

## PROTECTOWIRE LINEAR HEAT DETECTOR

### FEATURES

- Line coverage... continuous sensitivity.
- Eight alarm temperature ratings.
- The ability to withstand severe environmental conditions.
- Approval for use hazardous locations when used with required equipment.
- Ease of installation, testing, and splicing.
- Compatibility with other initiation devices on same circuit.
- Listed for spacing up to 50 ft. (15.2m).

### INTRODUCTION

Protectowire Linear Heat Detector is a proprietary cable that detects heat anywhere along its length. The sensor cable is comprised of two steel conductors individually insulated with a heat sensitive polymer. The insulated conductors are twisted together to impose a spring pressure between them, then wrapped with a protective tape and finished with an outer jacket suitable for the environment in which the detector will be installed. Protectowire is a fixed temperature digital sensor and is therefore capable of initiating an alarm once its rated activation temperature is reached. At the rated temperature, the heat sensitive polymer insulation yields to the pressure upon it, permitting the inner conductors to move into contact with each other thereby initiating an alarm signal. This action takes place at the first heated point anywhere along the detector's length. It does not require a specific length to be heated in order to initiate an alarm, nor system calibration to compensate for changes in the installed ambient temperature. Protectowire Linear Heat Detector provides the advantages of line coverage with point sensitivity.

### APPLICATIONS

Ideally suited to industrial high risk hazards as well as many types of commercial applications, Protectowire Linear Heat Detector has unique advantages over other types of detectors, especially when difficult installation factors or severe environmental conditions are present. When used with the appropriate Protectowire control equipment, the detector will activate a display, showing the location of an over heat or fire condition anywhere along its length.

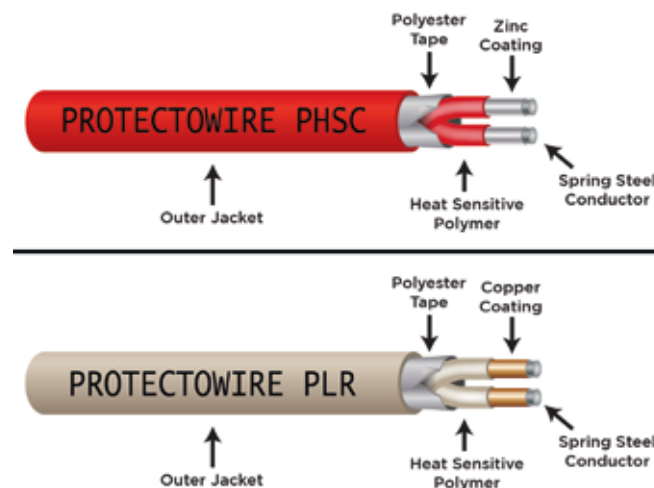
The detector also meets intrinsically safe standards and is Factory Mutual (FM) Approved for Class I, II, or III, Div. 1, Applicable Groups A, B, C, D, E, F & G hazardous areas, when used with suitably approved Protectowire control equipment.

- Cable trays
- Conveyors
- Power distribution apparatus:  
switchgear,  
transformers, motor control centers
- Dust collectors/baghouses
- Cooling towers
- Warehouses/rack storage
- Mines
- Pipelines
- Bridges, piers, marine vessels
- Refrigerated storage
- Tank farms
- Aircraft hangars



## PROTECTOWIRE FEATURES & BENEFITS

- Alarm location identified and displayed, at the control panel, anywhere along its length when used with the exclusive Protectowire Alarm Point Location Meter.
- Sensitivity unaffected by changes in ambient temperature or length of cable used on the detection circuit. Compensating adjustments are not required.
- Installation and splicing is simple with common tools. Junctions can be made without effecting the integrity of the system.
- Compatibility with other types of alarm initiating devices on the same circuit such as manual pull stations, thermal heat detectors and smoke detectors.
- Installation possible in hazardous areas when used with suitably approved Protectowire control equipment.
- Full range of temperatures and models available to accommodate the most demanding applications.
- Different temperature detectors may be utilized in the same initiating circuit.
- Detectors available on integrated stainless steel messenger wire for installations where mounting is difficult such as large open areas.
- Test equipment is portable and available for easy field service.
- Detectors are ideal for activation of extinguishing equipment, such as deluge or pre-action sprinkler systems.



*Approximately 5/32" (4mm) diameter*

## DESCRIPTION

The detector is made in multiple temperature ratings to allow for differences in normal ambient temperature. Guidelines for selecting the proper detector temperature rating are the same as for automatic sprinklers and other heat actuated devices. Refer to the Temperature Rating Chart for proper model selection based upon installation temperature limits.

## DETECTOR TYPES

The detector's product range consists of two distinct types of cable. PHSC (Protectowire Heat Sensitive Cable) models are manufactured with steel conductors. PLR (Protectowire Low Resistance) models are manufactured with special low-resistance conductors. Please refer to the chart on page four for model number designation. All specifications are subject to change without notice.

## JACKETING MATERIALS

**EPC** (Extruded Polyvinyl Chloride) – is a durable flame retardant vinyl outer jacket designed for interior commercial and industrial applications. Features of this jacket include low moisture absorption, resistance to many common chemicals, and excellent flexibility at low temperatures.

**XCR** (Extreme Corrosion Resistance) – is a high-performance fluoropolymer jacket designed for both interior and exterior environments. Features of this jacket include excellent chemical resistance, abrasion resistance, weather resistance, and high-temperature performance. XCR is the only heat detector that is FM-approved for corrosive environments.

**LSZH** (Low Smoke Zero Halogen) – is a durable outer jacket designed for interior commercial and industrial applications requiring low smoke zero halogen performance. Features of this jacket include low moisture absorption, resistance to many common chemicals, and excellent flexibility at low temperatures.

