



**SYSTEM
SENSOR®**



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B224RBA Plug-in Relay Detector Base

SPECIFICATIONS

Base Diameter:	6.85 in (17.4 cm)
Base Height (less sensor):	1.61 in (4.1 cm)
Operating Temperature Range:	32° to 150°F (0° to 66°C)
Operating Humidity Range:	10% to 93% Relative Humidity (Non-condensing)

Electrical Ratings

Operating Voltage:	15 to 32 VDC
Standby Current:	170 µA

Relay Characteristics

Coil:	2 coil latching
Contact Type:	Form C
Contact Relay Ratings	

CURRENT RATING	MAXIMUM VOLTAGE	LOAD DESCRIPTION	APPLICATION
2 A	25 VAC	(PF = 0.35)	Non-coded
3 A	30 VDC	Resistive	Non-coded
2 A	30 VDC	Resistive	Coded
0.46 A	30 VDC	(L/R = 20ms)	Non-coded
0.7 A	70.7 VAC	(PF = 0.35)	Non-coded
0.9 A	125 VDC	Resistive	Non-coded
0.5 A	125 VAC	PF = 0.75	Non-coded
0.3 A	125 VAC	PF = 0.35	Non-coded

Set Time (Position 1):	60 msec minimum, 100 msec maximum
Set Time (Position 2):	6 seconds minimum, 10 seconds maximum
Reset Time:	20 msec

BEFORE INSTALLING

Please read the System Smoke Detector Applications Guide, which provides detailed information on detector spacing, placement, zoning, wiring, and special applications. Copies of this application guide are available from System Sensor. CAN/ULC S524 guidelines should be observed.

NOTICE: This manual should be left with the owner/user of this equipment. IMPORTANT: The detector used with these bases must be tested and maintained regularly following CAN/ULC S536 requirements. The detectors should be cleaned at least once a year.

GENERAL INFORMATION

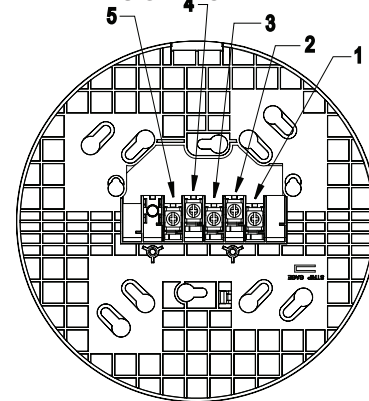
The relay base is intended for use in an intelligent system. Form C latching relay contacts are included for the control of an auxiliary function. The relay can operate in two different modes (short and long delay). The activation time when the short delay is used is 60 msec to 100 msec, while the activation time for the long delay is 6 sec to 10 sec. A shunt with pin headers, located on the base PC board, can be used to choose your desired delay. B224RB is set at the short delay when manufactured. If you wish to use the long delay, please move the shunt to the adjacent pair of pin headers. See Figures 2 and 6.

B224RBA TERMINALS

NO. FUNCTION

1. Normal Close
2. Common
3. Normal Open
4. Comm. Line In (–) and Out (–)
5. Comm. Line In (+) and Out (+)

FIGURE 1. TERMINAL DESIGNATION:



MOUNTING

Mount the mounting plate directly to an electrical box. The plate will mount directly to 4-inch square (with and without plaster ring), 4-inch octagon, 3 1/2-inch octagon, single gang and double gang junction boxes.

1. Connect field wiring to terminals, as shown in Figure 4.
2. Attach the mounting plate to the junction box as shown in Figure 2.
3. To mount the base, hook the tab on the base to the groove on the mounting plate.
4. Then, swing the base into position to engage the pins on the product with the terminals on the mounting plate.
5. Secure the base by tightening the mounting screws.
6. Install a compatible smoke detector as described in the installation manual for the detector.

C0471-06

INSTALLATION GUIDELINES

All wiring must be installed in compliance with all applicable local codes and any special requirements of the local authority having jurisdiction, using the proper wire sizes. The conductors used to connect smoke detectors to control panels and accessory devices should be color-coded to reduce the likelihood of wiring errors. Improper connections can prevent a system from responding properly in the event of a fire.

