Maintain pipe temperatures in demanding industrial and harsh environments

Nelson™ Heat Trace Technologies

A complete range of tailored heat trace solutions for the most demanding environments.

EMERSON™

Tailored solutions with innovative installation, control and monitoring technologies.

At Emerson, we are committed to finding the most cost-effective solution to your heat trace requirements, regardless of size or scope. Trained on the specialized requirements of mineral insulated cable design, our Nelson™ application and engineering group can design systems utilizing all major product technologies; self-regulating, parallel constant-wattage and series resistance heating products.

Our expertise goes beyond just heat tracing, we can help you incorporate all of your needs into a fully integrated package. From simple material selection to complete plant surveys, we can provide exactly the level of service your project needs and demands. With over 65 years in the industry, we can deliver the most efficient and cost-effective solutions available.

Nelson industrial heat trace products incorporate traditional heat trace design philosophies with innovative installation, control and monitoring technologies.

Unbiased Expertise

If you choose a heat trace system, we will provide the right products that fit your application even if that means recommending an alternative solution. It is our corporate pledge that guides every step in the design, installation, operation, and continued support of your system.

For our customers and partners who prefer to design their own systems, we offer tools to simplify your efforts such as our Nelson Design Suite. Just like our in-house engineering department, this tool provides you with the ability to design with products from all major heating cable technologies.

Unique Solutions

We know your application is unique, and your reputation is riding on a system that provides flawless operation and years of reliability. With over 50 years of industry firsts, advances and breakthroughs, we can provide a complete offering of products with global approval to fit your application. Each customer engagement offers us a unique opportunity to prove and improve our existing systems.

Create Value

From control panels to termination kits, Emerson can provide a complete system, with optimum reliability, at a very competitive price. Because we manufacture all of our own equipment, we can provide a single integrated product line with sales and support personnel to service clients anywhere in the world. Our Nelson Heat Trace products allow our clients to focus on their business and simplify their lives with a single point of contact, while being offered concept to completion project design and support.

Global products with a global reach.

Mineral Insulated Cable

We have pioneered the use of mineral insulated heating cables for industrial applications that require higher temperatures, extended heater life and efficient power output. With one or two heating elements surrounded by magnesium oxide insulation, maximum exposure temperatures of +593°C (+1100°F) are possible.

Self Regulating Cable

Time proven, extremely reliable, field cut-to-length, Nelson self-regulating heating cables are ideal for both freeze protection and process maintenance applications. These heater cables feature multiple power output and voltage ratings.

Connection Systems

Emerson can provide a wide range of connection systems to meet the global installation requirements for Zone and Division locations. Most of our Nelson heating cables are cut-to-length and assembled in the field. These systems require kits for connecting to the power supply, configuring multiple cables and sealing electrical components from the surrounding environment.

It's important to note. Our mission is to make it easy to develop accurate, cost-effective, solutions to your heat tracing requirements. By utilizing our heat trace selection software, we take the guess work out of heat tracing applications. If you need quick and accurate engineering calculations, our Nelson Design Suite Software makes you the expert.

Heat Trace Technology for Any Application

Mineral Insulated Cable

- Wrapped in a corrosion resistant alloy 825 sheath, MI heating cables feature excellent chemical resistance, including immunity from harsh chloride stress corrosion.
- Our unique manufacturing process results in a product that is superior in durability, flexibility, and ease of installation.

Self Regulating Cable

HLT

LT-JT

- Our self-regulating heating cables automatically alter their output in response to temperature changes –an increase in heat as the pipe cools, a decrease in heat as the temperature rises.
- Cables are tested and certified to ensure they operate effectively even in the harshest of environments.
- These self-regulating heating cables are suitable for installation on metallic and non-metallic piping systems, tanks and vessels for freeze protection or process temperature maintenance up to +150°C (+300°F) and exposure temperatures up to +230°C (+450°F).

Integral Connection Kits

Component Connection Kits

Optional External End Termination

- Manufactured using the highest quality materials, these systems are designed to handle the wide temperature ranges and chemical exposures found in today's industrial facilities.
- Pipe mounted and component based connections meet the stringent demands for heat trace applications.

Simply intelligent heat trace control.

Temperature Control

We can provide the right system for your specific needs, from simple electro-mechanical thermostats to sophisticated electronic control and monitoring systems.

