

Protectowire® CTI™ Linear Heat Detector

Important Installation Information - Please Read!

1. General

- 1.1 Protectowire CTI Linear Heat Detectors may be installed at the ceiling level to protect areas within buildings (area protection) in the same fashion as the more familiar spot heat detectors. Please refer to the National Fire Alarm and Signaling Code, NFPA 72, for basic information on the installation and spacing of linear heat detectors for area protection.
- 1.2 For special applications where the detector is installed close to the hazard, the manufacturer's recommendations and/or installation instructions should be followed. Whenever there is a choice between two or more possible installation procedures, the one that results in increased protection should be utilized.

2. Model Numbers, Temperature Ratings and Approved Spacing

Product Type	Model Number	Alarm Temperature	Max. Ambient Temperature	Approvals/Max. Listed Spacing	
				UL / cUL	FM
<u>CTI</u> Multi-Purpose/ Commercial & Industrial Applications	CTI-155	155° F (68° C)	115° F (46° C)*	50 ft. / 15.2m	30 ft. / 9.1m
	CTI-190	190° F (88° C)	150° F (66° C)	50 ft. / 15.2m	30 ft. / 9.1m
	CTI-220	220° F (105° C)	175° F (79° C)*	50 ft. / 15.2m	25 ft. / 7.6m
	CTI-280	280° F (138° C)	200° F (93° C)	50 ft. / 15.2m	25 ft. / 7.6m
	CTI-356	356° F (180° C)	221° F (105° C)		<i>See Note 1</i>
<u>CTI-X</u> High Performance Industrial Applications/ Excellent Abrasion & Chemical Resistance	CTI-155-X	155° F (68° C)	115° F (46° C)*	50 ft. / 15.2m	30 ft. / 9.1m
	CTI-190-X	190° F (88° C)	150° F (66° C)	50 ft. / 15.2m	30 ft. / 9.1m
	CTI-220-X	220° F (105° C)	175° F (79° C)*	50 ft. / 15.2m	25 ft. / 7.6m
	CTI-280-X	280° F (138° C)	200° F (93° C)	50 ft. / 15.2m	25 ft. / 7.6m
	CTI-356-X	356° F (180° C)	250° F (121° C)		<i>See Note 1</i>
<u>CTI-XLT</u> Multi-Purpose/ Excellent Low Temperature 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.

** CTI-XLT has been UL Listed and FM Approved to -60°F (-51°C).

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.

3. Electrical Arrangement

- 3.1 Protectowire CTI is a listed heat-actuated automatic fire detector, and is intended for use on a supervised initiating circuit of the approved CTM-530 Series Interface Module.
- 3.2 Detector Wiring – The CTM-530 provides one (1) supervised detection circuit that may be field wired for either Class A (Style D) or Class B (Style B) service. The alarm initiating circuit is capable of operating up to 4000 feet (1212 m) of Protectowire Type CTI Linear Heat Detector. The CTM-530 initiating circuit is designed to monitor Protectowire Type CTI Linear Heat Detectors only and does not support other types of normally open contact alarm initiating devices. **Important: Detection circuit polarity MUST be maintained in all wiring configurations. Copper colored conductor is Positive (+) and Silver/Gray conductor is Negative (-). For all CTI Series Detectors, compatible "T" type thermocouple grade extension wire is required for use as interconnection feed cable on the detection circuit.**
- 3.3 All terminations and/or splices in the CTI detection circuit must be made utilizing terminals rated for "T" type thermocouple connections. Use of standard terminals or connectors will impair operation of the detector.
- 3.4 Prior to installation, refer to the CTM-530 Series Interface Module Installation and Operation Guide for complete installation and wiring information.

4. Storage and Shipping

- 4.1 This wire is sensitive to heat and must be stored in areas where the temperature will not exceed the maximum ambient temperature rating of the detector. It must not be installed in contact with, or in proximity too, any heat-producing equipment or environment that exceeds its maximum ambient installation temperature.
- 4.2 Each length of Protectowire CTI Linear Heat Detector is individually tested for operational integrity prior to shipment from the Factory. Because Protectowire CTI is a heat-activated device, it is possible that if proper precautions are not taken to avoid high ambient temperatures during shipment or storage, the wire could be activated (shorted) before it is installed.

The Protectowire Company recommends that every coil or spool of wire be inspected by the customer to verify the type and temperature is as ordered, and then tested for shorts before installation begins.

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5. Installation Warnings

- 5.1 This detector is not fragile, but crushing or pinching will damage it. The results of such damage may not appear at once and may not be obvious by the outward appearance of the wire, but damage to the outer jacket or unnecessary mechanical stress applied to the wire during installation may cause “false alarms” later on. Therefore:
- **DO NOT** leave it on the floor and walk on it or set ladders on it during installation.
 - **DO NOT** install it with commercial fasteners unless specially approved by The Protectowire Company.
 - **DO NOT** place it where it will be subject to mechanical damage by equipment processes.
 - **DO NOT** over tighten the fasteners as this may breach the outer jacket or crush the inner insulation causing “false alarms.” All fasteners must allow the wire to expand and contract with temperature changes.
 - **DO NOT** over stretch the Detector runs; some wire “sag” between fasteners is normal.
 - **DO NOT MAKE NINETY DEGREE (90°) BENDS.** All bends should be made using the fingers without holding the wire with pliers and consist of rounded turns with a minimum 2.5 inch (6.4 cm) radius.
 - **DO NOT USE WIRE NUTS.** All connections must be made via terminals and/or approved splicing devices rated for “T” type thermocouple connections.
 - **DO NOT PAINT THIS DETECTOR** per UL and FM requirements.
- 5.2 Normally open contact alarm initiating devices such as manual pull stations, or spot heat detectors **MUST** not be connected to the CTM-530 Series Interface Module’s alarm initiating circuit as all short circuit conditions are reported as a trouble (fault) condition only.

6. Outdoor Applications

- 6.1 Exposure to direct sunlight may cause the temperature of the detector or its mounting surface to exceed the maximum ambient temperature limit or the alarm actuation temperature of the sensor. For this reason, outdoor use of 135°F (57°C) and 155°F (68°C) wire is not recommended. Depending upon the environment, shielding of higher temperature temperature rated detectors may also be required in order to reduce the surrounding ambient temperature to acceptable limits.
- 6.2 Applications with high humidity or dampness require, as a minimum, the use of SFTS Sealant Tape for all in-line splices where CTIC splicing devices are used. For outdoor applications, the recommended method of splicing requires that all connections be made within appropriate NEMA rated zone/junction boxes utilizing SR-502 Series Strain Relief Connectors where Protectowire CTI enters or exits the box.

7. Installation Hints

- 7.1 Whenever possible, corners should be rounded by pulling the detector into a natural curve rather than bending it. This reduces installation time and improves the finished appearance. It also creates a spring tension at the corners that helps hold the detector in place. On flat mounting surfaces, such as ceilings, WAW Corner Clips should be used at all corners (turns) except for installations using drive rings, or messenger wire.
- 7.2 The spring steel conductors’ gives the detector a tendency to straighten out when taken from the spool. The same conductors, however, will take a “set” and try to retain curves or bends if pulled too hard around a corner. The rule, therefore, is “handle gently.” Do not pull kinks into it that could damage the inner insulation.
- 7.3 The use of a good portable wire reel (Protectowire Model SU-15 or equivalent) is highly recommended.