

# TEC083A-LI & TEC083A-ET

## BASIC OPERATING/CONNECTION

### INSTRUCTIONS

### Linear Heat Cable Interface & Termination

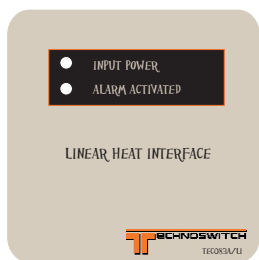
Connecting linear Heat Cable to a Conventional Fire Panel requires the TEC083A-LI Interface and the TEC083A-ET Termination unit.

When the Linear Heat Cable senses an over temperature condition, an alarm signal is transmitted to the Fire Control Panel by the TEC083A-LI. Should a short or open circuit condition exist on the Linear Heat Cable, this condition will be reported by the Fire Control Panel through monitoring of the TEC083A-ET.

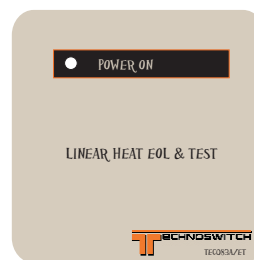
To test the Linear Heat Cable circuit, depress the Test button which is found on the TEC083A-ET termination PC board. After using this test button, the alarm condition has to be reset on the Fire Control Panel.

DO NOT move the jumper from pins 2 and 3. Leave it as indicated in the drawings below.

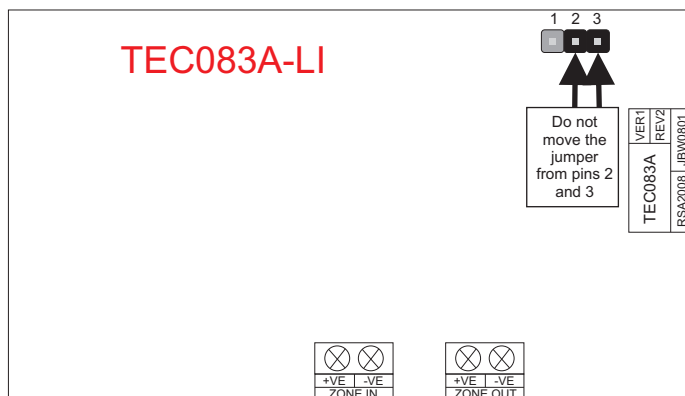
Ensure the Linear Heat Cable is firmly connected into the terminals.



