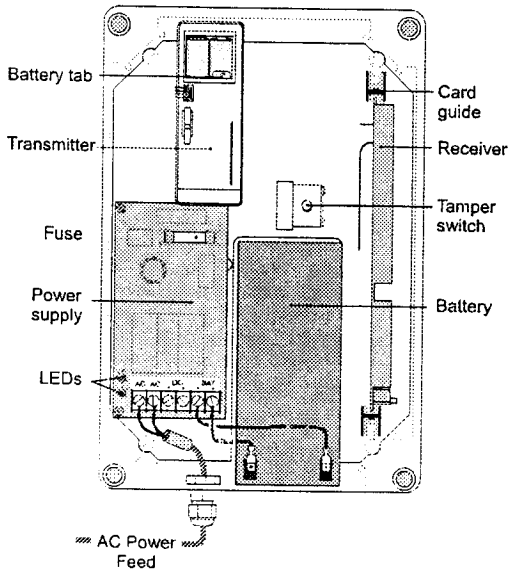


# IntelliSense® SN921-REPEATER Installation Instructions

## Description

The SpreadNet® SN921-REPEATER extends the range of the radio-frequency (RF) transmitters in a security system by receiving the transmitters' signals and retransmitting those signals to another REPEATER or to the panel's RF receiver. A maximum of 14 REPEATERS may be installed per system. The parts of the SN921 are illustrated below.



## Mounting location

Choose a mounting location that is:

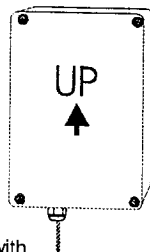
- on the wall (as opposed to the ceiling)
- in the center of the protected area of the building
- as high as possible
- more than two feet from any RF transmitter
- away from large metal objects (like screens, metal window frames, circuit breaker boxes, air ducts), since metal can block or distort the transmitter's RF signal
- at least one foot away from the control panel.

## Mounting

For best results, test the device in the mounting location you have chosen before permanently mounting it. If the test results are not satisfactory, adjust the REPEATER's location.

To mount the REPEATER, do the following:

1. Remove the cover. Orient the REPEATER with the AC power feed at the bottom as shown.

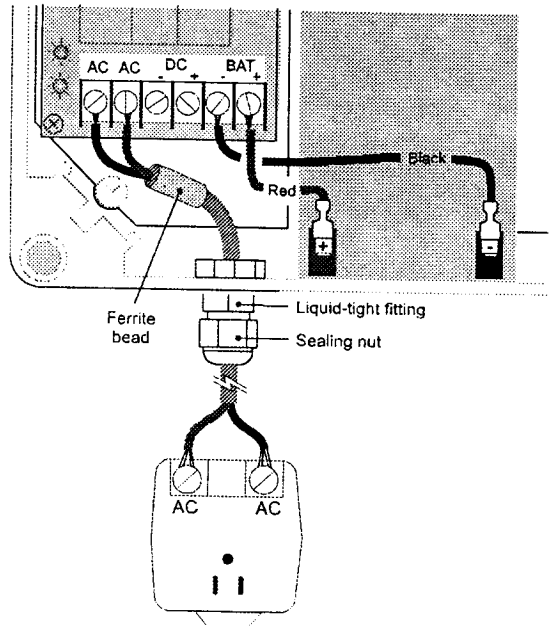


2. Position the device so that at least two of the four mounting holes are aligned with the wall studs.
3. Secure the REPEATER firmly to the wall with a #10 (M 4.5) Phillip washer-head screw.

## Wiring

To wire the REPEATER, do the following:

1. Connect the power cable to the AC terminals on the transformer.
2. Route the power cable through the fitting in the base of the unit. Thread the power cable through the ferrite bead that is provided.
3. Connect the power cable to the AC terminals on the REPEATER. Tighten the fitting's sealing nut to ensure that the housing is well sealed.
4. Place the battery in the housing with the battery's terminals at the base as shown. Connect the battery lead's quick-connect slide connectors to the battery, matching the red lead to the positive terminal and the black lead to the negative terminal.

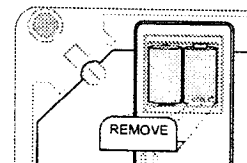


## Caution

Be sure to observe the proper polarity when connecting the battery. If you fail to do so, the REPEATER's fuse will blow.

## Activate the transmitter

Apply power to the transmitter by removing the its battery tab as shown.



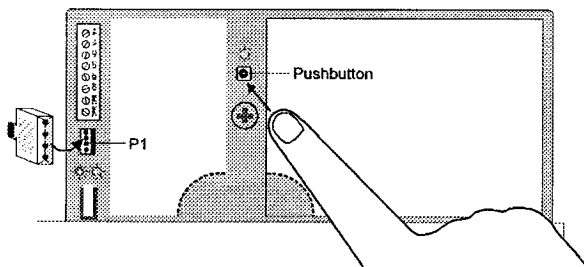
## Programming

To program the REPEATER, you must have an SN900-PROG programmer that is running firmware version 5.5.