For signal wiring (the wiring between interconnected detectors), it is recommended that the wire be no smaller than 18 gauge (0.9 square mm). However, wire sizes up to 12 gauge (2.5 square mm) can be used with the base.

Alarm system control panels have specifications for allowable loop resistance. Consult the control panel specifications for the total loop resistance allowed before wiring the detector loops.

WIRING INSTRUCTIONS



WARNING

The base uses a latching relay that can change states if it is subjected to mechanical shocks or jarring. As a result, even though relay contacts are in the open state when the base is shipped from the factory, the contacts may have closed during shipment.

Connecting an auxiliary control circuit to closed relay contacts can cause an unexpected, and possibly dangerous, activation of that circuit. Therefore, do NOT connect an auxiliary control circuit to the relay contacts (terminals 1, 2, and 3) before ensuring that the relay contacts are in their open state. Ensure that the contacts are open by applying power to the bases WITHOUT the sensor heads installed.

Make wiring connections by stripping about $\frac{3}{8}$ " (10 mm) of insulation from the end of the wire. Then, slide the wire under the clamping plate and tighten the clamping plate screw.

Wire the normally open (NO) line to terminal 3 (see Figure 4). Insert the normally closed (NC) line of the relay to terminal 1 and the relay common line to terminal 2. Wire the communication lines in (–) and out (–) to terminal 4. Insert the communication line in (+) and out (+) to terminal 5.

Check the zone wiring of all bases in the system before installing detector heads. This includes checking the wiring for continuity, correct polarity, ground fault testing, and performing a dielectric test.

A label is affixed to the base for recording the zone, address, and type of detector being installed at the base location. This information is useful for setting the detector head address and for verification of the sensor type required for that location.

Once all detector bases have been wired and mounted, and the loop wiring has been checked, the detector heads may be installed in the bases.

TAMPER-RESIST FEATURE

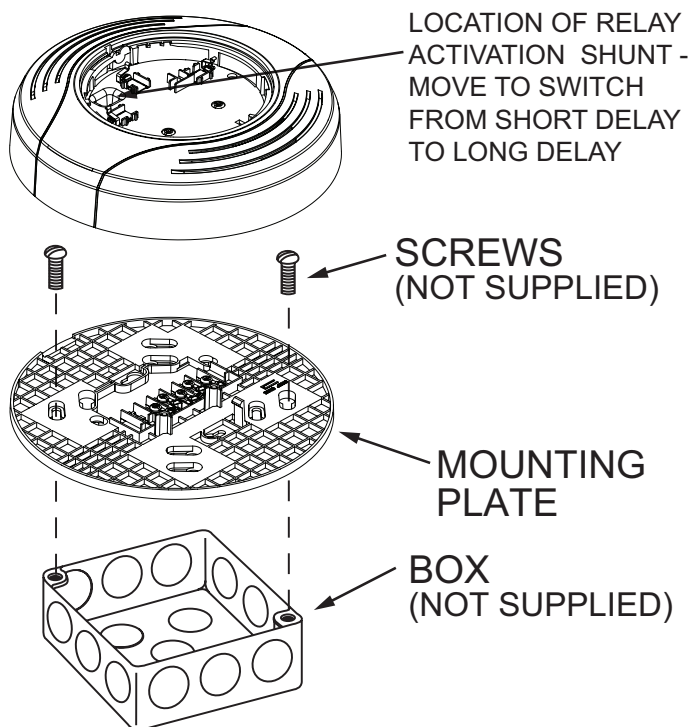
NOTE: Do not use the tamper-resist feature if the removal tool is to be used. This detector base includes a tamper-resist feature that prevents its removal from the base without the use of a tool.

To activate this feature, break the tab from the detector base as shown in Figure 5A. Then, install the detector.

To remove the detector from the base once the tamper-resist feature has been activated, insert a small-bladed screwdriver into the slot from the top and press down on the lever (see Figure 5B). This allows the detector to be rotated counterclockwise for removal.

