

SIEMENS

Installation Instructions

Model HFPO-11

Photoelectric Detector

These instructions are written in accordance with the installation guidelines of NFPA 72, National Fire Alarm Code, and CAN/ULC-S524, The Installation of Fire Alarm Systems.



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.



When using this detector with a protective detector guard such as the DGH-11 from Siemens Industry, Inc., or the STI 8100IS, be sure to install per the instructions supplied with the guard and set the ASD setting to duct detector per the detector programming instructions located on page 2 of this document.

HFPO-11 DETECTOR PLACEMENT

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 and CAN/ULC-S524, 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.

If you have any questions regarding detector placement, follow the drawings provided or approved by Siemens Industry, Inc., or by its authorized distributors. This is extremely important! The detector placements shown on these drawings were chosen after a careful evaluation of the area that is protected. Such factors as air currents, temperature, humidity, pressure, and the nature of the fire load were carefully considered. Especially noted were the room or area configuration and the type of ceiling (sloped or flat, smooth or beamed). Siemens Industry, Inc.'s extensive experience in the design of the system assures the best detector placement by following these drawings. Sound engineering judgment by qualified personnel must be followed.

P/N 315-034800-3

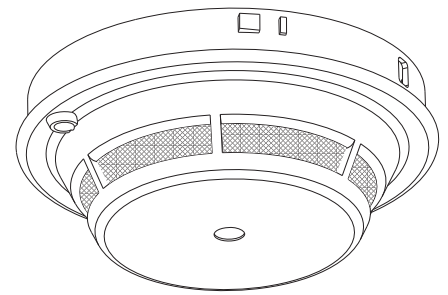


Figure 1
HFPO-11

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 change the natural movement of air and combustion products. Depending on the direction of smoke travel, joists and beams can slow the movement of heated air and smoke, while pockets between them can contain a reduced level of smoke. Take obstructions created by girders, joists, beams, air conditioning ducts, or architectural design

into consideration when determining area protection. Refer to the Initiating Devices chapter of NFPA Standard 72 for Location and Spacing requirements for specific types of construction; e.g. beam, suspended, level, sloped and peaked ceilings.

TEMPERATURE – HUMIDITY – PRESSURE – AIR VELOCITY

The temperature range for the HFPO-11 detector is 32°F (0°C) to 100°F (38°C). Use the detector in environments where the humidity does not exceed 93% (non-condensing). Normal changes of atmospheric pressure do not affect detector sensitivity. The air velocity range is 0-4000 ft/min for open areas applications. Follow detector spacing and location requirements in NFPA 72 Chapter 5 for *High Air Movement Areas* and *Control of Smoke Spread*.

When installing Model HFPO-11 in existing installations with an existing duct detector housing, order an AD-11UK Air Duct Upgrade Kit DA-304, P/N 500-695967 and use it in that installation. This kit includes the required housing cover, P/N 305-095676. Do not use Model HFPO-11 with any other air duct cover.

NOTE For air duct and open area applications, the HFPO-11 smoke sensitivity range is indicated on its nameplate.

OPERATION

LED Indicators

The Model HFPO-11 contains an LED indicator capable of flashing either one of three distinct colors: green, yellow, or red. During each flash interval, the microprocessor-based detector checks the following:

- For smoke in its sensing chamber
- That its smoke sensitivity is within the range indicated on the nameplate label
- That its critical smoke sensing electronics are operating.

Based on the results of these checks, the LED indicator flashes the following:

Flash Color	Condition	Flash Interval (Seconds)
		HFPO-11
Green*	Normal supervisory operation. Smoke sensitivity is within rated limits.	4
Yellow	Detector requires service (cleaning or repair) or is operating beyond its environmental specifications.	4
Red	Alarm	4
No Flashes	Detector is not powered, or requires repair.	-
*LED can be turned off by selecting "LED Deactivated" in the FS-CT2 programming tool.		

DETECTOR PROGRAMMING

Each detector must be programmed to respond to a unique system address.

- To program the detector address, use the Model DPU Device Programming Unit. Refer to the DPU Manual, P/N 315-033260.
- Record the loop and device number (system address) for the detector on the detector label and on the base to prevent installing the detector in the wrong base. The optional DPU label printer can be used for this purpose.

Detector Guard Programming

When using the DGH-11 or the STI 8100IS detector guards with the FireFinder-XLS system, program the HFPO-11 for DUCT Application using the Zeus Programming Tool. For FS-250/FS-500 systems, program the HFPO-11 for DUCT Application using the FS-CT2 Configuration Tool.

WIRING

Detector bases for Model HFPO-11 should be connected as shown in Figure 2.