### Prepare for programming

To prepare the REPEATER for programming, do the following:

1. Disconnect the AC and DC power to the REPEATER. If the SN900 is on, turn it off by pressing the **Off** key and then the **Yes** key.
2. Carefully slide the REPEATER's receiver card out of its card guides. Be sure to handle the PCB by its edges. Remove the cable harness connector from P1.
3. Apply power to the SN921-REPEATER. Press and hold the pushbutton on the receiver for two seconds. When the yellow LED near the pushbutton begins to blink rapidly, the REPEATER is ready to be programmed.



4. Connect programming cable of the SN900 to the receiver's P1 (as shown above). Turn the programmer on by pressing its **On**, **Esc**, and **On** keys in rapid succession.
5. The programmer display reads:  
**MODEL SN900 PROGRAMMER V5.5x.**  
Press the **Next** key to continue.

### General Programming

This section of the programming configures general attributes of the REPEATER.

6. The programmer begins to list the devices it is capable of programming. Press the **Next** key, and then the **Yes** key. The programmer display reads:  
**REPEATER? YIN**  
Press the **Yes** key to indicate that the device you wish to program is a REPEATER.
7. The programmer display reads:  
**REPEATER ID: 01.**  
The REPEATER ID number is an identification number used to configure some systems with REPEATERS. There is no need to change this number when programming the SN921; it should remain "01." Press the **Yes** key to move to the next programming item.
8. The programmer display reads:  
**Start: Enable all Transmitters?**

Press the **Yes** key to enable the REPEATER to receive transmissions from all transmitters in the system whose channel number and property code match the values specified in Step 18.

9. The programmer display reads:  
**TEST display?**  
Press the **Yes** key to make it possible for you to view the display described in Step 14.
10. The programmer display reads:  
**Xmtr Test Mode <7>**  
Press the **7** key to choose Menu Item 7: Transmitter Programming.

### Program the REPEATER's transmitter

In this section of the programming, you specify how the REPEATER configures the signals that it transmits.

11. The programmer display reads:  
**Program Transmitter?**  
Press the **Yes** key to program the REPEATER's transmitter.
12. The programmer display reads:  
**ZONE xx**  
**DEVICE xx**  
  
The zone and device numbers are used to distinguish one system REPEATER from another. You may program the REPEATER with the zone and device numbers of your choice provided that you do not assign the same set of numbers to two or more REPEATERS.  
  
Input a zone number (01-16), and press the **Next** key.  
  
Input a device number (01-13) and press the **Yes** key.

13. The programmer display reads:  
**Enter SUPERVISED**  
**RATE (30-300) 000**  
  
The supervisory rate is the amount of time that passes between transmissions of routine supervisory signals from the REPEATER. If the receiver fails to receive eight consecutive supervisory signals, the panel will interpret this to mean that the REPEATER has ceased to function properly. Input the time that you wish to pass between supervisory signals; input "3" to send signals every 30 seconds, "4" to send signals every 40 seconds, and so forth, up to "30" to send signals every 300 seconds. (You cannot choose an interval that is shorter than 30 seconds.) To disable supervision, input "0." When done, press the **Yes** key.

14. The programmer display reads:  
**Ty: 05 St:0 MR:08**  
**BR: 05 LO:0120s**  
  
This display allows you to specify the type (Ty) of REPEATER being configured. Input the number "12," and press the **Yes** key. You do not need to change any of the display's remaining fields (Subtype [St], Message Rate [MR], Burst Rate [BR], and Lockout Time [Lo]).
15. The programmer display reads:  
**CHANNEL # = 1**  
**PROPERTY# = xxxx**  
  
"Channel" refers to the group of frequencies selected to transmit the RF message. Two such channels are available;

choose the quietest channel and program all of the system's RF components to use it. Input "1" for Channel 1 or "2" for Channel 2 and press the **Next** key.

The "property number" or property code identifies the source of the REPEATER's transmissions. Input the transmitter's four-digit property code (0001 to 4033), and press the **Yes** key.

**Note** To ensure proper signal transmission, choose a property code that is greater than the number you choose in step 18. (See page 4 for more information.)

16. The programmer display reads:  
**Transmitter is programmed.**  
The programming of the REPEATER's transmitter is complete.

#### Program the REPEATER's receiver

In this section of the programming, you specify which transmissions the REPEATER repeats.

17. Press the **Esc** key repeatedly until you see:  
**TEST display?**  
Press the **Next** key repeatedly until you see:  
**Program Repeater-Receiver ?**  
Press the **Yes** key to program the REPEATER's receiver.
18. The programmer display reads:  
**CHANNEL # = 1**  
**PROPERTY# = xxxx**  
Input the same channel number you programmed in step 15, and press the **Next** key.

Input a four-digit property code (0001 to 4033) that is lower than the number you chose in Step 15, and press the **Yes** key.

19. The programmer display reads:  
**Repeater-Rcvr is programmed.**  
The programming of the REPEATER's receiver is complete.

