

# L-Band Digital Tracking Receiver

## Satellite Beacon Receiving Unit

<Version No. V 2.11>

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## CONTENTS

1.	OVERVIEW .....	1
2.	DESIGN PRINCIPLE .....	1
3.	FEATURES.....	2
4.	UNPACKING AND INSTALLATION .....	2
4.1.	FRONT PANEL.....	2
4.2.	REAR PANEL .....	2
4.3.	INSTALLATION .....	3
5.	USAGE GUIDELINES .....	3
5.1.	POWER ON.....	3
5.2.	FRONT PANEL OPERATION INSTRUCTIONS (TOUCH SCREEN).....	3
5.2.1.	CONFIGURATION.....	3
5.3.	VERSION INFORMATION .....	5
6.	TROUBLESHOOTING .....	5
7.	SYSTEM MAINTENANCE .....	5

## 1. Overview

The satellite signal receiving unit is mainly used to receive L-band single-tone beacons from satellites. It can accurately calculate the power value of the beacon and output it in digital or analog voltage. The product has excellent time capture performance and stability. It supports local and remote control, and has the characteristics of high sensitivity, large dynamic range, and short capture time. Therefore, it is widely used in satellite search applications in VSAT hubs, flyaway stations, COTMs and other scenarios.



Figure 1 Appearance of the satellite signal receiving unit

## 2. Design Principle

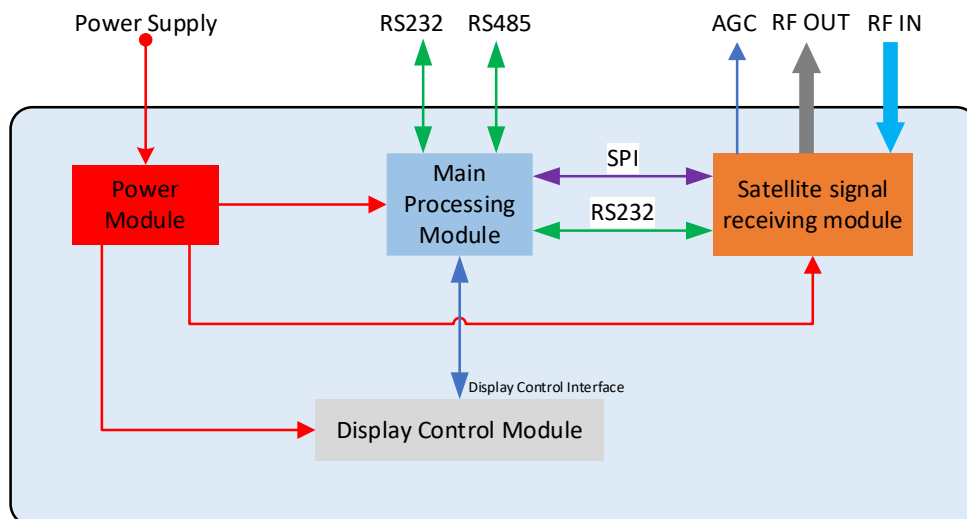


Figure 2 Block diagram

This product consists of four modules: power supply, main processing, satellite signal receiving, and display control. The satellite signal receiving module receives the input signal and outputs the processed signal in the form of voltage. The main processing module realizes the control, data interaction, device serial port, local and remote M&C functions of the satellite signal receiving module and the display control module.

### 3. Features

- Fast locking, high sensitivity, large dynamic range
- With power splitter output
- Support analog AGC output
- Support serial port, local and remote M&C
- Low power consumption
- High performance

