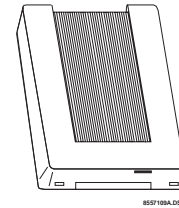


# SuperBus® 2000 8Z Input Module



Document Number: 466-1606 Rev. B  
November 2000

## Product Summary

Each SuperBus® 2000 8-Zone Input Module adds eight supervised hardwire zones. Each module includes mounting hardware and eight 2.0K ohm end-of-line (EOL) resistors. Power for the module is provided by the panel.

Both normally open and normally closed detectors can be wired to module inputs. Using an EOL resistor on each loop input, the module monitors all zones and alerts the panel if there is an open/short circuit.

Advent® panels can support multiple modules for up to 250 zone inputs. UltraGard® panels can support up to eight modules for 64 additional zone inputs. Concord™ panels can be expanded up to 76 zone inputs.

For additional security, the plastic case includes space for installing a magnet and reed switch that can provide tamper protection to detect cover removal.

### SuperBus 2000 vs. SuperBus

SuperBus 2000 panels have the ability to auto-address module unit numbers. When the panel is powered up, the panel automatically reads the unique SuperBus 2000 device ID number and assigns a unit number to the module. This eliminates manually setting DIP switches and the chance of identical unit number conflicts.

#### SuperBus 2000 Panels

- Advent
- Concord (software versions 2.0 and later)

SuperBus panels communicate with SuperBus 2000 modules but require the module unit number to first be set manually with DIP switches.

#### SuperBus Panels

- UltraGard
- Concord (software versions 1.0–1.6)

## Installation Instructions

### Module Components

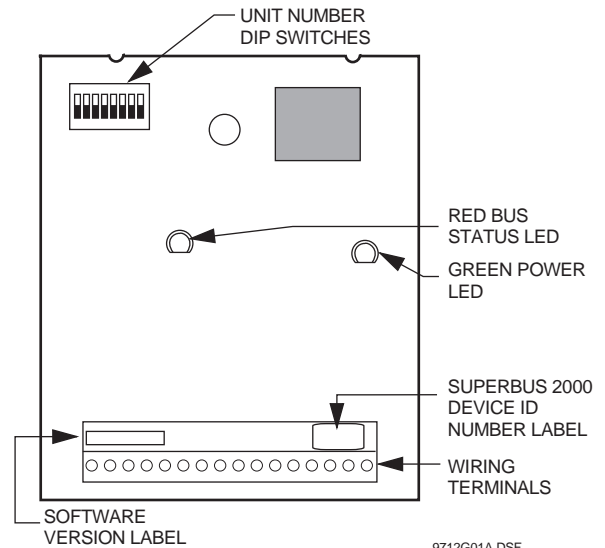


Figure 1. Module Circuit Board Components

Table 1. Module Component Descriptions

Component	Function
Unit Number DIP Switches	Used for manually setting unit numbers (SuperBus panels).
SuperBus 2000 Device ID Number Label	Identifies unique device ID number (SuperBus 2000 panels).
Software Version Label	Identifies the installed software version.
Green POWER LED	Indicates module power status.
Red BUS LED	Flashes to indicate normal communication to the panel bus.
Wiring Terminals	Used for power, bus, and hardwire zone input connections.

## Installation Guidelines

- ❑ For the maximum number of bus devices and touch-pads per panel see Table 2.

**Table 2. Maximum Bus Devices Per Panel**

Panel	Maximum Bus Devices
Advent	62
UltraGard	8
Concord	16

- ❑ Do not exceed the total panel output power when using panel power for bus devices and hardwired sensors that require it (see specific panel *Installation Instructions*).
- ❑ Maximum current draw of each SuperBus 2000 8Z Input Module is 35 mA.
- ❑ Do not exceed the maximum wire length from the panel to the module (see Table 3).

**Table 3: Maximum Wire Lengths**

Panel	Maximum Wire Length
Advent	22 ga. 1,800 ft./18 ga. 4000 ft.
UltraGard	22 ga. 500 ft./18 ga. 1000 ft.
Concord	22 ga. 1,800 ft./ 18 ga. 4,500 ft.

