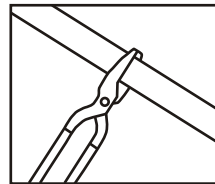
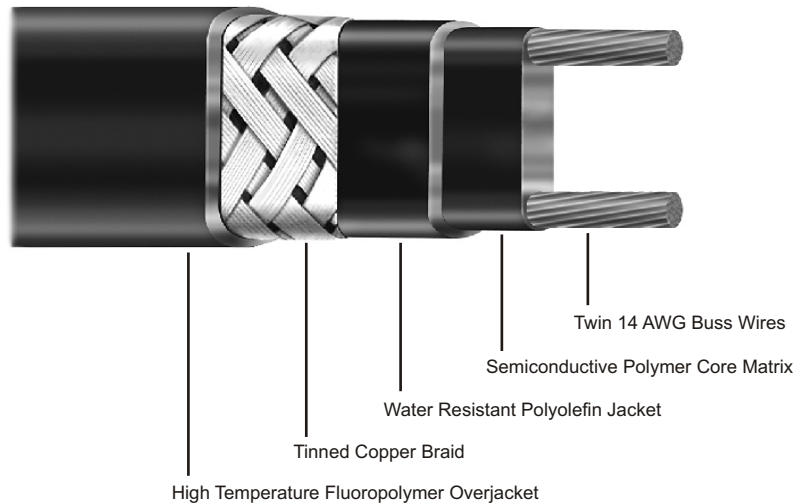
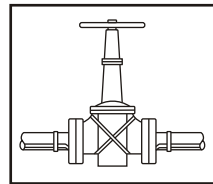


# HSRM, Div. 1 High Temperature Self-Regulating Heating Cable

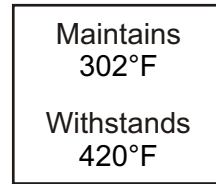
- Division 1 Hazardous Locations
- Self-Regulating, Energy Efficient
- 14 AWG Buss Wire
- Circuit Lengths to 780 Feet
- Process Temperature Maintenance to 302°F (150°C)
- Maximum Continuous Exposure Temperature (Power Off) 420°F (215°C)
- Industrial Process Applications
- Industrial Freeze Protection Applications
- Steam Cleanable on Process Equipment Up to 300 PSIG
- 5, 8, 10, 15 and 20 Watts per Foot
- 120 and 208-277 Volts Available From Stock
- For Use on Metallic Pipes Only
- Approximate Size 1/2" x 1/4"
- Minimum Bend Radius is 1-1/2"



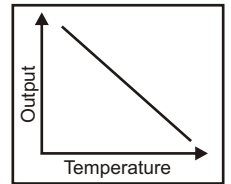
Cut to Any Length in Field



Can be Single Overlapped



High Temperature



Self Regulating

## Description:

Trasor HSRM self-regulating heating cable provides safe, reliable heat tracing for process temperature maintenance and freeze protection of pipes, valves, tanks and similar applications. Constructed of industrial grade 14 AWG buss wire with metal braid and optional overjacketing, HSRM ensures operating integrity in most hostile industrial environments. The 420°F (215°C) maximum exposure temperature rating allows steam cleaning of process equipment with up to 300 psig steam.

## Features:

- Industrial Grade, 14 gauge buss wire has higher current capacity, allowing longer circuit lengths up to 780 feet.
- Superior matrix to buss wire bonding ensures overall operating integrity and performance.
- High output, 20 W/Ft. heating cable.
- Energy efficient, self-regulating HSRM uses less energy when less heat is required.
- Easy to install, HSRM can be cut to length in field.
- Field splices can be performed easily in minutes.

- HSRM features lower installed cost than steam tracing, less maintenance expense, and less downtime.
- HSRM can be single overlapped without burnout.
- Because HSRM is self-regulating, overtemperature conditions are virtually impossible.
- Trasor termination, splice, tee and end seal kits reduce installation time.

## Approvals:

FM Approved for ordinary and hazardous areas when used with Trasor accessories:

- Class I, Div. 1, Groups B, C, D
- Class II, Div. 1, Groups F, G
- Class III, Div. 1

## Applications:

- Process Temperature Maintenance
- Hydrocarbon and Chemical Product Piping
- Freeze Protection of Periodically Steam-Cleaned Pipes
- Fluid Flow and Viscosity Maintenance

Note: Due to the nature of Division I hazardous location applications consultation with a factory representative is required.



