



NRU Network Repeater Unit

Get it. And get it back.™



Product Highlights

- Network device that
 - Repeats downlink and uplink messages.
 - Enables post installation testing of VLU7 while in or out of the network area.
- Available in two models
 1. Full function – provides complete NRU feature set.
 2. ITU only - Supports only VLU installation testing. No network repeating features.

The LoJack Network Repeater Unit (NRU) is a low cost network device that can be used in a LoJack Stolen Vehicle Recovery Network. The NRU was designed to replace the obsolete Tracker Repeater Unit (TRU), and the Packet Decoder used for repeating. The NRU is now available for 13 and 8 second networks.

An NRU can repeat downlink transmission bursts it receives from either a Remote Transmitter Unit (RTU), another NRU, or from the network. It relays back any reply code transmission it receives from an activated Vehicle Locator Unit (VLU) as an uplink message to a tower connected to the central system. An NRU can also repeat uplink transmissions from any nearby VLU or repeaters. If connected via IP/broadband, the NRU can forward to a central system any reply code or uplink messages it hears.

Finally, the NRU can be used as a mobile Installation Test Unit (ITU) for performing on-site installation verification and routine inspection of VLUs. When configured for ITU use, the NRU can send properly timed and indexed test command to the new VLU7 unit. This allows the user to perform post-installation testing of the VLU7 without the need to access the VLU7

ground wires. This powerful feature works both inside and outside network coverage areas.

Product Description

The NRU is a self-contained unit in an indoor-rated housing with mounting tabs, and includes a built-in GPS receiver. The unit has a dedicated serial interface, connectors for power and antenna as well as relay contacts to drive an external power amplifier.

The NRU fully supports VLU7 timing and indexing requirements for downlink transmissions for basic messages such as Activation, Deactivation, Speed up, and extended downlink messages such as Alt-Deactivate.

The NRU can be used in conjunction with a GSM modem. The NRU will not repeat transmissions from a mobile transmitter with pseudo dotting 15 in 13 second networks. It will respond to either configuration or report request messages from a mobile transmitter or from the network.

NOTE: The NRU is not base station certified. It is ETSI certified for 13 Second Systems and FCC certified as a mobile transmitter for 8 second Systems.



| Product Features | User Benefits |
|---|--|
| <ul style="list-style-type: none"> NRU design based on the VLU-7 transceiver | <ul style="list-style-type: none"> Ability to supports all VLU-7 channel frequencies |
| <ul style="list-style-type: none"> Improved timing accuracy over the obsolete TRU | <ul style="list-style-type: none"> Better timing accuracy decreases network congestion, improves communication with VLUs. |
| <ul style="list-style-type: none"> Includes indexing for VLU7. Communicates with all VLU7 models including self powered VLU. | <ul style="list-style-type: none"> Ensures maximum life expectancy of VLU7-SP. Enables post installation testing of VLU7-SP without the need for full service mode |
| <ul style="list-style-type: none"> Supports firmware updates both locally and remotely using the Ethernet connection. | <ul style="list-style-type: none"> Easy to maintain/upgrade system, reduces or eliminates site visits |
| <ul style="list-style-type: none"> Uplink message receiving and repeating capability | <ul style="list-style-type: none"> Ability to offer expanded services such as LoJack Early Warning |

Technical Specifications

Physical

| | |
|-------------|----------------------|
| Dimensions | |
| Height | 174.53 mm (6.87 in) |
| Width | 99.4 mm (3.91 in) |
| Depth | 41.6 mm (1.64 in) |
| Weight | |
| Operational | 0.9 kg |
| Shipping | 0.45 kg |

Power Requirements

| | |
|---------------|---|
| Input Voltage | +13.8 VDC nominal (+9 VDC...+18 VDC) |
| Current | 0.5 A nominal (receive) 1.5 A nominal (transmit) 2.0 A (Peak) |

Connections

| | |
|------------------------------|--------------------------|
| DC Power | 2.5 mm Male Locking Jack |
| VHF Antenna | Female SMA connector |
| Serial/Multi-Purpose I/O (2) | Female RJ45 connector |
| Ethernet | Female RJ45 connector |
| GPS Antenna (optional) | Female SMA connector |

Environment

| | |
|-------------------------------|----------------------|
| Temperature Range (operating) | -20 ° C to +60 ° C |
| Temperature Range (storage) | -40 ° C to +105 ° C |
| Relative Humidity | 0-90% Non-Condensing |
| Environmental Rating | N/A |

RF Performance (VHF)

| | |
|------------------------------|--|
| Single Frequency Options | 160MHz to 174MHz |
| Center Frequency Accuracy | ± 9.0 ppm (-20°C to +55°C) |
| Channel Spacing (Wideband) | 25 KHz |
| Channel Spacing (Narrowband) | 12.5 KHz |
| Antenna Impedance | 50 Ohms |
| MSK RX Sensitivity | -117 dBm +/- 2 dB for 50% message reception rate |
| FSK RX Sensitivity | -129 dBm +/- 2 dB for 3 successful consecutive message reception |
| Transmit Power | +31 dBm +/- 1 dB (at Antenna Connector) |

Built-in GPS

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|-----------------------|-------------------|
| Internal GPS Receiver | Trimble Lassen iQ |
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Certifications

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| FCC Part 15 Class "B" |
| CENELEC (CE) EN 55022:1998 Class B Standards from CENELEC EN 55024:1998 |

ROHS Compliance

The NRU is ROHS compliant.

The information and specifications contained in this document are subject to change without notice.

