



LIFECO EAGLE

ANALOGUE ADDRESSABLE
FIRE ALARM SYSTEM



WE AIM TO MAKE THE WORLD A SAFER PLACE

www.lifeco-uk.com



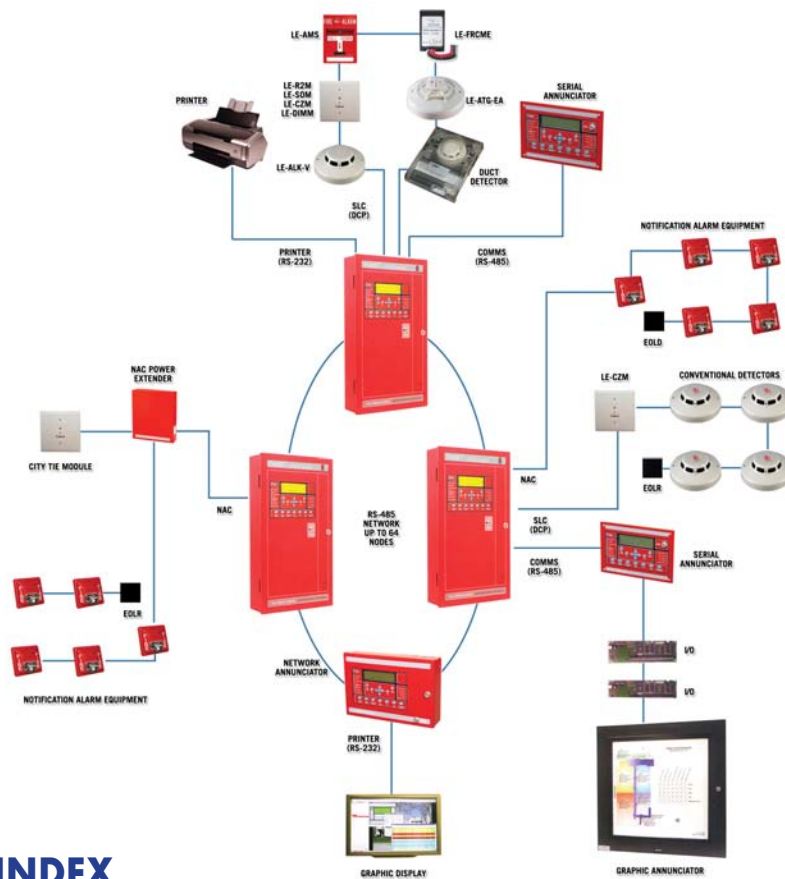
About us

Lifeco global leaders in fire and safety products supplies fire safety products, systems and services under a range of well-known and trusted brand names.

Lifeco serves, defense, industrial, commercial and customer markets with the widest range of quality fire and safety products, systems and services, covering detection, protection, prevention and fire fighting.

Lifeco's strengths are underpinned by a national and international infrastructure, a highly skilled and experienced workforce, a diverse range of quality products and services that provide a 'one stop shop' for security and fire protection – and our reputation for service excellence.

We have remained at the forefront of the industry by constantly striving to provide innovative solutions and services that meet and surpass our customer's expectations and by continually seeking to improve quality standards.



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LIFECO EAGLE Series Fire Alarm System

LE-FN-4127

ANALOG ADDRESSABLE FIRE ALARM CONTROL PANEL



Description

The LE-FN-4127 control panel is an analog addressable fire alarm panel containing 2 or 4 SLC loops with each loop supporting 127 devices of any combination (sensors or modules), and 127 analog sounder bases, for a possible total of 254 points. Communication between devices is transferred through standard cable (shielded or twisted pair is not required). Each panel includes a 5.25 amp power supply and has 4 on board NAC circuits. An RS-485 bus provides communication to the panel network, while the RS-232 interface allows the convenience of programming via a PC. The system will support a variety of Lifeco devices: photo, ion and heat sensors, which contain a unique, patented sensor design incorporating automatic drift compensation and day/night sensitivity mode. Additional devices include contact monitors, relay controllers, supervised auxiliary output and short circuit isolator modules. In addition, interfaces to conventional detection systems can be established by using a conventional zone-monitoring module. The Loop Explorer Windows® Software interface provides the installer with fingertip access to installation programming and diagnostic tools. An Auto-learn feature offers the convenience for quick start applications. Add to this a reputation for high quality and dedicated service makes this an exceptional product both in performance and value.

Standard Features

- UL 864 9th edition Listed
- Analog design using Lifeco's advanced DCP protocol for fast and robust communication
- Up to 127 sensors & modules, plus 127 analog sounder bases, for a total of 254 points possible per loop
- Uses standard wire, no shielded or twisted pair required on SLC loops
- Supports Class B (style 4) and Class A (style 6 or 7) SLC loops
- 4 on board Class B (style Y) NAC circuits rated at 2.5 Amp each
- Programmable sensitivity levels per device & automatic day/night sensitivity modes
- Automatic daily calibration & drift compensation routine
- Large 8-line x 40-character LCD display (320 char.)
- 2 or 4 loop versions (800 addresses/sub-addr. max.)
- Dual RS-485 bus for panel network
- 2 built-in RS-232 interfaces for programming via a PC and serial printer interface
- 5 on board programmable Form C relays rated at 1 amp at 30VDC (Fire1, Fire2, trouble, supervisory, aux.)
- 500mA of auxiliary power available rated at 24 VDC
- Loop Explorer Windows® configuration utility
- *500 network wide software zones
- Network Capability of up to 64 panels
- RS485 slave bus for expansion - up to 31 LE-FN-4127-IO boards or up to 15 LE-FN-LCD-S serial annunciators and up to 16 LE-FN-4127-IO boards
- Auto-learn feature
- Built in help and alarm information screens
- Fire Drill test function
- Walk Test function
- Alarm Verification feature
- FireNET is UL listed for Central Station Service when used with the Bosch D9068 contact dialer
- Operates on 120VAC or 240VAC input voltage
- Powerful & versatile Cause & Effect programming (up to 500 maximum, network wide) including:
 - * Cause & Effect action
 - * Disable function configuration
 - * Test mode configuration



UL S24976

Note: Specifications subject to change without prior notice

Lichfield Fire & Safety Equipment Co. Ltd

Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
Tel: +44 (0) 1902 798706, Fax: +44 (0) 1902 798679, E-mail: info@lifeco-uk.com, www.lifeco-uk.com





LIFECO EAGLE Series Fire Alarm System

SLC COMPATIBLE DEVICES & SYSTEM ACCESSORIES	
MODEL	DESCRIPTION
CONTROL PANEL EXPANDERS	
LE-FN-4127-SLC	Dual SLC Loop Expansion Card
LE-FN-4127-NIC	Network Interface Card
LE-FN-4127-IO	16 Channel Input/Output Board
LE-FN-CTM	City-Tie Module (Local Energy Type)
ANNUNCIATORS	
LE-FN-LCD-N	Network LCD Annunciator
LE-FN-LCD-S	Serial LCD Annunciator
SLC LOOP DEVICES	
LE-ALG-V	Analog Addressable Photoelectric Sensor
LE-AIE-EA	Analog Addressable Ionization Sensor
LE-ATG-EA	Analog Addressable Heat Sensor
LE-NSA-6	Six inch Sensor Base
LE-NSA-4	Four inch Sensor Base
LE-ASB	Analog Sounder Base
LE-DH-98A	Analog Addressable Duct Detector Unit
LE-DH-98AR	Analog Addressable Duct Detector Unit (with relays)
LE-MS-RA, MS-RA/R, MS-KA/R	Remote Test Station for DH98A & DH98AR
LE-FRCME-S	Contact Monitoring Module (mini w/ terminal blocks)
LE-FRCME-P	Contact Monitoring Module (mini w/ pigtail leads)
LE-FRCME-4	Contact Monitoring Module (with faceplate/indicating LED)
LE-DIMM	Dual Input Monitor Module (with faceplate/indicating LED)
LE-CZM	Conventional Zone Module
LE-R2M-D	Dual Relay Module
LE-SOM	Supervised Output Module
LE-SCI	Short Circuit Isolator Module
LE-AMS	Series Addressable Manual Pull Station
ACCESSORIES	
LE-TCH-B100	Hand Held Programmer (portable device addresser)
LE-FN-ACC	Battery/Accessory Enclosure (houses up to 33AH size batteries)
LE-FN-ETR	Enclosure Trim Ring for Panel Flush Mount

SPECIFICATIONS	
Primary AC	120VAC @ 2.1 Amps 60hz or 220VAC @ 1.1Amps 60hz
Output DC	24VDC @ 5.25 Amps (4 Amps available for system power)
Power Supply	5.25 Amp integrated
Charger Current	1.5 Amps max.
Dimensions	14.5" W x 24" H x 5" D
Weight	31 lbs. (without batteries)
Color	Red (optional charcoal)
Material	ABS/steel enclosure
Display	8 line x 40 character LCD (320 characters total)
Network	Dual RS485 ports (64 panels max.)
Zones	500 network wide software zones per system
SLC loops	2 or 4 (class A, "style 6 or 7" or class B, "style 4")
Devices per loop	127 sensors & modules, plus 127 analog sounder bases, 254 total
Addresses per panel	(800 addresses+sub-addresses max. per panel)
NAC Outputs	(4) 2.5 Amp @ 24VDC (class B)
Relay Outputs	(5) Form C 1 Amp @ 30VDC
Voltage Outputs	(3) 500mA @ 24VDC
Aux. Power	500mA @ 24VDC
Aux. Inputs	(8) digital pull downs
PC Port	RS232
Printer Port	RS232

ORDERING MODELS	
MODEL	DESCRIPTION
LE-FN-2127	FACP (2 Loop/5.25 Amp)
LE-FN-2127N	FACP (2 Loop/5.25 Amp) (w/Network)
LE-FN-4127	FACP (4 Loop/5.25 Amp)
LE-FN-4127N	FACP (4 Loop/5.25 Amp) (w/Network)

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LIFECO EAGLE Series Fire Alarm System

LE-FN-2127

ANALOG ADDRESSABLE FIRE ALARM CONTROL PANEL



Description

The Lifeco LE-FN-2127 control panel is an analog addressable fire alarm panel containing 2 SLC loops with each loop supporting 127 devices of any combination (sensors or modules), and 127 analog sounder bases, for a possible total of 254 points. Communication between devices is transferred through standard cable (shielded or twisted pair is not required). Each panel includes a 5.25 amp power supply and has 4 on board NAC circuits. An RS-485 bus provides communication to the panel network, while the RS-232 interface allows the convenience of programming via a PC. The system will support a variety of Lifeco devices: photo, ion and heat sensors, which contain a unique, patented sensor design incorporating automatic drift compensation and day/night sensitivity mode. Additional devices include contact monitors, relay controllers, supervised auxiliary output and short circuit isolator modules. In addition, interfaces to conventional detection systems can be established by using a conventional zone-monitoring module. The Loop Explorer Windows® Software interface provides the installer with fingertip access to installation programming and diagnostic tools. An Auto-learn feature offers the convenience for quick start applications. Add to this a reputation for high quality and dedicated service makes this an exceptional product both in performance and value.

Standard Features

- UL 864 9th edition Listed
- Analog design using Lifeco's advanced DCP protocol for fast and robust communication
- Up to 127 sensors & modules, plus 127 analog sounder bases, for a total of 254 points possible per loop
- Uses standard wire, no shielded or twisted pair required on SLC loops
- Supports Class B (style 4) and Class A (style 6 or 7) SLC loops
- 4 on board Class B (style Y) NAC circuits rated at 2.5 Amps each
- Programmable sensitivity levels per device & automatic day/night sensitivity modes
- Automatic daily calibration & drift compensation routine
- Large 8-line x 40-character LCD display (320 char.)
- 2 or 4 loop versions (800 addresses/sub-addr. max.)
- Dual RS-485 bus for panel network
- 2 built-in RS-232 interfaces for programming via a PC and serial printer interface
- 5 on board programmable Form C relays rated at 1 amp at 30VDC (Fire1, Fire2, trouble, supervisory, aux.)
- 500mA of auxiliary power available rated at 24 VDC
- Loop Explorer Windows® configuration utility
- *500 network wide software zones
- Network Capability of up to 64 panels
- RS485 slave bus for expansion - up to 31 LE-FN-4127-IO boards or up to 15 LE-FN-LCD-S serial annunciators and up to 16 LE-FN-4127-IO boards
- Auto-learn feature
- Built in help and alarm information screens
- Fire Drill test function
- Walk Test function
- Alarm Verification feature
- FireNET is UL listed for Central Station Service, Remote Station Service and Proprietary Service
- Operates on 120VAC or 240VAC input voltage
- Powerful & versatile Cause & Effect programming (up to 500 maximum, network wide) including:
 - * Cause & Effect action
 - * Disable function configuration
 - * Test mode configuration



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MODEL	DESCRIPTION
CONTROL PANEL EXPANDERS	
LE-FN-4127-SLC	Dual SLC Loop Expansion Card
LE-FN-4127-NIC	Network Interface Card
LE-FN-4127-IO	16 Channel Input/Output Board
LE-FN-DAC	Digital Alarm Communicator/Transmitter
LE-FN-CTM	City-Tie Module (Local Energy Type)
ANNUNCIATORS	
LE-FN-LCD-N	Network LCD Annunciator
LE-FN-LCD-S	Serial LCD Annunciator
SLC LOOP DEVICES	
LE-ALG-V	Analog Addressable Photoelectric Sensor
ALK-V & ALK-V2	Analog Addressable Photoelectric Sensor
AIE-EA	Analog Addressable Ionization Sensor
ATG-EA	Analog Addressable Heat Sensor
NSA-6	Six inch Sensor Base
NSA-4	Four inch Sensor Base
ASB	Analog Sounder Base
DH-98A	Analog Addressable Duct Detector Unit
DH-98AR	Analog Addressable Duct Detector Unit (with relays)
MS-RA, MS-RA/R, MS-KA/R	Remote Test Station for DH98A & DH98AR
FRCME-S	Mini Input Module w/terminal blocks
FRCME-P	Mini Input Module w/pigtail leads
FRCME-4	Input Module 4" Box Mount
FRCMA, FRCMA-I	Class A Input Module 4" Box Mount (FRCMA-I has built-in SCI)
DIMM	Dual Input Monitor Module (with faceplate/indicating LED)
CZM	Conventional Zone Module
R2M	Dual Relay Module
R2ML, R2ML-I	Dual Relay Module, 2 amp @30VDC (R2ML-I has built-in SCI)
R2MH, R2MH-I	Dual Relay Module, 8 amp @30VDC (R2MH-I has built-in SCI)
SOM	Supervised Output Module
SOM-A, SOM-AI	Class A Supervised Output Module (SOM-AI has built-in SCI)
SCI	Short Circuit Isolator Module
AMS	Series Addressable Manual Pull Station
ACCESSORIES	
LE-TCH-B100	Hand Held Programmer (portable device addresser)
LE-FN-ACC	Battery/Accessory Enclosure (houses up to 33AH size batteries)
LE-FN-ETR	Enclosure Trim Ring for Panel Flush Mount

SPECIFICATIONS	
Primary AC	120VAC @ 2.1 Amps 60hz or 220VAC @ 1.1Amps 60hz
Output DC	24VDC @ 5.25 Amps (4 Amps available for system power)
Power Supply	5.25 Amp integrated
Charger Current	1.5 Amps max.
Dimensions	14.5" W x 24" H x 5" D
Weight	31 lbs. (without batteries)
Color	Red (optional charcoal)
Material	ABS/steel enclosure
Display	8 line x 40 character LCD (320 characters total)
Network	Dual RS485 ports (64 panels max.)
Zones	500 network wide software zones per system
SLC loops	2 or 4 (class A, "style 6 or 7" or class B, "style 4")
Devices per loop	127 sensors & modules, plus 127 analog sounder bases, 254 total
Addresses per panel	(800 addresses+sub-addresses max. per panel)
NAC Outputs	(4) 2.5 Amp @ 24VDC (class B)
Relay Outputs	(5) Form C 1 Amp @ 30VDC
Voltage Outputs	(3) 500mA @ 24VDC
Aux. Power	500mA @ 24VDC
Aux. Inputs	(8) digital pull downs
PC Port	RS232
Printer Port	RS232

ORDERING MODELS	
MODEL	DESCRIPTION
LE-FN-2127	FACP (2 Loop/5.25 Amp)
LE-FN-2127N	FACP (2 Loop/5.25 Amp) (w/Network)

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LIFECO EAGLE Series Fire Alarm System

LE-FN-LCD-N

LCD NETWORK ANNUNCIATOR



Description

The LE-FN-LCD-N type LCD network annunciator is designed to be used with the FireNET analog addressable system. It allows for remote access, monitoring & control of the FireNET system throughout the building.

The LE-FN-LCD-N is a true network annunciator that can access, monitor & control any or all FireNET panels in the network. Each LE-FN-LCD-N is completely independent. The highly intuitive user interface and 320 character LCD display of the LE-FN-LCD-N is exactly the same as the FireNET panel. In addition to routing any panel in the network to the LE-FN-LCD-N, every event category within each panel can also be individually routed, as well as routing of all remote control functions (reset, alarm silence, re-sound alarm) from individual panels.

The LE-FN-LCD-N supports the same RS485 expansion port as the FireNET panel, allowing for FireNET expansion boards and accessories to be connected to the network annunciator.

The LE-FN-LCD-N also has (4) output relays for fire, supervisory, trouble & auxiliary. The relays are programmable (except supervisory). Security is established by the use of a password or firefighters enable key. Designed to be aesthetically pleasing, the LE-FN-LCD-N is available in charcoal grey or red and can be surface or flush mounted using a standard trim ring kit.

Standard Features

- UL 864 9th edition Listed
- 320 character liquid crystal display (8 line x 40 character)
- LED indicators for Fire, Supervisory Alarm, Pre-Alarm, Fire Output Active, Power On, On Test, Panel Sounder Silenced, Delay Active, More Events, Point Bypassed, General Trouble, Power Trouble, System Trouble & NAC Trouble
- Dual RS485 ports for primary fire network
- RS485 slave bus for expansion - up to 31 LE-FN-4127-IO boards or up to 15 LE-FN-LCD-S serial annunciators and up to 16 LE-FN-4127-IO boards
- 2 built-in RS-232 interfaces for programming via a PC and serial printer interface
- 4 on board programmable Form C relays rated at 1 Amp at 30VDC (Fire, Supervisory, Trouble & Auxiliary)
- Same controls as the FireNET fire panel (Reset, Panel Sounder Silence, Lamp Test, Alarm Silence, Re-sound Alarm, Fire Drill, Programmable Function, More Events, More Fire Events, Enter & Exit)
- Local piezo sounder for event notification
- Supports user codes & firefighter key to enable access & controls
- Powered by FireNET Aux 24VDC or UL fire listed Aux. 24VDC supply
- Available in red or charcoal, and can be surface or flush mounted (using trim ring)
- True network annunciator, any or all panels can be routed to the LE-FN-LCD-N. In addition, each event category can be individually routed to the LE-FN-LCD-N
- Up to (64) FireNET panels & LE-FN-LCD-N's can be networked together in any combination
- 500mA of auxiliary power available rated at 24VDC
- Auto-learn feature
- Built-in help & alarm information screens
- Fire drill function
- Each LE-FN-LCD-N is completely independent
- Supports up to (31) LE-FN-4127-IO boards on RS485 expansion port
- The LE-FN-LCD-N can be configured to remote reset, silence, resound, any or all panels on the network in any combination



UL S24975

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LIFECO EAGLE Series Fire Alarm System

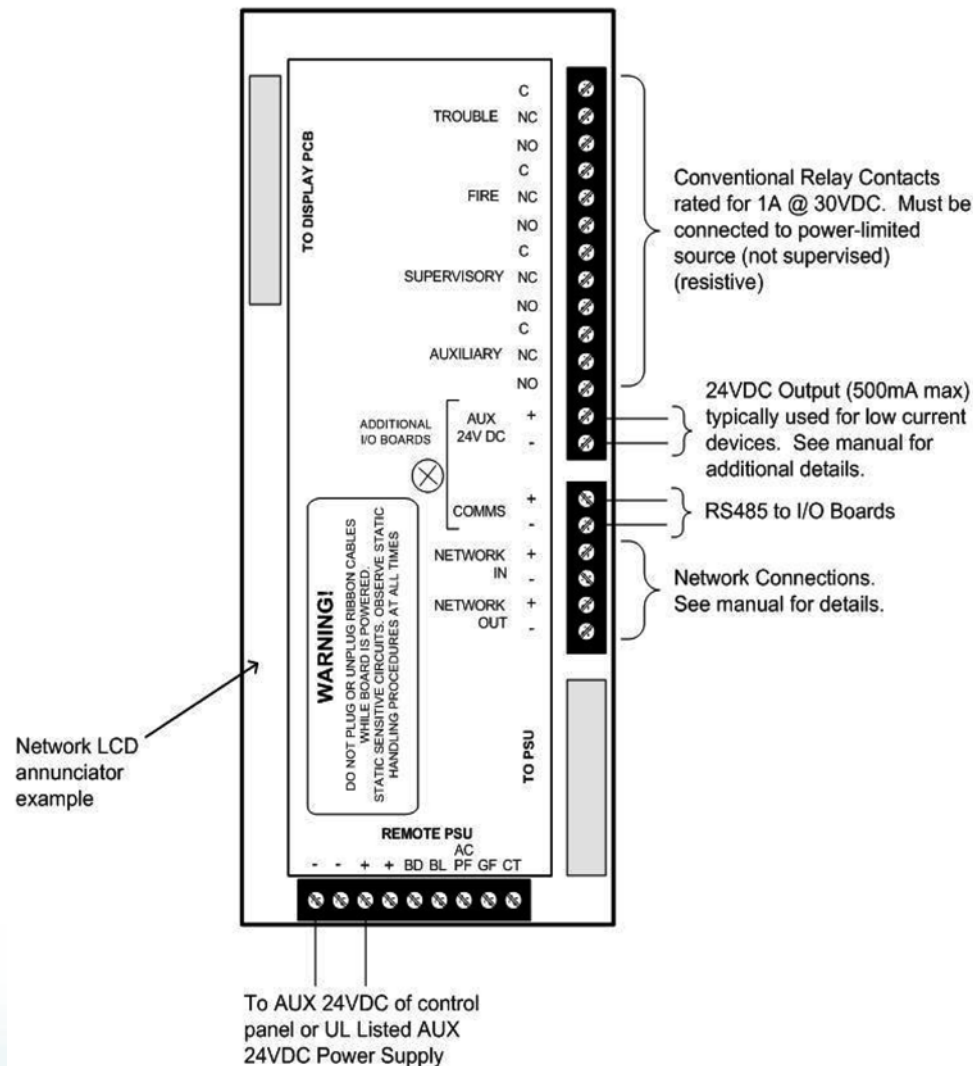
Engineering Specifications

The contractor shall furnish and install where indicated on the plans, the network annunciator model LE-FN-LCD-N. The LE-FN-LCD-N shall connect to the FireNET fire alarm control panel (FACP) network. The network annunciator shall be capable of annunciating on its 320 character display and local buzzer, the condition of any FireNET FACP or network annunciator on the network. Up to 64 LE-FN-LCD-N network annunciators or FireNET FACP's may be connected together on the network. The LE-FN-LCD-N shall be UL listed, and have surface or flush mount capability.

Specifications

Input DC	24VDC @ 270mA Max. (+ Aux. Power Load)
Aux. Output DC	24VDC @ 500mA
Dimensions	14.5" W x 10" H x 3.3" D
Weight	9.4 lbs
Color	Red (optional charcoal)
Material	ABS/steel enclosure
Display	8 line x 40 character LCD (320 characters total)
Network	Dual RS485 ports (64 nodes max.)
Relay Outputs	(4) Form C 1amp@30VDC
PC Port	RS232
Printer Port	RS232
Expansion Port	RS485 (for optional expansion boards)

Wiring Diagram



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LIFECO EAGLE Series Fire Alarm System

LE-FN-LCD-S

SERIAL LCD ANNUNCIATOR



Description

The LE-FN-LCD-S serial annunciator provides a convenient and cost effective remote annunciator solution. Up to 15 LE-FN-LCD-S annunciators can be connected to the slave RS-485 port of the FireNET control panel or network annunciator. The LE-FN-LCD-S's large 320 character display and navigation buttons are a complete mimic of the FireNET control panel display. The use of a common interface allows the user to easily operate the LE-FN-LCD-S as if he were operating the FireNET control panel directly.

Security is established by the use of a password or firefighters enable key. Designed to be aesthetically pleasing, the LE-FN-LCD-S is available in charcoal grey or red enclosures. The LE-FN-LCD-S can be surface or flush mounted without the need for a trim ring.

