

Installation Instructions

Smoke and Fire Detector Models

ILI-1, ILI-1H, ILI-1A, and ILI-1AH

These instructions are written in accordance with the installation guidelines of NFPA No. 72, National Fire Alarm Code, and CAN/ULC-S524, The Installation of Fire Alarm Systems.

CAUTION **Detector Storage**

DO NOT install the detector until all construction is completed.

DO NOT store this detection device where it can be contaminated by dirt, dust, or humidity.

DETECTOR PLACEMENT

Although no specific spacings are set for the detectors used for the 0 to 300 ft/min clean air velocity application, use 30 foot center spacing (900 sq ft) from NFPA 72, National Fire Alarm Code, Chapter 5, 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 (except in special circumstances, such as in computer room underfloors where the velocity may be up to 1200 ft/min) place the detector on the ceiling, a minimum of 12 inches from a side wall, or on a wall, 6 inches from the ceiling.

If you have questions regarding detector placement, follow the drawings provided or approved by Siemens Building Technologies, 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. Factors such 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 Building Technologies, 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.

TO AVOID NUISANCE ALARMS WITH THESE DETECTORS:

DO NOT LOCATE the detectors next to an oil burner, kitchen, or garage where exhaust fumes can trigger an alarm. Other causes of nuisance alarms are dust accumulation, heavy concentrations of steam, heavy pipe or cigar smoke, aerosol sprays, high air velocity, or in an area of prolonged high relative humidity where condensation occurs.

NOTE: Except in the case of the ILI-1A and ILI-1AH where the detector can be used for high air velocity applications of up to 1200 feet per minute.

AIR CURRENTS

Before a detector can sense a fire, the products of combustion or smoke must travel from the fire to the detector. Since their travel is influenced by air currents, consider the movement of air in the design of 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, consider the position of windows and doors, both open and closed, and air movement. Never 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. With an average ceiling height (8 to 10 feet), this is not an abnormal factor. However, with high ceilings such as in churches, warehouses, auditoriums, etc., consider the height.

SPECIAL CEILING CONSTRUCTION FACTORS

Ceiling obstructions can 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.

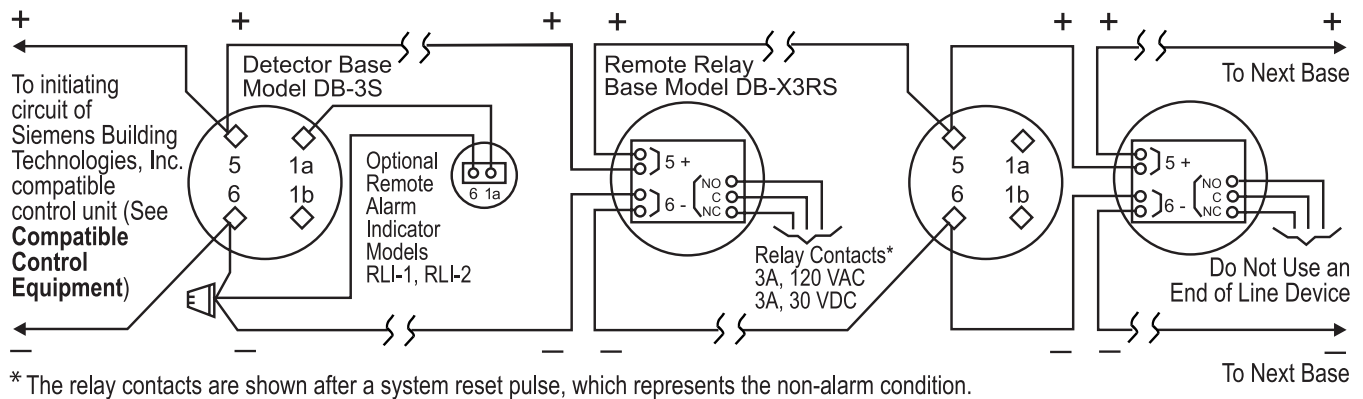


Figure 1
ILI-1, ILI-1H, ILI-1A, and ILI-1AH Installation and Wiring Diagram

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 AND HUMIDITY

The temperature range for the ILI-1 Series is 32°F (0°C) to 100°F (38°C). The four models can each be used in environments where the humidity does not exceed 93% (non-condensing).

