



## No. 4281L/4281M/4281H RF RECEIVER

(In Canada: 4281CN-L/ 4281CN-M/ 4281CN-H)

### INSTALLATION INSTRUCTIONS

#### INTRODUCTION

The 4281 family of RF Receivers is designed for use with Control/Communicators that support the receiver connection via the remote console connection points (e.g. No. 4110XM). The receiver recognizes alarm, status and keypad control messages from 5700 series wireless transmitters operating at 345MHz (315MHz for Canadian version). These messages are processed and relayed to the control panel via a 4 wire connection to the control's remote console terminals.

For brevity, the various versions of the 4281 RF Receiver (4281L, 4281M, 4281H) are referred to herein as "4281" unless otherwise noted.

The number of transmitters that a receiver can support depends on the control with which it is used. See the control's instructions for specific details.

Several individually identified receivers can be employed, depending on the control used. Connection of multiple receivers to a control can be made for redundant coverage or for extended coverage of large areas. Multiple receivers do not increase the number of transmitters that the system can support. See the control's instructions for specifics re the number of receivers and consoles that can be supported.

The 4281 features a Spatial Diversity System which virtually eliminates the possibility of "Nulls" and "Dead Spots" within the coverage area.

#### PRELIMINARY

The instruction manual that accompanies the control includes recommendations regarding receiver and transmitter locations, the types of wireless zones that can be programmed (e.g. ENTRY/EXIT, PERIMETER, INTERIOR, etc.) and the procedure for enabling the control's appropriate program fields (e.g. Receiver's House ID, Transmitters' IDs and Report Codes).

**Note:** If a 4281 Receiver is connected to a system in which more than the permitted number of wireless zones have been attempted to be programmed, a "4281 SET UP ERROR" (e.g. "E4") display may result on the system's console and none of the zones will be protected.

#### INSTALLATION

With some controls, a receiver may be mounted directly inside the control's cabinet (receiver circuit board only, without its plastic housing) instead of remotely (in its own housing).

1. Remove the receiver's cover by inserting and twisting a screwdriver blade in the slot at the center of the cover's lower edge.
2. A. If the receiver is to be mounted within the control's cabinet:
  - 1) Remove the receiver's circuit board from its base by removing two securing screws and bending back the two flexible plastic tabs that hold the board's lower edge (see Diagram 2).
  - 2) In the control's cabinet, relocate the control circuit board and install the receiver circuit board as shown in Diagram 1. Use two short (black) mounting clips (provided) to secure the receiver board's lower edge and the relocated control board's upper edge. Use two long (red) clips to secure the control board's lower edge.
  - 3) Connect one of the two grounding lugs provided to the left-hand terminal of one of the antenna blocks (at the upper edge of the receiver's circuit board), via one of the holes in the top of the cabinet. Secure it to the cabinet with one of the two screws provided, as shown in Diagram 1 and in the instructions that accompany the control. Do the same with the other lug and antenna block.
  - 4) Affix the receiver's Summary of Connections label to the inside of the control's cover.
  - 5) Discard the receiver's unused plastic cover and base.

B. If the receiver is to be located remotely from the control (for UL installations, the interconnecting wires shall be no longer than three feet, with no intervening walls or barriers):

- 1) If concealed wiring is to be used, it should be routed through the rectangular opening at the rear of the base before mounting. For surface wiring entry, a thin break-away area is provided along the base's right edge.
  - 2) Mount the receiver in the selected location. For greatest security, use all four mounting holes (two keyslot holes and two round holes) provided in the base.
  - 3) Affix the receiver's Summary of Connections label to the inside of the housing cover.
  - 4) The circuit board mounting clips, grounding lugs and screws included with the receiver will not be needed.
3. Set the receiver's DIP switch to identify the receiver's address, as indicated in the table in Diagram 1. If only one receiver is being used, set its address to #1 as shown.
- Note:** The 4281's House ID will be selected and programmed at the control as part of the control's programming procedure (e.g. 4110XM's programming field "24"). See Step 7 below.

