

# Pipe Freeze Protection

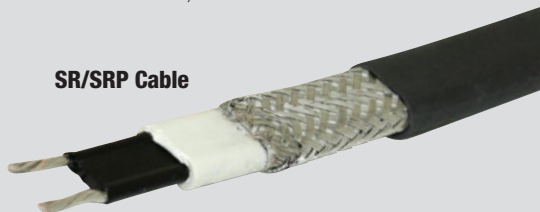


## Pipe Freeze Protection Systems

King's Pipe Freeze Protection systems ensure that your pipes remain clear of ice and water continues to flow all winter long. Easy installation makes the process go quickly so you can be prepared long before winter arrives. Perfect for residential, commercial or industrial applications.

SRP Series Self-Regulating Pre-Assembled Heating Cable is designed for a variety of pipe freeze protection applications. The cable is constructed so that it will not burn out or overheat when overlapped and can be used on metal and plastic pipes. The cable is pre-terminated with a 30 inch cold lead.

SR Series Self-Regulating Heating Cable is designed for commercial and industrial pipe trace applications. The cable is constructed so that it will not burn out or overheat when overlapped, and can be used on metal and plastic pipes. The cable is available in 100 and 250 ft coils and also 500 and 1,000 ft reels.

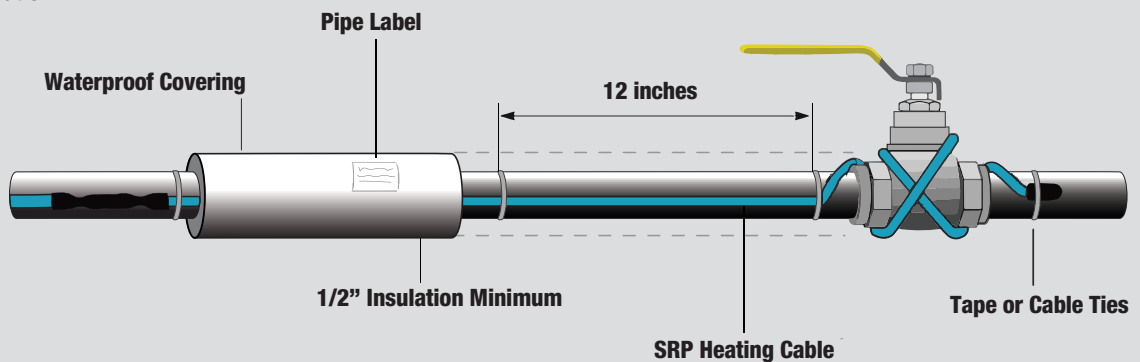


SR/SRP Cable

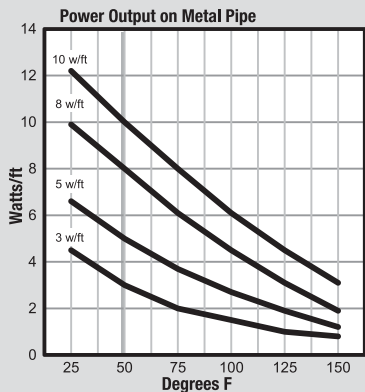
### Cable Construction Table

Outer Jacket	Rugged Polyolefin UV Jacket
Outer Jacket (-CT)*	Fluoropolymer jacket
Ground Braid	Tinned copper
Inner Jacket	Flame retardent thermoplastic
Core	Self-regulating semi-conductive core
Bus Wire	16 gauge tinned copper
Bending Radius	1" (24mm)

### SR/SRP Application



# CT Self-Regulating Pipe Trace Cable



1,000 ft. Reel

**Model Code:**

SR	12	3	-250	CT
A	B	C	D	E
A: Self Regulating Cable				
B: 12 - 120V				
24 - 240V				
C: Watts per foot				
D: Linear Length in feet				
E: FlouroPolymer Jacket				

**Hazardous Locations**

Class I, Div. 2, Groups A,B,C,D  
Class II, Div. 2, Groups E,F,G  
Class III



**Zone Approvals**

T5 or T6

CT self-regulating heating cables are designed for industrial and commercial freeze protection and process-temperature maintenance applications. CT cables maintain process temperatures up to 150°F (65°C) and can withstand intermittent exposure to temperatures up to 185°F (85°C). The heating cables are configured for use in nonhazardous and hazardous locations, including areas where corrosives may be present.

