

## 8843 and 8854 Photoelectric Smoke Detectors

### Features

- Advanced Field Cleanable Chamber Design
- Self Diagnostic
- Multi-Color LED for Normal, Trouble or Alarm Indication
- Low-Profile Design
- Easy Twist-In Base Design
- ISO 9001 Certified
- UL Listed, no. S6082
- Made in U.S.A.

### Introduction

The Faraday 8843 and 8854 Photoelectric Smoke Detectors, with its microprocessor controlled self diagnostic circuitry, eliminates cumbersome sensitivity test equipment. It is the most advanced detector in its class. This detector employs a simple twist-in base for ease of maintenance and has a field cleanable/replaceable labyrinth and bug screen. This detector is highly immune to false alarm caused by deceptive phenomena such as dust or RF. These detectors have a full range of accessories available, including remote alarm indicator, remote sensitivity and alarm indicator, relay and audible base adapters, and a base adapter that allows use in older Faraday 8914 Series bases.

### Description

The 8843/8854 is a two-wire, plug-in type photoelectric smoke detector which is compatible with Faraday's FireWatch-200, FireWatch-400, LifeWatch-401 and LifeWatch-450 conventional systems.

The 8843/8854 contains an infrared light emitting diode (LED) and a light sensing photodiode arranged so that under normal conditions, light from the LED does not reach the photodiode. When smoke enters the photo chamber, light emitted from the IR LED is scattered by the smoke particles and is received by the photodiode. The electrical signal produced by the photodiode is compared to a factory set alarm threshold, and if sufficient to indicate an alarm, latches the detector alarm. The 8843/ 8854 is reset at the control panel.



**Model 8854**

The 8843/8854 has self-testing circuitry which tests the detector for defective operation or contamination every 7-8 seconds. If a problem is detected, the multicolor LED indicator will flash amber until the problem is corrected. The detector flashes green in normal operation. In the alarm mode, the detector will flash red every 2-3 seconds, and latch into alarm, alerting the control panel to the alarm condition. This microprocessor-controlled self diagnostic system eliminates the need for external test meters or other equipment for detector testing and also alerts users to trouble conditions prior to periodic system checks.

The detector is field cleanable by twisting the detector out of the base, unsnapping the chamber from the outer cover and cleaning or replacing the removable chamber labyrinth and bug screen.

A fixed 135°F (57°C) thermal sensor is available with the model 8843. When the thermal sensor is utilized, an alarm condition will be initiated when the temperature in the proximity of the sensor reaches 135°F. At this point the detector locks into alarm.

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The 8854 utilizes the low-profile 8853 surface mounting base which may be used with a 4 inch square or octagonal box, as well as a single-gang electrical box. The 8854 has screw clamp terminals for easy wiring. The base has an optional concealed locking device to prevent unauthorized detector removal.

The 8854 is capable of operating both a remote lamp and a relay or audible base when used with LifeWatch-450 control panel, other panels will allow one accessory per detector. The 8848 Remote Sensitivity and Alarm indicator duplicates the multicolor LED of the detector at a remote location to indicate normal operation (green), trouble or out of sensitivity (amber), or alarm (red) for detectors located in out of the way places such as duct detectors, under computer room floors, or above suspended ceilings. The 8849 is simply a remote red LED to indicate an alarm condition of a detector.

The 8843 and 8854 and all of the above listed accessories are UL and ULC listed, and approved by CSFM and NYMEA, and other local boards where applicable.

### **Application Data**

The 8843 and 8854 is fully compatible with other Faraday low voltage detectors and may be inter-mixed on the same conventional zone circuit. The 8843 and 8854 are applicable to the 30 foot spacing (900 sq. ft.) as referred to in the National Fire Protection Association Standard 72. This detector spacing, however, is based on ideal conditions and should be used only as a guide in planning detector layout. Do not mount detectors close to ventilation or air conditioning outlets that may move smoke away from the detector. Exposed joists or ceiling beams may also effect safe positioning of smoke detectors. It is mandatory that engineering judgement be applied regarding detector placement and spacing.

### **Detector Cleaning**

The detector is field cleanable by twisting the detector out of the base, unsnapping the chamber from the outer cover, without affecting sensitive calibration and cleaning or replacing the removable chamber labyrinth and bug screen.

### **Architect and Engineer Specifications**

The photoelectric smoke detector shall be a plug-in unit which mounts to a twist/in base and shall be UL listed.

The smoke detector shall operate on a two-wire circuit and shall contain a multicolor LED indicator indicating the detector is operational by flashing green, trouble by flashing amber, and alarm by flashing red. The detector shall be continually self testing with visual operation indication and not require additional hardware or contact with the detector for testing purposes.