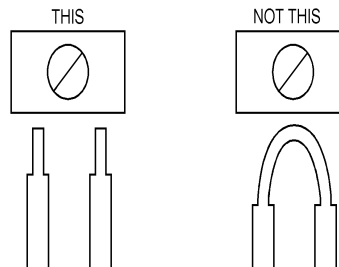
The tamper-resist feature can be defeated by breaking and removing the plastic lever from the base. However, this prevents the feature from being used again.

FIGURE 2. MOUNTING THE BASE TO AN ELECTRICAL BOX:



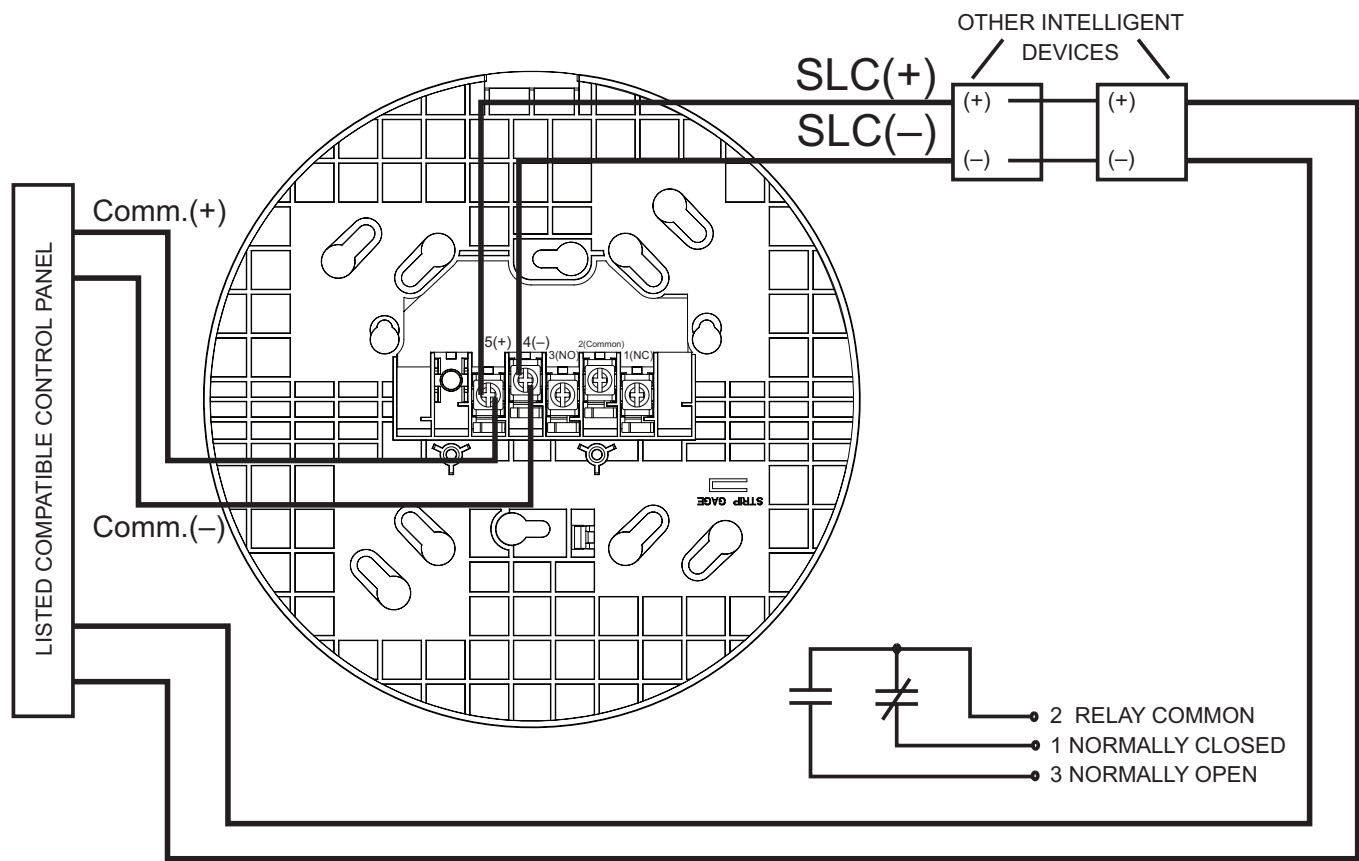
C0148-01

FIGURE 3:



C0473-00

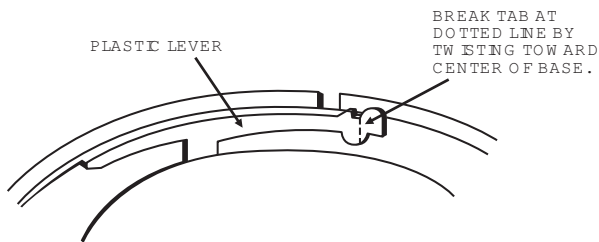
FIGURE 4. WIRING DIAGRAM:



CLASS A OPTIONAL WIRING

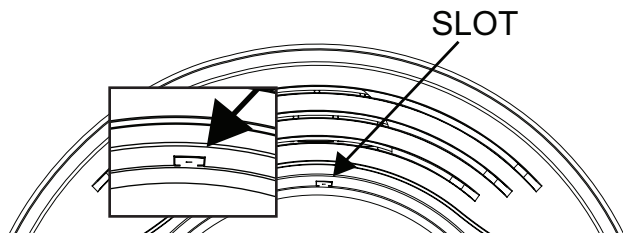
C0890-01

FIGURE 5A. ACTIVATING THE TAMPER-RESIST FEATURE:



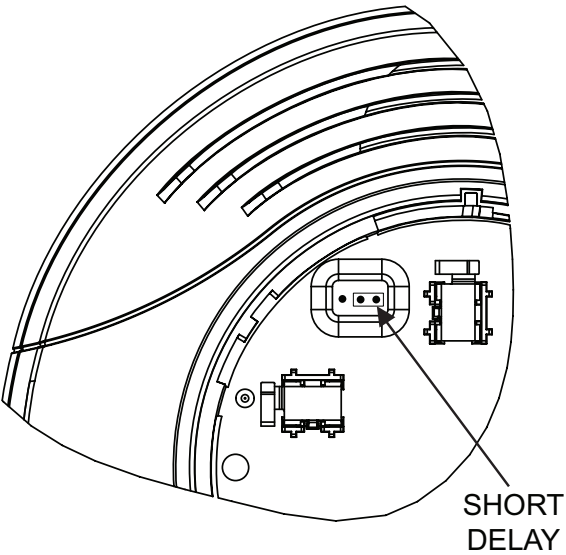
C0144-00

FIGURE 5B. REMOVING THE DETECTOR HEAD FROM THE BASE:



C1082-00

FIGURE 6: RELAY ACTIVATION SHUNT:



C1088-00

Please refer to insert for the Limitations of Fire Alarm Systems

THREE-YEAR LIMITED WARRANTY

System Sensor warrants its enclosed smoke detector base to be free from defects in materials and workmanship under normal use and service for a period of three years from date of manufacture. System Sensor makes no other express warranty for this smoke detector base. No agent, representative, dealer, or employee of the Company has the authority to increase or alter the obligations or limitations of this Warranty. The Company's obligation of this Warranty shall be limited to the replacement of any part of the smoke detector base which is found to be defective in materials or workmanship under normal use and service during the three year period commencing with the date of manufacture. After phoning System Sensor's toll free number 800-SENSOR2 (736-7672) for a Return Authorization number, send defective units postage prepaid

to: System Sensor, Returns Department, RA # _____, 6581 Kitimat Road, Unit 6, Mississauga, Ontario L5N-3T5. Please include a note describing the malfunction and suspected cause of failure. The Company shall not be obligated to replace units which are found to be defective because of damage, unreasonable use, modifications, or alterations occurring after the date of manufacture. In no case shall the Company be liable for any consequential or incidental damages for breach of this or any other Warranty, expressed or implied whatsoever, even if the loss or damage is caused by the Company's negligence or fault. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.