**CT Self-Regulating Heating Cable Features**

- For both hazardous and non-hazardous locations
- Stops pipe and valve freeze down to -40F
- Cable will not overheat or burn out when overlapped
- Suitable for use on metal and plastic pipes
- 10 year warranty

**AVAILABLE LENGTHS**

	VOLTS	PIPE RATING** WATTS/FT.	100 FT. LENGTH MODEL / UPC	250 FT. LENGTH MODEL / UPC	500 FT. LENGTH MODEL / UPC	1000 FT. LENGTH MODEL / UPC	WEIGHT/FT.
<b>120V</b>	120	3	SR123-100-CT / 40522	SR123-250-CT / 40523	SR123-500-CT / 40538	SR123-1000-CT / 40375	0.080 LBS./FT.
	120	5	SR125-100-CT / 40524	SR125-250-CT / 40525	SR125-500-CT / 48744	SR125-1000-CT / 40377	0.080 LBS./FT.
	120	8	SR128-100-CT / 40526	SR128-250-CT / 40527	SR128-500-CT / 48745	SR128-1000-CT / 40379	0.080 LBS./FT.
	120	10	SR1210-100-CT / 40528	SR1210-250-CT / 40529	SR1210-500-CT / 48742	SR1210-1000-CT / 40428	0.080 LBS./FT.
<b>240V</b>	240*	3	SR243-100-CT / 40530	SR243-250-CT / 40531	SR243-500-CT / 48747	SR243-1000-CT / 40376	0.080 LBS./FT.
	240*	5	SR245-100-CT / 40532	SR245-250-CT / 40533	SR245-500-CT / 48748	SR245-1000-CT / 40378	0.080 LBS./FT.
	240*	8	SR248-100-CT / 40534	SR248-250-CT / 40535	SR248-500-CT / 48749	SR248-1000-CT / 40380	0.080 LBS./FT.
	240*	10	SR2410-100-CT / 40536	SR2410-250-CT / 40537	SR2410-500-CT / 48746	SR2410-1000-CT / 40382	0.080 LBS./FT.

\*Approved for 208, 220, 240, 277 volt operation, refer to wattage adjustment tables for output rating. (See Page 19, Table 4)

\*\*Wattage rating for pipe freeze protection application is determined at 50°F (10°C).

\*\*\*Also rated for Roof/Gutter De-Icing. Wattage rating is 8 w/Ft determined at 32°F (0°C).

Controls and thermostats should always be used with King heating cable systems.

**CT ACCESSORIES FOR NON HAZARDOUS APPLICATIONS**

SRK00	Hard wired power connection kit, includes end seal
SRK02	connection kit, includes end seal
SRK03	Pipe trace tape (66 ft) and 10 labels per pack
SRK04	2.5" x 50 yards 2 Mil foil tape
SRK08	Plug in 120V connection kit with GFEP device, includes end seal
SRK10	Weatherproof splice/tee kit, includes end seal
SRK12	End seal kit (2 per package)
SRK17	11 & 13mm Gel end seal
SRK18	Lighted end seal, 85-277V

**CT ACCESSORIES FOR HAZARDOUS APPLICATIONS**

CT-9002	CT square box
CT-9003	CT splice connection
CT-9004	CT tee connection
CT-9005	CT end seal



CT-9002



CT-9003



CT-9004



CT-9005

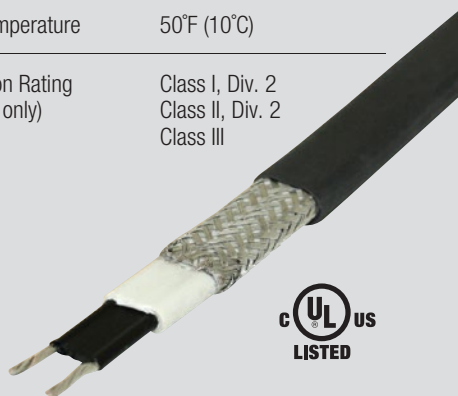


# Charts & Tables SR Pipe Trace Cable

## Technical Data Table

Maximum operating temperature	150°F (65°C)
Maximum exposure temperature	185°F (85°C)
Minimum installation temperature	-40°F (-40°C)
Minimum bending radius	1" (24mm)
Dimensions	0.496" x 0.236" (12.6mm x 6mm)
Service Voltage	110V-120V, 208V-277V
Wattage rating temperature	50°F (10°C)
Hazardous Location Rating (-CT Outer Jacket only)	Class I, Div. 2 Class II, Div. 2 Class III

