PROTECTOWIRE® FireSystems

fire protection TECHNOLOGIES

DATA SHEET

Protectowire CTI™ Confirmed Temperature Initiation Linear Heat Detectors

Features

- Operates digitally with short circuit discrimination capable of distinguishing between short circuit and alarm conditions.
- Consists of multi-sensor heat detection technology.
- Includes confirmed temperature initiation for highest immunity to false alarms.
- Is compatible with Protectowire Alarm Point Location Meter.
- Approved for hazardous locations when used with required equipment.
- Available in six alarm temperatures to accommodate a wide range of applications.

Introduction

The Protectowire family of Confirmed Temperature Initiation Linear Heat Detectors are advanced multi-sensor detectors consisting of models with alarm temperatures ranging from 135°F (57°C) to 356°F (180°C). Each detector is comprised of two special metallic alloy 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 a durable flame retardant outer jacket.

The detectors are fixed temperature digital sensors that are capable of initiating an alarm signal. Once exposed to the rated temperature the heat sensitive polymer yields to the inherent spring tension allowing the conductors to move into contact with each other, thereby creating a short circuit temperature measuring junction point. A CTM Module is required to supervise all CTI Linear Heat Detectors. The CTM interface module is designed to detect a short circuit and enter a heat measuring thermocouple mode.

By entering the thermocouple mode, the interface module is able to identify the temperature at the short and determine the type of off-normal condition being created based upon the alarm temperature threshold of the detector.

If the interface module determines that the temperature at the short is above the predetermined alarm threshold temperature, the module initiates an ALARM condition and displays the location of the alarm if equipped with the Protectowire Alarm Point Location Meter. If, however, the interface module determines the temperature is below the alarm temperature threshold, it initiates a short circuit fault or TROUBLE condition and displays its location on the Protectowire Alarm Point Location Meter (if provided) so it can be corrected. The Protectowire advanced multi-sensor detectors are the first digital type linear heat detectors to provide true confirmed temperature initiation and mechanical short circuit discrimination. They provide reliable temperature response with verified alarm temperature confirmation for exceptional false alarm immunity.

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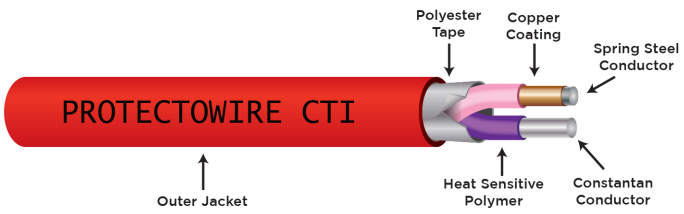

Features & Benefits

- Uses advanced multi-sensor detection for highest immunity to false alarms.
- Measures and confirms the temperature at the alarm point to provide true Confirmed Temperature Initiation (CTI).
- Includes reliable digital operation with separate short circuit fault identification.
- Distinguishes between short circuits and true alarm conditions.
- Identifies and displays the location of an overheat or fire condition anywhere along its length when used with a Protectowire Alarm Point Location Meter.
- Meets intrinsically safe standards and is FM Approved for Class I, II and III, Division 1, Groups A, B, C, D, E, F and G when used with required equipment.
- Is manufactured under U.S. Patent 8,096,708 and has patents in many countries around the world.

Specifications

Maximum Voltage Rating:	30 VAC, 42 VDC
Resistance:	.282 ohms/ft. (.925 ohms/m)
Conductor Polarity:	Un-insulated Copper Colored Conductor - Positive (+) Un-insulated Silver Colored Conductor - Negative (-)
Minimum Bend Radius:	2.5 inches (6.4 cm) Nominal
Weight:	8 lbs. / 500 ft. (3.6 kg / 152 m)

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.

