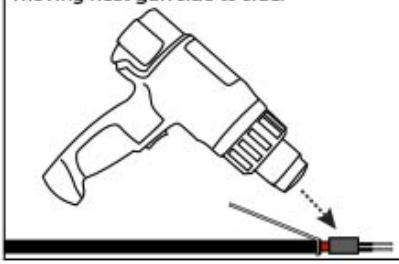


Step 11: Use heat gun to shrink tubes, moving heat gun side to side.

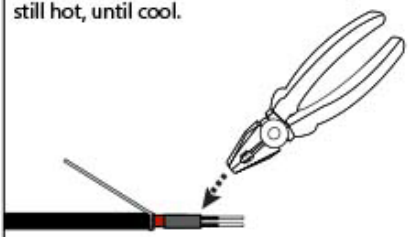


Step 12: Slide small round shrink tube (B) onto the end of the cable and center it.

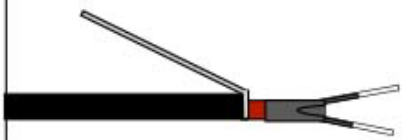
Step 13: Use heat gun to shrink tube, moving heat gun side to side.



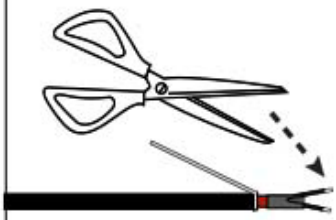
Step 14: Use pliers to crimp the space between conductor cables while they are still hot, until cool.



After crimping, the end result should look like this.



Step 15: Trim off ends of bus wires to 1/4" (7mm).



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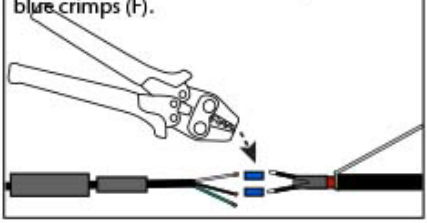
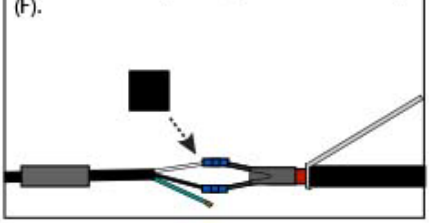
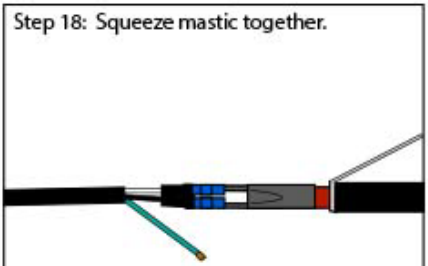
Step 16: Use crimp tool to connect bus wires of heating cable to black and white wires of plug-in switch from step 1 using blue crimps (F).



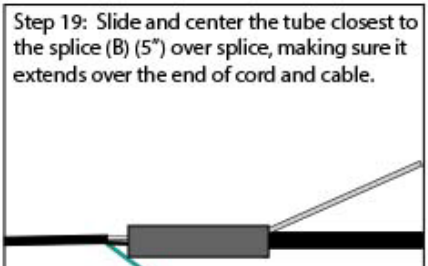
Step 17: Take mastic squares off papers (E) and wrap one around each end of the black and white wires, partially on the blue crimps (F).



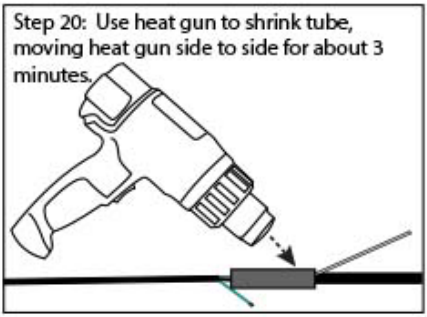
Step 18: Squeeze mastic together.



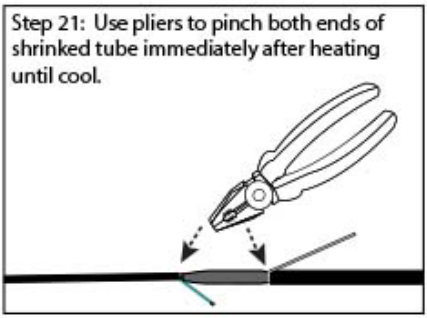
Step 19: Slide and center the tube closest to the splice (B) (5") over splice, making sure it extends over the end of cord and cable.



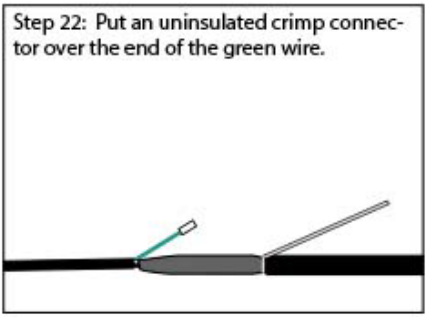
Step 20: Use heat gun to shrink tube, moving heat gun side to side for about 3 minutes.