## For Pipe Freeze Protection



## Heating Cable Selection for Pipe Freeze Protection

Pipe	Type	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	60'	65'	70'	75'	80'	85'	90'	95'	100'	125'	150'	175'	200'
1/2"	M	A	B	C	D	E	E	E	F	F	F	G	G	H	H	H	I	I	J	J	J	K	L	M	N
	P	A	B	C	D	E	E	F	F	F	G	G	H	H	H	I	I	J	J	J	K	L	M	N	-
1"	M	A	B	C	D	E	E	E	F	F	F	G	G	H	H	H	I	I	J	J	J	K	L	M	N
	P	B	B	C	D	E	E	F	F	F	G	G	H	H	H	I	I	J	J	J	K	L	M	N	-
1 1/2"	M	A	B	C	D	E	E	E	F	F	F	G	G	H	H	H	I	I	J	J	J	K	L	M	N
	P	B	C	D	E	E	F	F	F	G	G	H	H	H	I	I	J	J	J	K	K	M	N	-	-
2"	M	A	B	C	D	E	E	E	F	F	G	G	H	H	H	I	I	J	J	J	K	L	M	N	-
	P	B	C	E	E	F	G	H	H	I	J	J	K	K	L	L	L	M	M	M	N	-	-	-	-
2 1/2"	M	A	C	C	D	E	F	F	F	G	G	H	H	I	I	J	J	K	K	K	K	L	N	-	-
	P	B	D	E	F	G	H	I	J	K	K	L	L	M	M	N	N	-	-	-	-	-	-	-	-

**A**

SRP126-6  
SRP246-6

**B**

SRP126-12  
SRP246-12

**C**

SRP126-18  
SRP246-18

**D**

SRP126-24  
SRP246-24

**E**

SRP126-37.5  
SRP246-37.5

**F**

SRP126-50  
SRP246-50

**G**

SRP126-62.5  
SRP246-62.5

**H**

SRP126-75  
SRP246-75

**I**

SRP126-87.5  
SRP246-87.5

**J**

SRP126-100  
SRP246-100

**K**

SRP126-125  
SRP246-125

**L**

SRP126-150  
SRP246-150

**M**

SRP246-175

**N**

SRP246-200

**M = Metal Pipe / P = Plastic Pipe**

Add 1 foot to the cable length for each valve or spigot.

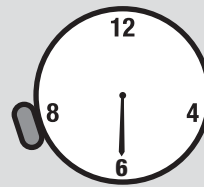
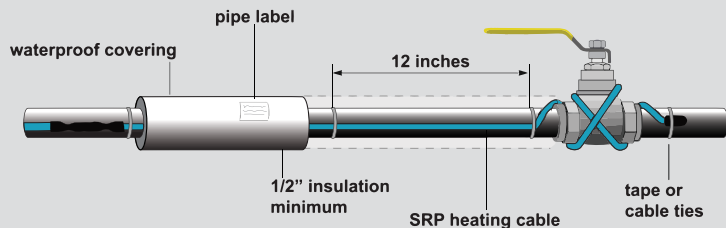
Chart is based on the lowest outside temperature of 0°F (-18°C)

with a minimum of 1/2" thick fiberglass insulation. Use 1" insulation for protection down to -20°F (-29°C).

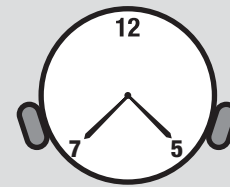


# Charts & Tables SR Pipe Trace Cable

## Heating Cable Selection for Pipe Freeze Protection



Single Cable Location



Double Cable Location

For a single cable, run it straight along the bottom of the pipe in the 4 or 8 o'clock position. If two cables are required, attach them at the 4 and 8 o'clock positions as shown in the figure above.

