

EN4232MR EchoStream® Receiver

Installation and Operation Manual - 05819A

1 Overview

Inovonics EchoStream technology is designed to minimize dead spots in transmission areas using diversity reception and advanced signal processing. The EN4232MR receiver allows you to add up to 32 transmitters and 12 outputs to any application, and includes a back tamper for increased tamper security.

1.1 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

1.2 EN4232MR Front Panel

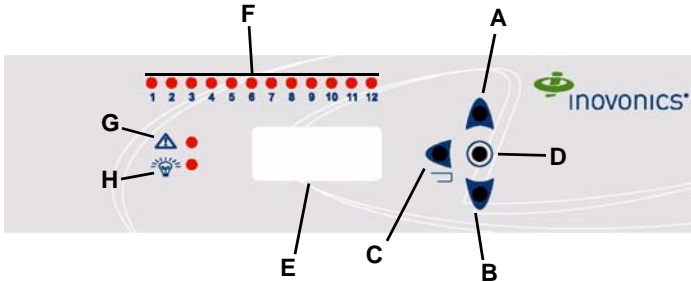


Figure 1 Receiver front panel

A Up button B Down button C Back button D Enter button E LCD display
F Output LEDs G Fault LED H Power LED

Up Button: Scrolls the display up.

Down button: Scrolls the display down.

Back button: Returns display to the previous menu.

Enter button: Selects the currently displayed menu item.

LCD Display: Shows status, event log, and programming information.

Output LEDs: The output LEDs light to indicate an alarm or fault condition at the appropriate output.

Fault LED: The fault LED lights to indicate a transmitter fault condition; either low battery, inactive, line power loss, or tamper.

Power LED: The power LED lights when the EN4232MR is receiving power.

1.3 EN4232MR Internal Components

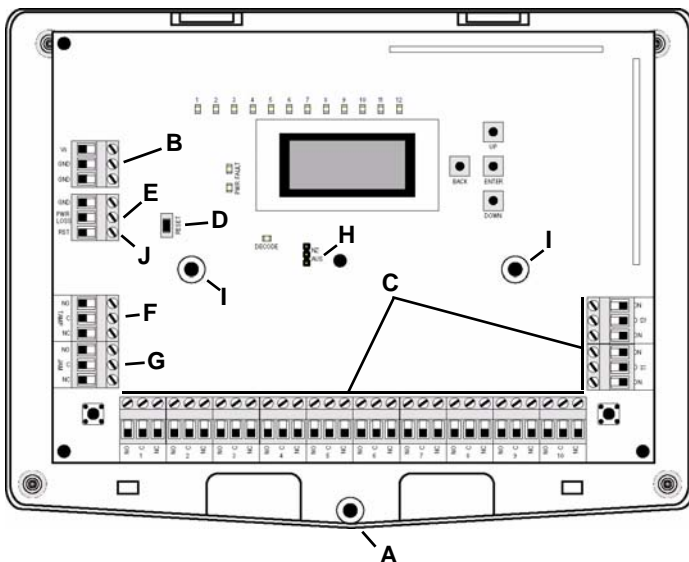


Figure 2 EE4232MR internal components

A Housing release screw B Power connections C Output terminals
D Reset button E Power loss output F Tamper output
G Jam output H Frequency band selection pins I Mounting holes

J Reset input

2 Power Cabling

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

1. Connect power cabling to the Vs and GND connections.
 - The power source must be 11-14 VDC. The power supply must be unswitched, uninterrupted, and regulated.

3 Select the Frequency Band

EchoStream products use a range of radio frequencies, and must be configured for your geographic area. To configure the receiver:

1. Use a small screwdriver to press the housing release tabs on the top or bottom of the receiver; separate the housing.
2. Place a selection jumper on the appropriate frequency band selection pins.
 - Leave the jumper off the pins to set the frequency range to 902-928 MHz for North America.
 - 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.

Note: North American is also selected when the jumper is only attached to one pin. This can prevent the jumper from being lost when selecting North America.

3. Cycle power to reset.

4 Input/Output Cabling

Connect the inputs and outputs per your specific application:

1. Connect cabling to the power loss output.
 - The power loss output is a normally closed (N/C) output that opens when the receiver loses power. The receiver operation output is set to the follower output type.
2. Connect a momentary switch to the reset input and ground.
 - The 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.
3. Connect cabling to the tamper output.
 - The optional tamper output is a relay output that reports receiver case tamper to an external device.
4. Connect cabling to the jam output.
 - The optional jam output is a relay output that is active when noise thresholds on all transmission channels remain above a predetermined value for 10 seconds.
5. Connect a momentary switch to the reset input and ground.
 - 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.
6. Connect cabling to the output terminals.