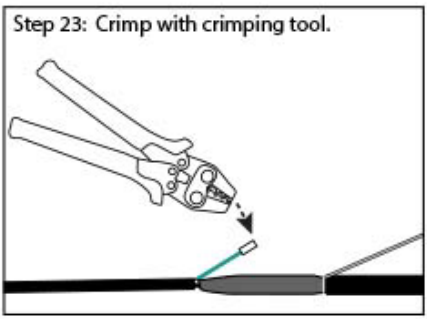
Step 21: Use pliers to pinch both ends of shrinked tube immediately after heating until cool.



Step 22: Put an uninsulated crimp connector over the end of the green wire.



Step 23: Crimp with crimping tool.



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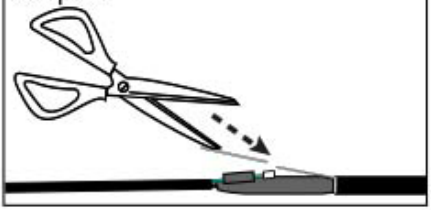
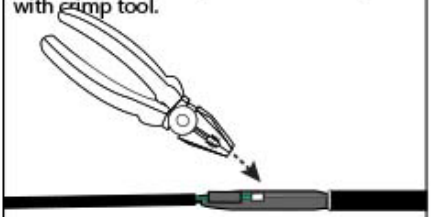
Step 24: Slide shrink tube (F) (1/3") over the ground wire. Do not heat or shrink.

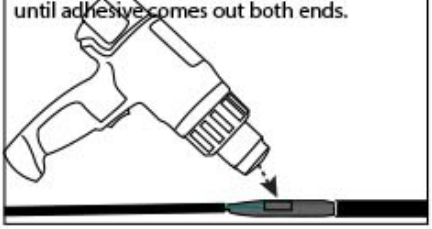
Step 25: Lay the pigtail braid and the ground wire over the splice. Cut the end of the pigtail so it just reaches the middle of the splice.



Step 26: Fold ends onto each other and into the uninsulated crimp connector. Crimp with crimp tool.



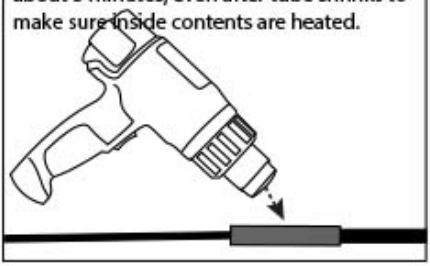
Step 27: Slide the shrink tube over the crimp connector. Use heat gun and shrink, working from the inside to the ends. Heat until adhesive comes out both ends.



Step 28: Wrap tape (G) around splice and crimp, completely covering.

Step 29: Slide large shrink tube (B) (8") over taped splice and crimp, centering so cord ends are covered.

Step 30: Use a heat gun to shrink tube for about 5 minutes, even after tube shrinks to make sure inside contents are heated.



The end result should look like this figure.

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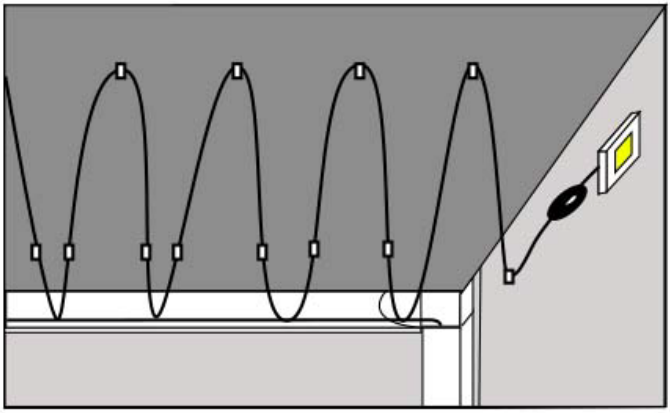
ROOF AND GUTTER

- Use clamp ties to attach the device to the wall near the receptacle to prevent damage.
- Do not damage the cord or the Ground-Fault unit.
- Mount the unit high, away from human access to avoid injury or damage.
- Place proper labels (H) within 3 inches of connections.
- Plug heating cable into 120-Vac 15Amp grounded outlet approved for wet areas.
- Label on cord should be clearly visible.
- Indicator light is on.
- Receptacle is weatherproofed properly.
- Power connection splice and Ground-Fault unit will not be submerged.



PIPE TRACING

- Use clamp ties to attach the device to the wall near the receptacle to prevent damage.
- Do not damage the cord or the Ground-Fault unit.
- Plug heating cable into 120-Vac 15Amp grounded outlet approved for wet areas.
- Label on cord should be clearly visible.
- Indicator light is on.
- Receptacle is weatherproofed properly.
- Power connection splice and Ground-Fault unit will not be submerged.

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