TEC083A-LI

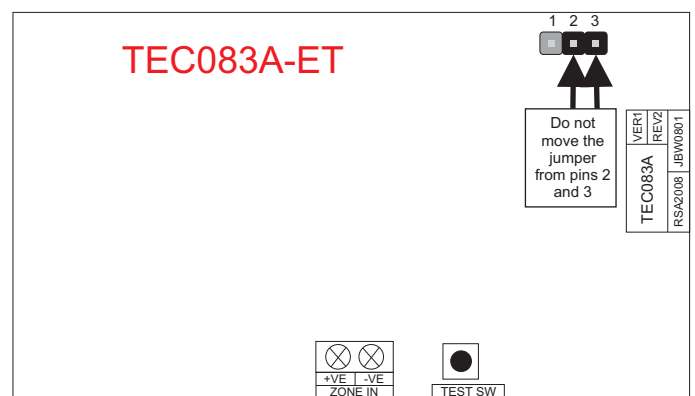


TEC083A-ET



Zone Input from  
Fire Control Panel

Linear Heat  
Cable

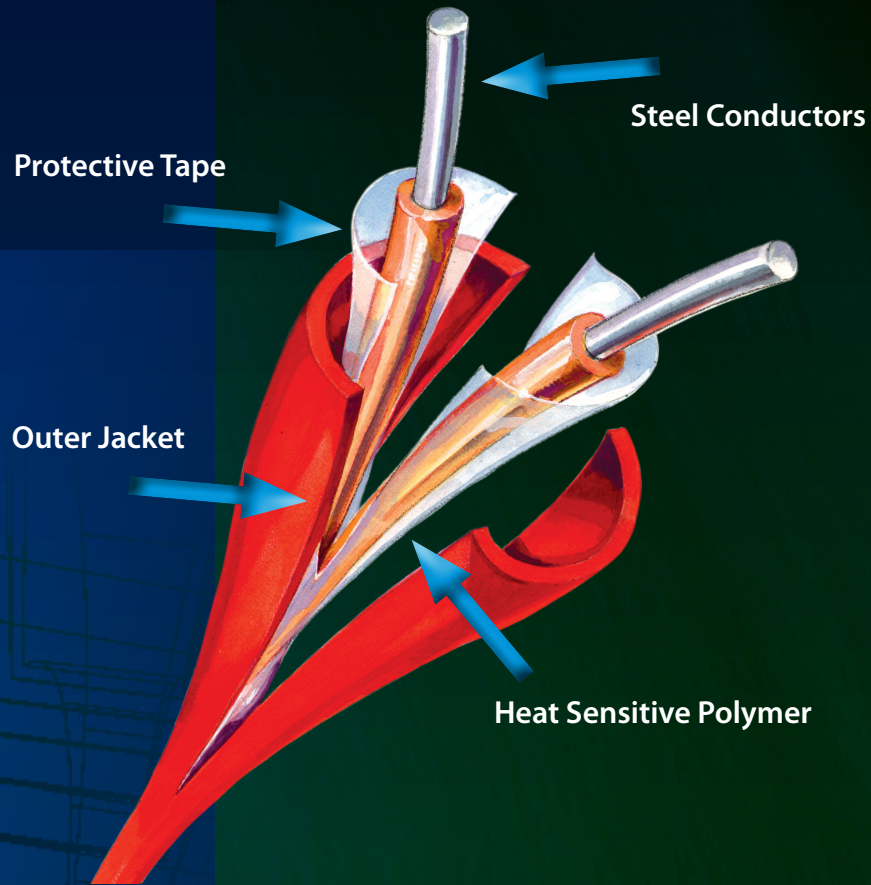


Linear Heat Cable  
Termination point

Test Switch

# LINEAR HEAT DETECTION PROTECTOWIRE

PRODUCT CODE PWXXX/XXX



## FEATURES

- Line coverage...continuous sensitivity.
- Withstands severe environmental conditions.
- Approved for hazardous locations.
- Easy to install, test, and splice.
- Compatible with other initiation devices on same circuit.
- Separate pre-alarm and alarm actuations (Type TRI).

# LINEAR HEAT DETECTION

## PROTECTOWIRE

### 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 that a specific length be heated in order to initiate an alarm nor is system calibration necessary to compensate for changes in the installed ambient temperature. Protectowire Linear Heat Detector provides the advantages of line coverage with point sensitivity.

### PROTECTOWIRE FEATURES & BENEFITS

Can be connected to a standard Technoswitch Fire Control Panel or when used with a PW PIM/430DE Control Panel the Detector will activate a display, showing the location in metres of an overheat or fire condition anywhere along its length.

Sensitivity not effected by changes in ambient temperature or length of cable used on the detection circuit. Compensating adjustments are not required.

Steel inner conductors and select outer jackets, provide resistance to mechanical damage.

Simple to install and splice with common tools. Junctions can be made without effecting the integrity of the system.

Compatible with other types of alarm initiating devices on the same circuit such as manual call points, heat detectors and smoke detectors.

Can be installed in hazardous areas when used with suitably approved Control Panels.

Full range of temperatures and models available to accommodate the most demanding applications.

Different temperature detectors may be utilized in the same initiating circuit.

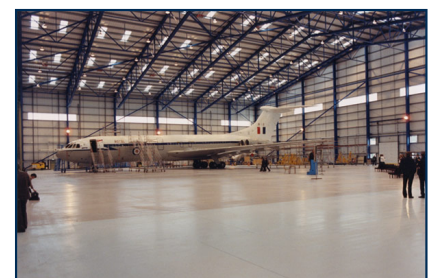
Available on stainless steel messenger wire for installations where mounting is difficult such as large open areas.

Ideally suited for activation of extinguishment equipment, such as deluge or pre-action sprinkler systems.

### APPLICATIONS

- 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

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.



## DESCRIPTION

The Detector's product range consists of five distinct types of cable. Each designation identifies a specific outer jacket material which has unique characteristics that have been selected to accommodate the widest range of installation environments. All specifications are subject to change without notice.

**EPC** – Type EPC Protectowire consists of a durable flame retardant vinyl outer jacket. This series is best described as multi-purpose and is well suited to a wide range of both commercial and industrial applications. The outer jacket provides good all-around performance for most installations. It features low moisture absorption, resistance to many common chemicals, and excellent flexibility at low temperatures.



EPC, TRI  
Polyvinyl Chloride (PVC)

**EPR** – The EPR series contains an extruded flame retardant jacket of polypropylene elastomer with a special UV stabilizer added to enhance weathering performance. It is intended for a wide range of industrial applications and is characterized by high resiliency, good abrasion resistance, excellent weathering properties, and flexibility over a wide temperature range.



