Inovonics EN4200 Security Only Serial Receiver Instruction Manual

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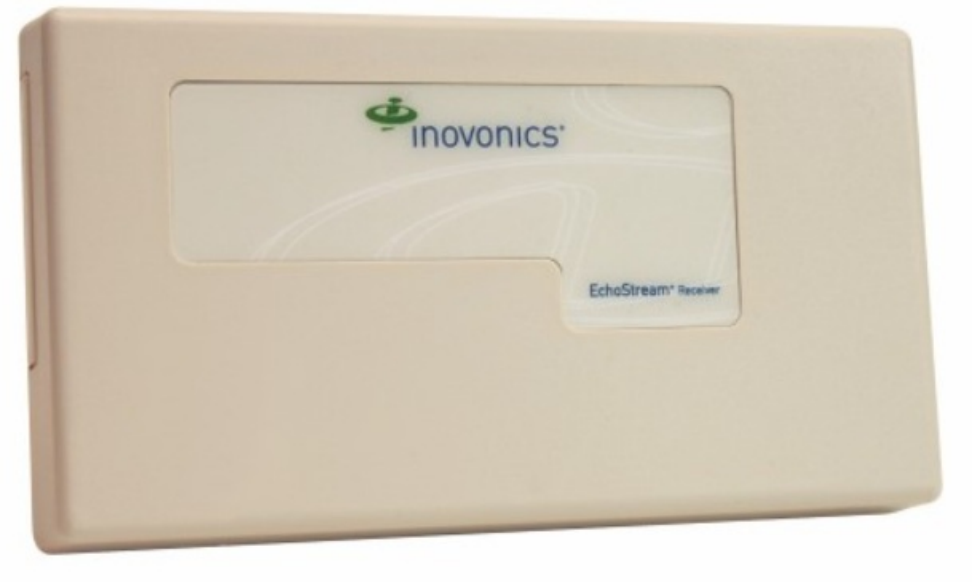
Inovonics EN4200 Security Only Serial Receiver



Specifications

- Product Name: EN4200 Security Only Serial Receiver
- Interface: RS-232 Serial Interface
- Application: Security Only

Product Usage Instructions

RF Signal Propagation Considerations:

- Materials like metal, concrete, solar panels, and vegetation can affect RF signal propagation.
- Perform a site survey with Inovonics wireless survey kit to verify signal strength and determine repeater locations.
- Mount devices at a height above potential obstructions.

Cabling Instructions

1. Route the cabling through either the bottom or side cabling knockout.
2. All field-wiring circuits connected to power sources must be power limited.

FAQ
Q: How do I test the EchoStream system?
A: Place the system in test mode, activate an end device, and ensure an appropriate response.

EN4200 Security Only Serial Receiver

Installation Instructions

Overview

The security-only serial receiver is a gateway between EchoStream one-way security transmitters and an head-end application using an RS-232 serial interface. The EN4200 is used for security-only applications.

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.

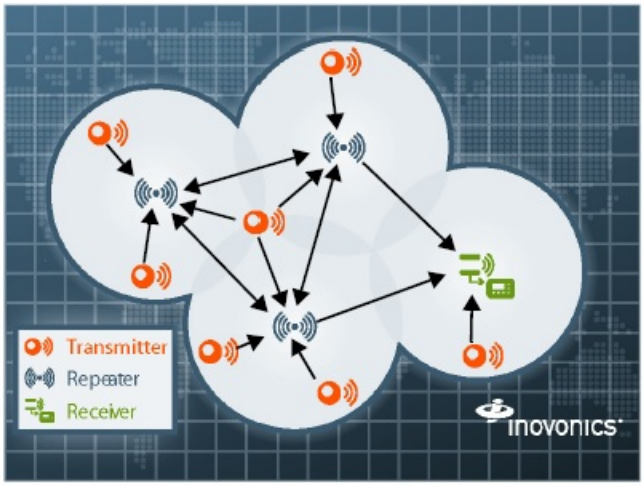


Figure 1 Sample EchoStream system

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: Inovonics offers two options for site surveys: the EN7017 survey kit and app and EN4016SK survey receiver. The EN4016SK survey receiver displays the decibel level, while the EN7017 survey kit and app displays only that the reception is good or weak. For more information, see the EN4016SK Survey Receiver Installation and Operation Manual or the EN7017 Survey Kit and App Installation and Site Survey Instructions.

