

USER MANUAL

WIRELESS RF DEVICE

RF802.15.4 Module TRK-RF-01

Tentative Edition

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i) Notice

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The material contained in this document is proprietary and for information only and is subject^{ed} to change without notice. Teraoka Weigh-System assumes no responsibility for any errors or damages arising from misinterpretation of any procedure.

Screen displays, operating procedures and supporting features might vary with different software version releases.

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ii) Safety Information

The operator of the equipment shall comply with the safety and warning indications and procedures outlined in this document. Teraoka Weigh-System Pte Ltd assumes no responsibility or liability for failure to comply with these requirements.

- For continued protection against fire hazard replace only with battery of same rating and type.
- Avoid overloading the product beyond its rated maximum capacity
- Trained and qualified personnel shall only carry out repair and servicing of product.

Disclaimer:

Specifications are subject to change without notice. All dimensions shown are approximate. Please be aware that Teraoka has indicated that its hardware and software used in the product may require additional updates in the future as our product is continually under development. The need for such updates most likely applies to the Printer software.



Federal Communication Commission Interference Statement

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 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/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.

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

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled portable environment. To maintain compliance with FCC RF exposure compliance requirements, please do not modify or use this product in not intended applications/configurations except those documented in this manual.

This device is intended only for OEM integrators under the following conditions:

- 1) The transmitter module may not be co-located with any other transmitter or antenna.

As long as conduction above is met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

The final end product must be labeled in a visible area with the following: “Contains TX FCC ID: SUFTRKRF01”.

Manual Information That Must be Included

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the users manual of the end product which integrate this module.

The end users manual for OEM integrators must include the following information in a prominent location “ **IMPORTANT NOTE:** To comply with FCC RF exposure compliance requirements. The antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

1. General

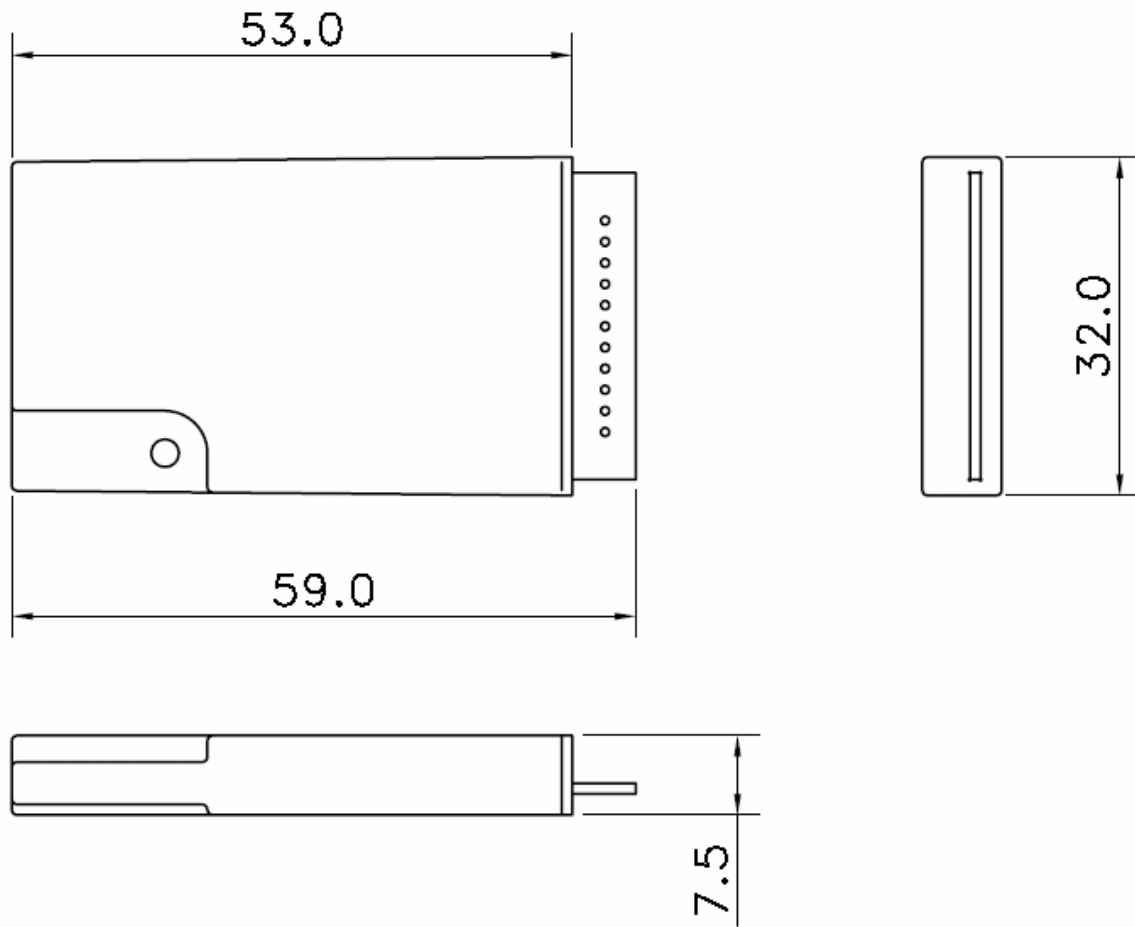
The module design is based on the CC2420 RF transceiver from Chipcon which is based on the IEEE 802.15.4 standard. It implements a proprietary communications protocol based on the 802.15.4 standard streamlined to lower cost and power consumption. The TRK-RF-01 module design consists of the CC2420, the Atmel ATmega microcontroller (up to 16k internal flash), and integrated PCB trace antenna. The module will be FCC and CE certified for fast and simple integration into end applications. Teraoka can modify the firmware to accommodate specific application requirements. This module may be integrated into a wireless application which operates in 2.4G ISM frequency band and requires low data rate /low power consumption.

