PERTRONIC INDUSTRIES LTD

INSTALLATION NOTE

Thermistor Indicating Heat Detectors

THDB-57C, THDB-57C-WP, THDBAR-57C, THDBR-57C
THDB-57C-WP-FZR, THDY-77C, THDY-77-WP,
THDYAR-57C, THDYR-77C

Overview

Pertronic THD-series Thermistor Indicating Heat Detectors are conventional indicating heat detectors with fixed (static) temperature thresholds, designed for use in NZS 4512:2010-compliant fire systems.

Pertronic THD-series Thermistor Heat Detector (THDx)

Features

- Five versions are available:
  - *Standard*
    For use in benign interior applications
  - *Remote Indicator*
    For use in interior applications where the detector is not visable (e.g. Ceiling spaces)
  - *Weatherproof (WP)*
    For use in high humidity environments (under eaves, bathrooms, freezers)
  - *Alkaline Wash Resistant (AR)*
    For use in chemically aggressive interior environments (cleaning agents used)
  - *Freezer (FZR)*
    For use in sub-zero ambient temperatures down to -40 °C
- Two temperature ranges within each version (except the feezer variant, 57°C only)
  57 °C (Blue dot), 77 °C (Yellow dot)
- Internal electronics conformally-coated
- Remote indicator versions have an output connection for a remote LED indicator (DETREM)
- In the alarm state, the red indicator and remote LED (if fitted) latch ON, and the detector clamps the detection circuit to 2.7V
- Power cycling the detector resets the red indicator LED, and the remote LED (if fitted)
- Yellow LED indicates reverse polarity connection (See Fault Finding Tips on page 4)
- Terminals on standard and remote versions accept up to 1.5 mm^2 cable
- Wire tail termination on weatherproof and alkaline wash resistant versions

Specifications

Operating Voltage		12Vdc or 24Vdc (nominal)	**Circuit Capacity**	Up to 50 thermistor heat detectors per detection circuit
Current	**Quiescent**	11 µA	**Alarm Clamping Voltage**	2.7V (nominal)
	Alarm	Control panel limits to < 25mA	**Dimensions**	66 mm diameter x 32 mm high
Housing Material		Polycarbonate (except AR) Filled Polypropylene (AR)	**Weight**	51 g (Standard) 52 g (Standard & Remote) 74 g (Weatherproof & Alkaline Wash Resistant)
Colour		White (except AR)		
Operating Temperature		0°C to 80°C, -40°C to 80°C (FZR)	**Chemical Resistance** **(AR versions only)**	Resistant to alkaline cleaning solutions containing up to 3% Potassium Hydroxide and/or up to 3% Sodium Hypochlorite
Humidity		≤ 95% RH non-condensing		

IMPORTANT NOTE for Installers

1. If the detector is mounted on an uneven surface, pressure across the encapsulant bridge may cause the detector housing to crack. To minimise this risk, particularly on polypanel, in cooler or chillier environments, we recommend the following precautions:

   - Use 6G x 25mm or similar self-tapping screws
   - Insert a 4mm flat washer between the pillar mount and the panel, ensuring the screws pass through the washer
   - Set the electric screws driver to the minimum torque required to drive the screw
   - Slacken off the screws so the detector can be "wiggled" when fitted

   These precautions ensure that the detector is not over-tightened and the plastic should not crack, even at low temperatures.

2. Although the freezer variant of Thermistor Heat Detector may be used in ambient temperatures down to -40°C, do not proceed with the installation when ambient temperatures are below -20°C as the cable may become less flexible.

Compatibility

Up to 50 Thermistor Heat Detectors may be connected to the conventional detection circuit of any current version Pertronic Fire Alarm Control Panel or module. Please refer to the appropriate technical manual for details.

