AlarmLine™ Addressable Linear Heat Detector

P/N 73-100001-003

SmartOne®

FEATURES

- **Low-cost interface between AlarmLine™ sensor cable and control panel accepting SmartOne™ addressable devices**
- **Real-time monitoring**
- **Software adjustable alarm set point**
- **Optional pre-alarm and overheat output configuration selections**
- **Three cable styles (standard, nylon, bronze braided)**
- **Sensor cable restorable up to 257°F**
- **Full supervision for short and open circuits**
- **Two-color status-LED display for alarm and trouble conditions**
- **Intrinsically safe option**
- **Flexibility in zoning**
- **Enhanced response time**
- **UL Listed #S492**
- **FM Approved #3005511**
- **CSFM Approved #7270-0074:110**

DESCRIPTION

The AlarmLine Addressable Linear Heat Detector provides early detection of fire or overheat condition in protected areas or equipment. It is especially suited for confined areas or environments where adverse ambient conditions cause other detection devices to be unreliable or difficult to use. The detector consists of two major components: A sensor cable and an Addressable AlarmLine Module (AAM).

The AlarmLine can be programmed to send pre-alarm, alarm, and overheat levels for differing ambient conditions as well as sending fault signaling of open and short circuit, and overheat conditions. The cables are self restoring up to 257°F (125°C). The AAM is compatible with the PEGAsys, ARIES, and ARIES NET*Link* panels.

APPLICATIONS

- Open-area protection
- Cable trays
- Rack storage
- Freezer warehouses
- Belt conveyers
- Floating roof fuel tanks
- Cooling towers
- Dust collectors
- Waste fuel drum storage
- Power distribution apparatus
- Escalators
- Tunnels
- Mines
- Hangars

ANALOG HEAT SENSING

AlarmLine's analog heat sensing characteristics offer several distinct advantages:

Field Adjustable pre-alarm, alarm, and overheat set points: Pre-alarm, alarm, and overheat thresholds may be programmed to meet specific system requirements.

Integrating: It is not necessary to reduce sensor spacing with increased ceiling height per NFPA 72-2010 Section 17.6.3.5.1, Exception (1). System sensitivity remains constant as ceiling height increases without reducing spacing.

Short Circuit Discrimination: The system will produce a trouble condition instead of a false alarm in the event of a conductor to conductor short due to damage or electrical faults.

SENSOR CABLE

The AlarmLine sensor cable consists of four 26 AWG copper conductors, each color-coded in an insulated sheath containing a negative temperature coefficient polymer (where an increase in temperature decreases the resistance of the sensor).

Two of the conductors are enameled and provide loop continuity supervision, but not temperature sensing. The conductors are twisted at thirty turns per foot (90 turns per meter) and protected by a flame-retardant outer extrusion or metallic braid (See Figure 1). The color coding of the four inner conductors is repetitively marked on the outer coating every three feet as an aid installation.

The maximum length of sensor cable per zone depends on the maximum ambient temperature defined on the nomogram(s) (See SmartOne AlarmLine Addressable Linear Heat Detector manual, P/N 06-235820-003). Regardless of ambient temperature, however, the maximum length of cable is 3280 feet (1000 meters) per zone for Type “T” cable.

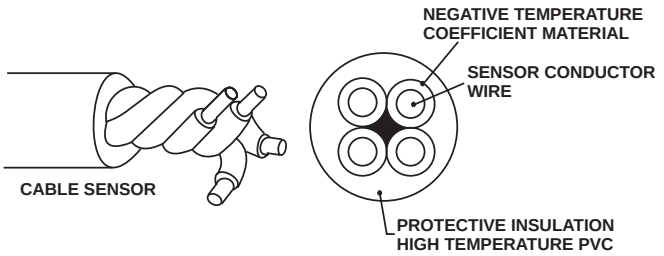

Figure 1. Standard Sensor Cable

Sensor cable types:

Standard Sensor Cable

Recommended for environments ranging from clean and dry to moderate dust and moisture.

Nylon Coated Sensor Cable

Recommended for use in wet, oily, or corrosive environments or outdoors. Use in freezer warehouses.

Phosphor Bronze Braided Sensor

Recommended for applications requiring superior abrasion protection and/or increased tensile strength.

ADDRESSABLE ALARMLINE MODULE (AAM)

The AAM permits an AlarmLine sensor cable to be directly interfaced to a SmartOne compatible control unit. This interface will allow for pre-alarm, alarm, and trouble conditions to be transmitted to the control panel via the Signaling Line Circuit (SLC). The AAM monitors the resistance of the sensor cable and generates a pre-alarm (if enabled), alarm, or overheat output (if enabled) when the resistance drops below the programmed threshold. The module also supervises the AlarmLine cable for opens and shorts, which will generate a fault condition.

All of the pre-alarm, alarm, overheat, and trouble conditions will be displayed on the control panel. Up to 255 AAM modules can be connected to a single SLC loop. Use of multiple AAMs allows flexibility in zoning larger installations for location of alarm and zone output control; the control panel acts as a central display and control interface.

The AAM receives power directly from the SLC loop which eliminates the need for additional wiring and external power supplies.

