

Models 8810 & 8811 Intelligent Photoelectric Detectors

Features

- On-Board Motorola microprocessor based design
- Provides high speed, fault tolerant system/detector communications
- Highly resistant to RFI, EMI and humidity
- Remote sensitivity adjustment and measurement capability
- Field cleanable chamber with replaceable chamber parts available
- Optional 135° thermal (model 8811)
- Multi-color detector status LED
- Two-wire operation
- Compatible with 8820 field programmer/tester
- Optional fully programmable relay base, audible base, and duct housing
- Self testing diagnostics
- UL Listed and CSFM & NYMEA pending

Description

The 8810 and 8811 are plug-in, two-wire photoelectric detectors, compatible with Faraday's MPC-Plus systems. Each detector consists of a dust resistant, field serviceable photo chamber, microprocessor based electronic circuitry with plastic cover and base. Electronic component packaging uses surface mount type technology. The entire electronic assembly is fully protected from noise transients by shielding and is coated to resist moisture and corrosion.

The 8810 and 8811 photoelectric detector utilizes a light emitting diode (LED), and light sensing photodiode assembled in a fixed array so that under normal conditions, light transmitted by the LED is directed away from the photodiode and scattered throughout the smoke chamber in a controlled pattern. The smoke chamber is designed to manage light dissipation and extraneous reflections from dust particles or other non-smoke airborne contaminants in such a way as to maintain stable, consistent detector operation.

The 8810 and 8811 detector's microprocessor uses an integral EEPROM to store the detector's address, and other critical operating parameters which include an assigned, programmable value for alarm and trouble thresholds.



Model 8810 Photo Detector (top)
Model 8811 Photo/Thermal Detector (bottom)

The microprocessor's software employs sophisticated, proprietary algorithms to identify and disregard false alarms caused by radio frequency (RFI) and electromagnetic (EMI) interference and also validates all trouble conditions before annunciating or reporting to the control panel. Communications within the detector itself and also between the 8810 and 8811 detectors and the control panel or the 8820 programming accessory are supervised and safeguarded against disruption by reliable, microprocessor based error checking routines. Additionally, the microprocessor supervises all EEPROM memory locations and provides a high degree of EEPROM failure fault tolerance.

In MPC-Plus applications, these devices determine if it's operating status to be normal, in alarm, or in trouble depending on the difference between the alarm threshold value stored in the detector's memory and the detector's latest analog measurement.

... continued

The detector then communicates changes in its status to the MPC-Plus control panel. In addition, the MPC-Plus panels will periodically sample the value of the detector's analog signal in order to determine if those values indicate excessive dust buildup in the photo-chamber; if so the MPC-Plus will indicate that the particular detector requires maintenance.

When an detector's alarm condition is confirmed by the control panel, the detector's LED flashes and continues flashing until the system is reset at the control panel. Also, any user defined system alarm function or control by event functions are activated. Each detector is capable of operating one remote alarm indicator (models 8922 or 8923), or one auxiliary relay, or one audible base (model 8815). Detector sensitivity, calibration and identification are dynamically supervised by the control panel. Detector sensitivity can be changed from the control panel.

The Faraday 8820 Program/Test accessory is used to program and verify the detector's address. The technician selects the accessory's program mode to enter the desired address. The 8820 will then automatically set and verify the address and test the detector. The 8820 operates on AC power or rechargeable batteries, providing the flexibility and convenience to program and test detectors anywhere. When in the test mode, the 8820 will perform a series of diagnostic tests on the detectors without altering the address, allowing technicians to determine if the detector is operating properly or not.

Both detectors can be cleaned in the field as required by simply removing first the detector cover, then the photo chamber cover and cleaning the interior surfaces of the photo chamber with a clean, soft cloth or brush.

The 8811 is a photoelectric detector with a restorable thermal sensor. An alarm will be initiated when the temperature around the detector's thermal sensor reaches 135 degrees Fahrenheit (57°C) or when sufficient smoke enters the photoelectric chamber.

Both detectors are also designed for use with Faraday's 8840 air duct housings for air duct applications. If a relay is desired, use a 8817 housing.

Engineer and Architect Specifications

The detector shall be a Faraday model 8810 or 8811 addressable, photoelectric detector which shall be compatible with a Faraday MPC-Plus control panel. The detector shall have a plug-in head unit which mounts to a twist-lock base. The detector head will incorporate microprocessor based circuitry which shall perform all detection and communications functions.

No electronic circuitry or address identification mechanisms shall be contained in the detector's base. The detector shall operate on a two-wire circuit and shall include an LED indicator which will flash to signal an alarm condition. The detector shall be listed with Underwriter's Laboratories, Inc.

The photoelectric detector shall utilize a light emitting diode (LED) and light sensing photodiode assembled in a fixed array so that under normal conditions, light transmitted by the LED is directed away from the photodiode and scattered throughout the smoke chamber in a controlled pattern. The smoke chamber design should effectively manage light dissipation and extraneous reflections from dust particles or other airborne contaminants in such a way as to maintain stable, consistent detector operation.