5 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, making sure the housing is flush with the wall and the back tamper switch is actuated.
2. After all transmitters have been registered, perform a walk test, activating each transmitter assigned to the receiver and ensuring a good signal.

6 Factory Configuration Defaults

The EN4232MR arrives with the outputs pre-programmed. If the default programming is sufficient for your site, you can advance directly to section 9.6, "Register Transmitter" on page 3.

Default Transmitter Programming

Transmitter Alarms	Output
1, 11, 21, 31	1
2, 12, 22, 32	2
3, 13, 23	3
4, 14, 24	4
5, 15, 25	5
6, 16, 26	6
7, 17, 27	7
8, 18, 28	8
9, 19, 29	9

Transmitter Alarms	Output
10, 20, 30	10

Default Trouble Condition Programming

Condition	Output
Tamper	11
Low Battery	12
Supervision Loss/Inactive	12
Line Power Loss	12

7 System Status

System status information displays alarm and fault information on the LCD display by default. Points in alarm are displayed as ALARM, with the point number following. If more than one point is in alarm, the display scrolls through each point. If a point has more than one alarm, the display scrolls through each alarm. Fault conditions are indicated by FAULT in the LCD display if there is no ALARM already displayed; point numbers are not displayed. If no point is in alarm and there are no fault conditions, READY displays.

8 Point Status

POINT STATUS allows you to view detailed alarm and fault information. Point status information is available without entering a password.

To access POINT STATUS:

- From system status information, press the **Enter** button to access the receiver's three main menus. POINT STATUS displays.
- Press **Enter** to display point status details.
- Use the **Up/Down** buttons to scroll through the points; press **Enter** again to view the outputs the displayed conditions are mapped to.
 - Point status flags are defined as follows: A = Alarm (transmitter only); T = Tamper; B = Low Battery; L = AC loss (repeater only); I = Inactive.

Note: If - displays, the displayed condition has been mapped to a null output.

9 Install & Service

Note: The default password is 3446.

The INSTALL & SERVICE menu is used to reset factory configuration, change password, view signal strength, delete points, register transmitters, and setup points for any of the programmed points.

To access the INSTALL & SERVICE menu:

- From the system status information, press the **Enter** button to access the receiver's three main menu options.
- Use the **Up and Down** buttons to navigate to the the INSTALL & SERVICE menu; press the **Enter** button.
- Enter a password to access INSTALL & SERVICE menus.

9.1 Setup Point

- From the INSTALL & SERVICE menu, press **Enter** at the SETUP POINT prompt.
- Use the **Up/Down** buttons to scroll through point numbers; press the **Enter** button to select a point.
 - TX REGISTR'D displays if a transmitter or repeater is currently registered to this point; TX NOT REGISTR'D displays if no transmitter is registered to this point.
- Press **Enter** to continue.

Supervision Time: Sets a time limit on missing transmitters.

- The valid range is 0 to 99 hours. The default is 60 minutes. Selecting 0 turns off supervision.

Caution: Turning off supervision can jeopardize the integrity of your system. Inovonics does not recommend turning off supervision. For supervision to function correctly, the supervision time must be set for an interval greater than the transmitter check-in time.

- Use the **Up and Down** buttons to adjust the supervision time; press the **Enter** button to select.
- Use the **Up and Down** buttons to toggle between Hrs (hours) and Min (minutes); press the **Enter** button to select.

Select Security/Repeater: Configures point's alarm and alert messages as either a repeater or a security transmitter.

- Use the **Up and Down** buttons to choose SELECT SECURITY for a security transmitter or SELECT REPEATER for a repeater; press the **Enter** button to select.

1-4 Alarm Inputs: Allows security transmitters with multiple alarm conditions to be assigned a separate alarm point and output type for each individual condition.

- Use the **Up and Down** buttons to navigate the number of alarm inputs for the transmitter; press the **Enter** to select.

Alarm Out: Maps the security transmitter's alarm condition(s) to alarm outputs.

- Use the **Up/Down** buttons to scroll through the output numbers. Choosing - - will disable alarm output.
- Press **Enter** to select the output to use for the alarm condition.

Alarm Output Type: Selects the output type for the alarm condition.

