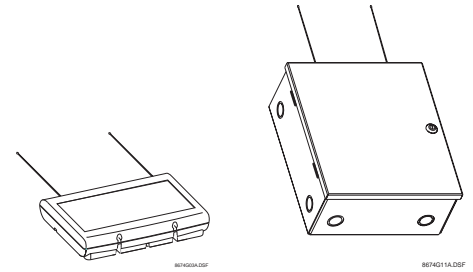


# SuperBus® 2000 Commercial RF Transceiver Module

Document Number: 466-1653 Rev. B  
November 2000



## Installation Instructions

### Product Summary

The SuperBus® 2000 Commercial RF Transceiver Module adds or extends a compatible panel's wireless capabilities in both residential and commercial installations.

The transceiver can be mounted near the panel cabinet or it can be located up to 4,000 feet away. The transceiver module 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.

RF Transceiver Modules feature the following:

- Spatial diversity reception, which minimizes wireless signal nulls or dead spots.
- Compatibility with all ITI® 319.5 MHz crystal Learn Mode™ wireless sensors and touchpads.
- 3,500 feet typical in metal case, open air receiving range. 2,500 feet typical in plastic case, open air receiving range.
- Light-emitting-diodes (LEDs) indicate transceiver module power, wireless packet reception and bus status.
- Two case versions, 60-821-95 (plastic) and 60-856-95 (metal).

Figure 1 shows transceiver components and the following table describes them.

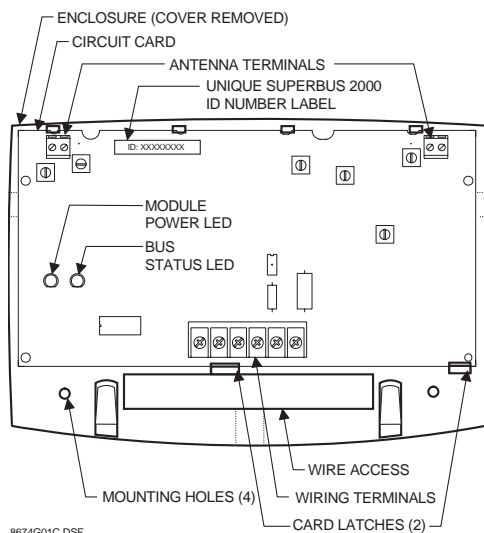


Figure 1. RF Transceiver Module Components (plastic case version shown)

Table 1: Component Descriptions

Component	Function
Antenna Terminals	Provides 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 hardwire zone.

### Tools and Supplies Needed

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

### Installation Guidelines

Observe the following guidelines when installing the transceiver:

- Advent systems can accommodate up to 250 sensors/zones.
- Advent systems can have up to 62 SuperBus devices.
- Leave at least 10" above the transceiver for the antennas.
- Avoid areas that are likely to 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 Table 1 in the Advent Panel *Installation Instructions* for maximum wire length recommendations. If the maximum recommended wire length from Table 1 must be exceeded, a remote DC power supply will be required. When using a remote power supply, the power and ground connections of panel and remote supplies must remain isolated. Do not connect 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, as shown in Figure 2.

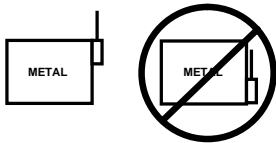


Figure 2. Mounting on or Near Metal

## Installation

The transceiver can be mounted on any interior wall (protected from the elements).

### To prepare for mounting (all case versions):



**CAUTION**

You must be free of static electricity before handling circuit boards. Wear a grounding strap or touch a grounded bare metal surface to discharge static electricity.

**Note**

If possible, temporarily mount, connect, and test the RF transceiver at the desired location to evaluate performance in the particular environment.

- ❑ Disconnect the panel backup battery and turn off power to the AC power transformer.

### Installing the Plastic Case Module

#### To mount the plastic case transceiver:

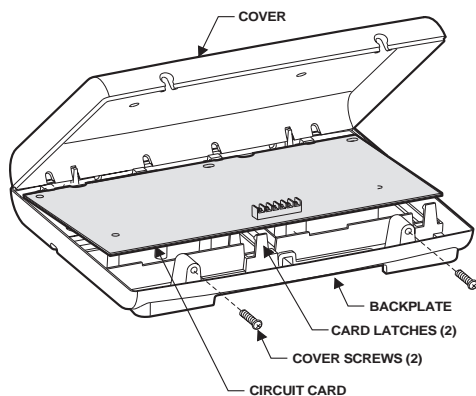


Figure 3. Removing the Plastic Cover

1. Remove the transceiver cover and the circuit card and set them aside (see Figure 3).
2. Hold the base against the mounting surface and mark the four mounting holes (see Figure 4). Remember to leave at least 10 inches above the base for the antennas.
3. Drill holes and insert appropriate anchors.
4. Secure the back plate to the wall with panhead screws.
5. Snap the circuit card back into the backplate.

