



Warmup SR-KxUJ Unjacketed Parallel Self-Regulating Cable

Freeze Protection for Metal Residential Supply Pipes
(To be used with SR-HTMK Connection kit)



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Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Warmup Inc. accepts no liability, expressed or implied, for any loss or consequential damage suffered as a result of installations which in any way contravene the instructions that follow.

It is important that before, during and after installation that all requirements are met and understood. If the instructions are followed, you should have no problems. If you require help at any stage, please contact our helpline.

You may also find a copy of this manual, wiring instructions and other helpful information on our website

www.warmup.com

Important Safety Instructions

Read and understand all instructions in this manual and the following installation instructions and Safety Warnings.

WARNING! Risk of shock or fire.



Failure to comply with local wiring regulations (NEC/CEC) or the contents of this manual may result in electric shock or fire! Damage to, or improper installation, use and/or maintenance of electrical heating cable can result in fire, electrical shock and/or freezing of pipe.

-  When this symbol is displayed, pay close attention to the accompanying safety instructions. Read and understand all warnings before proceeding, as failure to do so may result in serious injury or death.
-  Install the heating cable in accordance with all applicable national, regional and local electrical codes. Contact your local electrical inspector or authority having jurisdiction for specific installation requirements.
-  Exercise caution during installation, operation and maintenance of the SR-KxUJ Pipe Heating System. Read and understand all instructions and safety warnings before beginning work.
-  Keep the cable connection housing, end seals and all thermal insulation materials dry and properly protected from moisture. Failure to maintain a weatherproof installation may result in fire or electric shock.
-  Use the SR-KxUJ system only on residential metal water supply pipes. DO NOT install on flexible tubing, buried piping, pipes containing fluids other than water or applications such as roof and gutter de-icing or driveway snowmelting.
-  Do not expose the heating cable to temperatures exceeding 149°F (65°C) as this will shorten the life of the cable. Before installing on hot water pipes ensure the water heater temperature is set below 149°F (65°C).
-  Use only approved SR-HTMK connection and end seal components. Never make any alterations to the plug.
-  To prevent electrical short circuits, do not twist the cable conductors together or allow the conductors to contact the grounding braid.
-  Remove any existing heating tape / insulation before installation. Ensure all cable ends remain clean and dry throughout the installation.
-  Seal the cable only with the approved end seal provided. Cut the cable jacket only where required for approved power and end seal terminations.
-  Do not cut, nick or otherwise damage the cable ground braid. The protective grounding braid must remain intact at all times.
-  Install the cable only on smooth, non-abrasive pipe surfaces. Remove burrs, sharp edges, and other surface defects that could damage the cable during installation or operation.
-  Protect the complete system from mechanical damage, impact and animal interference. Never secure the cable using nails, metal straps, wire or any fastening method that could damage the cable. Use only ½" (13mm) or 1" (25mm) vinyl or fibreglass tape for attachment to the pipe.
-  Inspect the system whenever it is energised and at least annually if left connected year round. If cuts, abrasions, wear, or other damage are discovered, disconnect power immediately and replace the affected cable system.
-  The SR-KxUJ cable contains no user serviceable components. Do not splice, repair or modify a damaged heating cable. Replace a damaged cable with new cable.

Important Safety Instructions

-  Following any inspection, replace damaged insulation or weatherproof coverings.
-  Connect the system only to a properly installed electrical receptacle that complies with the National Electrical Code (NEC), Canadian Electrical Code (CEC), and all local regulations. The receptacle must be protected from rain, water, and other environmental exposure.
-  Do not install or operate the system in areas where flammable liquids, combustible materials, or explosive vapours may be present. If the cable is cut while the system is connected there is an increased fire risk.
-  Ground-fault protection (GFCI) must be provided for all installations. If ground-fault protection is not available or its presence cannot be verified, consult a qualified electrician before energising the system.
-  For mobile-home installations, connect the system only to a dedicated outlet located beneath the mobile home in a dry, protected location. Do not use extension cords.
-  Do not install the heating cable when ambient temperatures are below -20°F (-29°C).
-  The SR-KxUJ cable is intended for supply piping only and must not be used on fire sprinkler systems.

Product Introduction

The Warmup SR-KxUJ Unjacketed Self-Regulating Heating Cable is a parallel self-regulating heating cable designed for freeze protection of metal residential water supply pipes in dry locations protected from rain and sunlight. The cable automatically adjusts its heat output in response to surrounding pipe temperatures, delivering additional heat when temperatures fall and reducing output as temperatures rise, helping to maintain water flow while improving energy efficiency.

-  This product is intended for freeze protection of metal residential water supply pipes in dry locations protected from rain and sunlight. Carefully read and follow all safety instructions. Failure to do so could result in fire, electric shock, serious injury, or death.

Before You Begin

Confirm that the cable selected is the correct length for the pipe requiring freeze protection.

Use Chart 1 or Chart 2 to determine the required cable length.

