



## Introduction

The Protectowire Linear Heat Detector is a unique sensor cable that detects heat anywhere along its length. The detector is comprised of two steel conductors, insulated individually with a heat sensitive polymer. The insulated conductors are twisted together to generate a spring pressure between them, then wrapped with a protective tape, and sealed with an outer jacket designed to provide excellent protection against mechanical and environmental factors. Upon activation, the polymer insulation yields to the pressure, allowing the inner conductors to make contact and initiate the pre-alarm or alarm signal.

## Features & Benefits

- Dual temperature operation for activating extinguishing systems
- Separate pre-alarm and alarm actuations possible
- Easy to install, test, and splice
- Compatible with pre-existing systems
- Compatible with other initiation devices on the same circuit
- Resistant to a wide range of mechanical and environmental conditions
- Approved for hazardous locations
- Options available for many applications

## System Capabilities

The Protectowire Linear Heat Detector is a component of a complete family of systems manufactured by The Protectowire Company – a leader in fire detection for over 75 years.

firedelect GmbH is the single source offering complete solutions for all fire defense needs, from hazard zone protection to electronic control and automatic suppression.

## Temperature Ratings

The Linear Heat Detector is made in different temperature ratings for variances in normal or ambient temperatures. The detector may be chosen for specific applications in accordance with the information in the chart shown below:

|            |  |
|------------|--|
| <b>EPC</b> | Consists of durable, flame-retardant vinyl outer jacket. Uses include: commercial and industrial applications. Suitable for use in most installations; low moisture absorption, chemical resistant, excellent adaptability in low temperatures.  |
| <b>EPR</b> | Contains special UV-stabilizer to increase durability of the flame-retardant polypropylene elastomer. Uses: industrial applications; high elasticity, abrasion resistance, excellent weathering properties, and high temperature jacket performance.                                       |
| <b>TRI</b> | Unique dual temperature detector, capable of initiating separate pre-alarm and alarms signals at activation temperatures. Durable vinyl outer jacket; low moisture absorption, chemical resistance, excellent flexibility, and flame retardant.  |
| <b>XCR</b> | High-performance fluoropolymer coating. Designed specifically for extreme environmental conditions and product performance criteria. Provides flame-retardant "low smoke" shell, excellent abrasion and chemical resistance.   |
| <b>XLT</b> | Designed for cold storage and other low response temperature applications. Outer jacket consists of patented flame retardant polymer; low moisture absorption, chemical resistance, excellent properties at low ambient temperatures. This detectors has been UL and FM approved to -51°C. |

### Temperature Ratings and Model Numbers

| Product Type | Model Number  | Alarm Temperature                                | Max. Recommended Ambient Temperature | Approvals/Max. UL/cUL | Listed Spacing FM |
|--------------|---------------|--|--------------------------------------|-----------------------|-------------------|
| <b>EPC</b>   | PHSC-155-EPC  | 68 °C (155 °F)                                   | 46 °C (115 °F)                       | 15,2 m                | 9,1 m             |
|              | PHSC-190-EPC  | 88 °C (190 °F)                                   | 66 °C (150 °F)                       | 15,2 m                | 9,1 m             |
|              | PHSC-220-EPC  | 105 °C (220 °F)                                  | 79 °C (175 °F)                       | n.a.                  | 7,6 m             |
|              | PHSC-280-EPC  | 138 °C (280 °F)                                  | 93 °C (200 °F)                       | 15,2 m                | 7,6 m             |
|              | PHSC-356-EPC  | 180 °C (356 °F)                                  | 105 °C (221 °F)                      | 15,2 m                | (1)               |
| <b>EPR</b>   | PHSC-155-EPC  | 68 °C (155 °F)                                   | 46 °C (115 °F)                       | 15,2 m                | 9,1 m             |
|              | PHSC-190-EPR  | 88 °C (190 °F)                                   | 66 °C (150 °F)                       | 15,2 m                | 9,1 m             |
| <b>TRI</b>   | PHSC-6893-TRI | Pre-Alarm: 68 °C (68 °F)<br>Alarm 93 °C (200 °F) | 46 °C (115 °F)                       | n.a.                  | 4,6 m             |
| <b>XCR</b>   | PHSC-155-XCR  | 68 °C (155 °F)                                   | 46 °C (115 °F)                       | 15,2 m                | 9,1 m             |
|              | PHSC-190-XCR  | 88 °C (190 °F)                                   | 66 °C (150 °F)                       | 15,2 m                | 9,1 m             |
|              | PHSC-220-XCR  | 105 °C (220 °F)                                  | 79 °C (175 °F)                       | n.a.                  | 7,6 m             |
|              | PHSC-280-XCR  | 138 °C (280 °F)                                  | 93 °C (200 °F)                       | 15,2 m                | 7,6 m             |
|              | PHSC-356-XCR  | 180 °C (356 °F)                                  | 121 °C (250 °F)                      | 15,2 m                | (1)               |
| <b>XLT</b>   | PHSC-135-XLT  | 57 °C (135 °F)                                   | 38 °C (100 °F)                       | 15,2 m                | 9,1 m             |