4. Connect the receiver's 4 wires to the control's corresponding remote console connection points and make sure that the wiring plug is inserted in its socket at the lower right corner of the receiver's circuit board.
5. Install the antennas in the right-hand terminals of the two terminal blocks at the upper edge of the circuit board. **Note:** If the receiver is mounted in the control's cabinet, insert the antennas through the holes in the cabinet's top (see Diagram 1).
6. Replace the receiver's cover if it is located remotely from the control.
7. Proceed with the installation of the system's wireless transmitters as described in the control's installation instructions. This should include conducting the Sniffer Mode and Transmitter Test Mode tests (to determine a suitable House ID and to verify its proper setting in the transmitters) and the Go/No Go test (to check signals received from the transmitter locations).
8. The LED located on the 4281's circuit board should be used as an indicator of strong local radio frequency interference. If this LED is continuously illuminated, the receiver should be relocated.

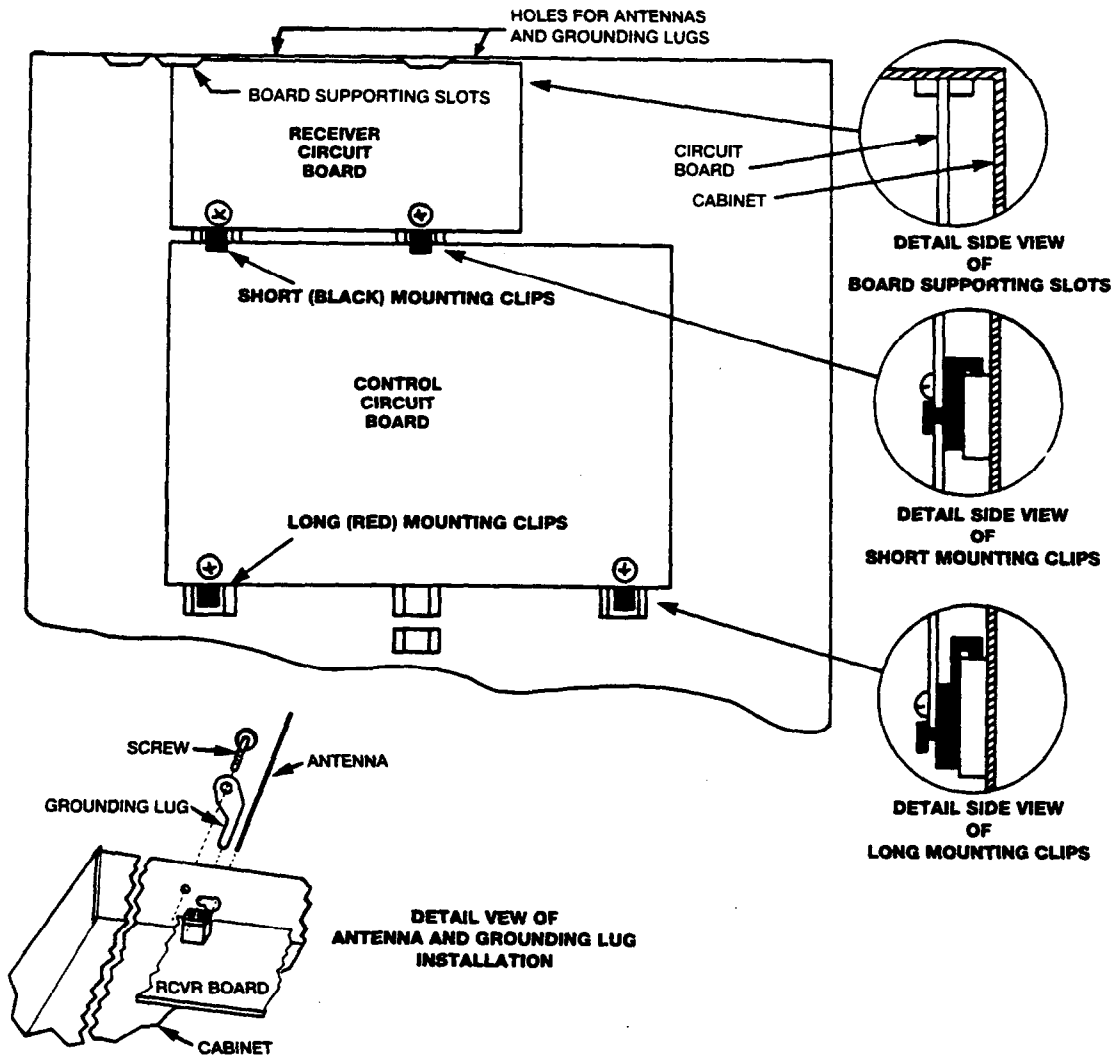
#### SPECIFICATIONS

Physical:	Width:	7-3/8" (188mm)
	Height:	4-3/8" (112mm)
	Depth:	10-7/8" (277mm) ← with antennas
Electrical:	Depth:	1-7/16" (37mm)
	Voltage:	12VDC (from control's remote console connection points)
	Current:	35mA
Range:	200ft (60m) nominal indoors from wireless transmitters (the actual range to be determined with system in TEST mode).	

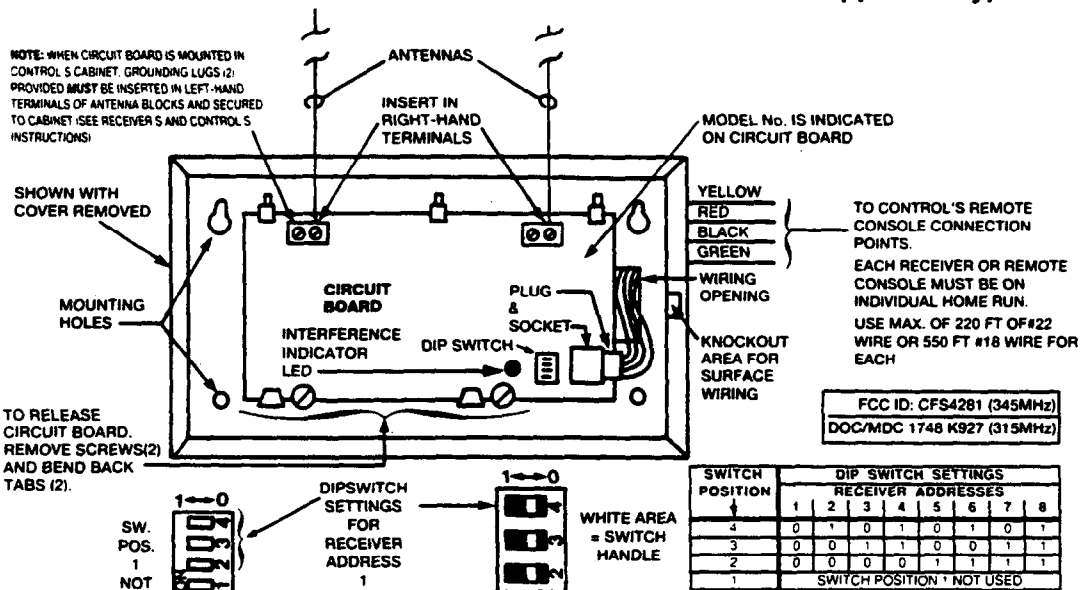
#### TO THE INSTALLER

Regular maintenance and inspection (at least annually) by the installer and frequent testing by the user are vital to continuous satisfactory operation of any alarm system.

The installer should assume the responsibility of developing and offering a regular maintenance program to the user, as well as acquainting the user with the proper operation and limitations of the alarm system and its component parts. Recommendations must be included for a specific program of frequent testing (at least weekly) to insure the system's operation at all times.



