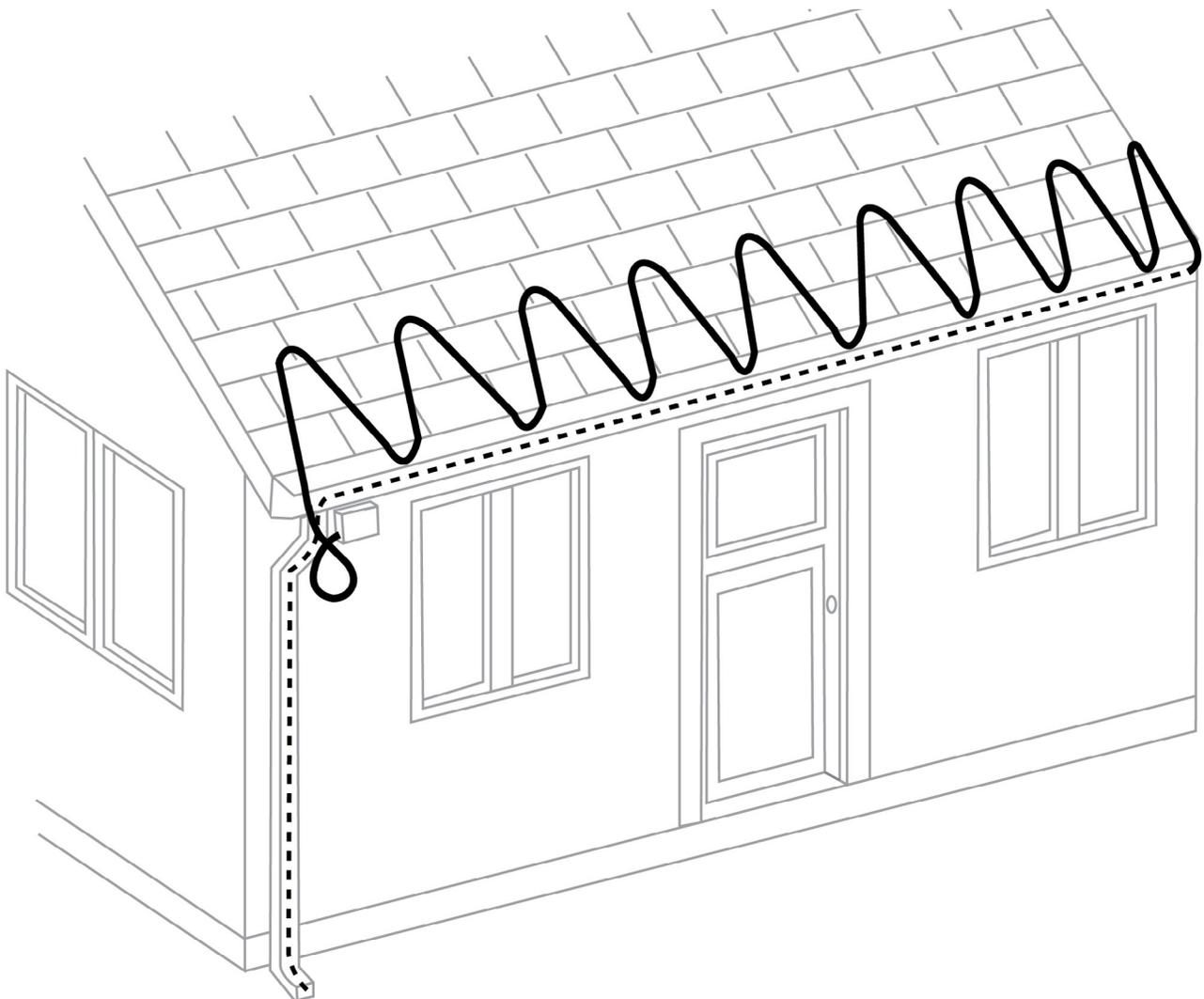




WarmlyYours
Radiant Heating

WarmlyYours ET-SR Series Heating Cable Installation Manual for Roof & Gutter Deicing



Assembly Tools Needed

- Utility knife
- Wire cutter
- Needle-nose pliers
- Adjustable wrench
- Pen
- Screwdriver
- Heat gun
- Measuring tape

Other Materials Required

- Certified junction box appropriate for the site
- Aluminum 3-prong clips
- Double-sided tape pads (to adhere clips to shingles, gutters, and roofs)
- Primer (for adhering clips to EPDM or rubber)

General Safety Information

Read and understand all instructions in this manual, including all installation instructions and safety warnings, before beginning the installation. Electrical cables can present a fire, shock, and arcing hazard if they are damaged or not installed correctly.

