SIEMENS

Installation Instructions

Models OP121/OH121

Photoelectric Smoke Detector

Photo Smoke/Thermal Detector

UL268 7th edition listed

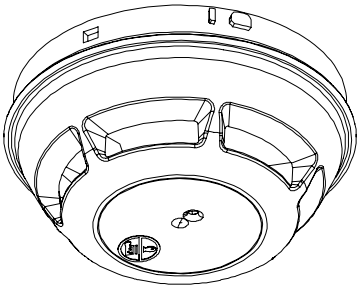


Figure 1
OP121
Photoelectric Smoke Detector

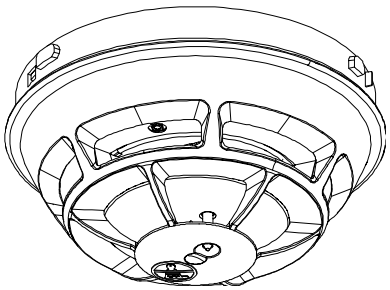


Figure 2
OH121
Photo Smoke/Thermal Detector

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.

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 a clean air application, use 30-foot center spacing (900 sq ft) from NFPA Standard 72 initiating devices chapter and CAN/ULC-S524 as a 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, considerably less area is protected adequately by each smoke detector. In all installations, place the detector on the ceiling, a minimum of 6 inches from a side wall, or on a wall, 12 inches from the ceiling.

Follow the drawings provided or approved by Siemens Industry, Inc. or by its authorized distributors. See NFPA 72, National Fire Alarm Code, initiating devices chapter for additional guidance on special issues such as beamed construction and high stockpiling.

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, or garage where exhaust fumes can trigger an alarm. Other causes of false alarms 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, 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.

SPECIFICATIONS

Sensitivity (%/FT)	Open Area	Duct
OP121	3.765 ±0.235	1.815 ±0.145
OH121	3.845 ±0.325	2.575 ±0.265

Note: Above values are evaluated using the UL smoke box. The OP121 in Open Area has a sensitivity of 1.415 ±0.195 %/FT when evaluated using the ULC smoke box. The ULC smoke box operates with a faster increase of the smoke density.

Environmental

Operating Temperature:
32 °F (0 °C) to 100 °F (38 ˚C)
Humidity: Up to 95 % RH, non-condensing
Air Pressure: No effect
Air Velocity:

- Open area protection: 0 - 300 ft/min
- Duct application: 300 - 4000 ft/min

Alarm Temperature (model OH121): 135 °F (57 °C)
UL listed with STI Mechanical Protection Guard Model: STI-9604 (see www.sti-usa.com for details)

Electrical

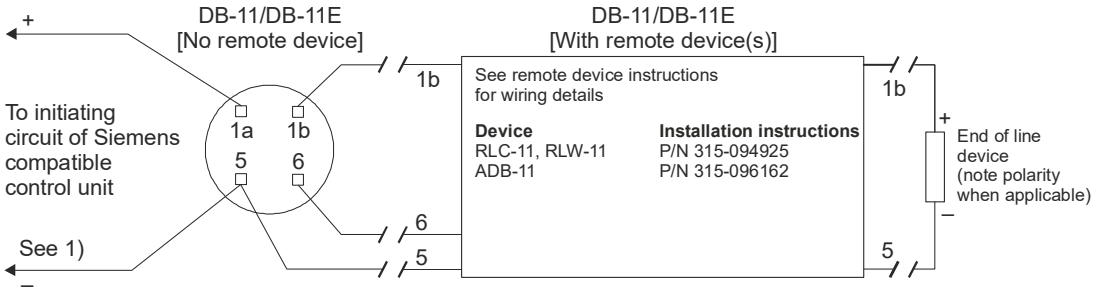
Voltage:	16-27 VDC
Ripple:	3 V peak-to-peak
Supervisory Current:	100 µA max
Alarm Current:	30-50 mA
Start-up Time:	30 seconds max

WIRING

The OP121/OH121 should be connected as shown in Figure 3 using the separate mounting base, Model DB-11. Follow the control panel wiring connection drawing installed on the inside face of each control panel cover. See DB-11 instruction, P/N 315-094193, for base mounting. Duplicate wiring information is also in the Installation, Operation, and Maintenance Manual provided with every control panel.

Note any limitations on the number of detectors and restrictions on the use of remote devices permitted for each circuit.

	WARNING!
	Connect detector only to control units specified in detector and panel literature or system may not operate.
	AVERTISSEMENT!
	Connectez le détecteur uniquement aux unités de contrôle spécifiées dans la documentation du détecteur et de la centrale, faute de quoi le système pourrait ne pas fonctionner.



1) Do not use looped wire under base terminal 5. Break wire run to provide supervision of connection.

Multiple remote devices

If remote devices are supported by the initiating circuit, each detector/base may have up to 2 remote devices with the following configurations and restrictions only:

Remote device 1	Remote device 2	Restrictions
RLC-11, RLW-11	RSAC-11, RSAW-11	Wire from base to
RLC-11, RLW-11	RLC-11, RLW-11	RSAC-11/RSAW-11 to RL-11

Figure 3

Wire size: maximum 14 AWG, minimum 18 AWG (Wire larger than 14 AWG can damage the connector)

DETECTOR MOUNTING

TO INSTALL:

- 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:

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

Under no circumstances is the detector head to be disassembled.
No repairs should be attempted.

DO NOT PAINT

The detector is marked DO NOT PAINT. This is intended to prohibit painting during routine maintenance of the occupancy which can affect proper operation of the detector.