Standard Features

- UL 864 9th edition Listed
- Large 320 character liquid crystal display (8 line x 40 character) allows viewing of system status
- LED indicators for Fire, Supervisory Alarm, Pre-Alarm, Fire Output Active, AC Power On, On Test, Panel Sounder Silenced, Delay Active, More Events, Point Bypassed, General Trouble, Power Trouble, System Trouble & NAC Trouble
- Same controls as the FireNET fire panel (Reset, Panel Sounder Silence, Lamp Test, Alarm Silence, Re-sound Alarm, Fire Drill, Programmable Function, More Events, More Fire Events, Enter & Exit)
- Up to 15 FN-LCD-S serial annunciators may be connected to a FireNET control panel or network annunciator
- Resides on the FireNET slave RS-485 line
- Local piezo sounder for event notification
- Supports user codes & firefighter key to enable access & controls
- Powered by FireNET Aux 24VDC or UL fire listed Aux. 24VDC supply
- Available in red or charcoal, and can be surface or flush mounted
- Built-in help & alarm information screens
- Fire drill function

Specifications

Current Draw	
Standby:	20mA @ 24VDC
Alarm:	110mA @ 24VDC
Dimensions	
FN-LCD-S	10.88" W x 8.00" H x 1.38" D
Back Box	10.38" W x 7.38" H x 1.25" D
Weight	3.5 lbs
Color	Red (optional charcoal)
Material	ABS/steel enclosure
Display	8 line x 40 character LCD (320 characters total)
Network	RS485 port



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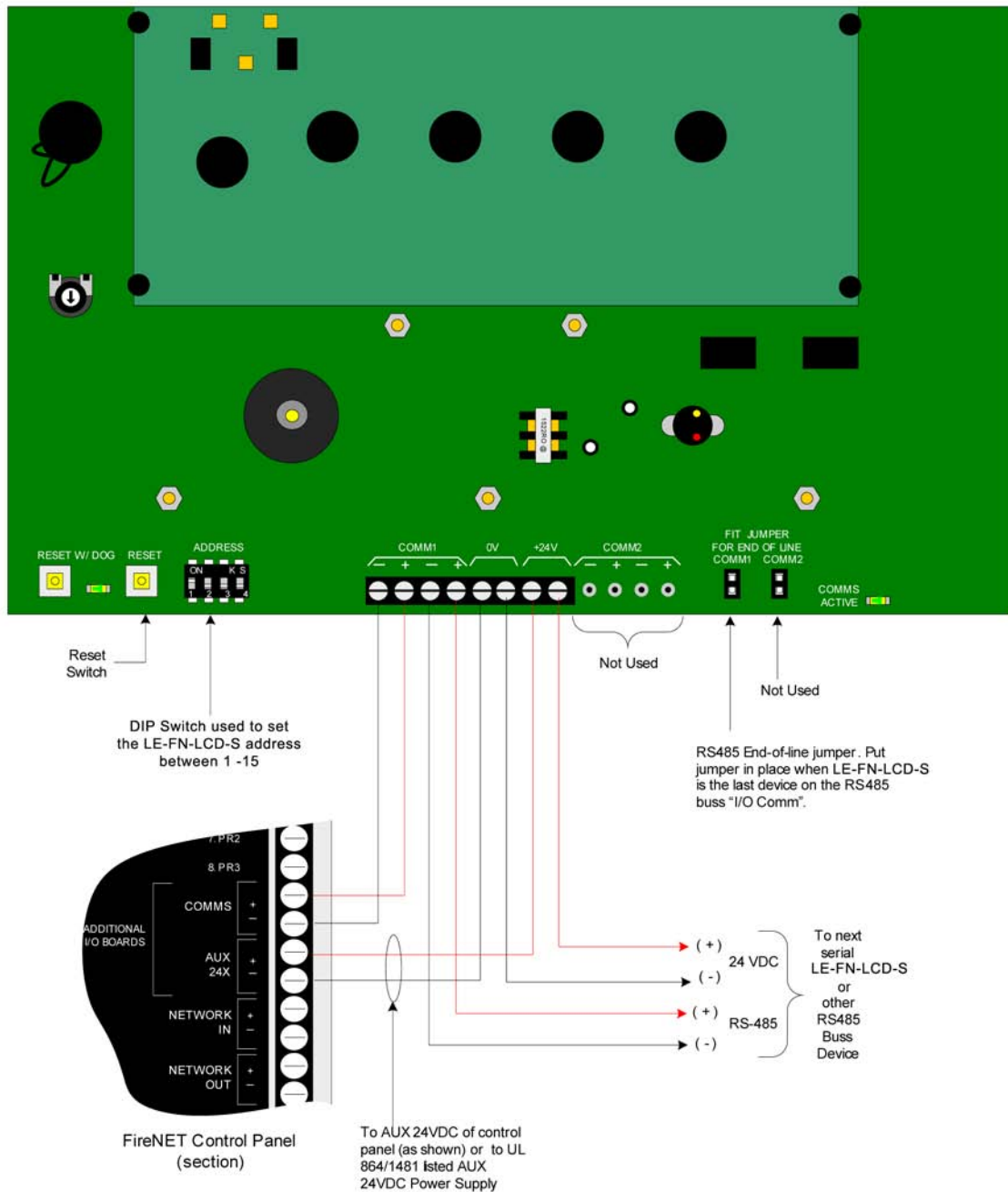


LIFECO EAGLE Series Fire Alarm System

Engineering Specifications

The contractor shall furnish and install where indicated on the plans, the serial remote annunciator model LE-FN-LCD-S. The LE-FN-LCD-S shall connect to the FireNET fire alarm control panel (FACP) or network annunciator (LE-FN-LCD-N) RS485 slave bus. The serial remote annunciator shall announce on its 320 character display and local buzzer, the condition of its master FireNET FACP. Up to 15 LE-FN-LCD-S serial annunciators may be connected together on a single RS-485 FireNET slave bus. The LE-FN-LCD-S shall be UL listed and compatible with the Lifeco FireNET control panel, and have surface or flush mount capability.

Wiring Diagram



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LIFECO EAGLE Series Fire Alarm System

LE-ACA-V

ANALOG MULTI-CRITERIA SENSOR



Operation

The LE-ACA-V chamber consists of a light emitting diode (LED) and photodiode arrangement. The chamber is designed such that light emitted by the LED cannot normally reach the photodiode. In the event of fire, particles of smoke enter the chamber and scatter the light. As the smoke level increases, the scattering effect increases, causing more light to hit the photodiode. The chamber contains a unique design which allows smoke to enter the chamber while preventing external light from affecting the photodiode. The photodiode input level is sampled to sense smoke density. When the smoke density exceeds a preset threshold the sensor transmits an interrupt to the fire control panel indicating a fire condition. The fire alarm control panel can adjust the sensor threshold to compensate for contamination.

The LE-ACA-V Heat portion incorporates a highly linear thermistor circuit, with the thermistor mounted externally. The specially designed cover protects the thermistor while allowing maximum air flow. The thermistor circuit produces a voltage proportional to temperature which is scaled, and transmitted as a digitally encoded value to the control panel. When the ambient temperature exceeds a preprogrammed threshold (fixed temperature), the sensor transmits an interrupt to the control panel indicating a fire alarm. The fire alarm control panel can adjust the sensor threshold for different Standard's requirements.

Up to 127 devices are permitted on each loop. A sensor address can be set by a hand held programming unit. The sensor mounts to an electronics free base and incorporates a locking mechanism for secure installation. The base provides mounting slots, terminals for field wiring and a third contact for a remote indicator/LED. The sensor incorporates dual LED's for easy viewing of sensor status.

Application

The Lifeco LE-ACA-V Multi-Criteria Smoke Sensor is particularly suited for detecting smoke produced by a wide range of combustibles found in various applications. Temperature monitoring is achieved by a thermistor placed for optimum sensitivity. Lifeco unique design allows fast response to flaming fires as well as smoldering fires while minimizing false alarms.

Standard Features

- Low Profile - Only 2.23" high, including base
- Simple and reliable device addressing method
- Automatic compensation for sensor contamination
- Built-in fire test feature
- Uses the noise immune Digital Communication Protocol (DCP), which utilizes interrupts for fast response to fires
- Two built-in power/alarm LED's
- Non-directional smoke chamber
- Vandal resistant security locking feature
- Removable smoke labyrinth for cleaning or replacement
- Compatible with the analog sensors

Specifications

Operating Voltage	17-41 VDC
Quiescent Current	450µA
Average when Polled	2mA
Alarm	8mA
Transmission Method	DCP - Digital Communication Protocol
Operating Temperature	14°F (-10°C) - 122°F (50°C)
UL Temperature Range	135°F (57°C) - 150°F (65°C)
Storage Temperature Range	-20°C to +60°C
Maximum Humidity	95% RH Non-Condensing (at 40°C)
Color & Case Material	Ivory
Weight	4.2 oz (5.9 oz. with 4" base)
Dimensions	3.9"W x 1.8"H
Bases	4" LE-YBN-NSA-4 6" LE-HSB-NSA-6 6" LE-ASB



UL S24238

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Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
Tel: +44 (0) 1902 798706, Fax: +44 (0) 1902 798679, E-mail: info@lifeco-uk.com, www.lifeco-uk.com





LIFECO EAGLE Series Fire Alarm System

Engineering Specifications

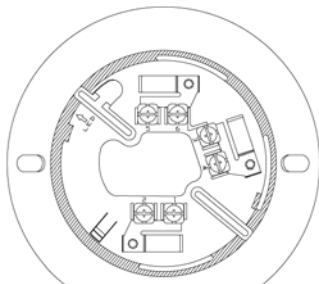
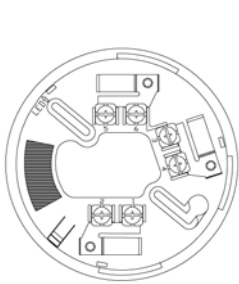
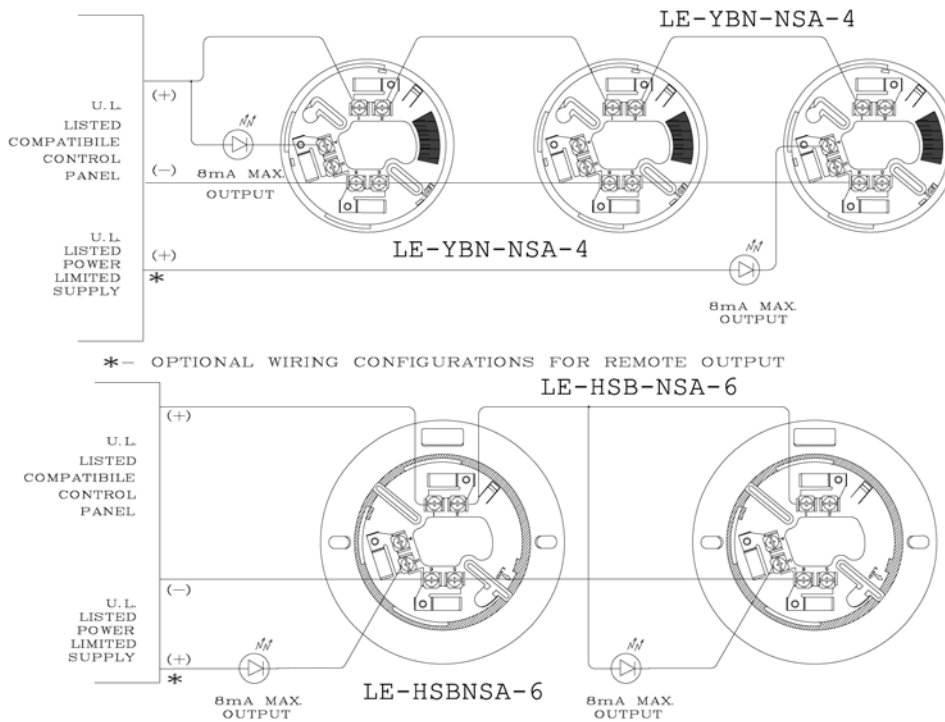
The contractor shall furnish and install where indicated on the plans, Multi-Criteria sensor Lifeco Model LE-ACAV. The combination sensor head and twist lock base shall be UL listed compatible with the UL listed fire alarm control panel.

The base shall permit direct interchange with the Lifeco LE-ALG-V Photoelectric type smoke sensor, LE-ALK-V/LE-ALK-V2 Photoelectric type sensor, LE-AIE-EA ionization type smoke sensor, and the LE-ATG-EA heat sensor. The sensitivity of the sensor shall be capable of being measured by the control panel. The vandal-resistant, security locking feature shall be used in those areas as indicated on the drawing. The locking feature shall be optional and can be implemented when require.

Bases

The Lifeco LE-YBN-NSA-4 and the LE-HSB-NSA-6 mounting bases are electronics free and are a simple rugged design with screw terminals for wiring connections. A common mounting base allows sensor interchange and maintains loop continuity when sensors are removed. A simple anti-tamper head locking system is provided which is enabled by removing a small plastic tab on the back of the sensor. Once locked, the head can be removed using a small diameter screw driver.

Typical Wiring Diagrams



LE-YBN-NSA-4 Base

LE-HSB-NSA-6 Base

Note: Fire alarm control panel compatibility is required for DCP products. State-of-the-art communications protocol, DCP, allows system components (DCP sensors LE-AIE-EA, LE-ALG-V, LE-ACA-V, LE-ALK-V and LE-ATG-EA, bases and modules), to be used concurrently in a system's SLC (Signaling Line Circuit.)

Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System

LE-ALG-V

PHOTOELECTRIC SMOKE SENSOR



Features

- Low Profile - Only 1.97" high, including base
- Simple and reliable device addressing method
- Automatic compensation for sensor contamination
- Built-in optical fire test feature
- Uses the noise immune Digital Communication Protocol (DCP), which utilizes interrupts for fast response to fires

Specifications

Operating Voltage	17-41 VDC
Current Consumption Standby	Normal: 390µA (typical)
Average when Polled Alarm	2mA 8mA
Transmission Method	DCP - Digital Communication Protocol
Maximum Humidity	95% RH Non-Condensing
UL Ambient Installation	32 °F to 100 ° F
Temperature Range	(0° C to 37.8° C)
Operating Temperature Range	14 °F to 122 ° F (-10° C to 50° C)
Air Velocity Range	0-4000 fpm
Color & Case Material	Bone PC / ABS Blend
Weight	3.4oz (5.1 oz. with 4" base)
Bases	4" LE-YBN-NSA-4 6" LE-HSB-NSA-6



UL S24238

Application

The Lifeco LE-ALG-V Photoelectric Smoke Sensor is particularly suited to detecting optically dense smoke typical of fires involving materials such as soft furnishings, plastic, foam or other similar materials which tend to smoulder and produce large visible smoke particles. Lifeco's unique design allows fast response to flaming fires as well as smoldering fires while eliminating false alarms.

Operation

The detection chamber consists of a light emitting diode (LED) and photodiode arrangement. The chamber is designed such that light emitted by the LED cannot normally reach the photo diode. In the event of fire, particles of smoke enter the chamber and scatter the light. As the smoke level increases, the scattering effect increases, causing more light to hit the photo-diode. The chamber contains a unique baffle design which allows smoke to enter the chamber while preventing external light from affecting the photodiode. The photodiode input level is sampled to sense smoke density.

When the smoke density exceeds a preset threshold the sensor transmits an interrupt to the fire control panel indicating a fire condition. The fire alarm control panel can adjust the sensor threshold to compensate for contamination.

Up to 127 devices are permitted on each loop. A sensor address can be set by a hand held programming unit. The sensor mounts to an electronics free base and incorporates a locking mechanism for secure installation. The base provides mounting slots, terminals for field wiring and a third contact for a remote indicator/LED. The sensor incorporates dual LED's for easy viewing of sensor status.

Engineering Specification

The contractor shall furnish and install where indicated on the plans, photoelectric sensors Lifeco LE-ALG-V. The combination sensor head and twist lock base shall be UL listed compatible with a UL listed fire alarm control panel.

The base shall permit direct interchange with the Lifeco LE-ATG-EA heat sensor. The sensitivity of the sensor shall be capable of being measured by the control panel.

The vandal-resistant, security locking feature shall be used in those areas as indicated on the drawing. The locking feature shall be optional and can be implemented when required.

Note: Specifications subject to change without prior notice

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Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
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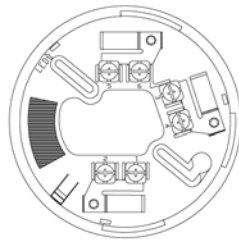




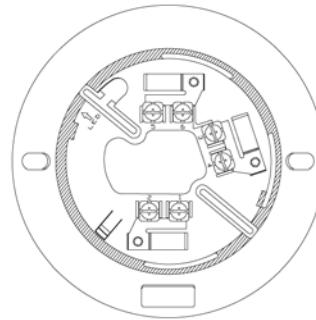
LIFECO EAGLE Series Fire Alarm System

Bases

The Lifeco LE-YBN-NSA-4 and the LE-HSB-NSA-6 mounting bases are electronics free and are a simple rugged design with screw terminals for wiring connections. A common mounting base allows sensor interchange and maintains loop continuity when sensors are removed. A simple anti-tamper head locking system is provided which is enabled by removing a small plastic tab on the back of the sensor. Once locked, the head can be removed using a small diameter screw driver.

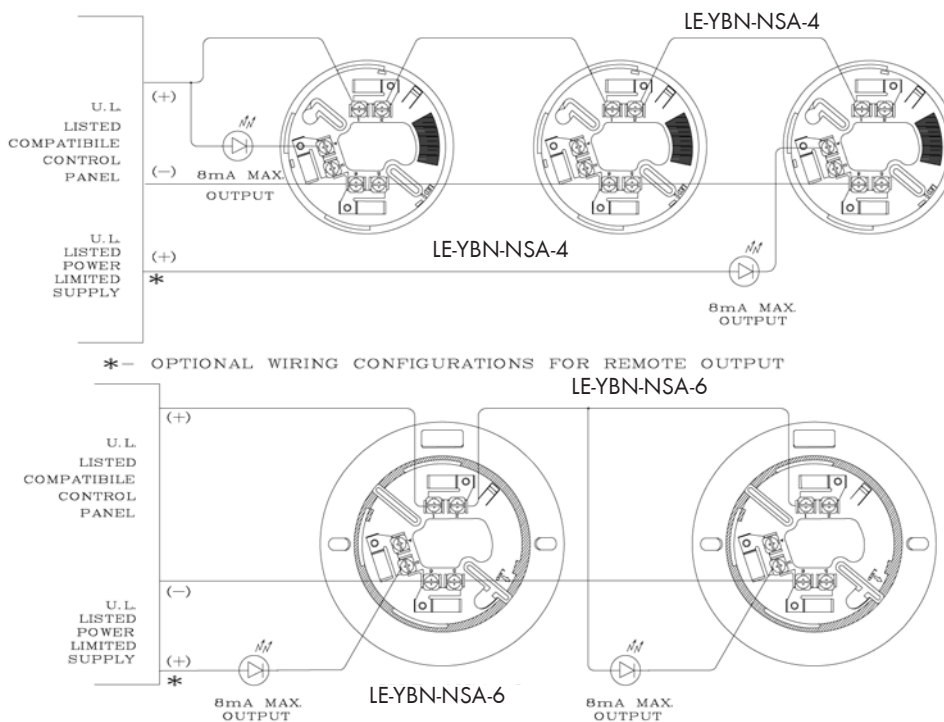


LE-YBN-NSA-4 Base



LE-YBN-NSA-6 Base

Typical Wiring Diagrams



Note: Fire alarm control panel compatibility is required for DCP products. State-of-the-art communications protocol, DCP, allows system components (DCP sensors LE-ALG-V and LE-ATG-EA, bases and modules), to be used concurrently in a system's signal conditioning loop.

Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System

LE-ALK-V

PHOTOELECTRIC SMOKE SENSOR



Operation

The detection chamber consists of a light emitting diode (LED) and photodiode arrangement. The chamber is designed such that light emitted by the LED cannot normally reach the photo diode. In the event of fire, particles of smoke enter the chamber and scatter the light. As the smoke level increases, the scattering effect increases, causing more light to hit the photodiode. The chamber contains a unique baffle design which allows smoke to enter the chamber while preventing external light from affecting the photodiode. The photodiode input level is sampled to sense smoke density.

When the smoke density exceeds a preset threshold the sensor transmits an interrupt to the fire control panel indicating a fire condition. The fire alarm control panel can adjust the sensor threshold to compensate for contamination.

Up to 127 devices are permitted on each loop. A sensor address can be set by a hand held programming unit. The sensor mounts to an electronics free base and incorporates a locking mechanism for secure installation. The base provides mounting slots, terminals for field wiring and a third contact for a remote indicator/LED. The sensor incorporates dual LED's for easy viewing of sensor status.

Engineering Specifications

The contractor shall furnish and install where indicated on the plans, photoelectric sensors Lifeco Model LE-ALK-V. The combination sensor head and twist lock base shall be UL listed compatible with a UL listed fire alarm control panel.



UL S24238

Application

The Lifeco LE-ALK-V Photoelectric Smoke Sensor is particularly suited to detecting optically dense smoke typical of fires involving materials such as soft furnishings, plastic, foam or other similar materials which

tend to smolder and produce large visible smoke particles. Lifeco's unique design allows fast response to flaming fires as well as smoldering fires while eliminating false alarms.

Standard Features

- Low Profile - Only 2.0" high, including base
- Simple and reliable device addressing method
- Automatic compensation for sensor contamination
- Built-in fire test feature
- Uses the noise immune Digital Communication Protocol (DCP), which utilizes interrupts for fast response to fires
- Two built-in power/alarm LED's
- Non-directional smoke chamber
- Vandal resistant security locking feature
- Removable smoke labyrinth for cleaning or replacement
- Compatible with the AIE-EA ionization detector, ALG-V Photoelectric detector & the ATG-EA heat detector

Specifications

Operating Voltage	17-41 VDC
Current Consumption Standby	Normal: 390µA (typical)
Average when polled Alarm	2mA 8mA
Transmission Method	DCP - Digital Communication Protocol
Maximum Humidity	95% RH Non Condensing
UL Ambient Installation	32 °F to 100 °F
Temperature Range	(0 °C to 37.8 °C)
Operating Temperature Range	14 °F to 122 °F (-10 °C to 50 °C)
Sensitivity Range	0.5 - 3.8%/FT@300FPM 0.5 - 2.74%/FT@2000FPM 0.5 - 2.68%/FT@4000FPM
Air Velocity Range	0-4000 fpm
Color & Case Material	Bone PC / ABS Blend
Weight	3.4oz (5.1 oz. with 4" base)
Bases	4" LE-YBN-NSA-4 6" LE-HSB-NSA-6 & ASB

Note: Specifications subject to change without prior notice

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Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
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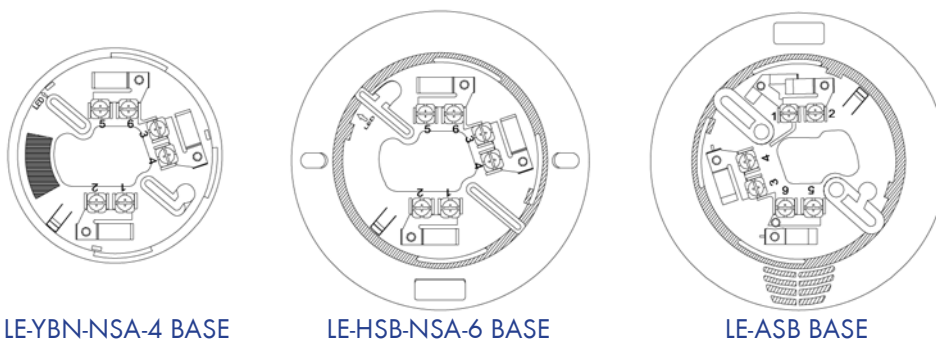
LIFECO EAGLE Series Fire Alarm System

Engineering Specifications

The base shall permit direct interchange with the Lifeco LE-AIE-EA ionization type smoke sensor, LE-ALG-V. Photoelectric type smoke sensor, and the LE-ATG-EA heat sensor. The sensitivity of the sensor shall be capable of being measured by the control panel. The vandal-resistant, security locking feature shall be used in those areas as indicated on the drawing. The locking feature shall be optional and can be implemented when required.

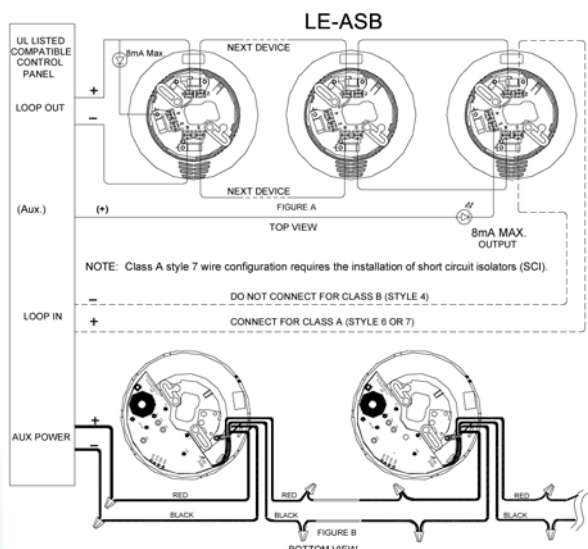
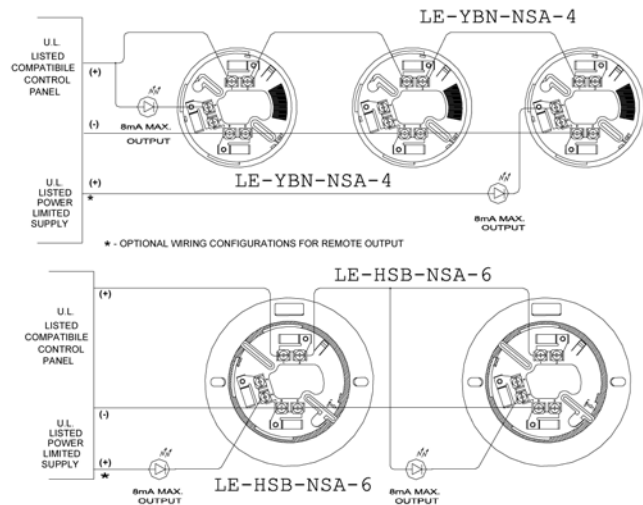
Bases

The Lifeco except for LE-ASB both LE-YBN-NSA-4 and the HSB-NSA-6 mounting bases are electronics free and are a simple rugged design with screw terminals for wiring connections. A common mounting base allows sensor interchange and maintains loop continuity when sensors are removed. A simple anti-tamper head locking system is provided which is enabled by removing a small plastic tab on the back of the sensor. Once locked, the head can be removed using a small diameter screw driver.



Typical Wiring Diagrams

NOTE: Fire alarm control panel compatibility is required for DCP products. State-of-the-art communications protocol, LE-DCP, allows system components (DCP sensors LE-AIE-EA, LE-ALK-V, LE-ALK-V2 and LE-ATG-EA, bases and modules), to be used concurrently in a system's signaling line circuit.



Number of Bases Permitted

# of Bases In Alarm	Maximum Auxiliary 24VDC Power Wire Resistance (Total Auxiliary Run Length)
127	1.4 ohms
75	2.4 ohms
60	3.0 ohms
50	3.6 ohms
30	6.1 ohms
20	9.1 ohms
15	12.2 ohms
10	18.3 ohms

Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System

LE-ATG-EA HEAT SENSOR



Standard Features

- Low Profile - Only 2.0" high, including base
- Simple and reliable device addressing method
- Uses the noise immune Digital Communication Protocol (DCP), which utilizes interrupts for fast response to fires
- Adjustable threshold temperature 135°F - 150°F (determined by panel)

Specifications

Operating Voltage	17-41 VDC
Current Consumption Standby	Normal: 350µA (typical)
Average when Polled	2mA
Alarm	8mA
Transmission Method	DCP - Digital Communication Protocol
Maximum Humidity	95% RH Non-Condensing
UL Ambient Installation	32°F to 115°F
Temperature Range	(0° C to 47° C)
Operating Temperature Range	135°F to 150°F (57.2° C to 65.6° C)
Color & Case Material Weight	Bone PC / ABS blend 3.2oz (4.9 oz. with 4" base)
Bases	4" LE-YBN-NSA-4 6" LE-HSB-NSA-6

Application

The Lifeco LE-ATG-EA Sensor provides accurate temperature measurement data to the fire alarm control panel. This sensor is particularly suited to environments where smoke detectors are unsuitable because of the presence of system or cooking fumes such as in a kitchen.

