Type LT Self-Regulating Heater Cable

For use in Ordinary (Unclassified) and Hazardous (Classified) Locations

UL:
- CB, JT or -J options: Class I, Division 2, Groups A, B, C, D; Class II, Division 2, Groups F, G; Class I, Zone 1, AEx e II
- D1- option: Class I, Division 1, Groups B, C, D; Class II, Division 1, Groups E, F, G; Class III
CSA:
- CB, -JT or -J options: Class I, Division 2, Groups B, C, D; Class II, Division 2, Groups E, F, G; Class III, Class I, Zone 1, Group IB, Zone 1, Ex e II T6 (TS)
FM:
- CB, -JT or -J options: Class I, Division 2, Groups A, B, C, D; Class II, Division 2, Groups F, G; Class I, Zone 1, AEx e II; Group IIC

Operating Principle

- The parallel bus wires apply voltage along the entire length of the heater cable.
- The conductive core provides an infinite number of parallel conductive paths permitting the cable to be cut to any length in the field with no dead or cold zones developing.
- The heater cable derives its self-regulating characteristic from the inherent properties of the conductive core material.
- As the core material temperature increases, the number of conductive paths in the core material decrease, automatically decreasing the heat output.
- As the temperature decreases, the number of conductive paths increase, causing the heat output to increase.
- This occurs at every point along the length of the cable, adjusting the power output to the varying conditions along the pipe.
- The self-regulating effect allows the cable to be overlapped without creating hot spots or burnout.
- As the cable self-regulates its heat output, it provides for the efficient use of electric power, producing heat only when and where it is needed, and also limiting the maximum sheath temperature.

Description

- Nelson Type LT self-regulating heater cable is a parallel circuit electric heater strip.
- An irradiation cross-linked conductive polymer core material is extruded over the multi stranded, tin-plated, 16 gauge copper bus wires.
- The conductive core material increases or decreases its heat output in response to temperature changes.
- Two jackets provide extra dielectric strength, moisture resistance, and protection from impact and abrasion damage.
- The inner thermoplastic jacket is extruded over and bonded to the core material.
- A thermoplastic elastomer over jacket is then extruded over the inner jacket.
- A stranded tinned copper metal braid is supplied on all heaters.
- An optional over jacket (fluoropolymer or modified polyolefin) can be specified when the heater cable is to be installed in wet or corrosive environments.
- The base product is supplied with a tinned copper metal braid that may be used in both general applications and in dry, non corrosive hazardous (classified) areas.

Application

- Nelson Type LT self regulating heater cable is ideal for use in maintaining fluid flow under low ambient conditions.
- Freeze protection and low watt density process temperature systems such as product pipelines, fire protection, process water, dust suppression systems, lube oil, condensate return, domestic hot water ⊙ and structure anti-icing are typical applications for this product.

Certifications and Compliances

- UL Standard: 50 Ed. 12
- UL Listed: E53501, E49805
- CSA Standard: C22.2 No. 130-16, C22.2 No. 94-R2011, C22.2 No. 213-16
- CSA Certified: LR42103, LR42104
- FM Approved: JI 1B7A1.AX, JI 3B3A6.AX

Accessories

- Nelson AX Series Connection Kits for Power, Splice, Tee Splice, Powered Splices and End Terminations
- Nelson HASK Series Division 1 Connection Kits for Power, Splice, Tee Splice and End Terminations
- Nelson EX Series Zone 1 Connection Kits for Power, Splice, Tee Splice and End Terminations
- Nelson TA, TH, TE and HC Series Thermostats and Contactors
- Junction Boxes, Tapes and Warning Signs
- Custom Control, Monitoring and Power Panels

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### Performance Rating

<table>
<thead>
<tr>
<th>Service Voltage</th>
<th>Maximum Maintenance Temperature °C (°F)</th>
<th>Maximum Intermittent Exposure °C (°F)</th>
<th>Watts/m (Watts/ft)</th>
<th>T-Rating</th>
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<tbody>
<tr>
<td>120</td>
<td>65 (150)</td>
<td>85 (185)</td>
<td>10 (3)</td>
<td>T6</td>
</tr>
<tr>
<td>240</td>
<td>65 (150)</td>
<td>85 (185)</td>
<td>16 (5)</td>
<td>T6</td>
</tr>
<tr>
<td>120</td>
<td>65 (150)</td>
<td>85 (185)</td>
<td>26 (8)</td>
<td>T5</td>
</tr>
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<td>65 (150)</td>
<td>85 (185)</td>
<td>33 (10)</td>
<td>T5</td>
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### Circuit Breaker Selection