## Heating Cable System Design:

### 1. Calculate Heat Loss

Using the Trasor Design Guide (J-123) for Heat Tracing, calculate the heat loss of the system. To calculate the heat loss (Watts/ft) you will need to know the pipe diameter, insulation type and thickness, minimum ambient temperature and the pipe maintenance temperature. Contact factory for design guide or application recommendations.

### 2. Select Cable Rating

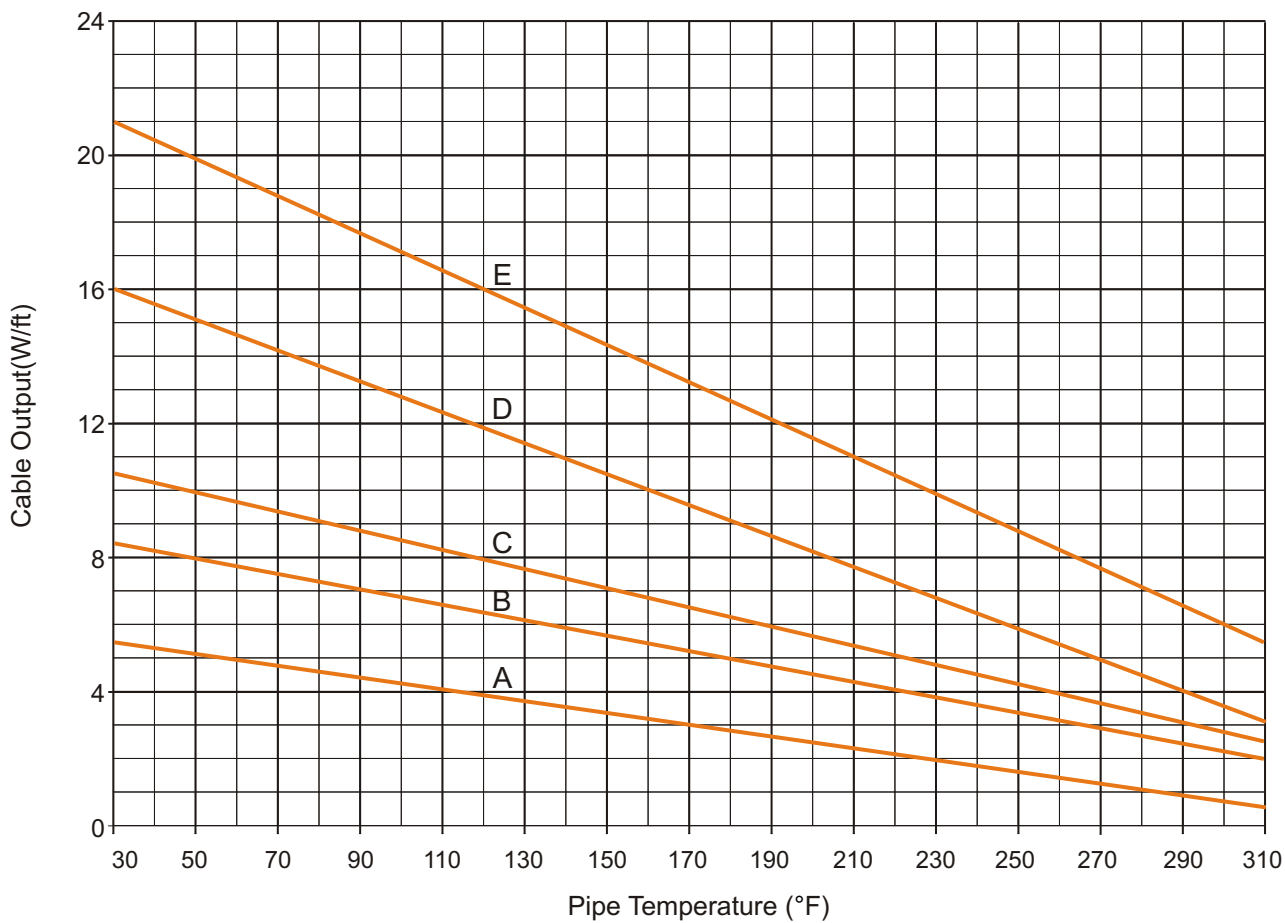
After calculating the heat loss for the pipe and adjusting for any application deviations, you may determine which cable rating to choose. Using the HSRM Thermal Output Ratings graph, select the lowest cable rating that will provide the required wattage at the pipe maintenance temperature. Adjust the cable output for line voltage if necessary. See table 2 for cable output at alternative voltages. Example: If the heat loss for a pipe at 150°F is 8 watts per foot, select curve "E" (HSRM15) that will produce 10.5 watts per foot at 150°F

### 3. Determine Total Cable Length

In addition to the system piping, in-line equipment such as valves, flanges and pipe supports require additional heat tracing to maintain the system operating temperatures. Reference Trasor design guide (J-123).

