



HIT-NOT Proximity System

RF Module



User's Manual v1.0

FREDERICK ENERGY PRODUCTS, LLC
1769 Jeff Road
Huntsville, AL 35806
1.800.489.6915

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1 Overview

The Radio Transceiver Module (RF Module) is a daughter board device that is mounted internally to the Magnetic Field Generator (MFG)/ Collision Avoidance Module (CAM) stack. It uses a Linx ANT-916-WRT-UFL antenna to send and receive messages to/from other HitNot Devices.

1.1 Theory of Operation

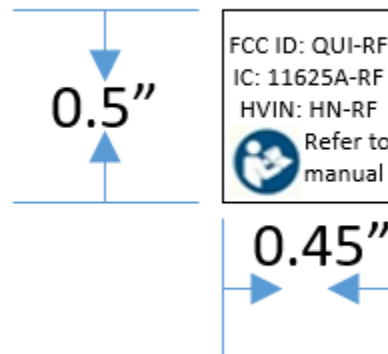
The Radio Transceiver Module (model HN-RF) is a modular device that mounts inside the Magnetic Field Generator (MFG). The module mounts via a 16-pin header and is secured in place with a through hole screw and nylon insert nut. A whip antenna mounted to the lid of the MFG connects to the antenna port of the RF module allowing it to send and receive messages to other HitNot Devices.

1.2 Frequency of Operation

The RF Module is a 916.48 MHz Transceiver.

1.3 Label Information

The label is located on the top corner of the board opposite of the antenna and header.



1.4 FCC/IC Information

The FCC ID for the RF Module is QUI-RF and complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received including interference that may cause undesired operation.

Any intentional or unintentional changes or modifications to the configuration of RF Module not expressly approved by Frederick Energy Products LLC could void the user's authority to operate the equipment.

Note: 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 not 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/technician for help.*

Conformité aux normes FCC Cet équipement a été testé trouvé conforme aux limites pour un dispositif numérique de classe B, conformément à la Partie 15 des règlements de la FCC. Ces limites sont conçues pour fournir une protection raisonnable contre les interférences nuisibles dans une installation résidentielle.

Cet équipement génère, utilise et peut émettre des fréquences radio et, s'il n'est pas installé et utilisé conformément aux instructions du fabricant, peut causer des interférences nuisibles aux communications radio.

Rien ne garantit cependant que l'interférences ne se produira pas dans une installation particulière. Si cet équipement provoque des interférences nuisibles à la réception radio ou de télévision, qui peut être déterminé en comparant et en l'éteignant, l'utilisateur est encouragé à essayer de corriger les interférence par une ou plusieurs des mesures suivantes:

- Réorienter ou déplacer l'antenne de réception.*
- Augmenter la distance entre l'équipement et le récepteur.*

--Branchez l'appareil dans une prise sur un circuit différent de celui auquel le récepteur est connecté.

--Consulter le vendeur ou un technicien radio / expérimenté.

Les changements ou modifications à cet appareil sans expressément approuvée par la partie responsable de conformité pourraient annuler l'autorité de l'utilisateur de faire fonctionner cet équipement.

The required notices are specified in the RSS documents (including RSS-Gen) applicable to the equipment model. **These notices are required to be shown in a conspicuous location in the user manual for the equipment, or to be displayed on the equipment model. If more than one notice is required, the equipment model(s) to which each notice pertains should be identified.** Suppliers of radio apparatus shall provide notices and user information in **both English and French.**

This device complies with Industry Canada license-exempt RSS-standards(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.

Cet appareil est conforme avecx Industrie Canada exempt de licence Rss standard(s). Son fonctionnement est soumis aux deux conditions suivantes:

- (1) cet appareil ne peut causer d'interférence, et*
- (2) cet appareil doit accepter toute interférence, y compris des interférences qui peuvent provoquer un fonctionnement indésirable du périphérique.*

RSS-GEN 6.8 Statement.

This radio transmitter 11625A-RF has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

The antenna to be used with this device is a Linx ANT-916-WRT-UFL. Maximum power transmitted with this antenna is -2.76 dBm with a required impedance of 50 ohms.

Déclaration RSS-GEN 6.8.

Cet émetteur radio 11625A-RF a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antennes énumérés ci-dessous, avec le gain maximal admissible indiqué. Les types d'antennes non inclus dans cette liste qui ont un gain supérieur au gain maximal indiqué pour n'importe quel type répertorié sont strictement interdits pour l'utilisation avec ce périphérique.

L'antenne à utiliser avec ce dispositif est un Linx ANT-916-WRT-UFL. La puissance maximale transmise avec cette antenne est -2.76 dBm avec une impédance exigée de 50 ohms.

2 Operation

2.1 Installation Information

The RF Module comes pre-installed into all MFG units from the factory and do not require further modification from the end user.

2.1.1 Inoperability Warning

There are no inoperability warnings.

2.2 Charging

The RF Module does not require charging. It gets power supplied directly from the MFG when powered on.

2.3 Alerts

The RF Module does not directly give any alerts.

2.4 Maintenance

No routine maintenance is required for the RF Module.

2.5 Adjustments

The RF module does not allow for tuning or adjustments to be made by the end user.

2.6 Interferences

The RF Module may receive false signals from some RF-based devices including high power radios and cell phones. Such devices will need to be moved further away from the generator. If the devices may not be moved, then the path may need to be marked to indicate areas of interference of the system. If possible, the route may need to be changed.

2.7 RF Module Specifications

Part Number: HN-RF

Size: 1.5" x 1.75" / 3.8cm x 4.4cm

Weight: 1oz / 28 g

Input Voltage: 5V

Magnetic Field Frequency: none

Transceiver: Microchip Model MRF89XA

Transceiver: Transmit/Receive Frequency: 916.48 MHz

Transmitter Power: 0.001 W (typical)

Operating Temperature Range: -30°C to + 70°C ; -22°F to 158°F

3 Revision History

3.1 Version 1.0 – December 22, 2021

Original Release. No revision history.