VDC-22 / VDC-55

Long-Range Video / Data Transmission System

V1.0   2022.10

FOXTECH

Description

Disclaimer

Thank you for purchasing this product. you can log in to the website for the latest product information, technical support and user manual. It is recommended that you download and use the latest version of the user manual. This manual is subject to change without notice.

You can also get product usage information or technical support through official customer service. Due to different production batches, the appearance or function parameters are slightly different and will not affect the normal use of the product.

Please read this statement carefully before using. Once used, it is deemed to be an endorsement and acceptance of the entire contents of this statement. Please read the instruction manual carefully and strictly follow the instructions in this manual to use this product. Foxtech will not be liable for any result or loss caused by improper use, installation, assembly or modification of users.

Intellectual Property

The intellectual property rights of this product and manual are owned by Foxtech. Any organization or individual may not copy, reproduce or distribute in any form without written permission. If you need to quote, you need to indicate the source, and you should not make any modifications, deletions and references to this manual.

Mounting Precaution

1. Please make sure that the mounting between the antenna and the device are tight, or the device will be damaged;
2. Please make sure the input voltage is acceptable, or the device will be damaged;
3. Please make sure the antenna of the air unit is face toward the ground vertically and avoid blocks, or the transmission signal will be affected and shorten the distance;
4. The mounting location should try to avoid metal parts, and it is better to keep a 20-cm-clear-area around the antenna;
5. Use the antenna designated by the manufacture to ensure the frequency and impedance;
6. Please make sure there is appropriate distance between modules to minimum the electromagnetic interference.

Using Precaution

1. Please sure all the connection are firm and tight;
2. Make sure there is no object inside the equipment;
3. It needs about 15 s after powering up to start to work, then data transmission is available;
4. Please make sure there is no high-powered wireless emitting equipment with the same frequency around where VDC-22 / VDC-55 is working, or the image receiving will be affected and damaged;
5. If the receive signal is bad, adjust the angle of the receive antenna may help.

Download *Maestro Assistant*:
https://www.foxtechfpv.com/product/Long-range-Transmission-System/VDC-22-VDC-55-Software.zip

Content

Package
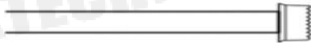
Device

Base End

Sky End

Standard Accessories

Sky End Antenna *4
(2.5 dBi & 4 dBi)

Fiberglass Antenna *1

Feeder Cables *1

Power / SBus Cable *1

Short Description

VDC-22 / VDC-55 is a long-range transmission system with video /data / SBus signal transmission all-in-one, which features handy, powerful and high integration. The integrated design of the ground side makes it very easy to use.

VDC-22 / VDC-55 have three optional frequency bands: 800MHz, 1.4GHz and 2.4GHz, which can be purchased and used by users according to their needs, and please obey local radio control regulations when using it.

The transmission distance of VDC-22 reaches 22km, and the transmission distance of VDC-55 reaches 55km. The integrated link makes the UAV operation more concise, and the ground end does not need to set up antenna specially, which shortens the operation preparation time. The good industrial thermal design enables it to meet the needs of industry-grade applications.

VDC-22 / VDC-55 can connect with GCS which supports aviation plug, so please reach to our sales if you need.

*Test under LOS and no interference conditions.

Main Parameters

Transmission Distance

22 km for VDC-22
55 km for VDC-55

Video Transmission

1* Ethernet Port

Frequency Modulation

Frequency Hopping / Fixed Frequency

Working Bandwidth

5/10/20 MHz

Working Temperature

40℃ ~ +70℃

Modulation Mode

OFDM

Data Transmission

2*UART / 2* SBUS

multi-channel transmission is support

Working Frequency

800 MHz / 1.4 GHz / 2.4 GHz

Working Mode

Air Unit: Point-to-Point

Relay Mode

Power Input

9~28V DC

3S~6S Battery

Interface

Sky End
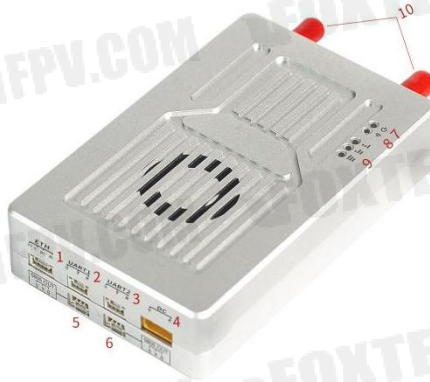
1. Ethernet

No.	Symbol	Description	Direction
1	T+	TX+	O
2	T-	TX-	O
3	R+	RX+	I
4	R-	RX-	I

2. UART1

No.	Symbol	Description	Direction
1	G	GND	I/O
2	R	RS232 RX	I
3	T	RS232 TX	O

3. UART2

No.	Symbol	Description	Direction
1	G	GND	O
2	R	TTL RX	I
3	T	TTL TX	O

4. Power

No.	Symbol	Description	Direction
1	G	GND	I/O
2	V	+Vcc (9v~28v)	I

5. SBUS1

No.	Symbol	Description	Direction
1	S	SBUS OUT	O
2	V	+5v (Max Current 1A)	O
3	G	GND	I/O

6. SBUS2

No.	Symbol	Description	Direction
1	S	SBUS OUT	O
2	V	+5v (Max Current 1A)	O
3	G	GND	I/O