### 4. Unpacking and Installation

#### 4.1. Front panel

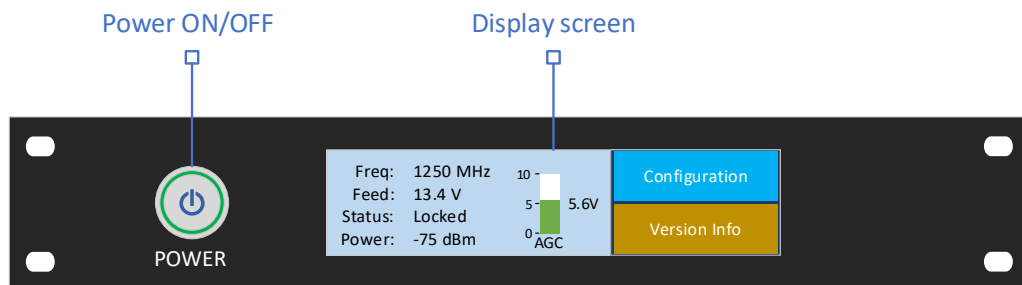


Figure 3 Front panel

#### 4.2. Rear panel

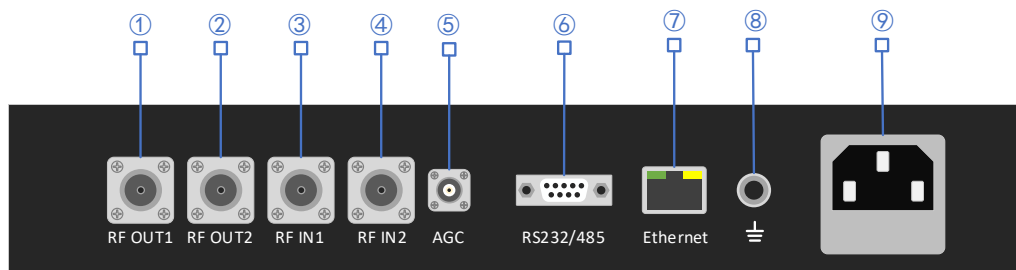


Figure 4 Rear panel

Rear panel interface description.

No.	Name	Definition	Description
①	RF OUT1	RF output interface 1	N-type, female, 50Ω
②	RF OUT2	RF output interface 2	N-type, female, 50Ω (spare)
③	RF IN1	RF input interface 1	N-type, female, 50Ω
④	RF IN2	RF input interface 2	N-type, female, 50Ω (spare)
⑤	AGC	Analog AGC signal interface	BNC, female, 50Ω (spare)
⑥	RS232/485	RS232/485 M&C interface	DB-9, female
⑦	Ethernet	Ethernet Interface	RJ-45 (spare)
⑧	⏏	Grounding	---
⑨	---	Power supply interface	220VAC

### 4.3. Installation

This unit is an indoor standard rack-mounted 19-inch device. Please place the device in the cabinet and then fix it through the positioning holes on both sides of the front panel. The steps are as follows,

- 1) Insert the device into the cabinet and install nuts on the positioning holes on both sides of the front panel to secure it.
- 2) Connect the receiving interface RF IN1 and the LNB output interface of the antenna through the RF cable, and confirm that the interfaces at both ends are firmly connected; if necessary, connect the loop-out interface RF OUT1 and the user's cable, and confirm that the interface is firmly connected.
- 3) Connect the DB9 interface to the controller through a finished cable.
- 4) Make sure the unit is properly grounded.
- 5) Connect one end of the power cord to the power input port on the rear panel of the device and the other end to a 220V/50Hz AC power source.

## 5. Usage Guidelines

### 5.1. Power on

Before powering on, please check that the connection cables are correct and the voltage meets the requirements. After confirming that the requirements are met, press the Power ON/OFF button on the front panel of the device. The green light on the outer ring of the power button turns on and the screen displays, indicating that the power-on is successful.

### 5.2. Front panel operation instructions (touch screen)

After the satellite beacon receiver unit is powered on correctly, the front panel screen is as shown in the figure. There are three parts: function display, parameter setting and version information.

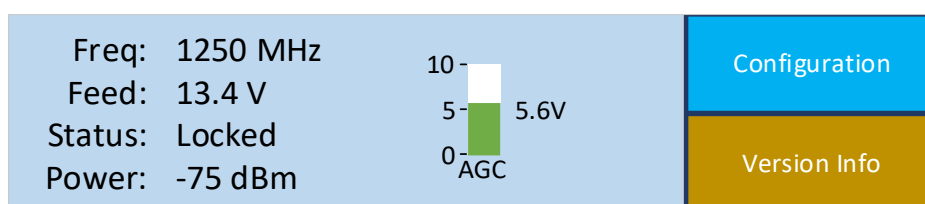


Figure 5 Home

#### 5.2.1. Configuration

Click Configuration to enter the following interface.