LED INDICATOR OPERATION

The OP121/OH121 contains an LED indicator capable of flashing either one of three distinct colors: green, yellow, or red. The microprocessor-based detector monitors the following:

- Smoke in its sensing chamber
- Smoke sensitivity is within the range indicated on the nameplate label
- Internal sensors and electronics

Based on the results of the monitoring, the LED indicator flashes the following:

Flash Color	Condition	Flash Interval (Seconds)
Green	Normal supervisory operation. Smoke sensitivity is within rated limits.	10
Yellow	Detector is in trouble and needs replacement.	5
Red	Alarm	2.5
No Flashes	Detector not powered properly. Installation check or device replacement is needed	–

FLASHING AT START-UP

Only during the first 180 seconds:

Flash Color	Condition	Flash Interval (Seconds)
Green	Configuration - Open area: double flash - Air duct: triple flash	10
Yellow	Fault	5
Red	Alarm	2.5
No Flashes	Low voltage	–

DETECTOR CONFIGURATION

Two programmed parameter sets can be changed with the magnetic switch:

- Standard (open area protection)
- Duct (In Duct or Duct Housing application)

In Duct application with OH121 and OP121.
Duct Housing application only with OP121.

NOTE
Detectors with product version <17 only have one parameter set. When using detectors in air duct applications set to the parameter to “Duct”.

Magnetic Switch Logic

- Alarm detection is always active, whether the switch is applied or not.
- Magnet shall be applied to the device after startup is finished which is indicated by the blinking LED.
- In case of fault or alarm the magnetic switch is turned off.

FLASHING DURING CONFIGURATION

Magnet applied (seconds)	Behavior / Operation	LED Indication Color / time (seconds), flashing
<2.75	–	–
2.75 to 10	Normal	Red / 2.5, single flash
2.75 to 10 Magnet released	Alarm	Red / 2.5, single flash
>10	Normal	30 seconds per configuration (Starting with current setting) - Open area: Green / 10, double flash - Air duct: Green / 10, triple flash
>10 Magnet released	Current settings confirmed Normal	30 seconds per applied setting - Open area: Green / 10, double flash - Air duct: Green / 10, triple flash

TESTING AND MAINTENANCE

To assure proper operation of the detector and control panel, it is required that both the Sensitivity test and the Functional test be conducted using the procedures outlined below.

SENSITIVITY TEST

The OP121/OH121 monitors its smoke sensitivity automatically and requires no test equipment. A green flash of the detector LED about every 10 seconds indicates that the smoke sensitivity is within its listed limits.

FUNCTIONAL TEST

To test the detector and control panel for functional operation follow the instructions on the gas canister label.

Perform a functional (Go, No-Go) test by activating the detector using the following test gases:

- Smoke Sabre, P/N SMOKESABRE-01-001
- Smoke Centurion (M8), P/N M8-001-024
- Solo A5 P/N SOLOA5 001
- Solo A10, P/N SOLO A10 / A10s
- Testifire 1001 / 2001, P/N TS3-001
- HSI PurCheck, P/N HO-30S
- HSI SmokeCheck™, P/N HO-25S

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.
Detector and control panel functionality can also be tested using the TM121 test magnet as shown in Figure 4 and Figure 6. Place the magnet in the specific area at the bottom of the detector that is shown in Figure 5 and Figure 7 for at least 2.5 seconds with the colored side towards the centered LED. The detector will send an alarm to the panel.

OP121



Figure 4
TM121 Test Magnet

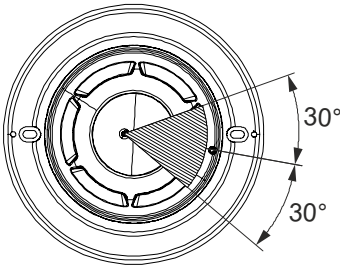


Figure 5
Magnet Placement

OH121



Figure 6
TM121 Test Magnet

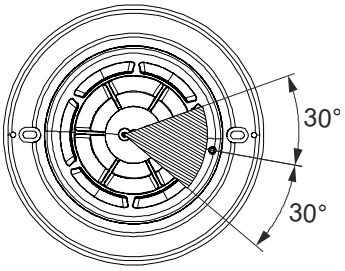


Figure 7
Magnet Placement

Testing with the magnet only tests the circuit; it does not test the detector's sensing ability.

The TM121 test magnet is a strong magnet that can be harmful to pacemaker wearers and to those with medical implants. Keep the magnet away from magnetic media such as credit cards and memory disks/chips.

COMPATIBLE CONTROL EQUIPMENT

Equipment Compatibility Identifier	Installation/Wiring Instructions
SZM (FS-250C System)	315-034850C
SXL-EX	315-095997
SZE-4X	315-096018
SZE-8AX	315-096022
PAD-5-CDC	A6V101030366
HZM	A6V10233195
HZM-Z	A6V11208370
CDC-4	A6V10239127
CZM-4	A6V10239188
CP-35	315-084881
ZU-35	315-083222
TXR-320	A6V12013675
FDBZ492-R	A6V10336866
FDBZ492-PR	A6V10330327

FCC Statement

	**WARNING!**
	Installation and usage of equipment not in accordance with instructions manual may result in: Radiation of radio frequency energy Interference to radio communications • Install and use equipment in accordance with installation instructions manual • Read the following information
	AVERTISSEMENT!
	L'installation et l'utilisation d'équipement non conforme au manuel d'instructions peuvent entraîner : Rayonnement d'énergie radiofréquence Interférence aux communications radio • Installez et utilisez l'équipement conformément au manuel d'instructions d'installation • Lisez les informations suivantes

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications.
It has been tested and found to comply with the limits for a Class A computing device pursuant to Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.
Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

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