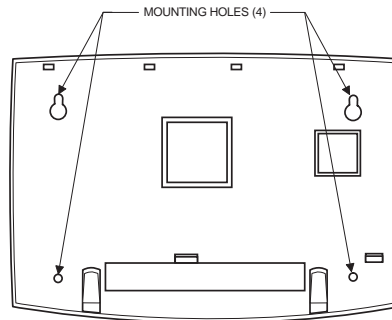


Figure 4. Mounting Holes

#### To install the antennas:

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

### Installing the Metal Case Module

#### To mount the metal case transceiver:

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

## Module/Panel Wiring

**CAUTION**  
Improper connections may result in damage to the equipment.

This section describes how to wire the transceiver to Advent panels.

### Advent Panel Wiring

To wire the RF Transceiver to Advent panels:

Wire the transceiver to the panel's SuperBus wiring harness wires as shown in Figure 8.

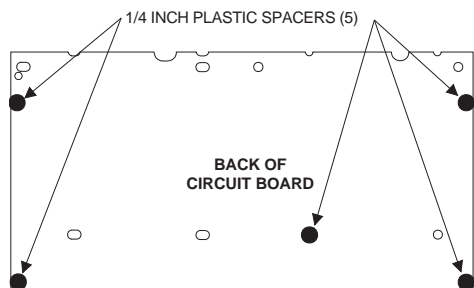


Figure 5. Installing the Board Mounting Spacers

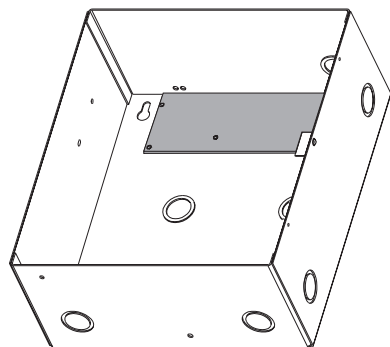


Figure 6. Installing the Board into the Metal Case

To install the Antennas:

1. Loosen the terminals of the left and right antenna terminal blocks (see Figure 7).
2. Screw an included antenna grounding screw into each **outside** terminal.
3. Insert an antenna into each **inside** terminal.
4. Tighten the antenna and ground terminal screws.

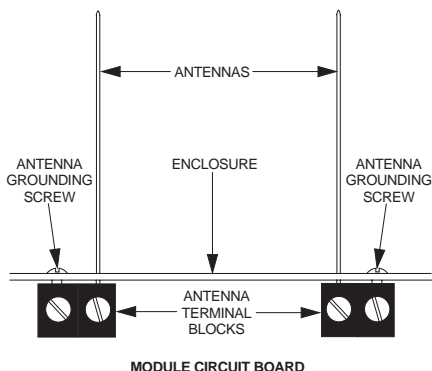


Figure 7. Installing Metal Case Antennas and Grounding Screws

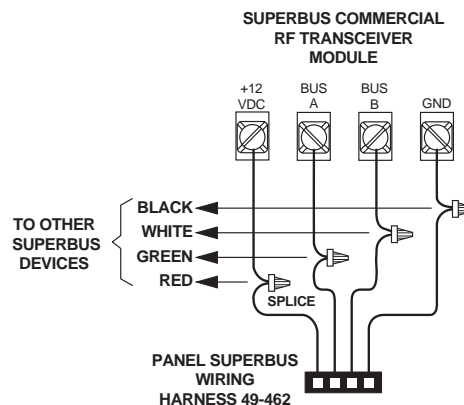


Figure 8. Wiring to Advent Panels

## Module Hardwire Zone Wiring

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

To wire the RF transceiver zone input:

Connect the module Zone 1 and Zone Com terminals to the hardwired device as shown in Figure 9.

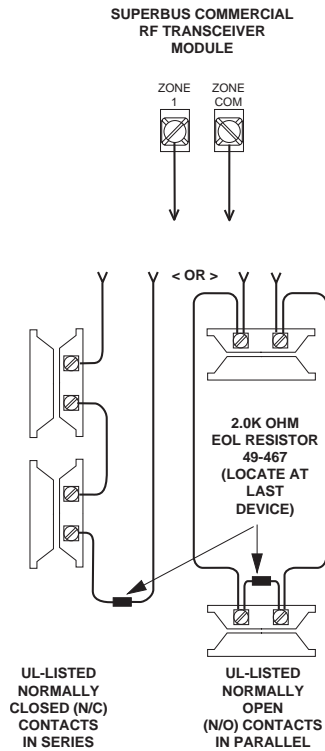


Figure 9. Wiring the RF Transceiver Hardwire Zone

## Setting the 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 bus address automatically.

### Setting the Device Address for Advent Panels

The Advent SuperBus 2000 compatible panel automatically sets the module bus address when the module is added (learned) into panel memory.