Total cable length = Total feet of traced pipe + Cable allowance for components

## Thermal Output Ratings On Insulated Metal Pipe:



### Conversions:

Watts/Meter = Watts/Foot x 3.28  
 °C = (°F - 32) / 1.8

| Output Curve | W/Ft @50°F | Model Number |
|--------------|------------|--------------|
| A            | 5W/Ft      | HSRM5        |
| B            | 8W/Ft      | HSRM8        |
| C            | 10W/Ft     | HSRM10       |
| D            | 15W/Ft     | HSRM15       |
| E            | 20W/Ft     | HSRM20       |

### Circuit Breaker Selection:

Circuit protection depends on the cable size being used and the start-up temperature. The National Electric Code (NEC 2002) requires the use of ground fault protection breakers for heating cable. A 30mA trip is recommended to avoid nuisance tripping. The following chart shows the maximum circuit length for a given breaker rating, at different start-up temperatures.

**Table 1**

| Watts/Ft. | Start-up Temp. | Maximum Circuit Length (ft.) vs. Breaker Size (Amps) |     |     |     |     |           |     |     |     |     |
|-----------|----------------|--|-----|-----|-----|-----|-----------|-----|-----|-----|-----|
|           |                | 120 Volts  |     |     |     |     | 240 Volts |     |     |     |     |
|           |                | 15A  | 20A | 30A | 40A | 50A | 15A       | 20A | 30A | 40A | 50A |
| 5         | 50°F           | 180  | 240 | 360 | 375 | NR  | 360       | 480 | 720 | 750 | NR  |
|           | 0°F            | 165  | 220 | 330 | 375 | NR  | 325       | 430 | 645 | 750 | NR  |
|           | -20°F          | 155  | 210 | 310 | 375 | NR  | 310       | 415 | 620 | 750 | NR  |
| 8         | 50°F           | 145  | 190 | 285 | 325 | NR  | 285       | 380 | 575 | 650 | NR  |
|           | 0°F            | 135  | 175 | 265 | 325 | NR  | 255       | 345 | 520 | 650 | NR  |
|           | -20°F          | 130  | 165 | 250 | 325 | NR  | 245       | 335 | 490 | 650 | NR  |
| 10        | 50°F           | 95   | 125 | 190 | 250 | NR  | 190       | 255 | 385 | 490 | NR  |
|           | 0°F            | 90   | 110 | 175 | 250 | NR  | 165       | 225 | 345 | 490 | NR  |
|           | -20°F          | 85   | 100 | 170 | 245 | 250 | 155       | 215 | 330 | 470 | NR  |
| 15        | 50°F           | 70   | 95  | 145 | 190 | 210 | 145       | 190 | 290 | 385 | 420 |
|           | 0°F            | 65   | 85  | 125 | 165 | 210 | 120       | 175 | 270 | 360 | 420 |
|           | -20°F          | 60   | 80  | 120 | 150 | 210 | 115       | 165 | 260 | 340 | 420 |
| 20        | 50°F           | 60   | 75  | 115 | 155 | 160 | 115       | 155 | 230 | 305 | 350 |
|           | 0°F            | 50   | 65  | 105 | 140 | 160 | 100       | 135 | 200 | 270 | 350 |
|           | -20°F          | 45   | 65  | 100 | 135 | 160 | 90        | 130 | 195 | 255 | 335 |

Thermal magnetic circuit breakers are recommended since magnetic breakers could “nuisance trip” at low temperature. NR = Not Required. Maximum circuit length has been reached in a smaller breaker size.

