INSTRUCTION AND MAINTENANCE

Plug-In,Ground-Fault-Protected Power Connection Kit

Description

The HIPLUG is a plug-in,ground-fault-protected power connection kit that is suitable for use with 120V self -regulating heating cables.This kit ensures compliance with NEC and CEC requirements for ground-fault protection of materials for one power connection.Heating cable can be used for both pipe freeze protection and roof and gutter de-icing applications.

Tool Required

1.Heat Gun
2.Crimping Tool
3.Wire Strippers
4.Scissors
5.Utility Knife
6.Wire Cutter
7.Needle Nose Pliers

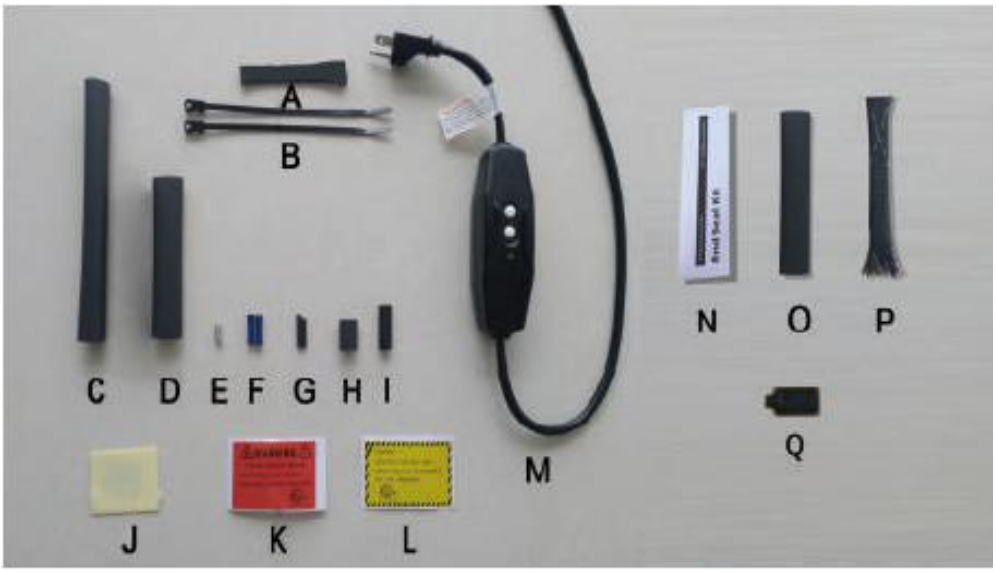
Additional Materials Required

1.Grounded,UL Listed 15-amp 120-volt receptacle (receptacle must be approved for wet locations if exposed to weather).
2.Additional cable ties may be required for roof and gutter applications.
3.Your application may require additional accessories; for example, JSR0301/JSR0302 application tape for pipe applications; JSR13/ JSR14 roof clips and/or JSR15 downspout hangers for roof and gutter de-icing applications.

Approvals

c UL us LISTED E174279

Kit Contents



Item	Qty	Description
A	1	Black cloth tapes (6” long × 1” width)
B	2	Clamp ties
C	1	Black heat-shrinkable tube (8” long × 3/4” dia.)
D	1	Black heat-shrinkable tube (5” long × 3/4” dia.)
E	1	Uninsulated braid crimp
F	2	Insulated bus wire crimps
G	2	Black heat-shrinkable tube (1” long × 1/8” dia.)
H	1	Black heat-shrinkable tube (1” long × 1/2” dia.)
I	1	Black heat-shrinkable tube (1½” long × 1/3” dia.)
J	2	Mastic strips
K	2	Warning labels for pipe-trace application
L	2	De-icing and snow melting equipment labels
M	1	Plug-in ground-fault equipment protection device
N	1	End seal kit user manual
O	1	Black heat-shrinkable tube (5” long × 3/4” dia.)
P	1	Woven braid sleeving (4” long × 3/4” dia.)
Q	1	Heat shrink capc(1/2” dia.)

⚠ WARNING:These components are electrical devices. They 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.

1.To minimize the danger of fire from sustained electrical arcing if the heating cable is damaged or improperly installed,and to comply with the requirements of National electrical codes,Ground-fault equipment protection must be used on each heating cable branch circuit.Arcing may not be stopped by conventional circuit protection.

2.Components approvals and performance are based on the use of specified parts only.Do not substitute parts or use vinyl electrical tape.

3.The black heating-cable core is conductive and can short.It must be properly insulated and kept dry.

4.The heating cable should not be embedded in the thermal insulation.

