

EN5040-T EchoStream® High-Power Repeater Installation and Operation Manual - 05066L, January 4, 2012

1 Overview

EN5040-T high-power repeaters receive, decode and retransmit signals at enhanced power from Inovonics Wireless nodes. They act as range expanders for any valid Inovonics Wireless transmission, including signals from other high-power repeaters. Repeaters can be layered as necessary, allowing Inovonics Wireless systems to scale from small commercial sites to complete campuses consisting of several buildings. The EN5040-T features jam detection, as well as case and wall tamper detection. Input power is provided by listed class 2 transformer, Good Power Electronics, Ltd. T48141428V010G or T48141428V020G, MPI-NEO Co., Ltd. W48A-K1429-2T.

Note: For UL installations, refer to the *EN4216MR Installation and Operation Manual*, the *EN4232MR Installation and Operation Manual*, or the *EN7285 Installation Instructions*.

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 EN5040-T LEDs

Decode LED: Flashes when any recognizable RF transmission is received. (Fig. 1).

Transmit LED: Lit when transmitting an RF transmission (Fig. 1).

Low Battery Fault LED: Lit when the high-power repeater has a low battery (Fig. 1).

Power LED: Lit when receiving power (Fig. 1). The LED lights green when the unit is receiving line power; red when receiving battery power.

Note: If mapped to an output, the high-power repeater will send the AC loss message to the receiver or network coordinator when receiving power from the backup battery.

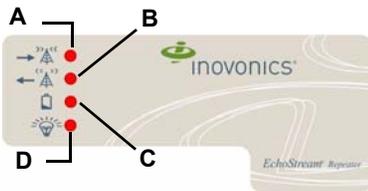


Figure 1 EN5040-T LEDs
A Decode LED **B** Transmit LED **C** Low Battery Fault LED
D Power LED

2 Installation and Startup

2.1 Installation Notes

- These products are designed to be installed and maintained by professional security technicians.
- Products are intended for indoor use.
- Manually test all products weekly.

2.2 Connect Power Cabling

Before beginning startup, power must be connected to the high-power repeater. To connect power to the high-power repeater:

1. Use a small screwdriver to press the housing release tab on the top or bottom of the high-power repeater (Fig. 2); separate the housing.
2. Connect power cabling (Fig. 2).
 - Wire should be two-conductor 20AWG (or larger) stranded-tinned copper with PVC insulation rated to 300 volts at 26°C (80°F). Wire length should not exceed 100 meters (328 feet).
 - Uses class 2 plug-in transformer 14VAC/120VAC-20VA, Good Power Electronics, Ltd. T48141428V010G or T48141428V020G, MPI-NEO Co., Ltd. W48A-K1429-2T.

Note: Do not secure transformer for Canadian installations.

2.3 Connect Battery Power

The high-power repeater is shipped with a fully-charged backup battery. You will need to connect the battery:

1. Plug the connector cable from the backup battery into the battery connector (Fig. 2).

2.4 Select the Frequency Band

EchoStream products are able to use a range of radio frequencies, and must be configured for your geographic area. To configure the high-power repeater:

1. Use a small screwdriver to press the housing release tab on the top or bottom of the receiver (Fig. 2); separate the housing.
2. Place a selection jumper on the appropriate frequency band selection pins (Fig. 2).
 - Place the jumper on the left two pins, marked AU, to set the frequency range to 915-928 MHz for Australia.
 - Place the jumper on the right two pins, marked NZ, to set the frequency range to 921-928 MHz for New Zealand.
 - Leave the jumper off the pins to set the frequency range to 902-928 MHz for North America.

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.

Note: Only devices set for use in North America are configured for UL installations.

3. Press the **Reset** button.

2.5 Register the High-Power Repeater

Although the high-power repeater is functional upon startup, Inovonics Wireless strongly recommends you register it using your receiver, network coordinator or control panel. Registration is required for UL installations. Inovonics Wireless recommends all high-power repeaters be supervised. Supervision is required for UL installations.

Note: For registration information, refer to the receiver's installation instructions.

Caution: The reset bit will not be sent when the repeater has a low battery. Before registering the repeater, ensure the battery is fully charged.

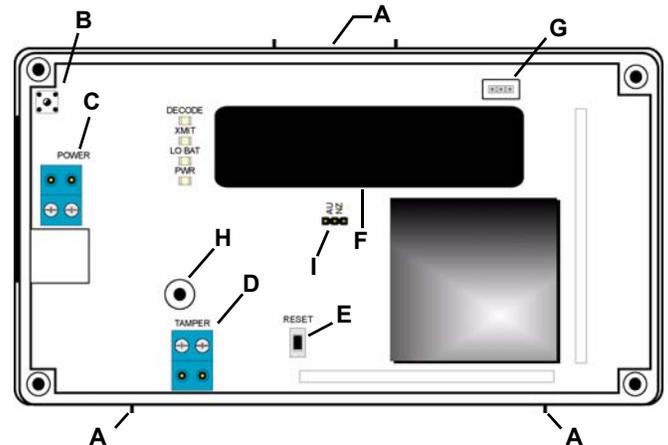


Figure 2 EN5040-T Components
A Housing release tabs **B** Tamper button **C** Power connector **D** Tamper input
E Reset button **F** Backup battery **G** Battery connector **H** Tamper mounting hole
I Frequency selection pins

2.6 Mount the High-Power Repeater

Caution: Mount the high-power repeater 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 high-power repeater in a location accessible for future maintenance.
 - In large installations, high-power repeaters should be mounted so that every transmitter has multiple transmission paths to the serial receiver or network coordinator. This kind of redundancy preserves system integrity in the event of temporary interruptions of any transmission path in the system.
 - For maximum efficiency, high-power repeaters should be mounted with as few obstacles as possible between it and the receiver, network coordinator or control panel.
 - Always perform a walk test after mounting, activating each transmitter assigned to the high-power repeater and ensuring an appropriate response.

2.7 Enable the Wall Tamper

The wall tamper must be enabled. To enable the wall tamper.

1. Attach the included screw to the wall through the tamper mounting hole (Fig. 2).
 - If the EN5040-T is removed from the wall, the cutout on the back of the housing will detach from the EN5040-T, activating a tamper alarm.

2.8 Close the Housing

The housing must be closed and the tamper spring in place to ensure the security of your system.

1. Check that the tamper spring is in place and makes contact with the repeater housing.
2. Close the housing.

3 Specifications

Housing: 165 mm x 89 mm x 25 mm (6.5" x 3.5" x 1")

Weight: 204 g (7.14 oz)

Operating environment: UL installations: 0° - 60°C (32° - 140°F), 90% relative humidity, non-condensing; all other installations: -20 - 60°C (-4° - 140°F), 90% relative humidity, non-condensing

Power requirement: 14 VAC, 60Hz, 250 mA

Battery capacity: 3.7 VDC nominal, 2.15 mAh

Typical back-up battery life: 24 hours

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

Battery charger operating environment: 0 to 60°C (32 to 140°F), 90% relative humidity, noncondensing

Accessories: ACC640: weatherproof plastic enclosure for outdoor installations; BAT850: replacement lithium-ion battery assembly

Note: The ACC640 weatherproof plastic enclosure has not been evaluated by UL.

UL listings: UL 365, UL 636, UL 1023, ULC/ORD-C1023-74, UL 1076, UL 1610.

Compatible receiver: EN4216MR, EN4232MR, EN7285

US patent number 7,746,804

4 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.

5 FCC Part 15 and Industry Canada Compliance

This device complies with part 15 of the FCC Rules and Industry Canada 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, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux

deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

6 Warranty/Disclaimer

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

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.