



# SuperBus 2000 Commercial RF Transceiver Installation Instructions

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## Introduction

This is the GE *SuperBus 2000 Commercial RF Transceiver Installation Instructions* for models 60-821-95 and 60-856-95. The transceiver adds or extends a compatible panel's wireless capabilities in both residential and commercial installations.

You can mount the transceiver near the panel cabinet or up to 4,000 ft. (1219 m) away. The transceiver receives information from wireless sensors and touchpads and sends the data to the panel, via the SuperBus 2000 digital data bus. Power for the module is provided by the panel.

Advent systems support up to five transceiver modules.

Transceiver features include:

- Spatial diversity reception to minimize wireless signal nulls or dead spots.
- Compatibility with all GE Security 319.5 MHz crystal learn mode wireless sensors and touchpads.
- Open air receiving range of 3,500 ft. (1067 m) typical in metal case and 2,500 ft. (762 m) in plastic case.
- LED indications of transceiver power, wireless packet reception, and bus status.
- two case versions (*Figure 1*), 60-821-95 (plastic) and 60-856-95 (metal).

Figure 1. Model cases

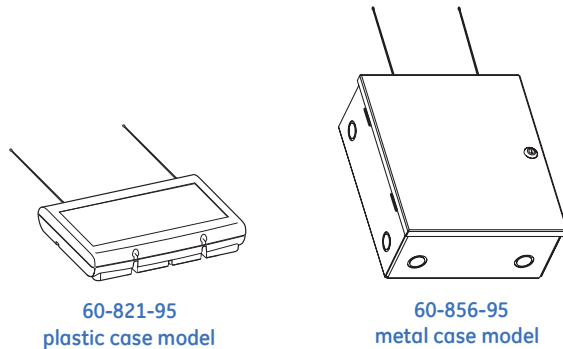


Figure 2 shows the transceiver components (plastic case version shown) and *Table 1* describes the components.

Figure 2. Transceiver components

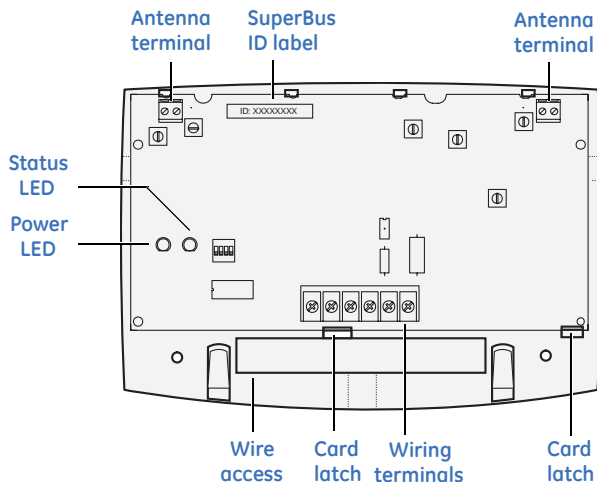


Table 1. Transceiver components

Component	Description
Antenna terminals	Provide antenna connections (outer terminals are used with optional metal enclosure).
Unique SuperBus 2000 ID label	Indicates the unique identification number of the module.
Module power LED	On when module is powered, flickers when a wireless signal is received.
Bus status LED	Flashes when the transceiver communicates with the panel via the SuperBus.
Wiring terminals	Connections for power, bus, and hardware zone.

## Tools and supplies

You will need the following tools and supplies to install the transceiver:

- Mounting screws and anchors for plastic enclosure (included).
- Two 9-in. (22 cm) antennas (included).
- Two antenna grounding screws (included in metal case kit).
- 1/4 in. plastic spacers (included in metal case kit).
- Small standard and Phillips screwdrivers.
- Four-conductor, 18-gauge or larger, stranded hookup wire (recommended).

## Installation

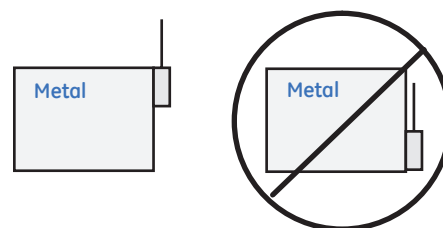
Use the following guidelines to install the transceiver:

- Advent systems can accommodate up to 250 sensors/zones. Refer to your panel documentation for maximum zone count.
- Advent systems can have up to 62 SuperBus devices.
- Leave at least 10 in. (25 cm) above the transceiver for the antennas.
- Avoid areas that expose the transceiver to moisture.
- Use 4-conductor, 18-gauge or larger stranded wire from the transceiver to the panel.