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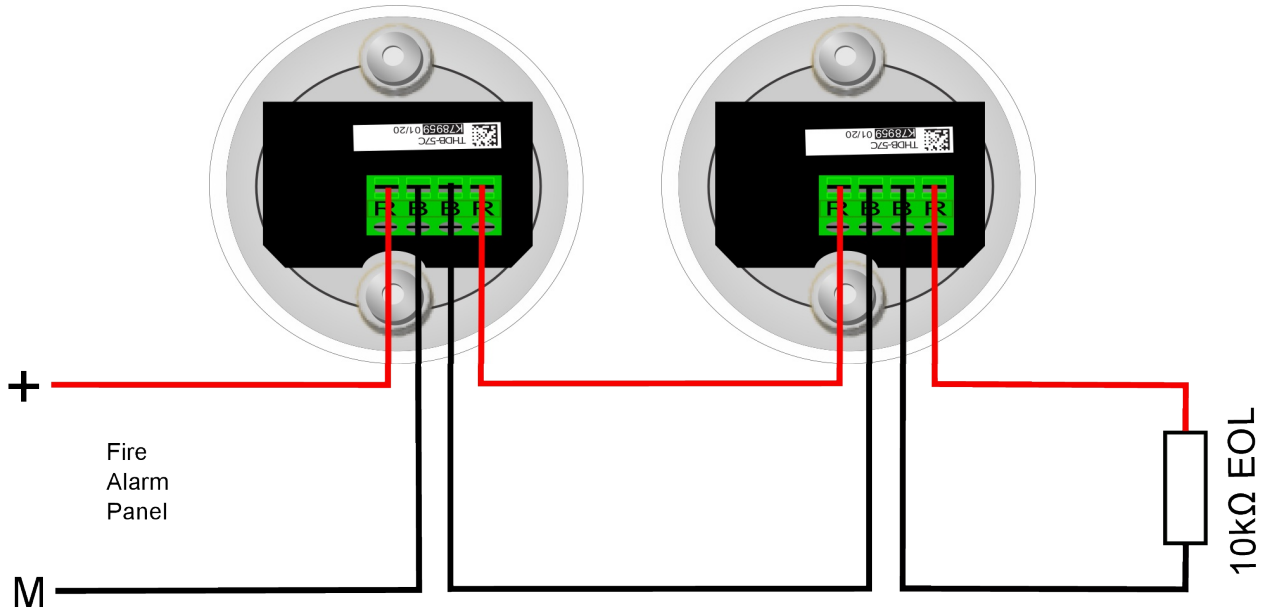
