FOXTECH XLINK-50 Long Range Video Wireless Transmitting System User Manual

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FOXTECH XLINK-50 Long Range Video Wireless Transmitting System

Overview

- XLINK-50 is a point-to-point data/video wireless transmitting system designed for industrial UAVs, ground robots and other data communication applications, featuring 50km long transmission distance.
- XLINK-50 integrates the technology of 4G, 5G, WIFI, and adopts OFDM technique and multi-path anti-interference technology, which has the advantages of long distance transmission, low latency, strong diffraction performance, and big data bandwidth communications.

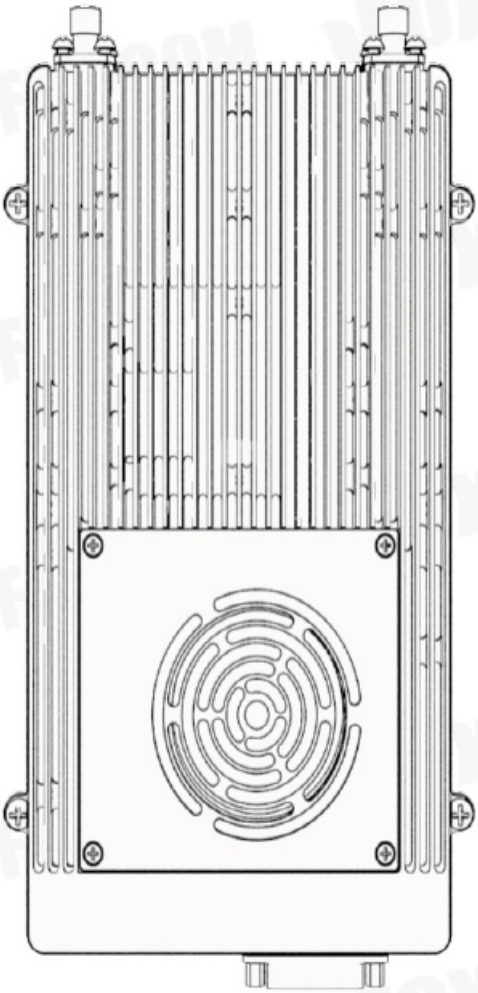

Figure 1 XLINK-50

- XLINK-50 needs to be used in pairs. The selection of antenna is determined by the scenarios that it is applied to. When used on aircraft, the sky end is referred to as the Air Unit, whereas the ground end is called the Ground Unit.

KEY TECHNOLOGY
• frequency band : 1410MHz~1470MHz • Transmitting power : 2*2W • 2T2R • O FDM technology • Multi-path anti-interference technology • Low Latency <5ms • Physical layer encryption • Ethernet and serial control

Industry Application

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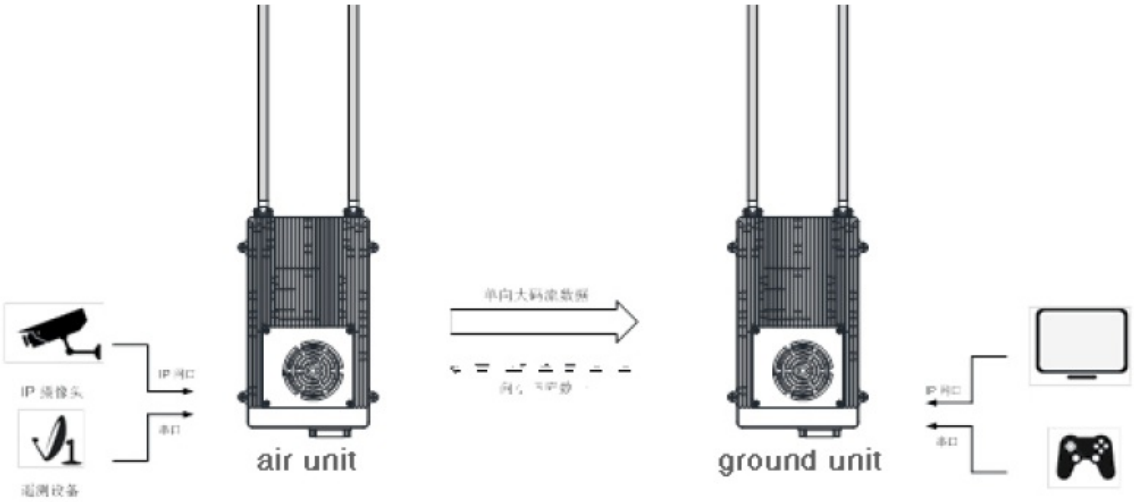