For power wiring, refer to your panel documentation for maximum wire length recommendations. If the maximum recommended wire length must be exceeded, a remote DC power supply is required. When using a remote power supply, the power and ground connections of panel and remote supplies must remain isolated and the power supply output must be isolated from earth ground. Do not connect the panel and remote power supplies together.

- Avoid areas with excessive metal or electrical wiring, including furnace and utility rooms. If unavoidable, mount on or near metal with the antennas extending above the metallic surfaces (*Figure 3*).

Figure 3. Mounting near metal



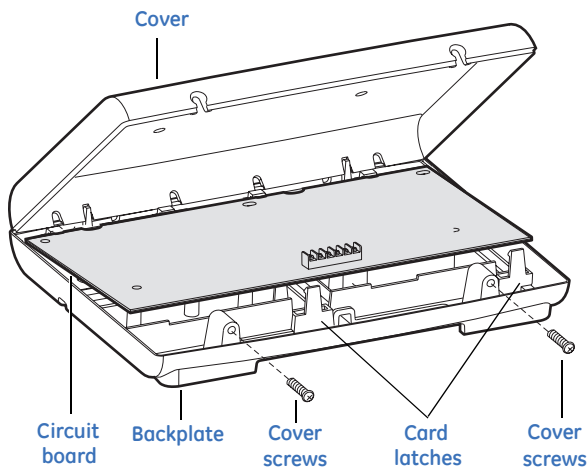
- Mount the transceiver on any interior wall (protected from the elements).
- If possible, temporarily mount, connect, and test the RF transceiver at the desired location to evaluate performance in the particular environment.

### Plastic case module installation

To install the module in the plastic case (60-821-95), do the following:

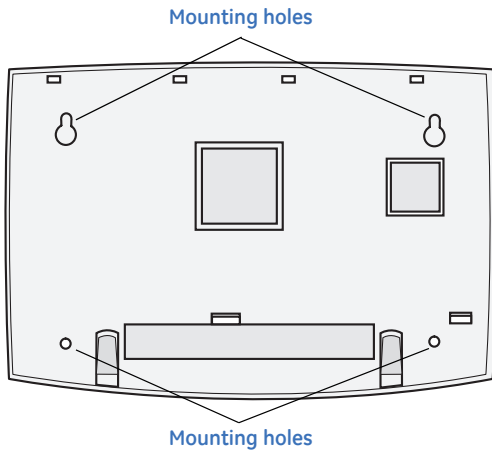
1. Disconnect the panel backup battery and turn off power to the AC power transformer.
2. Remove the transceiver cover and the circuit board and set them aside (*Figure 4*).

Figure 4. Remove cover and circuit board



3. Hold the backplate against the mounting surface and mark the four mounting holes (*Figure 5*). Remember to leave at least 10 in. (25 cm) above the base for the antennas.

Figure 5. Mounting holes



4. Drill holes and insert appropriate anchors.
5. Secure the backplate to the wall with panhead screws.
6. Snap the circuit board back into the backplate.

### Antenna installation

To install the antennas, do the following:

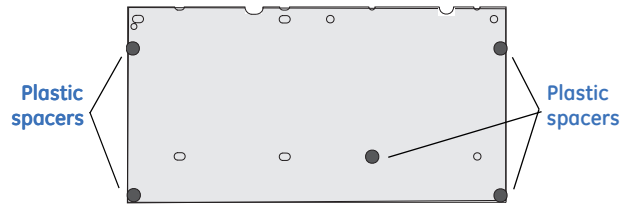
1. Loosen the inside terminals of the left and right antenna terminal block (*Figure 2* on page 1).
2. Insert an antenna into each inside terminal.
3. Tighten the antenna terminal screws.