Additional tools and materials required

- Application tape (Cat. No. HCA) or high-quality electrician’s tape such as Scotch 44 or 33.
- ½" (13mm) fibreglass pipe insulation with vapour seal.
- Wire cutters or heavy scissors.
- Phillips No. 2 and slotted screwdrivers.
- Ruler or measuring tape.

Determine The Cable Length Required



MAXIMUM CIRCUIT LENGTH: 75ft (29m)

Step 1 - Collect the necessary information

Pipe size	Examples
Outside diameter	1½" (38mm) pipe
Pipe length	12ft (3.7m)
Lowest expected air temperature. <i>Disregard wind chill; it is included in the length selection chart.</i>	-20°F (-29°C)
Number of valves and spigots	1 ball valve
Distance from the pipe to the electrical outlet	2ft (0.6m)

Determine The Cable Length Required

Step 2 - Refer to the length-selection chart

Read down to the pipe diameter and then across to the lowest expected temperature. The first number in the box gives the required cable length per foot of pipe. The second number gives the recommended spacing between spiral wraps.

Example - Metal Pipes

- Pipe diameter: 1½"
- Lowest expected ambient temperature: -20°F (-29°C)
- Pipe length: 12ft

You need 1.8ft of cable per foot of pipe for metal pipes

Length Selection for Metal Pipes (Based on ½"insulation)		
Nominal pipe diameter	+20°F (-7°C)	0°F (-18°C)
½"	Cable: 1.0 ft/ft	Cable: 1.0 ft/ft
	Install: Straight	Install: Straight
¾"	Cable: 1.0 ft/ft	Cable: 1.0 ft/ft
	Install: Straight	Install: Straight
1"	Cable: 1.0 ft/ft	Cable: 1.0 ft/ft
	Install: Straight	Install: Spiral at 5"
1¼"	Cable: 1.0 ft/ft	Cable: 1.1 ft/ft
	Install: Straight	Install: Spiral at 11½"
1½"	Cable: 1.0 ft/ft	Cable: 1.2 ft/ft
	Install: Straight	Install: Spiral at 9"
2"	Cable: 1.0 ft/ft	Cable: 1.5 ft/ft
	Install: Straight	Install: Spiral at 6½"

Determine The Cable Length Required

-20°F (-29°C)	-40°F (-40°C)	-60°F (-51°C)
Cable: 1.0 ft/ft	Cable: 1.3 ft/ft	Cable: 1.7 ft/ft
Install: Straight	Install: Spiral at 3⅞"	Install: Spiral at 2"
Cable: 1.1 ft/ft	Cable: 1.5 ft/ft	Cable: 2.0 ft/ft
Install: Spiral at 7¼"	Install: Spiral at 3"	Install: Spiral at 2"
Cable: 1.3 ft/ft	Cable: 1.8 ft/ft	Cable: 2.4 ft/ft
Install: Spiral at 5"	Install: Spiral at 2¾"	Install: Spiral at 1⅞"
Cable: 1.6 ft/ft	Cable: 2.1 ft/ft	Cable: 2.9 ft/ft
Install: Spiral at 4¼"	Install: Spiral at 2⅞"	Install: Spiral at 1⅞"
Cable: 1.8 ft/ft	Cable: 2.4 ft/ft	Cable: 3.2 ft/ft
Install: Spiral at 4"	Install: Spiral at 2¾"	Install: Spiral at 1⅞"
Cable: 2.2 ft/ft	Cable: 2.8 ft/ft	Cable: 3.9 ft/ft
Install: Spiral at 3¾"	Install: Spiral at 2⅞"	Install: Spiral at 2"

Determine The Cable Length Required

Step 3 - Calculate the required heater length required

Multiply the cable length required per foot of pipe by the pipe length.
Add one extra foot for each valve or spigot:

FORMULA

Cable required per foot x pipe length +
1ft (0.305m) for each valve or spigot = total cable length

Example

Pipe and components : 12ft (3.66m) of metal pipe, one ball valve

Requirement: Cable factor:
1.8 ft of heating cable per ft of pipe, or
1.8 m of heating cable per m of pipe

Calculation: 12ft (3.66m) x 1.8 + 1ft (0.305m)
= 22.6ft (6.89m) total cable

 Maximum cable length is 75ft (29m). Use of a longer length may cause the internal fuse to blow.

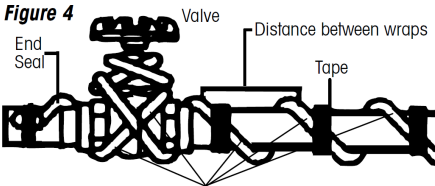
How To Install The Cable On Pipe

Step 4 - Attach the cable to the pipe

4a - Starting at the plug end, spiral-wrap or straight-trace the cable on the pipe as indicated in the length-selection chart. Mount the plug on the pipe with plastic tie wraps.