### Cable Specifications and Ratings:

**Table 2**

| Model Number | Operation Voltages (Vac) | Cable Output (W/Ft.) @50°F |      |  |            |             | Maximum Circuit Length (Ft.) ② | T-Rating ③ |
|--------------|--------------------------|----------------------------|------|--|------------|-------------|--------------------------------|------------|
|              |                          | Standard Voltages          |      | Alt. Voltages w/ (Output Multiplier) ① |            |             |                                |            |
|              |                          | 120V                       | 240V | 208V                                   | 220V       | 277V        |                                |            |
| HSRM5-1CT    | 120                      | 5                          | -    | -                                      | -          | -           | 375                            | T3C        |
| HSRM5-2CT    | 208-277                  | -                          | 5    | 3.9 (.77)                              | 4.3 (.85)  | 6.5 (1.23)  | 750                            | T3C        |
| HSRM8-1CT    | 120                      | 8                          | -    | -                                      | -          | -           | 325                            | T3C        |
| HSRM8-2CT    | 208-277                  | -                          | 8    | 6.4 (.80)                              | 6.9 (.86)  | 10.2 (1.22) | 650                            | T3C        |
| HSRM10-1CT   | 120                      | 10                         | -    | -                                      | -          | -           | 250                            | T3A        |
| HSRM10-2CT   | 208-277                  | -                          | 10   | 8.3 (.83)                              | 8.8 (.88)  | 12.5 (1.20) | 490                            | T3A        |
| HSRM15-1CT   | 120                      | 15                         | -    | -                                      | -          | -           | 210                            | T2C        |
| HSRM15-2CT   | 208-277                  | -                          | 15   | 12.8 (.85)                             | 13.5 (.90) | 18.5 (1.19) | 420                            | T2C        |
| HSRM20-1CT   | 120                      | 20                         | -    | -                                      | -          | -           | 160                            | T2C        |
| HSRM20-2CT   | 208-277                  | -                          | 20   | 17.6 (.88)                             | 18.4 (.92) | 24.4 (1.19) | 350                            | T2C        |

① Use multiplier to adjust cable output from output graph at temperatures other than 50°F.

② See Table 1 for maximum circuit lengths by start-up temperature and breaker size.

③ T-Rating codes define the maximum surface temperature that the equipment will reach. Used in hazardous areas. Reference National Electric Code.

# HSRM

## Ordering Information:

HSRM = Self-Regulating, High Temperature Heating Cable      HSRM - CT

**Power Rating**

- 5 = 5 Watts/Ft.
- 8 = 8 Watts/Ft.
- 10 = 10 Watts/Ft.
- 15 = 15 Watts/Ft.
- 20 = 20 Watts/Ft.

**Voltage Rating**

- 1 = 120V
- 2 = 208-277V

**Braid**

CT = Tinned copper metallic braid for ground path fluoropolymer corrosion resistant overjacket. Specifically tested for Division I environments.

Note: Due to the nature of Division I hazardous location applications consultation with a factory representative is required.

To Order: Specify length, model number, and installation accessories.  
Example: HSRM8-2CT, 8W/Ft. Heating cable @ 240V

| Cable Weight/1000 Ft. (Lbs) |    |
|-----------------------------|----|
| HSRM                        | 80 |

## Accessories:

Trasor has a complete line of accessories specifically designed for use with HHSRL cable. Use only Trasor accessories to ensure the performance of the heat trace system.

**Table 3**

| Accessory        | Part Number                    | Description  |
|------------------|--------------------------------|--|
| Thermostat       | TXL-L1S<br>TXR-L2S             | NEMA 7 Air-sensing thermostat<br>NEMA 7 Pipewall-sensing thermostat  |
| Power Connection | HL-PC<br>HL-S<br>HL-T<br>HL-ES | Power connection kit.<br>Splice kit.<br>Tee kit.<br>End seal kit.  |
| Pipe Straps      | PS-1<br>PS-3<br>PS-10          | Pipe strap to mount power connection box to pipe, 1/2 - 3/4" pipes<br>Pipe strap to mount power connection box to pipe, 1 - 3-1/2" pipes<br>Pipe strap to mount power connection box to pipe, 2-1/2 - 9" pipes |
| Fiberglass Tape  | FGT-180                        | Fiberglass tape to secure cable to pipe, 180' roll x 1/2", install on 12" centers.   |
| Aluminum Tape    | HTF-150-2                      | Aluminum tape to enhance heat transfer, 150 foot roll.<br>Apply over cable along entire length of circuit.   |
| Caution Labels   | EHTL-1                         | "Electric Heat Tracing" caution labels, 5 per package.<br>Install every 20 feet.   |