

## 8817 and 8840 Duct Smoke Detector Housings

### Features:

- For Model 8810 Photoelectric Detector
- Model 8817 Includes Relay
- Alarm LED Visible from Front
- Clear Housing Cover for Quick Identification of Detector Type
- UL Listed, CSFM and NYMEA pending

### Introduction

The Faraday air duct detector housings are designed to be used with Faraday's **8810** addressable photo detector. Designed for installation directly to heating, ventilating and air conditioning duct systems, they comply with National Fire Protection Association Standard No. 90A. When equipped with photoelectric/thermal detectors, these units will signal the presence of hazardous quantities of products of combustion or smoke being carried through the duct system.

Air duct detectors are not intended to be substituted for open area detection.

Model 8817 is equipped with a relay. These relays are utilized to operate any supplementary equipment when smoke or particles of combustion are detected.

### Description

The Faraday 8817 or 8840 air duct housing is uniquely designed to use the photoelectric/thermal detector.

Sensitivity of 8810 detector can be checked by viewing the LED or an 8922 or 8923 multicolor remote lamp. A green flash indicates the detector has passed its self test. Amber indicates a trouble condition, and red indicates an alarm state.

The detector unit employs a cross-sectional sampling principle of operation. Inlet sampling tubes are available in four lengths (see table on page 2). Outlet sampling tubes are one common length. A continuous cross-sectional sample of air moving through the duct is taken. This averages the effects of laminar flow, stratification or skin effect phenomena occurring in the duct that could prevent combustion product or smoke (especially in large ducts) from reaching a spot type detector. In addition, the unique design of the Faraday sampling chamber insures uniform sensitivity in air velocities, ranging from a low of 300 feet per minute to as high as 4000 feet per minute.



**Duct Smoke Detector Housing**

The inlet sampling tube length is determined by the width of the air duct being protected. The inlet tube nearest to but greater than the duct width should be used (see table). The inlet tube can then be trimmed at the job site to the exact width of the duct. The outlet sampling tube for all ducts, irrespective of width, has a fixed length of approximately 3 inches (7.5 cm) and is supplied with the duct housing.

When the use of a relay contact is required, order model 8817.

### Sampling Tube Selection

Maintenance of the detector is easily accomplished by the removal of the duct housing sampling chamber cover. The detector, which plugs into the housing, is easily removed for cleaning by a trained technician. All that is necessary for the installation of the air duct detector is the cutting of three small holes for the sampling tube installation (template included) and the drilling of four holes for mounting the air duct housing. The unit is then easily mounted in place and connection made to the existing wires or terminals if optional accessories are utilized. See chart on page two for sampling tube selection table.

## Engineer and Architect Specifications

The air duct housing for the fire detection system shall be a Faraday 8817 or 8840 air duct housing. The air duct housing shall incorporate the use of the 8810 detector.

The air duct housing unit shall be designed for detection of combustion products and/or smoke in air conditioning and ventilation system ducts in compliance with NFPA Standard 90A. The assembly shall consist of a housing to accommodate sampling tubes which extend into and across the duct of the ventilation system.

While the fans are operating, a continuous cross-sectional sampling of air from the duct shall flow through the photoelectric/thermal detector, after which the sampled air shall be returned to the duct. Air handling equipment shall be shut down by a signal from the fire detection system control equipment. When the air duct housing incorporates the optional relay, the shut down of air handling devices may be accomplished by a signal directly from the detector.

The air duct housing shall utilize a plug-in detector head located in the air sampling chamber. The detector shall be photoelectric/thermal. There shall be provisions to check the detector sensitivity in place under actual air flow conditions.

The air duct housing shall be mounted directly outside of the air duct by means of four bolts (supplied). A template shall be provided for making necessary cutouts and holes. Complete instructions shall be supplied with the unit.

The air duct housing shall be a Faraday Model (See listing on back page) and shall be Underwriters Laboratories, Inc. Listed, specifically for use in air handling systems.

**Note to Architect:** When building codes regulate the location of detectors within ventilating systems, make sure that the number and locations of detectors are in accordance with the code regulations.

## Sampling Tube Selection Table

Duct Width	Sampling Tube Model No.
9" to 21" (23 cm to 53 cm) .....	8932
21" to 39" (53 cm to 99 cm) .....	8933
39" to 75" (99 cm to 191 cm) .....	8934
75" to 117" (191 cm to 297 cm) .....	8935
Greater than 117" (297 cm) Consult Faraday	