- Use the **Up/Down** buttons to scroll through the following options:

- Follower:** The output reflects the transmitter's alarm status. Press the **Enter** button to select.
- Latching:** The output turns on when activated and remains on until the receiver is reset. Press the **Enter** button to select.
- Toggle:** The output changes state each time the device sends a new activation. Press the **Enter** button to select.
 - INACTIVE displays when selected. Inactive time prevents output chatter. The valid range is 2.0 to 99.5 seconds, in 0.5 second increments. Use the **Up and Down** buttons to navigate; press the **Enter** button to select.
- Momentary:** The output turns on for the programmed duration, then turns off, regardless of the device status. Press the **Enter** button to select.
 - MOMENT displays when selected. This sets the time that the output will stay activated. The valid range 0.5 to 99.5 seconds, in 0.5 second increments. Use the **Up and Down** buttons to navigate; press the **Enter** button to select.

Inactive Out: Maps transmitter/repeater inactivity fault output.

- Use the **Up/Down** buttons to scroll through the output numbers. Choosing - - will disable inactivity reporting.
- Press **Enter** to select the output to use for this transmitter/repeater.

Inactive Output Type: Selects the output type for the inactive condition.

- Use the **Up/Down** buttons to scroll through the following options:
 - Follower:** The output reflects the transmitter's inactive status. Press the **Enter** button to select.
 - Latching:** The output turns on when a inactive condition is sent and remains on until the receiver is reset. Press the **Enter** button to select.
 - Toggle:** The output changes state each time the device sends a new inactive condition. Press the **Enter** button to select.
 - INACTIVE displays when selected. Inactive time prevents output chatter. The valid range is 2.0 to 99.5 seconds, in 0.5 second increments. Use the **Up and Down** buttons to navigate; press the **Enter** button to select.
 - Momentary:** The output turns on for the programmed duration, then turns off, regardless of the device status. Press the **Enter** button to select.
 - MOMENT displays when selected. This sets the time that the output will stay activated. The valid range 0.5 to 99.5 seconds, in 0.5 second increments. Use the **Up and Down** buttons to navigate; press the **Enter** button to select.

Tamper Out: Maps transmitter/repeater tamper fault output.

- Use the **Up/Down** buttons to scroll through the output numbers. Choosing - - will disable tamper output.
- Press **Enter** to select the output to use for this transmitter/repeater's tamper transmission.

Tamper Output Type: Selects the output type for the tamper condition.

- Use the **Up/Down** buttons to scroll through the following options:
 - Follower:** The output reflects the transmitter's tamper status. Press the **Enter** button to select.
 - Latching:** The output turns on when a tamper condition is sent and remains on until the receiver is reset. Press the **Enter** button to select.
 - Toggle:** The output changes state each time the device sends a new tamper condition. Press the **Enter** button to select.
 - INACTIVE displays when selected. Inactive time prevents output chatter. The valid range is 2.0 to 99.5 seconds, in 0.5 second increments. Use the **Up and Down** buttons to navigate; press the **Enter** button to select.
 - Momentary:** The output turns on for the programmed duration, then turns off, regardless of the device status. Press the **Enter** button to select.
 - MOMENT displays when selected. This sets the time that the output will stay activated. The valid range 0.5 to 99.5 seconds, in 0.5 second increments. Use the **Up and Down** buttons to navigate; press the **Enter** button to select.

Low Batt Out: Maps transmitter/repeater low battery fault output.

- Use the **Up/Down** buttons to scroll through the output numbers. Choosing - - will disable low battery output.
- Press **Enter** to select the output to use for this transmitter/repeater's low battery transmission.

Low Battery Output Type: Selects the output type for the low battery condition.

- Use the **Up/Down** buttons to scroll through the following options:
 - Follower:** The output reflects the transmitter's low battery status. Press the **Enter** button to select.
 - Latching:** The output turns on when a low battery condition is sent and remains on until the receiver is reset. Press the **Enter** button to select.
 - Toggle:** The output changes state each time the device sends a new low battery condition. Press the **Enter** button to select.
 - INACTIVE displays when selected. Inactive time prevents output chatter. The valid range is 2.0 to 99.5 seconds, in 0.5 second increments. Use the **Up and Down** buttons to navigate; press the **Enter** button to select.
 - Momentary:** The output turns on for the programmed duration, then turns off, regardless of the device status. Press the **Enter** button to select.
 - MOMENT displays when selected. This sets the time that the output will stay activated. The valid range 0.5 to 99.5 seconds, in 0.5 second increments. Use the **Up and Down** buttons to navigate; press the **Enter** button to select.

Line Power Loss Out: Maps repeater line power loss fault output.

- Use the **Up/Down** buttons to scroll through the output numbers. Choosing - - will disable line power loss output.
- Press **Enter** to select the output to use for this repeater's line power loss transmission.

