User Manual

Module Description

The RF module contains a 3rd party transceiver module, and an RP SMA connector on a single PCB.

Theory of Operation

The RF module comprises of 3rd party wireless module from Linx Technologies. This wireless module is designed to use in the 902-928MHz ISM band. It can be used for bi-directional wireless data transfer.

Transmit and receive mode of the RF module is set via command. The module can be used to transmit and receive UART byte in 9600 BUAD rate.

902-928 MHz frequency band is divided into 101 channels with 250 KHz spacing. Channel 0 is defined as 902.62 MHz and Channel 100 is defined as 927.62 MHz. The frequency selection is done via serial interface.

The specification of the transceiver module can be found here.
https://linxtechnologies.com/resources/data-guides/trm-xxx-nt.pdf

The specific command on how to operate this transceiver module can be found in the following link:

https://linxtechnologies.com/resources/documents/rg-00101.pdf

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Sample FCC instruction to be included in the Product User Manual

FCC / IC NOTICES

This product contains FCC ID: NQHTRM900NTDB / IC: 4527A-TRM900NTDB

This device complies with Part 15 of the FCC rules and Industry Canada license-exempt RSS standards. Operation of this device is subject to the following two conditions:

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

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:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

Any modifications could void the user's authority to operate the equipment.

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. 'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Product Labeling

The RF module has been labeled with their own FCC ID number. The end product must be labeled to meet the FCC and IC product label requirements. It must have the below or similar text:

Contains FCC ID: NQHTRM900NTDB / IC: 4527A-TRM900NTDB

This device complies with Part 15 of the FCC rules and Industry Canada license-exempt RSS standards. Operation of this device is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

The label must be permanently affixed to the product and readily visible to the user. ‘‘Permanently affixed’’ means that the label is etched, engraved, stamped, silkscreened, indelibly printed, or otherwise permanently marked on a permanently attached part of the equipment or on a nameplate of metal, plastic, or other material fastened to the equipment by welding, riveting, or a permanent adhesive. The label must be designed to last the expected lifetime of the equipment in the environment in which the equipment may be operated and must not be readily detachable.

Antenna Selection

Under FCC and Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by the FCC and Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

The RF Module has been approved by the FCC and Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Conformément à la réglementation d’Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d’un type et d’un gain maximal (ou inférieur) approuvé pour l’émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l’intention des autres utilisateurs, il faut choisir le type d’antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l’intensité nécessaire à l’établissement d’une communication satisfaisante.

Le présent émetteur radio (RF Module) a été approuvé par Industrie Canada pour fonctionner avec les types d’antenne énumérés la Figure 21 et ayant un gain admissible maximal et l’impédance requise pour chaque type d’antenne. Les types d’antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l’exploitation de l’émetteur

Item	P/N	Manufacturer	Type	Gain
1	ANT-916-MHW-RPS-S	Linx Technologies	½ Wave Dipole 30 cm, 50 Ohm	5.4 dBi