Industrial Heat Tracing
Products and Services

Raychem
Pyrotenax
TRACER
DigiTrace
TRACERLYNX

tyco
Thermal Controls
We manage the heat you need
**Tyco Thermal Controls** is The Leading Full-Service Integrator

Complete Construction, Project Management and Maintenance Provider

Global Heat-Tracing System Engineering and Design Capability

Greater Product Selection and Quality

Innovative Products and Services

The Most Advanced Line of Control and Monitoring Systems

Before You Buy, Weigh the Facts

More Than a Billion Feet of Safe, Sure Heat
For Every Heat-Tracing Need, Depend on the Undisputed Industry Leader

Tyco Thermal Controls stands as the world leader in heat-tracing solutions for industrial markets. An innovation company, Tyco Thermal Controls offers world class products and turnkey services under such industry renowned names as Raychem, Tracer, Pyrotenax, DigiTrace, and TRACERLYNX.

Our Tracer Services Division is widely regarded as the premiere provider of turnkey heat-tracing solutions in the industrial market today. Offering turnkey engineering, design, construction and maintenance, Tyco Thermal Controls is capable of handling heat-tracing projects of any size and scope. By focusing on safety and utilizing our time-tested methods and solutions, Tyco Thermal Controls’ heat-tracing designs and installations are timely, thorough, and cost-effective.

Tyco Thermal Controls has sold over one billion feet of Raychem brand self-regulating heating cable. As the inventor of self-regulating heat tracing, our Raychem brand is known for technical leadership and expertise in polymer science and radiation cross-linking—both critical parts of the process.

Tyco Thermal Controls’ DigiTrace brand offers the most advanced line of heat-trace control and monitoring systems—from single circuit mechanical thermostats to multi-circuit, microprocessor-based networked systems. Easy to use interface technologies put information and programming at your fingertips. Our Pyrotenax brand Mineral Insulated heating cable has been an industry leader for over 75 years.
A complete electrical heat-tracing system is much more than just the heating cable. Tyco Thermal Controls provides a complete system from electrical transformer and heat-trace panel to power connections, heating cable, end terminations, and other accessories. We supply the individual components, provide engineering and design and install and maintain the entire system.

Note: The illustrations on these pages do not necessarily depict actual applications and installations.
A steam-tracing system may be chosen for a particular site or process consideration. A complete system can consist of a steam supply source, steam tubing, valves, traps, and return lines. Tyco Thermal Controls can supply a complete steam-tracing system from engineering, design, material supply and installation.
A Heat Management System (HMS) is an engineered system designed to maintain or protect process piping, equipment, vessels and instruments at predetermined temperatures and within defined design criteria.

Safety
Safety is our number one concern. We are recognized as a leader in the industry in safety performance by consistently challenging the norm through safety innovations including training and motivational programs.

Warm Pipe Warranty
By allowing Tyco Thermal Controls to handle all of the engineering, design, and construction of your heat-tracing system, we can provide you with a Warm Pipe Warranty, ensuring that the system operates as specified.

Detailed Engineering
Our experienced engineers apply product and optimization strategies to design a heat management system which meets your specific requirements at the lowest possible cost.

Front End Planning
Engaging Tyco Thermal Controls early in the planning process allows us to help you make decisions which can reduce overall installed cost of the heat management system.

Post Installation Services and Maintenance
Providing regular Heat Management System audits or implementing a maintenance agreement, Tyco Thermal Controls provides you with the security of having your system regularly evaluated by experts in the heat-tracing industry, allowing timely resolution of potential system problems.
Using our Site Services allows you to maintain a single point of responsibility and accountability through the entire installation process. This ensures continuity of project knowledge from engineering through start-up. We can manage all the necessary services you need: Engineering, Procurement, Construction and Construction Management, Quality Assurance.

Procurement
Tyco Thermal Controls will manage all materials procurement and fabrication activities making sure the right materials get to the right work location at the right time.

Installation and Construction
Our construction teams are fully trained and experienced in heat-tracing installation techniques. Leverage our expertise to ensure timely and correct installation of your heat management system components, insulation and cladding.

Quality Assurance/Quality Control
Our Quality Management System addresses all processes including the design, supply, installation, and commissioning to ensure your Heat Management System is operating as intended.