Line Power Loss Output Type: Selects the output type for the line power loss condition.

- Use the **Up/Down** buttons to scroll through the following options:
 - Follower:** The output reflects the repeater's line power loss status. Press the **Enter** button to select.
 - Latching:** The output turns on when a low battery condition is sent and remains on until the receiver is reset. Press the **Enter** button to select.
 - Toggle:** The output changes state each time the device sends a new line power loss condition. Press the **Enter** button to select.
 - INACTIVE displays when selected. Inactive time prevents output chatter. The valid range is 2.0 to 99.5 seconds, in 0.5 second increments. Use the **Up and Down** buttons to navigate; press the **Enter** button to select.
 - Momentary:** The output turns on for the programmed duration, then turns off, regardless of the device status. Press the **Enter** button to select.
 - MOMENT displays when selected. This sets the time that the output will stay

activated. The valid range 0.5 to 99.5 seconds, in 0.5 second increments. Use the **Up** and **Down** buttons to navigate; press the **Enter** button to select.

Text: Enter eight-character descriptive text for the transmitter/repeater

- a. Use the **Up/Down** buttons to scroll through the alphanumeric characters; press **Enter** to enter and advance to the next character. To select a space, press **Enter** without selecting a digit.

Note: If you do not use all eight characters, you must enter spaces to the end of the line.

- b. When finished, press **Enter** again to complete selection.

Register Transmitter: The REGISTER TRANSMITTER option allows you to register a transmitter or repeater to the programmed point.

- a. Use the **Up** and **Down** buttons to toggle between N for no and Y for yes to choose whether or not you wish to register a transmitter/repeater to the point; press **Enter** to select.
- b. Press the transmitter/repeater's **Reset** button at the RESET XMITTER prompt.
- c. When Tx REG'D displays, press **Enter** to finish and advance to the next point.
- d. When all transmitters have been registered, press **Reset** on the receiver to clear faults.

Note: A transmitter/repeater can be registered to the point at a later time using the REGISTER XMITTER prompt in the INSTALL & SERVICE menu.

9.2 Factory Config

The FACTORY CONFIG option is used to restore the EN4232MR to its factory defaults.

Caution: Choosing FACTORY CONFIG will erase all programmed point and output information, as well as the password.

To restore the factory configuration defaults to the EN4232MR:

1. From the INSTALL & SERVICE menu, use the **Up** and **Down** buttons to navigate to the FACTORY CONFIG prompt; press the **Enter** button.
2. The RESET CONFIG prompt displays. Use the **Up** and **Down** buttons to choose Y for yes; press **Enter** to select.
3. The CONFIG RESET prompt displays; press the **Enter** button to return to the INSTALL & SERVICE menu.

The receiver can also be brought back to the factory default configuration through a hardware initiated sequence.

1. Connect a wire between the reset terminal and the ground terminal
2. While pressing the **Back** button, cycle the power to the unit
3. Release the **Back** button and remove the wire between the reset terminal and ground
4. RESET CONFIG? displays; select Y and press the **Enter** button

9.3 Change Password

Passwords can be up to eight digits long. The password is 3446. To change the password:

1. From the INSTALL & SERVICE menu, press **Enter** at the CHANGE PASSWORD prompt.
2. Use the **Up/Down** buttons to scroll through the digits; press **Enter** to select and advance to the next digit.

Note: Choosing a null as the password will disable the function, allowing users to perform receiver functions and/or change parameters without a password.

3. When finished, press **Enter** again to complete selection.
4. When PASSWORD CHANGED displays, press **Enter** to return to the INSTALL & SERVICE menu.

Caution: Store the new password in a secure place. If the new password is lost, you will not be able to access the receiver without restoring it to factory defaults as described in section 9.2, "Factory Config" on page 3.

9.4 Signal Strength

The SIGNAL STRENGTH option is used to measure signal strength and troubleshoot installation problems.

1. At the SIGNAL STRENGTH prompt, press **Enter**.
 - The first programmed point displays, along with a signal quality of GOOD, WEAK or No SIG.

Note: The point must have an active transmitter associated with it to display signal strength.

2. Use the **Up/Down** buttons to scroll through the registered transmitters.
3. Press **Enter** to view Level (LV) and Margin (MA).
 - LV indicates the overall signal strength; MA indicates the signal strength minus the background noise.

Note: Inovonics recommends an LV of four for most installations.

