

RIO-10 Operation Guide

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1 Basic system operation

- Wi-Fi internet connection mode.
- Setup device through BLE.

2 I/O and interface

2.1 USB type C connector

DC Power supply

DC +5V input, Max. current < 1A. Adaptor input AC100 ~ 240V, output DC 5V 2A.

Debug port

Virtual COM port : Silicon Labs Dual CP2105 USB to UART Bridge : Enhanced COM port.

Baud rate : 115200 bps.

Radar update port

Virtual COM port : Silicon Labs Dual USB to UART Bridge : Standard COM port.

Baud rate : 115200 bps.



連接埠 (COM 和 LPT)



Silicon Labs Dual CP2105 USB to UART Bridge: Enhanced COM Port (COM4)



Silicon Labs Dual CP2105 USB to UART Bridge: Standard COM Port (COM3)

2.2 Button

Click for taggle device on and off. Hold 5 second for network configuration reset.

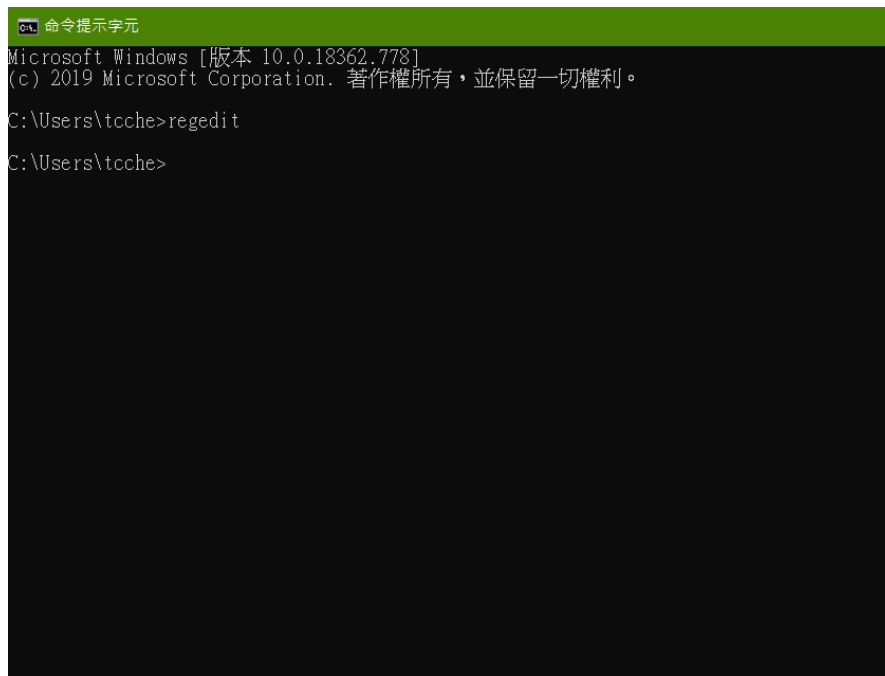
2.3 LED indicator

Two white and blue LED for operating status indication.

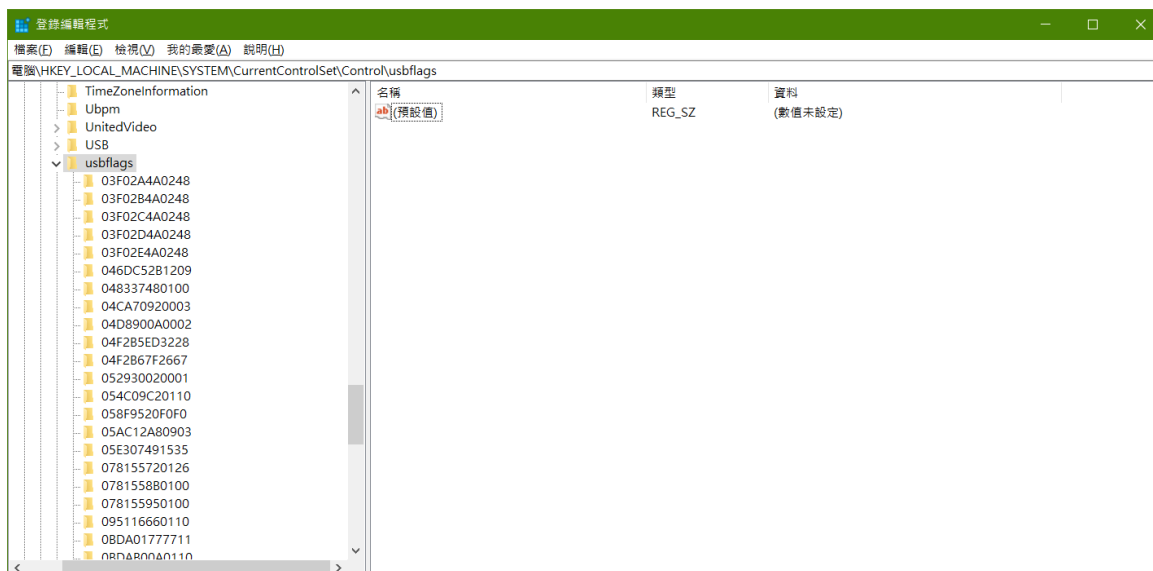
- White LED slow blink: Without Wifi configuration
- White LED fast blink: Wifi is connecting
- White LED solid on : WiFi connected successfully.
- Blue LED fast blink : Radar ready and start
- Blue LED blink every 5 seconds : Device sending report.
- Both LED off : Device works under LED disabled.