Commissioning
Our commissioning services ensure that the heat management system is operating as expected. This includes full system audits, programming and set up of control panels and operational checks.
Tyco Thermal Controls has a history of continuous innovation in heat management systems. Pyrotenax MI heating cable has been an industry standard for over 75 years. TraceCalc Pro provides heat-tracing design calculations for heat management systems. Safe, reliable and experienced installers offer an industry leading Warm Pipe Warranty. Ground Fault and Line Current Monitoring and Alarm made systems safer and reduced cost. Power Line Carrier technology eliminated RTD wiring resulting in lower field installation costs. Control and Monitoring Systems. Heat-Tracing Cable Systems. Raychem self-regulating cables revolutionized the industry. How self-regulation works in the Raychem conductive-polymer heaters:

**Cold Pipe:** In response to cold, the core or fiber contracts microscopically opening up electrical paths.

**Warm Pipe:** In response to warmth, the core or fiber begins to expand microscopically disrupting the electrical paths.

**Hot Pipe:** The core or fiber expands enough to disrupt almost all of the electrical paths.
in all aspects of heat management systems

Variable Power Limiting (VPL) technology allows high temperature cable to be wrapped over itself simplifying installation

PyroFLX MI heating cables incorporate tray cable for easy installation

DigiTrace Supervisor

PC based software allows monitoring, status check and configuration of your HMS from any location

DigiTrace NGC Control and Monitoring Systems have easy to use touch screens that make it simple and easy to use your HMS

Finite Element Analysis evaluates solutions for highly specialized and complex applications

TRACERLYNX

3D HMS Software designed specifically to integrate heat management system design capability with 3D plant modeling systems

Installation
Tyco Thermal Controls offers the industry’s most complete line of heat-tracing products to meet every need—for everything from pipe freeze protection to high temperature process maintenance.

Our industrial heating cables are backed by a ten-year extended warranty!

**HEAT-TRACING PRODUCTS**

**Self-Regulating Cables**

**Raychem BTV** cable provides freeze protection on metal and plastic pipes, maintaining temperatures up to 150°F (65°C) and withstanding exposure to 185°F (85°C).

**Raychem QTVR** cable provides freeze protection and process temperature maintenance, maintaining and withstanding exposure temperatures up to 225°F (110°C).

**Raychem XTV** fiber-wrap cable provides process temperature maintenance up to 250°F (121°C) and withstands intermittent exposures to 420°F (215°C).

**Mineral Insulated Cables**

For high temperature applications:

**Pyrotenax MI** cable maintains temperatures up to 1022°F (550°C) and withstands continuous exposure to 1200°F (650°C).

**Power-Limiting Cables**

For applications exceeding the temperature range of self-regulating cables:

**Raychem VPL** heating cable maintains temperatures greater than 300°F (150°C) and withstands continuous exposure to 500°F (260°C), power off.

**STS Cables**

For longline and high temperature applications:

**Tracer STS** cable maintains temperatures up to 392°F (200°C) and withstands continuous exposure to 482°F (250°C) while providing power outputs up to 45 W/ft (150 W/m).

*Note: These photos and illustrations do not necessarily depict actual applications and installations.*
Choose from the most complete selection of longline heat-tracing systems and technologies. Circuit lengths can vary from 500 feet (152.4 meters) to over 15 miles (24 kilometers):

- Raychem Self-regulating systems, LBTV, SLBTV and VLKTV cables
- Raychem Series resistance systems, SC cables
- Pyrotenax MI mineral insulated cables
- Tracer STS skin-effect system
- Fiber optic temperature measurement technologies

Tank Heating
Choose from tank pad heaters and heating cables for tank and vessel heating solutions.

- The Raychem RHS tank heating system maintains tank temperatures up to 200° F (93°C). Heaters are available from 150 watts to 1,400 watts.
- RHS-L heaters can be used on polypropylene, FRP, and metal tanks

Tubing Bundles
Raychem tubing bundles (RTB) offer a cost-effective alternative to traditional field tracing and insulating.

