



## INSTALLATION INSTRUCTIONS FOR B524RTE PLUG-IN RELAY DETECTOR BASE

Before installing detectors, please thoroughly read the system wiring and installation manuals, and the System Sensor *Guide to Intelligent Fire Systems*, which provides detailed information on detector spacing, placement, zoning, and special applications. Copies of this guide are available at no charge from System Sensor.

### General Description

The B524RTE Relay Base provides a single pole changeover contact which switches when the detector LED is activated from the control panel.

### Specifications

Base Diameter:	102mm
Base Height:	36mm
Operating Temperature:	0°C to 49°C
<i>Do not install in locations where normal ambient temperatures exceed 50°C</i>	
Operating Humidity Range:	10% to 93% relative humidity (non-condensing)
Operating Voltage:	15 to 32 VDC
Standby Current:	170µA @ 24VDC

### Relay Characteristics

Coil:	2 coil latching		
Contact Type:	Single pole changeover		
Contact Relay Ratings:	Relay Specification	Max	Units
	Switching 30 VDC max, coded	2	A
	Switching 30 VDC max, non-coded	3	A
	Switching 110 VDC max, non-coded	0.9	A
	Switching 125 VAC	0.9	A
	Switching 30 VDC max, coded	0.5	A
	Switching 30 VDC max, non-coded	1	A
	Switching 125 VAC max, non-coded	0.3	A
	Switching 70.7 VAC max, non-coded	0.7	A
	Switching 25 VAC max, non-coded	2	A

Set Time:	6 seconds minimum, 10 seconds maximum
Reset Time:	20 msec

### Mounting

The B524RTE has two mounting holes with spacing from 50mm to 60mm. Attach the base to a suitable junction box using the screws supplied with the junction box. Cut and remove the thin-walled sections visible from the back of the base on the outer diameter if side cable entry is required.

### 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 1.0 mm<sup>2</sup>. However, wire sizes up to 3.3 mm<sup>2</sup> can be used with the base. The use of twisted pair wiring or shielded cable for the power (+ and -) loop is recommended to minimize the effects of electrical interference.

If shielded cable is used, the shield connection to and from the detector must be continuous by using wire nuts, crimping, or soldering, as appropriate, for a reliable connection.

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.

### 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.

### Wiring Instructions

Make wiring connections by stripping about 10mm 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 closed (NC) line to terminal 1 (see Figure 1). Insert the normally open line of the relay to terminal 2 and the relay common line to terminal 3. Wire the communication lines in (+) and out (-) to terminal 4. Insert the communication line in (-) and out (+) to terminal 5. Terminal 6 is for shielded cable only (see Figure 1). If shielded cable is used, the shield connection to and from the detector must be continuous by using wire nuts, crimping, or soldering to ensure a reliable connection. If shielded cable is not used, leave terminal 6 in the screwed-down position.

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-Resistant Feature

**Note: Do not use the tamper-resistant feature if the removal tool is to be used.**

This detector base includes a tamper-resistant feature that prevents 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 2A. Then, install the detector.

To remove the detector from the base once the tamper-resistant feature has been activated, insert a small-bladed screw driver into the slot in the side of the base and push the plastic lever away from the detector head (see Figure 2B). This allows the detector to be rotated counterclockwise for removal.

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

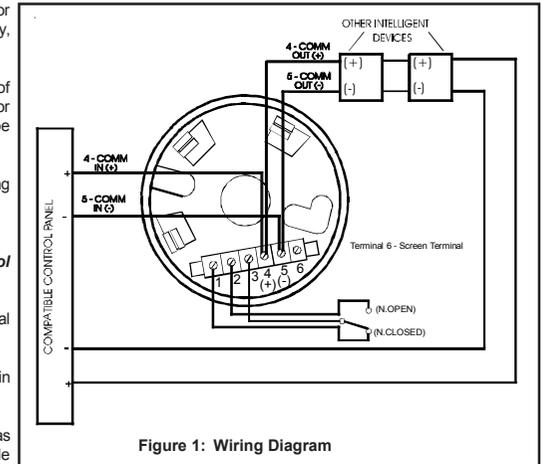


Figure 1: Wiring Diagram

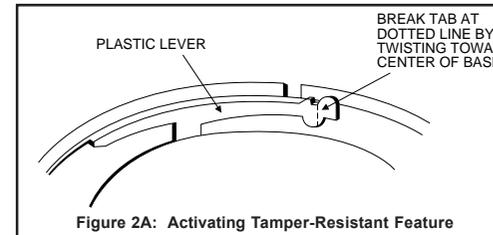


Figure 2A: Activating Tamper-Resistant Feature

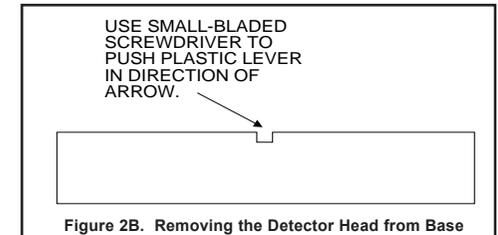


Figure 2B: Removing the Detector Head from Base

### Warning Limitations of Smoke Detectors

The smoke detector used with this base is designed to activate and initiate emergency action, but will only do so when used in conjunction with other equipment.

**Smoke detectors will not work without power.**

**Smoke detectors will not sense fires which start where smoke does not reach the detectors.** Smoke from fires in chimneys, in walls, on roofs or on the other side of closed doors may not reach the smoke detector and alarm trigger the unit.

**A detector may not detect a fire developing on another level of a building.** For this reason, detectors should be located on every level of a building.

**Smoke detectors also have sensing limitations.** Ionisation detectors offer a broad range fire-sensing capability, but they are better at detecting fast, flaming fires than slow, smoldering fires. Photoelectric detectors sense smoldering fires better than flaming fires. Because fires develop in different ways, and are often unpredictable in their growth, neither type of detector is always best, and a given detector may not always provide warning of a fire. In general detectors cannot be expected to provide warnings for fires resulting from inadequate fire protection practices, violent explosions, escaping gas, improper storage of flammable liquids like cleaning solvents, other safety hazards, or arson. Smoke detectors used in high air velocity conditions may fail to alarm due to dilution of smoke densities created by such frequent and rapid air exchanges. Additionally, high air velocity environments may create increased dust contamination, demanding more frequent maintenance.

**Smoke detectors cannot last forever.** Smoke detectors contain electronic parts. Even though detectors are made to last over 10 years, any of these parts could fail at any time. Therefore, test your smoke detector system at least semiannually. Clean and take care of your smoke detectors regularly. Taking care of the fire detection system you have installed will measurably reduce your product liability risks.