Operation

The LE-ATG-EA Heat sensor incorporates a highly linear thermistor circuit, with the thermistor mounted externally. The specially designed cover protects the thermistor while allowing maximum air flow. The thermistor circuit produces a voltage proportional to temperature which is scaled, and transmitted as a digitally encoded value to the control panel. When the ambient temperature exceeds a pre-programmed threshold (fixed temperature), the sensor transmits an interrupt to the control panel indicating a fire alarm. The fire alarm control panel can adjust the sensor threshold for different Standard's requirements.

Up to 127 devices are permitted on each loop. A sensor address can be set by a hand-held programming unit. The sensor mounts to an electronics free base and incorporates a locking mechanism secure installation. The base provides mounting slots, terminals for field wiring, and a third contact for a remote indicator/LED. The sensor incorporates dual LED's for easy viewing of sensor status.

Engineering Specifications

Heat sensors are installed in accordance with NFPA (National Fire Protection Association) 72, the UL Listed Spacing Requirements and the rules and regulations set forth by the local authorities having jurisdiction. Automatic heat sensors shall be Underwriters Laboratories listed. The base shall permit direct interchange with the Lifeco LE-AIE-EA ionization type smoke sensor, and the LE-ALG-V photoelectric smoke sensor.

The vandal-resistant, security locking feature shall be used in those areas as indicated on the drawing. The locking feature shall be optional and can be implemented when required.

It shall be possible to perform a functional test of the sensor without generating heat. The test method shall simulate



UL S24977

Note: Specifications subject to change without prior notice

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Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
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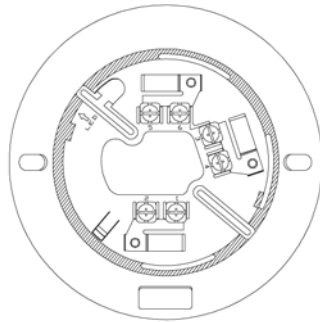




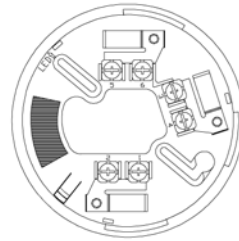
LIFECO EAGLE Series Fire Alarm System

Bases

The Lifeco LE-HSB-NSA-6 and the LE-YBN-NSA-4 mounting bases are electronic free and are a simple rugged design with screw terminals for wiring connections. A common mounting base allows sensor interchange and maintains loop continuity when sensors are removed. A simple anti-tamper head locking system is provided which is enabled by removing a small plastic tab on the back of the sensor. Once locked, the head can be removed using a small diameter screw driver.

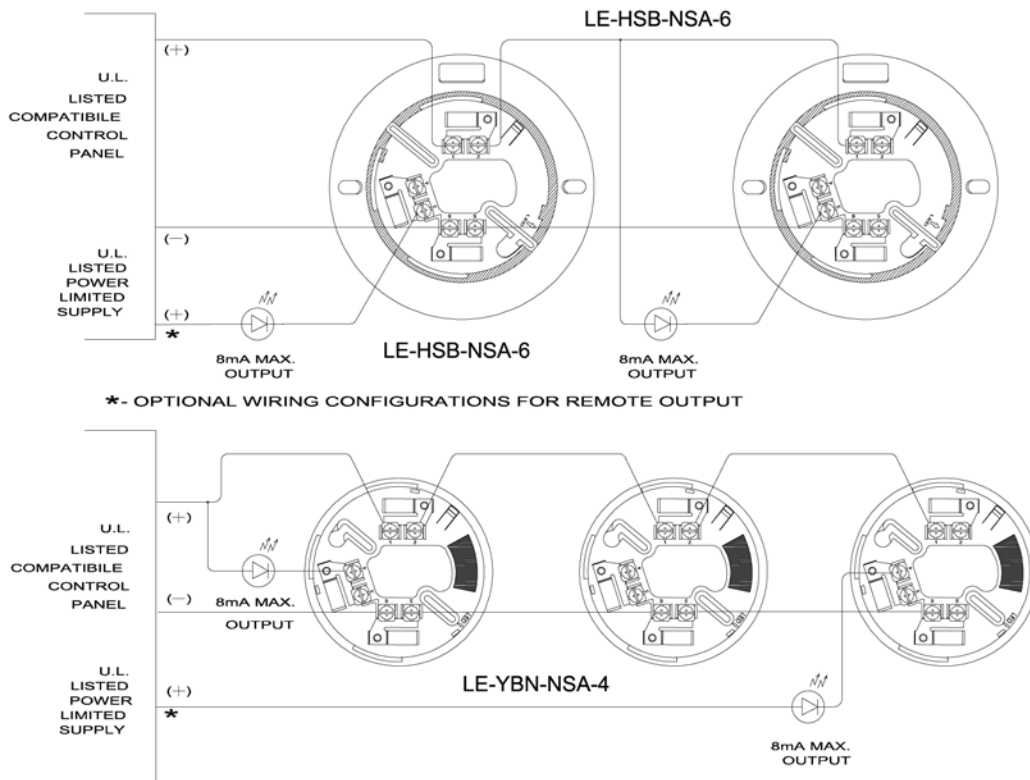


LE-HSB-NSA-6 BASE



LE-YBN-NSA-4 BASE

Typical Wiring Diagrams



Note: Fire alarm control panel compatibility is required for DCP products. State-of-the-art communications protocol, DCP, allows system components (LE-DCP sensors LE-LE-AIE-EA, LE-ALG-V and LE-ATG-EA, bases and modules), to be used concurrently in a system's signal conditioning loop.

Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System

LE-SLV-24V

PHOTOELECTRIC SMOKE DETECTOR



Standard Features

- Low profile, 2.0" high (with base)
- 2 or 4 wire base compatibility, relay bases available
- Highly stable operation, RF/Transient protection
- Low standby current, 45uA at 24VDC
- Two built-in power/alarm LEDs
- Non-directional smoke chamber
- Vandal resistant security locking feature
- Built in magnetic go/no go detector test feature
- Removable smoke labyrinth for cleaning or replacement
- Backwards compatible with Lifeco LE-SLK/ LE-SLR-24V and SIH detectors
- highly resistant to false alarm caused by steam

Specifications

Light Source	GaAlAs Infrared Emitting Diode
Rated Voltage	17.7 - 30 VDC
Working Voltage	15.0 - 33.0 VDC
maximum Voltage	42 VDC
Supervisory Current	45uA @ 24 VDC
Surge Current	160uA Max. @ 24 VDC
Alarm Current	150mA max. @24 VDC
Air Velocity Range	0 - 4000 fpm
Ambient Temperature	32°F to 120°F (0°C to 49°C)
Color & Case material	Bone PC/ ABS Blend
Sensitivity Range	0.5 - 2.68% /ft
Mounting	Refer to NS conventional detector base datasheet

Application

The LE-SLV-24V can be used in all areas where Photoelectric Smoke Detectors are required. The patented smoke chamber makes the LE-SLV-24V well suited for fires ranging from smoldering to flaming fires.

LE-NS4 Series, LE-NS6 Series, LE-HSC-4R or LE-HSC-xxxR Style bases may be used with the LE-SLV-24V. Current interchangeable/compatible devices are the SLR-24H photoelectric detector with heat sensor, Lifeco and the DCD-135/190 heat detectors.

All NS conventional devices are mechanically compatible with Lifeco LE-HSB, LE-HSC and LE-YBA type bases which may have been used in previous installations. Please check individual panel listings for compatible bases.

Operation

The LE-SLV-24V photoelectric smoke detector utilizes two bicolored LEDs for indication of status. In a normal standby condition the LEDs flash Green every 3 seconds. When the detector senses smoke and goes into alarm the status LEDs will latch on Red.

The detector utilizes an infrared LED light source and silicon photo diode receiving element in the smoke chamber. In a normal standby condition, the receiving element receives no light from the pulsing LED light source. In the event of a fire, smoke enters the detector smoke chamber and light is reflected from the smoke particles to the receiving element. The light received is converted into an electronic signal.

Signals are processed and compared to a reference level, and when two consecutive signals exceeding the reference level are received within a specified period of time, the time delay circuit triggers the SCR switch to activate the alarm signal. The status LEDs light continuously during the alarm period.



UL S24238

Note: Specifications subject to change without prior notice

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Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
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LIFECO EAGLE Series Fire Alarm System

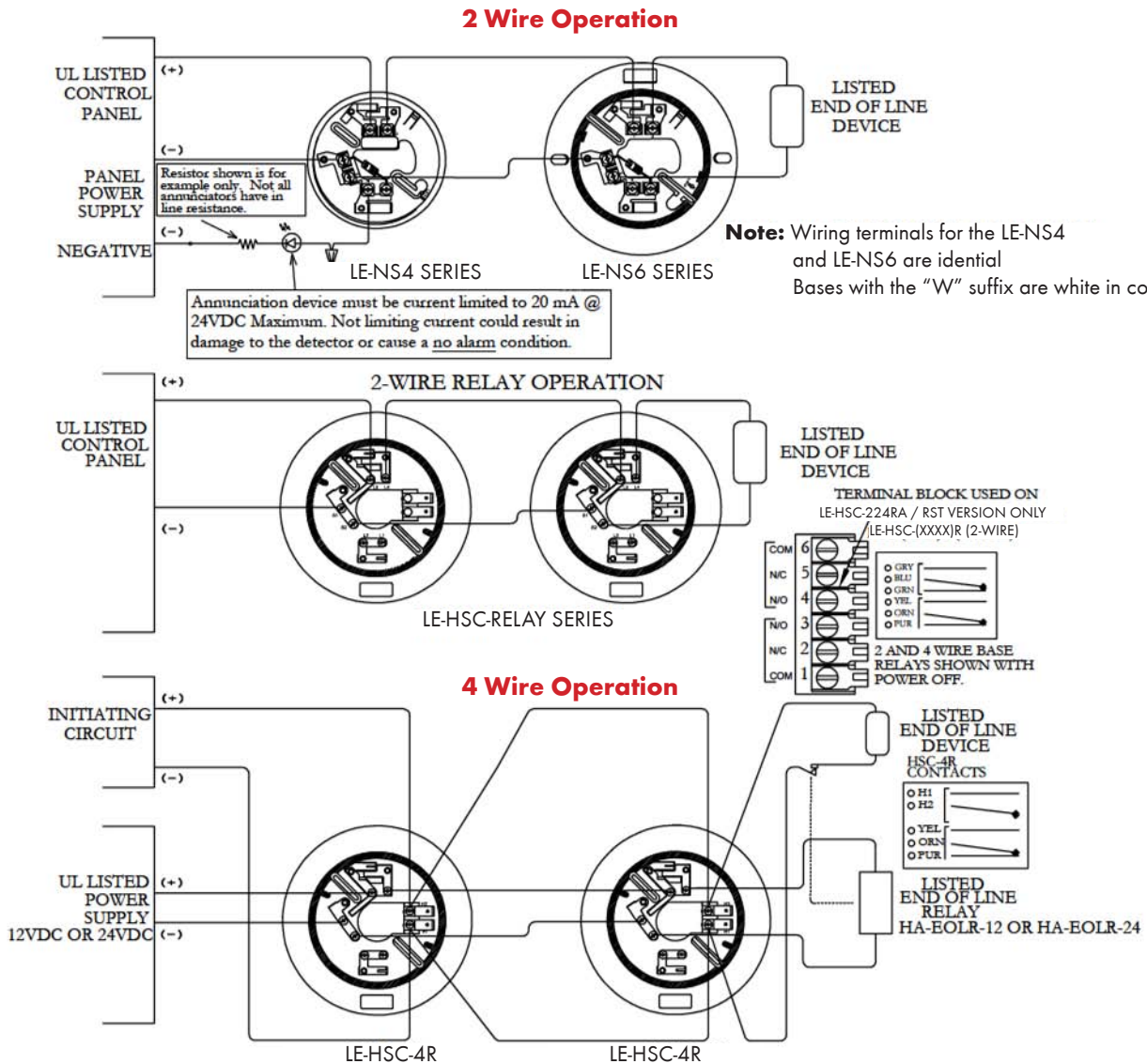
Engineering Specifications

The contractor shall furnish and install where indicated on the plan, Lifeco LE-SLV-24V photoelectric smoke detectors. The combination detector head and twist-lock base shall be UL listed compatible with a UL listed fire alarm panel.

The base shall permit direct interchange with Lifeco LE-SLR-24H combination photoelectric/heat detector, and / or DCD-135/190 fixed temperature/rate of rise heat detectors. The base shall be appropriate twist-lock base NS-4 series, NS-6 series, LE-HSC-xxx R. In the event of partial or complete retrofit, the LE-SLV-24V may be used in conjunction with, or as a replacement for, Lifeco detectors (LE-SLK-24, LE-SLK-24FH and the LE-SIH-24) on most LE-HSB and LE-HSC base applications.

The smoke detector shall have two flashing status LEDs for visual supervision. When the detector is in standby condition the LEDs will flash Green. When the detector is actuated, the flashing LEDs will latch on Red. The detector may be reset by actuating the control panel reset switch. The sensitivity on the detector shall be capable of being measured.

To facilitate installation, the detector shall be non-polarized. Voltage and RF transient suppression techniques shall be employed in the detector to minimize false alarm potential. Auxiliary SPDT relays shall be installed where indicated. The vandal-resist, security locking feature shall be used in those areas as indicated on the drawing. The locking feature shall be field removable when not required.



Note: Specifications subject to change without prior notice





LIFECO EAGLE Series Fire Alarm System

LE-SLR-24V

PHOTOELECTRIC SMOKE DETECTOR



Features

- Low profile, 1.8" high (with base)
- 2 or 4 wire base compatibility, relay bases available
- Highly stable operation, RF/Transient protection
- Low standby current, 45µA at 24VDC
- Two built-in power/sensitivity supervision/alarm LEDs
- Non-directional smoke chamber
- Vandal resistant security locking feature
- Built-in magnetic go/no go detector test feature
- Removable smoke labyrinth for cleaning or replacement
- Automatic Sensitivity window verification function meets outlined requirements in NFPA 72, Chapter 2 & 7, Inspection, Testing and Maintenance
- Compatible with SIJ-24 ionization detectors
- Backwards compatible with Lifeco SLK and SIH detectors

Specifications

Light Source	GaAlAs Infrared Emitting Diode
Rated Voltage	17.7 - 30.0 VDC
Working Voltage	15.0 - 33.0 VDC
Maximum Voltage	42 VDC
Supervisory Current	45µA @ 24 VDC
Surge Current	160µA max. @ 24VDC
Alarm Current	150mA max. @ 24 VDC
Air Velocity Range	0-4000 fpm
Ambient Temperature	32°F to 120°F (0°C to 49°C)
Color & Case Material	Bone PC/ABS Blend
Sensitivity Feature	Test Automatic Sensitivity window verification test
Mounting	Refer to NS Conventional Detector Base Data Sheet

Application

The LE-SLR-24V can be used in all areas where Photoelectric Smoke Detectors are required. The wide range smoke chamber makes the LE-SLR-24V well suited for fires ranging from smoldering to flaming fires.

LE-NS-4 Series, LE-NS-6 Series, LE-HSC-4R or LE-HSC-xxx R Style bases may be used with the LE-SLR-24V. Current interchangeable/compatible devices are the LE-SIJ-24 ionization detector, the LE-SLR-24H photoelectric detector with heat sensor, and the LE-DCD-135/190 heat detectors. All LE-NS conventional devices are mechanically compatible with Lifeco LE-HSB, LE-HSC and LE-YBA type bases which may have been used in previous installations. Please check individual panel listings for compatible bases.

Operation

The LE-SLR-24V photoelectric smoke detector utilizes two bicolored LEDs for indication of status. In a normal standby condition the LEDs flash Green every 3 seconds. When the detector senses that its sensitivity has drifted outside the UL listed sensitivity window the LEDs will flash Red every 3 seconds. When the detector senses smoke and goes into alarm the status LEDs will latch on Red.

The detector utilizes an infrared LED light source and silicon photo diode receiving element in the smoke chamber. In a normal standby condition, the receiving element receives no light from the pulsing LED light source. In the event of a fire, smoke enters the detector smoke chamber and light is reflected from the smoke particles to the receiving element. The light received is converted into an electronic signal.

Signals are processed and compared to a reference level, and when two consecutive signals exceeding the reference level are received within a specified period of time, the time delay circuit triggers the SCR switch to activate the alarm signal. The status LEDs light continuously during the alarm period.



S24238

Note: Specifications subject to change without prior notice

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LIFECO EAGLE Series Fire Alarm System

Engineering Specifications

The contractor shall furnish and install where indicated on the plans, Lifeco Model LE-SLR-24V photoelectric smoke detectors. The combination detector head and twist-lock base shall be UL listed compatible with a UL listed fire alarm panel. The base shall permit direct interchange with Lifeco SLR-24H combination photoelectric/heat detector, LE-SIJ-24 ionization type smoke detector and/or LE-DCD-135/190 fixed temperature/rate-of-rise heat detectors. The base shall be appropriate twist-lock base LE-NS-4 Series, LE-NS-6 Series, LE-HSC-4R, or LE-HSC-xxx R. In the event of partial or complete retrofit, the LE-SLR-24V may be used in conjunction with, or as a replacement for, Lifeco detectors (LE-SLK-24, LE-SLK-24FH and the LE-SIH-24) on most LE-HSB and LE-HSC base applications.

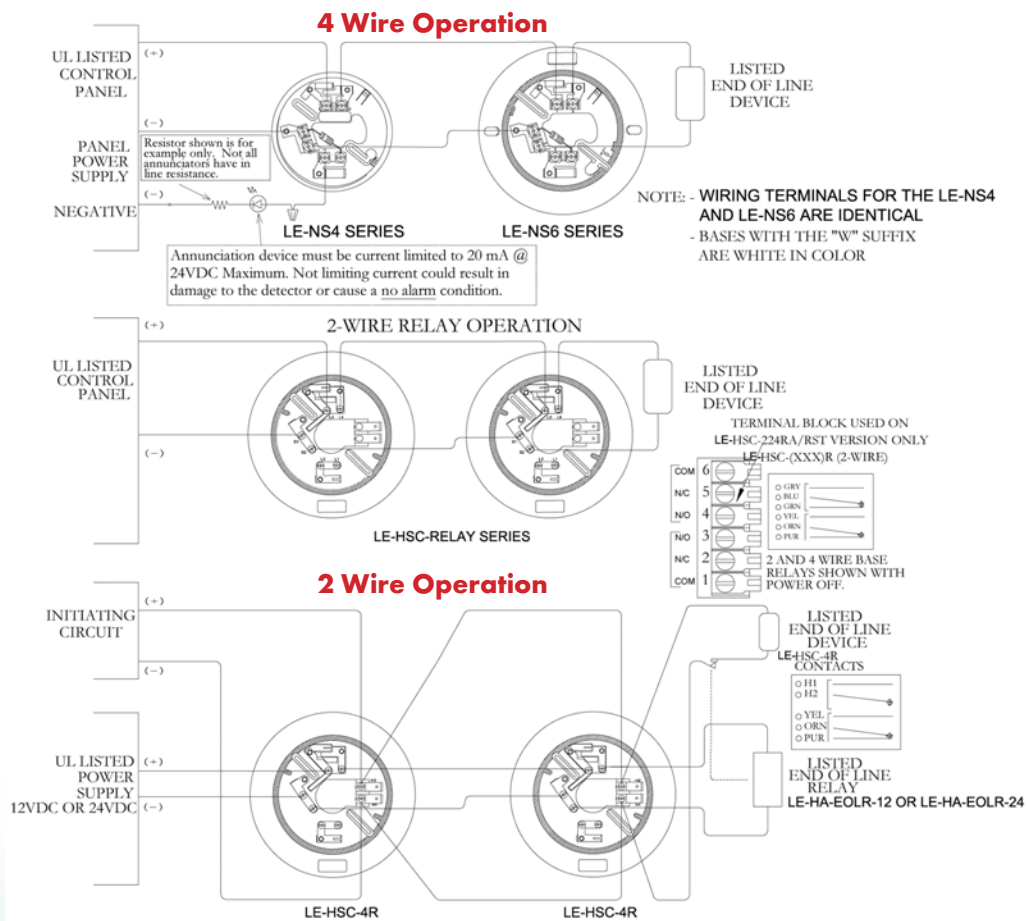
The smoke detector shall have two flashing status LEDs for visual supervision. When the detector is in standby condition the LEDs will flash Green. When the detector is outside the UL listed sensitivity window the LEDs will flash Red. When the detector is actuated, the flashing LEDs will latch on Red. The detector may be reset by actuating the control panel reset switch.

The sensitivity of the detector shall be capable of being measured. It shall be possible to perform a functional test of the detector without the need of generating smoke. The sensitivity of the detector shall be monitored automatically and continuously to verify that it is operating within the listed sensitivity range.

To facilitate installation, the detector shall be non-polarized. Voltage and RF transient suppression techniques shall be employed to minimize false alarm potential. Auxiliary SPDT relays shall be installed where indicated.

SLR-24V SENSITIVITY TEST FEATURE

1. The SLR-24V Photoelectric Smoke Detector has a built-in automatic sensitivity test feature.
2. In normal condition, both LED's flash green.
3. When the sensitivity drifts outside of its sensitivity limits, both LED's flash red.
4. In the alarm state both LED's are red continuously.
5. When the sensitivity drifts outside of its sensitivity limits and both LED's flash red, the device needs to be cleaned or returned
6. to the factory for cleaning. Refer to HA Technical Bulletin LE-HA-97 for cleaning information.



Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System

LE-SLR-24H

PHOTOELECTRIC/HEAT SMOKE DETECTOR



Standard Features

- Low profile, 2.2" high (with base)
- 2 or 4 wire base compatibility, relay bases available
- 135 °F latching heat sensor
- Heat sensor protected by a built-in guard
- Highly stable operation, RF/Transient protection
- Low standby current, 45µA at 24VDC
- Two built-in power/sensitivity supervision/alarm LED's
- Non-directional smoke chamber
- Vandal resistant security locking feature
- Removable smoke labyrinth for cleaning or replacement
- Automatic Sensitivity window verification function meets outlined requirements in NFPA 72, Chapter 2 & 7, Inspection, Testing and Maintenance

Specifications

Light Source	GaAlAs Infrared Emitting Diode
Heat Sensor	135 °F
Rated Voltage	17.7 - 30.0 VDC
Working Voltage	15.0 - 33.0 VDC
Maximum Voltage	42 VDC
Supervisory Current	45µA @ 24 VDC
Surge Current	160µA max. @ 24 VDC
Alarm Current	150mA max. @ 24 VDC
Ambient Temperature	32 °F to 120 °F (0 °C to 49 °C)
Color & Case Material	Bone PC/ABS Blend
Sensitivity Feature	Test Automatic Sensitivity window verification test
Mounting	Refer to NS Conventional Detector Base Data Sheet

Application

The LE-SLR-24H can be used in all areas where Photoelectric Smoke Detectors are required. The wide range smoke chamber makes the LE-SLR-24H well suited for fires ranging from smoldering to flaming fires.

LE-NS-4 Series, LE-NS-6 Series, LE-HSC-4R or LE-HSC-xxx R Style bases may be used with the LE-SLR-24H. Current interchangeable/compatible devices are the LE-SIJ-24 ionization detector, LE-SLR-24V photoelectric detector and the LE-DCD-135/190 heat detectors.

All LE-NS conventional devices are mechanically compatible with Lifeco HSB, HSC and YBA type bases which may have been used in previous installations. Please check individual panel listings for compatible bases.

Operation

The LE-SLR-24H photoelectric smoke detector utilizes two bicolored LED's for indication of status. In a normal standby condition the LED's flash Green every 3 seconds. When the detector senses that its sensitivity has drifted outside the UL listed sensitivity window the LED's will flash Red every 3 seconds. When the detector senses smoke and goes into alarm the status LED's will latch on Red.

The detector utilizes an infrared LED light source and silicon photo diode receiving element in the smoke chamber. In a normal standby condition, the receiving element receives no light from the pulsing LED light source. In the event of a fire, smoke enters the detector smoke chamber and light is reflected from the smoke particles to the receiving element. The light received is converted into an electronic signal.

Signals are processed and compared to a reference level, and when two consecutive signals exceeding the reference level are received within a specified period of time, the time delay circuit triggers the SCR switch to activate the alarm signal. The status LED's light continuously during the alarm period.



UL S24238

Note: Specifications subject to change without prior notice

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Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
Tel: +44 (0) 1902 798706, Fax: +44 (0) 1902 798679, E-mail: info@lifeco-uk.com, www.lifeco-uk.com





LIFECO EAGLE Series Fire Alarm System

Engineering Specifications

The contractor shall furnish and install where indicated on the plans, Lifeco Model LE-SLR-24H photoelectric smoke detectors. The combination detector head and twist-lock base shall be UL listed compatible with a UL listed fire alarm panel.

The base shall permit direct interchange with Lifeco LE-SLR-24V photoelectric detector, LE-SIJ-24 ionization type smoke detector and/or LE-DCD-135/190 fixed temperature/rate-of-rise heat detectors. The base shall be appropriate twistlock base LE-NS-4 Series, LE-NS-6 Series, LE-HSC-4R, or LE-HSC-xxx R. In the event of partial or complete retrofit, the LE-SLR-24 may be used in conjunction with, or as a replacement for, Lifeco detectors (LE-SLK-24, LE-SLK-24FH and the LE-SIH-24) on most LE-HSB and LE-HSC base applications.