#### Complete programming

20. Remove the programmer's cable from P1.
21. Disconnect power to SN921-Repeater. Replace the cable harness on P1.
22. Slide the receiver back in its card guides. Be sure to orient the receiver so that the antennas face the center of the unit.

**Caution** Take care not to catch the cable harness on the card guides. If you do catch the wires, the receiver will not fit back in and the connections may be damaged.

#### Testing and troubleshooting

To test that the REPEATER is working properly, place the security system in test mode. One by one, fault the transmitters that report to the REPEATER. Observe the system's receiver,

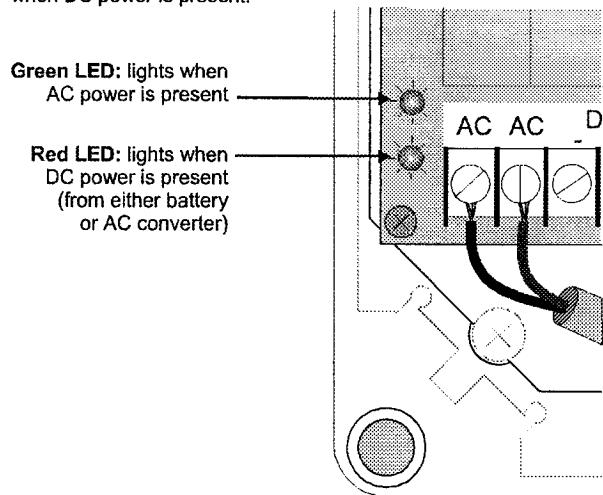
panel, or monitoring software for evidence that the signal was received.

If the REPEATER does not appear to be functioning properly, verify the following:

- the REPEATER has AC and DC power (see the Power Supply LEDs section, below)
- the fuse on the power supply does not need to be replaced
- the REPEATER's programming is correct
- the transmitters are operational and within range.

#### Power Supply LEDs

The LEDs to the left of the terminal strip on the power supply indicate whether the REPEATER has adequate power. The green LED lights when AC power is present; the red LED lights when DC power is present.



#### Installation supply list

<b>Battery</b>	12V 6.5 A Part number 5-771-010-00
<b>Transformer</b>	16.5 VAC 40 VA IntelliSense part number: 5-270-048-00 Amseco model: XP1640
<b>Fuse</b>	375 milliamp, 250 V fast blow 3 AG Part number 5-713-102-00. Littlefuse Model 312.375 BUSS Model AGC-3/8
<b>Power cable</b>	18 AWG (1.02 mm) two-conductor jacketed wire for the power cable. Jacket outside diameter range: 2.9-6.4 mm (0.114-0.250 in.)

#### Specifications

<b>Input Voltage:</b>	16.5 VAC nominal
<b>Operating Current:</b>	540 mA AC
<b>Environmental:</b>	
<b>Indoor temp.:</b>	0°C to +60°C (32°F to +140°F)
<b>Outdoor temp.:</b>	-40°C to +85°C (-40°F to +185°F)
<b>Indoor humidity:</b>	95% non-condensing
<b>Outdoor humidity:</b>	100% condensing
<b>RF emission standards</b>	USA: FCC Part 15 CANADA: IC R55-210

### FCC Notice

The Model SN921-REPEATER generates and uses radio frequency energy. If not installed and used in accordance with the manufacturer's instructions, it may cause interference to radio and television reception. The REPEATER has been tested and found to comply with the specifications in Part 15 of FCC Rules for Class B Computing Devices and FCC Part 15 Subpart C, Specifications for Intentional Spread Spectrum Radiators.

If this equipment causes interference to radio or television reception—which can be determined by turning the equipment on and off—the installer is encouraged to correct the interference by one or more of the following measures: 1) Reorient the antenna of the radio/television. 2) Connect the AC transformer to a different outlet so the REPEATER and radio/television are on different branch circuits. 3) Relocate the REPEATER with respect to the radio/television.

If necessary, the installer should consult an experienced radio/television technician for additional suggestions.

**Caution:** IntelliSense does not support field changes or modifications to any of the SpreadNet RF equipment unless they are specifically covered in this manual. All adjustments must be made at the factory under the specific guidelines set forth in our manufacturing processes. Any modification to the equipment could void the user's authority to operate the equipment and render the equipment in violation of FCC Part 15, Subpart C, 15.247.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### Tip: Choosing property codes

Each system REPEATER retransmits only those signals whose property codes are lower than its own. For example, a REPEATER with a property code of 200 retransmits signals with property codes of 0-199, but not 200-4033. In this way, the signal is directed to the control panel without looping or misdirection.

Thus when programming the system's RF components, you must assign the highest property codes to the RF components that are closest to the control panel. You must then assign progressively lower codes to each successive level of components, assigning the lowest numbers to the system's transmitters that are the furthest removed from the panel. If the system you are installing is complex, this may require some planning. You can help avoid programming errors by sketching the system's configuration before beginning programming.