- Pre-traced and pre-insulated tubing bundles for such applications as impulse, sample, and process lines
- Choice of single or dual tubing in stainless steel, monel, copper, PFA Teflon, or other materials
- Choice of electric or steam-traced bundles

Snow and Ice Prevention
- Raychem self-regulating heating cables are installed in concrete to prevent dangerous icing on loading ramps, walkways, entrances, and driveways
- Raychem heating cables are installed on roofs and gutters to prevent hazards and property damage caused by ice buildup
- Pyrotenax mineral insulated cables are installed in concrete and asphalt and provide a constant heat output

Safer and More Reliable Connection Kits and Accessories
Raychem connection kits and accessories are vital parts of any heat-tracing system. These high quality products are faster, safer and easier to install and deliver reliable service. All install without a torch, heat gun or hazardous sealants. The accessories such as stripping tools are designed to enhance the safety, speed and reliability of installations.

- Spring clamp terminals provide reliable connection and allow easy reentry
- The kits typically install in a few minutes with standard tools. The cable stripping tool, specifically designed to work with Raychem self-regulating heaters, further reduces the installation time and enhances the safety of the installers
- High-intensity LED lights are available with our power connections and end seals to provide visual monitoring of system power and continuity
DigiTrace NGC-30

Electronic Multi-Circuit Heat-Tracing Control, Monitoring and Power Distribution System:
• Easy-to-use touch screen interface provides fast and intuitive access to heat-tracing status, alarms and programming
• RMM2 and PLI compatible to help reduce overall installed costs
• Multiple control modes allow reduced operating costs based on application needs
• Three independently programmable alarm relay outputs provide Smart Status based on specific alarm conditions.

DigiTrace NGC-40

Advanced Single-Point Control in a Multipoint Heat-Tracing System:
• Single controller per heat tracing circuit architecture provides the highest possible system reliability available in the market today
• Easy-to-use TOUCH 1500 touch screen provides fast and intuitive access to heat-tracing status, alarms and programming
• Modular architecture allows maximum flexibility in panel design and features set.
• I/O Modules allow additional RTD inputs and provide programmable digital outputs and inputs to drive or react to external units.

All DigiTrace NGC controllers come with the following features:
• 60 Amp current ratings support longer circuit lengths allowing overall system cost reductions
• Wide range of alarms with programmable thresholds notify you when problems occur
• Various levels of secure, password protected access provided for different user groups
• Network ready with Ethernet, RS-485 and RS-232 interfaces built in
• Available for hazardous Class I, Division 2 and nonhazardous locations
• Compatible with DigiTrace Supervisor remote access and control software
These compact, full-featured, microprocessor based heat-tracing control systems are designed for use when just a few lines of heat tracing are required. Both controllers are available for hazardous and nonhazardous locations and are fully compatible with the DigiTrace Supervisor software.

**Supervisor Software**

The DigiTrace Supervisor software enables users to interface with field installed DigiTrace NGC-30, NGC-40, 910 and 920 control Systems. The Windows®-based Supervisor software can be used to program individual units or groups of units, monitor, check, and record alarm status, data log, and generate reports.
Additional Heat-Tracing Control Panels and Accessories

Power Line Carrier Interface Technology
The DigiTrace Power Line carrier Interface (PLI) technology can provide up to a 20% reduction in control and monitoring system installation costs. Consisting of the PLI module, Smart End Seal and Smart Power Connector components, the PLI solution is available on NGC-30 systems. Installation cost savings are realized by eliminating the need for RTD wiring and conduit from the installation.

Remote Temperature Monitoring
DigiTrace NGC-30 Control and Monitoring Systems are supported by remote temperature monitoring devices (RMM2). These devices are designed to help reduce costs by aggregating the RTD inputs and reducing the number of home runs for RTDs. The devices are available for hazardous and nonhazardous locations.

DigiTrace JBS-100-ECP-A and JBS-100-ECW-A
These electronic temperature controllers provide accurate control of a single heating circuit using a RTD sensor in non-hazardous locations. The JBS-100-ECP-A is pipe-mounted and serves as a power connection kit for both Raychem self-regulating and Pyrotenax mineral insulated heating cables. The JBS-100-ECW-A is wall-mounted, and may be used with all types of heating cables.

Thermostats and RTDs
DigiTrace simple ambient and line sensing mechanical or electronic thermostats are for use in nonhazardous and hazardous locations. RTD’s can be selected based on the area of application, nonhazardous or hazardous, and the required operating temperature ranges.