CABLE SPECIFICATIONS

Description	Standard Sensor	Nylon Coated Sensor	Bronze Braided Sensor
Part Number: Length: Weight:	73-117068-013 656 ft. (200 m) 7 lbs. (3.2 kg)	73-117068-016 656 ft. (200 m) 7 lbs. (3.2 kg)	73-117068-019 656 ft. (200 m) 7 lbs. (3.2 kg)
Part Number: Length: Weight:	73-117068-113 3280 ft. (1000 m) 35 lbs. (14.5 kg)	73-117068-116 3280 ft. (1000 m) 35 lbs. (14.5 kg)	73-117068-119 3280 ft. (1000 m) 35 lbs. (14.5 kg)
Jacket Construction	Blue PVC	Black nylon extrusion over blue PVC	Phosphor bronze braid over blue PVC
External Diameter	0.117 in. (3 mm)	0.153 in. (3.9 mm)	0.153 in. (3.9 mm)
Tensile Strength	100 N	100 N	1000N
Conductor Insulation Costs	1 = Orange 2 = White 3 = Red 4 = Blue	1 = Orange 2 = White 3 = Red 4 = Blue	1 = Orange 2 = White 3 = Red 4 = Blue
Conductor Material	26 AWG Solid Copper	26 AWG Solid Copper	26 AWG Solid Copper
Conductor Diameter	0.018 in. (0.460 mm)	0.018 in. (0.460 mm)	0.018 in. (0.460 mm)
Twist of Inner Conductors	30 per ft. (90 per m)	30 per ft. (90 per m)	30 per ft. (90 per m)
Dielectric Material	Specially Doped Polymer	Specially Doped Polymer	Specially Doped Polymer
Standard Outer Jacket Material	High Temperature PVC	High Temperature PVC	High Temperature PVC
Voltage Proof Between PVC Jacket and a Conductor	10 KV	10 KV‘	10 KV
Service Life	Up to 212ºF (100ºC) = 30 years @ 257ºF (125ºC) = 24 hours. Self Restores below 257ºF (125ºC) Above 374ºF (190ºC) is the destructive temperature.	Up to 212ºF (100ºC) = 30 years @ 257ºF (125ºC) = 24 hours. Self Restores below 257ºF (125ºC) Above 374ºF (190ºC) is the destructive temperature.	Up to 212ºF (100ºC) = 30 years @ 257ºF (125ºC) = 24 hours. Self Restores below 257ºF (125ºC) Above 374ºF (190ºC) is the destructive temperature.

Description	Standard Sensor	Nylon Coated Sensor	Bronze Braided Sensor
Approved Spacing (between parallel runs)	30 ft. (9 m)	30 ft. (9 m)	30 ft. (9 m)

SENSOR MOUNTING HARDWARE

Three types of standard mounting hardware (master clamp, flange clamp, nylon cable tie) for AlarmLine permit safe, secure sensor cable installation in most applications. Other mounting means may be used as required by the specific application. The sensor should be supported at a minimum of ten foot intervals on straight runs when under tension, and more as conditions dictate at corners and transition points to provide suitable strain relief. Local codes or conditions may also require the sensor to be supported at closer intervals. Refer to the AlarmLine Addressable Linear Heat Detector Installation, Operation, and Maintenance Manual, P/N 06-235820-003 for specific mounting information.

AAM SPECIFICATIONS

Specification	Value
Part Number	73-100001-003
Supply Voltage	P.C. Line, 16.5 to 27.5 Vdc
Current Consumption, Standby	425 µAmps
Current Consumption, Alarm	440 µAmps
Current Consumption, Fault	425 µAmps
Noise Performance	Withstands 5% RMS 60 Hz supply noise or 1 Vrms 60 Hz sensor noise with negligible performance range. RFI immunity at 10 V/meter field strength over the band of 20 to 900 MHz
LED Pulse Modes	Normal: Slow flash GREEN every nine (9) seconds
	Pre-Alarm: Slow flash RED every nine (9) seconds
	Alarm: Fast flash RED every two (2) seconds
	Trouble: Off
Operating Temperature Range	-40°F to 140°F (-40°C to 60°C)

INTRINSIC SAFETY BARRIERS

In classified hazardous areas where potentially explosive vapors, dust, or fibers exist, AlarmLine cable must be installed using an intrinsic safety barrier. The barrier (P/N 73-117068-031) is a shunt diode safety barrier which limits the current and voltage in the sensor cable to safe levels. Each barrier handles two conductors, so two barriers are needed for each sensor cable. The barriers are designed to mount in separate weather tight enclosures.

The intrinsic safety barrier's specifications are as follows:

UL Listed and FM Approvals	Class I, Division I, Groups A, B, C, D Class II, Division I, Groups E, F, G: Class III, Division I
Operating Temperature Range	-4ºF (-20ºC) to 140ºF (60ºC)
Humidity	5 -95% R.H.
Terminals	Will accept up to #12 AWG
Working Voltage	6V
Maximum Voltage	7.5V
Fuse Rating	100 mA
Leakage Current	1 mA maximum at 6V
End-To-End Resistance	145 ohm maximum 90 ohm minimum
Enclosures	73-117068-732 holds 2 barriers 73-117068-733 holds 5 barriers 73-117068-734 holds 12 barriers 73-117068-735 holds 24 barriers