Control Systems

Temperature control and cable monitoring systems are designed to simplify maintenance of electrical heat tracing systems and provide real time verification of operational parameters.

Multi Point Control Systems

Our Nelson Heat Trace multi point control systems provide an economical approach to process control where large concentrations of heater circuits are present. All functional and operational parameters are continuously monitored to ensure system integrity.

Monitoring and Distribution Panels

Stand-alone monitoring systems are available for new installations and are designed to retrofit into existing installations that require additional monitoring capabilities. Control status, supply voltage, current and buss wire continuity can be monitored, alarmed and communicated to plant personnel 24/7.

Comprehensive Product Systems

Ambient Mechanical Thermostat

Explosionproof/ Flameproof Mechanical Thermostat

Weatherproof Mechanical Thermostat

- Mechanical thermostats provide a cost effective control option for most heat tracing installations.
- Thermostats are available in a variety of enclosures including NEMA 4, 4X and 7 for use in hazardous and nonhazardous locations.

Control Systems

- Single point and dual point, microprocessor based control systems provide the ultimate in flexibility to remote plant location or small installations requiring a higher level of process control.
- With all the attributes of distributive control systems, these controllers can be seamlessly integrated into larger plant wide monitoring networks.

Multi Point Control Systems

- Multi point control systems provide a compact, tightly integrated, factory assembled/tested solution for high density plant locations.
- Temperature, load current and ground leakage conditions are identified and communicated to plant personnel allowing maintenance to be performed as needed to reduce or eliminate costly down-time.
- Negative trends are noted on a maintenance pending list, while more severe problems are removed from service and alarmed.

Monitoring and Distribution panels

- Standard monitoring and distribution panels are designed to meet the specific demands of electrical heat tracing systems.
- Energy saving control options that monitor actual design conditions can reduce operational costs by up to 70% over conventional control schemes.

Innovative and reliable heat trace solutions for demanding environments.

Nelson is the cornerstone of Emerson's Electrical and Light business; providing worldwide heat trace solutions that ensure optimum control and cost-efficient operations.

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EMERSON

CONSIDER IT SOLVED™

Keep fluids flowing at consistent temperatures even in freezing conditions.

Nelson™ Heat Trace Systems

Pipe freeze protection and low-temperature maintenance systems for commercial applications

EMERSON™

Sometimes insulating your pipes is not enough.

Self-regulating heater cables are ideal to ensure pipes maintain specific temperatures.

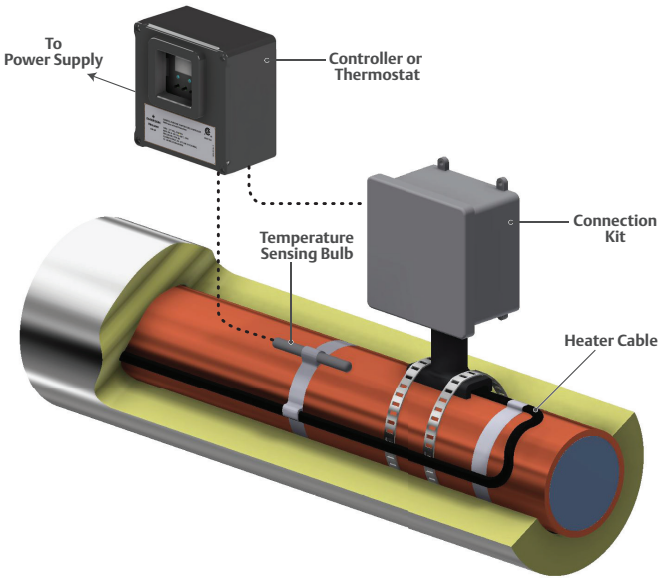
In many parts of the country, frigid temperatures can result in water freezing and pipes bursting, or liquid setting and plugging the pipe. Insulating the pipes is not always enough to protect them from loosing heat in these conditions. Loss of heat within the pipe can lead to costly repairs or facility shutdowns.

What if you could install a solution that allows you to operate it without the worry of overheating the pipes and their contents. A system designed for your facility's requirements?

" Having a system that provides a steady temperature is critical to our business. Having one that provides simple, reliable operation, means less time has to be spent monitoring the cables for hot-spots in the pipe."
- Worker at an automotive company.