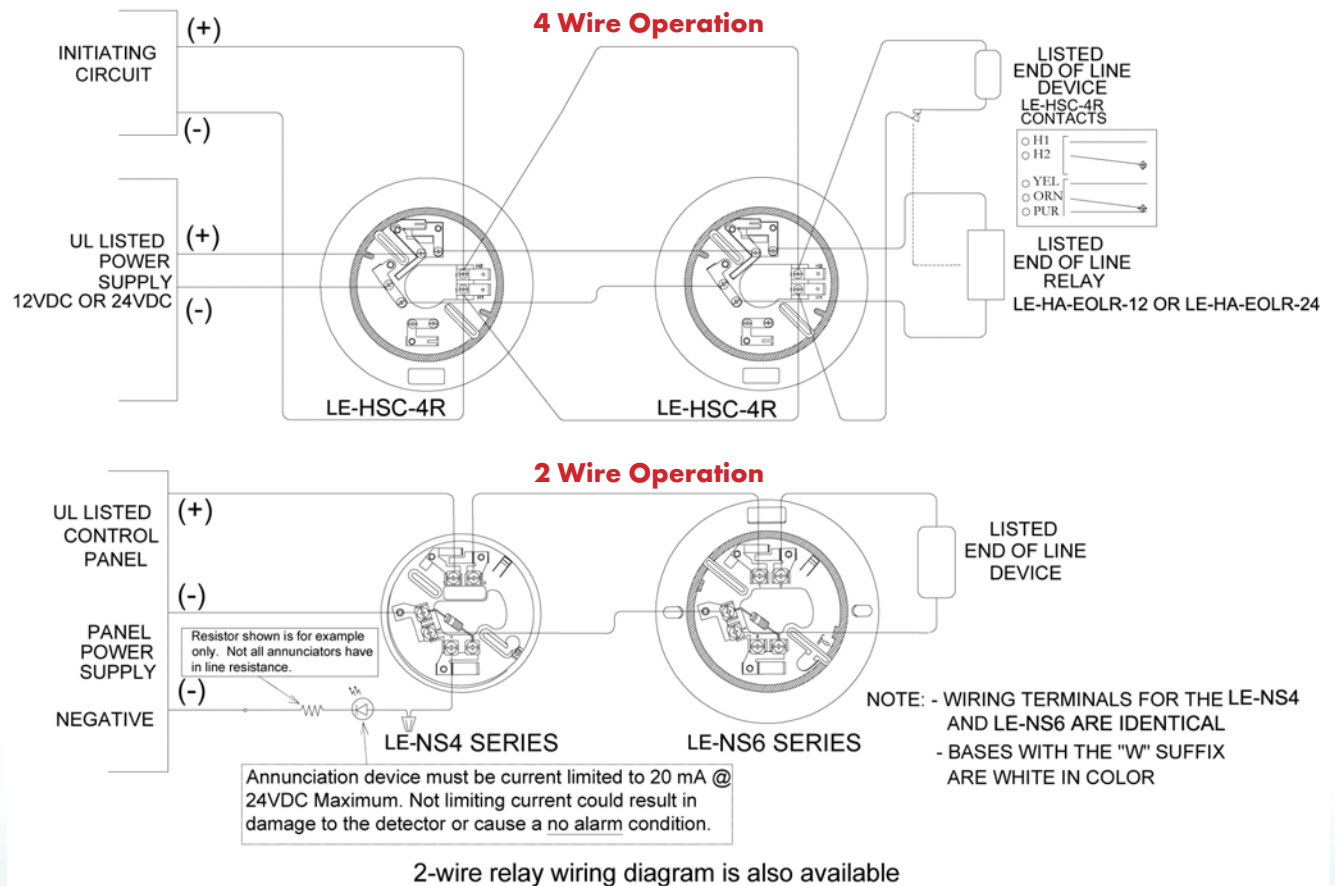
The smoke detector shall have two flashing status LED's for visual supervision. When the detector is in standby condition the LED's will flash Green. When the detector is outside the UL listed sensitivity window the LED's will flash Red. When the detector is actuated, the flashing LED's will latch on Red. The detector may be reset by actuating the control panel reset switch.

The sensitivity of the detector shall be capable of being measured. It shall be possible to perform a functional test of the detector without the need of generating smoke. The sensitivity of the detector shall be monitored automatically and continuously to verify that it is operating within the listed sensitivity range. To facilitate installation, the detector shall be non-polarized. Voltage and RF transient suppression techniques shall be employed to minimize false alarm potential. Auxiliary SPDT relays shall be installed where indicated. The vandal-resistant, security locking feature shall be used in those areas as indicated on the drawing. The locking feature shall be field removable when not required.

LE-SLR-24H Sensitivity Test Feature

The SLR-24H Photoelectric Smoke Detector has a built-in automatic sensitivity test feature.

1. In normal condition, both LED's flash green.
2. When the sensitivity drifts outside of its sensitivity limits, both LED's flash red.
3. In the alarm state both LED's are red continuously.
4. When the sensitivity drifts outside of its sensitivity limits and both LED's flash red, the device needs to be cleaned or returned to the factory for cleaning. Refer to HA Technical Bulletin LE-HA-97 for cleaning information



Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System

LE-DCD 135/190

FIXED TEMPERATURE/RATE OF RISE HEAT DETECTOR



Standard Features

- Choice of fixed temperature/rate-of-rise 135°F or 190°F heat detector
- UL Listed spacing up to 60' by 60'
- 2 or 4 wire base compatibility, relay bases available
- Highly stable operation, RF/Transient protection
- Low standby current, 35µA nominal
- Two built-in power/alarm LED's for 360° viewing Fully electronic operation
- Power/alarm LED's confirm detector status
- Compatible with Lifeco LE-SLR-24V and LE-SIJ-24 detectors and their bases

Specifications

Response	
Temperature	135° ± 7.5°F
Temperature	190° ± 7.5°F
Rated Voltage	17.7 - 30.0 VDC
Working Voltage	15.0 - 33.0 VDC
Maximum Voltage	42 VDC
Supervisory Current	40µA @ 24 VDC
Surge Current	160µA max. @ 24 VDC
Alarm Current	150mA max. @ 24 VDC
Ambient Temperature	32°F to 120°F (0°C to 49°C)
Contact Rating	N/O Contacts 150mA max. @ 24 V
Color & Case Material	Bone PC/ABS blend
Mounting	Refer to the NS Conventional Detector Base Data Sheet



UL S24977

Application

The Lifeco LE-DCD-135/-190 fixed temperature/rate-of-rise heat detector are suited for installation where high heat output fires are expected or in areas where ambient conditions would not allow use of other detection methods. Heat detectors are intended for protection of property. Do not rely on heat detectors for life safety protection. Where life safety is a concern, smoke detectors must also be used. A UL listed fire alarm panel must electronically supervise the LE-DCD-135/-190 heat detectors. All NS conventional devices are mechanically compatible with Lifeco LE-HSB, LE-HSC and LE-YBA type bases. Please check individual panel listings for appropriate listed bases.

Operation

The LE-DCD-135/-190 fixed temperature/rate-of-rise heat detectors are suited to detect in the presence of slow or fast rising temperatures due to burning combustibles. The construction of these models incorporate a thermistor heat element protected from damage by the built-in, durable plastic guard. These electronic heat detectors incorporate two power/alarm LED's for 360° indication of status. In standby condition the power LED's flash Green. In an alarm condition the LED's latch on Red. The LE-DCD-135/-190 electronic heat detection circuitry performs the same function as a Mechanical Device but with Electronic Precision. If the heat rise is less than 12°/minute the LE-DCD will not alarm until it reaches its alarm temperature (135° or 190° ± 7.5°F). If the heat rise is greater than 12°/minute the LE-DCD will alarm immediately giving an early warning signal and latching the Red alarm LED's on.

Engineering Specifications

Automatic heat detectors where ambient temperatures do not exceed 120°F shall be the LE-DCD-135 fixed temperature/ rate-of-rise heat detector rated at 135°F. For areas where ambient temperatures exceed 120°F, but not 160°F, the LE-DCD-190 fixed temperature/rate-of-rise heat detector rated at 190°F shall be used. Electrical contacts shall be normally open, rated at 150mA @ 24VDC.

Heat detectors shall be installed in accordance with National Fire Protection Association Standard 72, the spacing assigned by Underwriters Laboratories and in accordance with the rules and regulations set forth by the local authorities having jurisdiction. Automatic heat detectors shall be Underwriters Laboratories listed.

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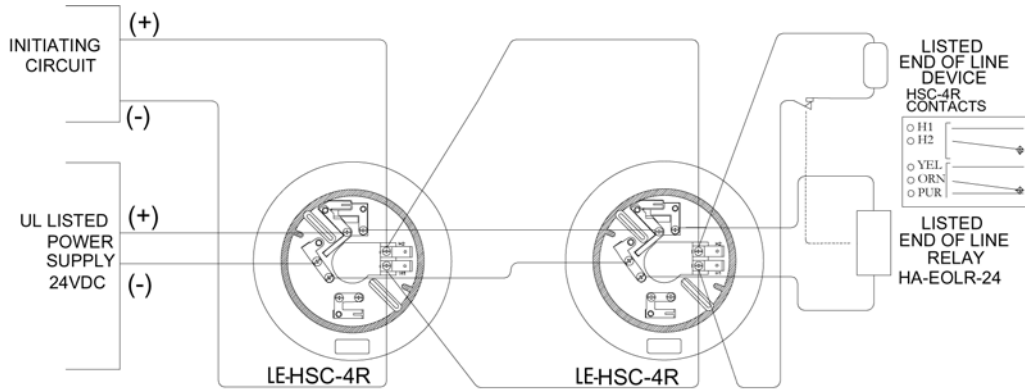
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Tel: +44 (0) 1902 798706, Fax: +44 (0) 1902 798679, E-mail: info@lifeco-uk.com, www.lifeco-uk.com



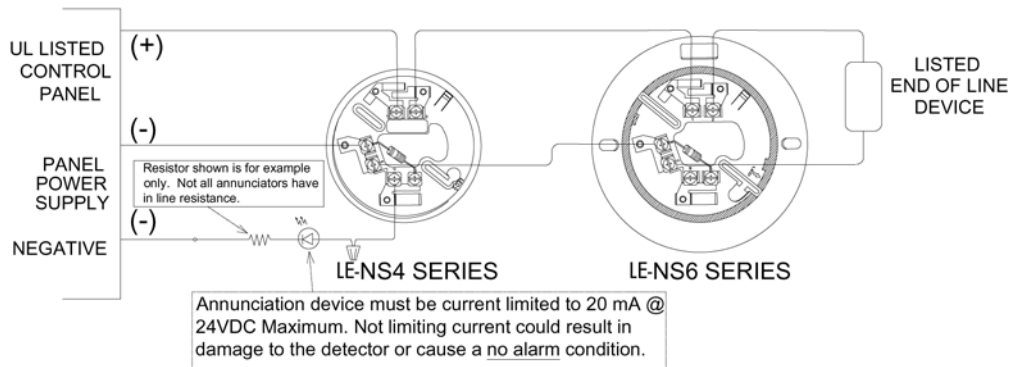


LIFECO EAGLE Series Fire Alarm System

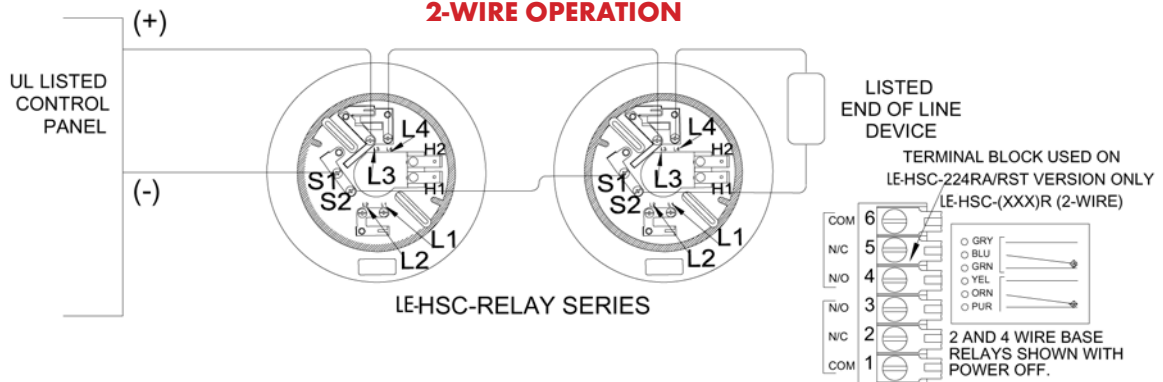
4-WIRE OPERATION



2-WIRE OPERATION



2-WIRE OPERATION



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Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
 Te l: +44 (0) 1902 798706, Fax: +44 (0) 1902 798679, E-mail: info@lifeco-uk.com, www.lifeco-uk.com





LIFECO EAGLE Series Fire Alarm System

LE-DFE 135/190

FIXED TEMPERATURE HEAT DETECTOR



Standard Features

- Choice of fixed temperature - 135°F or 190°F
- UL Listed ceiling spacing of 50' by 50' (2,500 square feet)
- Self-Restoring
- Heat element protected by a built-in guard
- Contact Rating of 100 mA
- Highly Dependable
- Latching LED base available

Specifications

Response	
Temperature	135° ± 7.5°F
Temperature	190° ± 7.5°F
Contact Rating	N/O Contacts 100mA max. @ 60 V
Color & Case Material	Bone Ivory ACS
Mounting	Refer to back of this sheet



UL S24977

Application

The LE-DFE 135/190 fixed temperature heat detector is suited for installation where high heat output fires are expected or in areas where ambient conditions would not allow use of other detection methods.

Heat detectors are used for property protection. Do not rely on heat detectors for life safety protection. Where life safety is involved, smoke detectors must also be used.

Heat detectors should be electronically supervised from a UL listed alarm panel.

Operation

The LE-DFE 135/190 fixed temperature heat detector is suited to alarm in the presence of slowly rising temperatures. The construction of this model incorporates an oversized heat collector protected from damage by the built-in, durable plastic guard. The LE-DFE 135/190 fixed temperature heat detector used the proven snap-disc principle of operation. This bi-metal disc deflects when temperature reaches a predetermined value. The disc deflection then causes a push-rod to close the internal contact resulting in an alarm condition. The bi-metal disc returns to its normal shape when the heat subsides causing internal contacts to return to their normally open position. A standby condition is restored.

Engineering Specifications

Automatic heat detectors shall be fixed temperature rated at 135°F for areas where ambient temperatures do not exceed 120°F and 190°F where ambient temperatures exceed 120°F but not 160°F. The fixed temperature element shall consist of a bi-metallic disc and actuator shaft. Electrical contacts shall be normally open, rated at 100mA @ 60VDC.

Heat detectors shall be installed in accordance with National Fire Protection Association Standard 72, the spacing assigned by Underwriters Laboratories, and in accordance with the rules and regulations set forth by the local authorities having jurisdiction. Automatic heat detectors shall be Underwriters Laboratories listed.

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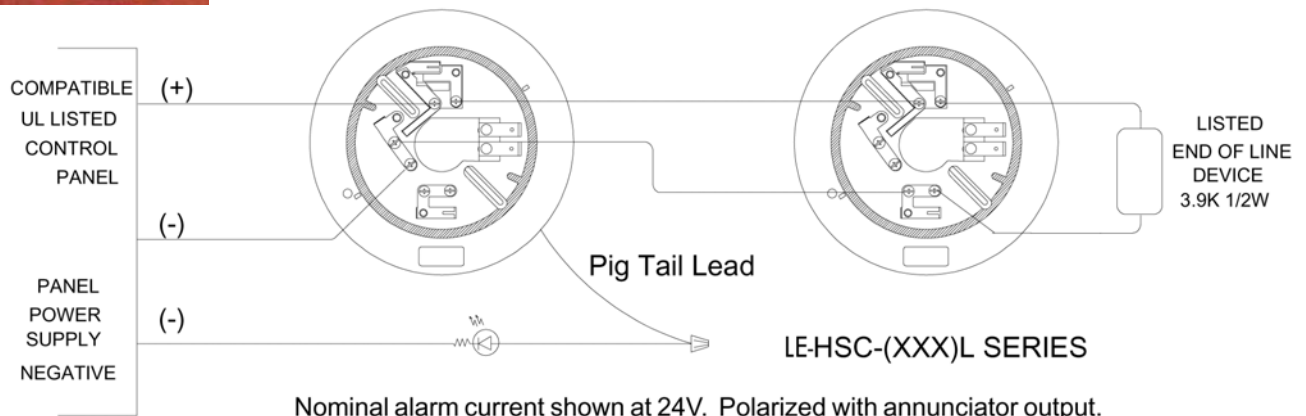
LIFECO EAGLE Series Fire Alarm System

Compatible Bases

LE-HSC-(XXX)L Heat Detector Base



The LE-HSC-xxx L Series is a 6" base featuring a current limiting resistor, latching annunciator output and a latching circuit so the alarm LED will remain lit until the control panel has been reset. Heat detectors are not recognized as proper detection for life safety protection, therefore they should be utilized only for the protection of property.



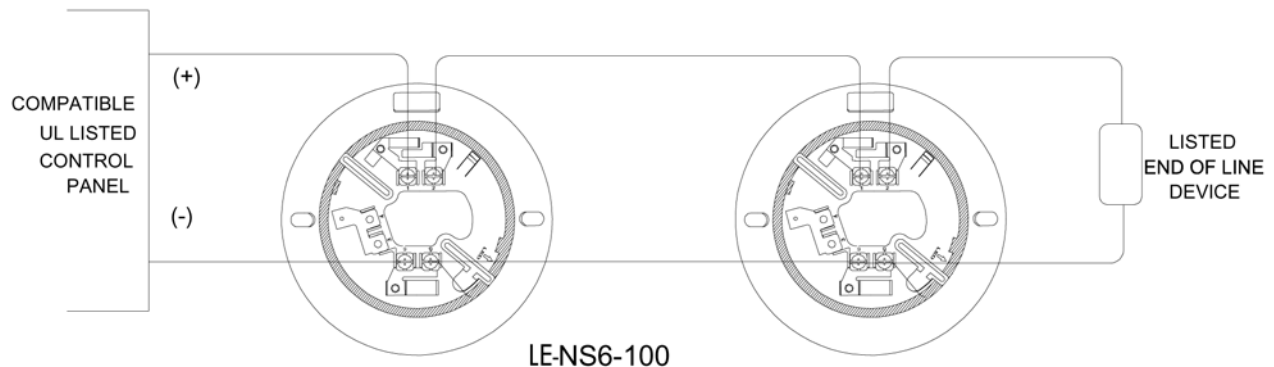
Nominal alarm current shown at 24V. Polarized with annunciator output.

LE-HSC-21L	24mA	LE-HSC-221L	41mA
LE-HSC-224L	38mA	LE-HSC-220L	73mA

LE-NS6-100 DETECTOR BASE



The LE-NS6-100 is a 6" diameter base that has no current limiting nor annunciator output features. A direct short occurs across the loop when the detector is actuated. Heat detectors are not recognized as proper detection for life safety protection, therefore they should be utilized only for the protection of property.



Non polarized, not current limited. No annunciator output.

We try to keep our product information up-to-date and accurate. However, we cannot cover all specifications or anticipate all requirements. For additional information contact your local distributor or call or write to Lifeco

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LIFECO EAGLE Series Fire Alarm System

LE-SPC-24

PROJECTED BEAM SMOKE DETECTOR



Features

- Low profile, 1.8" high (with base)
- 2 or 4 wire base compatibility, relay bases available
- Highly stable operation, RF/Transient protection
- Low standby current, 45µA at 24VDC
- Two built-in power/sensitivity supervision/alarm LEDs
- Non-directional smoke chamber
- Vandal resistant security locking feature
- Built-in magnetic go/no go detector test feature
- Removable smoke labyrinth for cleaning or replacement
- Automatic Sensitivity window verification function meets outlined requirements in NFPA 72, Chapter 2 & 7, Inspection, Testing and Maintenance
- Compatible with SIJ-24 ionization detectors
- Backwards compatible with Lifeco SLK and SIH detectors

Specifications

Light Source	GaAlAs Infrared Emitting Diode		
Rated Voltage	17.7 - 30.0 VDC		
Working Voltage	15.0 - 33.0 VDC		
Maximum Voltage	42 VDC		
Supervisory Current	45µA @ 24 VDC		
Surge Current	160µA max. @ 24VDC		
Alarm Current	150mA max. @ 24 VDC		
Air Velocity Range	0-4000 fpm		
Ambient Temperature	32 °F to 120 °F (0 °C to 49 °C)		
Color & Case Material	Bone PC/ABS Blend		
Sensitivity Feature	Test	Automatic Sensitivity window verification test	
Mounting	Refer to NS Conventional Detector Base Data Sheet		

Application

The Lifeco LE-SPC-24 Projected Beam Smoke Detector consists of an emitter and receiver. The projected beam smoke detector should be placed so that smoke generated by a fire will likely rise into the path of the beam. The receiver is constantly monitoring and measuring the intensity of the beam transmitted by the emitter. Should the smoke from a fire cause a decrease in the signal strength of a magnitude that exceeds the programmed obscuration setting, an alarm signal is generated.

The LE-SPC-24 Projected Beam Smoke Detector can provide vital fire detection in applications where other types of detectors may not be able to respond quickly, or at all, to a fire condition. Examples of some applications where projected beam smoke detectors have been successfully used include:

atriums	gymnasiums	theatres
museums	factories	tunnels
churches	stables	warehouses
anechoic chambers	high air	velocity area

The Lifeco LE-SPC-24 Projected Beam Smoke Detector may also be used in conjunction with more traditional spot type smoke detection devices to provide an even more comprehensive detection system.

Operation

The near infrared pulsed beam generated by the emitter is sensed by the photodiode of the receiver, where it is converted into an electrical signal. This signal is then amplified and applied, via an analog to digital converter, to a microprocessor. The normal state signal (the initial beam data) once stored in the microprocessor is used as reference for comparison with subsequent beam signals. When there is a difference between actual beam strength and stored reference data that exceeds the programmed alarm obscuration reference level, a fire signal is produced. A trouble signal is generated if the beam is more than 90% obstructed (as opposed to partially obscured by smoke).



S24238

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Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
Tel: +44 (0) 1902 798706, Fax: +44 (0) 1902 798679, E-mail: info@lifeco-uk.com, www.lifeco-uk.com





LIFECO EAGLE Series Fire Alarm System

Operation

The microprocessor also provides compensation for a change in received signal value, with time, caused by contamination of the optics. Since such a change with time appears as a slow change in the beam signal, the microprocessor compensates in such a manner that the signal moves closer to the reference data at a rate approximately +1% per hour. When this compensating capability reaches a limit, the LE-SPC-24 automatically generates a trouble signal. A calibrated test filter is available upon request to test and verify the sensitivity setting of the LE-SPC-24 projected beam smoke detectors.

Engineering Specification

The contractor shall furnish and install, where indicated on the plans, Lifeco LE-SPC-24 Projected Beam Smoke Detector. The projected beam smoke detector shall have a range of 32.8 feet to 328 feet. The projected beam smoke detector shall be field adjustable to one of the three obscuration settings of 25%, 50% or 70% per span. These settings shall be capable of being verified with calibrated filters. Side to side spacing shall be a maximum of 60 feet on center.

The projected beam smoke detector shall possess circuitry that automatically compensates for normal ambient changes in the intensity of the emitted beam strength. The microprocessor shall provide compensation for a change in received signal value, with time, caused by contamination of the optics. Since such a change with time appears as a slow change in the beam signal, the microprocessor shall compensate in such a manner that the signal moves closer to the reference data at a rate of approximately +1% per hour. When this compensating capability reaches a limit, the microprocessor shall automatically generate a trouble signal.

The projected beam smoke detector(s) shall also signal a trouble condition if the beam has a blockage of 90% or more for more than 20 seconds and automatically resets to normal when blockage is removed.

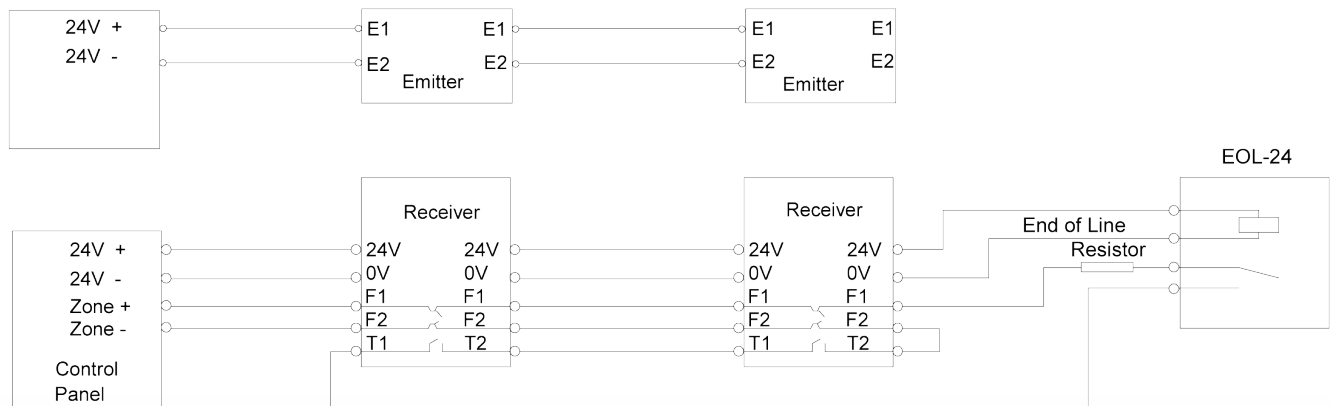
The projected beam smoke detector(s) shall be UL listed for these applications. Voltage and RF transient protection shall be integral to the internal circuitry of the projected beam smoke detector so as to minimize false alarm potential. To facilitate easy installation and setup, the projected beam smoke detectors shall employ signal strength indicating LED's. Alignment shall be facilitated by turning an alignment adjustment wheel and monitoring the relative signal strength based upon which LED's are illuminated.

The detectors shall also illuminate a red LED, which is visible externally, when an alarm condition is indicated. The projected beam smoke detector shall provide a Form "A" dry contact for alarm and Form "B" dry contact for trouble.

Installation

The Lifeco LE-SPC-24 Projected Beam Smoke Detector shall be installed in accordance with the Installation Instruction Guide provided with every unit. Refer to the applicable NFPA Standards for additional guidance on spacing, irregular ceiling surfaces and other design considerations.

Four Wire Connection to the Control Panel



NOTE: End of line relay and trouble contacts are closed when power is applied.

NOTE: EOLR-24 required for power supervision on Receiver.

Note: Specifications subject to change without prior notice





LIFECO EAGLE Series Fire Alarm System

LE-SRA-24

PROJECTED BEAM SMOKE DETECTOR



Features

- Detector spacing from 25ft-100ft.
- Pulsed beam to reduce overall consumption and improve the noise rejection characteristics.
- Small flat reflector.
- Automatic drift compensation.
- Fire detection sensitivity can be set to 20% or 30% obscuration.