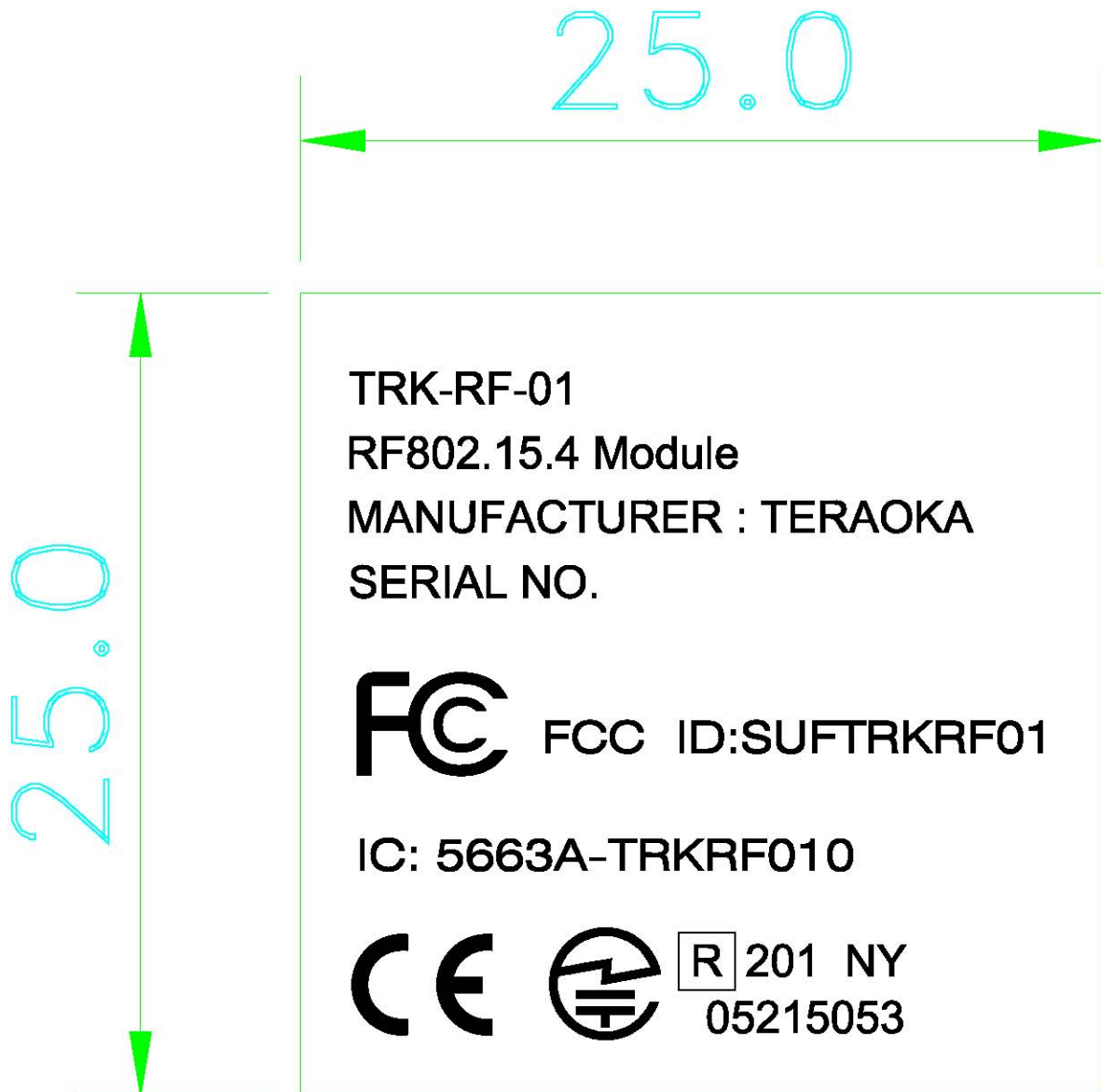
1.1 Product Features

Model	:	TRK-RF-01 (RF802.15.4 Module)
Dimension (in mm)	:	59(L) X 32.0(W) X 7.5(H)
RF Standard	:	IEEE 802.15.4
Modulation	:	O-QPSK with DSSS
Frequency Band	:	2.405 GHz – 2.480 GHz
Radio Operation Channel	:	Channel 11 to 26
The RF Frequency of channel k is given by	:	$F_c = 2405 + 5(k-11)$ MHz, k=11,12,...26
Data Rate	:	Up to 250 kbps
Radio Range	:	Up to 100m, L.O.S
Transmit Power	:	0dBm (max)
Receiver Sensitivity	:	-93dB (typical), PER = 1%
General purpose I/O	:	6

1.2 Operating Specification

Voltage	:	DC 3.3V (+2.7V ~+3.6V)
Current	:	35mA (typical), standby: <5uA
Operating Temperature	:	-20 °C to 50 °C
Storage Temperature	:	-40 to +85° C
Humidity	:	95% max non condensing

2 Dimension

3. Label Information

4. Interface

Interface pin assignments (J1)

1	GND
2	VCC
3	LED (Anode)
4	LED (Cathode) / PortD.4
5	External Interrupt1
6	I/O1 (PortD.7)
7	I/O2 (PortC.1)
8	I/O3 (PortC.0)
9	I/O4 (PortD.1)
10	I/O5 (PortD.0)
11	GND

Notes:

- 1) The I/O pins is connected to the controller – Atmega8L(/88V/16L/168V) ports directly. The functions of I/Os can be defined by user program.
- 2) The voltage level is TTL low voltage level.
- 3) The external interrupt1 can be programmed to be low level or edge triggered.
- 4) The LED current is internally limited to about 5mA.

