Protecting the Cold Chain

Fire Detection in Cold Storage

ProReact

- Reliable Sub-Zero Fire Protection
- Designed to Perform, Proven to Deliver
- Fully EN54-28:2015+A1:2020 Approved
- UL 521 Listed Heat-Automatic Fire Detector
- Minimises False Alarms, Reducing Costly Disruptions
- Seamless System Integration

The Complete Solution, Designed to Perform, Proven to Deliver

Enhance Your Cold Storage Safety with ProReact LHD

Cold storage environments pose unique challenges for fire detection systems. Condensation, frost, and disrupted airflow patterns often make conventional detection methods ineffective. Fires that are not detected at the point of ignition not only damage infrastructure but can also result in spoiled inventory and major operational disruption.

The Solution: ProReact Linear Heat Detection (LHD)

Thermocable offers three distinct Linear Heat Detection (LHD) solutions suitable for cold storage environments, with ProReact Programmable Temperature Sensing (Analogue) our recommended solution for most applications due to its early warning capability and system flexibility.

ProReact Programmable Temperature Sensing (Analogue) continuously monitors changes in resistance and triggers an alarm when the resistance corresponds to a temperature rise beyond its preset threshold. For a pre-alarm, the cable detects a sudden change in resistance over a short period of time, indicating abnormal heating before the preset threshold and faster detection in stable ambient conditions. Analogue systems are limited to shorter zone lengths, typically up to 500m, making them more suitable for smaller or segmented areas.

ProReact Fixed Temperature Activation EN (Digital) is a non-resettable, fixed temperature detector. When the ambient temperature reaches the cable preset alarm threshold, the polymer material softens allowing the conductors to touch, which triggers an alarm. Its ability to support long cable runs of up to 1000 metres make it well suited to larger cold storage areas where zoning simplicity and coverage length are prioritised over early warning.

ProReact Plus is a variant of ProReact Fixed Temperature EN, designed for demanding environments, operating on the same fixed temperature principle. The temperature sensitive polymer softens at a defined temperature, allowing the conductors to touch and trigger an alarm. What sets ProReact Plus apart is its enhanced outer coating, which is flame retardant, UV stable, and resistant to oils and fuels – making it ideal for harsh or exposed cold storage environments.

Environmental Considerations

ProReact cables are rated for use in environments as cold as -40°C, with ProReact Plus rated for use in environments as cold as -60°C, making them suitable for cold storage. However, installation should be avoided when ambient temperatures fall below -10°C, as the cables material becomes more brittle and prone to damage.

At extremely low temperatures, the cable may shrink by up to 12%. This shrinkage must be accounted for during installation by allowing sufficient slack and spacing between mounting accessories.
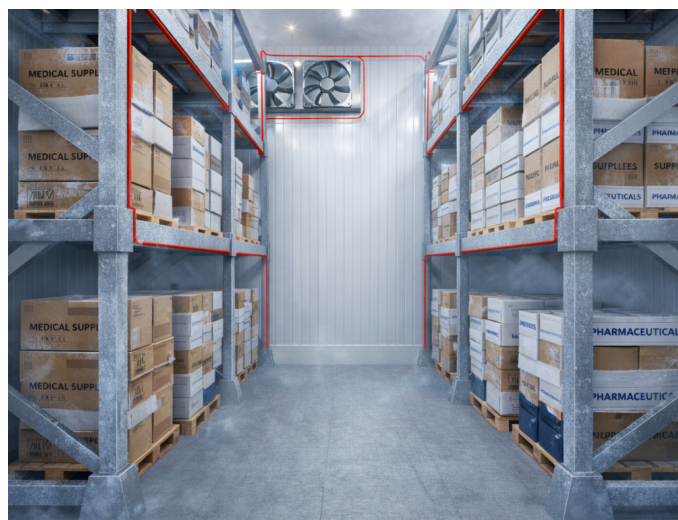
Installation Guidelines

To ensure reliable performance in low-temperature environments, Linear Heat Detection (LHD) should be installed in accordance with recognised best practice:

Cable Routing

ProReact LHD can be installed either as general area protection at ceiling level or as targeted in-rack detection, depending on the fire risk profile and storage configuration.

In cold storage facilities, ceiling level installation beneath evaporators, cable trays, or structural steelwork is commonly used to provide continuous area protection across aisles and storage areas. In-rack installation may be applied where ignition risks exist within stored goods or palletised loads.

The detection cable should be routed to ensure continuous coverage of high-risk areas, including:

- Storage aisles and pallet locations
- Areas beneath refrigeration equipment and evaporators
- Electrical services, conveyors, and plant interfaces

LHD cable should not be installed on sprinkler pipework, particularly within in-rack sprinkler systems, as this increases the risk of mechanical damage from forklifts or automated storage and retrieval equipment.

All changes in cable direction must be properly supported, with a minimum bend radius of 150mm (6") to account for reduced flexibility in low-temperature environments.

Cable Support and Fixings

Mounting accessories should be installed at intervals no greater than 1 metre to maintain consistent cable positioning and prevent sagging due to thermal contraction.

For cold storage applications, stainless steel J-lock clips fitted with silicone sleeves are recommended as they:

- Provide robust mechanical support in sub-zero conditions
- Allow fast installation and removal

- Can be pre-installed to reduce time spent working in cold environments

Controller and Leader Cable Positioning

All control equipment, interface units, and power supplies must be located outside the cold storage environment to avoid exposure to condensation, icing, and extreme temperatures.

For ProReact Programmable Temperature Sensing (Analogue) systems, a leader cable should be used between the controller and the start of the detection zone. This ensures that ambient temperature variations outside the protected area do not influence system sensitivity.

Leader cables are not required for ProReact Fixed Activation (EN) or ProReact Plus systems.

Certified and Scalable Cold Storage Fire Detection

Thermocable offers a range of ProReact LHD systems tailored for cold storage installations, designed to perform reliably in the challenging conditions of freezer environments. These systems meet a wide array of international safety and performance standards, including EN54-28 and 22, VdS, CE marking, FM Approval, and UL-521 certification – ensuring compliance and dependable performance across global markets.

Find Out More

To understand how ProReact Linear Heat Detection can be applied to your cold storage facility, please contact our Sales team at contact@thermocable.com

We are here to help you protect your temperature-sensitive facilities with the best fire detection solutions available.

MADE IN

Thermocable

About us

Founded in 1963 as a manufacturer of heating cables for the refrigeration and electric blanket markets, Thermocable has continued to innovate and develop, becoming the world leading manufacturer of linear detection cable and monitoring systems.

This transformation has been driven by our boundless desire to problem solve, as well as our fundamental company values, enabling us to supply to multi-disciplinary customers on a global scale.

Recognising our commitment to making the world a safer place, Thermocable was acquired by the renowned FTSE 100 plc, Halma, in February 2023. As a global group of life-saving technology companies, Halma companies strive to grow a safer, cleaner and healthier future for everyone.

Operating within the Apollo Group, we continue to innovate in high quality, certified linear detection products, designed to raise the bar in the industry.

As an IS0 9001:2015 accredited, internationally qualified category solutions provider, Thermocable offers a vertically integrated lean approach through design, development and manufacturing, providing reassurance of a flexible and responsive approach to our customer needs.

Our accreditations