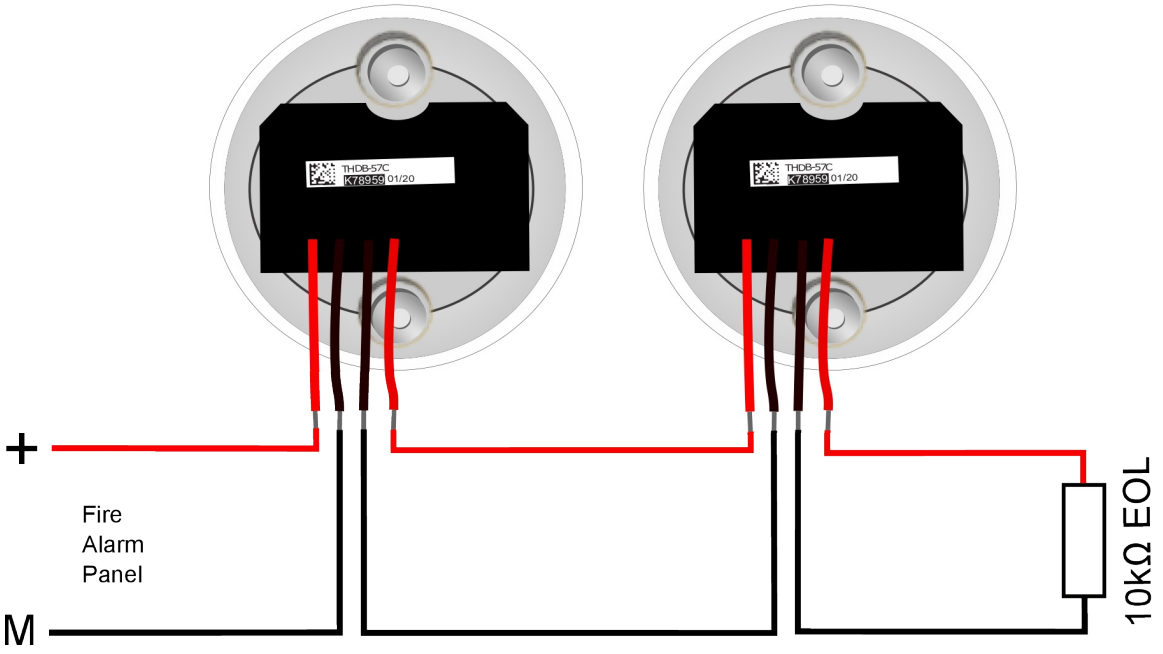
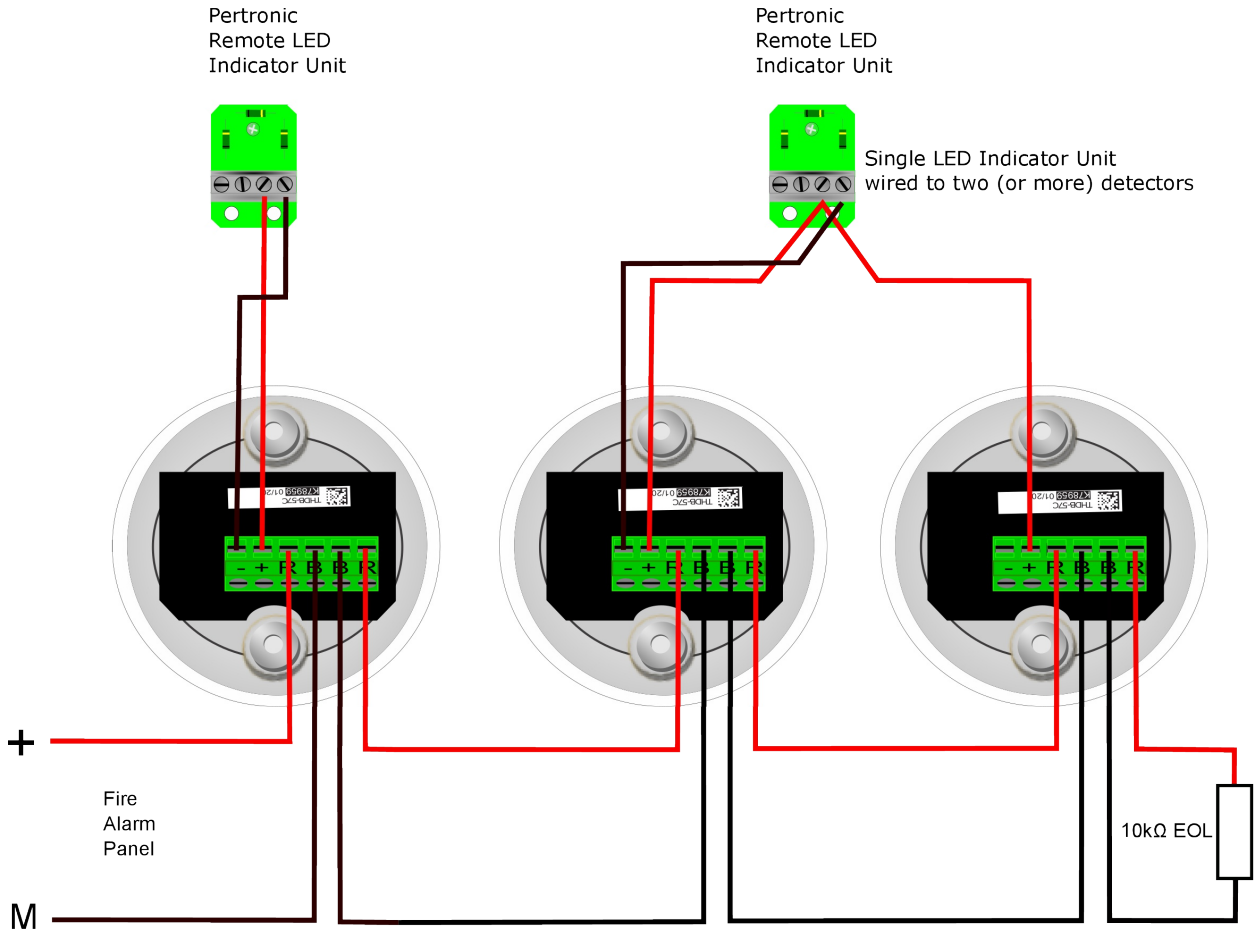
1. Detector connections - Standard