Caution: The EchoStream system should be tested regularly to ensure operation. To test: place the system in test mode, activate an end device, and ensure an appropriate response.

RF Signal Propagation

While wood, drywall and glass usually let the RF signals pass, some materials may inhibit or attenuate radio frequency (RF) signal propagation by blocking, reflecting, deflecting or absorbing RF signals.

Consider anything between transmitters and repeaters and/or the receiver. Is there concrete and steel construction? Are there earthen berms or hills? Are there a lot of trees? Devices should be mounted such that they are least affected by these elements.

For best results, transmitters and repeaters should be mounted at the optimal height to achieve line of sight to repeaters and/or the receiver. Usually this means they will be mounted as high as possible.

Following are some typical obstacles to RF signal propagation

Material	Affect	Recommendation
Metal construction, including ductwork; pi pes; studs; stucco, plaster or concrete wi th wire mesh; satellite dishes, metal-lined rooms such as walk-in coolers or freezers; metal siding, safes, etc.	Can reflect, absorb and/or di srupt RF signals.	Perform a site survey using an Inovo nics wireless survey kit to verify the RF signal is acceptable, and, when n ecessary, to determine where to loca te repeaters.
Completely enclosed metal boxes/enclos ures.	Can restrict RF signals.	
Solar panels, cinder block walls, windows with built-in solar tinting.	Can absorb and/or reflect R F signals.	
Vegetation.	Can attenuate RF signals. T he RF environment can alter as trees shed or sprout leav es.	Add repeaters as issues arise.
Automobile and truck traffic.	Can disrupt RF signals.	Mount Inovonics devices at a height sufficient to achieve line of sight above traffic.

1.3 Inovonics Contact Information
For product and installation videos visit us at **www.inovonics.com/videos** or use the QR code below.

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

- E-mail: **support@inovonics.com**
- Phone: **800-782-2709**.

EN4200 Security Only Serial Receiver Internal Components

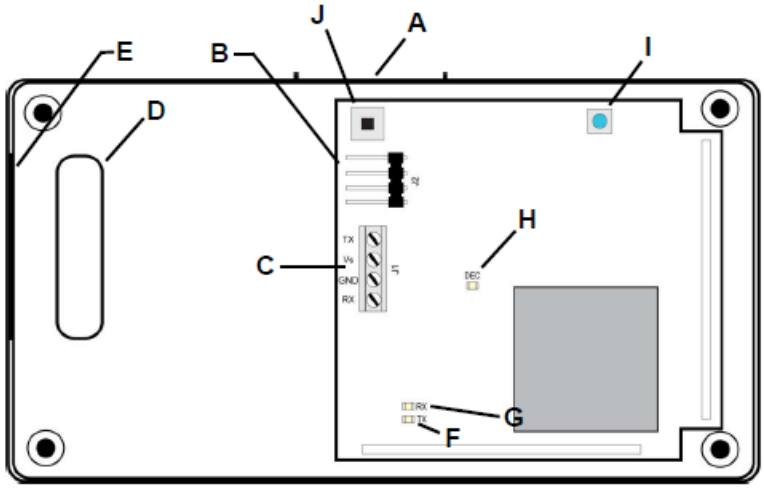


Figure 2 EN4200 serial receiver components

- A Housing release tab
- C Serial data termina
- I E Side cabling knockout
- G Receive LED
- I Reset button
- B Serial data port
- D Bottom cabling knockout F Transmit LED
- H Decode LED
- J Housing tamper switch and spring

EN4200 Security Only Serial Receiver Operation LEDs
The following LEDs are used to monitor serial receiver operation: Transmit LED: Lit when the serial receiver is transmitting data to the application controller.
Receive LED: Lit when the serial receiver is receiving data from the application controller.
Decode LED: Lit when the serial receiver is decoding an RF transmission from another Inovonics device.