## Power Up and Bus Communication

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

### New Installations

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.

**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."

### Existing Installations

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 select *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 the normal mode of operation and refer to the "Testing Sensors/Inputs" section of the panel *Installation Instructions* 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."

## Wireless Sensor Programming

Refer to the panel *Installation Instructions* 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 the panel *Installation Instructions*.

## Troubleshooting

### Module green power LED stays off.

1. Check for incorrect wiring connections and for panel power.
2. If the module power LED still stays off, replace the transceiver.

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

1. Check transceiver antenna connections.
2. Check for transceiver antenna proximity to metal obstructions such as ducting or AC wiring.
3. Verify sensor(s) is learned into panel memory.
4. If the transceiver still malfunctions, replace the module.

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

1. Check panel/transceiver programming.
2. Delete transceiver from panel memory and relearn. See Advent Panel Installation Instructions for specific details.
3. If the transceiver still malfunctions, replace the module.

**Table 2: Wireless Device Compatibility**

Part No.	Description
60-348	Learn Mode Hand Held Wireless Touchpad
60-362	Learn Mode Door/Window Sensor
60-409	Learn Mode Recessed 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	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 Slim Line Door/Window Sensor
60-504	Learn Mode Freeze Sensor
60-506	Learn Mode Smoke Sensor (System Sensor) 2100RF
60-511	Learn Mode DS924i PIR Motion Sensor
60-578	Water-Resistant Pendant Panic Sensor
60-582	Learn Mode Sound Sensor (IntelliSense)
60-589	Learn Mode Fire Pull Station Sensor

**Table 2: Wireless Device Compatibility**

Part No.	Description
60-597	HiTech Hand Held Wireless Touchpad
60-606	Four Button Keychain Touchpad
60-607	Two Button Keychain Touchpad
60-615	Quick Bridge Learn Mode Repeater
60-641	Learn Mode Long Life Door/Window Sensor
60-642	Learn Mode Long Range Transmitter
60-652	Carbon Monoxide Sensor
60-658	Learn Mode Carbon Monoxide Sensor (COS-200)
60-688	Learn Mode Micro Door/Window Sensor
60-691	Learn Mode Cash Drawer Sensor
60-703	ITI PIR Motion Sensor
60-741	Learn Mode Recessed Micro Door/Window Sensor
60-834	Learn Mode FlexGuard Sound Sensor
60-838	Wireless Smoke Sensor (System Sensor 2100ARFT)
60-848	ESL/ITI Wireless Smoke Sensor (for UL 217 listed residential installations)
60-849	ESL/ITI Wireless Smoke Sensor (for UL 268 listed commercial installations)

## Specifications

**Compatibility:**..... ITI Advent panels (60-562-01, 60-562-02, 60-562-03). ITI 319.5 MHz crystal Learn Mode™ wireless sensors and touchpads. All dry contact type hard wire 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:**..... ITI SuperBus 2000, auto addressing digital data bus.

**Data Bus Range:**..... Up to 4,000 feet from panel (18 gauge or larger hookup wire)

**Signal Range:** ..... 3,500 feet typical in metal case, open air. 2,500 feet typical in plastic case, open air (may vary with application)

**Temperature:**

Operating ..... 32° to 120°F (0° to 49°C) for extended periods. Up to 140°F (60°C) under temporary conditions.

Storage ..... -30° to 140°F (-34° to 60°C).

**Maximum Humidity:**.. 90% relative humidity, noncondensing.

**Dimensions:****Commercial Burg**

60-821-95 ..... 6.0"(15.2 cm) x 8.5"(21.6 cm) x 1.5"(3.8 cm). (L x W x D) excluding 9" antennas.

**Commercial Fire**

60-856-95..... 11.25"(28.5 cm) x 9.75"(24.8 cm) x 4.63"(11.8 cm) (L x W x D) excluding 9" 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 864: Control Units for Fire-Protective Signaling Systems (60-856-95 only)

UL 985: Household Fire Warning System Units

UL 1023: Household Burglar Alarm System Units

UL 1610: Central Station Burglar Alarm System Units

UL 1637: Home Health Care Signaling Equipment

ULC Canada Commercial Fire/Burglary Warning System (applied for)

CSFM California State Fire Marshall (applied for)

DOD Sensitive Compartment Information Fac. (applied for)

FM Factory Mutual (pending)

MEA New York City Material Equipment Acceptance (applied for)

Complies with NFPA for Fire Alarm Code

**FCC Notice****FCC Part 15 Information to the User**

Changes or modifications not expressly approved by Interactive Technologies, Inc. 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, 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 for 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 communications. 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.



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