1. Installation must be in compliance with the National Electrical Code (NEC).
2. Use 30-mA ground-fault protection on each heating cable branch circuit for maximum protection.
3. The black heating cable core is conductive and can short. It must be properly insulated and kept dry.
4. The conductive layer of this heating device must have a suitable grounding terminal.
5. Installer should apply the nameplate label to surface of the junction box.
6. Keep components and ends of heating cable dry before installation.
7. Do not break braid or bus wire strands when scoring the jacket or core. Damaged bus wires can overheat or short.
8. Keep the bus wires separated. The bus wires will short if they touch each other.
9. Replace damaged parts. Heat-damaged components can short.
10. Use heat gun or torch with a soft yellow, low-heat flame--not a blue flame. Keep the flame moving to prevent overheating or blistering the heat-shrinkable tubes.
11. Do not heat other components.
12. Use only fire-resistant insulation materials such as fiberglass wrap.
13. De-energize all circuits before installation or service.
14. The heating cable should not be embedded in insulation or roofing material.
15. Do not twist cable during installation.
16. Save all instructions for future reference.

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



Item	Description	Quantity
A	ET-SR (Roof and Gutter Cable)	1
B	ET-PWR-KIT (Power Connection Kit)	Available Separately
C	ET-END-KIT (End Seal Kit)	Available Separately
D	ET-CL-AL-P25 (Aluminum Clips)	Available Separately
E	ET-VHB-PAD-P25 (Double-Sided Tape)	Available Separately
F	ET-94-PRIMER (1 Quart Primer)	Available Separately

Roof & Gutter Deicing

HEATING CABLE SELECTION (ET-SR SERIES)

Calculate the total length of cable required:

1. Multiply the total roof edge length (ft.) by feet of heating cable per foot of roof edge (refer to Table 4) to find the total roof edge cable length required.
2. Add the total gutter length (ft.). For standard roofs, add 1 foot of heating cable for each foot of gutter.
3. Add the total downspout length (ft.), i.e. 1 foot of heating cable per foot of downspout.
4. Add 1 foot for each power connection.
5. If downspout is in the middle of the gutter run, loop the cable down and back. Double the length of the downspout for determining the length of the cable to install.
6. For roof valleys, run the heating cable two-thirds of the way up and down the valley. Add this additional length to the overall cable length.
7. The circuit length for a given overcurrent protection device shall not exceed the maximum length specified by the manufacturer.

Example (standard roof):

Roof edge length 100 ft.
 (with roof overhang of 1 ft.)
 Gutter length 100 ft.
 Downspout length 30 ft.
 Power connection 2 ea.
 Voltage available 240V
 Heating cable ET-SR-240

Length of heating cable required:
 Roof edge length 100 ft. (x 2) (see roof illustrations)
 Gutter length 100 ft.
 Downspout length 60 (+1) ft.
 Power connection 1 ft. x 2 ea.
 Total 363 ft.

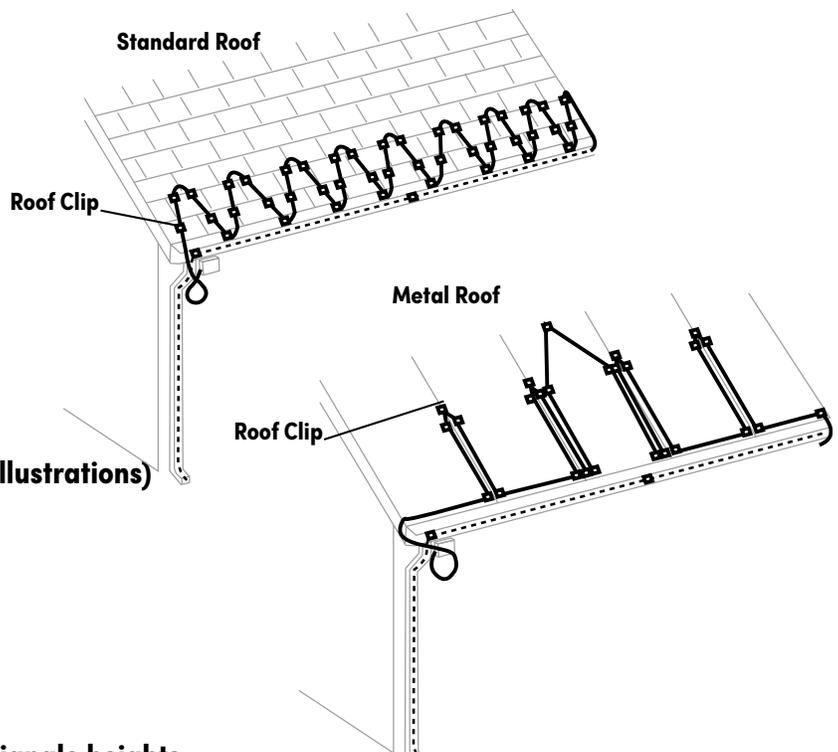


Table 4 - Cable triangle length multiplier and triangle heights

Roof Overhang	Feet of Heating Cable per Foot of Roof Edge Multiplier			Cable Triangle Height	
	Standard Roof	Metal Roof (18")	Metal Roof (24")	Standard Roof	Metal Roof
None	2.5	2.5	2.0	18"	18"
12"	3.1	2.8	2.4	18"	18"
24"	4.2	3.6	2.9	30"	36"
36"	5.2	4.3	3.6	42"	48"