Use Table 1 to select the cable size for metal pipes and use Table 2 for plastic pipes. Read across the table to find the pipe size, then drop down to the row corresponding to the design air temperature and the thickness of the insulation that will be used. The cell that intersects will give the power (watts/ft.) of the heating cable required, it may also have a (2) in the cell which means 2 cables are required.

**Table 1 - SR Cable Selection for Metal Pipes (w/ft.)<sup>1</sup>**

Lowest Air Temp.	Insulation Thickness	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
0°F (-18°C)	1/2"	3	3	3	3	5	5	5	5	8	8	10
	1"	3	3	3	3	3	3	3	5	5	8	8
	1-1/2"	3	3	3	3	3	3	3	3	5	5	5
	2"	3	3	3	3	3	3	3	3	3	5	5
-20°F (-29°C)	1/2"	3	5	5	5	5	5	8	8	10	10	*
	1"	3	3	3	3	3	5	5	5	8	8	10
	1-1/2"	3	3	3	3	3	3	3	5	5	8	8
-40°F (-40°C)	1/2"	5	5	5	5	8	8	10	(2) 8	(2) 8	(2) 10	*
	1"	3	3	3	5	5	5	8	8	8	10	(2) 8
	1-1/2"	3	3	3	3	3	5	5	5	8	8	10
	2"	3	3	3	3	3	3	3	5	5	8	8
	3"	3	3	3	3	3	3	3	3	3	5	5

**Table 2 - SR Cable Selection for Plastic Pipes (w/ft.)<sup>1</sup>**

Lowest Air Temp.	Insulation Thickness	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
0°F (-18°C)	1/2"	3	5	5	5	8	8	8	10	(2) 8	(2) 10	*
	1"	3	3	3	5	5	5	5	5	5	8	8
	1-1/2"	3	3	3	3	3	3	5	8	8	8	10
	2"	3	3	3	3	3	3	3	5	5	8	8
-20°F (-29°C)	1/2"	5	5	8	8	10	10	(2) 8	(2) 8	(2) 10	*	*
	1"	3	3	5	5	5	8	8	8	10	(2) 8	(2) 10
	1-1/2"	5	5	5	5	5	5	5	8	8	10	(2) 8
-40°F (-40°C)	1/2"	8	8	8	8	10	10	(2) 8	(2) 10	*	*	*
	1"	5	5	5	8	8	8	10	10	(2) 8	*	*
	1-1/2"	5	5	5	5	5	8	8	8	10	(2) 8	(2) 10
	2"	5	5	5	5	5	5	5	8	8	10	(2) 8
	3"	3	3	5	5	5	5	5	5	5	8	10

1. Tables are based on using fiberglass insulation or equivalent while maintaining a 40°F (4°C) pipe temperature with a 10% safety factor and 20 mph wind speed.

\*Contact King for proper cable selection.



# SR/SRP Pipe Freeze Protection Accessories



### SRK00 Hard Wire Power Connection Kit

Contains labels, pipe mounting bracket, box connector, wire nuts and heat shrink tubing to make electrical supply connection to a metal junction box. Includes one end seal.



### SRK02 Connection Kit

Contains heat shrink tubing and woven braid  
Also includes one end seal.



### SRK10 Splice and Tee Kit

Contains heat shrink tubing and other materials to make one splice or one tee connection  
Also includes one end seal.



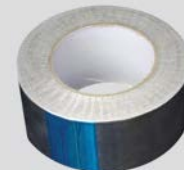
### SRK08 Plug in 120V Connection Kit with GFCI Device

Contains labels, GFCI protection device with 120V plug, cable ties, crimp type connectors, heat shrink tubing and labels.  
Includes one end seal.



### SRK12 End Seal Kit

Contains heat shrink tubing and other materials to make two end seals.



### SRK04

2.5" x 50 yards 2 mil foil tape.



### SRK03 Tape

Pipe trace tape and labels.



