PS02406

RHF4TR03 HHU Product Specification

Version 1.1

Document information

Info	Content
Keywords	*RHF4tR03, Handheld data read station, Specification*
Abstract	This doc describe the specification of *RHF4TR03*

Content

1 General Description

RHF4TR03 is a new generation handheld Unit which supports Data reading and device control through Reelink protocol, meanwhile it also maintains all the LoRaWAN function. RHF4TR03 works at both 433~510MHz Low frequency band and 862~960MHz High frequency band，it will identify and select the correct hardware according to user's input parameter. RHF4TR03 HHU use embedded BLE to connect to smart phone APP，which makes it easy to use.

There is a rechargeable battery inside, it can be recharged by 5V USB，the battery capacity is up to 800mAh，capable for RHF4TR03 HHU 2 days normal use. There are LEDs for battery status indication, and one Blue LED for Bluetooth status indication, one Red LED for LoRa status indication. It works in temperature range -20~55℃. Benefit of the Bluetooth inside, it is easy to query and configure the device parameter through APP with a mobile phone，and also upgrade firmware over the air. Through mobile phone APP, RHF4TR03 can also work in Reelink-Slave mode, Reelink-Master mode, LoRaWAN mode and in noise scan mode.

1.1 Features

♦ Wireless communication：Relink、LoRaWAN、BLE

♦ Cortex-M0+ 32-bit, running up to 64MHz

♦ LoRaWAN: support global frequency plan CN470/EU868/US915/AS923 …

♦ LoRa maximal output power 20dBm, RX sensitivity -134dBm@SF12/125KHz

♦ Query and configure the device parameter，and also upgrade firmware over the air through APP.

♦ Work in Reelink-Slave mode， implement automatic metering reading through APP.

♦ Work in Reelink-Master mode， implement end device data reading demo through APP.

♦ Work in LoRaWAN mode， implement LoRaWAN network deployment and Gateway evaluation through APP.

♦ Work in noise scan mode， implement Environment noise floor scan through APP.

♦ LED indication，4*LEDs for battery status indication, and one Blue LED for Bluetooth status indication, one Red LED for LoRa status indication

♦ Optimized power consumption，battery Capacity 800mAh,average current 18mA, typical for 2 days normal use. And 1 year battery life time in standby mode.

♦ Rechargeable battery inside, it can be recharged by 5V USB.

♦ ESD protection design，contact discharge±4kV， air discharge±8kV.
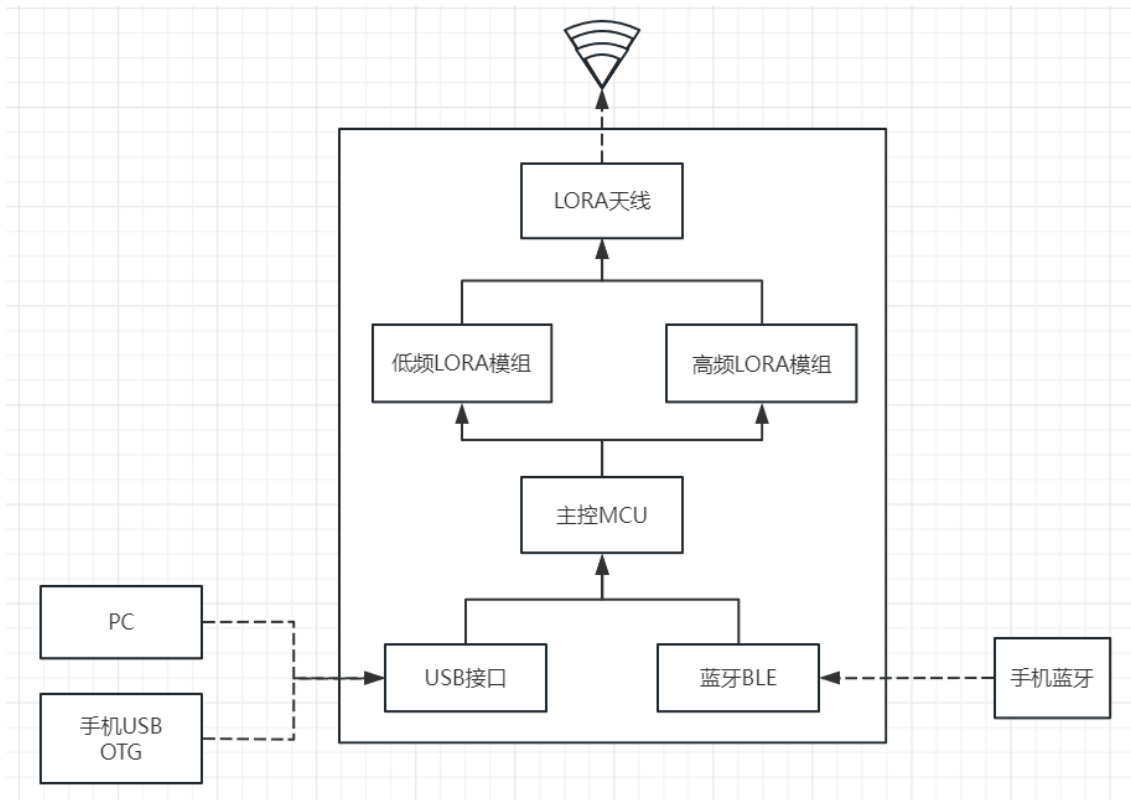
♦ Operating temperature： -20~55℃

1.2 Applications

- AMR-meter reading automatically

- LoRaWAN network deployment plan

- Environment noise floor scan

- LoRaWAN gateway coverage evaluation

2 Product Specification

This chapter describes the technical specifications and performance of RHF4TR03 HHU; unless otherwise specified, the condition in this chapter is under room temperature, and powered by internal Lithium polymer battery.