Power Distribution Heat Trace Panels
DigiTrace dedicated power-distribution panels can reduce costly field wiring and reduce controller costs. Choose from a complete line of dedicated heat-tracing power distribution panels. Each is available with:
- Group or individual circuit control
- Standard circuit breakers, ground-fault breakers, or ground-fault breakers with alarm
Tyco Thermal Controls offers a wide array of engineered products for the industrial market. Each product is designed to add value to even the simplest of heat-tracing installations.

**Steam-Tracing Systems**
Providing complete steam-tracing and recirculating fluid-tracing systems, Tyco Thermal Controls Services include not only installation, but also isometric detail drawings with heat-tracing parameters and calculations, typical and project specific installation details, nameplate and tagging schedules, complete system Bill of Material generation, and post-construction “as-built” documentation. These, along with established project management techniques, ensure your steam-heating system performs as required.

**Pipe Shoes**
The Interlock clamp-on pipe shoe is a patented pipe support design that eliminates field welding requirements for pipe supports, which is a significant benefit in heat-tracing design and construction. It can be used on all pipe applications, including bare pipe, painted pipe, insulated pipe, and heat-traced pipe.

**Pre-Traced Pre-Insulated Safety Stations**
ShowerGuard pre-traced, pre-insulated safety shower/eyewash unit is designed to minimize field installation requirements and eliminate the numerous disadvantages associated with field installations of electric heat-trace cable, insulation, and moisture-barrier jacketing.
The Trac-Loc system is an advanced vertical double-locking standing seam insulation panel system that’s unique in its design, panel construction and installation techniques. Trac-Loc is ideal for large, flat-bottom tanks used for storage of materials that are sensitive to temperature fluctuations and require a covering of insulation and jacketing to reduce heat loss or gain. The unique panel design eliminates the need for expensive scaffolding and can be installed faster than traditional tank insulation systems.
Visit www.tycothermal.com

All the tools and information you need to design, select, and purchase a complete heat-tracing system. Use our Web-based program, or download design software to use off-line. Download, print, or browse product data sheets and installation instructions.

On-Line Technical Support

On our interactive frequently asked questions and answers (FAQ) page, you’ll find questions broken down by markets and product lines. If your question does not appear, simply submit a new question. A Tyco Thermal Controls technical expert will answer your question and post it to the Web site.

Download Design Software

Save time with TraceCalc Pro. This software provides complete heat-tracing designs for pipes, tanks and vessels in a fraction of the time needed for manual design.

Design On-Line

TraceCalc Net is an on-line tool that walks you through heat trace design in three simple steps:

• Finding the right products for your application
• Choosing quantities for a complete bill of materials
• Selecting optional control and monitoring systems
A Solutions Company
Tyco Thermal Controls is the world leader in heat-tracing products, engineering, design and construction for industrial markets. Employing over 2,500 people globally, Tyco Thermal Controls has the experience, capabilities and product breadth to meet your heat management system requirements.

Worldwide Approach
With operations in 48 countries, design centers in Canada, India, China and the US, Tyco Thermal Controls supports your project efforts anywhere, anytime. Our global footprint and total solution approach allows us to provide local support and meet your needs on time whether it’s for top-notch products or turnkey services.

A global heat management solutions provider, Tyco Thermal Controls is there beside you no matter where you are.

The Market Demands—We Supply
Tyco Thermal Controls provides heat management solutions to a wide range of segments within the industrial market.

- Biotechnology
- Biodiesel/Ethanol
- Chemical Processing
- Fabricators
- Food and Beverage
- Manufacturing
- Mining
- Offshore Production
- Oilfield Services
- Petrochemical
- Pharmaceutical
- Pipelines
- Power
- Production
- Pulp & Paper
- Refining
- Semiconductor Fabrication
- Terminals
- Waste Management
North and South American Operations

Menlo Park, CA
Redwood City, CA
Trenton, Ontario
Colonia Juarez, Mexico
Baton Rouge, LA
Houston, TX
Edmonton, Alberta
Fort McMurray, Alberta
Everett, WA
Kitchener, Ontario
Trenton, Ontario
Menlo Park, CA
Redwood City, CA
Houston, TX
Worldwide Headquarters

North and South American Operations

Fire-Rated Wiring Products
3D Plant Modeling

Sales and Technical Support
Visit our website at www.tycothermal.com or contact us at 800-545-6258.

Worldwide Headquarters
Service/Sales Centers
Manufacturing Centers
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