- ❑ When using self or remotely powered devices with an Advent panel, do not exceed the maximum recommended wire length of 4000 feet using 22-gauge or larger wire.
- ❑ Terminate each hardwired zone with a 2.0K ohm EOL resistor. For normally open circuits, wire the resistor in parallel. For normally closed circuits, wire the resistor in series.
- ❑ Always install the EOL resistor at the last sensor or device on the circuit, not at the zone input terminals.

## Tools and Supplies Needed

- ❑ Screwdrivers
- ❑ Drill with bits
- ❑ 3/8 -inch #6-32 self-tapping screws (included)
- ❑ 2.0K ohm EOL resistors (49-467) (included)
- ❑ 22-gauge or larger wire (18-gauge or larger for commercial applications)
- ❑ 1/4-inch press-fit reed switch and magnet (not included) for cover tamper
- ❑ 1/4-inch #6-32 self tapping screws (not included) for Advent cabinet mounting
- ❑ Support standoff (included with Concord cabinet)

## Installation

The module can be mounted

- ❑ On a wall.
- ❑ Inside an Advent cabinet.
- ❑ Inside a Concord cabinet.
- ❑ Inside a SuperBus module cabinet (60-698). Refer to the cabinet *Installation Instructions* for installation procedures.

**Note**

For UltraGard installations, the module must be mounted to a wall. The module will not fit in the UltraGard cabinet.

## Mounting the Module



**CAUTION**

To prevent damaging the panel or module, remove the panel AC power and disconnect the backup battery(s) before installation.



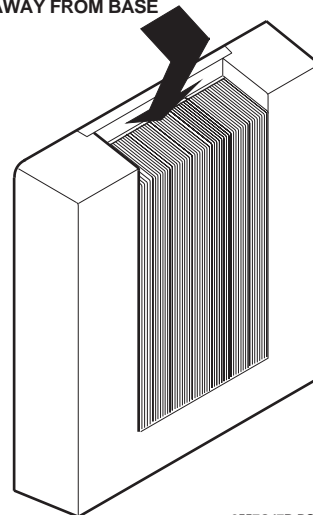
**CAUTION**

You must be free of all static electricity when handling electronic components. Touch a bare metal surface before touching the circuit board.

## To Mount the Module on a Wall

1. Remove the module cover and set it aside (Figure 2).

PRESS DOWN  
HERE AND PULL  
AWAY FROM BASE



8557G47B.DS4

**Figure 2. Removing the Cover**

2. Place the back-plate on the wall and mark the three mounting holes (Figure 3).
3. Drill holes and insert appropriate anchors.
4. Secure the back-plate to the wall with included screws.

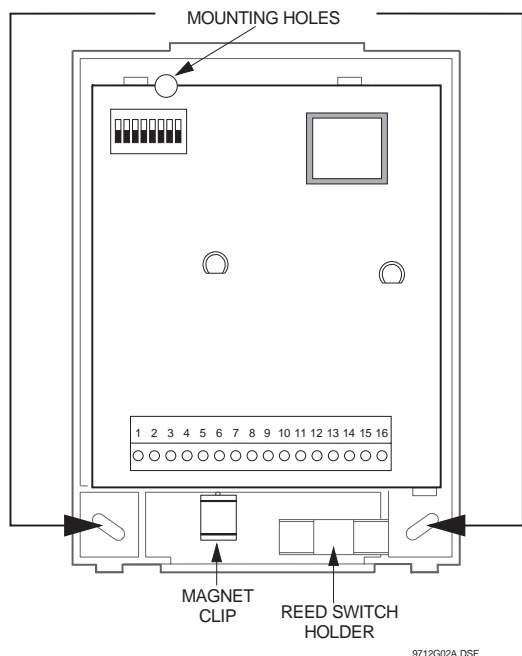


Figure 3. Wall Mounting Hole Locations

### To Mount the Module in an Advent Cabinet

1. Remove AC panel power and disconnect the backup battery(s).
2. Remove the module cover and set it aside (Figure 2).
3. Turn the module upside down and line up the holes on the back-plate at the desired location (Figure 4).
4. Secure the back-plate to the cabinet using three 1/4 - inch #6-32 self-tapping screws (not included).