Figure 2

XLINK-50 is applicable to the following industry application scenarios:

- For 50Km~70Km long-range drones, omnidirectional antennas or optional directional antennas and antenna tracker can be used in this scenario;
- For long range data communication of the ground (unmanned) vehicle, use an omnidirectional fiberglass antenna, and the distance is 2Km~5Km;

Parameter

Functions

Table 2

Item	description
Frequency Band	L,1410MHz~1470MHz
Frequency channel	2*TX& 2*Rx
Output power	ANT1，2W ANT2，2W
Working voltage	DC +9V~+30V，Typical Value +12V
Power consumption	Air unit：<= 28W Ground unit：<= 13W
Bandwidth	4MHz、8MHz、10MHz、14MHz、20MHz optional
Bit rate	Air Unit to Ground Unit：1.2Mbps ~ 12Mbps optional Ground Unit to Air Unit：115Kbps ~ 1Mbps optional The signal bandwidth is different, the communication code stream that can be supported is different, see the description below for details
Transmission Delay	< 5ms
Encryption Method	AES 128bit; Physical Layer Encryption
Communication Port	1*RJ45(Ethernet) 2*RS232(UART) 1*RS422(UART)
Size	150mm*86mm*24mm
Weight	< 430g
Working Temperature	-40deg ~ +55deg
Note: In the above content, when the sky end and ground end are not specified, it means that the functional indicators of the sky and the ground are the same.	

Performance

Xlink-50 supports a variety of communication code streams, which can be selected according to the needs of actual mission. Xlink-50 supports two-way communication, the specific description is as follows:

- From the air end to the ground end, it supports the transmission of large bit stream data through the IP network port, which can be used for video communication;
- From the air end to the ground end, an independent control channel is supported through the control interface, which can be used for communication of control information;
- From the ground end to the air end, it supports small stream data transmission through the IP network port, which can be used to form two-way communication with the data of the sky end IP network port;
- From the ground end to the air end, the control information is supported through the control interface, and the control information sent by the air end can form two-way communication; fiberglass antenna, and the distance is 2Km~5Km;