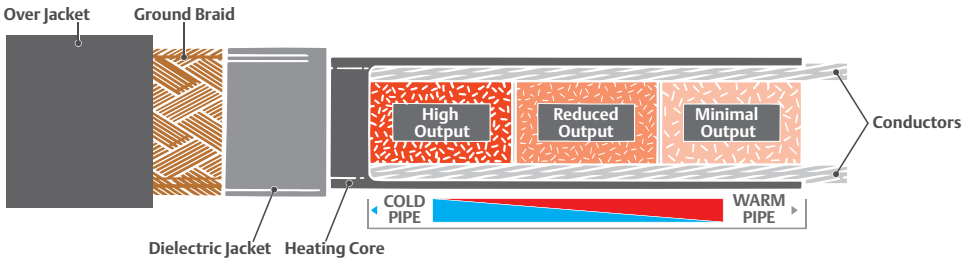
" The advantages of a self-regulating heater cable installed in the facility are vast. But knowing that we don't need antifreeze in the system removes the possibility of chemical leaks. That makes the facility safer for all of us."
- Engineer at a building management company.

Keep your pipes a consistent temperature.



Nelson pipe freeze protection and low-temperature maintenance systems by Emerson are the ideal solutions to ensure frigid temperatures don't slow you down. Self-regulating heater cable combined with the right connection kits, thermostats, cable controllers and monitors ensure that the pipes they are installed on and the equipment they are connected to remain operational — no matter the surrounding temperatures. By replacing the lost heat, the pipe and fluids inside of them can be kept at a constant temperature, eliminating any heat loss while preventing freezing.

Operating Principle of Self-Regulating Heater Cables



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 it 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.

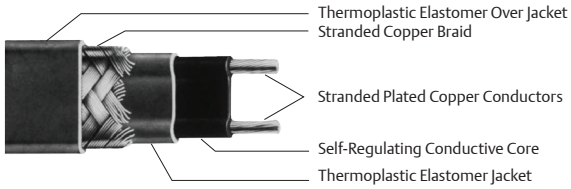
Self-Regulating Heater Cable

Ideal for Harsh and Rugged Commercial Applications.

Nelson Heat Trace heater cable is designed to replace heat lost through the thermal insulation from equipment in the system. Our self-regulating heater cable will adjust its own output in response to pipe temperature and is available in a variety of temperature and power ratings.

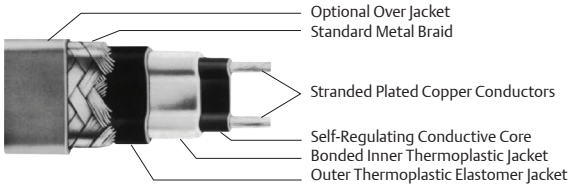
Nelson Type CLT

- Designed for use in Ordinary (Unclassified) Locations
- Ideal for use in maintaining fluid flow under low ambient conditions and for freeze protection and low watt density process temperature systems. Typical applications include pipelines, fire protection, process water, hot water and structure anti-icing.



Nelson Type LT

- Designed for use in Ordinary (Unclassified) and Hazardous (Classified) Locations
- Ideal for use in maintaining fluid flow under low ambient conditions. Typical applications include freeze protection and low watt density process temperature systems such as product pipelines, fire protection, process water, lube oil and condensate return.



Product Feature	CLT Cable	LT Cable
Applications	Water Supply Lines Drain Lines Grease Lines Fuel Oil Lines	Water Supply Lines Drain Lines Grease Lines Fuel Oil Lines
Maximum Power Rating	8 W/ft (26 W/m)	10 W/ft (33 W/m)
Maximum Voltage	277 Vac	277 Vac
Available Over Jacket Material	Modified Polyolefin	Modified Polyolefin Fluoropolymer
Bus Wire Size	18 Gauge	16 Gauge
Certifications and Compliance	Ordinary (Unclassified) Locations: • UL Listed • CSA Certified	Ordinary (Unclassified) & Hazardous (Classified) Locations: • UL Listed • CSA Certified • FM

Connection Kits for Self-Regulating Heater Cable

Ideal for Harsh and Rugged Commercial Applications.

Nelson Heat Trace connection kits are approved for use in ordinary (unclassified) and Division 2 hazardous areas when used with Nelson Heat Trace field-fabricated heating cables.

