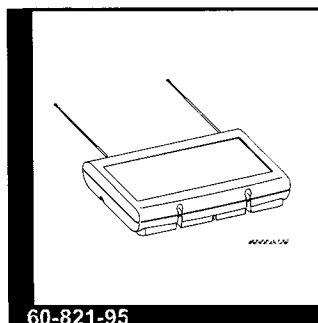


SuperBus® 2000 Commercial RF Transceiver Module

Document Number: 466-1653 Rev.A (Preliminary)
August 1999



INSTALLATION INSTRUCTIONS

Product Summary

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

The transceiver can be mounted near the panel cabinet or it can be located up to 2,800 feet away from the panel (see table 2 in the *Installation Guidelines* section). 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.

Concord™ hardwire and wireless systems support up to two transceiver modules. 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.
- 4,000 feet typical, open air receiving range.
- Light-emitting-diodes (LED) indicating transceiver module power, wireless packet reception and bus status.

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

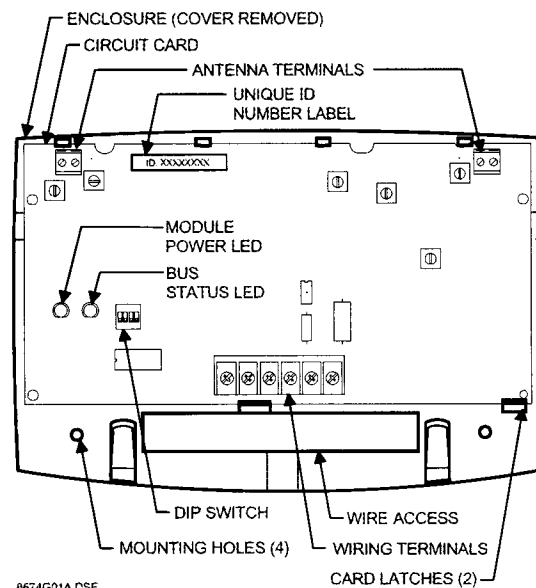


Figure 1. RF Transceiver Module Components

Table 1. Component Descriptions

Component	Function
Antenna Terminals	Provides antenna connections. (Outer terminals are unused.)
Unique ID Label	Indicates modules's unique identification number.
Module Power LED	On when module is powered. Flickers when wireless signal received.
Bus Status LED	Flashes when the transceiver communicates with the panel via the SuperBus.
Device Bus Address DIP Switches	Used for manually setting the transceiver's bus address when used with non-SuperBus 2000 panels.
Wiring Terminals	Connections for power, bus, and hardwire zone.

Tools and Supplies Needed

- Mounting screws and anchors (included)
- Two 9" antennas (included)
- Phillips screwdriver
- Small standard screwdriver
- 4-conductor, 18-gauge or larger, stranded hookup wire is recommended

Installation Guidelines

Observe the following guidelines when installing the transceiver:

- Concord systems can accommodate a maximum 76 sensors/zones. Advent systems up to 255 sensors.
- In Concord systems, up to 16 SuperBus devices can be connected to the panel (SuperBus 2x16 LCD Alphanumeric Touchpad, HIM, HOM, ESM, etc.). Advent system can have up to 32 bus devices
- Each SuperBus device must have a different device address. The transceiver uses DIP switches for manually setting the address for use on non-SuperBus 2000 panels (factory set to 0).
- Leave at least 10" above the transceiver for the antennas.
- If mounting the transceiver away from the panel, use the wire length guidelines in table 2.

Table 2. Maximum Transceiver Wire Lengths

Wire Gauge (Unshielded or Shielded)	Max. Wire Length Between Transceiver and Concord Panel
18	2,800 feet
22	1,000 feet

- 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.
- 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.

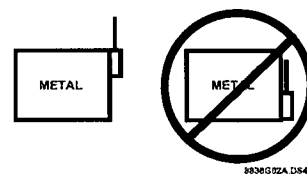


Figure 2. Mounting on or Near Metal

Installation

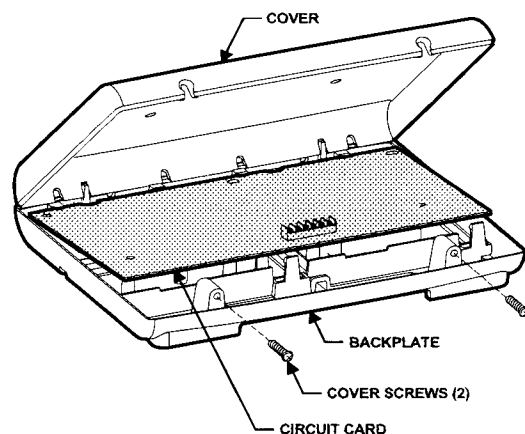
The transceiver can be mounted on any interior wall (protected from the elements).

