TAROT

HDMI Transmitter System

User manual

Number：TL1000

Version：V2.5

Note：used the 6S battery with capacitors （including）

WENZHOU TAROT AVIATION TECHNOLOGY CO.,LTD

Thanks for your purchase of Tarot professional aerial photography products. To ensure your success with this product, we would like to introduce the following information and important notes. We hope it can be useful for you. This manual should be kept for future reference.

Directory

Chapter 1 Product Overview

1.1 Outline

TAROT TL1000 mini encodulator+transmitter is a set of real-time image transmission system which is specially designed for working with mini drone aircraft. It integrates encoder,, transmitter and antenna. It converts the real-time signal from the mini camera into RF and send back to ground wirelessly. The returned signal will be received by the accessory STB and displayed on TV screen.

1.2 Features

- Support standard HDMI wireless transmission,
- Used the DR-2108 double antenna ， Support up to1080P resolution ,Frequency & Transmission distance: 352MHz / 540MHz can reach 9-10 km（Specific distance due to environmental change）
- Transmission delay 300-350ms
- Power consumption ＜ 12W
- Weight ＜ 100G
- H.264 encoding format, high quality encoding
- Support USB upgrade & recording
- DC12V/DC24V supply , support voltage range DC10V-26V
- Separate design, Dissipating heat function
- Stable performance
- Excellent receiving sensitivity,
- Stable image transmission at high speed above 230km/hours

1.3 Specifications Transmitter

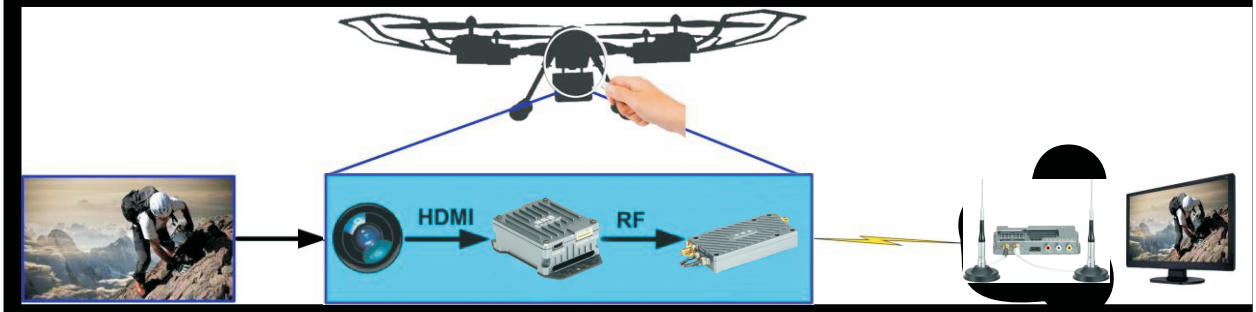
Transmitter ：

Frequency	352MHZ/540MHz
RF out	≤1w
Modulation Mode	COFDM DVB-T
Channel Band Width	6M 7M 8M
Carrier Speed	1-8Mbps
Front-to-back ratio	1/2 2/3,3/4,5/6,7/8
Guard Interval	1/32, 1/16, 1/8, 1/4
Constellation	QPSK, 16QAM, 64QAM
Transmission Mode	2K 8K

