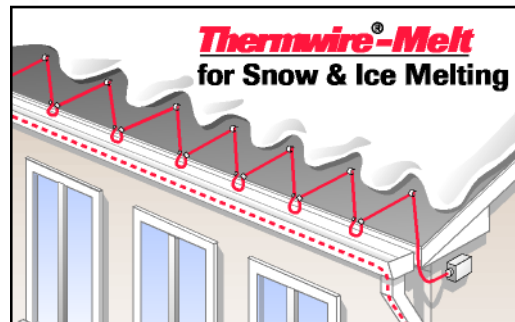
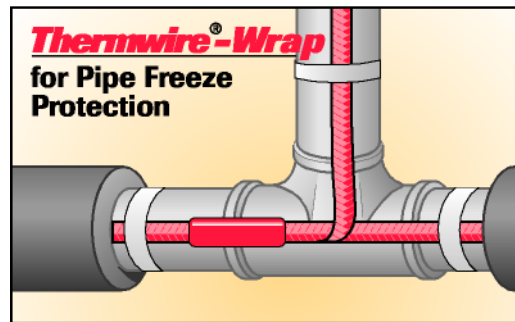


# *Thermwire*®

Self-Regulating Heating Cable

## Selection Guide

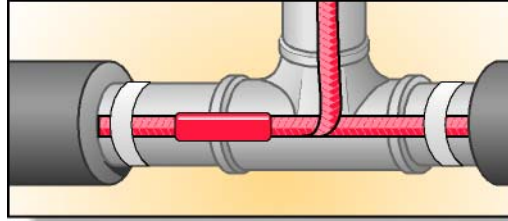


- *No Thermostat Required*
- *Single Overlap Without Failure*
- *Cut To Any Length*
- *Fast, Easy Installation*



# Which cable should I use?

For



Pipes...

## Thermwire<sup>®</sup>-Wrap

**Thermwire<sup>®</sup>-Wrap stops frozen pipes cold!  
Apply it anywhere pipes are subject to below-freezing temperatures.**

- Use on plastic or metal pipes up to 8 inches in diameter
- Water, Wastewater, Fire Protection and HVAC Piping
- Heat output of 3 Watts/ft. or 6 Watts/ft.
- 200 ft. circuit lengths for 120 Volt cable
- 350 ft. circuit lengths for 240 Volt cable
- Available in 250 ft. and 500 ft. reels and Per the FT



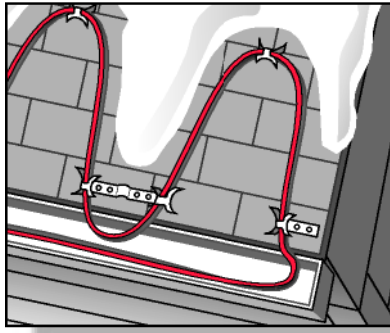
### **Construction**

- 16 AWG Buss Wires
- Self-Regulating Conductive Core
- Insulating Jacket
- Metallic Braid

### **Applications**

- Metal or Plastic Pipes (up to 8" diameter)
- Dry Environments

**NOTE:** TW-3 is UL Listed for metal and plastic pipes; TW6 is UL Listed for metal pipes only. Insulation must remain dry for insulation to be effective in pipe freeze protection applications.



## For Roofs, Downspouts and Gutters...

### ***Thermwire<sup>®</sup>-Melt***

**Thermwire<sup>®</sup>-Melt prevents costly structural damage to roofs, gutters and downspouts caused by ice and snow. Apply anywhere melting snow and ice can penetrate roof surface and refreeze, lifting shingles, pulling gutters away, and breaking gutters and downspouts.**

- Rugged, waterproof construction assures reliable operation
- Heat output of up to 12 Watts/ft. in snow, water and ice
- 150 ft. circuit lengths for 120 Volt cable
- 250 ft. circuit lengths for 240 Volt cable
- Available in 250 ft, 500ft rolls and by the foot

#### ***Construction***

- 16 AWG Buss Wires
- Self-Regulating Conductive Core
- Insulating Jacket
- Metallic Braid
- Waterproof Overjacket

#### ***Applications***

- Roof & Gutter De-Icing
- Snow Melting
- Metal or Plastic Pipes (up to 8" diameter)
- Wet Environments



# How much Thermwire®-Wrap do I need?

To select Thermwire®-Wrap for pipe applications, use the tables on the opposite page. Use Table 1 for insulated metal pipes and Table 2 for insulated plastic pipes.

1. Find your pipe size across the top of the table.
2. Read down the left column to find the coldest expected ambient temperature and the insulation thickness you plan to use.
3. Follow the table down and across to get the recommended cable type (3 Watts/ft. or 6 Watts/ft.).
4. Straight trace the pipe unless a spiraling ratio is indicated in the cable selection box (Spiraling Ratio 2.5 = 2.5 x total pipe length to be traced).