7. Status Indicator

Green Light	State
Flash Twice	Initiating succeed, at 1.4 GHz frequency
Flash Once	Initiating succeed, at 800 MHz frequency
Flash Thrice Quickly	Mode changing succeed
Flash Slowly	Enter setting mode
Flash Quickly & Constantly	Working abnormally
Constantly On	Wireless connection succeed
Off	Wireless connection failed

8. WI-Fi Signal Strength

Green Light	State
3 Lights Constantly On	Signal strength is strong, transmission quality is high
2 Lights Constantly On	Signal strength is OK, transmission quality is medium
1 Light Constantly On	Signal strength is weak, transmission quality is low
Off	No signal / connection is fail

9. Power indicator

This indicator is solid green when air unit is booting.

10. SMA Antenna Port

Base End

1. Fiberglass antenna
2. Signal display screen
   Display signal strength, frequency, bandwidth, etc.
   Five LED lights stands for Power, Connection and Signal Strength
3. Battery Base
   SONY XXXX Battery is acceptable. Exterior power supply is preferred if an exterior power supply is connected via interface No. 4.
4. Aviation plug

The aviation plug contains Ethernet, serial port, SBus, power, etc. and the specific definition is as follow:
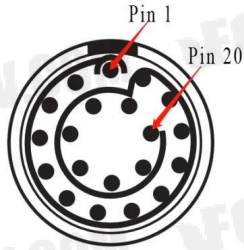
No.	Description	Direction
1	Rx+	I
2	Rx-	I
3	Tx+	O
4	Tx-	O
5	UART1 TX (RS232)	O
6	UART1 RX (RS232)	I
7	UART2 TX (RS232)	O
8	UART2 RX (RS232)	I
9	NC	NC
10	RC1_IN	I
11	RC2_IN	I
12	+5v	O
13	GND	I/O
14	GND	I/O
15	GND	I/O
16	GND	I/O
17	GND	I/O
18	GND	I/O
19	Vcc (9v~28v)	I
20	Vcc (9v~28v)	I

Mounting

Sky End Mounting

1. Mount Antenna

Install the sky end on the UAV and mount the antenna. Make sure the SMA interface is tightened. The transmission quality will be the best when the antenna faces down vertically without metal objects around it within 20 cm and avoid block caused by the body.

2. Connect gimbal with the FC

Connect the gimbal with VDC-22 / VDC-55 via Ethernet interface and connect the VDC-22 / VDC-55 to the FC by UART1 (RS232 by default) and UART2 (TTL by default). Please connect the SBUS_OUT interface on VDC-22 / VDC-55 to SBUS interface on FC to realize RC control.

Note: If the gimbal is connected with HDMI/SDI/AV interface, a module should be added first.

All of the signal line should try to away from wires of the motor or BEC, or there may be interference.

Base End

1. Antenna & Wire

2. GCS

The base end can connect to the GCS via Ethernet port or UART interface and send the image and data to the ground station.

Video Display

The base end can transfer the video to the decoding software (such as VCL) on the host computer or GCS (such as Mission Planner).

Data Transmission

The base end can sent data to the host computer via serial port using a UART (RS232) to USB module. It also can sent the FC data to GCS via Ethernet UDP/TCP (only data from the sky end UART2 interface that can be forwarded by Ethernet on the base end.

Specification

Wireless Performance	Bandwidth	800MHz / 1.4GHz / 2.4GHz	
	Working Bandwidth	800MHz： 806MHz～825MHz 1.4GHz： 1427MHz～1447MHz 2.4GHz： 2408MHz～2488MHz	
	Channel Bandwidth	5MHz/10MHz/20MHz	
	Modulation Mode	OFDM	
	Output Power	MK22： 30dBm±1dB MK55： 33dBm±1dB	
	Sensitivity	≤-95dBm	
	Transmission Distance	MK22： 22km MK55： 55km	
	Speed In The Air	30Mbps@20MHz	
Power Input	DC 9~28V		
Power Consumption	≤8.5W		
Interface	Antenna	2*SMA, 1*N	
	Power	1*XT30 Input Power	
	Serial Port	Air Unit: 2*UART1 RS232; UART2 TTL 3.3V level Ground Unit: 2∗UART1;UART2 RS232	

		Baud Rate: 115200 (Default), support 57600, 38400, 19200, 9600
	SBUS	Air Unit: 2 *SBUS Output
		Ground Unit: 2*SBUS Intput
	Ethernet	Air Unit: 1*4pin
		Ground Unit: 1*RJ45
Antenna	Port	Air Unit: SMA
		Ground Unit: N
	Enclosure	Air Unit: Black rubber
		Ground Unit: White plastic Panel
		Antenna: Grey fiberglass
	Tpye	Air Unit: Rubber Antenna 20cm Ground Unit: Panel omnidirectional 25cm*25cm Fiberglass Antenna 30cm
	Polarization Type	Vertical
	Gain	Air Unit: 2.5dBi GroundUnit: Fixed: 12dBi, omnidirectional:5dBi
	SWR	≤2.0
Environment	Working Temp	-40℃～+70℃
	Storage Temp	-40℃～+85℃
	Humidity	5~95%, no Condensation