### Technical Specifications

**Operating Temperature:**  
32-100°F (0-38°C)

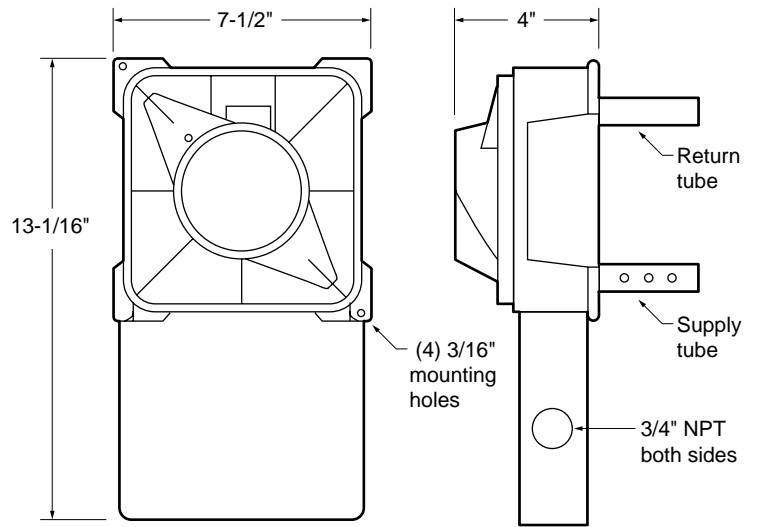
**Humidity:**  
93% non-condensing

**Air Duct Velocity Range:**  
300-4,000 ft./min - 8839 and 8840

**Sampling Tube Pressure Range of Differences:**  
.01-1.0 inches of water column

**Shipping Weight:**  
8839, 3 lbs. approx.  
8840, 3 lbs. approx.

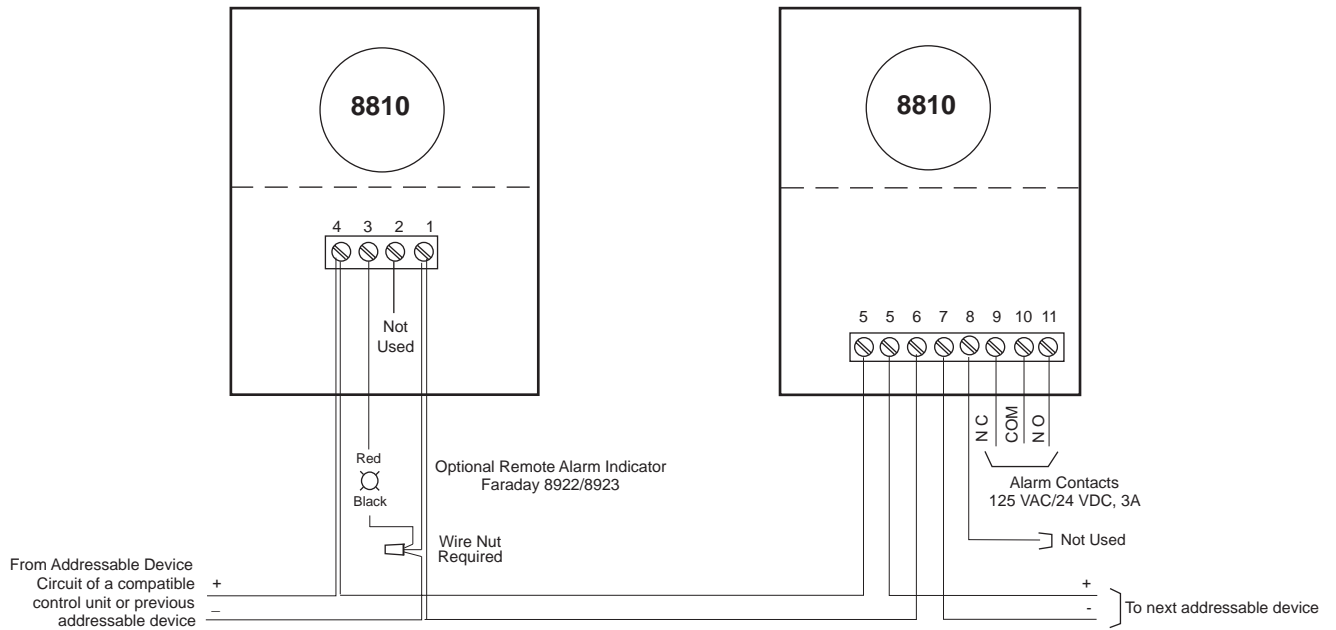
### Dimensions



### Wiring

**8840 DUCT HOUSING**

**8817 DUCT HOUSING WITH RELAY CONTACT**



## Ordering Information

Catalog No.	Order No.	Description
8840 .....	8840 .....	Duct housing only - for 8810 smoke detector
8817 .....	8817 .....	Duct housing only - w/relay for 8810 smoke detector
8810 .....	8810 .....	Photoelectric detector, low-profile, multicolor LED, less base

## Accessories

8922 .....	8922 .....	Remote LED Alarm Ceiling Mount Indicator
8923 .....	8923 .....	Remote LED Alarm Wall Mount Indicator
8932 .....	8932 .....	Sample Tube for 9" - 1'9" Ducts
8933 .....	8933 .....	Sample Tube for 1'9" - 3'3" Ducts
8934 .....	8934 .....	Sample Tube for 3'3" - 6'3" Ducts
8935 .....	8935 .....	Sample Tube for 6'3" - 9'9" Ducts



805 S. Maumee Street  
 Tecumseh, MI 49286, U.S.A.  
**Phone:** (800) 465-7115  
**Fax:** (800) 552-3557  
**Http:** [www.faradayllc.com](http://www.faradayllc.com)

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