## Example

Assume that the *Metal Pipe Size* for your application is 4 inches in diameter, the minimum anticipated temperature is -20°F, and you will use a 1" thick insulation.

### Find Thermwire Type and Spiraling Ratio:

Table 1 (upper right) indicates you should use TW6, 6 Watts/ft. Thermwire with a spiraling ratio of **1.3**.

$$\text{Spiraling Ratio} = 1.3$$

### Measure Total Pipe Length:

Assume *Total Pipe Length* to be traced is 230 ft.

$$\text{Total Pipe Length} = 230 \text{ ft.}$$

### Multiply the Spiraling Ratio by the Total Pipe Length: Total

$$\text{TW6 Cable Required} = 1.3 \times 230 \text{ ft.} = \mathbf{299 \text{ ft.}}$$

## Circuit Breaker Selection Table

<i>TW3-1C Wrap</i>	<b>120 V</b>	<b>15A</b>	<b>20A</b>	<b>30A</b>	
	Start Up	0°	240	250	N/R
	°F	-20°	200	250	N/R
<i>TW6-1C Wrap</i>	<b>120 V</b>	<b>15A</b>	<b>20A</b>	<b>30A</b>	
	Start Up	0°	100	130	200
	°F	-20°	85	110	170
<i>TW6-2C Wrap</i>	<b>240 V</b>	<b>15A</b>	<b>20A</b>	<b>30A</b>	
	Start Up	0°	150	200	250
	°F	-20°	130	175	250

# Pipe Freeze Protection

**Table 1  
Metal Pipe**

Minimum Ambient Temperature	Insulation Thickness	Pipe Size										
		0.50	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	6.0	8.0
0°F	0.5								1.3	1.6	2.2	
	1.0										1.2	1.5
	1.5											
-20°F	0.5				1.1	1.3	1.6	1.9	2.3			
	1.0								1.3	1.8	2.2	
	1.5									1.3	1.6	
	2.0											1.2
-40°F	0.5			1.1	1.3	1.5	1.8	2.1	2.5	3.1		
	1.0							1.2	1.4	1.7	2.4	3.0
	1.5									1.2	1.7	2.1
	2.0										1.3	1.6

Color of box indicates Cable Type. Number in box indicates Spiraling Ratio.



TW3

TW6

Not Recommended

3 Watts/ft.

**Table 2  
Plastic Pipe**

Minimum Ambient Temperature	Insulation Thickness	Pipe Size									
		0.50	0.75	1.25	1.5	2.0	2.5	3.0	4.0	6.0	8.0

6 Watts/ft.

Note: TW3 is UL Listed for metal and plastic pipes; TW6 is UL Listed for metal pipe only.

Minimum Ambient Temperature	Insulation Thickness	Pipe Size										
		0.50	0.75	1.25	1.5	2.0	2.5	3.0	4.0	6.0	8.0	
0 ° F	0.5					1.2	1.4	1.6	1.9	2.4		
	1.0									1.3	1.8	2.3
	1.5										1.3	1.6
-20 ° F	0.5		1.1	1.3	1.5	1.7	2.0	2.4	2.8			
	1.0						1.2	1.4	1.6	1.9	2.7	
	1.5									1.1	1.4	1.9
	2.0										1.1	1.5
-40 ° F	0.5	1.2	1.4	1.7	2.0	2.3	2.7	3.1				
	1.0				1.2	1.4	1.6	1.8	2.1	2.6		
	1.5					1.1	1.2	1.3	1.5	1.9	2.5	
	2.0							1.1	1.2	1.5	2.0	2.5

# How much Thermwire<sup>®</sup>-Melt do I need?

*For roof and gutter applications, use 6 Watt ThermwireMelt, 120 or 240 Volts (TW6-1CR-Melt or TW6-2CR-Melt). The protective, waterproof outer jacket is suitable for wet applications in downspouts and roof drains.*

**1.To calculate the amount of Thermwire-Melt needed, multiply the roof edge length to be heat traced by the spacing factor. The spacing factor, the feet of cable required per foot of roof edge, is determined by the roof overhang, heating width (A) and heating height (B). Please see illustration and example on opposite page:**

Roof Overhang	A	B	Spacing Factor
	Heating Width	Heating Height	
12 inches	2 feet	18 inches	2
24 inches	2 feet	30 inches	3
36 inches	2 feet	42 inches	4

**2.Add the total gutter length and twice total downspout length to the figure calculated in step 1 to get the total length of cable required.**