### Metal case installation

To install the module in the metal case (60-856-95), do the following:

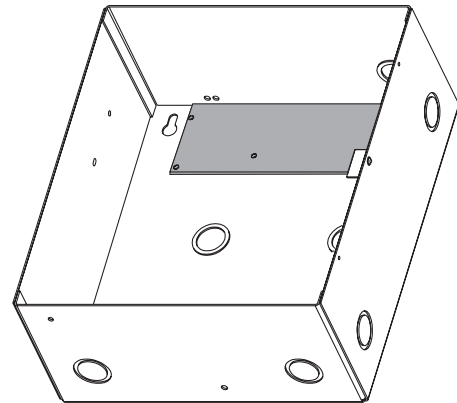
1. Remove the metal case cover and transceiver circuit board, and set aside.
2. Hold the case against the mounting surface and mark the four (larger) mounting holes. Remember to leave at least 10 in. (25 cm) above the case for the antennas.
3. Drill the mounting holes in the wall and insert the appropriate anchors.
4. Remove the case wiring knockouts as necessary.
5. Secure the case to the wall with panhead screws.
6. Snap the 1/4 in. plastic spacers (included) into the back of the circuit board (*Figure 6*).

Figure 6. Plastic spacers



7. Snap the circuit board into the case (*Figure 7*).

Figure 7. Snap the circuit board in the metal case

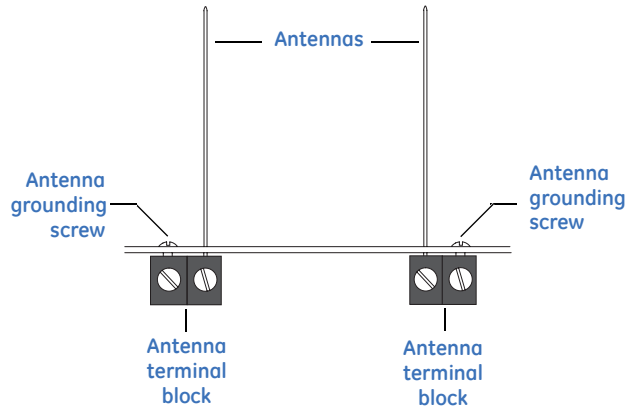


## Antenna installation

To install the antennas in the metal case, do the following:

1. Loosen the left and right antenna terminal blocks (Figure 8).

Figure 8. Metal case antenna installation



2. Screw an antenna grounding screw (included) into each outside terminal.
3. Insert an antenna into each inside terminal.
4. Tighten the antenna and ground terminal screws.

## Wiring

This section describes how to wire the transceiver to compatible panels and how to wire the transceiver hardwire zone input terminals.

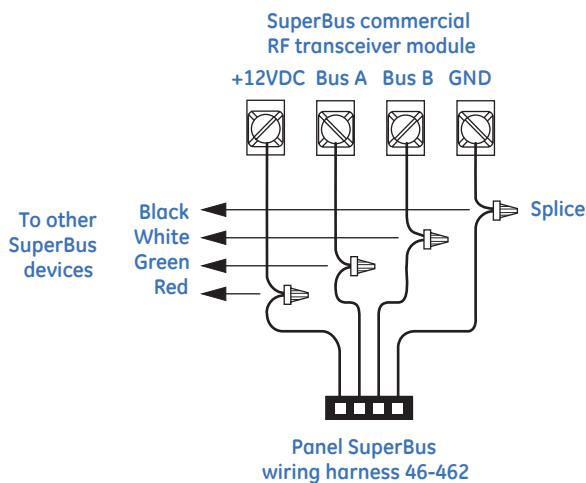


**CAUTION:** Improper connections can result in damage to the equipment.

## Advent panel wiring

Wire the transceiver to the panel SuperBus wiring harness as shown in Figure 9.