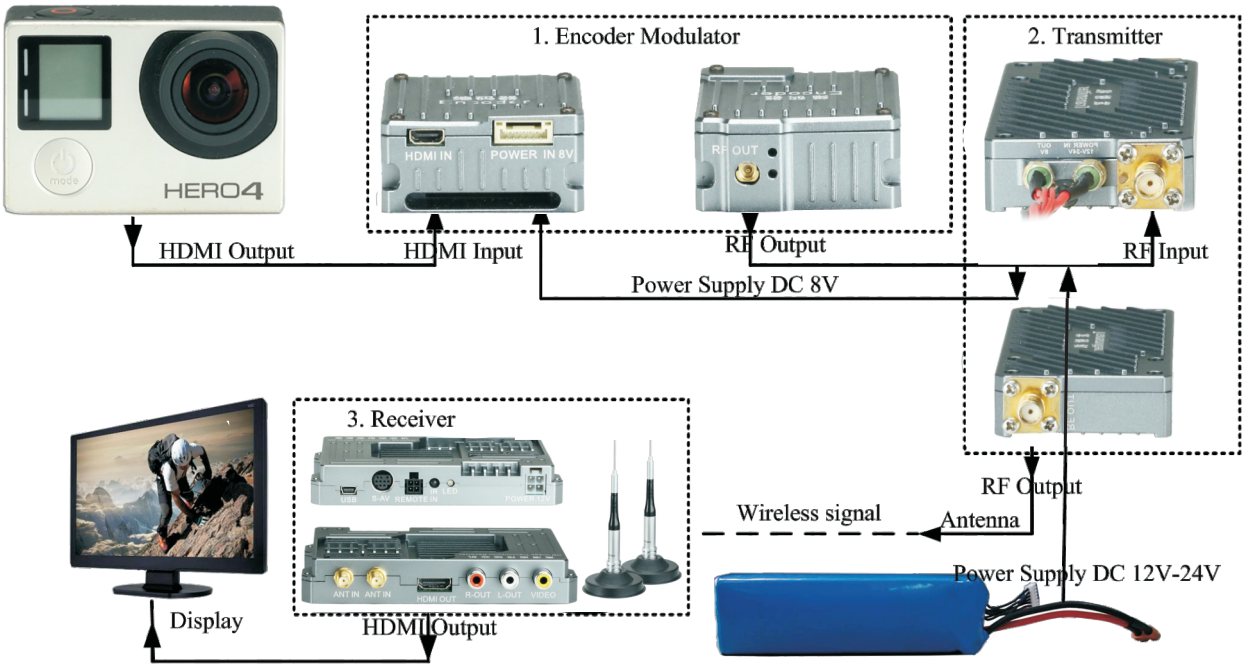
Video		
	Resolution	1920x1080_60P, 1920x1080_50P 1920x1080_60i, 1920x1080_50i 1280x720_60P,1280x720_50P 720x576_50i, 720x480_60i
	Encoding Format	MPEG-4 AVC/H.264
	Bitrate	0.8Mbps~30Mbps
	Rate Control	CBR
	GOP Structure	IPPP
Audio	Encoding Format	MPEG-1 Layer2
	Sampling Rate	48KHz
	Resolution	24-bit
	Bite rate	64Kbps-192Kbps
Modulation mode		COFDM DVB-T
Bandwidth		6M,7M,8M
Transmission Rate		1-8Mbps
Code Rate		1/2, 2/3, 3/4, 5/6, 7/8
Guard Interval		1/32, 1/16, 1/8, 1/4
Constellation		QPSK, 16QAM, 64QAM
Transmission Mode		2K 8K
MER		≤25dB
Transmission Delay		300MS-350MS
Antenna interface and impedance		RPSMA male, MMCX female，impedance 50Ω
Operating Voltage		DC 24V/DC 12V
Temperature		-10℃ ~+50℃ (Operating); -20℃~75℃ (Storage)
Transmission Distance		9-10km
Weight		≤100g (antenna and cables are exclusive)
Dimension	Encodulator	46(L)*38(W)*19mm(H)
	Amplifier	99(L)*40(W)*15mm(H)

Transmitter:

RF frequency	352MHZ/540MHz
Input Impedance	75Ω
Receiving sensitivity	-98dBm
Channel Band Width	6M/7M/8M
Constellation	QPSK, 16QAM, 64QAM


HDMI
RF

1.5 Connection diagram



1.6 Appearance and description

Illustration:

