

# RDX Series

## RF Module User Guide

### OPERATION

The RDX series RF modules are designed for integration into various radio systems products. The module has no user controls as such and is designed for use in applications such as low power control stations and mobile relay / mobile repeater stations, where other 3rd party circuitry will provide for user interface and controls. The modules are based on Motorola ASTRO XTS3000 series portable radios.

The modules interface connector provides standard input/output audio interfaces, logic indication of squelch conditions, and logic level selection of the preprogrammed channels/personality modes, in addition to key loading and RSS use. Various parameters including RF Power is programmable via a Motorola XTS3000 Radios Service Software (RSS) from 1-3Watts on 800MHz models, 1-4watts on UHF modules and 1-5 watts on VHF models. NOTE: RF Power output MUST be set so as to **not exceed** the permissible FCC regulatory level prior to the units deployment.

The module is designed to connect to a unity gain 1/4 wave antenna such as a vehicle roof mount antenna. Other antennas may only be used providing they ensure the installation continues to comply with FCC licensing requirements. Ensure Antenna is always at least 20cm away from human contact.

**DC Power** RDX series modules are designed for operation from a nominal 7.5VDC source. The unit will operate within specification over a voltage range from 6.0 to 8.4Volts DC. Current consumption for the module is 120mA on standby.

### Installation:

The RDX modules must be installed using best RF engineering practice taking into account required operation, FCC licensing and EME requirements. The units are shielded to minimize RF interference from other co-located transceivers but attention should be made to frequency planning to ensure unwanted interference, intermodulation or receiver desensitization occurs. Their small compact size, low current consumption make them ideal for incorporation into emergency battery powered portable repeaters, temporary remote RF Control station and other related mobile applications.

### Product of New Zealand / Motorola XTS3000 radios Made in USA

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### SECURE / ENCRYPTION OPERATION ( Optional)

RDX RF modules may optionally fitted with Motorola ASTRO XTS3000 encryption modules. Encrypted mode should be slaved to the 16 programmable modes. Keys can be entered using a standard Motorola Key Loader and an appropriate interface cable

### General Safety.

**NEVER hold the antenna when the RF Module is "IN USE".**  
**Keep all parts of the body at least 8 inches ( 20cm) from Antenna whip.**

#### ELECTROMAGNETIC INTERFERENCE

Most electronic devices are susceptible to electromagnetic interference (EMI). To avoid electromagnetic interference and/or compatibility conflicts, turn off the RF module anywhere posted notices instruct you to do so. The Health Industry Manufacturers Association recommends that a minimum separation of 6 inches (15 centimetres) be maintained between a wireless radio and a pacemaker. Turn the unit OFF immediately if you feel that interference is taking place. Digital radios may interfere with some types of hearing aids. If such interference occurs, you may want to consult the aids manufacturer.

#### EXPLOSIVE ATMOSPHERES

Do not operate the RF module in any area with a potentially explosive atmosphere. Areas such as fueling areas, chemical handling facilities, or areas where the air contains chemicals or particles, such as grain dust or metal powders. NEVER charge, remove or install batteries as sparks in such a potentially explosive atmosphere can cause an explosion or fire resulting in injury or death. To avoid possible interference with blasting operations, do not operate the module near electrical blasting caps, in a blasting area, or in areas posted: "Turn off two-way radio." Always obey all signs and instructions.

#### ELECTROMAGNETIC ENERGY (EME)

The Motorola XTS3000 radios inside are designed to comply with the following international standards and guidelines regarding exposure of humans to electromagnetic energy (EME):

- USA Federal Communications Commission, Regulations; 47 CFR part 2 sub-part J
- American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-199 Edition
- USA National Council on Radiation Protection and Measurements, Report 86, 1986
- Ministry of Health (Canada) Safety Code 6. Limits of Human Exposure to Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz, 1999
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998