XLT (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°F (–51°C)

Accessories

The Protectowire Company offers an assortment of fasteners and Type T thermocouple 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
CTI-EPC Multi-Purpose/ Commercial & Industrial Applications	CTI-155-EPC	155°F (68°C)	115°F (46°C)*	50 ft. / 15.2m	30 ft. / 9.1m
	CTI-190-EPC	190°F (88°C)	150°F (66°C)	50 ft. / 15.2m	30 ft. / 9.1m
	CTI-220-EPC	220°F (105°C)	175°F (79°C)*	50 ft. / 15.2m	25 ft. / 7.6m
	CTI-280-EPC	280°F (138°C)	200°F (93°C)	50 ft. / 15.2m	25 ft. / 7.6m
	CTI-356-EPC	356°F (180°C)	221°F (105°C)	50 ft. / 15.2m	See Note 1
CTI-XCR High Performance/ Industrial Applications Excellent Abrasion & Chemical Resistance	CTI-155-XCR	155°F (68°C)	115°F (46°C)*	50 ft. / 15.2m	30 ft. / 9.1m
	CTI-190-XCR	190°F (88°C)	150°F (66°C)	50 ft. / 15.2m	30 ft. / 9.1m
	CTI-220-XCR	220°F (105°C)	175°F (79°C)*	50 ft. / 15.2m	25 ft. / 7.6m
	CTI-280-XCR	280°F (138°C)	200°F (93°C)	50 ft. / 15.2m	25 ft. / 7.6m
	CTI-356-XCR	356°F (180°C)	250°F (121°C)	50 ft. / 15.2m	See Note 1
CTI-LSZH Multi-Purpose/Low Smoke Zero Halogen	CTI-135-LSZH	135°F (57°C)	100°F (38°C)	50 ft. / 15.2m	30 ft. / 9.1m
	CTI-155-LSZH	155°F (68°C)	115°F (46°C)*	50 ft. / 15.2m	30 ft. / 9.1m
	CTI-190-LSZH	190°F (88°C)	150°F (66°C)	50 ft. / 15.2m	30 ft. / 9.1m
	CTI-220-LSZH	220°F (105°C)	175°F (79°C)*	50 ft. / 15.2m	25 ft. / 7.6m
	CTI-280-LSZH	280°F (138°C)	200°F (93°C)	50 ft. / 15.2m	25 ft. / 7.6m
	CTI-356-LSZH	356°F (180°C)	250°F (121°C)	50 ft. / 15.2m	See Note 1
CTI-XLT Multi-Purpose/Excellent Low Temp. Properties	CTI-135-XLT	135°F (57°C)	100°F (38°C)	50 ft. / 15.2m	30 ft. / 9.1m

* For Open Area Applications the recommended UL 521 maximum ambient temperature for CTI-155 models is 100°F (38°C) and CTI-220 models is 150°F (66°C). Temperature shown in table are acceptable for UL Special Application use.
Note 1: FM Approved for special application use only.
Note 2: Polarity MUST be maintained to ensure proper operation. Conductor Color Code: Copper = (+ Positive); Silver/Gray = (- Negative).
Note 3: All Protectowire models supplied on Messenger Wire are identified by the suffix "-M" after the model numbers shown above.
Note 4: All detectors rated to -40°F (-40°C) except CTI-135-XLT which has been rated to -60°F (-51 °C).

PRODUCTS:

Gaseous Suppression

- Inert Gas (IG-01, IG-55, IG-100, IG-541)
- Novec 1230™ Fluid (FK-5-1-12)
- FM-200® (HFC-227ea.)
- Carbon Dioxide (CO_2)
- Hybrid Systems (N_2 / Water)
- Pressure Relief Vents
- Enclosure Integrity Testing Equipment
- Pipe & Fittings

Water Suppression

- Water Mist - High Pressure
- Water Mist - Intermediate Pressure
- Water Mist - Low Pressure
- Hybrid Systems (Water / N_2)
- Monitors & Delivery Systems
- High Speed Deluge

Foam Suppression

- Foam Concentrates
- Foam Proportioning
- Foam Delivery Systems
- Compressed Air Foam
- Foam Concentrate Testing

Explosion Protection

- Explosion Suppression
- Explosion Isolation
- Explosion Vents & Pressure Relief
- Spark Suppression
- Explosibility Testing

Fire Detection

- Linear Heat Detection - Digital
- Linear Heat Detection - Fibre Optic
- Linear Heat Detection - Micro Chip
- Flame Detection
- Video Imaging Detection
- Spark Detection
- Control & Indicating Equipment
- Thermal Imaging Detection
- Aspirating Smoke Detection

Military & Defence

- Military Vehicles
- Naval Vessels

Special Applications

- Micro Environment
- Oxygen Reduction
- Kitchen Protection Systems
- Dry Chemical
- Vehicle Systems
- Marine & Offshore
- Vapour Mitigation
- Li-Ion Fire Systems

Support Services

- Design / Engineering
- Technical Support
- Services & Testing

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