EPR  
Polypropylene Rubber

**TRI** – Type TRI Protectowire is a unique dual temperature detector which is capable of initiating separate pre-alarm and alarm signals once each of its rated activation temperatures is reached. The Detector consists of a durable vinyl outer jacket which features low moisture absorption, resistance to many common chemicals, excellent flexibility and flame retardant.

**XCR** – Type XCR utilizes a high performance fluoropolymer jacket. This detector is specifically designed for use in applications where extreme environmental and product performance criteria must be met. In general, the flame retardant, low smoke XCR jacket provides excellent abrasion resistance and mechanical properties over a broad range of temperatures. It provides excellent chemical and permeation resistance to a wide variety of acids, bases, and organic solvents as well as simple gases. In addition, the jacket exhibits very little change in tensile properties upon outdoor exposure to sunlight and weather.

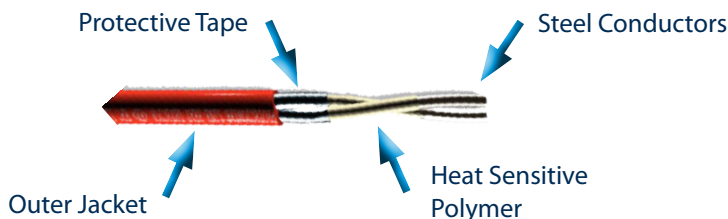


EPN  
Nylon over PVC

**XLT** – Protectowire Type XLT is a unique detector that has been designed for use in cold storage facilities and other applications that require a low alarm activation temperature. The outer jacket consists of a proprietary flame retardant polymer that is specifically formulated to provide low moisture absorption, good chemical resistance, and excellent low temperature environmental performance. This detector has been UL and FM tested to  $-51^{\circ}\text{C}$ .



XLT  
Proprietary Polymer



## TEMPERATURE RATINGS

Product Type	Model Number	Alarm Temperature	Max Recommended Ambient Temperature
EPC Multi-Purpose/ Commercial & Industrial Applications	155-EPC	68°C	38°C
	190-EPC	88°C	66°C
	220-EPC	105°C	79°C
	280-EPC	138°C	93°C
	356-EPC	180°C	105°C
EPR Good Weathering Properties & High Temperature Jacket Performance	155-EPR	68°C	38°C
	190-EPR	88°C	66°C
	280-EPR	138°C	93°C
	356-EPR	180°C	121°C
TRI Applications Requiring Pre-alarm	6893-TRI	Pre-alarm: 68° C Alarm: 93°C	38°C
XCR High Performance/ Industrial Applications Excellent Abrasion & Chemical Resistance	155-XCR	68° C	38°C
	190-XCR	88° C	66°C
	220-XCR	105°C	79°C
	280-XCR	138° C	93°C
	356-XCR	180°C	121°C
XLT Multi-Purpose/ Excellent Low Temp.	135-XLT	57° C	38°C

## SPECIFICATIONS

Maximum Voltage Rating:	30 VAC, 42 VDC
Resistance 2W Models:	.656 ohms/m
Resistance TRI-Wire:	.984 ohms/m
TRI-Wire Conductor Color Code:	Pink = 68°C   Clear = 93°C   Black = Common
Min. Bend Radius:	6.4cm
Diameter:	Nominal 4mm
Weight:	Nominal 3.6 kg/152m



## INSTALLATION ACCESSORIES

A comprehensive range of mounting and installation accessories are available for the installation of Protectowire Linear Heat Detector. These include several types of clips, straps, drive rings, beam clamps, cable standoffs and connectors. Their proper use assures a neat and reliable installation.

Messenger wire is also available for any model Detector on special order. It consists of high tensile strength stainless steel wire, which is wound around the Detector at the rate of approximately one turn per foot. It is a carrier or support wire which is designed to simplify the installation of the Detector in areas where mounting is difficult due to the lack of appropriate support structures or mounting surfaces. When using messenger wire to support the Detector, turnbuckles and eyebolts must be employed at each end of a run to place tension on the support wire. The maximum Detector run length between turnbuckles should not exceed 76m and the wire must also be supported with approved intermediate fasteners at intervals ranging from 4.5m to 15m depending upon the application. Outdoor messenger wire installations present additional challenges due to environmental factors such as wind. Increased detector support must be provided by using additional intermediate fasteners with closer spacing in all outdoor installations. When ordering messenger wire configurations, add suffix "-M" to the model number. All models of Protectowire Linear Heat Detector have the same size conductors and are readily spliced together with common tools.