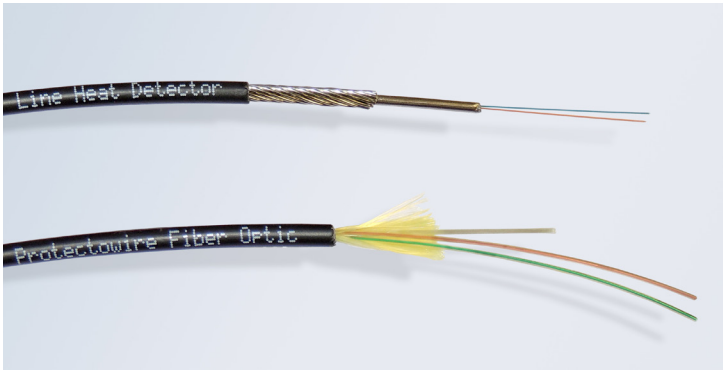
PROTECTOWIRE® FireSystems

DATA SHEET

Protectowire PFS N45 Series Fiber Optic Sensor Cable



Features

- Two models available.
- Immune to electromagnetic interferences.
- Withstands severe environmental conditions.
- Little or no maintenance required.
- Halogen free, flame retardant jacket.
- Programmable alarm temperature.
- 50/125 µm silica fiber

Description

Protectowire's PFS Series Fiber Optic Sensor Cable measures temperatures by means of optical fibers functioning as linear sensors. Temperatures are monitored along the sensor cable as a continuous profile. This ensures highly accurate temperature discrimination over great distances or large surface areas. The cable is capable of detecting hot gases as well as radiated heat and is adaptable to individual objects or hazards. The sensor cable contains no electronics and is therefore immune to electromagnetic disturbances of all kinds.

The sensor cable is available in two models suitable for the broadest range of application requirements and has been designed to provide years of useful service. Its rugged construction and halogen free flame retardant non-corrosive (FRNC) jacket resists most environmental influences, such as temperature, pressure and moisture changes.

Applications

- Tunnels
- Cable trays
- Conveyors
- Power distribution apparatus: switchgear, transformers, motor control centers, power cables
- Cooling towers
- Mines
- Pipelines
- Bridges, piers, marine vessels
- Aircraft hangars

Today, fiber optic temperature sensors are used in a variety of special applications. Their unique characteristics make them adaptable for such varied uses as monitoring the curing of concrete, detecting road icing and leaks in pipelines, and monitoring power cables for overloads.

In the area of fire detection, fiber optic technology is ideally suited to industrial highrisk hazards as well as many types of commercial applications. Protectowire PFS Series Fiber Optic Sensor Cable has unique advantages over other types of detectors, especially when difficult installation factors or severe environmental conditions are present. When used with a Protectowire PTS Controller, temperature measurement on the Sensor Cable takes place at periodic intervals to provide a continuous temperature profile.

Features & Benefits

- Identifies and displays the alarm location anywhere along its length when used with the unique visualization software and PTS Controller.
- Unique zoning capabilities. A single length of sensor can be divided into 2000 zones for various requirements (e.g. video, ventilation, and extinguishment zones).
- Multiple alarm initiating criteria by zone. Alarm initiating may be based upon a maximum temperature per zone, temperature development per zone in terms of time (rate of rise), or temperature difference between a measurement location and the zone average (zone differential).

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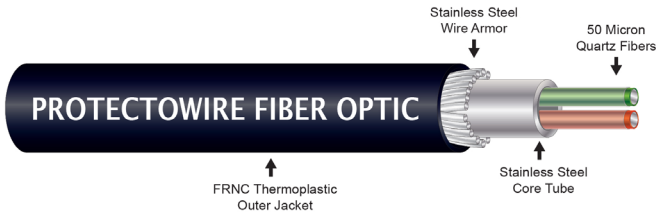
- Reinforced stainless steel inner core (Type FR) and rugged flame retardant outer jacket provide resistance to mechanical damage.
- Simple to install. Can be field spliced with appropriate fusion splicing tools.

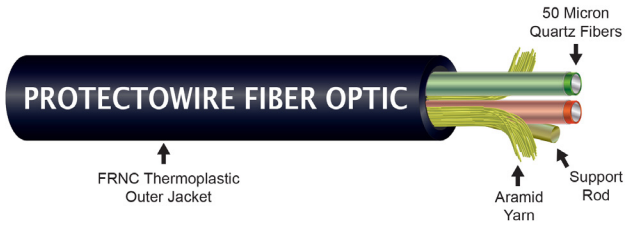
Specifications

The PFS Series product range consists of two distinct types of Sensor Cable. Each type has a unique construction that has been designed to accommodate the widest range of installation requirements and environments. All product specifications are subject to change without notice.

PFS-554-FR45 - Type FR Sensor Cable consists of a stainless steel core tube that contains two independent color coded 50/125 µm quartz fibers each with an outside diameter of 0.25 mm (.01 inches). The tube cavity is gelfree and is longitudinally and laterally watertight. The outside of the core tube is wrapped with a layer of fine stainless steel wires that add to the mechanical and tensile strength of the cable. The sensor cable is then sheathed with a halogen free, flame retardant non-corrosive (FRNC) thermoplastic jacket suitable for a wide range of applications and environments.



PFS-654-MF45 - Type MF Sensor Cable is a metal free Sensor that contains two independent color coded 50/125 µm quartz fibers each with an outside diameter of 0.25mm (.01 inches). This sensor has been specifically designed for use in applications where a high amount of electromagnetic disturbances are expected like tunnels, high voltage cable trays and transformers. To minimize the risk of induced voltages, the construction of the metal free Sensor Cable substitutes a core reinforced with Aramid yarn in place of the stainless steel tube and wire used in the FR type Sensor. The outer jacket consists of the same halogen free, flame retardant non-corrosive (FRNC) thermoplastic used throughout the product line. This series is best described as multipurpose, and is well suited to a wide range of both commercial and industrial applications.



Installation Accessories

A comprehensive range of mounting and installation accessories are available for the installation of Protectowire Type FR and MF Fiber Optic Sensor Cables. These include several types of clips, straps, beam clamps, cable standoffs, connectors and zone boxes. Their proper use assures a reliable installation. Only installation hardware supplied or recommended by The Protectowire Company should be used.

Cable Type	PFS-554-FR45 (S2002/A)	PFS-654-MF45 (S2000/A)
Number of fibers	2	2
Fiber Size	multimode 50/125 µm	multimode 50/125 µm
Cable Diameter	4 mm (.16 inches)	3.8 mm (.15 inches)
Min. bend radius	60 mm (2.4 inches)	60 mm (2.4 inches)
Max. Ambient	-40° to 85° C	-40° to 85° C
Temperature Range	(-40° to 185° F)	(-40° to 185° F)
Cable Weight	44 kg/km (30 lbs./1,000 ft.)	18 kg/km (12 lbs./1,000 ft.)
Max. UL Listed Spacing	15.2 m (50 ft.)	15.2 m (50 ft.)
UL Listed Alarm Operating Temperature Range	Both Models Programmable from 57° C (135°F) to 113° C (235° F).	

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