EN4204R Four Zone Add-On Receiver with Relay Outputs

Installation Instructions

1 Overview

The EN4204R four zone add-on receiver with relay outputs allows you to add up to four transmitters to any application. With diversity reception and advanced signal processing, Inovonics' EchoStream technology is designed to minimize dead spots in transmission areas.

1.1 Installing an Inovonics Security System

An EchoStream survey kit should be used to establish an EchoStream system. The EchoStream survey kit measures the signal strength of high-power repeater and sensor messages to help optimize your EchoStream system.

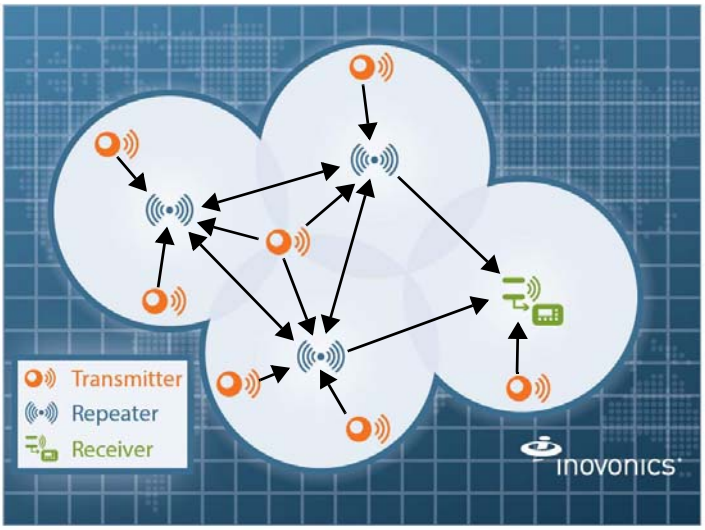

Figure 1 Sample EchoStream system

The EchoStream survey kit provides you with two signal strength measurements: signal level and signal margin.

Signal level

The signal level is the measurement of the overall decibel level of the message.

Signal margin

The signal margin is the measurement of the decibel level of the message, minus the decibel level of any interfering signals. Inovonics equipment should be placed within a facility such that all end-devices produce signal margin readings of at least 4 decibels.

Both the signal level and signal margin are measured in decibels. Because signal strength and signal margin are measured on a logarithmic scale, the difference between a decibel level of 3 (Weak) and a decibel level of 4 (Good) is a much larger difference than it would be on a linear scale.

Note: For more information about the EchoStream survey kit, see the *EN/EE7016SK EchoStream® Survey Kit Installation and Operation Manual*.

1.2 Inovonics Wireless Contact Information

If you have any problems with this procedure, contact Inovonics Wireless technical services:

- E-mail: support@inovonics.com.
- Phone: (800) 782-2709; (303) 939-9336.

1.3 EN4204R Four Zone Add-On Receiver with Relay Outputs Front Panel

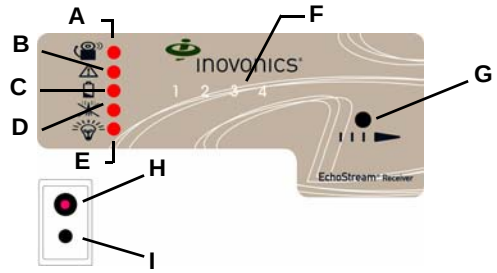

Figure 2 EN4204R Receiver LEDs and buttons

A Alarm LED	**B** Tamper Fault LED	**C** Low Battery Fault LED
D Inactive Fault LED	**E** Power LED	**F** Transmitter Number LEDs
G Advance Button	**H** Decode LED	**I** Reset Button

1.4 EN4204R Four Zone Add-On Receiver with Relay Outputs LEDs

Most of the LEDs and buttons perform different function depending on which mode the the receiver is in. By default the LEDs are in operation mode; to enter diagnostic mode, press the advance button.

Operation LEDs

Alarm LED: Lights when any transmitter is sending an alarm transmission.

