INSTALLATION INSTRUCTIONS AND WIRING FOR P/N 8710 ADDRESSABLE PHOTO DETECTOR AND P/N 8713 ADDRESSABLE PHOTO/THERMAL DETECTOR AND P/N 8712 ADDRESSABLE THERMAL DETECTOR

The 8710/8713/8712 Addressable Detectors allow smoke and/or heat detection on an Addressable Device Circuit of a fire alarm control unit. A multicolor LED indicates the condition of the detector. This multicolor LED displays red for alarm/output active, yellow for trouble, and green for normal operation. The 8710/8713/8712 Addressable Detectors each use one address on the Addressable Device Circuit. It does not require any mechanical address programming. Use the 8720 Device Programmer to program and test each detector.

These instructions are written in accordance with the installation guidelines of NFPA 72, National Fire Alarm Code.

CAUTION: Detector Device Storage
DO NOT install this detection device until all construction is completed.
DO NOT store this detection device where it can be contaminated by dirt, dust, or humidity.

DETECTOR PLACEMENT FOR 8710/8713

Although no specific spacings are set for the detectors used for a clean air application, use 30 foot center spacing (900 sq ft) from NFPA Standard 72, if practical, as a guide or starting point for a detector installation layout. This spacing, however, is based on ideal conditions - smooth ceiling, no air movement, and no physical obstructions. In some applications, therefore, considerably less area is protected adequately by each smoke detector. This is why it is mandatory to closely follow the installation drawings. In all installations place the detector on the ceiling, a minimum of 6 inches from a side wall, or on a wall, 4 to 6 inches from the ceiling.

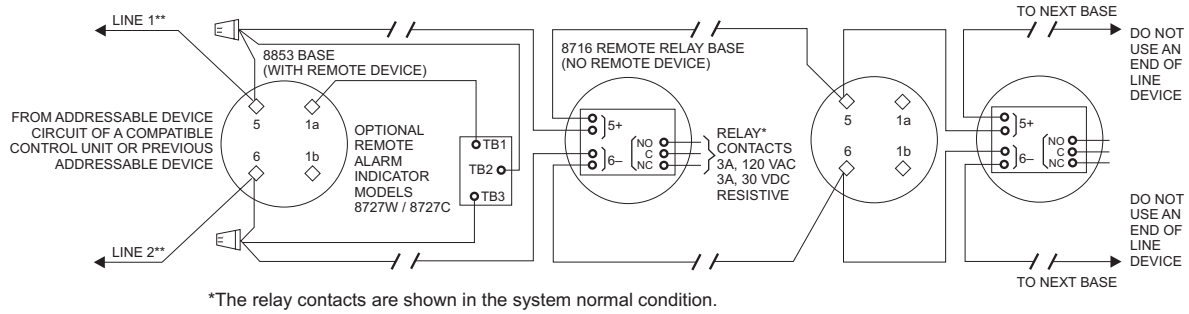
To avoid nuisance alarms
Do not locate the detectors where excessive smoke concentrations exist under normal conditions, or in areas of prolonged high relative humidity where condensation occurs.

Do not locate the detectors next to an oil burner, kitchen, or garage where exhaust fumes can trigger an alarm. Other causes of false alarm are dust accumulation, heavy concentrations of steam, heavy pipe or cigar smoke, and certain aerosol sprays.

Air Currents
Before a detector can sense a fire, the products of combustion or smoke must travel from the fire to the detector. This travel is especially influenced by air currents; therefore, consider air movement when designing the system. While combustion products tend to rise, drafts from hallways, air diffusers, fans, etc., may help or hinder the travel of combustion products to the detector. When positioning a detector at a particular location, give consideration to windows and doors, both open and closed, to ventilating systems, both in and out of operation, and to other factors influencing air movement. Do not install a detector in the air stream of a room air supply diffuser. It is better to position a detector closer to an air return.

The distance that products of combustion or smoke travel from a fire to the detector is not usually the shortest linear route. Combustion products or smoke usually rise to the ceiling, then spread out. Average ceiling heights of 8 to 10 feet do not abnormally affect detector response. High ceilings, located in churches, warehouses, auditoriums, etc., do affect detector response and should be considered.