The detector shall allow for easy cleaning or replacement of screens and/or chamber components without affecting calibration.

The base assembly into which the detector is installed shall be a twist/in design with screw clamp terminals. A security lock shall be installed in those areas where tamper resistant installation is required as indicated in the drawings.

The detector or group of detectors shall require a two-wire circuit of #18 AWG thermoplastic fixture wire enclosed in conduit, or #18 AWG limited energy shielded cable without conduit, if permitted by local building codes. All wiring shall be approved for fire alarm use and in compliance with national and local codes. When required, the smoke detector shall contain a 135°F fixed temperature self restoring heat sensor. Actuation of this device shall lock the detector alarm circuit.

The detector shall be Faraday Model 8854 or Model 8843 with a 8853 surface mounting base.

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## Technical Specifications

### Current Requirements:

Normal - 100 mA peak  
Alarm - 40 mA

### Voltage Range:

16 - 26.6 Vdc

### Operating Temperature:

32-102°F (0-39°C)

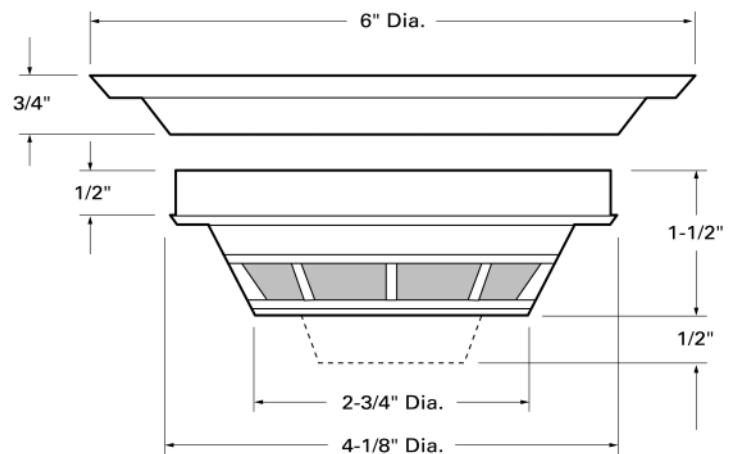
### Humidity:

93% non-condensing

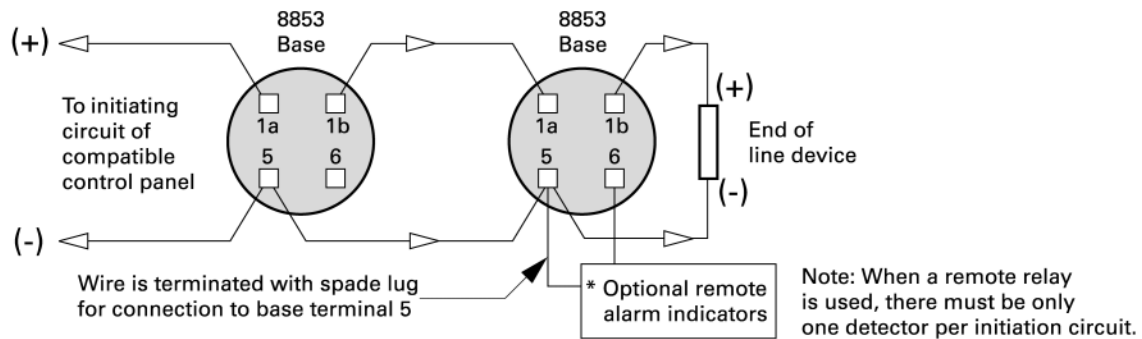
### Shipping Weight:

8843, 8 oz. approx.  
8854, 8 oz. approx.

## Dimensions



## Wiring



### Caution:

1. Do not use looped wire under base terminal 5. Break wire run to provide supervision of connection.
2. When a remote relay is used to control a critical system function, the relay and its associated detector and optional module(s) must be the only devices on the initiating circuit.

## Ordering Information

Model	Description	Part No.
8843B	Photoelectric Detector with 135°F heat, less base	500-095110FA
8854B	Photoelectric Detector, low profile, multicolor LED, less base	500-094150FA
<b>Bases and Accessories</b>		
8853B	2-Wire Base, for 8843B and 8854B Photo Detectors	500-094151FA
8849B	Remote LED Alarm Wall Mount Indicator for 8853B	500-694626FA
8845B	Remote LED Alarm Ceiling Mount Indicator for 8853B	500-694625FA
8848B	Remote 3 Color LED Alarm/Sensitivity, Wall Mount	500-695101FA
8844B	Remote 3 Color LED Alarm/Sensitivity, Ceiling Mount	500-694935FA
8839B	Duct smoke detector housing for 8854B	500-095657FA
8840B	Duct smoke detector housing w/relay for 8854B	500-095656FA



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