To prepare for mounting:

1. If possible, temporarily connect and test the RF transceiver at the desired location to evaluate performance in the particular environment.
2. Disconnect the panel backup battery and unplug the AC power transformer.
3. Remove the transceiver cover and set it aside (see figure 3).



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



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Figure 3. Removing the Cover

To mount the transceiver:

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

Connecting the Antennas to the Transceiver

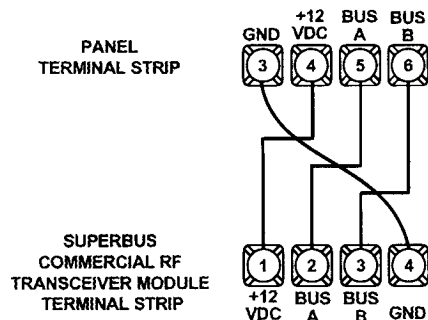
1. Loosen the **inside** terminals of the left and right antenna terminal blocks (see figure 1).
2. Insert an antenna into each **inside** terminal.
3. Tighten the antenna terminal screws.

Module/Panel Wiring

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

Concord Panel Wiring**To wire the transceiver to Concord panels:**

1. Disconnect the panel's power transformer and backup battery.
2. Wire the transceiver to the panel's power and bus terminals as shown in figure 4.

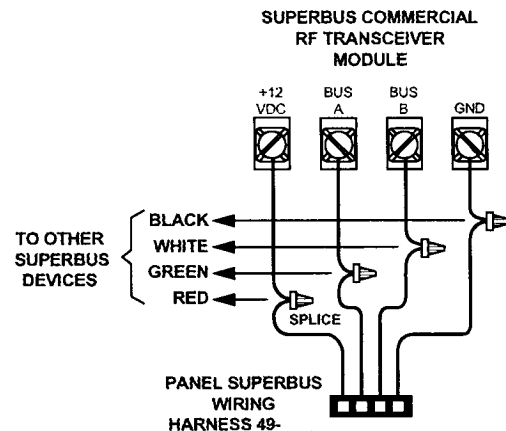


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Figure 4. Wiring the RF Transceiver to Concord Hardwire and Wireless Panels

Advent Panel Wiring**To wire the RF Transceiver to Advent panels:**

1. Disconnect the panel's power transformer and backup battery.
2. Wire the transceiver to the panel's SuperBus wiring harness wires as shown in figure 5.



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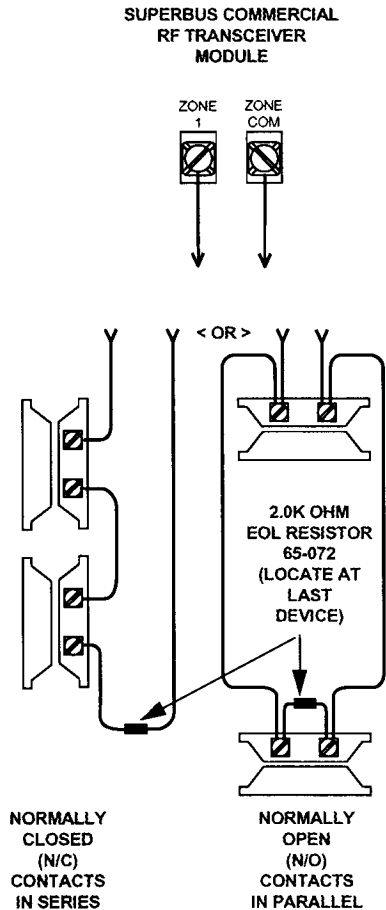
Figure 5. Wiring the RF Transceiver to Advent Panels

Module Hardwire Zone Wiring

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

To wire the RF transceiver zone input:

1. Connect the module Zone 1 and Zone Com terminals to the hardwired device as shown in figure 6.



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Figure 6. 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. Non-SuperBus 2000 panels require that the module address be manually set. SuperBus 2000 panels set the address automatically.