Installation and Startup

- These products are designed to be maintained by professional security technicians.
- Products are tested for indoor use.
- Do not mount wireless smoke detectors, co detectors, initiating device transmitters or repeaters to removable surfaces, such as ceiling tiles.
- All products should be manually tested weekly.
- The EN4200 must be installed within 30 m (98.5 ft) of control unit.
- Low power transmitters shall be limited to a single initiating device.
- Each manually operated holdup alarm initiating device shall be installed so that it cannot be observed by the public and so that it can be operated in a manner that will not be obvious to an attacking party.
- Each semi-automatic holdup alarm initiating device shall be installed so that it is not noticeable to an attacking party during a holdup attempt and is not noticeable to the public or an attacking party prior to a holdup attempt.
- Installation of holdup alarm units and systems shall be governed by the Standard for Installation and Classification of Burglar and Holdup Alarm Systems, UL 681.
- Installation shall be in accordance with CSA C22.1, Canadian Electrical Code, Part I, Safety Standard for Electrical Installations ; CAN/ULC S302, Standard for the Installation, Inspection and Testing of Intrusion Alarm

Systems; and CAN/ULC S301, Standard for Signal Receiving Centre Configuration and Operations. Locations where installations are not recommended shall also be included.

Connect the Serial Cable

Caution: Long cable runs should not be adjacent to high current power feeds. Keep cable lengths as short as possible to minimize cable capacitance. Measure voltage supply at the serial receiver to ensure power requirement is met for long cable runs.

1. Connect a serial cable to either the serial data port or the serial data terminal. Cabling should meet the following specifications:
   Four-conductor 20AWG (or larger) stranded-tinned copper with PVC insulation rated to 300 volts at 60°C (140°F). (Belden #8205, for example.)
2. Route the cabling through either the bottom cabling knockout or the side cabling knockout.

Note: All field-wiring circuits that derive energy from power sources connected to a control unit shall be power limited. Route the cabling through the side cabling or back housing knockout.

Mount the Serial Receiver

Caution: Mount the EN4200 EchoStream serial receiver in a location removed from metal. Metal objects (duct work, wire mesh screens, boxes) will reduce RF range.
Note: A best practice is to ensure the EN4200 EchoStream serial receiver is mounted in an easily accessible location for future maintenance.

1. Use the provided anchors and screws to mount the serial receiver in a location accessible for future maintenance.
2. Close the serial receiver housing.
3. Perform a walk test, activating each transmitter assigned to the receiver and ensuring a good signal.

Caution: Always test the system for operation upon completion of the installation.

Troubleshooting

Problem	Possible Solutions
Receiver won’t power up.	• Verify your power and ground wires are securely connected to VS and GND on the power terminals. • Meter incoming power to make sure it is operating at 10-13.5 VDC, 55- 90mA. • Keep cable lengths as short as possible to minimize cable capacitance. Measure voltage supply at the receiver to ensure power requirement is met for long cable runs.
Messages from registered transmitters are not being received.	• Verify receiver is getting enough power. • Bring the transmitter close to receiver to verify it is in range and can be heard by the receiver.

Specifications

- Housing dimensions: 6.54″ x 3.62″ x 1.05″ (166.1mm x 91.9mm x 26.67mm).
- Weight: 145g (5.1oz).
- Power requirement: 10-13.5 VDC at a minimum of 121mA.
- Radio: Inovonics EchoStream.
- Operating frequency: 902-928 MHz (USA) 915-925 MHz (AUS) 921-928 MHz (NZ).
- Operating environment: 32-140°F (0-60°C) up to 90% relative humidity (non-condensing).
- Regulatory certifications: Security Level 1 CAN/ULC S304:2016, UL 985, UL 1023, UL 2610.

Note: Inovonics supports recycling and reuse whenever possible. Please recycle these parts using a certified electronics recycler.

Television and Radio Interference

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 harmful 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 equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Part 15 and Innovation, Science and Economic Development Canada (ISED)

Compliance
This device complies with part 15 of the FCC Rules, and ISED license-exempt RSS standard(s). Operation is subject to the following two conditions

1. this device may not cause interference, and
2. this device must accept any interference that may cause undesired operation of the device.

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: Inovonics commercializes products utilizing open source third party software. For additional information, please visit: **https://www.inovonics.com/support/embedded-third-party-licenses/**

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Documents / Resources

	**Inovonics EN4200 Security Only Serial Receiver** [pdf] Instruction Manual EN4200 Security Only Serial Receiver, EN4200, Security Only Serial Receiver, Only Serial Receiver, Serial Receiver, Receiver

References

- **Unparalleled network infrastructure | Inovonics**
- **Embedded Third Party Licenses - Inovonics**
- **User Manual**