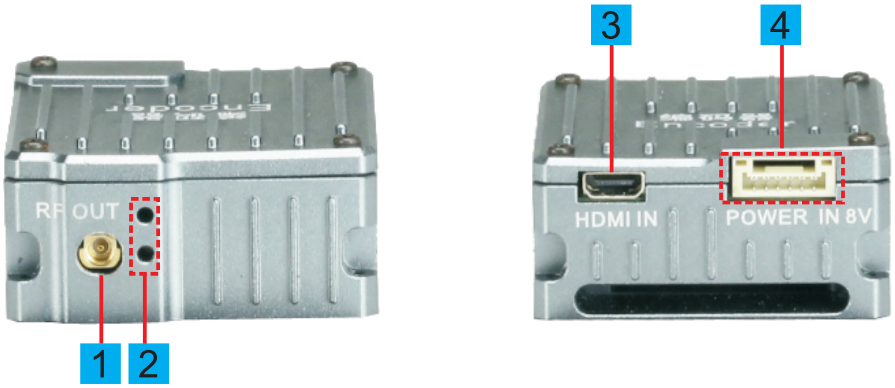
Encoder+Modulator **Transmitter** **Receiver**

1.7 Sketch map of component panel

1.7.1 Encoder:

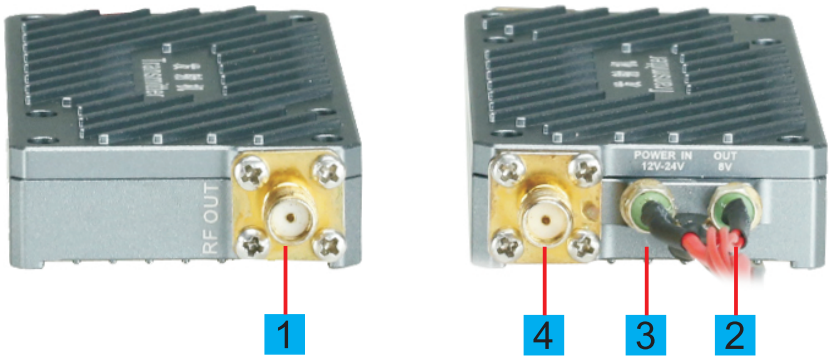
Encoder front and rear panel illustration:

1. RF output port
2. Indicator Area
3. HDMI input
4. Power supply



1.7.2 **Transmitter**

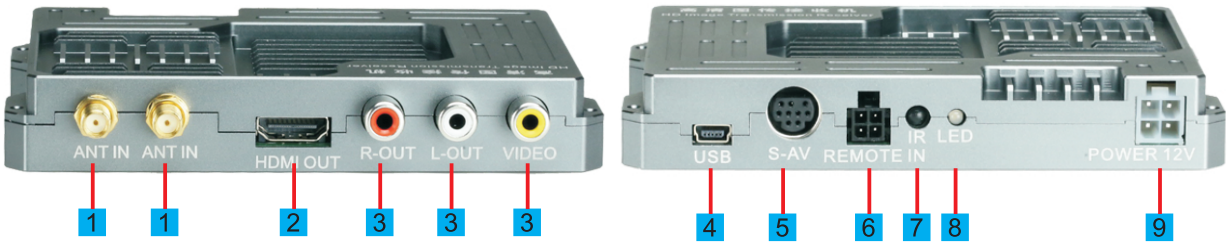
Transmitter front and rear panel illustration:



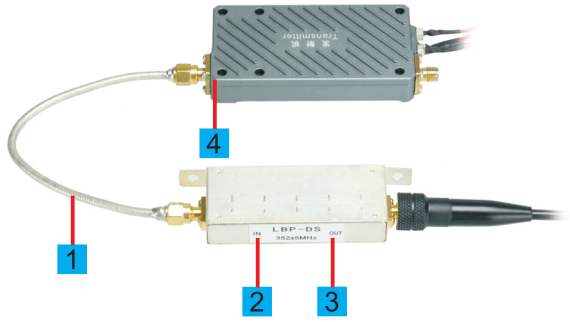
1. RF output
2. Power supply output (DC 8V for encoder modulator)
3. Power supply input (DC12V-24V)
4. RF input

