

# **USER MANUAL**

**WIRELESS RF DEVICE**

## **RF\_CC2500 Module TRK-RF-03**

Tentative Edition

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## **i) Notice**

### **DIGI®**

The material contained in this document is proprietary and for information only and is subjected 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.

This document shall not be reproduced whether in part or whole without the written consent from Teraoka Weigh-System Pte Ltd.

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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.

### iii) Safety Regulations



#### **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 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are 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 do 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 could 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**

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users (for example: by maintaining 20cm between the final end device and users). The final end product must be labeled in a visible area with the following: "Contains FCC ID: SUFTRKRF03".

### **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 that integrate this module. The 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 used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

#### **Canada Regulatory Wireless Notice:**

This device complies with RSS-210 of the Industry Canada Rules. 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

#### **IMPORTANT NOTE:**

##### **IC Radiation Exposure Statement:**

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

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

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna,

As long as 2 conditions above are 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

**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 IC authorization is no longer considered valid and the IC 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 IC authorization.

### **End Product Labeling**

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains IC: 5663A-TRKRF030".

## **Manual Information To the End User**

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 user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

## 1. General

The module design is based on RF transceiver CC2500 with an industry standard enhanced S1C7564 MCU. It implements a proprietary communications protocol streamlined to lower cost and power consumption. The antenna used is a surface mount LTCC chip 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

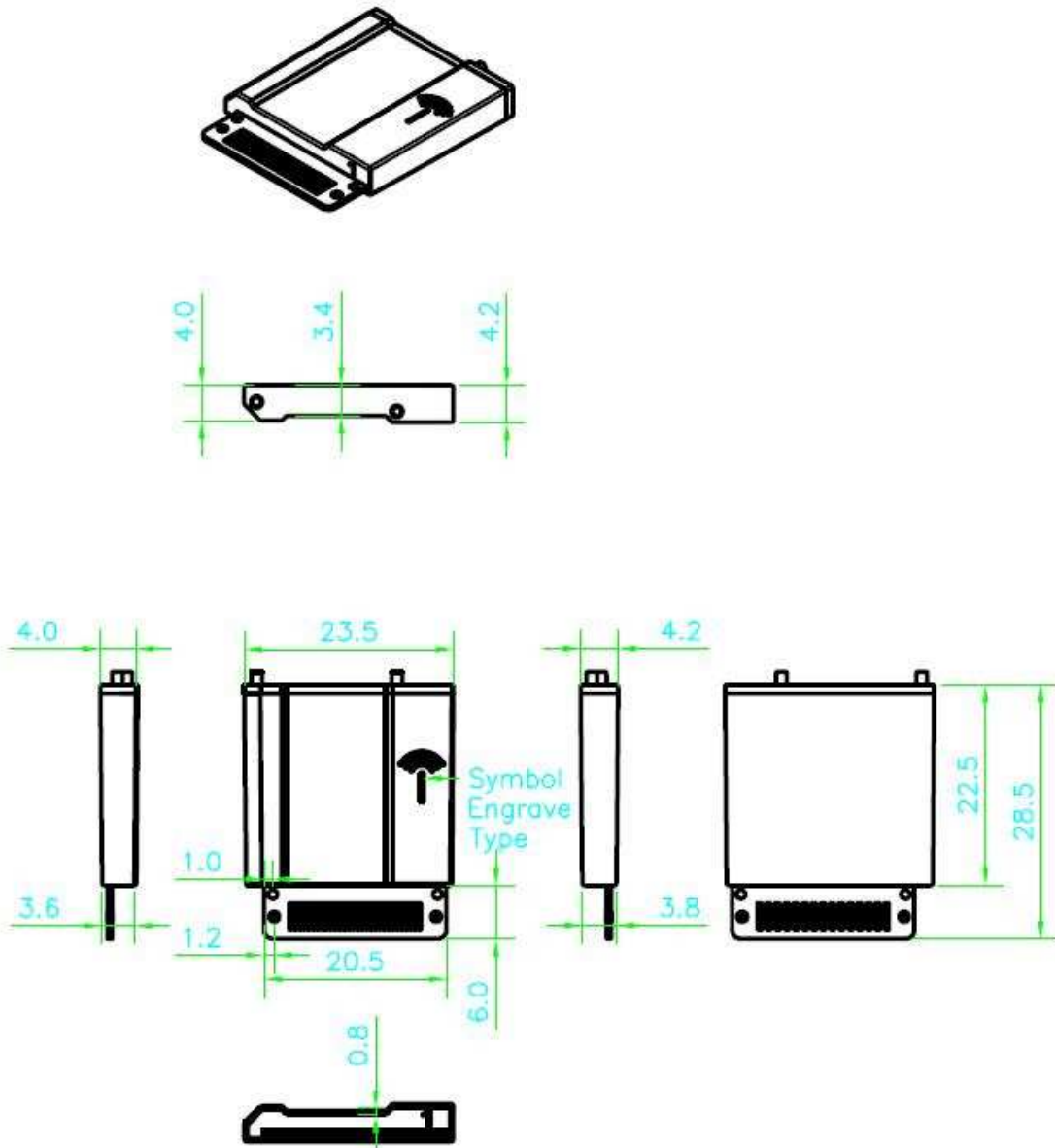
<b>Model</b>	:	TRK-RF-03 (RF_CC2500 Module)
<b>Dimension (in mm)</b>	:	23.5(L) X 28.5(W) X 4.0(H)
<b>RF Standard</b>	:	FCC 15B DOC ARIB STD-T66 FCC MPE FCC PART 15C
<b>Modulation</b>	:	MSK; FSK
<b>Frequency Band</b>	:	2.406 GHz – 2.480 GHz
<b>Radio Operation Channel</b>	:	1 to 75
<b>The RF Frequency of channel k is given by</b>	:	$F_c = 2406 + (k-1)$ MHz, $k=1,2\dots76$
<b>Data Rate</b>	:	Up to 500 kbps
<b>Radio Range</b>	:	Up to 100m, L.O.S
<b>Transmit Power</b>	:	0dBm (max)
<b>Receiver Sensitivity</b>	:	-105dBm (typical), PER = 1%
<b>General purpose I/O</b>	:	30

