



# **USER MANUAL**

**WIRELESS RF DEVICE**

## **TRK-RF-02**

**Edition 01**

## **Table of Content**

i)	Notice .....	1
ii)	Safety Information .....	2
iii)	Safety Regulations .....	3
<b>1.</b>	<b>General .....</b>	<b>5</b>
1.1	Product Features .....	5
1.2	Operating Specification .....	5
2.	Dimension .....	6
3.	Label Information.....	7
4.	Interface .....	8
<b>5.</b>	<b>Revision Records.....</b>	<b>9</b>

## **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.

**Teraoka Weigh-System Pte Ltd**  
**4, Leng Kee Road**  
**#06-01 SIS Building**  
**Singapore 159088**

## **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 are not 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 TX FCC ID: SUFTRKRF02".

### **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 the CC2510 RF transceiver with 8051 core built in from Chipcon. It implements a proprietary communications protocol streamlined to lower cost and power consumption. The TRK-RF-02 module design consists of the CC2510 with 8051 core built in (up to 32k internal flash), and 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.

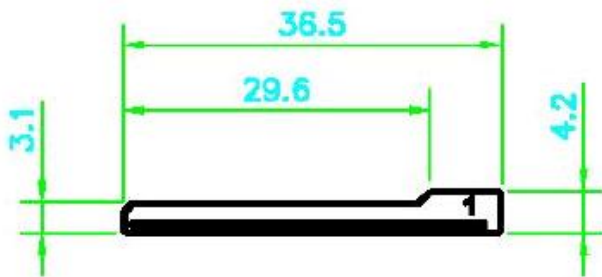
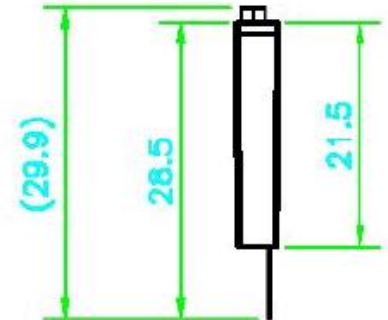
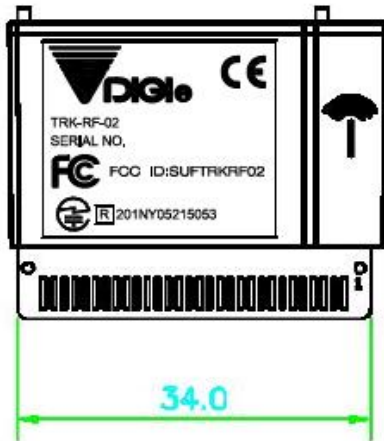
### 1.1 Product Features

<b>Model</b>	: TRK-RF-02
<b>Dimension (in mm)</b>	: 36.5(L) X 29.9(W) X 4.2(H)
<b>RF Standard</b>	: EN300440
<b>Modulation</b>	: MSK; FSK
<b>Frequency Band</b>	: 2.406 GHz – 2.480 GHz
<b>Radio Operation Channel</b>	: 1 to 76
<b>The RF Frequency of channel k is given by</b>	: $F_c = 2405 + (k-1) \text{ MHz}$ , $k=1,2\dots76$
<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