Tamper Fault LED: Lights when any transmitter is sending a tamper transmission.

Low Battery Fault LED: Lit when any transmitter has a low battery.

Inactive Fault LED: Lit when any transmitter is inactive.

Power LED: Lit when receiving power.

Transmitter Number LEDs: Lit when the transmitter is in alarm.

Decode LED: Flashes when any recognizable transmission is received. This LED is only visible when the pry-out door or cover is removed.

Diagnostic LEDs

Alarm LED: Lights when the selected transmitter is sending an alarm transmission.

Tamper Fault LED: Lights when the selected transmitter is sending a tamper transmission.

Low Battery Fault LED: Lit when the selected transmitter has a low battery.

Inactive Fault LED: Lit when the selected transmitter is inactive.

Power LED: Lit when receiving power.

Transmitter Number LEDs: Shows status of the transmitter assigned to that number when lit. Use the advance button to scroll through transmitters.

Advance Button: Scrolls through transmitters to display status.

Decode LED: Flashes when any recognizable transmission is received. This LED is only visible when the pry-out door or cover is removed.

1.5 EN4204R Internal Components

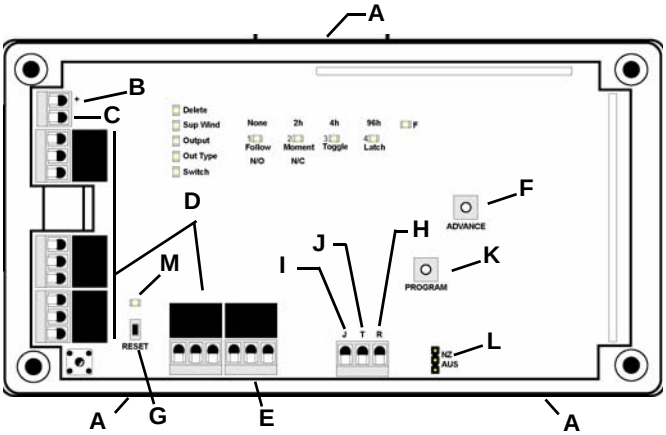

Figure 3 EN4204R internal components

A Housing release tabs
B Power (11-14 VDC)
C GND connection
D Output terminals
E Fault output
F Advance button
G Reset button
H Reset input
I Jam output
J Tamper output
K Program button
L Frequency band selection pins
M Decode LED

1.6 What's in the Carton

- Two drywall anchors.
- Two mounting screws.
- Three housing screws.
- Two pieces double-sided mounting tape.
- One frequency band selection jumper.

2 Installation and Startup

2.1 Installation Notes

- These products are designed to be maintained by professional security technicians.
- Products are tested for indoor use.
- All products should be manually tested weekly.

2.2 Connect Power Cabling

Before beginning startup, you will have to connect power to the receiver. To connect power to the receiver:

1. Use a small screwdriver to press the housing release tab on the top or bottom of the receiver; separate the housing.
2. Connect power cabling to the Power and GND connections.
   - Power source should be 11-14 VDC. Power supply must be unswitched, uninterrupted, and regulated.

2.3 Select the Frequency Band

EchoStream devices are able to use a range of radio frequencies, and must be configured for your geographic area. This device ships with a default frequency range of 902-928 MHz for use in North America. If you are using the device in North America, skip to section 3, "Registering a Transmitter"; if you are using the device in Australia or New Zealand, you will need to configure it.

1. Place a selection jumper on the appropriate frequency band selection pins.
   - Place the jumper on the top two pins, marked NZ, to set the frequency range to 921-928 MHz for New Zealand.
   - Place the jumper on the bottom two pins, marked AUS, to set the frequency range to 915-928 MHz for Australia.
2. Cycle power source to reset.

3 Registering a Transmitter

3.1 Quick Setup

In many cases, the default settings are sufficient and the points don't need programming changes. To register transmitters without changing the settings:

First Transmitter

1. Press the advance button one time to select the first point.
2. Press the program button four times to select the default programming options.
3. The first point number will be flashing, indicating it is awaiting the transmitter's reset message; press the transmitter's reset button.