Special Ceiling Construction Factors
Ceiling obstructions can change the natural movement of air and combustion products. Take obstructions created by girders, joists, beams, air conditioning ducts, or architectural design into consideration when determining area protection. Consider girders, joists, or beams 8 inches or less in depth equivalent to a smooth ceiling in view of the spillover effect of smoke. If obstructions are over 8 inches in depth, movement of heated air and smoke may be slowed by the pocket or bay formed by the girders, joists, or beams. In this case, reduce spacing. If obstructions exceed 18 inches in depth and are more than 8 foot centers, treat each bay as a separate area requiring at least one detector.



*The relay contacts are shown in the system normal condition.
**8710/8712/8713 are polarity insensitive detectors. Line 1 and Line 2 can be either line of the loop.
Current draw for 8710/8712/8713 detectors is 1mA.

Figure 1
Typical Wiring Diagram for 8710/8712/8713 Detector Bases

Base P/N	Description	Installation Instruction P/N	Compatible Detector(s)
8853	Base	315-094193FA	8710, 8712 and 8713
8715	Audible Base	315-033220FA	8710, 8712 and 8713
8716	Relay Base	315-033220FA	8710, 8712 and 8713
8840	Duct Housing	315-095659FA	8710
8717	Duct Housing w/Relay	315-033280FA	8710

Table 1
Base/Detector Compatibility

DETECTOR PLACEMENT FOR 8712

Locate the 8712 on the ceiling, at least 4 inches from the side walls. For an ideal, smooth ceiling condition, place the detectors at a maximum center spacing of 50 feet (2500 square feet), 25 feet from side walls or room partitions.

Actual job conditions and sound engineering judgment must determine detector spacing. Consider environmental factors including ambient temperature fluctuation, and the nature of the fire hazard. Room or area configuration and ceiling type (sloped or flat, smooth or beamed) also dictates placement.

TEMPERATURE – HUMIDITY – PRESSURE – AIR VELOCITY

The temperature range for the 8710/8713 detector is 32°F (0°C) to 100°F (38°C). The 8712 thermal alarm temperature is fixed at 135°F (57°C) with a rate of rise option set through the control unit. Use these detectors in environments where the humidity does not exceed 93% (non-condensing). Normal changes of atmospheric pressure do not affect detector sensitivity. For open area 0-1200 ft/min applications, use the appropriate application from the ASD application list. Use the ASD duct application for 300-4000 ft/min applications a) in above-ceiling and under-floor plenums, b) inside an air duct, and c) in an air duct housing using sampling tubes. Follow detector spacing and location requirements in NFPA 72 Chapter 5 for *High Air Movement Areas* and *Control of Smoke Spread.*

In air duct applications, the 8710 requires a Faraday 8840 or 8717 Duct Housing and appropriate sampling tube. When installing the 8710 in existing installations with an existing duct detector housing, order P/N 500-695967 and use it in that installation. This kit includes the required housing cover, P/N 305-095676. Do not use the 8710 with any other air duct cover.

IMPORTANT NOTE

In air duct and open area applications, the 8710/8712/8713 smoke sensitivity range is indicated on its nameplate.

DETECTOR PROGRAMMING

Each 8710/8713/8712 detector must be programmed to respond to a unique loop address.

1. Program the detector address, using the Faraday 8720 Device Programmer. Refer to the **USER'S MANUAL**, P/N 315-033260FA.
2. Record the loop number and device address on the detector label and associated base label. The optional 8720 label printer can be used for this purpose.

DETECTOR MOUNTING

The 8710/8713/8712 detectors are compatible with the bases, as shown in Table 1. Follow the base installation instructions for proper wiring.

To ensure proper installation of the detector into the base, be sure the wires are properly dressed:

1. Position all wires flat against the base.
2. Take up all slack in the outlet box.
3. Route wires away from connector terminals.

To Install:

1. Align LED in detector with LED symbol on base and insert detector into base.
2. Rotate detector counterclockwise while gently pressing on it until the detector drops fully into base.
3. Then rotate the detector clockwise until it stops and locks into place. Insert optional locking screw Faraday 8846.

To Remove:

1. Loosen locking screw, if installed. Then rotate the detector counter-clockwise until stop is reached.
2. Pull detector out of the base.

TESTING AND SENSITIVITY MEASUREMENT

The recommended requirement for the smoke and heat detector maintenance consists of a semiannual visual inspection and annual functional testing.