INSTALLATION OF DEICING CABLES FOR ROOF, GUTTERS, AND DOWNSPOUTS

Use only the following kits and accessories to satisfy code and agency requirements:

- ET-END-KIT End Seal Kit
- Roof clips
- Tape pads for clips
- Primer for mounting tape

1. Carefully plan the routing of the heating cable for roof and gutter deicing.
2. Route the heating cable to avoid mechanical damage from ladders and other sources.
3. Cut the heating cable to proper length. This can be done before or after the cable is on the roof, gutter and downspouts.
4. Before installing the heating cable, make sure the roof, gutter and downspouts are free from debris, leaves, pine needles or any combustibles.
5. Check the maximum exposure temperature rating of all roof, gutters, and downspouts, and select a heater that will not exceed their temperature ratings.
6. Double-sided tape pads can only be applied to roofing materials at temperatures above 40 degrees F.
7. The minimum installation temperature for the cable is 0°F (-18°C).
8. Use roof clips to attach the heating cable to the roof. (5 clips per each triangle)
9. When attaching cable in the gutter, use clips every 10 feet. Add a clips before and after each downspout.
10. For roof valleys, run the heating cable two-thirds of distance up and down the valley. Add the additional length to the overall cable length.
11. Protect the heating cable ends from moisture or mechanical damage before connection.
12. Field-assembled end terminations should not be located in an area where moisture is present or at the lowest point of downspouts.
13. Install end seals and power connection before turning on power. Follow all ET-PWR-KIT kit installation instructions.
14. Use only Listed weatherproof junction boxes approved for wet locations when installing ET-SR series heating cables with the ET-PWR-KIT Power Connection Kit.
15. Use only Listed watertight construction or enclosure Type 3, 3S, 4, 4X, 6, or 6P junction box when installing.
16. Attach the two warning labels included with the heating cable. The labels must be clearly visible on the premises.
17. The heating device shall be connected to nonheating leads of a weather-resistant type. The installer should protect the nonheating leads from damage by installing them in a rigid metal or nonmetallic raceway.
18. After installation is complete, turn the circuit breaker on to give power to the cable. Standing water in the gutter should feel warm within one hour.

MAINTENANCE CHECKS

1. Only qualified persons should service or install the system.
2. Inspect the system annually. Check for any damage to the heating cable. Check any ground-fault protection device for proper operation. If any damage to cable is found, DO NOT operate until it is replaced.
3. With a 2500Vdc megohmmeter (500Vdc minimum), test the insulation resistance between the bus wire and the heater grounding braid or metal pipe. The reading should be 20 megohms (regardless of cable length).

Table 5 - Roof & Gutter Maximum Circuit Size at 0°F

Minimum start-up temperature		ET-SR-120-05		ET-SR-240-05	
0° F (-18° C)	AMPS	120V	208V	240V	277V
	15	140	268	285	311
	20	190	357	380	414
	30	270	508	540	589
	40	270	508	540	589

*Use the 0°F start-up lengths.

NOTE: Circuit breaker sizing is based on Section 427 of the National Electrical Code. Maximum circuit lengths are based on start-up load. Steady-state amps per foot depend on heating cable temperature.

Table 6 - Product Data for ET-SR Series Heating Cables for Roof and Gutter Deicing

Model	Service Voltage	Thermal Output @32°F (in Ice & Snow)	Min. Installation Temp.	Max. Exposure Temp.	Chemical Exposure	Environmental Restrictions
ET-SR-120	120	10 W/ft	0°F	150°F	None	Use only in ordinary (nonhazardous) areas
ET-SR-240	240	10 W/ft	0°F	150°F	None	Use only in ordinary (nonhazardous) areas

WARRANTY INFORMATION

WarmlyYours agrees to repair or replace self-regulating heating cable which fails to function within TEN YEARS from the completed installation date if all of the following conditions have been met:

- 1. Test of the self-regulating heating cable is performed according to the installation instructions relating to the specific application.**
- 2. Test results and the required information requested are sent in writing to WarmlyYours within 30 days of the completed self-regulating heating cable installation.**
- 3. The self-regulating heating cable is returned to WarmlyYours with proof of purchase and with a written explanation of the alleged defect(s) and/or is available for inspection by a WarmlyYours representative within 30 days of the discovery of the defect(s). No cables should be returned without prior authorization from WarmlyYours. For any self-regulating heating cable the consumer must prepay the shipment. The consumer is responsible for all costs involved in removing the self-regulating heating cable as well as all costs involved in reinstalling any repaired or replaced self-regulating heating cable. WarmlyYours is not liable for any incidental and/or consequential and/or business interruption losses or damages.**