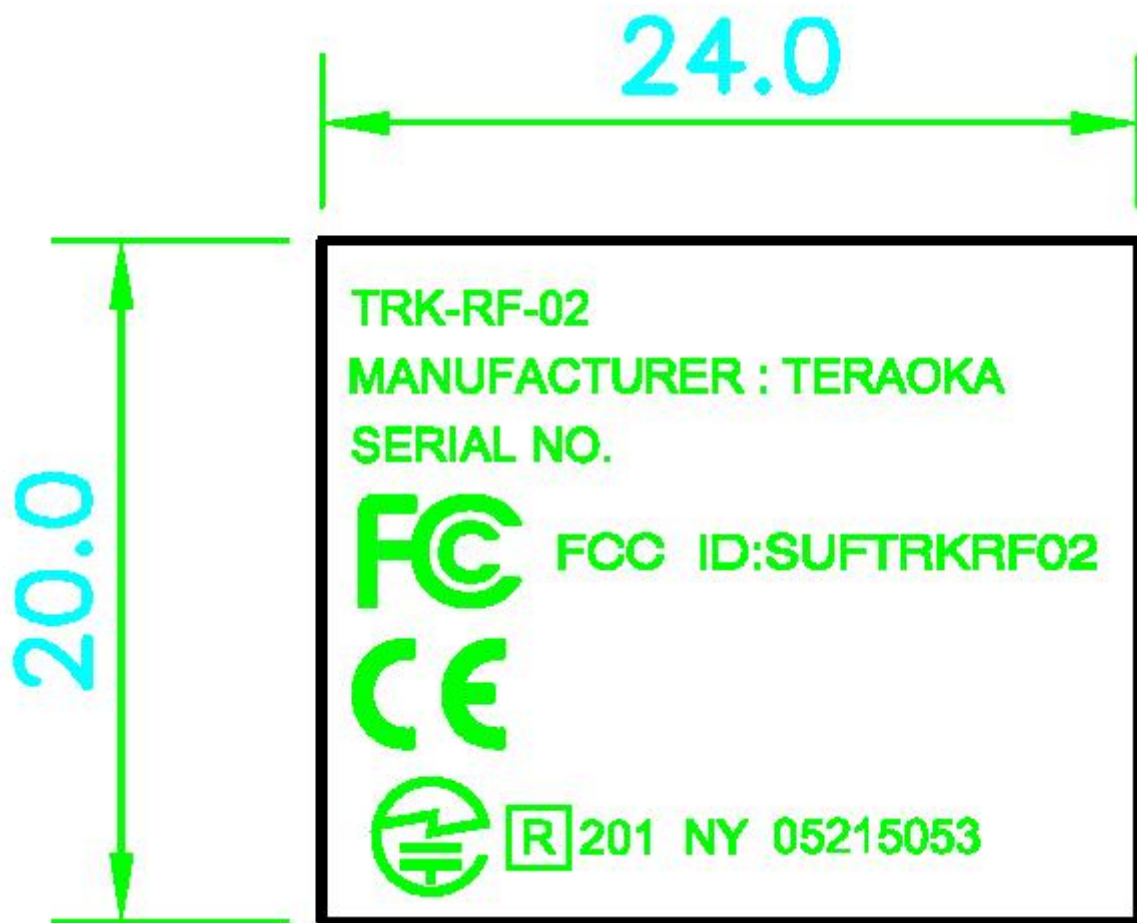
<b>Voltage</b>	: DC 3.0V ( +2.7V ~+3.6V)
<b>Current</b>	: 35mA (typical), standby: <5uA
<b>Operating Temperature</b>	: -20 °C to 50 °C
<b>Storage Temperature</b>	: -40 to +85° C
<b>Humidity</b>	: 95% max non condensing

## 2 Dimension





### 3. Label Information



## 4. Interface

### Interface pin assignments

1	GND	16	A1/P0_1
2	GND	17	CSN/A2/P0_2
3	GND	18	SCLK/A3/P0_3
4	VDD	19	MOSI/A4/P0_4
5	VDD	20	MISO/A5/P0_5
6	RESET_N	21	A6/P0_6
7	MISO/P1_7	22	A7/P0_7
8	MOSI/P1_6	23	P2_0
9	SCLK/P1_5	24	DD/P2_1
10	CSN/P1_4	25	DC/P2_2
11	TIMER3_CH0/P1_3	26	XOSC32_Q1/P2_3
12	P1_2	27	XOSC32_Q2/P2_4
13	TIMER4_CH1/P1_1	28	GND
14	P1_0	29	GND
15	A0/P0_0	30	GND

#### Notes:

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

## 5. Revision Records

[illegible]