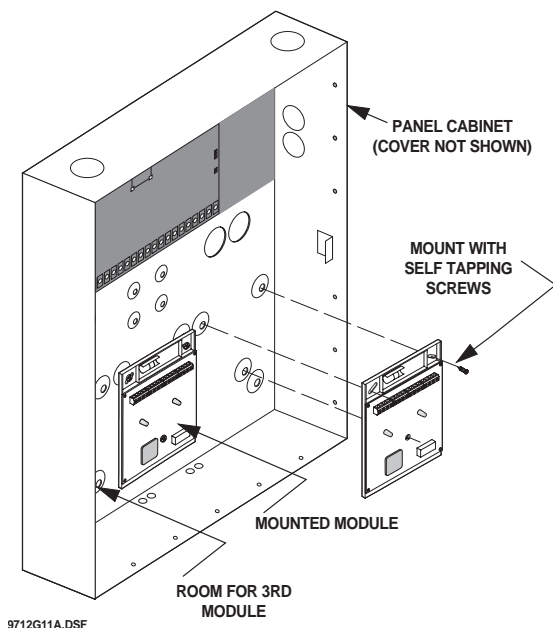


Figure 4. Mounting the Module in an Advent Cabinet

### To Mount the Module in a Concord Cabinet

1. Remove AC panel power and disconnect the backup battery.
2. Remove and discard the module cover (Figure 2).
3. Insert a support standoff shown in Figure 5 (supplied with panel) into the panel circuit board.

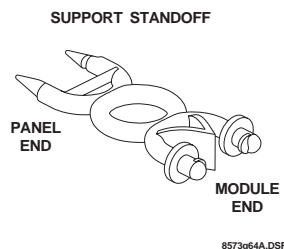


Figure 5. Support Standoff

4. Slide the module back-plate onto the two clips located on the top-left corner or center of the cabinet (Figure 6).

**Note**

The two mounting clips in the top-right corner of the cabinet are designated for a receiver module, but if a receiver module is not being used, the mounting clips may be used for the 8 Zone Input Module.

5. Push the lower-right corner of the module onto the support standoff (see detail in Figure 6).
6. Gently press the module up and onto the cabinet side tab.

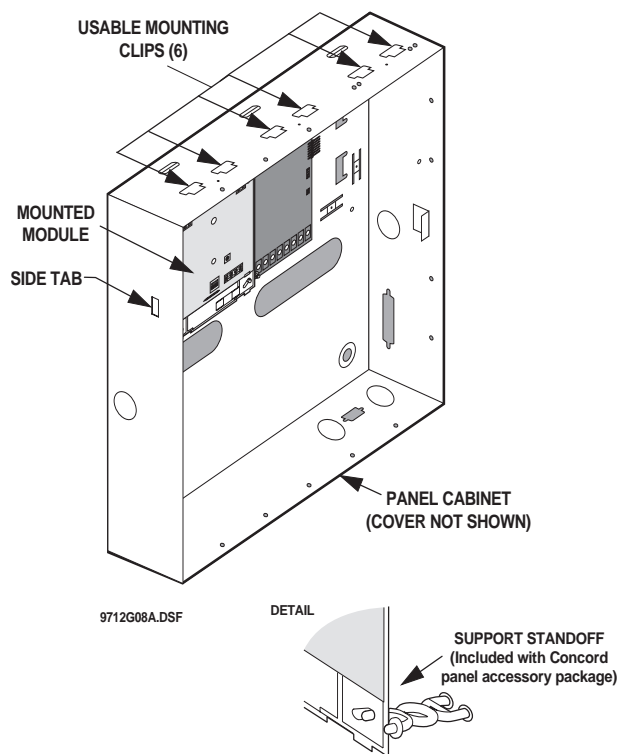


Figure 6. Mounting the Module in a Concord Cabinet

# Wiring the Module

## To Wire the Module to a Panel

**Important!**

On Advent panels, the BUS 1 and BUS 2 headers must be used only for fire or burglary applications. Do not mix fire and burglary bus devices on either header.

1. Make sure the panel AC power is turned off or removed, and the panel backup battery(s) are disconnected.
2. Wire the module to the panel as shown in Figure 7 and explained in Table 4.