Setting the Device Address for Concord Panels

For use with Concord panels (and other non-SuperBus 2000 compatible panels), the module address must be manually set. The module can be set to any address 0–15, using the module DIP switches.

Note: Do not set the SuperBus RF Transceiver's address to 15 if it is installed in a Concord RF (wireless) system, since this panel's built-in transceiver is factory set to address 15 and cannot be changed.

Set the DIP switches to the desired address *before* applying power.

Note: Changing the DIP switches while the transceiver is operating does *not* change the address.

To set the transceiver's device address for Concord systems:

Locate the DIP switches on the transceiver (see figure 1) and set them to the desired address 0–15 (see figure 7).

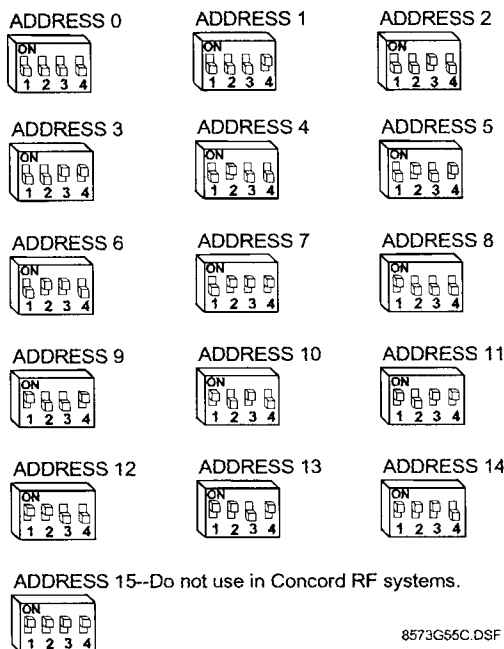


Figure 7. Device Address DIP Switch Settings

Setting the Device Address for Advent Panels

The Advent SuperBus 2000 compatible panel automatically sets the module's address when the module is added (learned) into panel memory. The module DIP switch settings are ignored.

Power Up and Bus Communication

Use the following procedures for powering up the system and verifying bus communications.

Concord Power Up and Bus Communication

Note: In order to enter panel program mode to verify device address settings, an alphanumeric touchpad must be connected to the Concord panel.

To power up the Concord panel and the RF transceiver:

1. Verify that all wiring at the panel and the RF transceiver is correct.
2. Reconnect the panel backup battery and plug in the AC power transformer.
3. Verify that the transceiver module's green power LED is on.

Note: If the transceiver's power LED is not on, unplug the panel AC power transformer and disconnect the backup battery. Verify that all wiring is correct and that all bus devices (including hardware touchpads) are set with different device addresses.

Whenever the transceiver's device address is changed, you must remove panel AC and backup battery power and then reconnect them for the panel and transceiver to communicate successfully.

4. From an alphanumeric touchpad, enter installer program mode by entering **8 + installer or dealer CODE + 0 + 0**. The display reads *SYSTEM PROGRAMMING*.
5. Press **#** and the display shows *SECURITY*.
6. Press **A** or **B** until the display shows *ACCESSORY MODULES*, then press **#**. The display should read *BUS DEVICES*.
7. Press **#**. The display shows the lowest address (unit) and its device name (type). For example, a transceiver address display may look like this:
UNIT - TYPE
00 - RCVR
8. Press **A** or **B** to view and verify all bus device addresses.
9. Exit program mode.

If the module's bus status LED is not flashing, refer to the *Panel Installation Instructions* for Adding (learning) SuperBus devices into panel memory.

Advent Power Up and Bus Communication

To power up the Advent panel and the RF transceiver:

1. Verify that all wiring at the panel and the transceiver is correct.
2. Reconnect the panel backup battery and plug in the AC power transformer.
3. Verify that the transceiver module's green power LED is on.

Note: If the transceiver's power LED is not on, unplug the panel AC power transformer and disconnect the backup battery. Verify that all wiring is correct.

4. Press **8** to select *System Menu*.
5. Press **0** to select *Enter Program Mode*.
6. Enter the install code (four digit install access code).

The alphanumeric display should read *PROGRAM MENU* and the red bus status LED in the module should be flash to indicate successful bus communication with the panel.

If the module's bus status LED is not flashing, refer to the *Panel Installation Instructions* for Adding (learning) SuperBus devices into panel memory.

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.