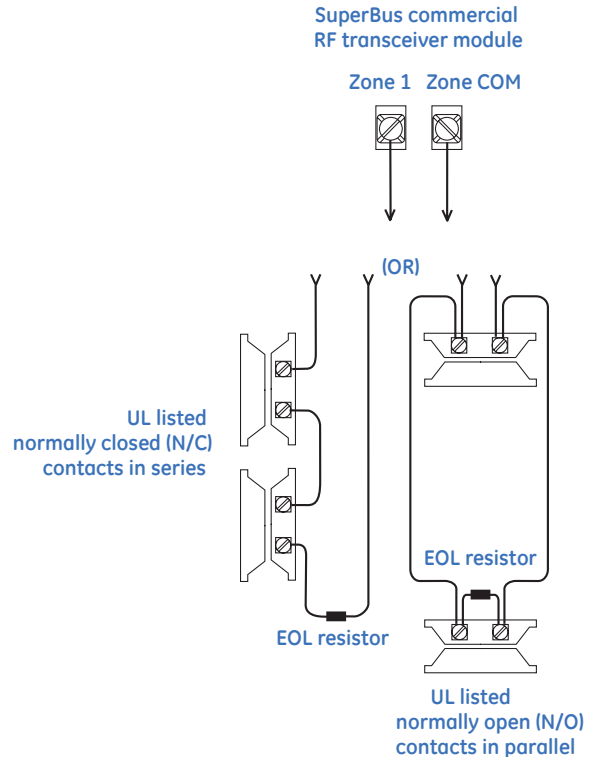
Figure 9. SuperBus wiring harness connections



## Hardwire zone wiring

Connect the module Zone 1 and Zone Com terminals to the hard-wired device as shown in Figure 10 using 2.0 Kohm EOL resistors (49-467) on the last device.

Figure 10. Hardwire zone wiring



## Module device address

Each bus module connected to the panel SuperBus must have a unique (different) device address number set for correct communication. SuperBus 2000 compatible panels such as Advent set the address automatically when the module is added (learned) into panel memory.

## Power up

Use the following procedures for powering up the system and verifying bus communications for both new and existing installations.

### New installations

To power up the system in new installations, do the following:

1. Verify that all wiring at the panel and the transceiver is correct.
2. Connect the panel backup battery and the AC power transformer. Alphanumeric touchpad displays should come on.
3. Verify that the transceiver module green power LED is on and the red bus LED flashes to indicate successful communication with the panel (Figure 2 on page 1).

**Note:** If the transceiver power LED is not on or the red bus LED does not flash, unplug the panel AC power transformer, disconnect the backup battery, and see [Troubleshooting](#) on page 4.

### Existing installations

To power up the system in existing installations, do the following:

1. Verify that all wiring at the panel and the transceiver is correct.
2. Connect the panel backup battery and the AC power transformer. Alphanumeric touchpad displays should come on.
3. Press **8** to select *System* menu.
4. Press **0** to enter program mode.
5. Enter the install code (defaults to 0123).
6. Enter item number **48001** to add SuperBus devices. All installed devices are automatically added (learned) into panel memory when *Devices Added* is indicated.
7. Press \* twice to return to normal mode of operation and refer to the testing sensors/inputs section of your panel documentation for testing module operation.
8. Verify that the transceiver module green power LED is on and the red bus LED flashes to indicate successful communication with the panel.

**Note:** If the transceiver power LED is not on or the red bus LED does not flash, unplug the panel AC power transformer, disconnect the backup battery, and see [Troubleshooting](#).

### Programming

Refer to your panel documentation for adding (learning) wireless devices into panel memory.

### Testing

Verify that the module red bus LED flickers when wireless devices are activated. Verify that the panel recognizes wireless device and hardwire zone actuation (if used).

For complete testing procedures, refer to your panel documentation.

### Troubleshooting

*The module green power LED stays off.*

Check for incorrect wiring connections and for panel power.

If the module power LED still stays off, replace the transceiver.

*The module green power LED is on, but doesn't flicker when wireless transmitters are tripped (no or limited wireless operation).*

Check transceiver antenna connection.

Check for transceiver antenna proximity to metal obstructions such as duct work or AC wiring.

Verify sensors are learned into panel memory.

If the transceiver still malfunctions, replace the module.

*The red bus status LED flashes, but system does not respond.*

Check panel/transceiver programming.

Delete transceiver from panel memory and relearn. Refer to the Advent panel installation instructions for specific details.

If the transceiver still malfunctions, replace the module.

### Wireless device compatibility

The transceiver is compatible with the wireless devices listed in Table.