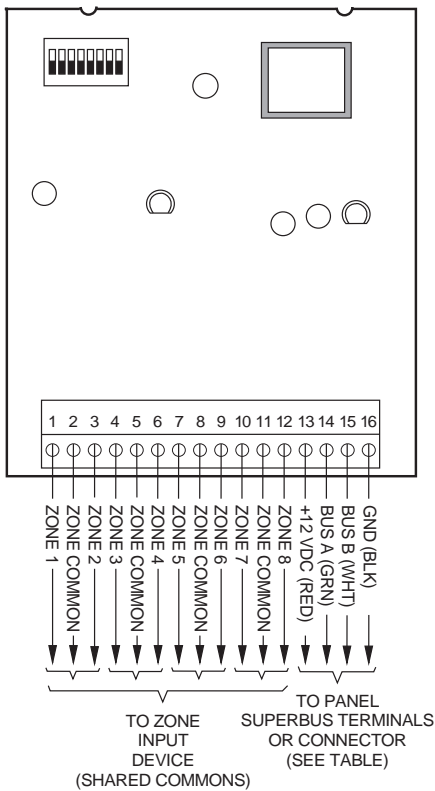


Figure 7. General Module Wiring

Table 4. SuperBus Module/Panel Wiring

Module Terminals	Advent*	Ultra-Gard	Concord
13 (+12VDC)	Red	12	4
14 (BUS A)	Green	13	5
15 (BUS B)	White	14	6
16 (GND)	Black	15	3

\* Panel SuperBus device connector wiring harness. (Connect to either panel connector.)

## To Wire Detectors to the Module

Follow the maximum zone input wire length (run) guidelines in Table 5 based on the type of wire used.

**Important!**

For Advent UL-864 Listed Installations, all inputs must be dedicated to either fire or burglary applications. Do not mix fire and burglary on any module in any partition for these installations.

Table 5. Zone Input Wire Runs

Gauge	Max. Wire Run*
18	750 Feet
22	300 Feet

\*Wire run based on 10 ohms maximum wire and device resistance including 2.0K ohm EOL resistor.

1. Figure 8 shows an example of how to connect up to eight normally closed (N/C) or normally open (N/O) intrusion circuits to the module.

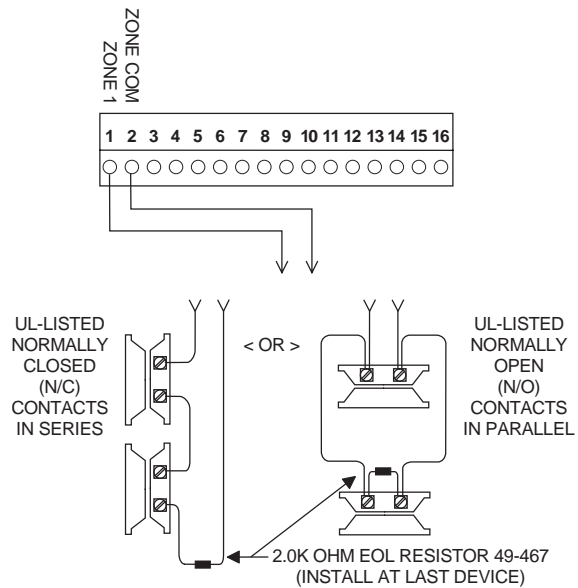


Figure 8. Connecting N/C and N/O Intrusion Circuits to the Module

## Installing a Cover Tamper Switch

If you are mounting the module in its own plastic and not mounting it inside a cabinet, you need to add cover tamper detection.

To do this, install a UL listed 1/4-inch press-fit reed switch on the module back-plate and wire the switch to one of the module zone input terminals or unused panel zone input terminals. Once programmed, if someone opens the module cover, the tamper switch opens and causes an alarm.

The reed switch holder and magnet clip are located at the bottom of the back-plate (see Figure 3 for details).

### To install the tamper reed switch (Figure 9):

1. Slide the reed switch into the reed switch holder located on the module back-plate shown in Figure 9.
2. Insert the magnet into the nibs on the module cover. Remove the magnet clip from the module back-plate and press the magnet clip down over the magnet until it clicks into place (Figure 9).
3. Connect the normally closed reed switch (in series with a 2.0K ohm EOL resistor) to the module ZONE 1 (1) and ZONE COMMON (2) terminals as shown in Figure 8. The resistor should be located at the reed switch inside the module housing.