**Diagram 1: INSTALLATION OF RECEIVER BOARD IN CONTROL'S CABINET**  
 (Check control's installation instructions for applicability)



**Diagram 2: SUMMARY OF CONNECTIONS**  
 for Nos. 4281L, 4281M, and 4281H RF RECEIVERS

**WARNING**  
**THE LIMITATIONS OF THIS WIRELESS ALARM SYSTEM**

While this System is an advanced wireless security system, it does not offer guaranteed protection against burglary, fire or other emergency. Any alarm system, whether commercial or residential, is subject to compromise or failure to warn for a variety of reasons. For example:

- Intruders may gain access through unprotected openings or have the technical sophistication to bypass an alarm sensor or disconnect an alarm warning device.
- Intrusion detectors (e.g., passive infrared detectors), smoke detectors, and many other sensing devices will not work without power. Battery-operated devices will not work without batteries, with dead batteries, or if the batteries are not put in properly. Devices powered solely by AC will not work if their AC power supply is cut off for any reason, however briefly.
- Signals sent by wireless transmitters may be blocked or reflected by metal before they reach the alarm receiver. Even if the signal path has been recently checked during a weekly test, blockage can occur if a metal object is moved into the path.
- A user may not be able to reach a panic or emergency button quickly enough.
- While smoke detectors have played a key role in reducing residential fire deaths in the United States, they may not activate or provide early warning for a variety of reasons in as many as 35% of all fires, according to data published by the Federal Emergency Management Agency. Some of the reasons smoke detectors used in conjunction with this System may not work are as follows. Smoke detectors may have been improperly installed and positioned. Smoke detectors may not sense fires that start where smoke cannot reach the detectors, such as in chimneys, in walls, or roofs, or on the other side of closed doors. Smoke detectors also may not sense a fire on another level of a residence or building. A second floor detector, for example, may not sense a first floor or basement fire. Finally, smoke detectors have sensing limitations. No smoke detector can sense every kind of fire every time. In general, detectors may not always warn about fires caused by carelessness and safety hazards like smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits, children playing with matches, or arson. Depending on the nature of the fire and/or location of the smoke detectors, the detector, even if it operates as anticipated, may not provide sufficient warning to allow all occupants to escape in time to prevent injury or death.
- Passive Infrared Motion Detectors can only detect intrusion within the designed ranges as diagrammed in their installation manual. Passive Infrared Detectors do not provide volumetric area protection. They do create multiple beams of protection, and intrusion can only be detected in unobstructed areas covered by those beams. They cannot detect motion or intrusion that takes place behind walls, ceilings, floors, closed doors, glass partitions, glass doors, or windows. Mechanical tampering, masking, painting or spraying of any material on the mirrors, windows or any part of the optical system can reduce their detection ability. Passive Infrared Detectors sense changes in temperature; however, as the ambient temperature of the protected area approaches the temperature range of 90° to 150°F, the detection performance can decrease.
- Alarm warning devices such as sirens, bells or horns may not alert people or wake up sleepers if they are located on the other side of closed or partly open doors. If warning devices are located on a different level of the residence from the bedrooms, then they are less likely to waken or alert people inside the bedrooms. Even persons who are awake may not hear the warning if the alarm is muffled by noise from a stereo, radio, air conditioner or other appliance, or by passing traffic. Finally, alarm warning devices, however loud, may not warn hearing-impaired people.
- Telephone lines needed to transmit alarm signals from a premises to a central monitoring station may be out of service or temporarily out of service. Telephone lines are also subject to compromise by sophisticated intruders.
- Even if the system responds to the emergency as intended, however, occupants may have insufficient time to protect themselves from the emergency situation. In the case of a monitored alarm system, authorities may not respond appropriately.
- This equipment, like other electrical devices, is subject to component failure. Even though this equipment is designed to last as long as 20 years, the electronic components could fail at any time.