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<tr>
<th>Watts/m (Watts/ft)</th>
<th>Start-Up Temp. °C (°F)</th>
<th>120 Vac Maximum Length in Meters (Feet) Vs. Circuit Breaker Size</th>
<th>240 Vac</th>
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<tr>
<td>10 (3)</td>
<td>65 (320)</td>
<td>15A: 190 (630) 225 (740) 225 (740) 225 (740) 225 (740)</td>
<td>15A: 190 (630) 225 (740) 225 (740) 225 (740) 225 (740)</td>
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<tr>
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<td>115 (370)</td>
<td>20A: 140 (465) 175 (580) 225 (740) 225 (740) 225 (740)</td>
<td>20A: 140 (465) 175 (580) 225 (740) 225 (740) 225 (740)</td>
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<tr>
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<td>115 (370)</td>
<td>30A: 115 (385) 155 (515) 225 (740) 225 (740) 225 (740)</td>
<td>30A: 115 (385) 155 (515) 225 (740) 225 (740) 225 (740)</td>
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<tr>
<td>16 (5)</td>
<td>65 (320)</td>
<td>15A: 135 (445) 170 (560) 170 (560) 170 (560) 170 (560)</td>
<td>15A: 135 (445) 170 (560) 170 (560) 170 (560) 170 (560)</td>
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<td>20A: 90 (300) 120 (400) 170 (560) 170 (560) 170 (560)</td>
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<td>30A: 85 (280) 120 (400) 170 (560) 170 (560) 170 (560)</td>
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</tr>
</tbody>
</table>

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Type LT Self-Regulating Heater Cable
For use in Ordinary (Unclassified) and Hazardous (Classified) Locations

UL:
- CB, JT or -J options:
  Class I, Division 2,
  Groups A, B, C, D;
  Class II, Division 2,
  Groups F, G; Class I,
  Zone 1, AEx e II
UL:
- D1- option: Class I,
  Division 1, Groups B,
  C, D; Class II, Division
  1, Groups E, F, G;
  Class III
CSA:
- CB, -JT or -J options:
  Class I, Division 2,
  Groups B, C, D;
  Class II, Division
  2, Groups E,
  F, G; Class III, Class I,
  Zone 2, Group IIB+H2
CSA:
- J option: Class I,
  Division 1, Groups B,
  C, D; Class II, Division
  1, Groups E, F, G; Class
  I, Zone 1, Group IIB,
  Zone 1, Ex e II T6 (TS)
FM:
- CB, -JT or -J options:
  Class I, Division 2,
  Groups A, B, C, D;
  Class II, Division 2,
  Groups F, G; Class III
FM:
- J option: Class I, Zone
  1 AEx e II; Group IIC

Power Output Rating

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## Type LT Self-Regulating Heater Cable

For use in Ordinary (Unclassified) and Hazardous (Classified) Locations

<table>
<thead>
<tr>
<th>Service Voltage</th>
<th>Maximum Segment Length Meters (Feet)</th>
<th>Description</th>
<th>Catalog Number</th>
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<td>120</td>
<td>115 (370)</td>
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<td>LT3-CB</td>
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<td>Tinned Copper Braid and Fluoropolymer</td>
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<td>Tinned Copper Braid and Modified Polyolefin</td>
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<td>70 (225)</td>
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<td>LT210-CB</td>
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Type LT Self-Regulating Heater Cable

For use in Ordinary (Unclassified) and Hazardous (Classified) Locations

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<tr>
<th>Voltage Adjustment ⚠</th>
<th>Absolute Max Length</th>
<th>208 Vac</th>
<th>220 Vac</th>
<th>277 Vac</th>
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<td>Meters (Feet)</td>
<td>Power Length</td>
<td>Power Length</td>
<td>Power Length</td>
<td>Power Length</td>
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<td>225 (740)</td>
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<td>0.85 0.96</td>
<td>1.27 1.07</td>
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<td>135 (450)</td>
<td>0.84 0.93</td>
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<td>0.86 0.93</td>
<td>0.92 0.96</td>
<td>1.16 1.09</td>
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</tbody>
</table>

⚠ Use of self-regulating heater products at other than rated voltages require minor adjustments in power and maximum circuit lengths.

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