1.7.3 **Receiver**

Receiver front and rear panel illustration:

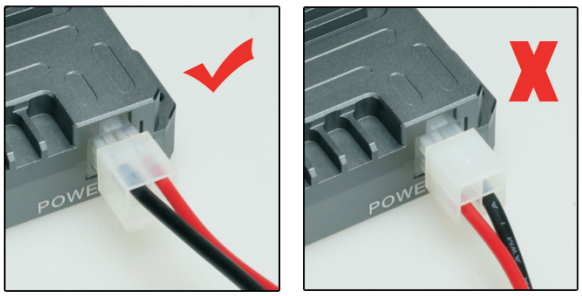


1. Twin antenna input
2. HDMI output
3. AV output
4. USB port
5. S-AV (One AV input port, two vedio output)
6. Ext. Remote sensor
7. Remote sensor
8. Power LED
9. Power input (DC12V)



1.Wave filter line， SMA Male to SMA Male connection line
2.In port， connect transmitter
3.out port connect transmitter antenna
4.transmitter

Pls don't inverse in order to avoid damage to the equipment



Chapter 2 Installation Guide

2.1 Acquisition Check

When user opens the package of the device, it is necessary to check items according to packing list. Please don't random in the process of using adjustable parameters

2.2 Installation Preparation

Pls caution When installation， checking the package during the transportation，missing or damaged ；The appropriate environment ；Installation； connection the signal cable ；connection the port

Read the user manual

Pls careful read the manual ，Make sure to follow the product instruction manual before using， The Operator should have the technical knowledge

Power

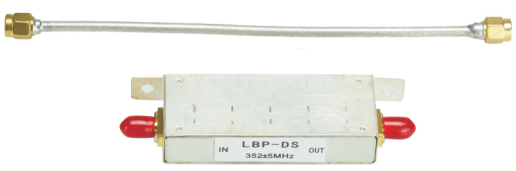
The power supply must meet the operating demand，as Voltage ，Frequency，supply capacity etc.

Camera and encoder modulator connecting cable:

Encoder modulator and transmitter MCX to SMA connection line:

Transmitter and antennas SMA Male to SMA Female connection line and Elbow：

Wave filter &line（352Mhz including，540MHz not including）：



Chapter 3 Parameter setting

3.1 Parameter setting for receiver

	Press to turn on/off the DTV
Mute	Select sound or remove sound
Enter	Confirm the selection
Display	Display current channel/program information
TV/RADIO	Switch between TV and Radio modes
0-9	Input Channel number
SUB	Change the subtitle language
EPG	Display the electronic program guide
AUDIO	To change audio menu
TIX	Display teletext features
FAV	Add or remove TV channels from one of the four favorite channel lists
Exit	Menu exit and OSD elear
VOL+/-	Volume adjust and left/right in the menu
Menu	Display the main Menu
CH+/-	Change the channel one by one and up/down in the menu
< >	Menu selection
Search	Scan program
Play/Pause	Press to turn on/off the time shift
PVR	Press to turn on/off the recording

3.2 Main Menu

Users can press MENU to open main menu after connecting the displayer and receiver. The main menu includes program, picture, channel search, time, option system and USB six submenus. Press ◀/▶button to select submenu, then press ok to enter submenu page, press EXIT to exit submenu and back to current page.

System→restore factory default

Press OK/▶ then pop-up enter password menu, enter the initial password: 000000, STB perform reset action, enter engineer default state, restore to the default setting.

To make sure the restore successfully, users can reset the receiver by switching off the electricity or pressing the button . (After pressing the button, users should wait for several seconds and press this button again until the LED light turn to red)

Main menu→picture

Press▲/▼ to move the highlight bar to select debugging project. Press EXIT/MENU back to main menu.

Press◀/▶ to select focus adjust menu.