### IFC12

Plug in fixed thermostat



### TRF115-005

Freeze Protection Thermostat



### SRK17

11 & 13mm Gel end seal



### SRK18

Lighted end seal

MODEL	UPC	DESCRIPTION	WEIGHT
SRK00	40462	Hard wired power connection kit, includes end seal	0.3 lbs.
SRK02	40461	Connection kit, includes end seal	0.3 lbs.
SRK03	40464	Pipe trace tape (66ft) and 10 labels per package	1.0 lbs.
SRK04	61713	2.5" x 50 yards 2 mil foil tape	1.6 lbs.
SRK08	40466	Plug in 120V connection kit with GFCI device, includes end seal	1.0 lbs.
SRK10	40468	Weatherproof splice/tee kit, includes end seal	0.2 lbs.
SRK12	40470	End seal kit (2 per package)	0.1 lbs.
SRK17	40477	11 & 13mm Gel end seal	0.1 lbs.
SRK18	40512	Lighted end seal, 85-277V	0.3 lbs.
IFC12	40490	Plug in fixed thermostat, 120V, 15 amp, on at 35°F off at 45°F (12/case)	0.3 lbs.
TRF-115-005	40486	Freeze protection thermostat, weatherproof with 5 ft. remote bulb & capillary, 25 amp at 120/208/240V, 22 amp at 277V, adjustable temp 0°F, suitable for 24 VAC operation (w/Power-On indicator light)	0.3 lbs.

# PYRO Freeze Protection Controller

## PYRO FPC Freeze Protection Controller



FPC-02-120



### PYRO FPC Freeze Protection Controller

Freeze Protection Controller and a Power panel for heat tracing, ice and snow melt applications.

When the temperature drops below the pre-defined, adjustable set-points, the contactor is activated energizing the heating elements. The Technician Settings mode enables an installer, or a technician to adjust the parameters for customized installations using the electronic controller installed in the front panel.

- Up to 30A & 120/240V outputs to the heaters
- Hold-On (Time delay) adjustable range of up to 99 hours
- Temperature input from the provided temperature sensor (10 m. / 30 feet long) and also from a 3rd party aquastat
- Integrated electronic controller with backlit LCD display
- Integral 30mA GFEP allows manual reset from the front panel
- Adjustable Set-points, Hold ON/OFF Time delay and manual ON duration
- Manual and Automatic modes, selected by a button
- Testing/commissioning mode for easy and fast system test, all year long (even during summer or at high temperature condition)
- Multiple sensors input-optional
- ETL listed

MODEL	UPC	Item	Description
FPC-02-120	19112	Pyro FPC Freeze Protection Controller	Freeze Protection Controller 120V, 30A, w/GFEP
FPC-02-240	19113	Pyro FPC Freeze Protection Controller	Freeze Protection Controller 240V, 30A, w/GFEP

\*\*Controls and thermostats should always be used with King heating systems.



## PYRO Pipe Trace System

**Innovative Zone Based Control System For Pipe Trace Heating Cable.  
The Ultimate Controller For Industrial, Commercial and Residential.**



**PYROBOX3C/19-TRACE**



**PYROCON19-TRACE**

### PYRO Pipe Trace System

The unique staggering feature of the PYRO TRACE control keeps pipes from freezing, without the need to upgrade the power supply on site. Use a high demand heating system on a limited power supply by controlling up to 3 different zones. The modular design allows customers to choose the right configuration for the specific property needs.

Enables use of high demand heating system on a limited power supply source. Modular: Up to 3 circuits/contactors. Up to 600v & 300A Sequence of zoning 1/2 + auxiliary (such as gutter sensor). Suitable for parallel, star & triangle connection. North American consideration operating algorithm.

- Adjustable temperature sensor
- Interface provided for B.M.S. and SmartHome using Bacnet or ModBus over RS485 communication wires
- Adjustable cycle time between zones
- Adjustable delay (Hold on Time)
- Adjustable on and off
- Logical setting for installer / set up & service
- Second input for temperature switch
- User friendly programming and adjusting
- Integrated Fault Detector. GFCI non class A
- Adjustable trip setting
- Non obtrusive adjustable snow sensor
- Electrical and Hydronic freezing applications
- Manual mode

MODEL	UPC	Item	Description
PYROBOX3C/19-TRACE	33768	Power Box 3C/19 Trace	2 Zone Controller, 2-50A/3P Contactors, 3-Phase, 600V Max +1 Zone Aux Controller, 1-30A/2P Contactor, 1-Phase, 300V Max
PYROCON19-TRACE	33763	Main Controller	Controller and User Interface panel

PYROBOX units are complete with PYROCON12 TRACE controller and PYROULS.  
\*\*Controls and thermostats should always be used with King heating systems.