Table 2. Compatible wireless devices

Part number	Description
60-348	Learn mode handheld wireless touchpad
60-362	Learn mode door/window sensor
60-452	Learn mode pendant panic sensor
60-453	Wall-mount wireless touchpad
60-457	Dual-button panic sensor
60-458	Single-button panic sensor
60-459	Sound sensor
60-460 <sup>1</sup>	Rate-of-rise heat sensor
60-461	Learn mode shock sensor (with 13-214 detector)
60-462	Learn mode glass guard sensor
60-499	Learn mode SlimLine door/window sensor
60-504	Learn mode freeze sensor
60-506 <sup>1</sup>	Learn mode smoke sensor (System Sensor) 2001RF
60-511	Learn mode DS924i PIR motion sensor
60-578	Water-resistant pendant panic sensor
60-589	Learn mode fire pull station sensor
60-597	HiTech handheld wireless touchpad
60-606	Four-button keychain touchpad
60-607	Two-button keychain touchpad
60-615	Quik Bridge learn mode repeater
60-641	Learn mode long life door/window sensor
60-652	Carbon monoxide sensor
60-688	Learn mode micro door/window sensor
60-703	PIR motion sensor
60-741	Learn mode recessed micro door/window sensor
60-834	Learn mode FlexGuard sound sensor
60-848 <sup>1</sup>	Wireless smoke sensor (for UL 217 listed residential installations)
60-849 <sup>1</sup>	Wireless smoke sensor (for UL 268 listed commercial installations)

<sup>1</sup> Learn mode repeaters are not UL 864 listed. All wireless fire devices (rate-of-rise heat sensors and smoke sensors) cannot be used with repeaters. Fire sensor signals transmitted from repeaters cannot be processed by the RF transceiver.

## FCC compliance

### FCC part 15 information to the User

Changes or modifications not expressly approved by GE Security can void the user's authority to operate the equipment.

#### FCC part 15 class A

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, and may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense.

#### FCC part 15 class B

This equipment has been tested and found to comply with the limits with a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the affected equipment and the panel receiver to separate outlets, on different branch circuits.
- Consult the dealer or an experienced radio/TV technician for help.

## Specifications

Compatibility	Advent panels (60-562-01, 60-562-02, 60-562-03), GE Security 319.5 MHz crystal learn mode wireless sensors and touchpads, all dry contact-type hardwire contacts
Number of wireless sensors	Limited to the maximum capacity of the panel
Hardwire zones	One class B, style A supervised, fire-rated, normally open or closed dry contact zone input
Power required	12 VDC nominal at 50 mA maximum (from panel)
Data bus	SuperBus 2000, auto-addressing digital data bus
Data bus range	Up to 4,000 ft. (1219 m) from panel, 18 gauge or larger hookup wire
Signal range	3,500 ft. (1067 m) typical in metal case, open air 2,500 ft. (762 m) typical in plastic case, open air (may vary with application)
Operating temperature	32 to 120°F (0 to 49°C) for extended periods, up to 140°F (60°C) under temporary conditions
Storage temperature	-30 to 140°F (-34 to 60°C)
Max. relative humidity	90% noncondensing
Dimensions (L x W x D)	
60-821-95 commercial burg	6.0 x 8.5 x 1.5 in. (152 x 216 x 38 mm)
60-856-95 commercial fire	11.25 x 9.75 x 4.63 in. (285 x 248 x 118 mm) excluding antennas
Case material	
60-821-95	High-impact, ABS plastic
60-856-95	16-gauge steel
Listings	UL 365: Police Connected Burglar Alarm Units and Systems UL 609: Local Burglar Alarm Units and Systems UL 985: Household Fire Warning System Units UL 1023: Household Burglar Alarm System Units UL 1610: Central Station Burglar Alarm System Units ULC Canada Commercial Fire/Burglary Warning System (applied for) CSFM California State Fire Marshall DOD Sensitive Compartment Information Fac. (applied for) FM Factory Mutual (applied for) MEA New York City Material Equipment Acceptance (applied for) Complies with NFPA for Fire Alarm Code

### Technical support

**Toll-free:** 888.GESECURity (888.437.3287 in the US, including Alaska and Hawaii; Puerto Rico; Canada).  
Outside the toll-free area: Contact your local dealer.

[www.gesecurity.com](http://www.gesecurity.com)