PRESSURE

Normal changes of atmospheric pressure have a negligible effect on detector sensitivity. However, the lower air pressure at higher altitudes does have some effect on the sensitivity of ionization type detectors. Refer to the following table.

APPLICATIONS

Model	Velocity Range (ft/min)	Altitude Range (feet)	Application
ILI-1	0-300	0-4000	Open area
ILI-1H	0-300	3000-8000	Open area
ILI-1A	0-1200	0-4000	Open area/Computer facilities/ Air duct spots
ILI-1AH	0-1200	3000-8000	Open area/Computer facilities/ Air duct spots

SPECIAL NOTE - HIGH STOCKPILING

In general, detector placement for high stockpiling requires closer spacing, depending on the nature of the stock, its stored height, and the height of the building. Newer technologies recommend additional detector locations at tiered, lower levels. Detector placement for this type hazard requires a judgment factor that can only be provided by experienced, qualified personnel.

DETECTOR WIRING

Siemens Building Technologies, Inc. detectors should be interconnected as shown in Figure 1 and wired to the control panel by following the **Wiring Diagram** installed on the inside face of the control panel or in the Control Panel Manual provided. Note any limitations on the number of detectors permitted on each circuit.

DETECTOR MOUNTING

The detector has a separate base which attaches to a standard 4 inch square, 4-11/16 inch square, 4 inch octagonal, or single gang outlet electrical box. The depth of the box is determined by the NEC for the number and size of the conductors used. A finishing trim ring (Model RA-ADB) is available for bases using a 4 inch square box.

TO MOUNT:

- Route all wires outward from outlet box.
- Place the detector so that the ALARM LED is normally visible by positioning the LED mark in the base in the necessary direction. (See Figure 2.)
- Mount base to outlet box and route wires through the hole in the center of the base. Make connections directly to the base terminals. Refer to Figure 1 for details.
- When mounting the detector base and routing wires through the cutouts in the air shield, make sure the shield is sealed against air leaks. Open the cutouts only as much as required.
- Remove factory installed jumper in base between terminals 1a and 1b.

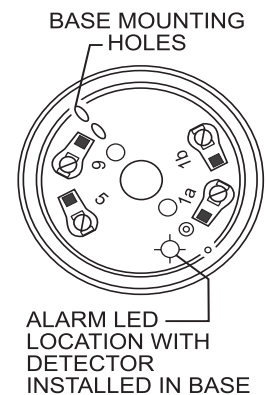


Figure 2
Detector Installation

Note: To ensure proper installation of the detector head into the base, check that the wires are properly dressed at installation.

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

INSTALLATION OF DETECTOR HEAD

1. Align notch in detector cover to raised surface on outer ring of base (See Figure 3).
2. Push detector head into base and rotate clockwise to make electrical connections. The detector automatically stops and locks into place.
3. To remove, push detector head up into the base while rotating the detector head counterclockwise. Continue to rotate counterclockwise until stop is reached. Then pull downward to disengage from base.

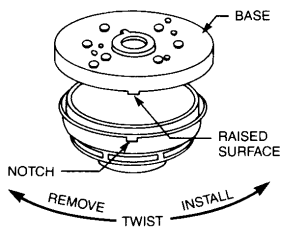


Figure 3
Detector Mounting

PROGRAMMING

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

1. To program the detector address, use the **SIEMENS** Model FPI-32 Programmer/Tester. Refer to the **FPI-32 OPERATIONS MANUAL**, P/N 315-090077.
2. Record the loop and device number (system address) for the detector on the detector label.

SENSITIVITY ADJUSTMENT

XL3 Systems

The sensitivity of each detector can be adjusted from the System XL3 Control Panel. Refer to the **SYSTEM XL3 OPERATION, INSTALLATION, AND MAINTENANCE MANUAL**, P/N 315-083206.

MXL/MXL-IQ Control Panels

The sensitivity of each detector can be adjusted from the MXL/MXL-IQ Control Panel. Refer to the **MXL OPERATION, INSTALLATION, AND MAINTENANCE MANUAL**, P/N 315-092036, or the **MXL-IQ OPERATION, INSTALLATION, AND MAINTENANCE MANUAL**, P/N 315-093624, as applicable.