(1): Only for special applications with FM approval.

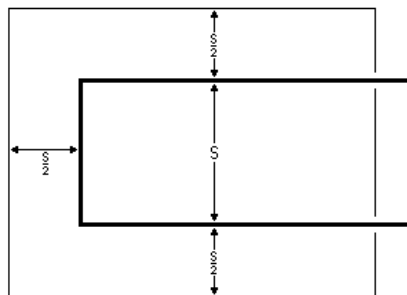
All models can be provided with increased support for outdoor applications. Simply add suffix "-M" to the end of the model number.

## Installation

Protectowire Linear Heat Detector is approved as a heat actuated automatic fire detector and is intended for use on supervised initiating circuits of an approved fire protective signaling control unit. The Linear Heat Detector must be installed in a continuous run, without taps or branches, in accordance with applicable sections of NFPA 70 National Electrical Code, NFPA 72 National Fire Alarm Code, or as determined by the local authority having jurisdiction. The maximum FM approved spacing for the Linear Heat Detector is 15 feet (4.6m).

The Linear Heat Detector may be installed at the ceiling level or on the side walls within 20 inches of the ceiling, to provide area protection within buildings. The Linear Heat Detector is suitable for installation in close proximity to a hazard to provide a rapid response (proximity or special application protection).

When the Linear Heat Detector is used to activate sprinkler systems, special FM spacing guidelines may be applicable to the specific hazard protected. It is mandatory that engineering judgement be applied in the determination of final detector location and spacing.



Scope

S = Unspecified distance. See above.

In general, the use of Linear Heat Detectors in any initiation device circuit (zone), is limited to coverage of a specific hazard or area. Copper wire, of an approved type, with a minimum conductor size of 18 AWG, shall be installed from the control panel out to the hazard area where it is then connected to the beginning of the Linear Heat Detector portion of the circuit. The Protectowire portion of each initiating circuit shall begin and terminate at each end in an approved zone box or end-of-line zone box. SR-502 Series strain relief connectors shall be installed in all zone boxes where Linear Heat Detectors enter or exit the enclosure, in order to hold the cable securely.

## Installation Accessories

A comprehensive range of mounting and installation accessories are available for installation. Only installation hardware supplied or approved by The Protectowire Company should be used.

Messenger wire is also available for the Linear Heat Detector on special order. It consists of high tensile strength stainless steel wire, which is wound around the detector at the rate of approximately one turn per foot. It is a carrier or support wire which is designed to simplify the installation of the Linear Heat Detector in areas where mounting is difficult due to the lack of appropriate support structures or mounting surfaces. Outdoor messenger wire installations present additional challenges due to environmental factors such as snow loads, ice build-up or wind. Increased detector support must be provided by using additional intermediate fasteners with closer spacing in all outdoor installations. When ordering messenger wire configurations, add suffix "-M" to the model number.

All models of Protectowire Linear Heat Detectors share the same conductor size and are easily connected to universal devices, i.e. PWS Splicing Sleeves or PWSC Splicing Connectors. These devices are designed specifically for this purpose and are the only approved method for detector connection.

## Technical Data

|                                       |  |
|---------------------------------------|--|
| <b>Maximum Rated Voltage</b>          | 30 V AC / 42 V DC                                    |
| <b>2W Model Resistance</b>            | 0,607 Ω/m  |
| <b>TRI-Cable Resistance</b>           | 0,911 Ω/m  |
| <b>TRI-Cable Conductor Color-Code</b> | Pink = 68 °C<br>Klar = 93 °C<br>Schwarz = gewöhnlich |
| <b>Minimal Bending Radius</b>         | 6,4 cm   |
| <b>Diameter</b>                       | 4 mm (nominal)                                       |
| <b>Weight</b>                         | 3,6 kg/152 m (nominal)                               |

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