5.The cable should not be twisted during installation.

6.Keep components and heating cable ends dry before and during installation.

7.Damaged bus wires can overheat or short.Do not break braid or bus wire strands when scoring the jacket or core.

8.Bus wire will short if they contact each other. Keep bus wires separated.

9.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-shrinkable tubes.Avoid heating other components.Replace any damaged parts.

10.Use only fire-resistant insulation materials such as fiberglass wrap.

11.Leave these installation instructions with the user for future reference.

12.De-energize all power circuits before installation or servicing.

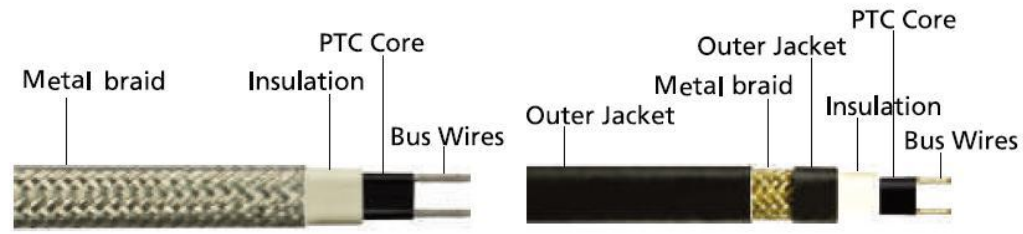
13.The braided layer of this heating device must be connected to a suitable grounding/earthing terminal.

⚠ CAUTION:Charring or burning the heat-shrinkable tubes in this kit will produce fumes that

may cause eye, shin, nose, and throat irritation.

Note: In all locations, route and secure cable to avoid possible mechanical damage, such as from ladders, etc.Neither the ground-fault unit nor the power connection splice can be submerged in any material containing moisture.

Identification of Components of the Cross Section of the Heating Cable



Structure of Dry Location Heating Cable Structure of Wet Location Heating Cable

NOTE: Instructions generally show heating cable with braid and outer jacket.Cables with no outer jacket look slightly different from those illustrated.

HIPLUG Installation Instructions

1.Slide 127mm(5”) tube and 203mm(8”) black heat-shrinkable tube over end of the plug-in cord.

Figure 1

2.Cleanly cut off the end of each cable.Lightly score completely around and then down outer jacket.The length is 70mm(2¾”).

Do not cut braid or inner jacket.

Figure 2

3.Bend heating cable to break jacket at score then peel off outer jacket.

Figure 3

3.Lightly score completely around and then down inner jacket.The length is 45mm(1-4/5”).

Do not cut bus wire!

Figure 5

5.Skive outer matrix material from conductors with utility knife.

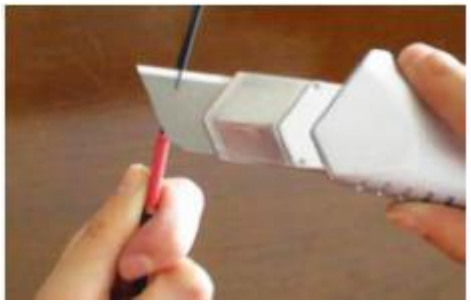


Figure 7

4.Straight the braid and twist into a “pigtail”.

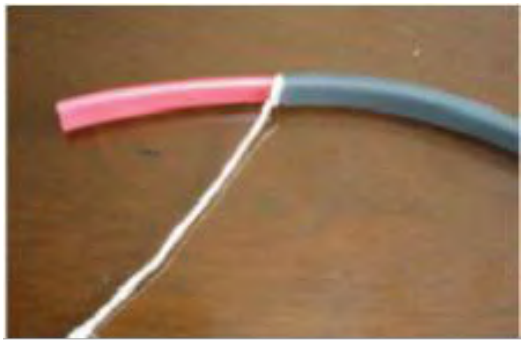


Figure 4

4.Bend heating cable to break jacket at score,then peel off inner jacket.

Figure 6

6.Peel exposed wires back from center matrix.

Figure 8

7.Cut center matrix away,leaving bare conductors.**Do not cut bus wires!**

Figure 9

8.Slide 3.2mm(1/8”)×25mm(1”) shrink tubes over bus wires.To shrink tubing move heat source continuously from

side to side.While shrinking,ensure that tubes remain up against black core.