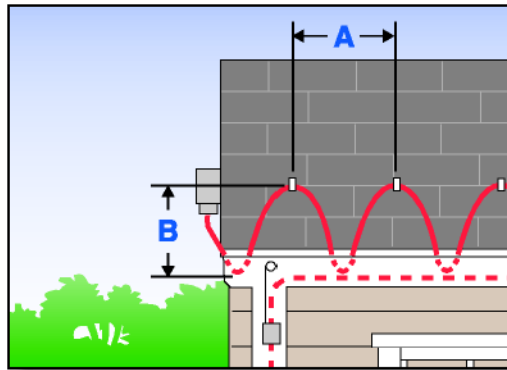
**3.Determine how many circuits are required. Divide the total length of cable by the maximum heater length per circuit (see Specifications). Round that number up (for example, 2.1 to 3) to get the total number of circuits.**

*Roof Clips and Downspout Hangers are available to assist in installation (see Accessories on back page).*

*Note: Agency approval voided if T-splices are used in roof and gutter applications. Allowances for continuous runs must be made.*

## Circuit Breaker Selection Table

<b>TW6-1CR Melt</b>	<b>120 V</b>	<b>15A</b>	<b>20A</b>	<b>30A</b>
Start Up	0°	90	120	175
°F	-20°	75	100	150
<b>TW6-2CR Melt</b>	<b>240 V</b>	<b>15A</b>	<b>20A</b>	<b>30A</b>
Start Up	0°	135	185	250
°F	-20°	120	160	250



$$\text{Roof Edge Length} \times \text{Spacing Factor} + \text{Total Gutter Length} + (2 \times \text{Total Downspout Length}) = \text{Total Cable Length}$$

**Example**

**Measure Roof Edge Length:** Assume Roof Edge Length is 100 ft.

Assume that the Roof Overhang for your application is 24 inches. Using the chart in Step 1 (left), you should install the cable with a Heating Width (A) of 2 feet and a Heating Height (B) of 30 inches. The Spacing Factor (from table) would be 3.

Multiply Roof Edge Length (100 ft.) x Spacing Factor (3) = 300 ft.

**Measure Gutters:**

Assume Gutter Length is 100 ft.

Gutter Length = 100 ft.

**Measure Downspouts:**

Assume Downspout Length is 12 ft.

Downspout Length x 2 = 12 ft. x 2 = 24 ft.

**Total Cable Length = 300 ft. + 100 ft. + 24 ft. = 424 ft.**

To select the **circuit breaker size** and **number of circuits**, assume that your ambient start-up temperature is 0°F, you are using 120V cable, and you are using 30A circuit breakers. The maximum circuit length (from table) would be 175 feet.

Divide the total Cable Length (in this example 424 ft.) by the max. Circuit Length (in this example 175 ft.) to determine the number of circuits.

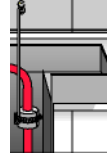
Total Cable Length **424 ft.** / **175 ft.** = **2.4 circuits** (round up to 3 circuits) =

Max Circuit Length **175 ft.**

## Downspout Hanger Kit

RDK-PAK

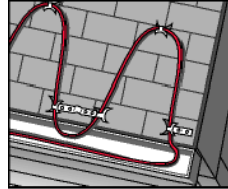
Use to suspend Thermwire-Melt heating cable in a gutter downspout. Protects and prevents damage to cable.



## Roof Clip Kit

RCK-PAK

Use to securely attach Thermwire heating cable to roof surface.

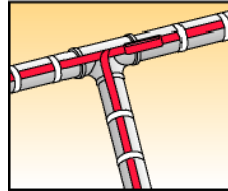


## Splice and Tee Kit

RG-SK-PAK

Use to make a water resistant barrier for connecting two or three heating cables together at one point. Includes materials for 2 Splice or 2 Tee connections.

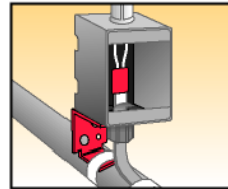
*Note: Agency approval voided if T-splices are used in roof and gutter applications. Allowances for continuous runs must be made.*



## Power Connection Kit

RG-PK-PAK

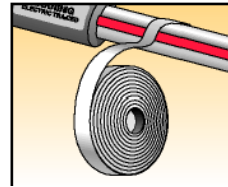
Use to terminate one powered end of Thermwire heating cable. Includes end seal kit and 5 warning labels.



## Application Tape Kit

ATK-PAK

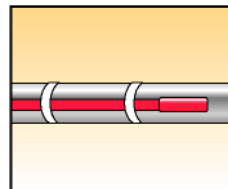
Glass cloth adhesive tape (1/2" x 66' roll) for affixing Thermwire heating cables to pipe, plus 10 "Electric Traced" Warning Labels.



## End Seal Kit

RG-EK-PAK

Use to terminate and seal the non-powered ends of Thermwire heating cable. Includes material for 3 End Seals.



LMI Manufacturing, LLC  
1802 N. Carson Street  
Carson City, NV 89701  
1-866-770-9416