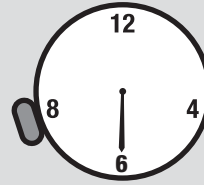
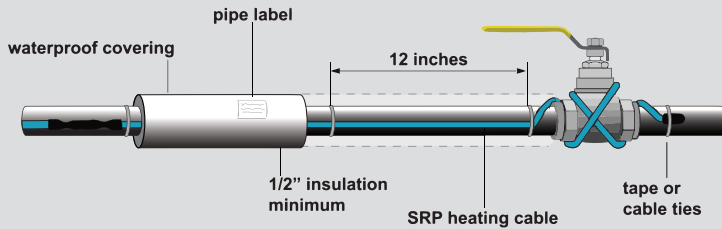
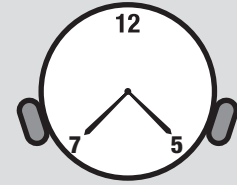


Charts & Tables SR Pipe Trace Cable

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.)¹

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
	2"	3	3	3	3	3	3	3	3	5	5	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.)¹

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
	2"	3	3	3	3	3	5	5	5	8	8	10
-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.

Charts & Tables SR Pipe Trace Cable

SR Heating Cable Selection and Design

CALCULATE THE TOTAL HEATING CABLE LENGTH

$$\text{Cable length} = A+B+C+D+E+F$$

- A. Pipe length x number of cables
- B. 4 ft. x number of valves
- C. 2 ft. x number of flanges, supports, etc.
- D. 1 ft. for each power connection
- E. 2 ft. for each splice connection
- F. 3 ft. for each tee connection

$$= \text{Total heating cable length}$$

MAXIMUM CIRCUIT LENGTH ALLOWED

Ensure that your circuits do not exceed the maximum circuit length listed in table 3. If necessary, use additional shorter circuits

EXAMPLE

Pipe Size: 2" metal pipe
 Lowest air temp: -20°F
 Insulation thickness: 1"
 Cable selection: (1) 5w/ft. (from table 1)
 Pipe length: 80 ft.

Valves: 2
 Pipe supports: 12
 Power connections: 1
 Splice connections: 1

HEATING CABLE REQUIRED

A. Pipe length x number of cables 80 ft. x 1 = 80 ft.
 B. 4 ft. x number of valves 4 ft. x 2 = 8 ft.
 C. 2 ft. x number of flanges, supports, etc. 2 ft. x 12 = 24 ft.
 D. 1 ft. for each power connection 1 ft. x 1 = 1 ft.
 E. 2 ft. for each splice connection 1 ft. x 1 = 1 ft.
 F. 3 ft. for each tee connection 3 ft. x 0 = 0 ft.

$$= \text{Total heating cable length} \quad \quad \quad \mathbf{114 \text{ ft.}}$$

Table 3 - Maximum Single Cable Length

Model	Volts	Watts/ft	Maximum Single Run Length
SR123	120V	3 w/ft.	318 ft. (96M)
SR243	240V	3 w/ft.	636 ft. (193M)
SR125	120V	5 w/ft.	246 ft. (75M)
SR245	240V	5 w/ft.	499 ft. (152M)
SR128	120V	8 w/ft.	197 ft. (60M)
SR248	240V	8 w/ft.	394 ft. (120M)
SR1210	120V	10 w/ft.	174 ft. (53M)
SR2410	240V	10 w/ft.	344 ft. (104M)

Table 4 - Wattage Adjustment (w/ft.)

Model	240V	208V	220V	277V
SR243	3.0	2.5	2.7	3.4
SR245	5.0	4.3	4.6	5.5
SR248	8.0	7.0	7.44	8.6
SR2410	10.0	9.0	9.4	10.5

The maximum length of a single cable run is noted in Table 3 and cannot be exceeded. If the application requires a longer cable run, then multiple cables and additional power circuits must be used.

When using 240 volt SR cable on 208, 220 or 277 volt applications, the power output (wattage) must be adjusted. Refer to Table 4 for the adjusted watts/ft. of the cable when operated at a voltage other than 240 volt.

Circuit protection depends on the length of cable required and the start-up temperature since the cable will draw more power (wattage) when cold. Multiple cables can be run from a single power circuit up to a maximum combined length as noted in Table 5. Larger amperage circuit breakers can handle longer combined cable lengths, but the maximum length for a single cable run does not change. The NEC requires the use of ground fault protection breakers for heating cable.

NOTE: 240 volt cable lengths in Table 5 are also good for 208, 220 and 277 volt.

Table 5 - Circuit Protection Per Combined Cable Length for Pipe Freeze Protection

Cable	Volts	Start up Temp.	15 Amp (ft.)	20 Amp (ft.)	30 Amp (ft.)	40 Amp (ft.)
SR123 3 w/ft.	120V	50°F (10°C)	318	318	318	318
		0°F (-18°C)	265	274	274	274
		-20°F (-29°C)	258	258	258	258
SR125 5 w/ft.	120V	50°F (10°C)	246	246	246	246
		0°F (-18°C)	199	218	218	218
		-20°F (-29°C)	175	205	205	205
SR128 8 w/ft.	120V	50°F (10°C)	164	197	197	197
		0°F (-18°C)	126	167	173	173
		-20°F (-29°C)	112	148	162	162
SR1210 10 w/ft.	120V	50°F (10°C)	120	160	174	174
		0°F (-18°C)	92	122	153	153
		-20°F (-29°C)	83	109	146	146
SR243 3 w/ft.	240V	50°F (10°C)	636	636	636	636
		0°F (-18°C)	548	548	548	548
		-20°F (-29°C)	515	515	515	515
SR245 5 w/ft.	240V	50°F (10°C)	499	499	499	499
		0°F (-18°C)	398	437	437	437
		-20°F (-29°C)	351	410	410	410
SR248 8 w/ft.	240V	50°F (10°C)	328	394	394	394
		0°F (-18°C)	252	334	345	345
		-20°F (-29°C)	225	296	325	325
SR2410 10 w/ft.	240V	50°F (10°C)	240	320	344	344
		0°F (-18°C)	184	244	306	306
		-20°F (-29°C)	166	219	292	292