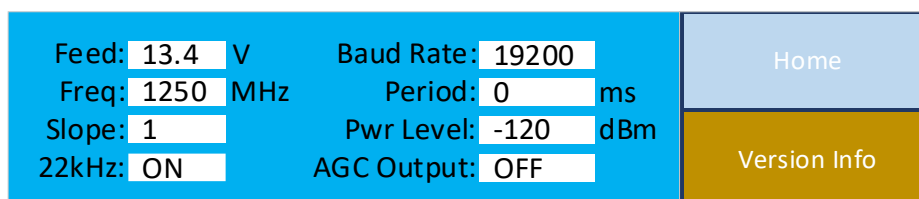


Figure 6 Configuration

### 1) Feed configuration.

Please select the correct voltage value according to actual needs or OFF.

Feed: 13.4	OFF/13.4V/18.2V/14.6V/19.4V	00	Home
Freq: 1250	MHz	Period: 0 ms	
Slope: 1	Pwr Level: -120	dBm	
22kHz: ON	AGC Output: OFF		
			Version Info

Figure 7 Feed configuration

### 2) 22kHz tone

Please turn on or off the 22kHz tone according to actual needs.

Feed: 13.4	V	Baud Rate: 19200	Home
Freq: 1250	MHz	Period: 0 ms	
Slope: 1	Pwr Level: -120	dBm	
22kHz: ON	OFF/ ON	AGC Output: OFF	
			Version Info

Figure 8 22kHz tone

### 3) Baud Rate

Please select the baud rate of your device.

Feed: 13.4	V	Baud Rate: 19200	9600/19200/115200	Home
Freq: 1250	MHz	Period: 0 ms		
Slope: 1	Pwr Level: -120	dBm		
22kHz: ON	AGC Output: OFF			
				Version Info

Figure 9 Baud rate

### 4) Period

Please select the period according to the data sending rate requirement.

Feed: 13.4	V	Baud Rate: 19200	Home	
Freq: 1250	MHz	Period: 0		0/ 50/ 100/ 200/ 500/ 1000
Slope: 1	Pwr Level: -120	dBm		
22kHz: ON	AGC Output: OFF			
			Version Info	

Figure 10 Period

### 5) Analog AGC level output

Please turn on or off the analog AGC level output according to actual application needs.

Feed: 13.4	V	Baud Rate: 19200	Home
Freq: 1250	MHz	Period: 0 ms	
Slope: 1	Pwr Level: -120	dBm	
22kHz: ON	AGC Output: OFF	OFF/ ON	
			Version Info

Figure 11 Analog AGC level output

6) Other configurations.

Frequency (Freq), Slope, and minimum mapping level (Pwr Level) are manually input based on requirements. When the receiving level is less than the minimum mapping level value, the main page lock section displays locked.

### 5.3. Version Information

Please click Version Info, and the page will display the device version information and manufacturer information.



Figure 12 Version Information

## 6. Troubleshooting

When the equipment is running abnormally, you can troubleshoot according to the table below. If the fault still cannot be eliminated, please consult our after-sales service center.

Fault phenomenon	Solution
The screen does not display after the power button is pressed.	Please check whether the power cord is plugged in or is loose.
Display device cannot be locked.	Please check whether the RF IN1 interface is firmly connected and whether the connecting cable is damaged; and whether the parameter settings are correct.
The host computer software is abnormal.	Check whether the DB9 interface is firmly connected and whether the connecting cable is damaged; and whether the serial port pin definition is correct;

## 7. System maintenance

- It is forbidden to disassemble the chassis without permission, and the warranty will be void after disassembly.
- To ensure that the equipment can work properly, please power it on at least once every two months, and the working time each time shall not be less than two hours.
- If the user's antenna is blocked by obstacles, the performance of the equipment will be affected.
- If the user's antenna is in a heavy rain environment, the performance of the equipment will be affected.
- Before shipping the equipment, check whether the vehicle meets the requirements of the product

regulations and whether necessary fire prevention, rain protection, sun protection, reinforcement and confidentiality measures are taken.

- When shipping the equipment, it should be strictly carried out in accordance with the requirements of the signs on the packaging. Handle with care, and do not transport it at an excessive height or overload.
- It is forbidden to press or damage it, and the body should be kept dry.
- When the equipment is stored for a short period of time, corresponding dust, water, heat, frost, lightning protection and other protective measures should be taken; do not mix it with flammable, explosive and corrosive substances.
- There should be anti-static devices at the equipment stacking place.