Changing the Transceiver's Address

Use the following guidelines when changing device address assignments (on non-SuperBus 2000 panels such as Concord) to avoid communication conflicts between bus devices and the panel:

- All bus devices with DIP switches (Transceivers, LED Touchpad, etc.) must be set to the desired address before applying power and entering program mode.

- Whenever possible, assign alphanumeric touchpad addresses before all other panel programming.

To manually change the transceiver's address on non-SuperBus 2000 panels:

1. Remove AC and backup battery power from the panel.
2. Change the DIP switch setting on the transceiver (see figure 7). Remember, the setting must be different from all other bus devices.
3. Apply AC and backup battery power to the panel. The panel automatically scans all bus devices and learns any new settings.
4. The system may still indicate a bus failure if the panel learned an address that is no longer assigned to any bus device. To clear the failure on Concord panels, enter program mode and locate the old address (under *BUS DEVICES*) and delete it by pressing **D**. On Advent panels, enter program mode and locate the old address and delete it.
5. Exit from program mode. The touchpad and all other bus devices should operate correctly and any bus failures should be cleared.

Wireless Sensor Programming

Refer to the panel *Installation Instructions* for adding (learning) wireless devices into panel memory.

Testing

Verify that the module's green power LED flickers when wireless devices are activated. Verify that the panel recognizes wireless devices and hardwire zone (if used) actuation.

For complete testing procedures, refer to the panel's *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's 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. If the transceiver still malfunctions, replace the module.

Module's green power LED is on and flickers when wireless transmitters are tripped, but red bus LED does not flash.

1. Check that no bus devices are set to the same address (non-SuperBus 2000 panels such as Concord only).
2. On non-SuperBus 2000 panels, manually change the module's bus address and re-initialize the panel/transceiver by disconnecting and reconnecting panel power.

Module's green power LED is on and flickers when wireless transmitters are tripped, Red bus status LED flashes, but system does not respond.

1. Make sure that the wireless zone capabilities of the transceiver and panel have not been exceeded. (Removing one of two transceivers connected to a panel after wireless devices are learned can cause this problem.)
3. Check panel/transceiver programming.
4. If the transceiver still malfunctions, replace the module.

Specifications

Compatibility: ITI Concord and Advent and Custom Versions panels.
ITI 319.5 MHz crystal
Learn Mode™ wireless sensors and touchpads. Dry contact hard-wire contacts.

Wireless Sensors:
Panel's maximum capacity

Hardwire Zones:
One supervised, fire-rated, normally open or closed dry contact zone input.

Power Required: 8–14 VDC at 30 ma maximum (from panel)

Data Bus: ITI SuperBus 2000, auto addressing digital data bus.

Data Bus Range: Up to 2,800 feet (using 18 gauge hookup wire)

Wireless Signal Range: 4,000 feet typical open air (may vary with application)

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

Operating Temperature:
32° to 140° F (0° to 60° C)

Maximum Humidity:
90% relative humidity, noncondensing.

Approvals/Listings:

FCC Parts 15 and 68
UL 365 for Police Connected Burglar Alarm Units and Systems (pending)
UL 609 for Local Burglar Alarm Units and Systems (pending)
UL 864 for Control Units for Fire-Protective Signaling Systems (pending)
UL 985 for Household Fire Warning System Units (pending)
UL 1023 for Household Burglar Alarm System Units (pending)
UL 1076 for Proprietary Burglar Alarm Units and Systems (pending)
UL 1637 for Home Health Care Signaling Equipment (pending)
ULC Canada Commercial Fire/Burglary Warning System (pending)

CSFM California State Fire Marshall (pending)
DOD Sensitive Compartment Information Fac.
(pending)
FM Factory Mutual (pending)
MEA New York City Material Equipment Acceptance
(pending)
Complies with NFPA for Fire Alarm Code
Dimensions: 6.0" x 8.5" x 1.5" (L x W x D)
excluding 9" antennas
Case Material: High-Impact, ABS plastic.
Case Color: Belgian gray.
Installation: Wall mount.

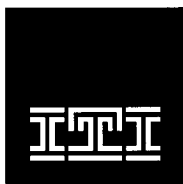
FCC Notice

This device complies with FCC Rules Parts 15 and 68. Operation is subject to the following two conditions:

This device may not cause harmful interference.

This device must accept any interference that may be received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by Interactive Technologies, Inc. can void the user's authority to operate the equipment.



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WIRELESS

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