Figure 10

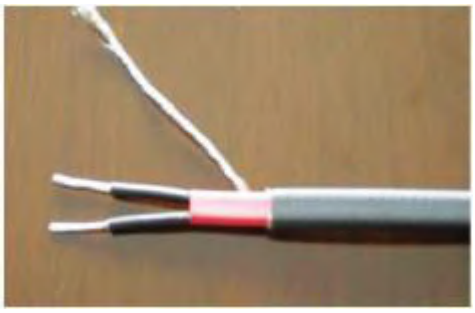


Figure 10-1

9.Center the 12.7mm(1/2”)×25mm(1”) heat-shrinkable tube over the end of heating cable as shown.Heat tube evenly until it shrinks and adhesive flows out both ends.Shrink the tube completely.Immediately after shrinking,pinch with pliers between wires while tube is still hot.Hold for 10 seconds to ensure seal.

Figure 11

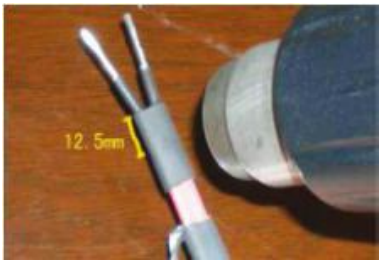


Figure 11-1

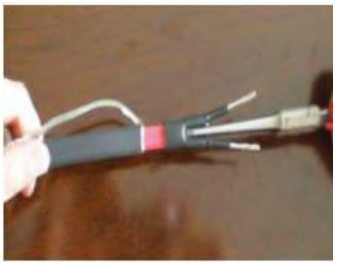


Figure 11-2

10.Trim the front bus wires to 7mm(1/4”).

Figure 12

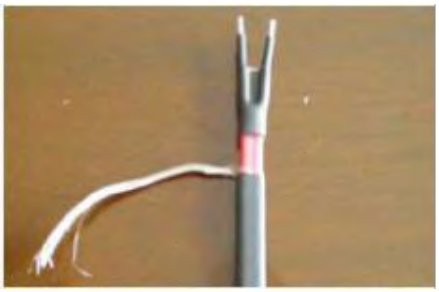


Figure 12-1

11.Use insulated bus wire crimps and LY2026-9”±(6127) crimp tool to connect black and white wires to bus wires of heating cable.

Figure 13

12.Remove release paper from mastic strips,wrap one strip of mastic around the black wire against the end of the splice to provide a water block,then repeat for the white wire.

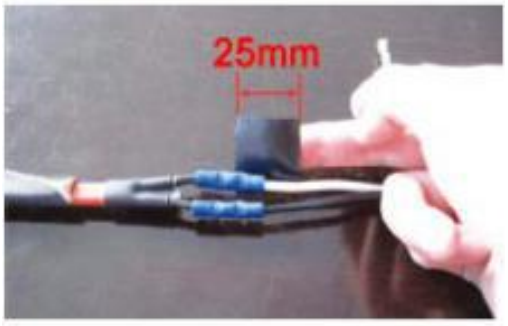


Figure 14

15.Squeeze the mastic together.

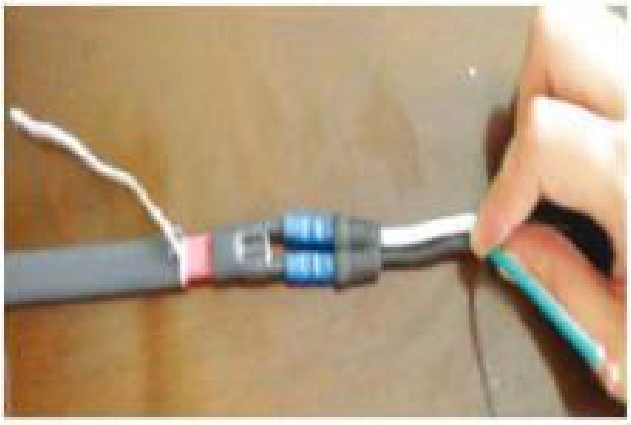


Figure 15

16.Center the 127mm(5” heat-shrinkable tube over the splice, make sure tube extends over the end of each heating cable and the cord, shrink the tube completely. Start at the middle and work toward each end.Keep heating after tube has shrunk, to melt mastic and adhesive inside tube. Total heating time should be about 3 minutes.

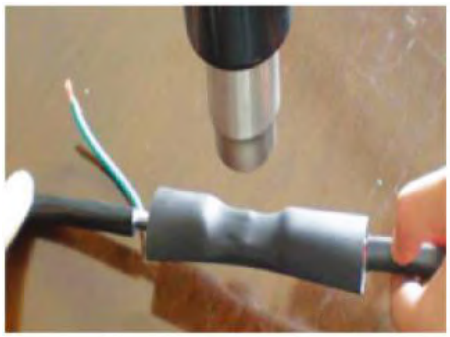


Figure 16

17.Make sure the adhesive will appear at both ends.Immediately after shrinking,pinch first one end of the tube and then the other end with needle nose pliers until the ends stay sealed.