2.4 Fix COM port

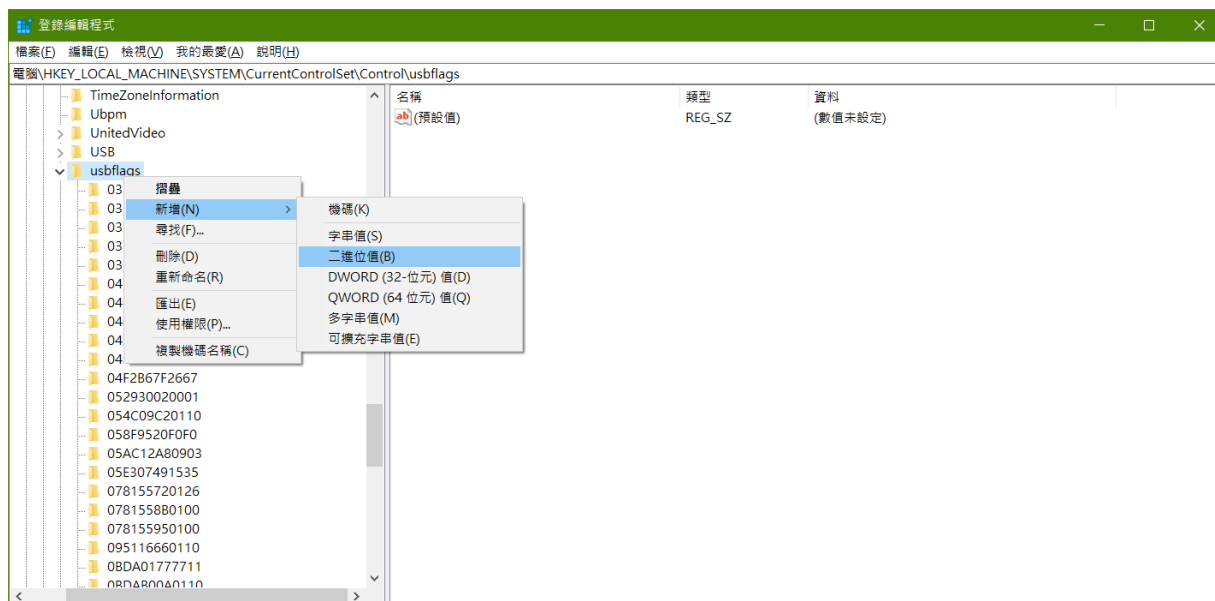
- Run 'regedit' in command prompt.