**HLT** (Extreme Low Temperature) – is an outer jacket specifically selected for cold storage and freezers. Features of this jacket include low moisture absorption and excellent performance in extremely low temperatures. This detector has been UL and FM tested to  $-60^{\circ}\text{F}$  ( $-51^{\circ}\text{C}$ )

**EPR** (Extruded Polypropylene Rubber) – is an outer jacket designed for both interior and exterior environments. Features of this jacket include good abrasion resistance, chemical resistance, and weather resistance over a wide temperature range.

## SPECIFICATIONS

- Maximum Voltage Rating: 30 VAC, 42 VDC
- Resistance PHSC Models: 0.185 ohms/ft. (0.607 ohms/m)
- Resistance PLR Models: 0.058 ohms/ft. (0.191 ohms/m)
- Min. Bend Radius: 2.5 inches (6.4cm) Nominal
- Diameter: 5/32 inch (4mm) Nominal
- Weight: 8lbs./500 ft. (3.6 kg/152m)

## ACCESSORIES

The Protectowire Company offers an assortment of fasteners and splicing devices to facilitate installation for both standard and special applications.

Full details are available upon request.

## MODEL NUMBERS, TEMPERATURE RATINGS, AND APPROVED SPACING

Product Type	Model Number	Alarm Temperature	Max. Ambient Temperature	UL/cUL Approval/ Max. Listed Spacing	FM Approval/ Max. Listed Spacing
<b>PHSC-EPC</b> Multi-Purpose/ Commercial & Industrial Applications	PHSC-155-EPC	155°F (68°C)	115°F (46°C)*	50 ft. / 15.2m	30 ft. / 9.1m
	PHSC-172-EPC	172°F (78°C)	130°F (54°C)	50 ft. / 15.2m	30 ft. / 9.1m
	PHSC-190-EPC	190°F (88°C)	150°F (66°C)	50 ft. / 15.2m	30 ft. / 9.1m
	PHSC-220-EPC	220°F (105°C)	175°F (79°C)*	50 ft. / 15.2m	25 ft. / 7.6m
	PHSC-280-EPC	280°F (138°C)	200°F (93°C)	50 ft. / 15.2m	25 ft. / 7.6m
	PHSC-356-EPC	356°F (180°C)	221°F (105°C)	50 ft. / 15.2m	See Note 1
<b>PHSC-XCR</b> High Performance/ Industrial Applications Excellent Abrasion & Chemical Resistance	PHSC-155-XCR	155°F (68°C)	115°F (46°C)*	50 ft. / 15.2m	30 ft. / 9.1m
	PHSC-172-XCR	172°F (78°C)	130°F (54°C)	50 ft. / 15.2m	30 ft. / 9.1m
	PHSC-190-XCR	190°F (88°C)	150°F (66°C)	50 ft. / 15.2m	30 ft. / 9.1m
	PHSC-220-XCR	220°F (105°C)	175°F (79°C)*	50 ft. / 15.2m	25 ft. / 7.6m
	PHSC-280-XCR	280°F (138°C)	200°F (93°C)	50 ft. / 15.2m	25 ft. / 7.6m
	PHSC-356-XCR	356°F (180°C)	250°F (121°C)	50 ft. / 15.2m	See Note 1
<b>PHSC-LSZH</b> Multi-Purpose/Low Smoke Zero Halogen	PHSC-135-LSZH	135°F (57°C)	100°F (38°C)	50 ft. / 15.2m	30 ft. / 9.1m
	PHSC-155-LSZH	155°F (68°C)	115°F (46°C)*	50 ft. / 15.2m	30 ft. / 9.1m
	PHSC-172-LSZH	172°F (78°C)	130°F (54°C)	50 ft. / 15.2m	30 ft. / 9.1m
	PHSC-190-LSZH	190°F (88°C)	150°F (66°C)	50 ft. / 15.2m	30 ft. / 9.1m
	PHSC-220-LSZH	220°F (105°C)	175°F (79°C)*	50 ft. / 15.2m	25 ft. / 7.6m
	PHSC-280-LSZH	280°F (138°C)	200°F (93°C)	50 ft. / 15.2m	25 ft. / 7.6m
	PHSC-356-LSZH	356°F (180°C)	250°F (121°C)	50 ft. / 15.2m	See Note 1
<b>PHSC-XLT</b> Multi-Purpose/Excellent Low Temp. Properties	PHSC-135-XLT	135°F (57°C)	100°F (38°C)	50 ft. / 15.2m	30 ft. / 9.1m
<b>PLR-EPR</b> Good Weathering Properties & Flexibility Over a Wide Temperature Range	PLR-155-EPR	155°F (68°C)	115°F (46°C)*	50 ft. / 15.2m	30 ft. / 9.1m
	PLR-172-EPR	172°F (78°C)	130°F (54°C)	50 ft. / 15.2m	30 ft. / 9.1m
	PLR-190-EPR	190°F (88°C)	150°F (66°C)	50 ft. / 15.2m	30 ft. / 9.1m
<b>PLR-XCR</b> High Performance/ Industrial Applications Excellent Abrasion & Chemical Resistance	PLR-500-XCR	500°F (260°C)	392°F (200°C)	50 ft. / 15.2m	See Note 1

\*For open area applications the recommended UL 521 maximum ambient temperature for all 155 models is 100°F (38°C), and 220 models is 150°F (66°C). Temperatures shown in table are acceptable for UL Special Application use.

\*\*PHSC-135°F XLT has been UL Listed and FM Approved for -60°F (-51°C).

Note 1: FM Approved for special application use only. All Protectowire models can be supplied on Messenger Wire. Add suffix "-M" to above model numbers.