Detector Mounting

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

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

To Install Detector Head:

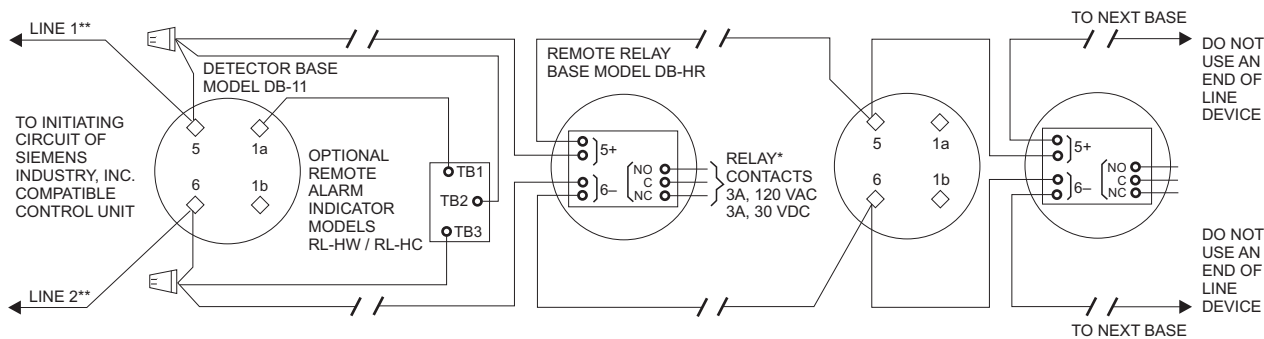
- Align LED in detector with LED symbol on base and insert detector into base.
- Rotate detector counterclockwise while gently pressing on it until the detector seats fully into base.
- Then rotate the detector clockwise until it stops and locks in place. Insert optional locking screw (Order Model LK-11).

To Remove Detector Head:

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

DETECTOR TESTING

Only qualified service personnel should test. To assure proper operation of the detector, both the Sensitivity and Functional Test should be conducted. The minimum test schedule may be found in the current edition of NFPA 72.



*The relay contacts are shown after System reset, which represents the non-alarm condition.
 **HFPO-11 is a polarity insensitive detector. Line 1 and Line 2 can be either line of the loop.

Figure 2
 Installation and Wiring Diagram

Sensitivity Measurement

The sensitivity of HFPO-11 detectors can be tested individually using the DPU. Refer to the DPU Manual, P/N 315-033260.

Functional Test

Perform a functional (Go, No-Go) test by activating the detector using Test Gas, P/N 315-282747, following the instruction on the label. This test is simply used to ensure that smoke can enter the sensing chamber and alarm the control panel when the detector reaches the programmed obscuration (concentration) level.

The HFPO-11 detectors can also be tested individually using the DPU. Refer to the DPU Manual, P/N 315-033260.

DETECTOR CLEANING AND MAINTENANCE

The control unit automatically indicates the trouble message "Maint Alert" for the HFPO-11 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 **CLEANING PROCEDURE** steps.

The recommended requirement for detector maintenance consists of the annual cleaning of dust and debris from the detector head. Cleaning program intervals should be geared to the individual detector environment.

NOTE

If the fire alarm control panel is connected to a Fire Department, etc., or activates an external system (fire extinguishing, etc.), disarm the appropriate outputs before servicing to prevent activation. Be sure to reset and rearm the system at completion of servicing. Notify facility personnel that the system is being serviced so that any alarm soundings can be ignored during the period of service.

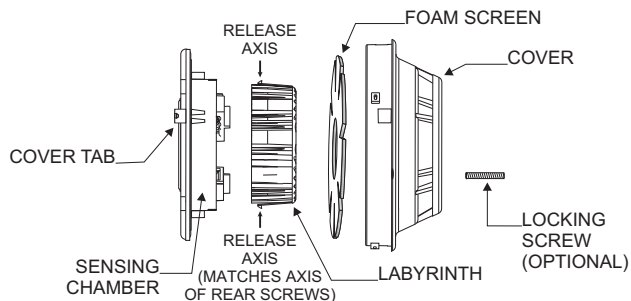


Figure 3
 Disassembling of Photochamber

CLEANING PROCEDURE (See Figure 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 *To Remove Detector Head* on page 2.)
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.
5. Clean dust from the detector cover, foam screen, sensing chamber and labyrinth using a brush, or by blowing with compressed air.



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



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

NOTE

The insect screen and labyrinth may be replaced with new parts, rather than be cleaned. Contact Siemens Industry, Inc., Product Service to order Detector Maintenance Kit, Model DMK-11.

6. Reassemble the detector by reversing the steps used for disassembly, and reinstall in its base.
7. Test the detector. (See Detector Testing section of this instruction.)

8. When all service has been completed, notify personnel (See Step 1) that system service has been completed.



No field repair of the detectors should be attempted. The detectors are factory repairable only.