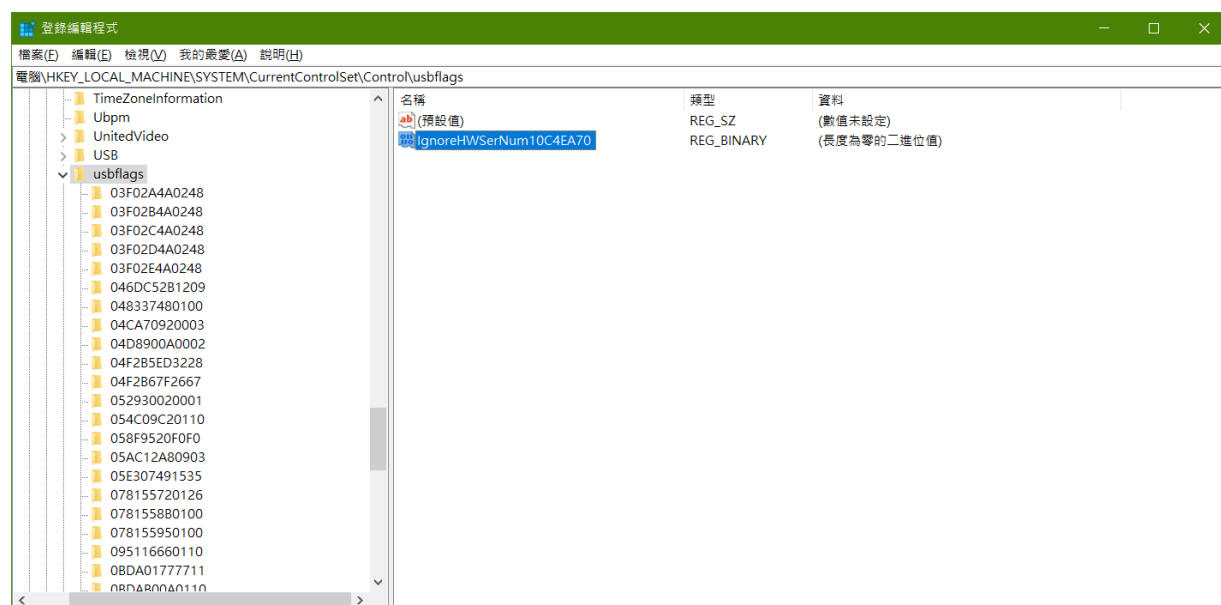
- Find path \HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\usbflags



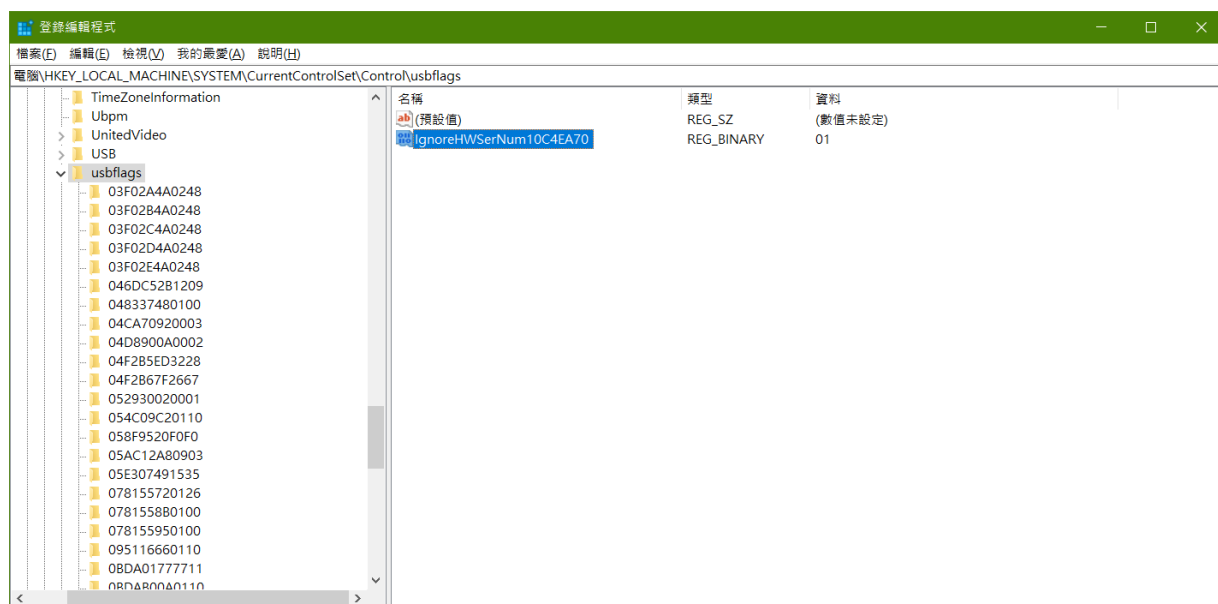
- Right click on the 'usbflags' folder and select New>Binary Value.