ICON-1 Modules (in IXL Systems)

The sensitivities of detectors on an ICON-1 module are set from the IXL Control Panel. Refer to **ICON-1 Instructions**, P/N 315-093087, as well as the **IXL Programming Manual**, P/N 315-092394, for additional information.

TESTING AND SENSITIVITY MEASUREMENTS

XL3 Systems

Only qualified service personnel should test. Refer to the **SYSTEM XL3 OPERATION, INSTALLATION, AND MAINTENANCE MANUAL**, P/N 315-083206. Test as frequently as required by the *Installation and Test Guidelines* of NFPA 72. Obtain detector sensitivity measurements from the System XL3 Control Panel. Refer to the System XL3 Manual for further information. The detector sensitivity indicated by the System XL3 Control Panel should fall within the range on the detector nameplate label. If not, refer to **DETECTOR CLEANING** on page 4.

MXL/MXL-IQ Control Panels

Only qualified service personnel should test. Refer to the **MXL OPERATION, INSTALLATION, AND MAINTENANCE MANUAL**, P/N 315-092036, or the **MXL-IQ OPERATION, INSTALLATION, AND MAINTENANCE MANUAL**, P/N 315-093624, as applicable. Test as frequently as required by the *Installation and Test Guidelines* of NFPA 72. Obtain detector sensitivity measurements from the MXL/MXL-IQ Control Panel. Refer to the MXL/MXL-IQ Manual for further information. The detector sensitivity indicated by the MXL/MXL-IQ Control Panel should fall within the range on the detector nameplate label. If not, refer to **DETECTOR CLEANING** on page 4.

ICON-1 Modules (in IXL Systems)

Only qualified service personnel should test. Refer to the IXL Manuals, P/Ns 315-092394 and 315-092371, as well as the **ICON-1 Instructions**, P/N 315-093087, for information. Test as required by the *Installation and Test Guidelines* of NFPA 72. Obtain detector sensitivity measurements from the IXL Control Panel. The detector sensitivity indicated by the IXL Control Panel should fall within the range on the detector nameplate label. If not, refer to **DETECTOR CLEANING** on page 4.

Note: To test for GO/NO GO operation, use **SIEMENS** Test Gas, P/N 315-282747, and follow the instructions on the label.

IMPORTANT

If the XL3, IXL (ICON-1), or MXL/MXL-IQ is connected to a Fire Department, etc., or activates an external system (fire extinguishing, etc.), disarm the appropriate outputs before servicing to prevent activation. (Refer to the appropriate manual for the procedure.) Be sure to reset 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.

The ILI-1 Series detectors can also be tested using the FPI-32 Programmer/Tester. Refer to the **OPERATIONS MANUAL**, P/N 315-090077.

DETECTOR CLEANING

Both System XL3 and the MXL/MXL-IQ Control Panel automatically indicate the trouble message INPUT DEVICE REQUIRES SERVICE for any detector whose smoke sensitivity increases to the level where normally low levels of smoke generate an alarm. (Refer to the appropriate Manual for further explanation.) In such circumstances, the detector may require cleaning as a result of dust accumulation; follow the **CLEANING PROCEDURE** steps described below.

CLEANING PROCEDURE

Clean by lightly brushing all open slots and by using the suction of a vacuum cleaner. Because the suction may cause the detector to alarm, it is recommended that power to the detector be disconnected during cleaning.

The detectors are not designed for thorough cleaning in the field. When the detector sensitivity falls outside the acceptable limits for that detector, the detector head should be replaced by an acceptable head and the removed head forwarded to the nearest Siemens Building Technologies, Inc. Authorized Service Center for servicing.

CAUTION: UNDER NO CIRCUMSTANCES IS THE DETECTOR HEAD TO BE DISASSEMBLED. NO FIELD REPAIRS SHOULD BE ATTEMPTED. **THE DETECTORS ARE FACTORY REPAIRABLE ONLY.**

COMPATIBLE CONTROL EQUIPMENT

Refer to the **SYSTEM XL3 OPERATION, INSTALLATION, AND MAINTENANCE MANUAL**, P/N 315-083206, the **IXL INSTALLATION AND SERVICE MANUAL**, P/N 315-092371, the **MXL OPERATOR, INSTALLATION, AND MAINTENANCE MANUAL**, P/N 315-092036, or to the **MXL-IQ OPERATION, INSTALLATION, AND MAINTENANCE MANUAL**, P/N 315-093624.