Specifications

Operating Voltage	15-33Vdc
Stand-by Current	350 μ A at 24Vdc
Max Current In Alarm	50mA at 24Vdc
Operating Range	25ft - 100ft
Sensitivity	20% or 30%
Compensation	1% per Hr. \pm 50%
Reflector mounting angle	\pm 10%
Operating Temp. Range	32 $^{\circ}$ F to +100 $^{\circ}$ F
Storage Temp. Range	-22 $^{\circ}$ F to +158 $^{\circ}$ F
Maximum Humidity	95%RH - Non condensing (at 104 $^{\circ}$ F)
Color & Case Material	Ivory ABS
Size: LE-SRA-24	6" x 4.8" x 3.1"
Reflector	7.5" x 7.5" x.1"
Weight: LE-SRA-24	1.9 lbs (Including termination module)
Reflector	1.6 oz.

Application

Reflective Beam Detector is designed for smoke detection in large spaces such as halls, warehouse, museums, theatres etc., where conventional point detection is impractical or more costly. The unit is not suitable for applications where strong or reflected sunlight is present, in these instances the LE-SPB-24N should be considered. The unit detects smoke linearly over the protected range enabling early detection before the fire spreads. Compact design, good looks and flush mounting installation makes this unit ideal for fitting in areas where architectural considerations are important.

General Description

The Photoelectric reflective beam detector consists of the LE-SRA-24 unit and a reflector, which face each other at a distance of between 25ft and 100ft. In the event of fire the smoke generated will decrease the amount of near infrared light energy on the LE-SRA-24, this decrease is electronically interpreted to identify the occurrence of fire. An important feature of the detector is that it monitors the protected space linearly. This enables the detector to identify a fire before it spreads, even when the smoke is scattered over a large area. The fire detection sensitivity is factory set at 20% beam obscuration and it can be changed to 30% with a sensitivity switch.

The status of the unit is indicated by three LEDs which are viewed through a unique lens that allows good visibility from any viewing angle, particularly from beneath the unit. The LEDs indicate, Normal, Setup, Fault and Fire Condition, so the user can verify which unit is in alarm.

The unit indicates a fault on the zone under the following conditions:

- Compensation limit exceeded
- Total obscuration of beam
- Beam detector unit removed from zone



UL S24238

Note: Specifications subject to change without prior notice

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Tel: +44 (0) 1902 798706, Fax: +44 (0) 1902 798679, E-mail: info@lifeco-uk.com, www.lifeco-uk.com





LIFECO EAGLE Series Fire Alarm System

Engineering Specification

The contractor shall furnish and install, where indicated on the plans, Lifeco LE-SRA-24 Reflective Beam Detector. The detector shall have a range of 25 feet to 100 feet. The beam smoke detector shall be field adjustable to one of the two obscuration settings of 20%, or 30% per span. These settings shall be capable of being verified with calibrated filters. Side to side spacing shall be a maximum of 60 feet on center.

The reflective beam detector shall possess circuitry that automatically compensates for normal ambient changes in the intensity of the emitted beam strength. The microprocessor shall provide compensation for a change in received signal value, with time, caused by contamination of the optics. Since such a change with time appears as a slow change in the beam signal, the microcomputer compensates in such a manner that the signal moves closer to the reference data at a rate of approximately +1% per hour. When this compensating capability reaches a limit, the microcomputer automatically generates a trouble signal.

The reflective beam detector(s) shall also signal a trouble condition if the beam has a blockage of 90% for more than 20 seconds and automatically resets to normal when blockage is removed.

The reflective beam detector(s) shall be UL listed for these applications. Voltage and RF transient protection shall be integral to the internal circuitry of the reflective beam detector so as to minimize false alarm potential.

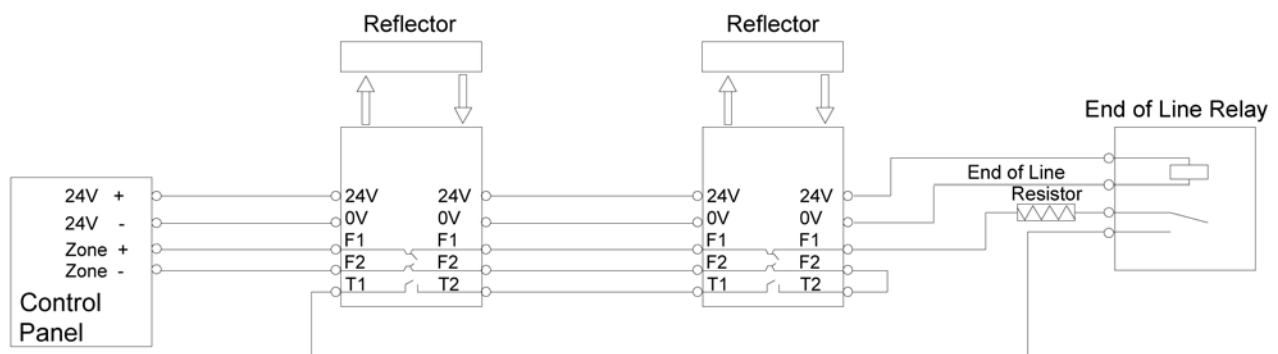
To facilitate easy installation and setup, the reflective beam detectors shall employ signal strength indicating LED's. Alignment shall be facilitated by turning an alignment adjustment screws and monitoring the relative signal strength based upon which LEDs are illuminated.

The detectors shall also illuminate a red LED, which is visible externally, when an alarm condition is indicated. The reflective beam detector shall provide a Form "A" dry contact for alarm and Form "B" dry contact for trouble.

Installation

The Lifeco LE-SRA-24 Reflective Beam Detector shall be installed in accordance with the Installation Instruction Guide provided with every unit. Refer to the applicable NFPA Standards for additional guidance on spacing, irregular ceiling surfaces and other design considerations.

Typical Wiring



Note: End of line relay and trouble contacts are closed when power is applied

Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System

LE-DH-98

ANALOG DUCT DETECTOR



Duct housing with an LE-ALG-DH analog photoelectric sensor.

Specifications

Duct Detector Model #	LE-DH-98-A	LE-DH-98-AR
Detector Head model	ALG-DH	ALG-DH
Detector Head Type	Analog Photoelectric	
Communication	DCP Powered Loop	
Input Voltage	D C P P o w e r e d L o o p	DCP Powered Loop/24V DC Loop
Standby Current	2mA AVG	10mA
Alarm Current	8mA	55mA
Alarm Contacts	N/A	2 form C rated at 10A@250V AC
Sensitivity Test Method	Control Panel	
Remote Indication Compatibility (Refer to LE-DH-98 Accessories)	N/A	Power, Alarm, Horn/Piezo Test
Air Velocity	300 to 4000 ft/min.	
Ambient Temperature	32°F to 100°F (0°C to 38°C)	
Humidity	10% to 85% Relative Humidity (non-condensing)	
Housing Material	18 G.A. steel backbox, clear plastic cover	
Finish	Grey Paint	
Dimensions	9 1/8" L x 7 1/4" W x 2 1/4" H	
Maximum Net Weight	3lbs.	
Sampling Tubes	2.5ft., 5ft. or 10ft	

Application

The Lifeco LE-DH-98 Analog duct smoke detector provides early detection of smoke and products of combustion present in air moving through HVAC ducts in Commercial, Industrial and Residential applications. The LE-DH-98 is designed to prevent the recirculation of smoke in areas by the air handling systems, fans and blowers. Complete systems may be shut down in the event of smoke detection. The Lifeco LE-DH-98-A and the LE-DH-98-AR operate on a DCP powered loop (24 VDC source required for LE-DH-98-AR)

Product Description

The LE-DH-98 is designed and built to meet all local requirements, as well as the NFPA regulations regarding duct smoke detectors. The LE-DH-98-AR is provided with output terminals for remote accessories such as a horn, strobe, remote status indicators and reset key switches or push buttons. Air sampling is accomplished by two tubes which protrude into the duct. An exhaust tube of one standard length (7.5") is supplied in the installation kit with the smoke duct unit. Once the duct width has been determined the air intake sampling tubes must be ordered. Sampling tubes are supplied in three standard lengths 2.5 ft., 5 ft. and 10 ft. and cut to size to fit the duct. Mounting the duct smoke unit is accomplished by the use of a template and 4 sheet metal screws, which are provided. Mounting can be achieved without the removal of the clear cover which is secured by 4 capture screws.

The compact DH-98-AR contains 2 sets of form "C" contacts rated at 10 amps. The pilot and alarm visual indicators, provided on the front of the DH-98-AR duct unit, signal the operating status of the device. A manual test/ reset switch is located along side the visual indicators.

Standard Features

- Detects and limits the spread of smoke throughout building HVAC ducts
- Compatible with building automation and fire alarm systems
- Installs quickly and easily
- No screens or filters to clean
- Rugged gray steel back box with clear cover
- Accessories - Remote LED alarm indication capability (DH-98-AR only)
- Meets UL 268A Requirements



UL S24238

Note: Specifications subject to change without prior notice

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Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
 Tel: +44 (0) 1902 798706, Fax: +44 (0) 1902 798679, E-mail: info@lifeco-uk.com, www.lifeco-uk.com





LIFECO EAGLE Series Fire Alarm System

Engineering Specifications

Air duct smoke detectors shall be Lifeco DH-98 Series. The detectors shall be listed by Underwriters Laboratories per UL 268A. The detectors shall operate at air velocities from 300 feet per minute to 4000 feet per minute.

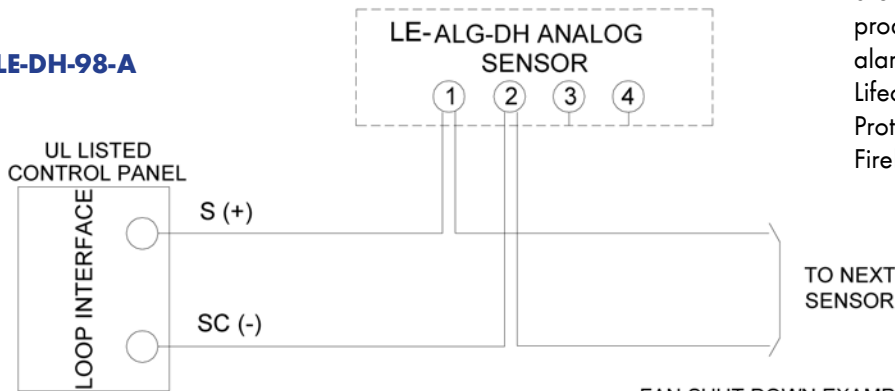
The duct detector housings shall be of metal construction and complete mechanical installation may be performed without removal of the detector cover. The duct detector shall not require additional filters or screens which must be maintained. The housing shall contain a base which will accept an analog photoelectric sensor head. Terminal connections shall be of the screw type and be a minimum of #6 screw. For installations requiring relay functions, terminals shall be provided for remote pilot, remote alarm indication, strobe/ horn and remote key switch. For installation not requiring relay functions, visual indication of alarm and power must be provided on detector front. A manual reset switch shall be located on the front of the device (DH-98-AR only). All wiring must comply with local codes and regulations.

Wiring Diagrams

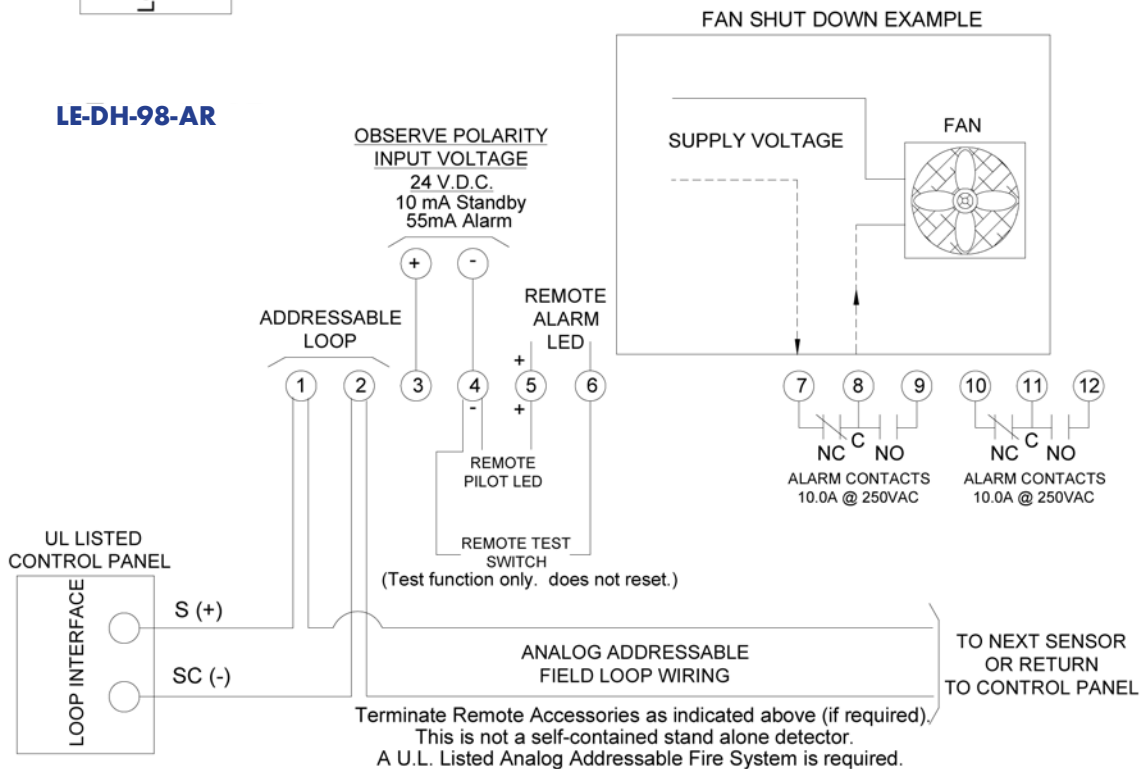
Note

The LE-DH-98-A and DH-98-AR are not self-contained sensors. This product is compatible only with fire alarm control panels that utilize Lifeco's Digital Communications Protocol, DCP. For example the FireNET Control Panel

LE-DH-98-A



LE-DH-98-AR



Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System

LE-DH-98

CONVENTIONAL DUCT DETECTOR



Duct housing is available with either a conventional photoelectric or ionization detector.

Product Description

The Lifeco LE-DH-98 Duct Smoke Detector provides early detection of smoke and products of combustion present in air moving through HVAC ducts in Commercial, Industrial and Residential applications. The LE-DH-98 is designed to prevent the recirculation of smoke in areas by the air handling systems, fans and blowers.

Complete systems may be shut down in the event of smoke detection. The Lifeco LE-DH-98-I and the LE-DH-98-P operate on 115 VAC, 24 VAC and 24 VDC and the LE-DH-98-HVI and the LE-DH-98-HVP operate on 230 VAC, 24 VAC and 24 VDC.

The LE-DH-98 is designed and built to meet all local requirements, as well as the NFPA regulations regarding duct smoke detectors. Output terminals are provided for remote accessories such as a horn, strobe, remote status indicators and reset key switches or push buttons. Air sampling is accomplished by two tubes which protrude into the duct. An exhaust tube of one standard length (7.5") is supplied in the installation kit with the smoke duct unit. Once the duct width has been determined the air intake sampling tubes must be ordered. Sampling tubes are supplied in three standard lengths 2.5 ft., 5 ft. and 10 ft. and cut to size to fit the duct. Mounting the duct smoke unit is accomplished by the use of a template and 4 sheet metal screws, which are provided. Mounting can be achieved without the removal of the clear cover which is secured by 4 capture screws.

The compact LE-DH-98 contains 3 sets of alarm contacts, 1 set of form "C" contacts rated at 10 amps, 1 set of form "A" contacts rated at 10 amps, 1 set of form "A" contacts rated at 1 amp. There is also 1 set of form "C" 10 amp trouble contacts for monitoring detector head removal, and the failure of the input supply voltage.

The pilot and alarm visual indicators provided on the front of the LE-DH-98 duct unit, signal the operating status of the device. A manual test/reset switch is located along side the visual indicators.

Standard Features

- Detects and limits the spread of smoke throughout building HVAC ducts
- Ability to interconnect (all relays operate with a single alarm) up to 30 units using the same independent power supply
- Compatible with building automation and fire alarm systems
- Installs quickly and easily
- Interchangeable "Plug-In" photoelectric or ionization heads
- No screens or filters to clean
- Cover provides magnet window and placement guide for operational testing without disassembly
- Rugged gray steel back box with clear cover
- Accessories - Remote power, remote alarm indication capability and remote, horn/piezo capability
- Meets UL 268A Requirements

Specifications

Duct Detector Model #	LE-DH-98-I	LE-DH-98-P	LE-DH-98-HVI	DH-98-HVP
Operating Voltage	115V AC, 24V AC/DC	115V AC, 24V AC/DC	230V AC, 24V AC/DC	230V AC, 24V AC/DC
Detector Head Model	LE-SIJ-24DH	LE-SLR-24DH	LE-SIJ-24DH	LE-SLR-24DH
Detector Head Type	Conventional Ionization	Conventional Photoelectric	Conventional Ionization	Conventional Photoelectric
Power Requirements Standby	230 VAC		8mA	8mA
	115 VAC	14mA	14mA	
	24 VAC	20mA	20mA	20mA
	24 VDC	13mA	13mA	13mA
Power Requirements Alarm	230 VAC		15mA	15mA
	115 VAC	28mA	28mA	
	24 VAC	95mA	95mA	95mA
	24 VDC	60mA	60mA	60mA
Alarm Contacts	1 form "C" and 1 form "A" rated at 10 amps @ 115 V.A.C.	1 form "C" and 1 form "A" rated at 10 amps @ 115 V.A.C.	1 form "C" and 1 form "A" rated at 10 amps @ 115 V.A.C.	1 form "C" and 1 form "A" rated at 10 amps @ 115 V.A.C.
Detection Loop	1 Form A (1A)	1 Form A (1A)	1 Form A (1A)	1 Form A (1A)
Trouble Contacts	1 Form "C"	1 Form "C"	1 Form "C"	1 Form "C"
Sensitivity Test Method	Dual Reed Switch Test	Self Diagnostic Test	Dual Reed Switch Test	Self Diagnostic Test
Remote Indication Capability (Refer to DH-98 Accessories Data Sheet for Specifications)	Power, Alarm, Horn/Piezo, Test	Power, Alarm, Horn/Piezo, Test	Power, Alarm, Horn/Piezo, Test	Power, Alarm, Horn/Piezo, Test
Air Velocity	300 to 4000 ft./min			
Ambient Temperature	32°F to 120°F (0°C to 49°C)			
Humidity	10% to 85% Relative Humidity (non-condensing)			
Housing Material	18 G.A. steel backbox, clear plastic cover			
Finish	Grey Paint			
Dimensions	9 1/8"L X 7 1/4"W X 2 1/4"H			
Maximum Net Weight	3 lbs.			
Sampling Tubes	2.5 ft., 5 ft. or 10 ft.			
Radioactive Element	LE-DH-98-I & LE-DH-98-HVI Only: Americium 241 0.5 Micro-Curie			



Note: Specifications subject to change without prior notice

Lichfield Fire & Safety Equipment Co. Ltd

Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
Tel: +44 (0) 1902 798706, Fax: +44 (0) 1902 798679, E-mail: info@lifeco-uk.com, www.lifeco-uk.com





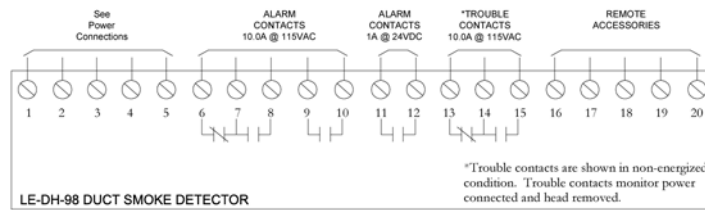
LIFECO EAGLE Series Fire Alarm System

Engineering Specifications

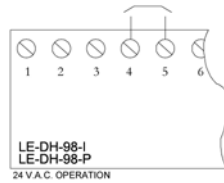
Air duct smoke detectors shall be Lifeco LE-DH-98 Series. The detectors shall be listed by Underwriters Laboratories per UL 268A. The detectors shall operate at air velocities from 300 feet per minute to 4000 feet per minute. The detectors shall have the ability to interconnect up to 30 units using the same independent power supply.

The duct detector housings shall be of metal construction and complete mechanical installation may be performed without removal of detector cover. Visual indication of alarm and power must be provided on detector front. A manual reset switch shall be located on front of the device. Detector heads shall not require additional filters or screens which must be maintained. The housing shall contain a detector base which will accept photoelectric or ionization detector heads. Terminal connections shall be of the screw type and be a minimum of # 6 screw. Terminals shall be provided for remote pilot, remote alarm indication, strobe/horn and remote key switch. All wiring must comply with local codes and regulations.

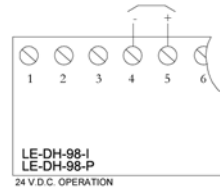
Wiring Diagrams



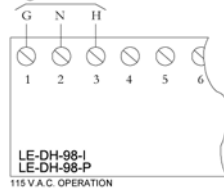
24 VAC 60 Hz INPUT
@ 0.1 AMP MAX (Detector only).
UP TO 1.9 AMPS FOR AUXILIARY
OUTPUTS (HORNS/STROBES).



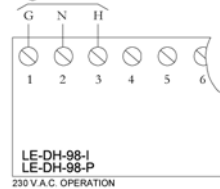
24 VDC 60 Hz INPUT
@ 0.1 AMP MAX (Detector only).
UP TO 1.9 AMPS FOR AUXILIARY
OUTPUTS (HORNS/STROBES).



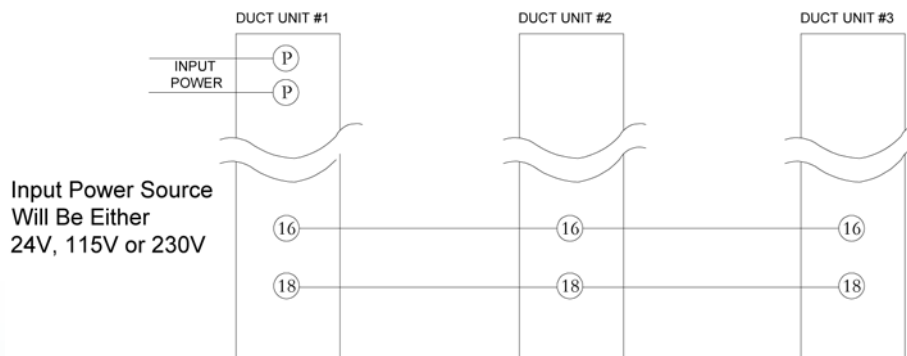
115 VAC 60 Hz INPUT
@ 0.1 AMP MAX.



230 VAC 60 Hz INPUT
@ 0.1 AMP MAX.



Interconnect Wiring Diagrams



Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System

LE-DH-98

DUCT DETECTOR REMOTE ACCESSORIES

Application

The LE-DH-98 Duct Detector Remote Accessories are designed to be used with the LE-DH-98 Conventional and LE-DH-98 Analog Duct Detectors to provide audible and visual indication as well as remote test/reset functions.

These devices are constructed of brushed stainless steel and mount on a standard single or double gang backbox.

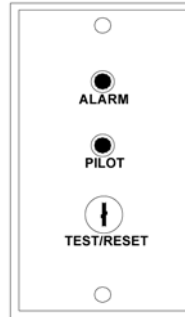
Specification

Power Requirements	
Alarm LED	15 mA
Pilot LED	15 mA
Horn	20 mA @ 24 VDC
Sound Pressure Horn	78 db @ 10 feet
Dimensions	
Single Gang	2.75" (69.85mm) W 4.5" (114.3mm) H
Double Gang	4.5" (114.3mm) W 4.5" (114.3mm) H



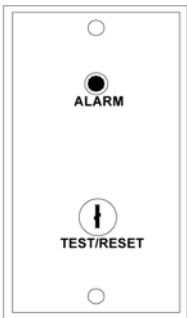
MS-RA

Functions:
Remote Alarm LED (red)
For Use with:
LE-DH-98-I, LE-DH-98-P
LE-DH-98-HVI, LE-DH-98-HVP
LE-DH-98-A, LE-DH-98-AR



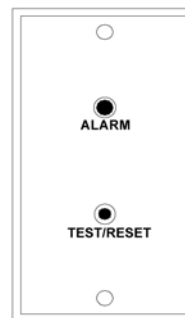
MS-KA/P/R

Functions:
Remote Alarm LED (red)
Pilot LED (green)
Key-Operated Test/Reset Switch
For Use with:
LE-DH-98-I, LE-DH-98-P
LE-DH-98-HVI, LE-DH-98-HVP



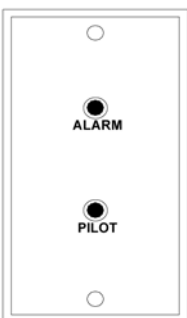
MS-KA/R

Functions:
Remote Alarm LED (red)
Key-Operated Test/Reset Switch
For Use with:
LE-DH-98-I, LE-DH-98-P
LE-DH-98-HVI, LE-DH-98-HVP
LE-DH-98-AR



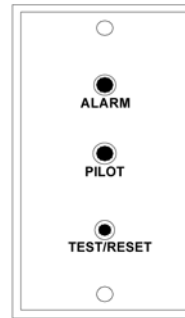
MS-RA/R

Functions:
Remote Alarm LED (red)
Push-button Test/Reset Switch
For Use with:
LE-DH-98-I, LE-DH-98-P
LE-DH-98-HVI, LE-DH-98-HVP
LE-DH-98-AR



MS-RA/P

Functions:
Remote Alarm LED (red)
Pilot LED (green)
For Use with:
LE-DH-98-I, LE-DH-98-P
PILOT LE-DH-98-HVI,
LE-DH-98-HVP



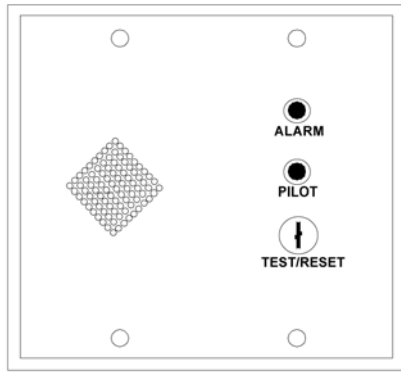
MS-RA/P/R

Functions:
Remote Alarm LED (red)
Pilot LED (green)
Push-button Test/Reset Switch
For Use with:
LE-DH-98-I, LE-DH-98-P
LE-DH-98-HVI, LE-DH-98-HVP

Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System



MS-RH/KA/P/R

Functions:

Remote Alarm Horn

Remote Alarm LED (red)

Pilot LED (green)

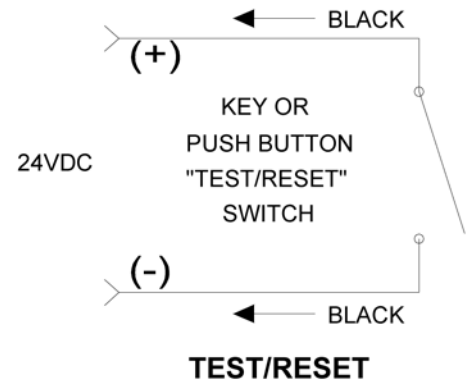
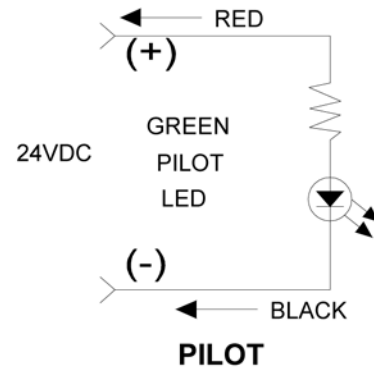
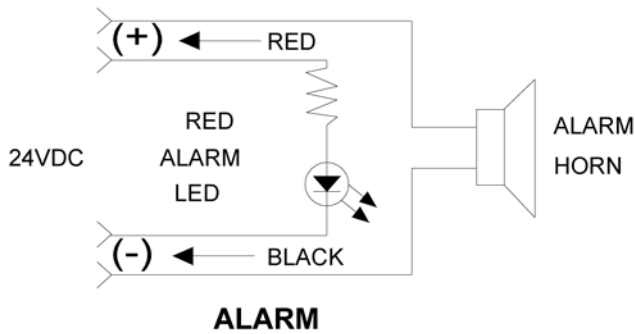
Key-Operated Test/Reset Switch

For Use with:

LE-DH-98-I, LE-DH-98-P

LE-DH-98-HVI, LE-DH-98-HVP

Wiring Diagrams



PRODUCT SPECIFICATIONS

MODEL #	PILOT LED (GREEN)	ALARM LED (RED)	PUSH BUTTON TEST/RESET	KEY OPERATED TEST/RESET	HORN	SINGLE GANG	DOUBLE GANG
MS-RA		●				●	
MS-RA/P	●	●				●	
MS-RA/R		●	●			●	
MS-RA/P/R	●	●	●			●	
MS-KA/R		●		●		●	
MS-KA/P/R	●	●		●		●	
MS-RH/KA/P/R	●	●		●	●		●

Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System

LE-YBN-NSA-4/6 ANALOG SENSOR BASES



LE-YBN-NSA-4



LE-HSB-NSA-6

Application

The Lifeco LE-YBN-NSA-4 and the LE-HSB-NSA-6 mounting bases are electronics free and contain a simple rugged design with screw terminals for wiring connections. A common mounting base allows sensor interchange and maintains loop continuity when sensors are removed. A simple anti-tamper head locking system is provided which is enabled by removing a small plastic tab on the back of the sensor. Once locked, the head can only be removed using a small diameter screw driver.

Standard Features

- UL & ULC Listed
- Designed for use with all NS analog sensors.
- Available in 4 and 6 inch models.
- Contains a security locking tab for tamper protection.

Operation

The LE-YBN-NSA-4 and LE-HSB-NSA-6 are designed specifically for use with the Lifeco NS Analog models LE-AIE-EA Ionization Smoke Sensor, LE-ALG-V Photoelectric Smoke Sensor and LE-ATG-EA Heat Sensor.

The LE-YBN-NSA-4 and LE-HSB-NSA-6 common mounting bases allows for complete compatibility for all of the Lifeco NS Series Analog sensors. The bases are lightweight and very thin, providing a low profile once installed. The solder-less screw terminals enable quick and easy wiring connections.

Engineering Specifications

The base shall permit direct interchange with the Lifeco LE-AIE-EA ionization type smoke sensor, LE-ALG-V photoelectric smoke sensor, and the ATG-EA heat sensor.

The sensitivity of the sensor shall be capable of being measured by the control panel.

The vandal-resistant, security locking feature shall be used in those areas as indicated on the drawing. The locking feature shall be optional and can be implemented when required.

It shall be possible to perform a functional test of the sensor without the need of generating smoke. The test method shall simulate the effects of products of combustion in the chamber to ensure testing of internal circuitry.

Specifications

YBN-NSA-4	4 inches
HSB-NSA-6	6 inches
Security Feature	Plastic Tamper-Lock
Color	Bone PC / ABS Blend



UL S24238

Note: Specifications subject to change without prior notice

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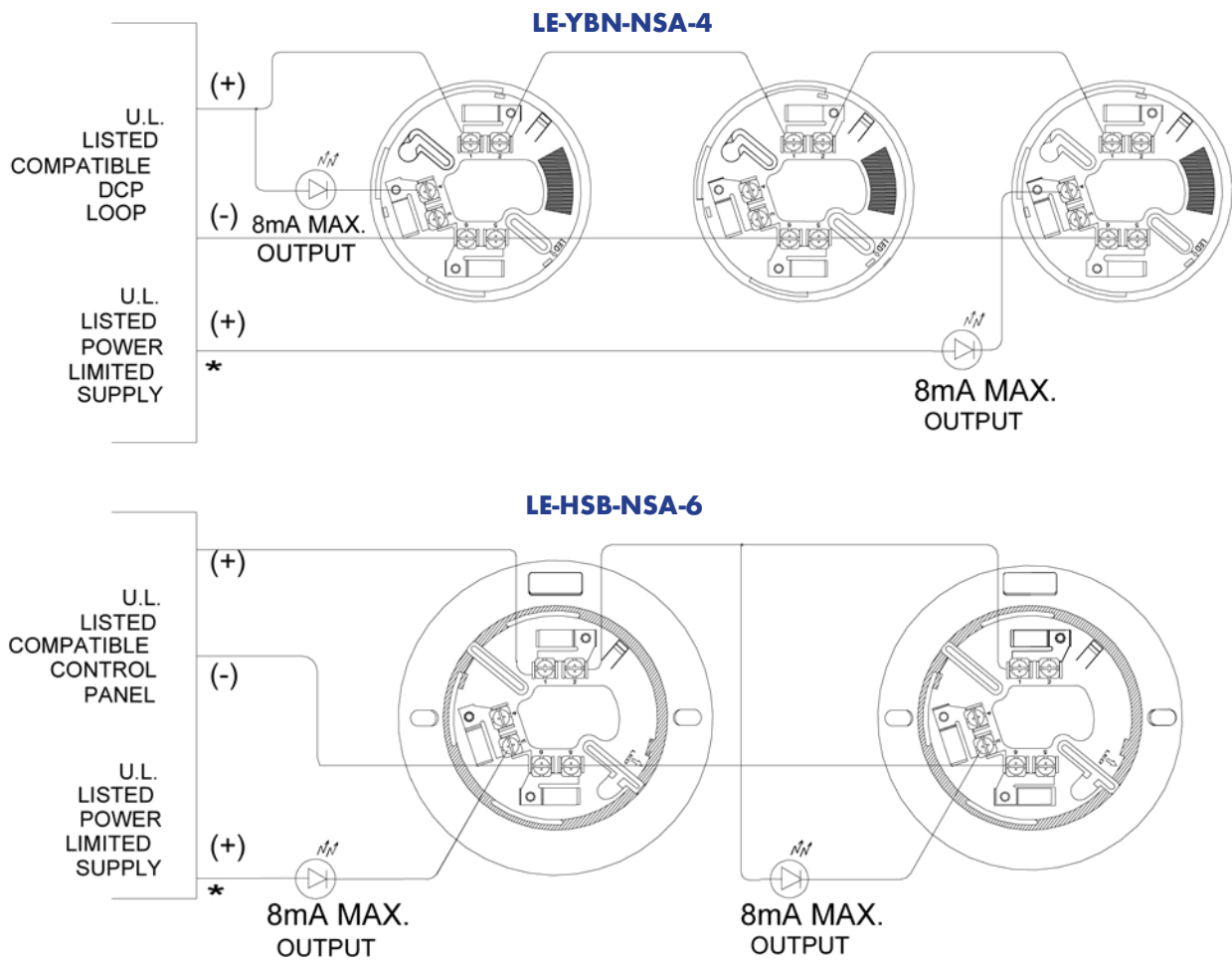
Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
Tel: +44 (0) 1902 798706, Fax: +44 (0) 1902 798679, E-mail: info@lifeco-uk.com, www.lifeco-uk.com





LIFECO EAGLE Series Fire Alarm System

Typical Wiring Diagrams



* - OPTIONAL WIRING CONFIGURATIONS FOR REMOTE OUTPUT

NOTE: Fire alarm control panel compatibility is required for DCP products. State-of-the-art communications protocol, DCP, allows system components (DCP sensors LE-AIE-EA, LE-ALG-V and LE-ATG-EA, bases and modules), to be used concurrently in a system's signaling line circuit.

Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System

LE-ASB

LE-ASB-ANALOG SOUNDER BASE



Shown without Sensor

Shown with Sensor

Standards Features

- Programmable evacuation codes - Continuous, March, ANSI Temporal patterns
- Base learns the sensor address and assumes an upper range address (128-254)
- Up to 127 sensors and 127 ASBs can be used on one SLC loop
- Can be alarmed or reset by zone or by individual address
- ASB SLC loop wire resistance = 50 ohms Max. (total SLC wire run length)
- High sound pressure level (85dB SPL at 10 feet)



UL S24238

Description

The LE-ASB Analog Sounder Base is designed for use with Lifeco analog style sensors models LE-ALG-V, LE-ALK-V, LE-ALK-V2, LE-AIE-EA, and LE-ATG-EA. Each addressable base is to be connected to a Lifeco DCP Signaling Line Circuit (SLC). The LE-ASB provides an audible alarm in the immediate vicinity. Typical applications are use in hotels, apartments, and hospitals. The LE-ASB has a highly configurable programming algorithm that allows the user to setup groups of bases for synchronization of modulation tones. Each device has 16 states that are programmed with the desired output pattern to be used (e.g., "Temporal" or "March") for each state.

Specifications

Operating Voltage	17 - 41 VDC
SLC Loop Idle Current	110 μ A
SLC Loop Max. Alarm Current	110 μ A
Aux. Power Supply Voltage	16 - 31 VDC
Device Aux. Power Min. Voltage	15.0 VDC
Aux. Idle Current	550 μ A
Aux. Max. Alarm Current	18mA
Max. Humidity	93%RH (non-condensing)
Sound Pressure Level at 10 ft	85dB
UL Ambient Installation Temperature Range	32°F (0°C) ~ 100°F (38°C)
Operating Temperature Range	32°F (0°C) ~ 122°F (50°C)
Base Diameter	5.9"
Base Height (without sensor)	1.3"
Weight	0.455 lb
Compatible Sensors	LE-ALG-V, LE-ALK-V, LE-ALK-V2, LE-AIE-EA & LE-ATG-EA

Note: Specifications subject to change without prior notice

Lichfield Fire & Safety Equipment Co. Ltd

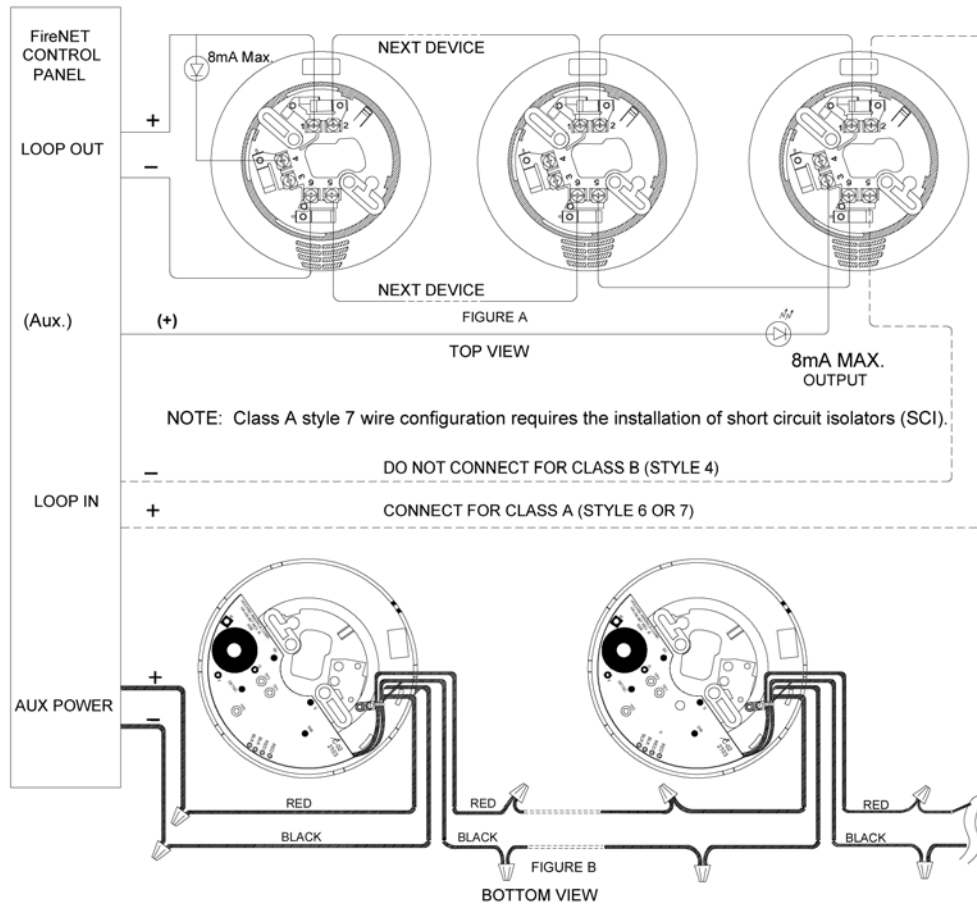
Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
Tel: +44 (0) 1902 798706, Fax: +44 (0) 1902 798679, E-mail: info@lifeco-uk.com, www.lifeco-uk.com





LIFECO EAGLE Series Fire Alarm System

Wiring Diagrams



Number of Bases Permitted

# of Bases In Alarm	Maximum Auxiliary 24VDC Power Wire Resistance (Total Auxiliary Run Length)
127	1.4 ohms
75	2.4 ohms
60	3.0 ohms
50	3.6 ohms
30	6.1 ohms
20	9.1 ohms
15	12.2 ohms
10	18.3 ohms

NOTE: SLC maximum wiring resistance is 50 ohms.

Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System

CONVENTIONAL DETECTOR BASES

The LE-NS6 and LE-NS4 Series is designed specifically for use with Lifeco Conventional Models LE-SIJ-24 Ionization Smoke Detector, LE-SLR-24V Photoelectric Smoke Detector, LE-SLR-24H Photoelectric with Heat Smoke Detector, LE-SLR-835 Photoelectric Smoke Detector, LE-SLR-835H Photoelectric Smoke Detector w/heat, or LE-DCD-135/190 Fixed Temperature/Rate-of-Rise Heat Detector. The Base is an electronics free 6" base featuring a plastic tamper-lock lug. Each base is equipped with a resistor. Refer to the chart (left) for additional specifications. The LE-NS4 base is a 4" version of the LE-NS6 base.

LE-NS6 & LE-NS4 SERIES BASE



NS Series Bases	Alarm Current	ID
LE-NS6-224 OR NS4-224	43mA (70mA @ 33.0V MAX)	HB-5
LE-NS6-220 OR NS4-220	93mA (136mA @ 33.0V MAX)	HB-3
LE-NS6-221 OR NS4-221	46mA (77mA @ 33.0V MAX)	HB-4
LE-NS6-100* OR NS4-100*	150mA @ 15.0 - 33.0V MAX	HB-55

* Requires external current limiting to 150mA maximum.

Models LE-HSC-224R, LE-HSC-220R and the LE-HSC-221R are designed specifically for use with the Lifeco Conventional Models LE-SIJ-24, LE-SLR-24V, LE-SLR-24H, LE-SLR-835, LE-SLR-835H or LE-DCD-135/190. The LE-HSC-(X)R series is a 6" base with two sets of Form "C" relay contacts. Models LE-HSC-224R, LE-HSC-220R and the LE-HSC-221R are also approved for use with Lifeco previous Conventional Models LE-SIH-24F, LE-SLK-24F, LE-SLK-24FH and the LE-DFE 135/190.

The LE-HSC-4R is designed specifically for 24 volt 4 wire applications using Lifeco Conventional Models LE-SIJ-24, LE-SLR-24V, LE-SLR-24H, LE-SLR-835, LE-SLR-835H or LE-DCD-135/190. The 6" diameter base is current limited. Relay contact place a direct short occurs across the loop when the detector is actuated. Model LE-HSC-4R is also approved for use with previous Lifeco Conventional Models LE-SIH-24F, LE-SLK-24F, LE-SLK-24FH and the LE-DFE 135/190.

The LE-HSC-4R12 is designed specifically for 12 volt 4 wire applications using Lifeco Conventional Models LE-SLR-835, LE-SLR-835H. The 6" diameter base is current limited. Relay contact place a direct short occurs across the loop when the detector is actuated. Model LE-HSC-4R12 is also approved for use with previous Lifeco Conventional Models LE-SLK-835, LE-SLR-835, and LE-SLR-835H Lifeco Fixed Temperature Heat Detectors Models LE-DFE-135/ 190.

LE-HSC- (X)R RELAY BASE & LE-HSC- 4R 4 WIRE BASE



2 Wire Auxilliary Relay Bases	Alarm Current	ID
LE-HSC-224R	43mA (58mA @ 30.0V MAX)	HB-73
LE-HSC-220R	88mA (98mA @ 26.5V MAX)	HB-72
LE-HSC-221R	49mA (62mA @ 30.0V MAX)	HB-71
4 Wire Base	Alarm Current	ID
LE-HSC-4R	43mA (58mA @ 30.0V MAX)	N/A
LE-HSC-4R12	47mA (75mA @ 18.0V MAX)	N/A

The LE-HSC-L Series is a 6" base featuring a current limiting resistor, latching annunciator output and a latching circuit so the alarm LED will remain lit until the control panel has been reset.

LE-HSC- (X) L LATCHING LED BASE



2 Wire Latching	Alarm Current	ID
LE-HSC-224L	35-42mA @ 24V (54mA MAX)	HB-62
LE-HSC-220L	67-80mA @ 24V (88.5mA @ 26.5VDC MAX)	HB-64
LE-HSC-221L	37-45mA @ 24V (57mA MAX)	HB-63

We try to keep our product information up-to-date and accurate. However, we cannot cover all specifications or anticipate all requirements. For additional information contact your local distributor or Lifeco.



UL S24238

Note: Specifications subject to change without prior notice

Lichfield Fire & Safety Equipment Co. Ltd

Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
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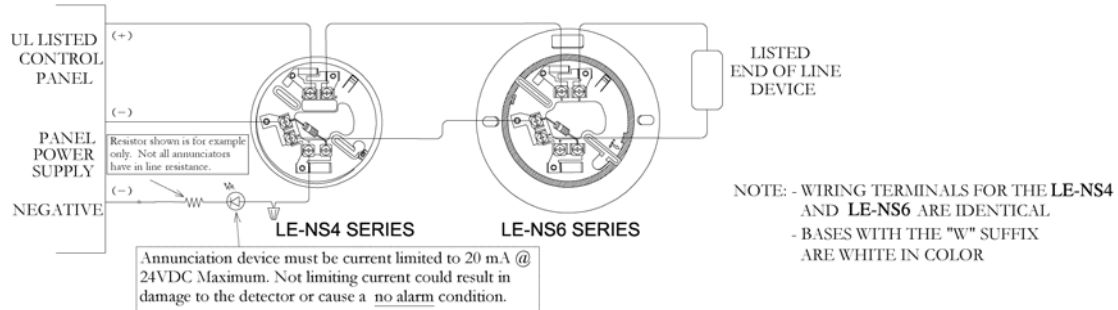


LIFECO EAGLE Series Fire Alarm System

CONVENTIONAL DETECTOR BASES

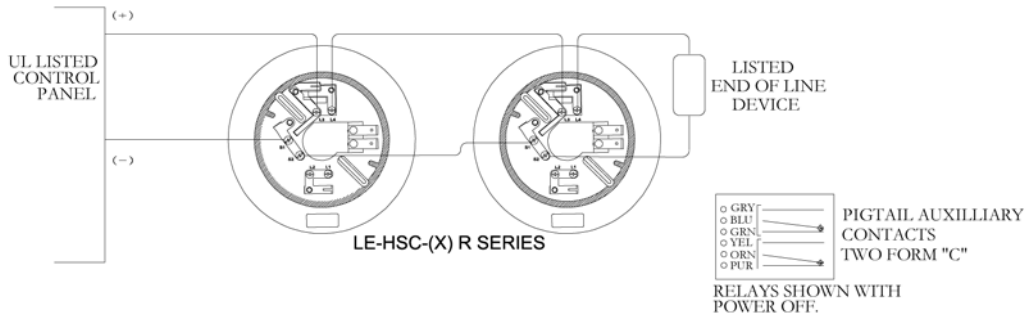
LE-NS4 AND LE-NS6 SERIES BASE

2-WIRE OPERATION



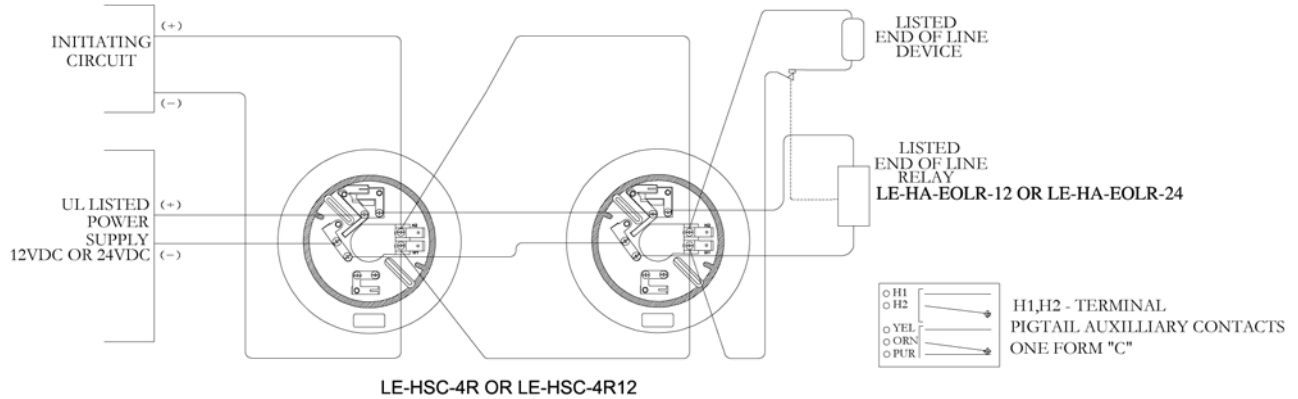
LE-HSC-(X)R RELAY BASE

2-WIRE OPERATION



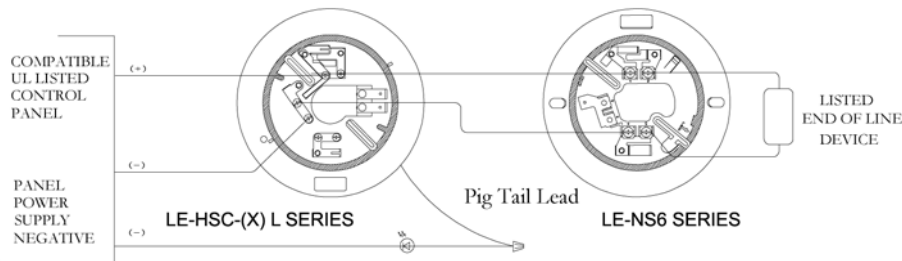
LE-HSC-4R FOUR WIRE BASE

2-WIRE OPERATION



LE-HSC- (X) L LATCHING LED BASE

2-WIRE OPERATION



We try to keep our product information up-to-date and accurate. However, we cannot cover all specifications or anticipate all requirements. For additional information contact your local distributor or Lifeco.

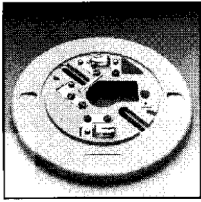
Note: Specifications subject to change without prior notice



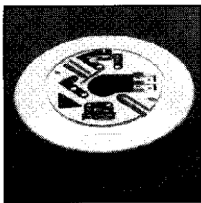
LIFECO EAGLE Series Fire Alarm System

LE-HSB-(X), LE-HSC-(X)R, LE-HSC(X)L, LE-HSB-100, LE-HSB-12-(X)

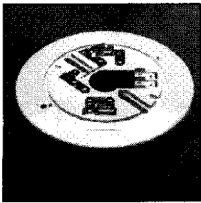
Description



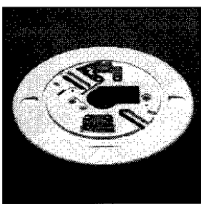
LE-HSB-(X) SMOKE DETECTOR BASE: The LE-HSB-Smoke Detector Base Series is designed specifically for use with the Lifeco smoke detector models LE-SIH-24F, LE-SLK-24F, LE-SLK-24FL, LE-SLK-24FH, and fixed temperature heat detector models LE-AL-DFE-135 AND LE-AL-DFE-190. The LE-HSB-Series is a 6" polarized base with annunciator output featuring a current limiting resistor, transient protection, and a blocking diode to enhance annunciator function. The LE-HSB-200 is available for applications not requiring current limiting.



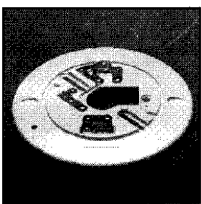
LE-HSC-(X)R SMOKE DETECTOR BASE: The LE-HSC-R smoke Detector Base Series is designed specially for use with the Lifeco Smoke Detector Models LE SIH-24F, LE-SLK-24F, LE-SLK-24FL, LE-SLK-24FH, and fixed temperature heat detector models AL-DFE-135 AND AL-DFE-190. The LE-HSC-R Series is a 6" base with two Form C (LE-DPDT) contacts (1 amp at 30VDC and 0.5 amp at 125VAC) where relay contacts are required as a function. Underwriters Laboratories approved for releasing device service. Model LE-HSC-4R is available for 4 wire applications.



LE-HSC(X)L HEAT DETECTOR BASE: The LE-HSC-L Heat Detector Base Series is designed specifically for use with the Lifeco Fixed Temperature Heat Detector Models LE-AL-DFE-135 and LE-AL-DFE-190. The LE-HSC-L Series is a 6" base featuring a current limiting resistor, latching annunciator output, and a latching circuit so the alarm LED will remain lit until the control panel has been reset. Heat detectors are not recognized as proper detection for life safety protection, but should be utilized only in the protection of property.



LE-HSB-100 HEAT DETECTOR BASE Lifeco Fixed temperature heat detector models LE-AL-DFE-135 and LE-AL-DFE-190. The LE-HSB-100 is a 6" diameter base that has no current limiting nor annunciator output features. A direct short occurs across the loop when the detector is actuated. Heat detectors are not recognized as proper detection for life safety protection, but should be utilized only in the protection of property.



LE-HSB-12(X) 12 VOLT SMOKE DETECTOR BASE: The LE-HSB-12 smoke detector base series is designed specifically for use with the Lifeco 12 Volt Smoke Detector Model LE-SLK-12. The LE-HSB-Series is a 6" base available in polarized and non-polarized versions. The polarized models offer annunciator output. The non-polarized models has no annunciator output. Currently, only Model LE-HSB-12-1 and LE-HSB-12-1N are UL approved. Note: Optional 4" base available, contact factory for more details.



UL S24238

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Note: Specifications subject to change without prior notice

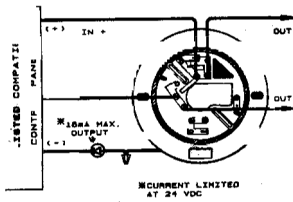
Lichfield Fire & Safety Equipment Co. Ltd

Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
Tel: +44 (0) 1902 798706, Fax: +44 (0) 1902 798679, E-mail: info@lifeco-uk.com, www.lifeco-uk.com





LIFECO EAGLE Series Fire Alarm System

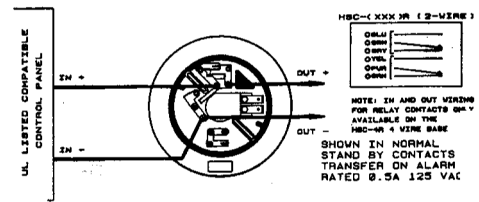


LE-HSB(X) Smoke Detector Base

Nominal alarm current shown at 24V

Polarized with annunciator output.

LE-HSB-2	19mA,	LE-HSB-21	25mA
LE-HSB-225	33mA,	LE-HSB-224	43mA
LE-HSB-220	84mA,	LE-HSB-221	46mA
LE-HSB-200	(not current limited)		

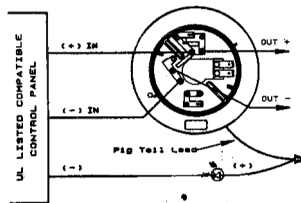


LE-HSC(X)R Smoke Detector Relay Base

Nominal alarm current shown at 24V

Polarized with no annunciator output.

LE-HSC-221R	45mA
LE-HSC-220R	81mA
LE-HSC-224R	41mA
LE-HSC-4R	43mA (4 Wire)

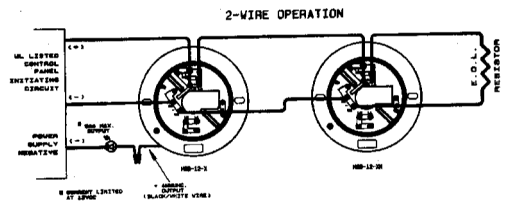


LE-HSC(X)L Heat Detector Base

Nominal alarm current shown at 24V

Polarized with annunciator output.

LE-HSC-21L	24mA
LE-HSC-225L	32mA
LE-HSC-224L	38mA
LE-HSC-221L	41mA
LE-HSC-220L	73mA



LE-HSB-12(X) 12V Smoke Detector Base

Nominal alarm current shown at 12V

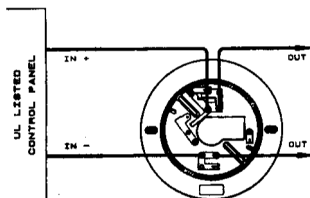
Polarized with annunciator output.

LE-HSB-12-1	42mA
LE-HSB-12-2	29mA
LE-HSB-12-3	27mA

Nominal alarm current shown at 12V

Non-polarized with no annunciator output

LE-HSB-12-1N	42mA
LE-HSB-12-2N	29mA
LE-HSB-12-3N	27mA



LE-HSB-100 Heat Detector Base

Non-polarized, not current limited.

No annunciator output.

Note: Specifications subject to change without prior notice





LIFECO EAGLE Series Fire Alarm System

LE-SBC

CONVENTIONAL SOUNDER BASE

Description

The Models LE-SBC Conventional Sounder Base Series are designed specifically for use with Lifeco NS conventional style smoke detectors Models LE-SIJ-24 Ionization Smoke Detector, LE-SLR-24V Photoelectric Smoke Detector and LE-SLR-835 Wide Operating Voltage Photoelectric Smoke Detectors. The LE-SBC Series will provide an audible evacuation signal (continuous or temporal Code) upon detector alarm. Easily configured to 12 or 24-volt applications through use of a dipswitch, the bases can also be configured to activate in individual, group, or global modes. The relay base model LE-SBC-2R contains two sets of Form "C" Relay Contacts rated at 1 Amps @ 28VDC or 0.5 Amps @ 120VAC. All models come in 6" diameter size and are available in both bone and white colored plastic.



Shown without detector

Shown with detector

Standard Features

- Wide operating voltage
- Selectable Evacuation Codes: continuous or temporal
- Three different configurations: individual, group, and global modes
- High sound pressure level (85 dB at 10 ft)
- Can be configured to satisfy a wide variety of applications
- Available with or without relay, 2 and 4 wire configurations, and bone or white color



UL S24238

Note: "W" at the end of model designation indicates white colored plastic.

Specifications

Model	LE-SBC-2, 2W	GROUP/ GLOBAL MODE	LE-SBC-2R, 2RW	GROUP/ GLOBAL MODE	LE-SBC-4/12, 4/12W	LE-SBC-4/24, 4/24W
Operating Voltage Range	8.7-30VDC		19-30VDC		10-18VDC	18-30VDC
Max. Alarm Current	26mA@8.7VDC 35mA@12VDC 65mA@24VDC	12mA@8.7VDC 18mA@12VDC 45mA@24VDC	53mA@19VDC 65mA@24VDC	30mA@19VDC 40mA@24VDC	75mA@12VDC	65mA@24VDC
Rated Voltage					12VDC	24VDC
Contact Rating of Relay			1A@28VDC OR 0.5A@120VAC			
Alarm Contact Rating						
Max. Humidity	93%RH(non-condensing)			93%RH(non-condensing)		
Sound Pressure Level at 10ft	85 dB			85 dB		
Operating Temperature Range	32°F (0°C) to 100°F (38°C)			32°F (0°C) to 100°F (38°C)		
Dimensions	5.94" x 1.34"			5.94" x 1.34"		
Weight	0.365 lb			0.455 lb		
Compatible Detectors	LE-SLR-24V, LE-SIJ-24, LE-SLR-835/-835W/-835 H/-835HW			LE-SLR-24V, LE-SIJ-24, LE-SLR-835/-835W/- 835H/-835HW	LE-SLR-835/-835W	LE-SLR-24V, LE-SLR- 835H/-835HW

Note: Specifications subject to change without prior notice

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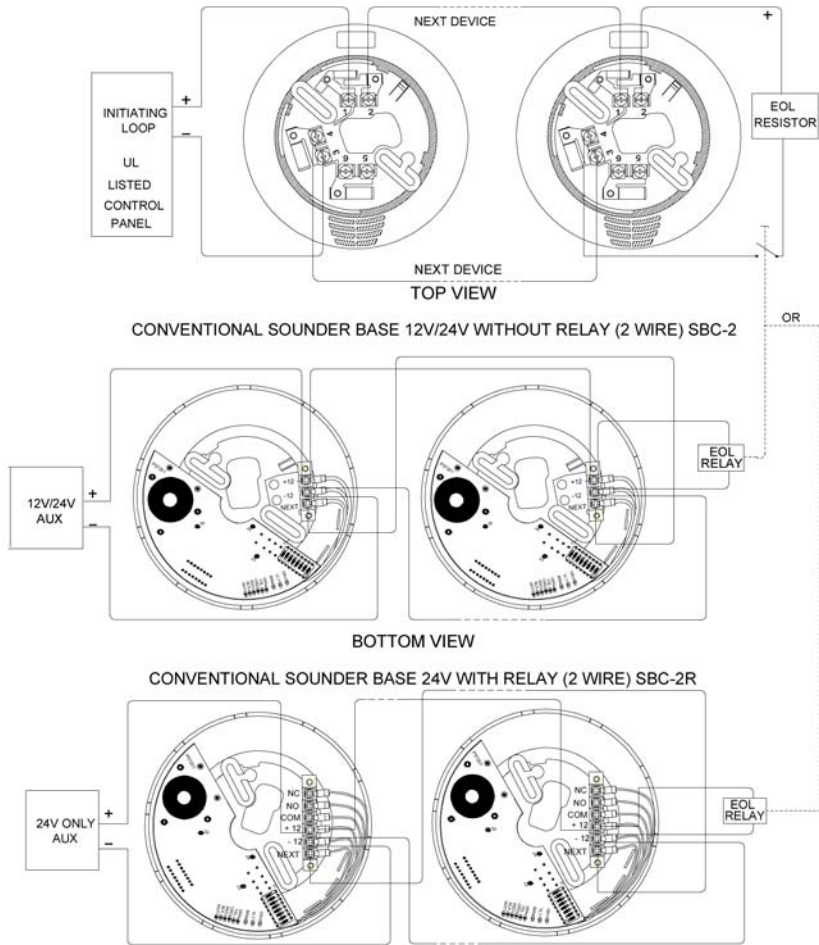
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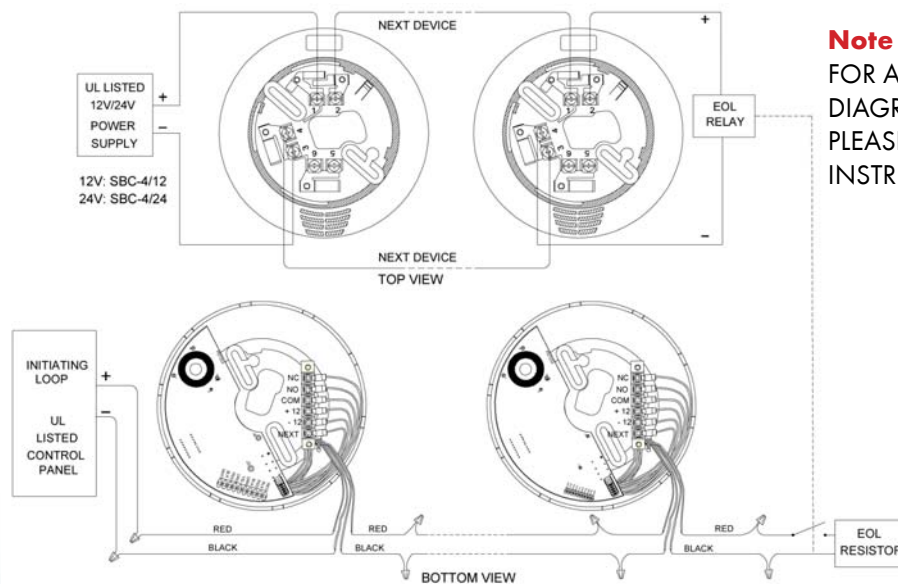
LIFECO EAGLE Series Fire Alarm System

GROUP SOUNDER WIRING DIAGRAM (2 WIRE) SBC-2 AND 2R



Note
FOR ADDITIONAL SOUNDER WIRING DIAGRAM LE-SBC-2, & LE-SBC-2R INFORMATION, PLEASE REFER TO INSTALLATION INSTRUCTION HA-06-085.

INDIVIDUAL SOUNDER WIRING DIAGRAM (4 WIRE) SBC-4



Note
FOR ADDITIONAL SOUNDER WIRING DIAGRAM LE-SBC-4 INFORMATION, PLEASE REFER TO INSTALLATION INSTRUCTION HA-06-086.

Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System

LE-DCP-FRCME

FAST RESPONSE CONTACT MODULE



Specifications

Operating Voltage DCP Powered Loop	17~41 VDC
Average Current Consumption	550 μ A (Typical)
Alarm Current	8mA
Dimensions LE-FRCME-4	4.2"W x 4.7"H x 1.4"D
LE-FRCME-P	3.0"W x 1.9"H x 0.5"D
LE-FRCME-S	2.8"W x 1.8"H x 0.7"D
Ambient Temperature	32°F (0°C) ~ 120°F (49°C)
Max. Humidity	90% RH, non-condensing
Mounting LE-FRCME-4	Mounts to double gang/4" square back box
LE-FRCME-S/LE-FRCME-P	Mounts inside a single gang back box

Engineering Specifications

The contractor shall furnish and install where indicated on the plans, addressable contact monitoring modules Lifeco LE-DCP-LE-FRCME-4, LE-DCP-FRCME-S and LE-FRCME-P. The modules shall be UL listed and compatible with the Lifeco FireNET fire alarm control panel. The device address shall be electrically programmable and stored in EEPROM.

The LE-FRCME-S and LE-FRCME-P shall fit inside a single gang electrical back box. The LE-FRCME-4 shall be supplied with a plastic face plate and shall be suitable for mounting to a 4" square or double gang electrical back box. The LE-FRCME-4 shall provide a monitor LED that is visible through the face plate.

Standard Features

- Single input contact monitor
- Fast, reliable contact monitoring utilizing the Lifeco DCP (Digital Communications Protocol)
- Two different mounting configurations
- 127 devices can be used per DCP loop
- Bi-colored indicating LED provides module status (FRCME-4 only)
- Can be programmed to monitor Normally Open (NO) or Normally Closed (NC) contacts
- Operates on Class A or Class B SLC loop
- Accepts up to 14 AWG wire
- UL listed UL 864

Description

The Lifeco LE-FRCME Fast Response Contact Monitoring Modules are designed to be used with pull stations, water flow switches, and other applications requiring the monitoring of dry contact alarm initiating devices. The interrupt driven Digital Communications Protocol (DCP) combines maximum communication reliability and fast response to emergency conditions. Two different mounting configurations are provided to meet a wide range of applications. The FRCME contact monitoring module does not require a separate 24 VDC power source.

Each addressable contact monitoring module is programmed with its own unique Signaling Line Circuit (SLC) loop address. The device address is electrically programmable and stored in onboard EEPROM. Up to 127 devices can be placed on the Lifeco DCP SLC loop. The module supervises the wiring to the contact with an End Of Line (EOL) resistor. It can be programmed to monitor Normally Open (NO) or Normally Closed (NC) contacts. If a fault condition occurs in the wiring, the module sends a trouble status signal to the fire alarm control panel. When a change of status (contact changes state) is sensed by the LE-FRCME, it sends an interrupt to the FireNET control panel indicating that an alarm has occurred.

The LE-FRCME-P and LE-FRCME-S are small package designs and are suitable for mounting in a small junction box behind a pull station or other monitored device. The LE-FRCME-4 is mounted to a cover plate for a 4" square or double gang junction box. It contains a visible bi-colored indicating LED to provide module status.



UL S24975

Note: Specifications subject to change without prior notice

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Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
Tel: +44 (0) 1902 798706, Fax: +44 (0) 1902 798679, E-mail: info@lifeco-uk.com, www.lifeco-uk.com





LIFECO EAGLE Series Fire Alarm System



LE-FRCME-4



LE-FRCME-S

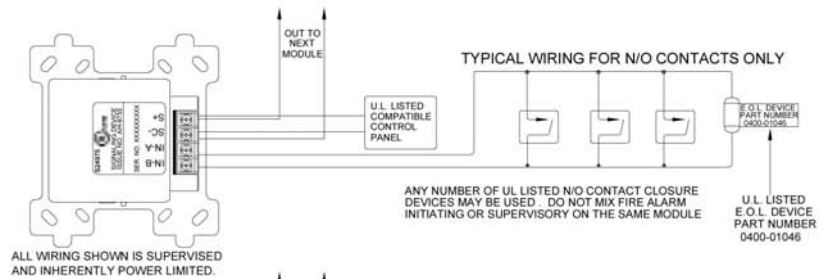


LE-FRCME-P

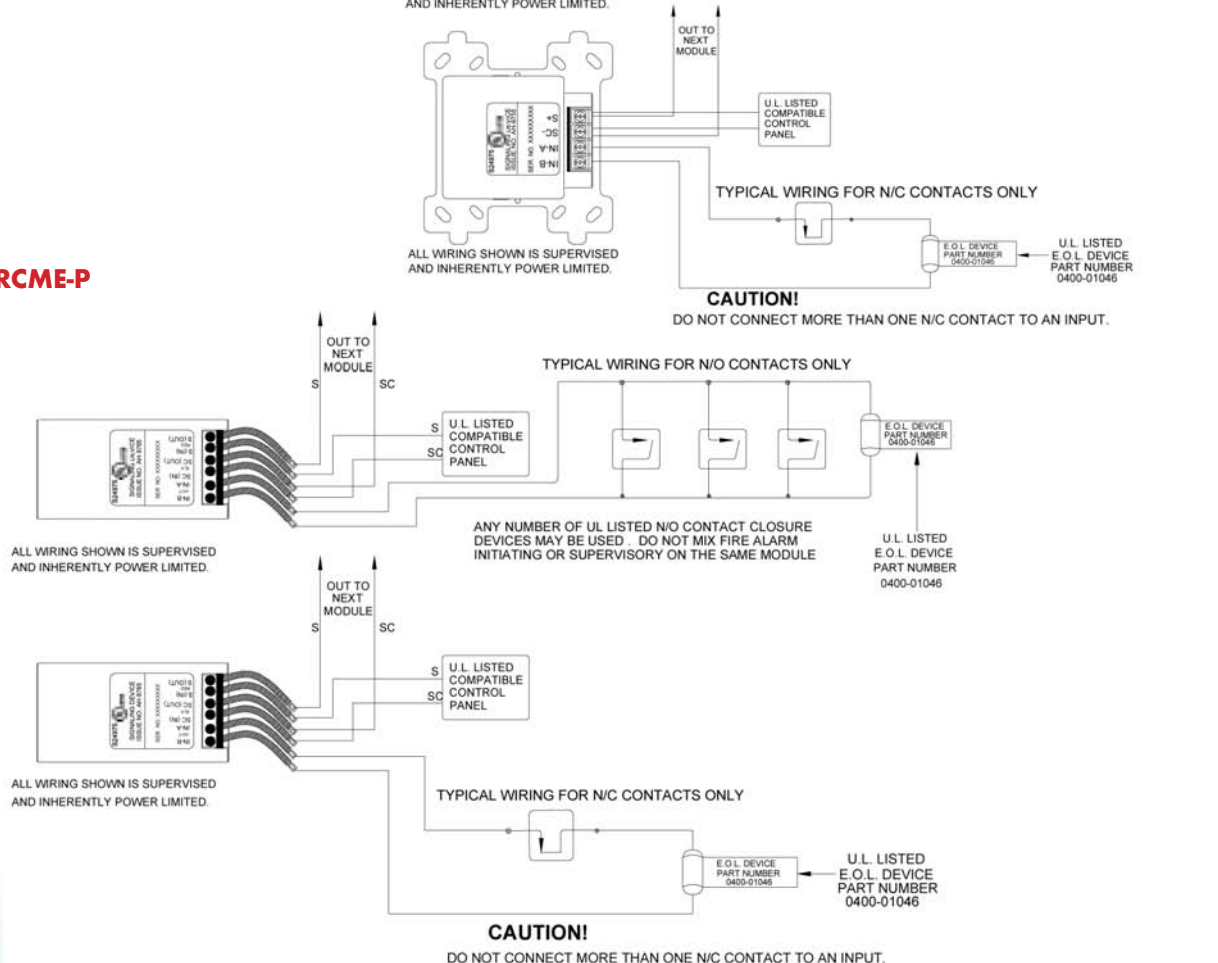
Wiring Diagram

WIRING DIAGRAM

LE-FRCME-4 / LE-FRCME-S



LE-FRCME-P



Note: Specifications subject to change without prior notice





LIFECO EAGLE Series Fire Alarm System

LE-DCP-R2M

DUAL RELAY MODULE



Description

The Dual Relay Module (LE-R2M), has been designed to provide flexible and quick response to emergency conditions. The LE-R2M allows independent control of two form C contacts for a variety of normally open and normally closed contact applications such as fan operation, elevator recall, door closure, and auxiliary notification.

Each LE-R2M module provides independent control of two Form C contacts while utilizing one SLC (Signaling Line Circuit) address. The LE-R2M module has a highly configurable programming algorithm that allows the user to setup groups of devices (zoning) for simultaneous operation of multiple LE-R2M modules. Each module has 16 priority states that are programmed. The operating parameters are maintained by the module and do not require individual communication with the control panel during the emergency condition to operate. The control panel broadcasts the control command on the SLC loop and the LE-R2M modules do the rest based on their custom configuration. Since mechanically latching relays are used within the LE-R2M module, a separate 24VDC power source is not required.

Standard Features

- Provides two independently configurable Form C contacts per address
- Contacts are rated 1.0 Amps @ 30 VDC or 0.5 Amp @ 125 VAC
- Up to 127 devices can be used on each SLC loop
- Visible Bi-colored LED is software controlled and can be programmed to blink red or green when polled. The LED can be latched on when activated
- Programming is highly flexible providing 16 priority states plus zoning capability

Specifications

Contacts	2 Independently Controlled Form C
Contact Rating	1A @ 30 VDC / 0.5A @ 125 VAC
Standby Current	150 μ A Max.
Alarm Current	150 μ A Max.
Dimensions	4.2"W x 4.7"H x 1.4"D
Ambient Temperature	32 °F (0 °C) ~ 120 °F (49 °C)
Humidity	90% RH, Non-Condensing
Mounting	4" square electrical box



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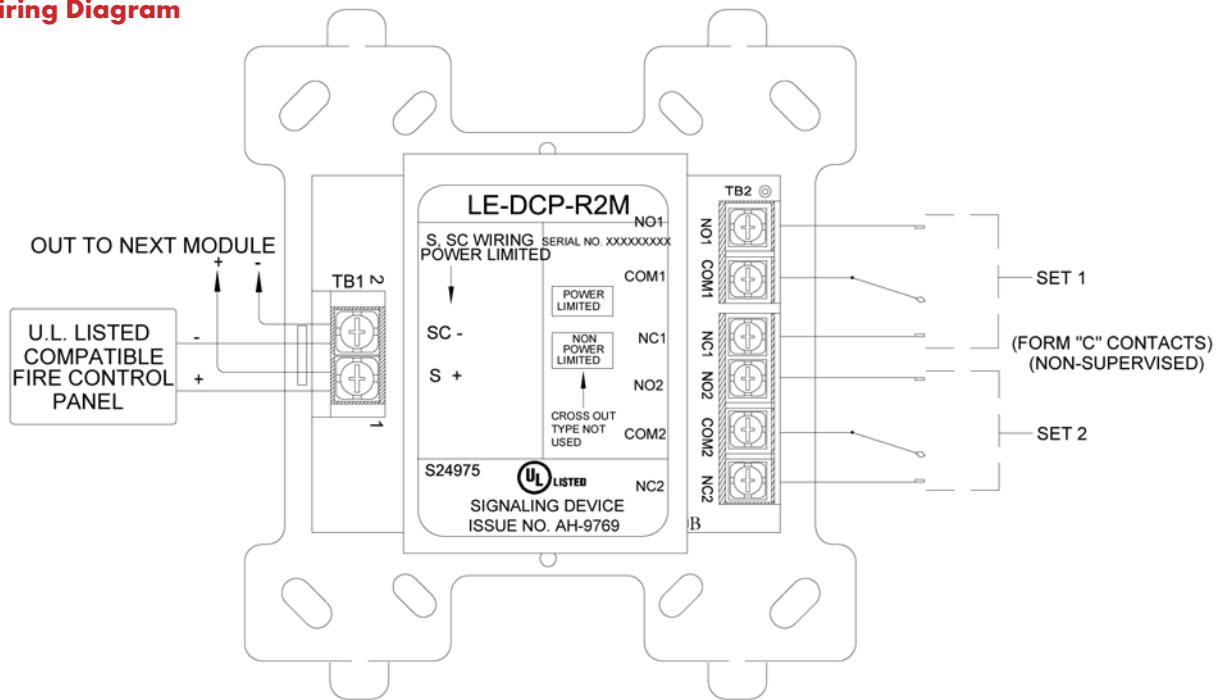


Backside of a LE-R2M

Engineering Specifications

The contractor shall furnish and install where indicated on the plans, the Lifeco LE-DCP-R2M addressable relay module. The modules shall be UL listed compatible with Lifeco Digital Communications Protocol (LE-DCP) supporting control panel loops. The relay module must provide two Form C dry contacts rated at 1A @ 30 VDC or 0.5A @ 125 VAC. The relay module must be suitable for mounting in a standard 4" square electrical box. The relay module must provide a bi-colored LED for indication of status.

Wiring Diagram



Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System

LE-SCI

SHORT CIRCUIT ISOLATOR



Description

* Class A Configuration Wiring:

The LE-DCP-SCI short circuit isolator should be located between any devices on the SLC loop. In the event of a short on the SLC loop, the two adjacent isolators (closest isolators to the left and right of the shorted section) will activate and their respective LED indicators will be turned on. All devices between the active short circuit isolators will be dead. This will prevent entire loop failure. Upon removal of the short condition, the LE-DCP-SCIs will automatically restore the entire loop to the normal operating state.

* Class B Configuration Wiring:

The LE-DCP-SCI short circuit isolator should be located between any devices on the SLC loop. In the event of a short on SLC loop, an isolator closest to the shorted section will activate and the LED will be turned on. All the devices beyond the shorted section will be disabled. Upon removal of the short condition, the LE-DCP-SCI will automatically restore the entire loop to the normal operating state.

For the best performance of LE-DCP-SCI short circuit, use class A configuration.

Wiring

Note: All wiring must conform to local codes, ordinances and regulations.

1. Install module wiring in accordance with job drawings and appropriate wiring diagram.
2. Secure the module to an approved electrical box (supplied by installer).

MOUNTING REQUIREMENTS: 4" SQ Electrical box.

Standard Features

- Can be placed at any location on SLC loop
- Checks the line for short circuit at power up. If the line is normal, the relay will be returned on. If a line short is detected, the relay remains open
- Indication of short circuit by a yellow LED

Specifications

Absolute Max. Applied Voltage	S, SC: 41 VDC
Supply Voltage Norminal	S, SC: 33 VDC
Normal Consumption	Current 270 μ A (Typical)
Active Consumption (Short Circuit Condition)	Current 10 mA (Typical)
Dimensions	4.2"W x 4.7"H x 1.4"D
Weight	1.4 oz
Visual Indicator (Yellow Status LED)	- No indication in normal condition. - On steady in active (short) condition.
Maximum Quantity Per Loop	127
Operation Temperature Range	0°C (32°F) ~ 49°C (120°F) Non-condensing
Allowable Ambient Humidity	90% Non-condensing



UL S24975

Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System

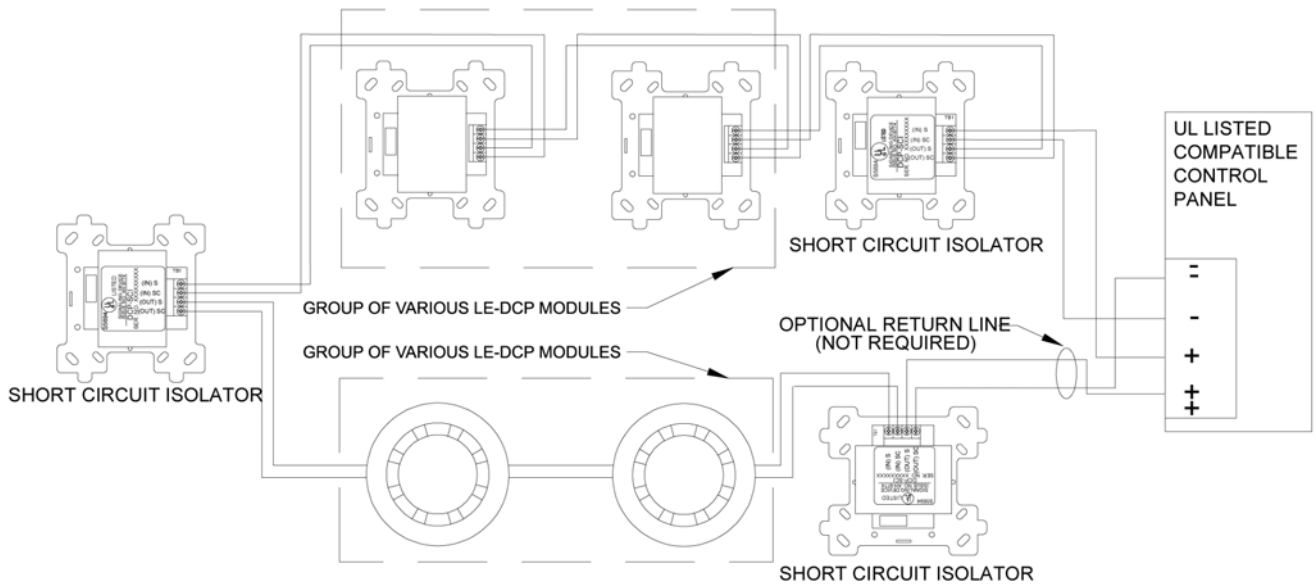


Backside of a LE-DCP-SCI

Engineering Specifications

The contractor shall furnish and install where indicated on the plans, the Lifeco LE-DCP-SCI short circuit isolator. The modules shall be UL listed compatible with Lifeco Digital Communications Protocol (LE-DCP) supporting control panel loops. The isolator module must be suitable for mounting in a standard 4" square electrical box. The isolator module must provide a yellow LED for indication of status.

Wiring Diagram



TYPICAL WIRING DIAGRAM EXAMPLE, CONNECTED TO A COMPATIBLE LISTED CONTROL PANEL

ALL WIRING SHOWN IS SUPERVISED AND INHERENTLY POWER LIMITED. ANY COMBINATION OF MODULES AND/OR SENSORS MAY BE PLACED BETWEEN ISOLATORS

Note: Specifications subject to change without prior notice

Lichfield Fire & Safety Equipment Co. Ltd

Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
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LIFECO EAGLE Series Fire Alarm System

LE-SOM SUPERVISED OUTPUT MODULE



Description

The Supervised Output Module (LE-SOM), has been designed to provide application flexibility and quick response to emergency conditions. Flexibility is provided by a wide range of operating modes, including supporting multi-zone operations, and/or functions, up to 16 different modulation patterns and multi-state programming. The operating parameters for the LE-SOM are maintained by the module and do not require individual communication with the control system during emergency conditions to operate. The control panel simply broadcasts system conditions on the Signaling Line Circuit (LE-SLC) and the LE-SOMs do the rest based upon the custom configuration. Each LE-SOM provides a Class B Individual Circuit rated for 2.0 Amp @ 30 VDC. Each SOM also requires a 24 Volt power source in addition to the LE-SLC. Provide software controlled LED indication: blinks green or red when polled, or can be latched on.

Standard Features

- Flexible application
- Quick response to emergency conditions
- Operation parameters are maintained by the module, and individual communication with the control system during emergency conditions is not required
- Contacts are rated 2.0 Amps @ 30VDC
- Programming is highly flexible providing 16 priority states plus zoning capability Program status:
- LED will flash red or green
- Programmed device output is turned off, silenced, or programmed to modulate pattern

Specifications

Supply Voltage	(S-SC) 17-41 VDC
Auxiliary Supply Voltage	18-30 VDC
Average Current Consumption (on S-SC Line)	Normal 220 μ A Maximum 300 μ A
Current Consumption on Auxiliary Power Lines	Typical 150 μ A
Dimensions	4.2"W x 4.7"H x 1.4"D
Ambient Temperature	32°F (0°C) ~ 120°F (49°C)
Mounting	4" square electrical box
Maximum Output Current	2A@30VDC power limited
Relative Humidity	90% RH Non-condensing



S24975

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LIFECO EAGLE Series Fire Alarm System



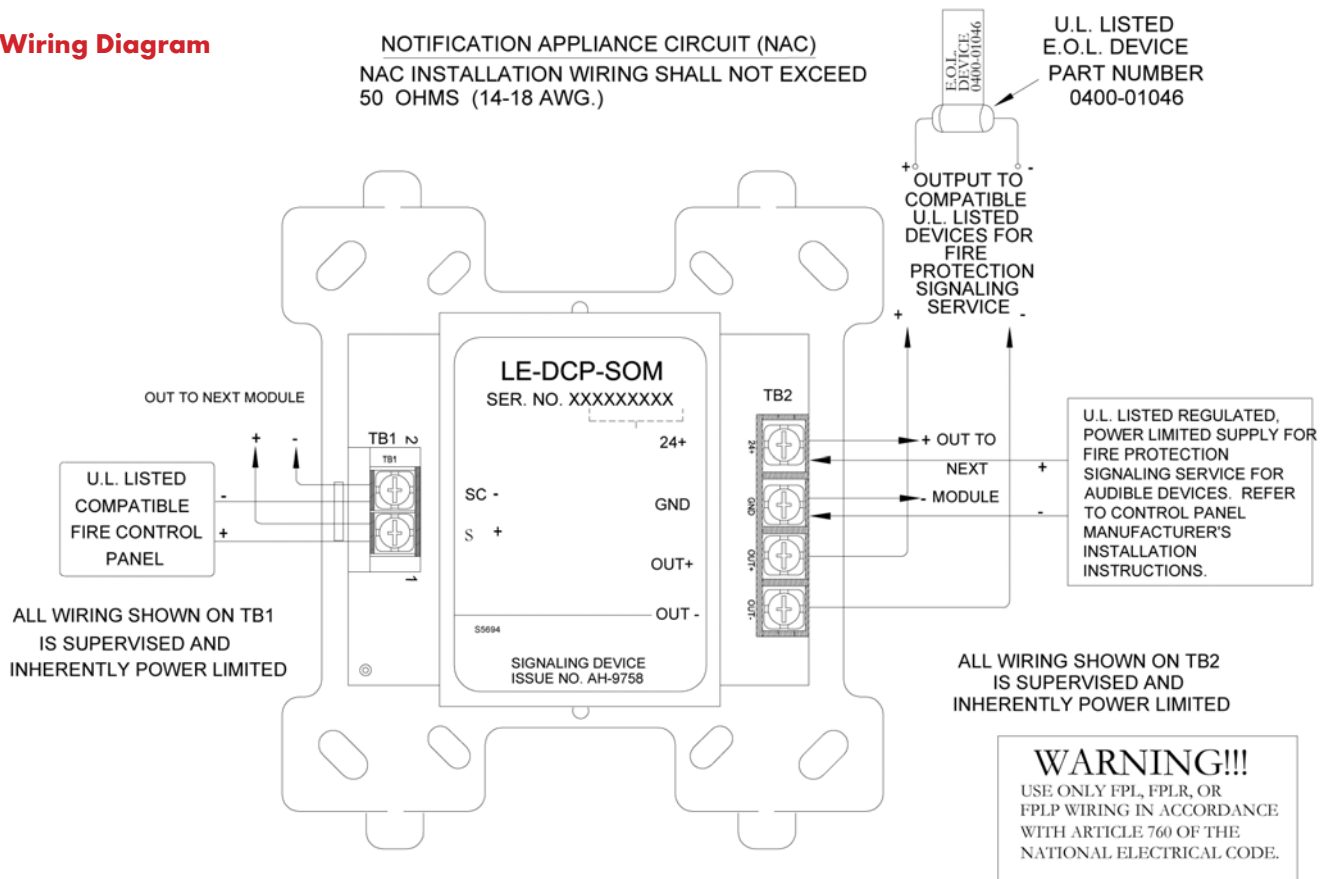
Backside of a LE-SOM

Engineering Specifications

The contractor shall furnish and install where indicated on the plans, addressable Supervised Output Module (LE-SOM). The modules shall be UL listed and compatible with Lifeco FireNET fire alarm control panel. A bi-colored LED shall indicate device status.

The LE-SOM shall be supplied with a plastic cover and shall be suitable for mounting to a 4" square or double gang electrical back box. The LE-SOM shall provide a monitor LED that is visible from outside the cover plate.

Wiring Diagram



Note: Specifications subject to change without prior notice





LIFECO EAGLE Series Fire Alarm System

DCP-AMS

SERIES ADDRESSABLE MANUAL PULL STATIONS

Description

The LE-DCP-AMS are the Lifeco series of addressable manual pull stations that provide a fast and practical means of manually initiating a fire alarm signal. Both single action and dual action manual pull stations are available. Resetting of the pull station requires either a Cat 211 key or a 1/8" hex key (depending upon the model used).

An alarm condition is actuated by pulling down on the handle of the LE-DCP-AMS single action models. On the dual action models LE-DCP-AMS-LP the Lift and Pull cover must be lifted before pulling down on the pull station handle. Once the pull station is activated, the handle cannot be put back into a normal standby condition without using the key operated reset feature.

The LE-DCP-AMS series is electronically addressable and includes a bi-colored status LED. The LED blinks green indicating normal communication with the LE-DCP compatible SLC loop. When an alarm condition is actuated by pulling the handle, the LED will latch Red to indicate the alarm condition.

Standard Features

- Addressable integrated design
- All metal construction
- Single and dual action models available
- Extremely easy to operate
- Bi-colored status LED indicates Standby and Alarm conditions
- Address is programmable in EEPROM
- Address can be programmed when installed
- Key lock or hex key lock models available
- Terminals accept up to 14AWG wire
- Surface mount back box available

Model Description

LE-DCP-AMS	Single Action Hex Key Lock
LE-DCP-AMS-LP	Dual Action Hex Key Lock



UL S24978



LE-DCP-AMS



LE-DCP-AMS-LP

Specifications

Operating Voltage (SLC)	17~41 VDC
Average Current Consumption	600uA (Typical)
Alarm Current	8mA
Ambient Temperature	32°F (0 °C) ~ 120°F (49°C)
Maximum Humidity	90% RH, non-condensing
Dimensions	3.4"W x 4.8"H x 2.0"D
Mounting	Single gang or 4" square electrical box

Note: Specifications subject to change without prior notice

Lichfield Fire & Safety Equipment Co. Ltd

Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
Tel: +44 (0) 1902 798706, Fax: +44 (0) 1902 798679, E-mail: info@lifeco-uk.com, www.lifeco-uk.com





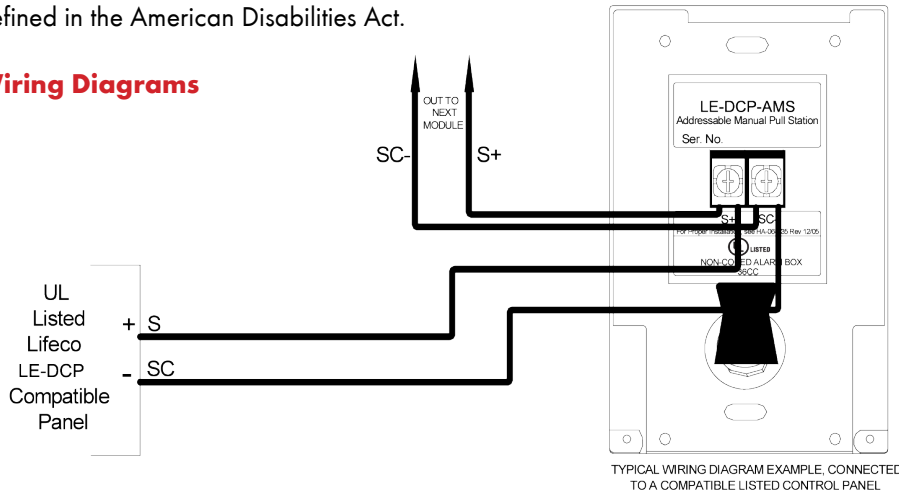
LIFECO EAGLE Series Fire Alarm System

Engineering Specifications

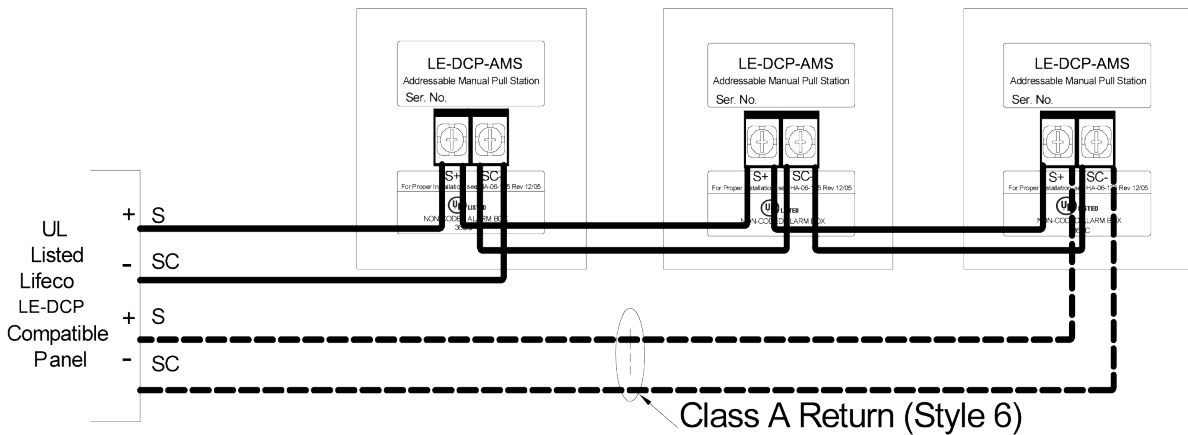
Manual pull stations shall be Lifeco addressable AMS-series single or dual action models, LE-DCP-AMS or LE-DCP-AMS-LP. Models shall be made of 14 AWG CRS and painted with Red enamel. The words Fire Alarm shall be in a contrasting color and be embossed text 1/2" tall. The electronics shall be fully integrated into the manual pull station requiring only connection to the SLC loop of the control panel. Programming of the manual pull station address must be possible with the manual pull station fully installed.

Manual pull stations shall be Underwriters Laboratories Inc. Listed, and be installed within the limits defined in the American Disabilities Act.

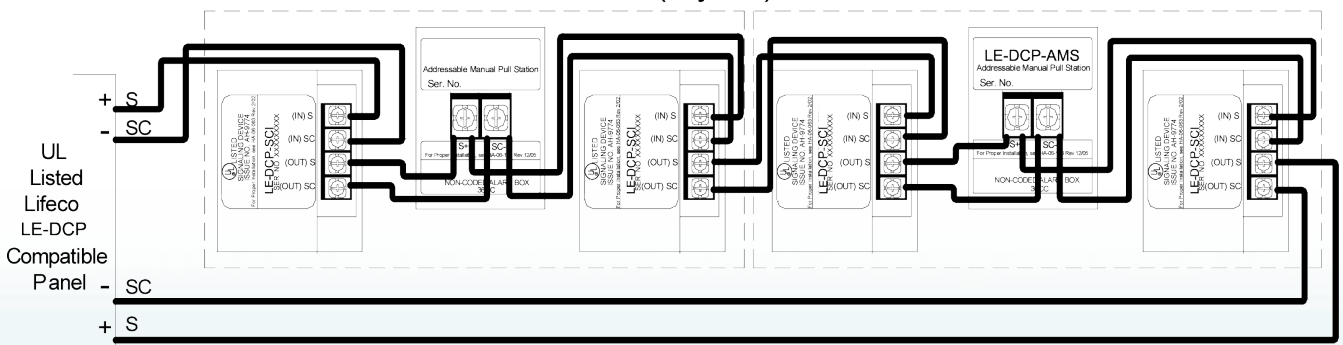
Wiring Diagrams



Class B (Style 4)



Class A (Style 7)



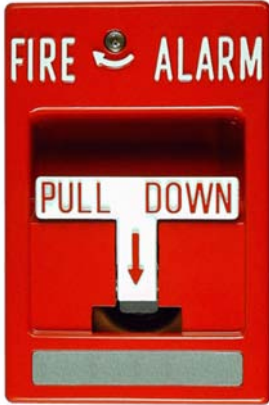
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LIFECO EAGLE Series Fire Alarm System

SERIES LE-HPS-SAVH, LE-HPS-SAK, LE-HPS-DAH, LE-HPS-DAK, MANUAL NON-CODED PULL STATION



LE-HPS-SAH



LE-HPS-DAH

Standard Features

- Metal Construction
- Enclosed switch with glass rod (included)
- 10 Amps @ 120 VAC
- Available in: Single Action and Dual Action
- UL, Listed

Description

Lifeco's Models LE-HPS series pull stations are available in six models:

- LE-HPS-SAH single action
- LE-HPS-DAH dual action

Each model is constructed of a solid die cast housing and comes in glossy red. The back switch plate is plated steel. The electrical switch is rated for 10 Amps @ 120 VDC normally open contact rating. All models are connected via terminal block connections.



UL S24978

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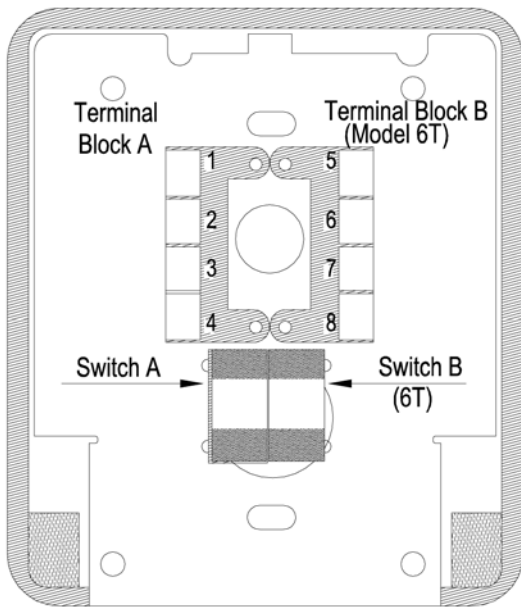


LIFECO EAGLE Series Fire Alarm System

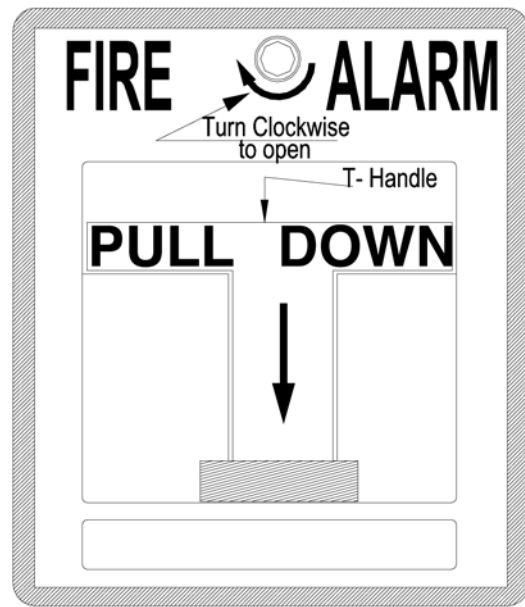
Specifications

Model	Terminal Block	Terminal Connecting	Switch Function	Terminal Connections			Contact Rating
				LED	Switch	Phone Jack	
LE-SAH, LE-SAK, LE-DAH, LE-DAH/S, LE-DAK, LE-DAK/S	A	2 & 3	SPST	1(+) & 4(-)	1 & 4	1 & 4	10 aMPS @ 125VAC
LE-EXP./WTR.PRF.	A & B	1,2,3,5,6,7	DPDT	4(+) & 8(-)	4 & 8	4 & 8	

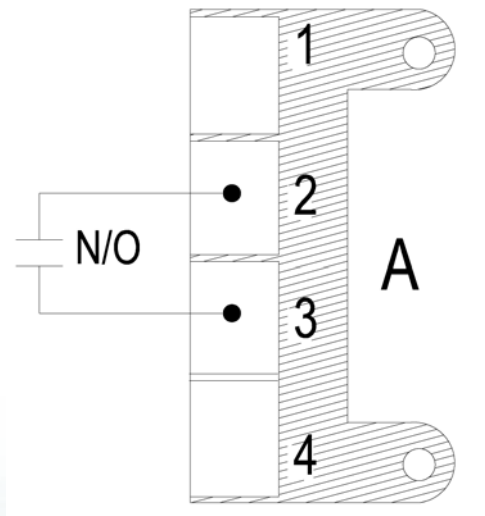
Rear View



Front View



Electrical Wiring



Note: Specifications subject to change without prior notice



LIFECO EAGLE Series Fire Alarm System

LE-HPS-SA-EX/WP

EXPLOSION PROOF MANUAL PULL STATION

Description

The Lifeco LE-HPS-SA-EX/WP Explosion Proof Manual Pull Station is a single action, UL listed fire alarm initiating device. With a UL rating of class I groups B (hydrogen), C and D; class II groups E, F and G; class III and an outdoor rating of type 4X, this station offers unmatched placement flexibility. The 2 sets of Form "C" (NO/C/NC) contacts are rated for 10 Amps at 120/ 240 VAC. The LE-HPS-SA-EX/WP has an easily identifiable pull down lever and contains an integral break glass rod carrier.

The unit is a high quality manual fire alarm box constructed entirely of a high strength metal die-cast alloy with a low profile and rounded edges to fit most design applications. All components are prepainted or have plated surfaces to inhibit corrosion. Non-corroding screw terminals are provided for wire connections to the LE-HPS-SA-EX/WP.

The LE-HPS-SA-EX/WP has a white pull down lever in its center. Pulling down the lever latches it into place. The LE-HPS-SA-EX/WP's normally open contact switch is shorted causing an alarm on the fire initiating loop. The pull down lever can not be reset unless the correct key is inserted into the manual fire alarm box lock and the unit is opened. The latching lever can then be restored to its normal position.

When the LE-HPS-SA-EX/WP is being reset and has a glass break rod installed, all debris must be removed prior to installing another rod to ensure the unit will close and lock securely.

Standard Features

- Compatible with all Hochiki Control Panels
- Rugged die-cast housing
- Rated class I group B (hydrogen) C&D, class II groups E,F,G, class III, 4X outdoor
- Weather Proof
- Corrosion-resistant construction
- Latching alarm levers
- Screw Terminals 12-22 AWG
- Key-locked reset
- Optional glass break rod
- DPDT Contacts



Specifications

Contacts	DPDT Form "C" (NO/C/NC)
Contact Current Rating	10 Amps @ 120/240 VAC
Dimensions	(HxWxD) 4.75 in. x 3.125 in. x 3.375 in. (12.1 cm x 7.9 cm x 8.6 cm)



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LIFECO EAGLE Series Fire Alarm System

LFB6 / 8 & LFBW6 / 8 FIRE ALARM BELL



Application

LIFECO LFB series bells are intended for fire alarm application only. The gong is of cast alloy metal suitable to produce loud and standard alarm bell sound. Two gong sizes are available to suit high or low noise level applications. Each bell is supplied with a mounting plate to fix it on a standard utility box.

Features

Vibrating type, Sizes - 6" or 8", Red color, Cast alloy housing, Low current consumption, Indoor or outdoor* use, UL Listed.

Specifications

Model	Size	Voltage DC	Current	Sound Output	Application	Colour
LFB 6	6"	24 V DC	60 mA	85 dbA @ 1 m	Indoor	Red
LFB 8	8"	24 V DC	60 mA	87 dbA @ 1 m	Indoor	Red
LFB 6W	6"	24 V DC	60 mA	85 dbA @ 1 m	Outdoor*	Red
LFB 8W	8"	24 V DC	60 mA	87 dbA @ 1 m	Outdoor *	Red

LF/B10 ALARM CALL POINT (WITH COVER)



Application

The LF/B10 manual break glass station is for indoor application and is an alarm initiating device in fire alarm system. The switch inside is kept pressed by the edge of the glass. When the glass is broken, the switch is released and causes an alarm signal to be sent to the FACP through the initiating device circuit (zone).

Features

Arabic and English label, Red colour, Easy to install, With wiring terminals, Semi flush or surface mounting, With protective cover.

Specifications

Terminals	Contact Rating	Max. Contact Resistance	Monitoring Device	Operating Temperature	material
Screw type to suit 0.28mm ² to 2.5mm ² Cables	Resistive 1A @ 50 VAC/VDC	0.10 Ω	End of Line Resistor of 1DC	-40°C ~ +85°C	ABS Plastic

LF/RS MANUAL RELEASE STATION: MODEL LF/RS



Specifications

Supply voltage	24 V DC
Electrical monitoring	470R series resistor
Operating temperature	-20° C to +80° C
Colour	Red With transparent cover (optional)

Note: Specifications subject to change without prior notice

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**WE AIM TO
MAKE THE WORLD
A SAFER PLACE**



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Unit 8, Calibre Industrial Park, Laches Close,
Four Ashes, Wolverhampton, WV10 7DZ, United Kingdom.
Te l: + 44 (0) 870 066 44 01 - Fax: + 44 (0) 870 066 44 02
E-mail: info@lifeco-uk.com - www.lifeco-uk.com