- Change the name of that value to 'IgnoreHWSerNum10C4EA70'.



- Modify the binary value to '01', and then reboot the PC so that those changes take effect.



3 Operation mode

3.1 Setup mode

White LED will fast blink, User need set the WiFi AP SSID, password and encryption type by mobile APP through BLE connection.

3.2 Normal mode

- Device will operating to normal mode after WiFi setup completely. BLE will turn on and waiting for 10 seconds for user connection. BLE will turn off If there is no BLE connection
- Device will connect to internet via Wi-Fi according to the user configuration. White LED slow blink when WiFi in connecting process then solid on if WiFi successfully connected.
- Radar will ready to start to work. Blue LED blink.
- Radar will start working and send report after device certificated by the server. Blue LED blink every 5 seconds.

4 Device Specification

Item	Description	Min.	Typ.	Max.	Unit
Operating voltage		4.5		6.5	volt
Operating current	Setup mode			300	
	Operating mode			450	mA
Wi-Fi standard	802.11 b/g/n				
Wi-Fi channel	2.4 GHz channels 1-13				
Wi-Fi sensitivity	Conducted		-96		dBm
Wi-Fi security	WEP/WPA/WPA2/WPA2 PSK				
BLE	Bluetooth® 5.2 Low Energy, IEEE 802.15.4 PHY and MAC				
BLE sensitivity			-104		dBm
Radar type	FMCW				
Radar frequency range		60		62	GHz
Radar bandwidth				1.88	GHz
Radar chirp	Please refer to Diagram 4.1				
Radar antenna No.	3 transmitter, 4 receiver				
Radar antenna configuration	8 H 2 V				
Radar antenna Type	Patch				
Radar antenna FOV	120 X 50 degree (H x V)				
Radar antenna gain		9.26		9.35	dBi

Item	Description	Min.	Typ.	Max.	Unit
Radar Phase noise @ 1 MHz	60-64 GHz		-93		dBc/Hz
Radar Rx noise figure @ complex 1x mode			12		dB
Connector type	USB type C				
AC adaptor	Input : AC 100 ~ 240 V output : DC 5V 2A				
Operating temperature		-10		60	°C
Storage temperature		-40		70	°C
Operating humidity		10		85	%RH
Storage humidity		5		90	%RH
Dimension	90 x 90 x 32.5 mm				
Weight				118	g

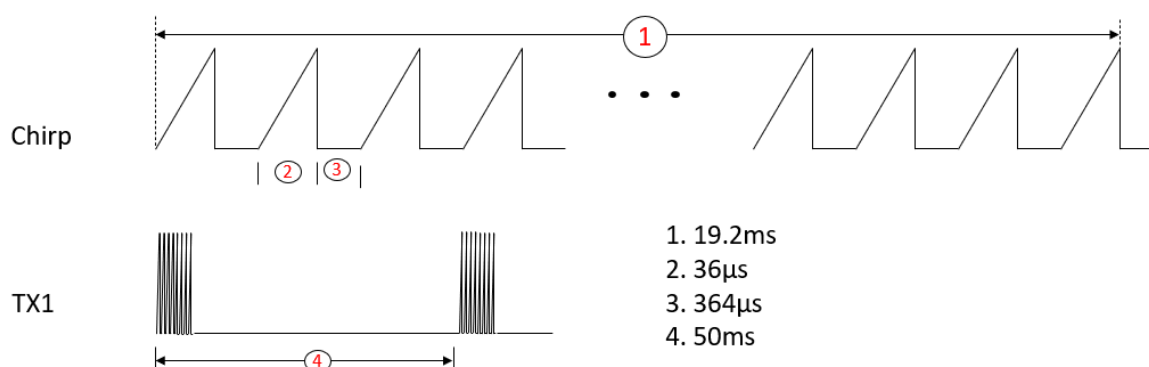


Diagram 4.1

5 Package

5.1 Label

- Provided by customer

5.2 Accessories

- Wall mount
- Wall mount sticker
- USB A – USB type c wire 2 Meter
- Universal 5V 2A adaptor

5.3 Boxing

- Weight 280 g (with all content)



5.4 Carton

- Size : 47 X 33 X 33cm
- Weight : 670 g (only carton)
- 35 boxes weight about 10.5 Kg (foam included)



X 35



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.