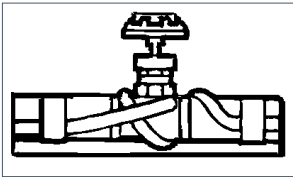
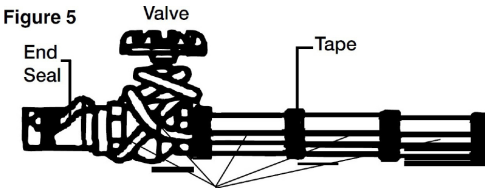
Spiral wrapping method

Spiral-wrap the cable around the outside of the pipe. Maintain the required spacing between wraps as indicated in the length-selection chart. Mark the pipe at the required spacing before attaching the cable to the pipe.

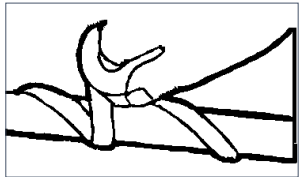


Straight tracing method

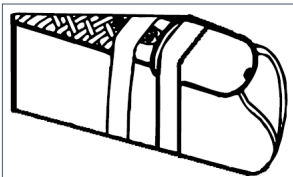
With the pipe at eye level, run the cable in a straight line parallel to, and approximately one-third of the way from, the bottom of the pipe.



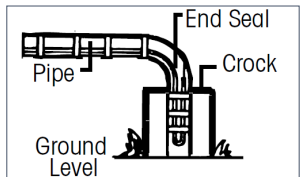
4b - Provide extra heat at valves and spigots by wrapping each with one additional foot of cable, overlapping as required.



4c - Fasten the cable to the pipe at 6" (152mm) intervals with tape. If excess cable remains at the end of the pipe, double it back along the pipe where the insulation will completely cover it. Ensure the cable is held tightly to the pipe.



4d - Install the power connection and end seal as per the SR-HTMK instructions. Do not use substitute connection or termination components. Tape the end seal to the pipe.



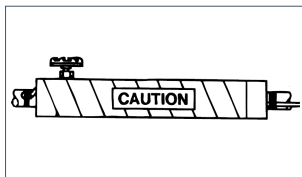
4e - In a mobile crock or standpipe, never install the cable end seal where it would normally be submerged.

How To Install The Cable On Pipe

Step 5 - Installing the insulation

Thermal insulation protects the cable and helps prevent pipe freezing.

5a - Before insulating, ensure there is no cable damage such as nicks or cuts and that the braid is intact.



5b - Cover the pipe, cable, connections, valves and spigots with ½" (12.7 mm) clean, dry fibreglass insulation. **DO NOT LEAVE THE CABLE EXPOSED!**

Where jacket damage is possible, protect the exposed cable with insulation or another covering. Do not cover the indicator light with insulation or covering

Operation And Maintenance

Step 6 - Put the system to work

Once installation is complete, plug the cable into a 120 V AC outlet. Do not use water for approximately one hour. Then turn on a water tap on the protected pipe and test the water temperature. It should feel warm almost immediately as the water heated by the cable runs through the pipe.

Step 7 - Troubleshooting

If the water does not feel warm when the tap is turned on after Step 6, or if a freeze-up occurs on the pipe protected, visually check the power light on the plug to determine whether the cable is energised. If the light is off, unplug the cable and check:

- Is power available at the electrical outlet?
- Is the fused plug wired correctly?
- Is the fibreglass insulation applied properly and is it dry?
- Was the correct amount of cable installed for the pipe diameter, lowest expected temperature and insulation thickness?



If any part of the Cable System is damaged, the whole system is damaged. Never attempt to repair any part of the cable system, including a blown fused plug. Replace a damaged system with a new system.

Step 8 - Seasonal inspection

The SR-KxUJ system can be left plugged in throughout the year, but unplugging it during non-freezing weather saves energy. Each time the system is connected, at least once a year if it remains connected, or whenever damage is suspected:

- Check the entire system for signs of damage, including damaged or discoloured insulation.
- Inspect exposed cable for cuts, nicks, abrasions, animal damage or other physical damage.
- If damage is found, immediately replace the damaged cable system.
- After a thorough inspection, repeat Steps 6 and 7.

Specifications

Model	Voltage	Length	Nominal Power Output @ 50°F (10°C) Insulated Pipe	Max. Maintenance Temperature	Min. Install Temp.
SR-K6UJ	110-120 VAC; 50-60Hz	6 ft (1.83 m)	30 W	+149°F (65°C)	-20°F (-29°C)
SR-K12UJ		12 ft (3.66 m)	60 W		
SR-K18UJ		18 ft (5.49 m)	90 W		
SR-K24UJ		24 ft (7.32 m)	120 W		
SR-5W-1-250-U		250 ft (76.20 m)	5 W/ft (16.4W/m) @ 50°F (10°C) Insulated Pipe		
Minimum Bend Radius			1¼" (30 mm)		
Protective Braid Resistance			< 29 Ω/mi (18.2 Ω/km)		
Maximum Length per Circuit			75ft (22.8m)		
Required Ground Fault Equipment Protection (GFEP)			30mA		
Dimensions			¼" (6.66mm) (W) x ¼" (4.06mm) (T)		



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