

# B401BH and B401BHA Sounder Bases

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**SPECIFICATIONS**

Base Diameter: 6 inches (152 mm)  
Base Height (less base and sensor): 0.75 inches (19mm)  
Weight: 0.3 lb. (140 g)  
Operating Temperature Range: 14° to 140°F (-10° to +60°C)  
Operating Humidity Range: 10% to 95%, noncondensing

**Electrical Ratings**

Voltage: 17 to 32 VDC  
Standby Current: 1.0 mA maximum  
Alarm Current: 15 mA maximum  
Maximum Ripple Voltage: 10% of supply voltage  
Start-up Capacitance: 200 µF  
Horn Input Current Requirement: 600 µA maximum  
Sound Output: Greater than 90 dBA measured in anechoic room at 10 feet (3 meters),  
24 volts. 85 dBA minimum measured in UL reverberant room.

**BEFORE INSTALLING**

Please read the *System Smoke Detector Application Guide*, which provides detailed information on detector spacing, placement, zoning, wiring, and special applications. Copies of this manual are available from System Sensor. NFPA 72 and NEMA guidelines should be observed. (For installation in Canada, refer to CAN/ULC-S524, *Standard for the Installation of Fire Alarm Systems* and CEC Part 1, Sec. 32.)

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 NFPA 72 requirements. The detector should be cleaned at least once a year.

**GENERAL DESCRIPTION**

Models B401BH and B401BHA sounder bases are intended for use with System Sensor 400 Series plug-in sensor heads in conventional 2-wire plug-in systems. Refer to systems manuals for the maximum allowable number of units per loop. The B401BH requires an external 24VDC (nominal) supply with reverse polarity capability. The connections of the external supply (terminals 1 and 2) and the initiating loop (terminals 3, 4, and 5) are isolated in the B401BH to prevent electrical interaction between them.

When the detector head's visible LEDs are latched on for approximately 10 seconds, the associated horn sounds. A loop of horns can be made to sound by reversing the polarity of the external supply.

NOTE: When the associated system is NOT used as a supplementary evacuation system, the external 24VDC supply must be treated as a component of the main power supply system with the result that it falls under the requirements of NFPA 72.

**B401BH AND B401BHA TERMINALS**

**No. Function**

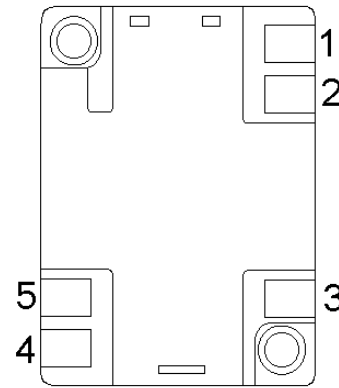
- 1 External Supply Positive (+)
- 2 External Supply Negative (-)
- 3 Negative (-) V
- 4 Positive (+) V In
- 5 Positive (+) V Out

Terminals 3, 4, and 5 are used for the communication/initiating circuit.

**INSTALLATION WIRING GUIDELINES**

All wiring must be installed in compliance with the National Electrical Code and all applicable local codes and any special requirements of the authority having jurisdiction, using the proper wire size. 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.

**FIGURE 1. TERMINAL LAYOUT:**

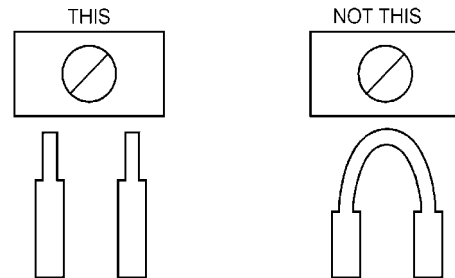


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For signal wiring (the wiring between interconnected detectors), it is recommended that the wire be no smaller than AWG 18. However, the screws and clamping plate in the base can accommodate wire sizes up to AWG 12. The use of twisted pair wiring or shielded cable for the power (+ and -) loop is recommended to minimize the effects of electrical interference on the initiating loop.

Begin electrical connections by stripping about 3/8" insulation from the end of the wire. Then, slide the bare end of the wire under the clamping plate and tighten the clamping plate screw. Break the wire at each terminal to ensure that the connections are supervised, as shown in Figure 2.