Table 3

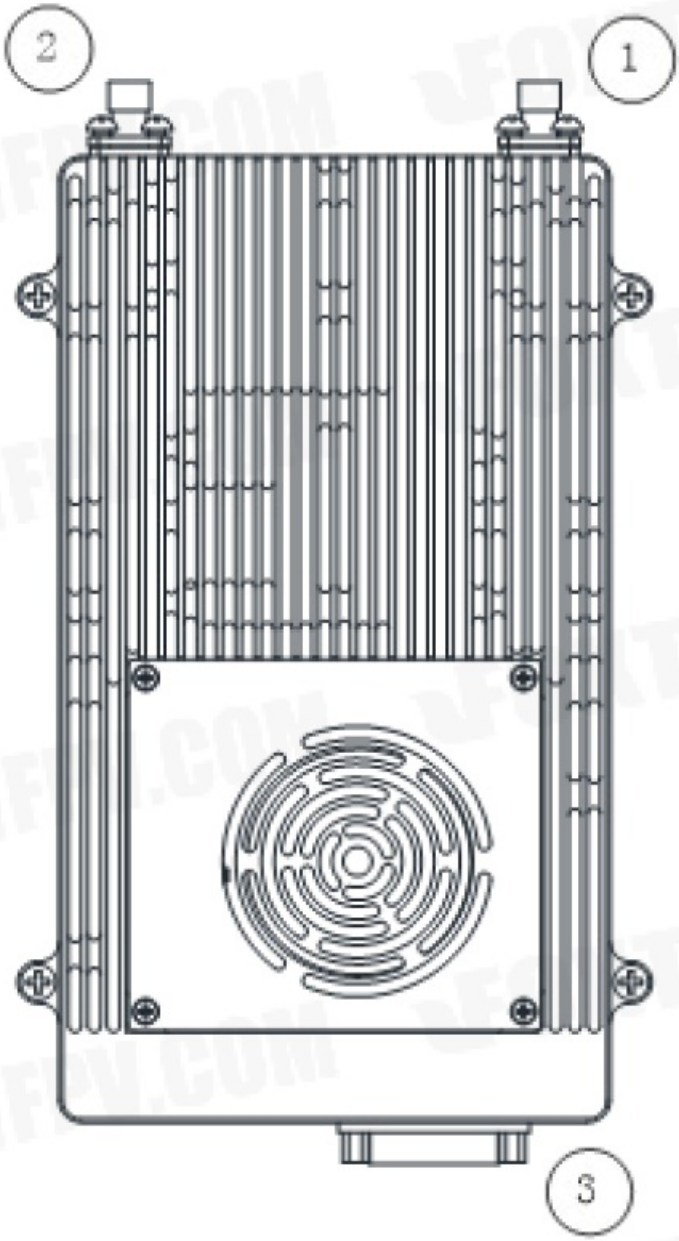
Air Unit to Ground Unit(A2G)							
1.2Mbps~12Mbps							
Bandwidth	4MHz	8MHz		10MHz		14MHz	20MHz
Bit rate	1.2Mbps	2.5Mbps	5.2Mbps	5.2Mbps	6.2Mbps	9.2Mbps	12Mbps
Modulation scheme	QPSK	QPSK	QPSK	QPSK	QPSK	QPSK	QPSK
Power level	-105dBm	-103.5dBm	-98.5dBm	-100dBm	-98.4dBm	-96dBm	-95.5dBm

Table 4

Ground Unit to Air Unit(G2A)							
Bandwidth	4MHz	8MHz@2.5Mbps	10MHz	14MHz/8MHz@5.2Mbps			20MHz
Bit rate	115Kbps			115Kbps	300Kbps	1Mbps	115Kbps
Modulation scheme	QPSK	QPSK	QPSK	QPSK			QPSK
Power level	-107dBm	-106.5dBm	-105dBm	-105.5dBm /-106.5dBm	-103dBm /-104dBm	-100dBm /-101dBm	-105dBm

Interface

The external interface of XLINK-50 is shown in Figure 3. For external interface definition and description, please refer to Table 5.