2.1 Product Function Block

2.2 Mechanical

RHF4TR03 body part (exclude antenna):

Dimension	100mmx60mmx17mm
Weight	65g with battery

2.3 Environmental specification

Operating Temperature	-20~55℃
Storage Temperature	-40~85℃
Operating relative Humidity	5~95%RH, No Condensation
ESD class	Air Discharge: ±8kV Contact Discharge: ±4kV

2.4 Wireless Communication

LPWAN Network connection	LoRa; Used for LoRaWAN, Reelink protocol support
WLAN Wireless	BLE; Used for Connection with Smart phone APP

2.5 LoRa RF specification

Frequency	LoRa low frequency band:433MHz~510MHz; LoRa high frequency band:862MHz~960MHz; Support global LoRaWAN frequency band
Max Output power	20dBm
RX sensitivity	-134dBm@SF12/125KHz
Antenna type	External Rubber Antenna
Antenna Gain	Peak 1dBi@868/915MHz, 1dBi @470MHz

2.6 User interface

LEDs	4*Green LEDs for battery status indication; 1*Blue LED for Bluetooth status indication; 1*Red LED for LoRa status indication.
Button	1*Tactile switch
Type-C USB	For battery recharge

① **1*Blue LED for Bluetooth:**
OFF：BLE is inactive;
Flashing：BLE advertising for connection;
Constant ON：BLE is connected with APP
② **1*Red LED for LoRa:**
Flash once：LORA module data TX or RX
③ **4*Green LEDs for battery status:**
Flowing water light： battery is charging
4*LED all on：battery full charged
Else for battery level：
1 LED on – below 25%
2 LED on- below 50%
3 LED on – below 75%
4 LED on – below 100%
1 LED Flashing：below 10% and alert
④ **1*Tactile switch**
Click 1 time：to query battery level
Click twice or more：to active BLE advertising
Long press for 10 seconds：to reset device
⑤ **Type C USB**
For battery recharge.

2.7 Power supply specification

Power supply	4.2V internal Lithium polymer battery, rechargeable
Battery Capacity	Typical 750mAh, maximum 800mAh
Charge input voltage	4.5~6V, typical 5V
Charging current	50mA~500mA, typical 500mA. Normally 2hours needed for full charge.
Standby current	83uA
MCU Active current	8.7mA
LoRa RX current	15mA
LoRa TX peak current	129mA
Battery life*	Typical for 2days use* 1year life time for standby

Note: * Typical using case: connecting with smart APP, 4000 metering devices data is read every day.

2.8 Device ID

Each device will have a unique identifier DEVEUI，which is the identity to Join LoRaWAN network and as a device recognition.
This DEVEUI ID information will be shown as a QR Code on the product cover. Picture below is an example：8CF957200003712C

The BLE MAC address will also relating to this QR Code ID, BLE MAC address will be assigned as the last 6 bytes of this code, that is 57200003712C in this example.

2.9 Operation mode

Below operation mode should perform with Smart Phone APP connected, please refer to APP user manual for detail.

1) Work in Reelink-Slave mode， implement automatic metering reading through APP.

2) Work in Reelink-Master mode， implement end device data reading demo through APP.

3) Work in LoRaWAN mode， implement LoRaWAN network deployment and Gateway evaluation through APP.

4) Work in noise scan mode， implement Environment noise floor scan through APP.

5) upgrade firmware over the air

2.10 Default parameter

LoRa hardware Channel	High frequency, EU868
APPEUI	8CF9572000000000
DevEUI	OR code in label
BLE Mac Addr	OR code in label
CAD period	5 seconds
APP key	2B7E151628AED2A6ABF7158809CF4F3C

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3 Attention and Safety

For safety, please read the items below carefully before use RHF4TR03 HHU.

⚠ Don't use the device under extremely high temperature and low temperature, it may cause device work abnormal, or short battery life time.

⚠ Device contains Small part, don't give them to kids or pets as toy

⚠ When using batteries, please following the instructions, don't let batteries Positive and negative pole in short or transposition.
Please keep the device away from fire

⚠ In case of battery leakage, please prevent eyes and Skin to contact the liquid, please rinse with plenty of water and seek medical advice in time if accident happens

⚠ Pay attention to prevent explosion or fire:
  ● Do not drop, disassemble, open, crush, bend, deform, puncture, shred, microwave, incinerate or water the hardware
  ● Do not insert foreign objects into any opening on the device
  ● Do not Disassemble, puncture or heat the battery

4 Ordering Information

Ordering model number listed below.

Model	Description
RHF4TR03-LF	RHF4TR03 HHU，Support LoRWAN，Reelink, with 470~510MHz antenna
RHF4TR03-HF	RHF4TR03 HHU，Support LoRWAN，Reelink, with 862~960MHz antenna

Please E-mail for more ordering information detail:
China: salescn@risinghf.com
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Revision

V1.0 2024-5-9

　　　+ update the new enclosure

V1.0 2024-2-5

　　　+ Creation

Please Read Carefully: