

EAGLE SERIES - FIRE ALARM SYSTEMS

ANALOG MULTI-CRITERIA SENSOR

LE-ACA-V



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.

SPECIFICATION

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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ENGINEERING SPECIFICATIONS

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.

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

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.

APPLICATION

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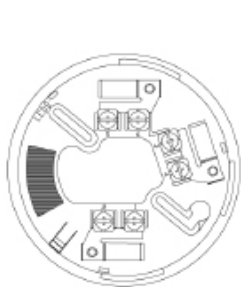
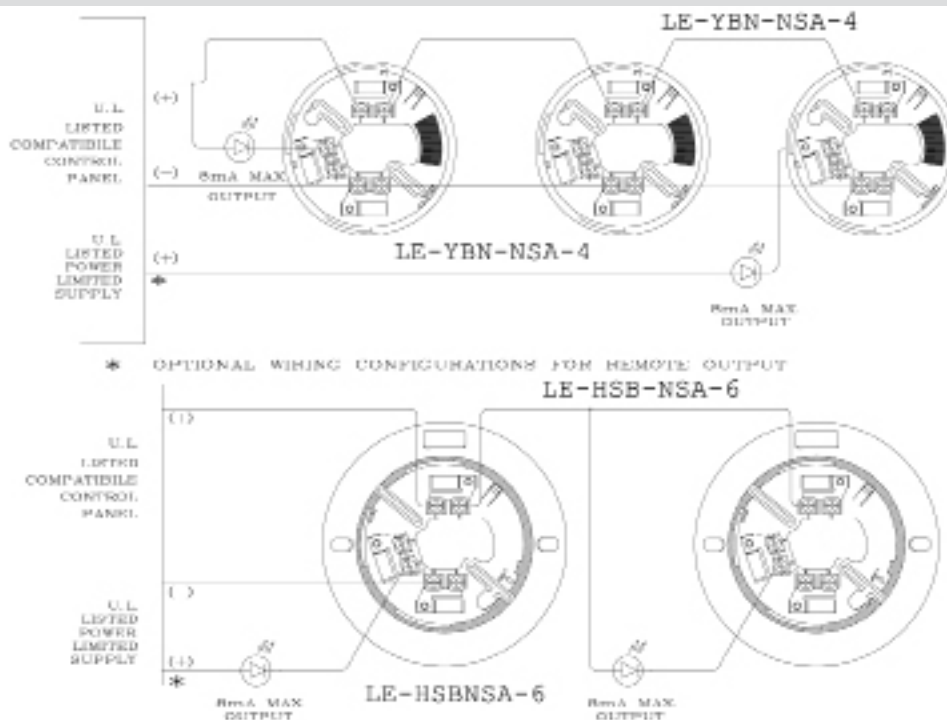
LE-ACA-V

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.)