**FIGURE 2.**



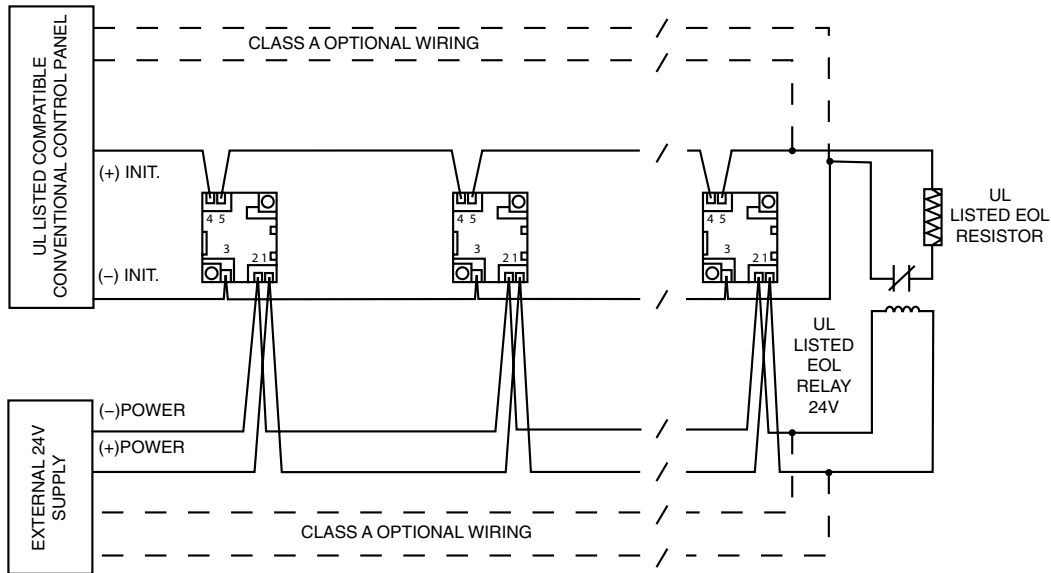
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DO NOT loop the wire under the clamping plate.

Check the zone wiring of the detector base before the detector heads are installed. Perform continuity, base polarity, and dielectric tests on the wiring.

Smoke detectors and alarm system control panels have specifications for allowable supervision current. Consult the control panel manufacturer's specifications for the total loop current supervision allowed for the control panel being used before wiring the detector loops.

**FIGURE 3. TYPICAL WIRING LAYOUT:**



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**WIRING INSTRUCTIONS**

The shorting spring in the base will disengage automatically when the detector head is removed from the base.

DO NOT remove the shorting spring since it reengages as the detector head is turned into the base, completing the circuit.

A typical wiring for a two-wire conventional system is shown in Figure 3. Refer to this diagram as needed while wiring the base into the system.

NOTE: Figure 3 shows external 24V supply polarity when the loop system is in standby (NOT alarming).

**MOUNTING**

NOTE: It is recommended that the base be completely wired before mounting. See Figure 4. Attach the base directly to an electrical box using the screws supplied with the box. Then, use the plastic screw covers, supplied with the base, to cover the screws.

The sounder base is 1.1 inches (28 mm) deep. Electrical boxes must be 4 inches (102 mm) square by at least 1-1/2 inches (38 mm) deep; 2-1/8 inches (54 mm) is recommended.

**TESTING**

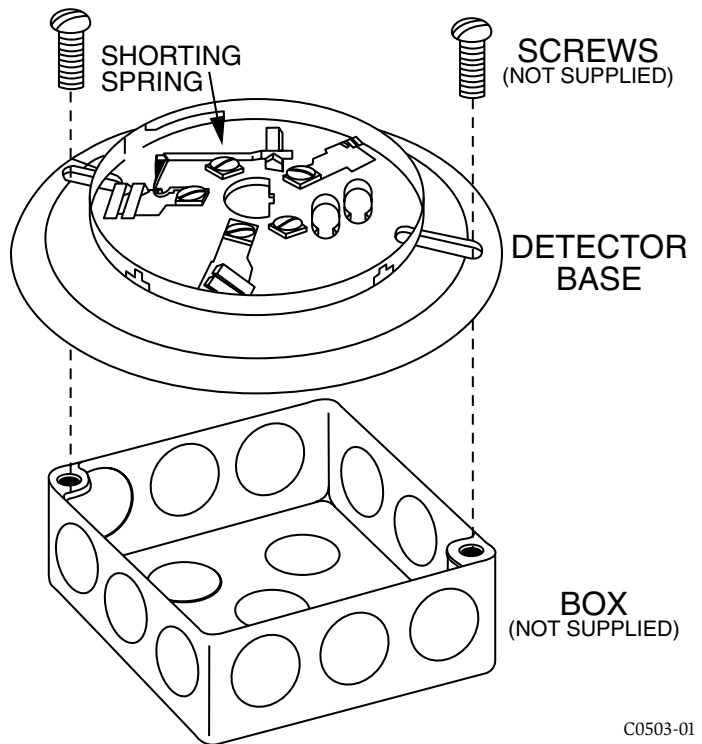
Before testing, notify the proper authorities that the smoke detector system is undergoing maintenance and that the system will be temporarily out of service. Disable the zone or system undergoing maintenance to prevent unwanted alarms.

Detectors and bases must be tested after installation and following periodic maintenance.

Test the B401BH/B401BHA as follows:

1. Test the conventional detector head following the procedure in its manual. The B401BH/B401BHA should sound approximately 10 seconds after the detector alarms.
2. Reverse the polarity of the external 24 VDC supply. This should cause every base in the loop to sound after approximately 10 seconds.

**FIGURE 4. MOUNT BASE TO ELECTRICAL BOX:**



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**Please refer to insert for the Limitations of Fire Alarm Systems**

**THREE-YEAR LIMITED WARRANTY**

System Sensor warrants its enclosed 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 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 repair or replacement of any part of the 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, Repair Department, RA # \_\_\_\_\_,

3825 Ohio Avenue, St. Charles, IL 60174. Please include a note describing the malfunction and suspected cause of failure. The Company shall not be obligated to repair or 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.