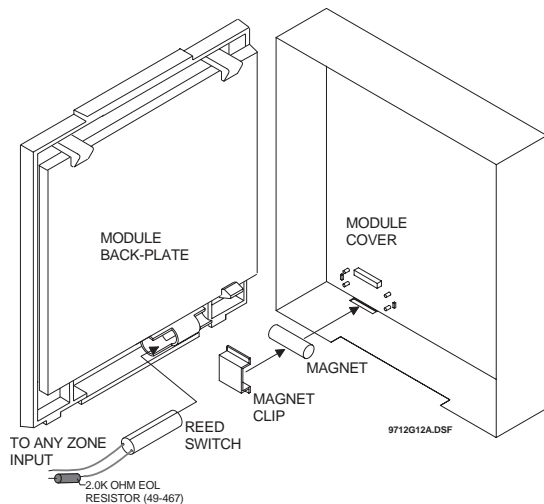


Figure 9. Installing the Reed Switch

## Setting the Module Unit Numbers

### On Concord (software versions 1.0–1.6) and UltraGard Panels

Locate the DIP switches on the module circuit board (Figure 1) and set switch 1 to “M” (on - for manual) (Figure 10). Set the remaining switches for the desired unit number.



#### CAUTION

Do not change DIP switch settings once the panel is powered up.

- UNIT NUMBER 0–7 for UltraGard
- UNIT NUMBER 0–15 for Concord

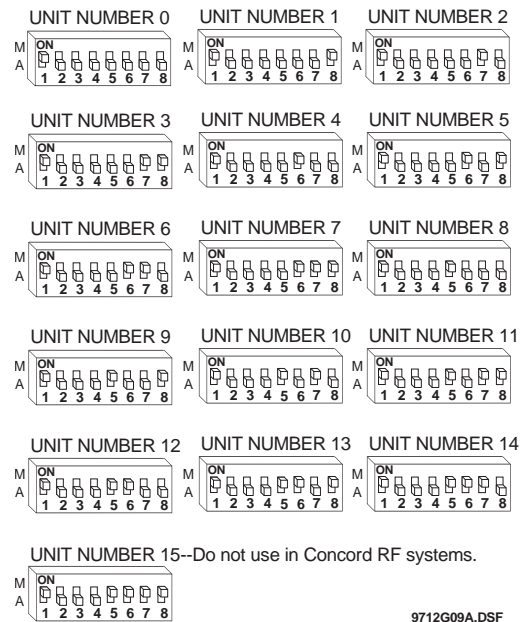


Figure 10. Module Unit Number DIP Switch Settings (Non-SuperBus 2000 panels)

### On Concord (software versions 2.0 or later) and Advent Panels

Locate the DIP switches on the module circuit board (Figure 1) and set all switches to “A” (off - for automatic). The unit number will be automatically set when powering up the system.

## Power Up and Bus Communication

### On Concord and Advent Panels

This section describes how to power up the panel and module for both new and existing installations.

#### New Installations

1. Verify that all wiring between the panel and module is correct.
2. Connect the panel backup battery(s) and restore panel AC power. Alphanumeric touchpad displays should come on.
3. Both the green and red LEDs will turn on for one second. The green POWER LED will remain on and the red BUS LED should flash to indicate successful communication with the panel.

#### Note

If the green POWER LED is not on or the red BUS LED does not flash, remove AC panel power, disconnect the backup battery(s), and see Table 6 "Troubleshooting."

#### Existing Installations

*Concord Panels*— Same as new installation.

*Advent Panels*—

1. Verify that all wiring between the panel and module is correct.
2. Connect the panel backup battery(s) and restore panel AC power. Alphanumeric touchpad displays should come on.
3. Press **8** for *System Menu*.
4. Press **0** for *Program Menu*.
5. Enter your *Install Code* (default **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 Main Menu.
8. Both the green and red LEDs turn on for one second. The green POWER LED will remain on and the red BUS LED should flash to indicate successful communication with the panel.

#### Note

If the green POWER LED is not on or the red BUS LED does not flash, remove AC panel power, disconnect the backup battery(s), and see Table 6 "Troubleshooting."

### On UltraGard Panels

1. Verify that all wiring between the panel and module is correct.
2. Verify nonconflicting bus device unit number settings.
3. Connect the panel backup battery and restore panel AC power.
4. Turn on the panel AC power.
5. Set the UltraGard panel RUN/PROGRAM switch to PROGRAM.