2. Detector connections - Weatherproof /Alkaline Wash Resistant



3. Detector connections - Remote Indicator



Note: When a single LED Indicator Unit is connected to multiple detectors, only one ground line is used.

Fault Finding Tips:

A Pertronic Fire Panel, Loop Responder or Apartment Module is able to indicate either a **Defect: High**, **Defect: Low** (Open Circuit) or **Defect: Short Circuit**

Defect: High - Likely causes

1. A heat detector is wired with reverse polarity. With detectors that have been incorrectly wired, the yellow reverse polarity LED will be turned ON
   - Check that the red cable is connected to the panel **+** connector
   - Check that the black cable is connected to the **M** connector
   - Check that the cable polarity is correct at all detectors.

   If more than one detector shows an active reverse polarity LED, first correct the connections nearest to the fire panel.
   Note: An alarm may be generated if more than two thermistor heat detectors are connected with reverse polarity.
2. End of Line resistor less than 10 kΩ.
3. Too many devices on one detection circuit. Refer to the appropiate product manual for the maximum allowable number of detectors and MCPs
4. A faulty smoke detector is drawing excessive current.

   To trace the faulty detector, divide the circuit in halve by disconnecting the cable at a convenient detector, connect a 10kΩ EOL resistor and check if the defect has cleared. Repeat the process of dividing the faulty section of the circuit in halve until the location of the faulty detector has been located.
5. Low insulation resistance on the detector circuit causing excessive current draw.

Defect: Low (Open circuit)

An open circuit occurs when the cable is either broken or disconnected at one, or more, devices.
To trace the open circuit, reverse the polarity at the panel circuit termination and check which heat detectors have illuminated reverse wire polarity (yellow) indicator LEDS.
The open circuit is located between the last illuminated detector and the first non-illuminated detector.

Defect: Short Circuit

A short circuit occurs when there is a low resistance connection between the two conductors. If this happens none of the detectors will operate. To trace the location of the short, use the binary technique of repeatedly dividing the faulty section of the circuit in halve (See Section 4, Defect High) until the location of the short has been located.

Ordering Information

Product Code	Description
THDB-57C	Thermistor Heat Detector, Blue, 57C
THDY-77C	Thermistor Heat Detector, Yellow, 77C
THDB-57C-WP	Thermistor Heat Detector, Blue, 57C, Weatherproof
THDY-77C-WP	Thermistor Heat Detector, Yellow, 77C, Weatherproof
THDBAR-57C	Thermistor Heat Detector, Blue, 57C, Alkaline Wash Resistant
THDYAR-77C	Thermistor Heat Detector, Yellow, 77C, Alkaline Wash Resistant
THDBR-57C	Thermistor Heat Detector, Blue, 57C, with Remote output
THDYR-77C	Thermistor Heat Detector, Yellow, 77C, with Remote output
THDB-57C-WP-FZR	Thermistor Heat Detector, Blue, 57C, Weatherproof, Freezer Variant
DETREM	Remote LED Indicator

CN: 3186