

CTM-530 Series Protectowire Interface Module with Confirmed Temperature Initiation (CTI™)



General

The CTM-530 is a detection control module that acts as an interface between a main fire alarm control panel detection circuit or addressable node and Protectowire Type CTI Linear Heat Detector. The module 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 (1220 meters)* of Protectowire Type CTI Linear Heat Detector. The CTM-530 initiating circuit currently does not support other types of normally open contact alarm initiating devices.

Description

The CTM-530 operates using Protectowire's patented CTI Confirmed Temperature Initiation technology. When paired with Protectowire Type CTI Linear Heat Detectors, the module can distinguish between a mechanical short in the linear heat detector and a thermal alarm activation thereby greatly reducing the risk of false alarms. This multi-criteria detection method provides for short circuit discrimination, a feature previously unavailable for digital type linear heat detectors.

Features

- Provides a single zone interface for Protectowire Type CTI Linear Heat Detectors
- Patented technology can distinguish between mechanical shorts and thermal alarm conditions (Short Circuit Discrimination)
- Integrated Protectowire Alarm Point Location Meter with field calibration
- 4x20 LED backlit LCD display
- Modbus over RS-485 communications
- 4-20mA outputs for Status and Alarm Point Location
- 64 Event History Log (FIFO)
- Optional intrinsically safe detection circuit available in hazardous locations.

The CTM-530 is designed for easy installation and is optionally available in a NEMA-4X rated enclosure for mounting outside of the host fire alarm control panel or remotely near the hazard to be protected. In order to ensure proper operation, each CTM-530 module requires regulated resettable external power which is normally provided by the host fire alarm panel. Each module contains a green "Power-On" LED indicator, one (1) red "Alarm" LED indicator, one (1) yellow "Fault" LED indicator and one (1) yellow "short" fault LED indicator. One (1) set of Form C alarm contacts, one (1) set of Form C trouble contacts and one (1) set of Form C short circuit fault contacts are also provided to connect the unit to the host fire alarm panel. The module also is equipped with two 4-20mA outputs, one which allows monitoring of the module status and the other for monitoring alarm point location information. Additionally, Modbus communication over RS-485 supplies the end user with status, temperature, and alarm point location information.

The standard CTM-530 module contains a built in Protectowire Alarm Point Location Meter. This meter will automatically display the distance from the beginning of the detector run to the heat actuated (shorted) portion of the detector. The Alarm Point Location Meter can be programmed to display in either standard units (Feet) or metric units (Meters).

The meter display provides a simple "on screen" calibration procedure allowing the measurement to be field calibrated to the installed detector length and ambient temperature for optimal accuracy.

Specifications

Electrical

- Power input - regulated 12 to 24 VDC @ 1.6 watt standby, 2.0 watt alarm
- Power limited, onboard surge and EMI protection devices

Inputs

- One initiating device circuit capable of monitoring up to 4000 Feet (1220 Meters)* of Protectowire Type CTI Linear Heat Detector. For all CTI type detectors, twisted "T" type thermocouple grade extension wire is required for use as interconnecting cable on the detection circuit. Minimum conductor size is 20 AWG (0.812 mm), or as required by local code.

Environmental

- Ambient temperature range: Standard version (with integrated LCD display) -20° to 120°F (-29° to 49°C)
- FM tested to 140°F (60°C) max
- Humidity: Max. 95% non-condensing

Indicators

- 4x20 Character LED backlit LCD display
- One green "Power" indicator
- One red "Alarm" indicator
- One yellow "Fault" indicator
- One yellow "Short Fault" indicator

Relay Outputs (Rated 1 amp @ 24VDC Resistive)

- One (1) set of Form C (SPDT) Fault Contacts
- One (1) set of Form C (SPDT) Short Fault Contacts
- One (1) set of Form C (SPDT) Alarm Contacts

Board Assembly Dimensions

- 6" W x 4" H x 1.5" D (15.24cm x 10.16cm x 3.8cm)
- Mounting holes #4 holes at 5.5" x 3.5" (13.97cm x 8.89cm) spacing

**Note: Total combination of detector and type T thermocouple feed cable must not exceed 4000 Feet (1220 Meters). Limit further reduced up to 2000 Feet (610 Meters) or less as determined by Intrinsically Safe Application calculations.*

Note: All specifications subject to change with out notice.

Ordering Information

Model No.	Description
CTM-530	Interface Module for Protectowire Type CTI with LCD display and navigation buttons.
CTM-530E	Interface Module for Protectowire Type CTI with LCD display and navigation buttons mounted in a NEMA-4X (IP66) Enclosure.
CTM-530E-I	Interface Module with ISB for Protectowire Type CTI with LCD display and navigation buttons mounted in a NEMA-4X (IP66) Enclosure.

4-20mA Outputs

- One(1) 4-20mA Output for module status
- One (1) 4-20mA Output for Alarm Point Location Readings

CTM-530E Enclosure Specifications

- 8"H x 6"W x 4"D (20.3cm x 15.2cm x 10.2cm)
- Add 1.6" (4cm) to overall height for external mounting feet.
- Clear full view door
- NEMA 4X Rated (Rating UL listed only)

Option I - Intrinsically Safe Detection Circuit

- Option I provides an intrinsically safe Class B detection circuit for use in those areas classified as hazardous. This feature utilizes one shunt diode barrier per zone and is FM Approved for Class I, II and III, Division 1, Groups A, B, C, D, E, F and G; Class I, Zone 0, AEx ia IIC T6 -29°C ≤ Ta ≤ +60°C Ga.

CTM-530E-I Enclosure Specifications

- 10.5" H x 8.5" W x 4.5" D (27cm x 21.5cm x 11.4cm)
- Add 1.6" (4cm) to overall height for external mounting feet
- Clear full view door
- NEMA 4X Rated (Rating UL listed only)

4-20mA Output Information

Description

The CTM 530 provides two 4-20mA outputs that allow for monitoring of the module status and active alarm point location reading. These outputs are intended for annunciation purposes only. Module monitoring is intended to be accomplished using the on-board dry contacts connected to a listed or approved fire detection control panel initiating device circuit. Reference manual for detailed output levels for each status loop.

Modbus over RS-485 Description

The CTM-530 interface module provides integrated Modbus over RS-485 communications. Each module can be configured as a Modbus slave device on an RS-485 network. Once configured to communicate on a network, each module can be polled by a master device for a variety of module specific data. A master device, such as a PLC (Programmable Logic Controller) can monitor the status of one or more modules and take actions based on their status. Modbus over RS-485 communication is a convenient method for utilizing detector status information to implement equipment shutdown or other automation events.