If the alphanumeric touchpad displays *I-OFF* and the *I* is flashing, you must enter the 4-digit installer code to place the panel into program mode.

Alphanumeric touchpads should display *PROGRAM MODE* and the red BUS LED on the module should be flashing continuously, indicating successful communication with the panel.

#### Note

If the green POWER LED is not on or the red BUS LED does not flash, set the RUN/PROGRAM switch (UltraGard) to RUN, remove AC panel power, disconnect the backup battery, and see Table 6 "Troubleshooting."

## Programming and Testing

Refer to the specific panel *Installation Instructions* for adding (learning) hardwire sensors into panel memory and testing sensors.

If the UltraGard or Concord system uses hardwire sensors only, turn off the Receiver Failure feature in the panel. Refer to the panel *Installation Instructions* for details.

## Troubleshooting

Table 6 describes what to do if the module does not work correctly.

**Table 6. Troubleshooting**

Problem	Action/Solution
The green POWER LED stays off.	<ol style="list-style-type: none"> <li>1. Check for incorrect wiring connections.</li> <li>2. Make sure panel AC power is applied and the backup battery(s) are connected.</li> <li>3. If the LED still remains off, replace the module.</li> </ol>
The red BUS LED doesn't flash to indicate communication with the panel.	<ol style="list-style-type: none"> <li>1. Verify that the panel recognizes the module by entering program mode (see specific panel <i>Installation Instructions</i>).</li> <li>2. Check for incorrect wiring connections.</li> <li>3. For Concord (software versions 1.0–1.6) and UltraGard panels make sure that module DIP switch 1 is set to "M." For Concord (software versions 2.0 or later) and Advent panels make sure that module DIP switch 1 is set to "A."</li> <li>4. If the LED still doesn't flash, replace the module.</li> </ol>
The red BUS LED stays lit and blinks when zones are tripped, but the system does not respond.	<ol style="list-style-type: none"> <li>1. For Concord (software versions 1.0–1.6) or UltraGard systems, check for bus devices with the same unit number setting.</li> <li>2. Re-initialize the panel by disconnecting and reconnecting panel power.</li> <li>3. Make sure the zone has been "learned" into panel memory.</li> <li>4. Verify that the panel recognizes the module by entering program mode (see specific panel <i>Installation Instructions</i>).</li> <li>5. Remove zones and try installing the module without the zones.</li> <li>6. Replace the module.</li> </ol>

## Specifications

Compatibility:	Advent, Concord, UltraGard
Power Requirements:	12 VDC nominal, 35 mA maximum (from panel)
Panel Data Bus:	ITI SuperBus and SuperBus 2000 digital data bus
Inputs:	Eight supervised, hardwire zones
Storage Temperature:	-30° to 140° F (-34° to 60° C)
Operating Temperature:	32° to 120° F (0° to 49° C), up to 140° F (60° C) under temporary conditions
Maximum Humidity:	90% relative humidity, non-condensing
Dimensions:	5.25" x 4.125" x 1.0" (LxWxD)
Color:	Belgian gray
Case Material:	ABS plastic
Installation:	On wall or in panel cabinet mounting
Listings:	<ul style="list-style-type: none"> <li>UL 365 Police Station Connected Burglar Alarm Units and Systems</li> <li>UL 609 Local Burglar Alarm Units and Systems</li> <li>UL 864 Control Units for Fire Protective Signaling Devices</li> <li>UL 985 Household Fire Warning System Units</li> <li>UL 1023 Household Burglar Alarm System Units</li> <li>UL 1610 Central Station Burglar Alarm Units (Commercial Burglary)</li> <li>UL 1637 Home Health Care Signaling Equipment</li> <li>CSFM California State Fire Marshall (applied for)</li> <li>FM Factory Mutual (applied for)</li> <li>MEA New York City Material Equipment Acceptance (applied for)</li> <li>DOD Sensitive Compartment Information Fac. (applied for)</li> <li>ULC Canada Commercial Fire/Burglary Warning (applied for)</li> </ul>

### Note

See specific panel *Installation Instructions* for complete UL installation requirements for the system you are installing.

## Notices

### 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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