Detector addressing shall be accomplished electronically, using a portable field programming/test accessory. Mechanical means such as programming pins, dip-switches, etc. shall not be used. The field programming device shall be a Faraday model 8820. The portable programming device shall be menu driven and operate using rechargeable batteries or 120VAC power. Once the desired address has been entered at the 8820 programming device, the device will download the data to the detector's memory and verify that the detector address is correctly programmed. Communications between the detector and the programming accessory shall be supervised by error checking algorithms. The field programming accessory shall also be capable of performing diagnostic tests to determine if a detector is operating properly.

When required, the smoke detector shall contain a 135°F (57°C) fixed temperature, self-restoring heat sensor. Actuation shall cause the detector to initiate an alarm. The detector shall remain in alarm until reset by the control panel.

The detector shall be capable of bidirectional communications with the control panel and shall be dynamically supervised and uniquely identifiable by the control panel. The control panel shall be capable of analyzing the signal for the detector's analog value for calibration, sensitivity and address identification. These values shall be displayed upon command from the control panel. The detector's sensitivity shall be individually adjustable from the control panel. Should the detector sensitivity voltage shift beyond an acceptable level and remain there for a predetermined duration, a discrete detector trouble signal shall be annunciated at the MPC-Plus control panel.

The detector shall be compatible, when installed on the same MPC signaling line circuit, with other Faraday addressable photoelectric or thermal detectors, addressable manual pull boxes and addressable interface modules.

The detector shall be capable of operating one remote alarm indicator or auxiliary relay or audible base. The relay or remote alarm indicator, or audible base is normally activated by the associated detector, however, the MPC-Plus system shall be capable of being programmed to operate the relay or remote alarm indicator, or audible base independently of the associated detector. All detectors, remote alarm indicators, audible bases and or relays connected to the initiating circuit can be in alarm or activated simultaneously.

The addressable photoelectric detectors shall be compatible with the standard Model 8853 base, the 8815 audible base, the 8816 relay base and the 8840 air duct housing, model of remote alarm indicator 8922 or 8923. The base assembly in which the detector is installed shall be of twist-lock design with screw clamp terminals. The base shall use self-wiping contacts and shall accept other compatible Faraday plug-in detectors. A locking mechanism (8846) shall be installed in those areas where tamper resistant installation is required.

Specifications

Current

Normal: 1.2 mA typical
 Alarm: 1.5 mA typical

Voltage Range

16 Vdc - 30 Vdc, peak pulsed voltage

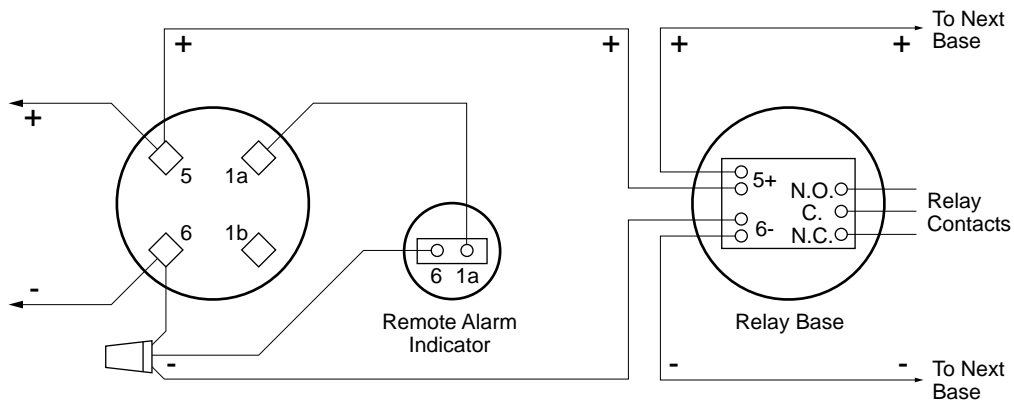
Operating Temperature

+32°F (0°C) to 100°F (38°C)

Humidity

0-93% RH, non-condensing

Typical Wiring



Ordering Information

Order No	Spec Sheet	Description
----------	------------	-------------

8810 Addressable photo detector
 8811 Addressable photo/thermal detector

Accessories

8853B FAI-81 Addressable base
 8815 FAI-105 Addressable audible base
 8816 FAI-105 Addressable Relay base
 8922 FAI-106 Remote alarm indicator, 4" octagon mount
 8923 FAI-106 Remote alarm indicator, single gang mount
 8846 Detector locking kit
 8820 FAI-104 Programmer/Tester
 8986 FAI-104 Carrying case for 8820



An ISO 9001
 Certified Company
 Made In USA

805 South Maumee Street
 Tecumseh, MI 49286, U.S.A.
Phone: (800) 465-7115
Fax: (800) 552-3557
Web: www.faradayllc.com

WARNING - The information contained in this document is intended only as a summary and is subject to change without notice. The devices described in this document have specific instruction sheets which cover various technical, limitation and liability information. Copies of these instruction sheets and the General Product Warning and Limitations Document, which also contains important information, are provided with the product and are available from the Manufacturer. Information contained in these documents should be consulted before specifying or using the product. For further information or assistance concerning particular problems contact the Manufacturer.