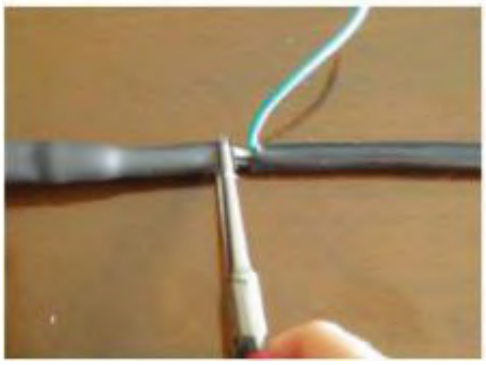


Figure 17

18.Slide one end of an uninsulated crimp connect over the end of the green wire.

Figure 18

19.Crimp using LY2026-9”(6116) crimp tool.

Figure 19

20.Slide 7.44mm(1/3”)×37mm(1½”) shrink tubes over the ground wire,but do not shrink the tube.

Figure 20

21.Twisted the braid pigtails together.Position the metal braided pigtail on top of the splice.Cut the pigtail so that it just reaches the midpoint of the splice.

Figure 21

22.Fold the other metal braid pigtail over 1/4” and insert into the open end of the uninsulated crimp connector,crimp using the crimp tool.

Figure 22

23.Center the heat-shrinkable tube over the uninsulated crimp connector.Shrink the tube completely.Start at the middle and work toward each end.Keep heating after tube has shrunk,to melt adhesive inside tube.Make sure the ring of adhesive will appear at both end of the heat shrink tube.

Figure 23

Figure 23-1

24.Wrap black cloth tape evenly around crimp and splice.Cover crimp completely.

Figure 24

Figure 24-1

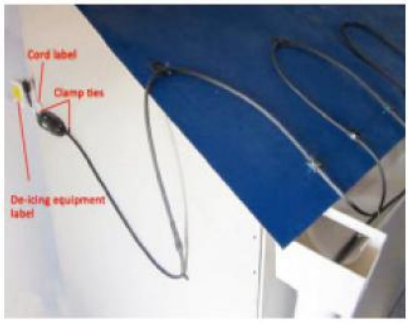
25.Center the 203mm heat-shrinkable tube over the splice,make sure tube extends over the end of each heating cable and the cord.Shrink the tube completely.Start at the middle and work toward each end.Keep heating after tube has shrunk,to melt mastic and adhesive inside tube.Total heating time should be about 5 minutes.

Figure 25

Figure 25-1

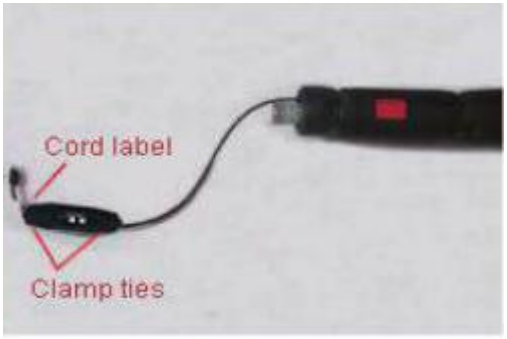
Figure 25-2

For roof and gutter de- icing



1.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 carefu1 not to damage either the cord or the ground-fault unit.
2.The HIPLUG should be mounted high up,away from passersby to prevent damage to the unit and the risk of shock.
3.Place label on a flat surface within 3 inches of the supply connections.
4.Plug the heating cable into a 15-A,120-Vac grounded outlet approved for wet locations.
5.Make sure that:
a) Cord label is readily visible
b) Indicator light on the ground-fault equipment protection device is on
c) Receptacle is properly weatherproofed
d)Ground -fault equipment protection device and power connection splice will not be submerged

For pipe freeze protection



1.To prevent damage to the ground-fault equipment protection device and to provide strain relief,use damp ties to secure the device to the wall near the receptacle. Be careful not to damage either the cord or the ground-fault unit.
2.Plug the heating cable into a 15-A,120-Vac grounded outlet approved for wet locations.
3.Warming label need to placed on the surface of the insulation or in a clear visible area.
4.Make sure that:
a) Cord label is readily visible
b) Indicator light on the ground-fault equipment protection device is on
c) Receptacle is properly weatherproofed
d) Ground-fault equipment protection device and power connection splice will not be submerged in any material containing moisture
Note: Pipe must be fully insulated.

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