2
1
3

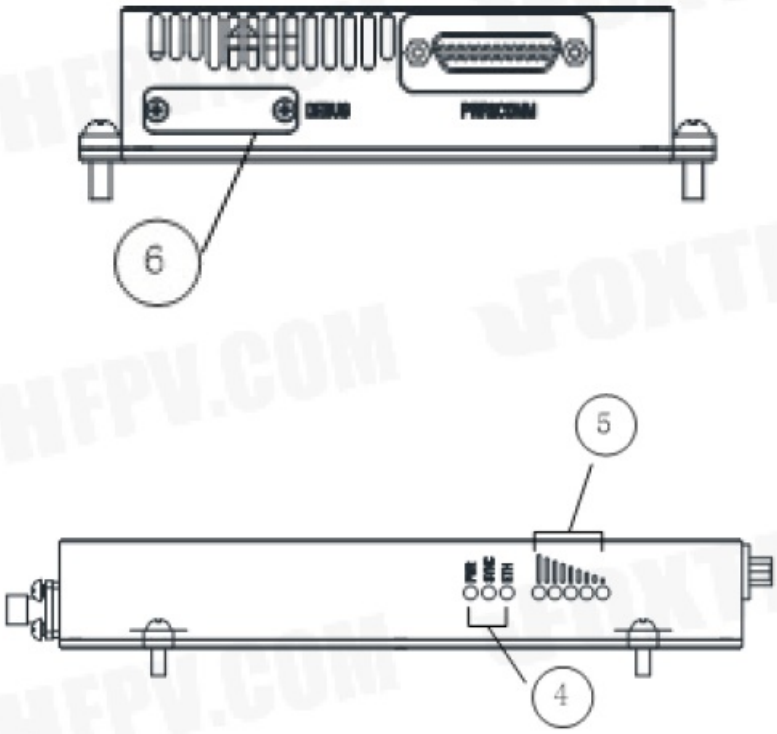
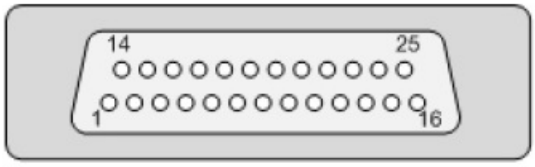


Figure 3 Pin identification number

No	Name	description
1	ANT1	Antenna interface 1 , SMA-Female
2	ANT2	Antenna interface 2 , SMA-Female
3	Power/communication interface	Power/ communication interface , J30JM-25ZKP , The pin numbers are as follows, see Table 6 and appendix for pin definitions 
4	LED Indicator	PWR- Green: Power on SYNC- Green: Air unit and ground unit is paired ETH - Solid green: Link established - Blinks green: Link established and normal communication status - LED off: Link lost
5	Signal strength indicator	The received signal strength indicator, green, from left to right, the stronger the received signal strength, the more the number of lights. 
6	Debug	System monitor, not used in normal circumstances. Remove the cover before use and put it back after use.

