

**ZigBee® RF4CE compatible RF module with a built-in 2.4GHz band antenna**

**Brand: SMK**

**Product Name: Transceiver Module**

**Model number: RXX9000-15XX**

## **GENERAL**

This “ZigBee RF4CE compatible RF module with a built-in 2.4GHz band antenna” which uses the platform of recently established ZigBee RF4CE responds to such requirements. The communication system is based on 2.4GHz band IEEE 802.15.4 PHY/MAC system and is capable of N-to-N high reliability two-way communication, low power consumption, coexisting with other 2.4GHz band RF and security settings.

This product, featuring a two-way communication by the use of radio frequencies and network function, contributes to the realization of a more convenient and stylish remote controls.

With regards to the technical development of RF remote controls, this “ZigBee RF4CE compatible RF module” is an addition to the previously developed FX8000, with more product lineup coming up for the expansion of the remote control business.

## **Features**

- 1) By using the omni-directionality feature of RF, PAN with remote control as its core can be easily structured (N-to-N application is possible).
- 2). Compatible with ZigBee RF4CE Specification Version 1.00.
- 3). The standby-mode and intermittent reception feature conserves electricity consumption.
- 4). DSSS employed for modulation system provides high-resistance to noise and interference.
- 5). The employment of radio communication system using 2.4 GHz ISM band provides equipment with worldwide applicability and helps standardize equipment.
- 6). Acquisition of qualification for the Japanese Radio Law, FCC and CE is planned. Upon successful acquisition, RF applications do not require individual acquisition of qualification for such standards, which creates shorter lead time for equipment development and lower costs.

7). Compatible with decoded output of various IR communication formats, no change in equipment of application software is necessary, other than substituting previous IR receivers with this module. Equipment designing will thus be simpler.

### **Integration to the end product**

The SMK Transceiver Module, model RXX9000-15XX has to be installed and used in accordance with the technical description/installation instructions provided by the manufacturer.

For detail information concerning type approval of this module (e.g. where this module is already pre-approved) please contact the authorized local distributor or the manufacturer.

The system may only be implemented in the configuration that was authorized. Note that any changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate this equipment.

### **Specification**

- 1). RF Standard: ZigBee RF4CE Specification Version 1.00 compatible
- 2). Supply Voltage: 2.1-3.4 VDC
- 3). Operation Temperature Range: -20°C to +70°C
- 4). Interface: UART (Note 5) 115.2 kbps and IR decoder data output
- 5). External Dimensions: 17mm× 42mm × 5mm (not including connector)
- 6). Frequency Range: 2400-2483.5 MHz
- 7). Modulation System: DSSS
- 8). Modulation Type: Offset-QPSK
- 9). Antenna: PCB Inverted F type
- 10). Transmission Distance: 20m min. (reference only)

## Regulatory Information

### USA-Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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. If not installed and used in accordance with the instructions, it 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 tuning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

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

This device complies with Part 15 of the FCC Rules.

Operation 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.

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

### Labelling

SMK Transceiver module RXX9000-15XX labelled as below.

**FCC ID:GT3FC008**

The proposed FCC ID label format is to be placed on the module. If FCC ID is not visible when the module is installed into the system, "Contains FCC ID:GT3FC008" shall be placed on the outside of final host system.

**Caution: Exposure to Radio Frequency Radiation.**

To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons. This device must not be co-located or operating in conjunction with any other antenna or transmitter.

**Canada-Industry Canada (IC)**

This device complies with RSS 210 of Industry Canada.

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 this device.

L' utilisation de ce dispositif est autorisée seulement aux conditions suivantes :

- (1) il ne doit pas produire de brouillage et
- (2) l' utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

**Caution: Exposure to Radio Frequency Radiation.**

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website at [www.hc-sc.gc.ca/rpb](http://www.hc-sc.gc.ca/rpb).

## Taiwan - NCC

根據國家通訊傳播委員會 低功率電波輻射性電機管理辦法 規定：

第十二條 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信規定作業之無線電信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。