Aspect ratio select range:16:9 wide screen; Auto; 4:3 Full; 4:3 Pan& Scan; 4:3 letter box, default 16:9 wide screen;

Resolution select range: 480P, 576P, 720P, 1080I; Default 1080i

TV format select range: NTSC, PAL, default PAL;

Video output select range: CVBS, RGB

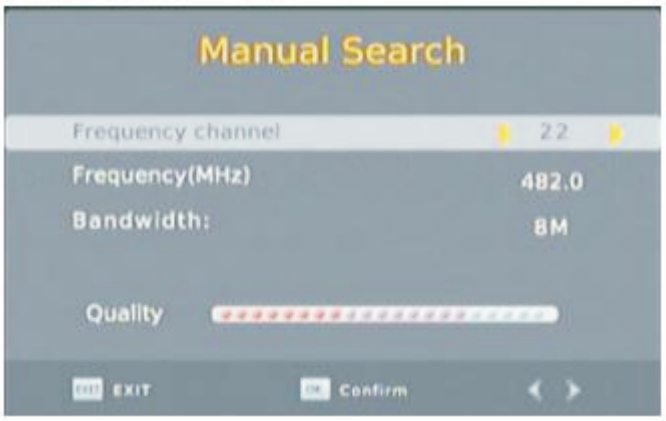
Main menu→Channel search

Channel search→Auto Search

Under Auto Search option press OK/▶ button popup dialog to confirm whether enter to search, press ENTER button to confirm auto search menu page, the TV receiver under the procession of searching channels.

Channel search→Manual Search

Under Manual Search option press OK/▶ to enter Manual search channel menu, press EXIT to quit Manual search menu.



The menu shows frequency channel, frequency, bandwidth, quality. Press OK to enter Channel search processing.

Menu→USB

Press ▲/▼ to move the highlight bar to select debugging project. Press EXIT/MENU back to main menu.
Press OK/▶to enter the option menu page under the multimedia menu
Press PVR to record video.

Chapter 4 Trouble shooting

For guarantee the products quality, reliability and stability. All TAROT products have been passed the testing and inspection before ship out factory. The testing and inspection scheme already covers all the Optical, Electronic and Mechanical criteria which have been published by TAROT.

Before connecting your local service, please make sure following instructions. If the product does not work normally after completing the following problems and solutions, please contact your local product distributor or buyer

4.1Prevention Measure

1、Installing the device at the place in which environment temperature between-10 °C to 45+ °C

2、Making sure good ventilation for the heat-sink on the rear panel and other heat-sink bores if necessary

3、Checking the input AC voltage within the power supply working range and the connection is correct before switching on device

4、Checking the RF output level varies within tolerant range if it is necessary

5、Frequently switching on/off device is prohibited;（ the interval between every switching on/off must greater than 10 seconds.）

4.2 Fault problem and solutions

Fault problem	solutions
No electricity(for encoder modulator and transmitter)	Checking the input voltage within the power supply working range and the connection is correct(DC 12V-24V) Check whether the positive and negative of voltage inversely connect
No signal output(for transmitter)	Check whether the power supply for encoder modulator is normal. Check the input signal Checking connecting cables have been properly connected Check whether the antennas connect normally(check antennas connecting status before swithing on to make sure the signal output normally and transmitter will be not damaged
No signal(for receiver)	Check whether the power supply and antennas is
	connected correctly.
Check the frequency of receiver and transmitter is corresponding to bandwith	
Check the antennas of transmitter and receiver connect normally	
Check whether the frequency of transmitter's antennas correspond to the receiver's. The testing distance should be within the specified range.	

Chapter 5 Packing list

1	Figure transmitter	1pc
2	Mobile digital receiver	1pc
3	Transmitter antenna	1pc
4	Receiver antenna	2pc
5	Antenna suction cup	2pc
6	Micro HDMI connection line	1pc
7	MCX to SMA connection line	1pc
8	SMA Male to SMA Female connection line	1pc
9	Wave filter	1pc
10	SMA Male to SMA male connection line	1pc
11	Elbow	1pc
12	Receiver set , USB cable , Remote Control Lines etc	1pc