The most common cause of an alarm system not functioning when an intrusion or fire occurs is inadequate maintenance. This alarm system should be tested weekly to make sure all sensors and transmitters are working properly. The security console (and remote keypad) should be tested as well.

This system's wireless transmitters are designed to provide long battery life under normal operating conditions. Longevity of batteries may be as much as 4 to 7 years, depending on the environment, usage, and the specific wireless device being used. External factors such as humidity, high or low temperatures, as well as large swings in temperature, may all reduce the actual battery life in a given installation. This wireless system, however, can identify a true low battery situation, thus allowing time to arrange a change of battery to maintain protection for that given point within the system.

Installing an alarm system may make the owner eligible for a lower insurance rate, but an alarm system is not a substitute for insurance. Homeowners, property owners and renters should continue to act prudently in protecting themselves and continue to insure their lives and property.

We continue to develop new and improved protection devices. Users of alarm systems owe it to themselves and their loved ones to learn about these developments.

## FEDERAL COMMUNICATIONS COMMISSION (FCC) STATEMENT

This equipment has been tested to FCC requirements and has been found acceptable for use. The FCC requires the following statement for your information:

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause 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:

- If using an indoor antenna, have a quality outdoor antenna installed.
- Reorient the receiving antenna until interference is reduced or eliminated.
- Move the radio or television receiver away from the receiver/control.
- Move the antenna leads away from any wire runs to the receiver/control.
- Plug the receiver/control into a different outlet so that it and the radio or television receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user or installer may find the following booklet prepared by the Federal Communications Commission helpful:

"Interference Handbook"

This booklet is available under Stock No. 004-000-00450-7 from the U.S. Government Printing Office, Washington, DC 20402.

*The user shall not make any changes or modifications to the equipment unless authorized by the Installation Instructions or User's Manual. Unauthorized changes or modifications could void the user's authority to operate the equipment.*

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**ADDENDUM TO: INSTALLATION INSTRUCTIONS**

for

**No. 4281L/4281M/4281H RF RECEIVER (Issue: N5228V3 2/92)**

also for use with these Installation Instructions:

No. 4110XM (Issue: N5478V2 11/91)

via16 (Issue: N5478-1 1/92)

FA120C (Issue: N6101-1 12/91)

**RE: DEFINITION OF ADDRESS SETTINGS FOR 4281 SERIES RF RECEIVERS**

For consistency with address settings for other addressable devices (e.g. addressable consoles, No. 4219, etc.) that may be connected to the control panel remote console lines, and to avoid possible conflict, the range of address settings for the 4281 series of RF receivers should be redefined to start at "0", instead of "1" as presently shown in the 4281's instructions.

The table below supersedes the table shown in Diagram 2 of the 4281's installation instructions (and on the label supplied with the receiver). Step 3 under *INSTALLATION* should be changed, in part, to read: "...If only one receiver is being used, set its address to "0"..."

All references to a 4281 Address of "1" in the other publications listed above should be changed to "0" instead.

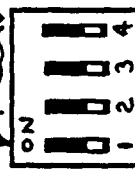
Note: Since only the numbers assigned to the various address settings have changed, no resetting of existing 4281 installations is necessary.

**DIP SWITCH: (WHITE AREAS DENOTE SWITCH HANDLES)**

**POSITIONS 2-4: DETERMINE 4281's ADDRESS**  
CONSULT CONTROL'S INSTRUCTIONS FOR ADDRESS TO USE.  
SHOWN SET FOR ADDRESS = 0.

**POSITION 1: NOT USED. SETTING DOES NOT MATTER**

ON ↔ OFF



SWITCH POSITION	4281 ADDRESS SETTINGS							
	("—" means "OFF")							
↓	0	1	2	3	4	5	6	7
4	—	ON	—	ON	—	ON	—	ON
3	—	—	ON	ON	—	—	ON	ON
2	—	—	—	—	ON	ON	ON	ON
1	SWITCH POSITION 1 NOT USED							



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