Nelson PLT-BC

- Non-metallic connection kit suitable for connecting up to two heating cables to customer supplied power wiring.
- Kit Contents:
  - 1 Universal Base, Box Adapter, Sealing Gasket, O-Ring and Locknut
  - 1 Junction Box with Sealing Gasket and Cover
  - 1 Sealing Grommet
  - 1 Power Termination and Cable End Seal with Adhesive Sealant
  - 1 3-Point Floating Terminal Block
  - 1 Ground Connection Splice
  - 2 Stainless Steel Pipe Clamps

Nelson PLT-BS

- Non-metallic connection kit designed for connecting two heating cables in an in-line splice configuration.
- Kit Contents:
  - 1 Universal Base, Box Adapter, Sealing Gasket, O-Ring and Locknut
  - 1 Junction Box with Sealing Gasket and Cover
  - 1 Universal Sealing Grommet
  - 2 Power Terminations with Adhesive Sealant
  - 1 3-Point Floating Terminal Block
  - 1 Ground Connection Splice
  - 2 Stainless Steel Pipe Clamps

Nelson PLT-BY

- Non-metallic connection kit designed for connecting three heating cables in a tee splice configuration.
- Kit Contents:
  - 1 Universal Base, Box Adapter, Sealing Gasket, O-Ring and Locknut
  - 1 Junction Box with Sealing Gasket and Cover
  - 1 Watertight Connection Fitting and Hi-Temp Flexible Tubing
  - 1 Sealing Grommet
  - 3 Power Terminations and 2 Cable End Seals with Adhesive Sealant
  - 1 3-Point Floating Terminal Block
  - 1 Ground Connection Splice
  - 2 Stainless Steel Pipe Clamps

Nelson PLT-L

- Non-metallic connection kit designed as end-of-circuit indicating light assemblies utilizing low temperature LED lamps. They are suitable for 120/208/240/277 Vac operation.
- Kit Contents:
  - 1 Universal Base, Box Adapter, Sealing Gasket and Locknut
  - 1 Junction box with Sealing Gasket and Cover
  - 1 Pilot Light Assembly (Specify Voltage)
  - 1 Sealing Grommet (Specify Cable Construction)
  - 1 Power Termination with Adhesive Sealant
  - 1 Ground Connection Splice
  - 2 Stainless Steel Pipe Clamps (specify pipe size)

Self-Regulating Heater Cable Thermostats

Ideal for Harsh and Rugged Commercial Applications.

Nelson Heat Trace thermostats are approved for use in ordinary (unclassified) and Division 2 hazardous areas when used with Nelson Heat Trace field-fabricated heating cables.

Nelson TA4X140

- For ambient temperature control in ordinary (unclassified) or corrosive locations.
- NEMA Type 4X, IP66, die cast aluminum enclosure with single pole, double throw switch
  - Temperature Range: -9°C to +60°C (+15°F to +140°F)
  - Exposure: -40°C to +71°C (-40 to +160°F)
  - Capillary:
    - Length: N/A
    - Material: Stainless Steel
    - Maximum Bulb Temperature: +71°C (+160°F)
  - Electrical Data: 22 amp resistance 480 Vac
  - Calibration Accuracy: +1.1°C (+2°F)

Nelson TH4X325

- For controlling heat tracing systems in ordinary (unclassified) or corrosive locations.
- NEMA Type 4X, IP66, die cast aluminum enclosure with single pole, double throw switch
  - Temperature Range: -4°C to +163°C (+25°F to +325°F)
  - Exposure: -40°C to +71°C (-40°F to +160°F)
  - Capillary:
    - Length: 3 m (10 ft)
    - Material: Stainless Steel
    - Maximum Bulb Temperature: +215°C (+420°F)
  - Electrical Data: 22 amp resistance 480 Vac
  - Calibration Accuracy: +1.6°C (+3°F)

Nelson TF4X40

- For use with Nelson Type CLT and LT heater cable.
- For controlling heat tracing systems in ordinary (unclassified) or corrosive locations.
- NEMA Type 4X, IP66, molded fiberglass enclosure with single pole, single throw switch
  - Temperature Range:
    - Fixed Range: 4.4°C (40°F)
  - Exposure: -40°C to 71°C (-40°F to +160°F)
  - Capillary Length: 0.9 m (3 ft)
  - Material: Tin Plated Copper
  - Maximum Bulb Temperature: +71°C (+160°F)
  - Electrical Data: 22 amp resistance 480 Vac
  - Calibration Accuracy: +2.2°C (+4°F)

Heating cable solutions for temperature-related problems

NELSON™

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