9.5 Delete Point

The DELETE POINT option allows you to delete transmitter registration information from all registered points, or from a specific point. Programmed point information is not deleted; just the registration identification number associated with the transmitters or repeaters. To delete points:

1. From the INSTALL & SERVICE menu, use the **Up** and **Down** buttons to navigate to the DELETE POINT prompt; press the **Enter** button.
2. The DELETE ALL? prompt displays. Use the **Up** and **Down** buttons to choose N for no or Y for yes; press **Enter** to select.
3. If you selected no, the DELETE POINT prompt displays. Use the **Up** and **Down** buttons to choose a point to delete; press **Enter** to select.
4. Press the **Enter** button. If there is more than one registered point, then pressing the **Enter** button returns to point selection for deletion; if there are no more registered points, the display returns to the INSTALL & SERVICE menu.

9.6 Register Transmitter

The REGISTER XMITTER option allows you to register a transmitter or repeater.

1. From the INSTALL & SERVICE menu, use the **Up** and **Down** buttons to navigate to the REGISTER XMITTER prompt; press the **Enter** button.
2. Use the **Up** and **Down** buttons to choose the point to which you want to register the transmitter/repeater.
3. Use the **Up** and **Down** buttons to toggle between N for no and Y for yes to choose whether or not you wish to register a transmitter/repeater to the point; press **Enter** to select.
4. Press the transmitter/repeater's **Reset** button at the RESET XMITTER prompt.

10 Event Log

The event log displays the last 50 events that have occurred, whether they be alarms or tamper, inactive, or low battery faults. Event log information is available without a password.

1. From system status information, press **Enter**.
2. Use the **Up** or **Down** buttons to navigate to EVENT LOG; press the **Enter** button.
3. Use the **Up/Down** buttons to scroll through events.
4. When viewing transmitter events, press **Enter** to see the output the events map to.

Note: No output will be displayed if the event is mapped to a null output.

11 Specifications

Dimensions: 22cm x 18cm x 4cm (8.75" x 7" x 1.63").

Weight: 522 g (18.4 oz)

Operating environment: -10°- 60°C (14°- 140°F), 90% relative humidity, non-condensing.

Power requirement: 11-14 VDC; 500mA

Nominal current consumption: Approx. 120 mA

Output specifications: Form C relay 1A @ 28 VDC, 0.5 @ 30 VAC resistive load

Input specifications: Reset input: Contact closure, momentary low.

Receiver type: Frequency hopping spread spectrum.

Operating frequency: 915-928 MHz (Australia), 921-928 MHz (New Zealand), 902-928 MHz (USA)

Tamper: Type B, fixed device.

Number of points/Transmitters: 32.

Number of outputs: 12 Form C relay outputs

Event history log capacity: 50 events (first-in, first-out replacement).

12 Warranty/Disclaimer

Caution: Changes or modifications to this unit not expressly approved by Inovonics Wireless Corporation may void the installer's authority to operate the equipment as well as the product warranty.

Inovonics Wireless Corporation ("Inovonics") warrants its products ("Product" or "Products") to conform to its own specifications and to be free of defects in materials and workmanship under normal use for a period of thirty-six (36) months from the date of manufacture. Within the warranty period, Inovonics will repair or replace, at its option, all or any part of the warranted Product. Inovonics will not be responsible for dismantling and/or reinstallation charges. To exercise the warranty, the User ("User", "Installer" or "Consumer") must work directly through their authorized distributor who will be given a Return Material Authorization ("RMA") number by Inovonics. Details of shipment will be arranged directly through the authorized distributor.

This warranty is void in cases of improper installation, misuse, failure to follow installation and operating instructions, alteration, accident or tampering, and repair by anyone other than Inovonics.

This warranty is exclusive and expressly in lieu of all other warranties, obligations or liabilities, whether written, oral, express, or implied. There is no warranty by Inovonics that Inovonics product will be merchantable or fit for any particular purpose, nor is there any other warranty, expressed or implied, except as such is expressly set forth herein. In no event shall Inovonics be liable for an incidental, consequential, indirect, special, or exemplary damages, including but not limited to loss of profit, revenue, or contract, loss of use, cost of down time, or interruption of business, nor any claim made by distributor's customers or any other person or entity.

This warranty will not be modified or extended. Inovonics does not authorize any person to act on its behalf to modify or extend this warranty.

This warranty will apply only to Inovonics Products. Inovonics will not be liable for any direct, incidental, or consequential damage or loss whatsoever, caused by the malfunction of Product due to products, accessories, or attachments of other manufacturers, including batteries, used in conjunction with Inovonics Products.

Note: E-mail support@inovonics.com for a copy of the CE Declaration of Conformity.