### 1.2 Operating Specification

<b>Voltage</b>	:	DC 3.0V (+2.7V ~+3.6V)
<b>Current</b>	:	35mA (typical), standby: <5uA
<b>Operating Temperature</b>	:	-20 °C to 50 °C
<b>Storage Temperature</b>	:	-40 to +85°C
<b>Humidity</b>	:	95% max non condensing

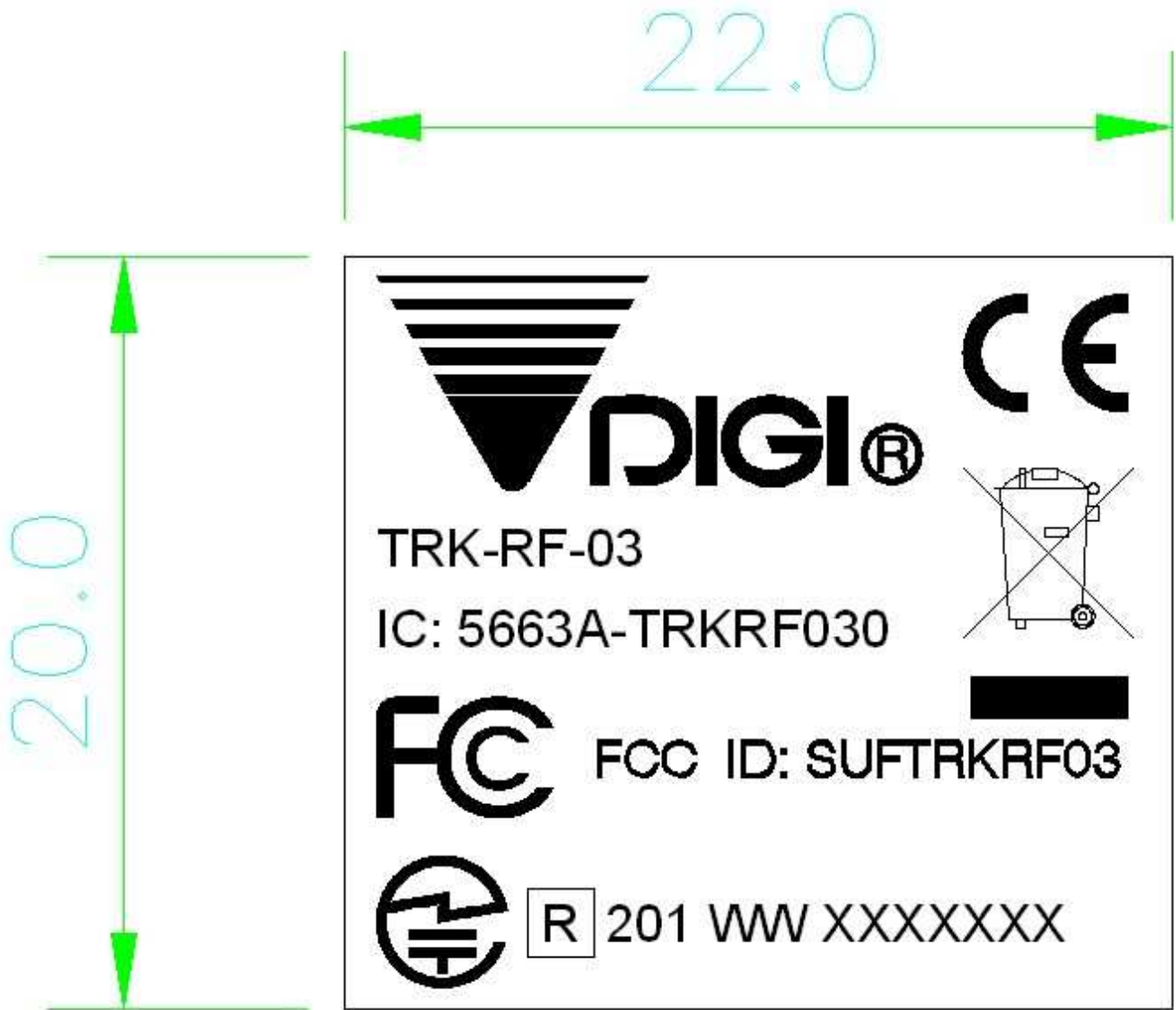


## 2 Dimension



Mini RF Module Dimensions

3. Label Information



## 4. Interface

### Interface pin assignments

1	GND	16	P21
2	GND	17	P22
3	GND	18	P23
4	VDD	19	P24
5	VDD	20	P25
6	RESET_N	21	P26
7	P14	22	P27
8	P15	23	P44
9	P16	24	P40
10	P51	25	P45
11	P42	26	P43
12	P31	27	P52
13	P41	28	GND
14	P50	29	GND
15	P20	30	GND

#### Notes:

1. The I/O pins is connected to the external interface port directly.
2. The voltage level is TTL high/low voltage level.