Second Transmitter

1. Press the advance button two times to select the second point.
2. Press the program button four times to select the default programming options.
3. The second point number will be flashing, indicating it is awaiting the transmitter's reset message; press the transmitter's reset button.

Third Transmitter

1. Press the advance button three times to select the third point.
2. Press the program button four times to select the default programming options.
3. The third point number will be flashing, indicating it is awaiting the transmitter's reset message; press the transmitter's reset button.

Fourth Transmitter

1. Press the advance button four times to select the fourth point.
2. Press the program button four times to select the default programming options.
3. The fourth point number will be flashing, indicating it is awaiting the transmitter's reset message; press the transmitter's reset button.

Note: After registering a transmitter, there is no need to exit programming mode. The receiver is normal operation once the transmitter's reset button has been pressed.

The default settings are:

Point	Supervision Window	Output	Type
1	4 hours	1	Follow
2	4 hours	2	Follow
3	4 hours	3	Follow
4	4 hours	4	Follow
F	N/A	Fault	Inactive is set to follow; low battery and tamper are set to latching.

3.2 Customize Transmitters

If the default settings are not sufficient, you will need to program the points individually.

Note: If changing programming for a point that already has a transmitter registered to it, there is no need to re-register the transmitter. Changes to point programming are automatically assigned to the transmitter registered to that point.

The following programming options available:

Supervision window

- None, 2h, 4h, or 96h. When you are choosing the supervision window, the "Sup Wind" LED will light, along with the LED that indicates the selected window.

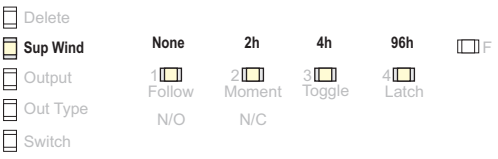

Figure 4 Select the supervision window

Output (relay)

- 1, 2, 3, 4. When you are choosing the output, the “Output” LED will light, along with the LED that indicates the selected output number.

Figure 5 Select the output number

Output type

- Follow, Moment, Toggle, Latch. When you are choosing the output, the “Out Type” LED will light, along with the LED that indicates the selected output type.

Figure 6 Select the output type

To program any of the four transmitter points:

1. Use the advance button to select any of the four transmitter points.
   - Press the advance button one time to select the first point; the first LED will light.
   - Press the advance button two times to select the second point; the second LED will light.
   - Press the advance button three times to select the third point; the third LED will light.
   - Press the advance button four times to select the fourth point; the fourth LED will light.
2. Press the program button to begin programming the point.

Note: The program button should be pressed within a few seconds of selecting the point number. If not, the point number will not be lit, and you will need to select it again.

   - If no transmitter has been registered to the chosen point, the receiver advances to the supervision window option.
   - If a transmitter has already been registered to the chosen point, the delete LED lights. Press advance to delete the point and return to normal operation; press program to advance to the supervision window option.
3. Use the advance button to choose a supervision window of None, 2h, 4h and 96h (Fig. 4).
   - Press the advance button one time to select none.
   - Press the advance button two times to select two hours.
   - Press the advance button three times to select four hours.
   - Press the advance button four times to select 96 hours.

   When you have selected the supervision window, press program to complete and advance to the output option.
4. Use the advance button to select the output number (Fig. 5).
   - Press the advance button one time to select the first output.
   - Press the advance button two times to select the second output.
   - Press the advance button three times to select the third output.
   - Press the advance button four times to select the fourth output.

   When you have selected the output number, press program to complete and advance to output type option
5. Use the advance button to select the output type (Fig. 6),
   - Press the advance button one time to select follower. In follower the output reflects the transmitter’s alarm status.
   - Press the advance button two times to select momentary. In momentary the output turns on for seven seconds, then turns off, regardless of the device status.
   - Press the advance button three times to select toggle. In toggle the output changes state each time the device sends a new activation. A minimum of four seconds must elapse before the output can send a new activation.
   - Press the advance button four times to select latching. In latching the output turns on when activated and remains on until the receiver is reset.