For functional testing of the 8710 and 8713 smoke detectors, use the Faraday 8919 Smoke Detector Aerosol, following the directions provided with the aerosol.

For functional testing of the 8713 and 8712 thermal detectors, use a hair dryer (1000-1500 watts) with the heated air blown at the thermal element.

The control unit automatically indicates the trouble message "Maint Alert" for the 8710/8713 smoke detector whose smoke chamber changes to the level where the set sensitivity cannot be maintained. In such circumstances, the detector may require cleaning as a result of dust or debris accumulation; follow the **8710/8713 CLEANING PROCEDURE** steps. Required cleaning intervals vary greatly and should be geared to the individual detector environment.

The 8710/8713/8712 detectors can also be electrically tested using the Faraday 8720 Device Programmer. Refer to the **USER'S MANUAL**, P/N 315-033260FA.

8710/8713 CLEANING PROCEDURE*

(See Figure 2 and 3)

1. Notify the proper personnel that the fire alarm system is being serviced.
2. Remove the detector to be cleaned from its base. (See removal section.)
3. Using a small blade screwdriver, remove the cover from the rest of the detector by releasing the 2 cover tabs located on the outside of the cover. Separate the foam screen from the cover.
4. Remove the labyrinth from the sensing chamber by squeezing the labyrinth sides along the release axis and pulling out. For the 8713, be sure not to damage or disconnect the thermal wires.
5. Clean dust from the detector cover, foam screen, sensing chamber and labyrinth using a brush, or by blowing with compressed air.

CAUTION: Do not use a compressed air supply that may contain an oil residue.

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* The 8712 cannot be cleaned in the field.

WARNING: Do not remove or loosen the two screws on the rear of the detector, or calibration will be lost.

NOTE: The insect screen and labyrinth may be replaced with new parts, using the Faraday 8850 Detector Maintenance Kit.

NOTE: Do not disconnect the thermal wires from the detector.

6. Reassemble the detector by reversing the steps used for disassembly, and reinstall in its base.
7. Test the detector. (See TESTING AND SENSITIVITY MEASUREMENT section of these instructions.) Reset the control unit after each alarm.
8. When all service has been completed, notify personnel that system service has been restored.

CAUTION:
NO FIELD REPAIR OF THE DETECTORS SHOULD BE ATTEMPTED. THE DETECTORS ARE FACTORY REPAIRABLE ONLY.

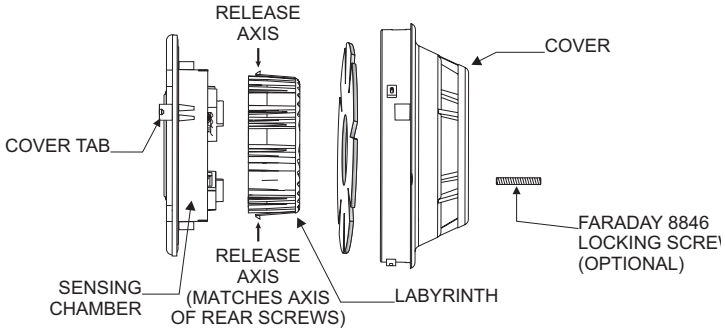

Figure 2
8710 Assembly

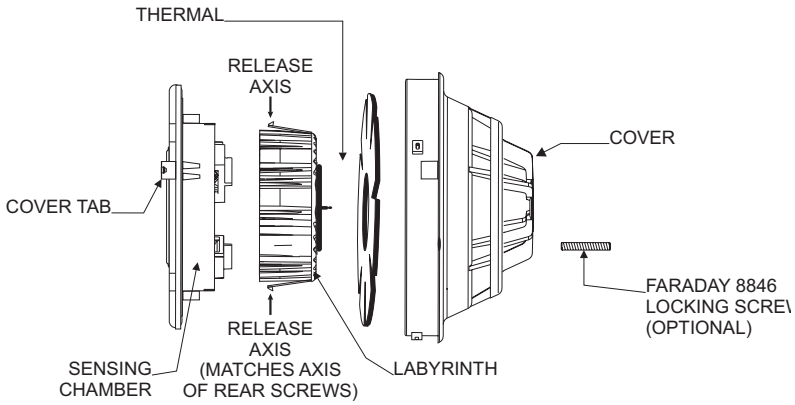

Figure 3
8712/8713 Assembly