   When you have selected the output type, press program to complete and advance to the switch type option.
6. All the option LEDs will light and the point you’ve just programmed will flash. If you wish to register a transmitter to the point you’ve just programmed, press the transmitter’s reset button; otherwise, press program to save programming changes without registering a transmitter.

Note: The registration is not complete until all LEDs turn off and the point number lights.

All of the alert LEDs will turn off when the receiver has received the transmitter’s registration message, and the point number LED will light for two seconds. This indicates the receiver has received the transmitter’s registration message. If this does not occur, press reset on the transmitter again.

3.3 Connect Input/Output Cabling

The tamper output, jam output and reset input are open collectors, not dry contacts.

1. Connect cabling to the tamper output.
   - The optional tamper output is a normally open (N/O) output that reports receiver case tamper to an external device.
2. Connect cabling to the jam output.
   - The optional jam output is a normally closed (N/C) output that opens when noise thresholds on all transmission channels remain above a predetermined value for any 30 seconds in any 60 second window. The jam output is is set to the follow output type.
3. Connect cabling to the reset input.
   - The optional reset input circuit permits installation of a remote momentary normally open (N/O) switch to clear faults, unlatch outputs and reset the receiver to a normal state.
4. Connect cabling to the output terminals.
5. Close receiver housing.

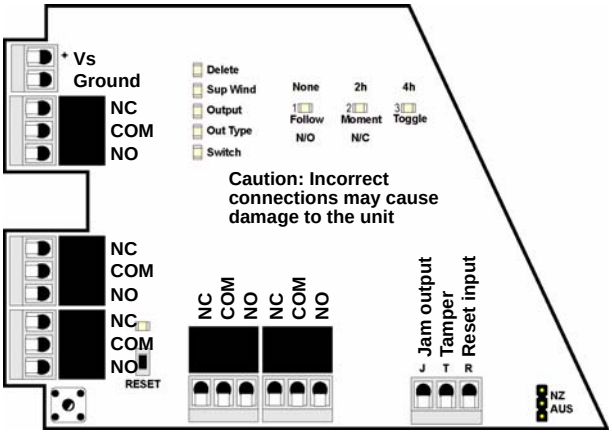

Figure 7 EN4204R terminals

3.4 Mount the Receiver

Caution: Mount the receiver in a location removed from metal. Metal objects (duct work, wire mesh screens, boxes) will reduce RF range.

1. Use the provided anchors and screws to mount the receiver in a location accessible for future maintenance.
2. Perform a walk test, activating each transmitter assigned to the receiver and ensuring an appopriate response.

4 Return to Factory Configuration

The EN4204R four zone add-on receiver with relay outputs can be returned to factory defaults using the following .

Caution: The factory config will erase all programmed point, output, and language information.

To restore the factory configuration defaults to the receiver:

1. Hold down the reset and advance buttons.
2. With the buttons held down, cycle power.

5 US Patent Numbers

- 7,154,866.
- 7,554,932.
- 7,746,804.
- Other patents pending.

6 Specifications

Housing: 6.38" x 3.60" x 1.10" (162 mm x 92 mm x 28 mm).

Operating environment: 32°- 140°F (0°- 60°C), 90% relative humidity, non-condensing.

Power requirement: ~400 mA max with all five relays energized).

Current consumption: Approx. ~400 mA max with all five relays energized.

Output specifications: Form C relay 1A @ 28 VDC, 0.5A @ 30 VAC resistive load; N/O receiver case tamper contact closure, N/C receiver jam output indication.

Input specifications: A low is less than .5 V; a high is greater than 2.5 V. Reset input: Contact closure, momentary low.

Receiver type: Frequency hopping spread spectrum.

Number of points/transmitters: Four.

Number of alarm outputs: Four Form C relay outputs.

Number of fault outputs: One Form C relay output.