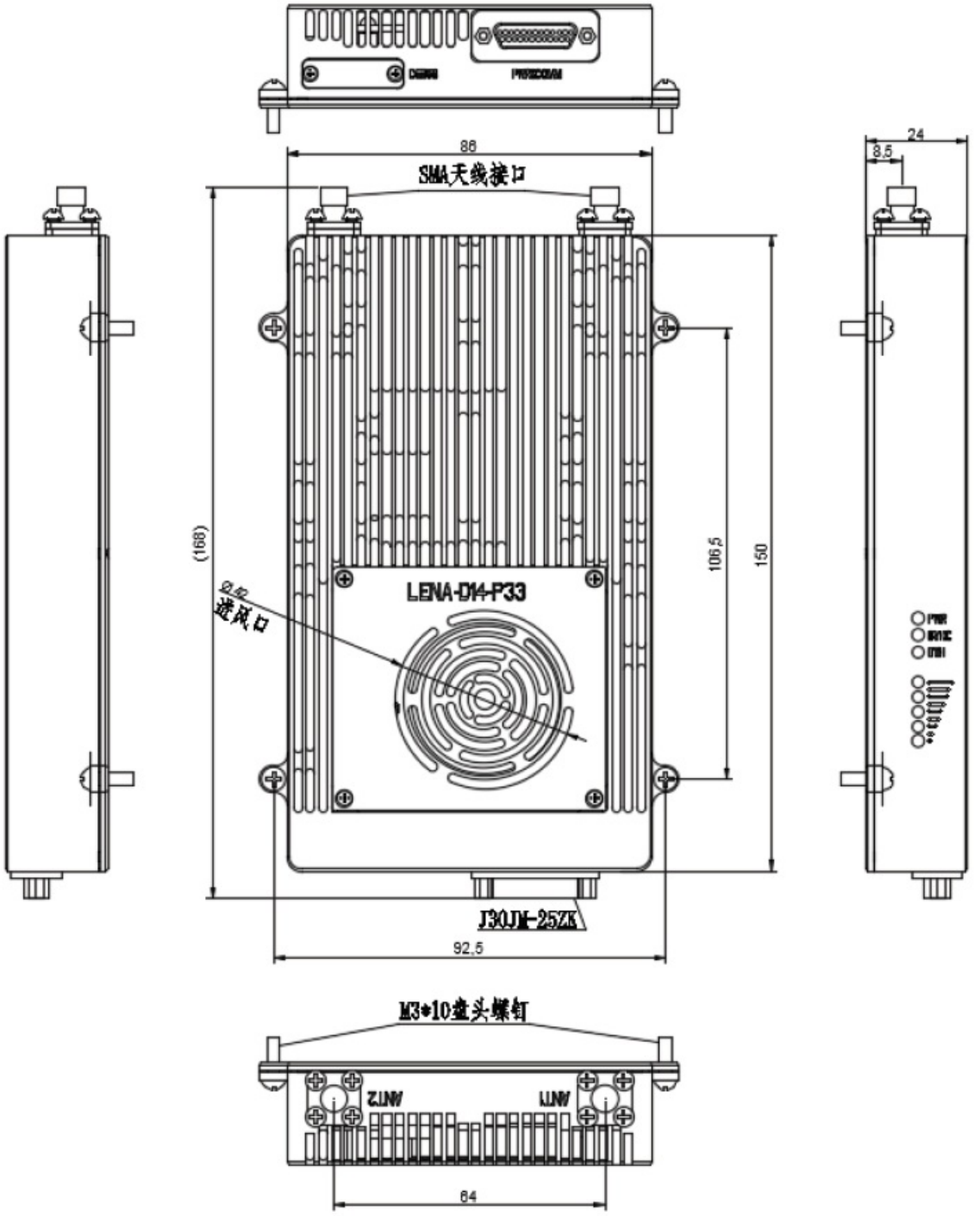
Pin Number	Pin	Description
1	TX+(PHY)	TX differential signal of IP network port
2	TX-(PHY)	
3	TX+(RS422)_1	Tx signal from RS422-1
4	TX-(RS422)_1	
5	TX+(RS422)_2	Tx signal from RS422-2
6	TX-(RS422)_2	
7	TX+(RS422)_3	Tx signal from RS422-3
8	TX-(RS422)_3	
9	TX(RS232)_1	Tx signal from RS232-1
10	RX(RS232)_1	Rx signal from RS232-1
11	VCC	VCC input, DC +9V~+36V
12	VCC	
13	VCC	
14	RX+(PHY)	RX differential signal of IP network port
15	RX-(PHY)	
Pin Number	Pin	Description
16	RX+(RS422)_1	Rx signal from RS422-1
17	RX-(RS422)_1	
18	RX+(RS422)_2	Rx signal from RS422-2
19	RX-(RS422)_2	
20	RX+(RS422)_3	Rx signal from RS422-3
21	RX-(RS422)_3	
22	GND(RS232)	GND from RS232
23	GND	Ground
24	GND	
25	GND	

Mechanical characteristics

See Table 7 for mechanical characteristics, and Figure 4 for specific product dimensions and installation.

Table 7

specifications	
Dimensions	150×86x24mm
Weight	0.43Kg
Temperature	-40℃~+55℃
Interface installation size	见下图（See the following figure）



Installation Instructions

- M3*10GB/T818, 4PCS
- crosshead screwdriver
- The depth of the threaded hole should be reserved at east 5mm
- Torque requirement 6±0.5Kgf;

Quick Start

UI Configuration

- XLINK-30 has different data rates, which needs to be configured as needed.
- **STEP 1**

Power on XLINK-30, and link it with PC by Ethernet. Then configure IP Address as shown below:

- IP Address 192.168.0.1
- Subnet Mask 255.255.255.0

- **Step 2**

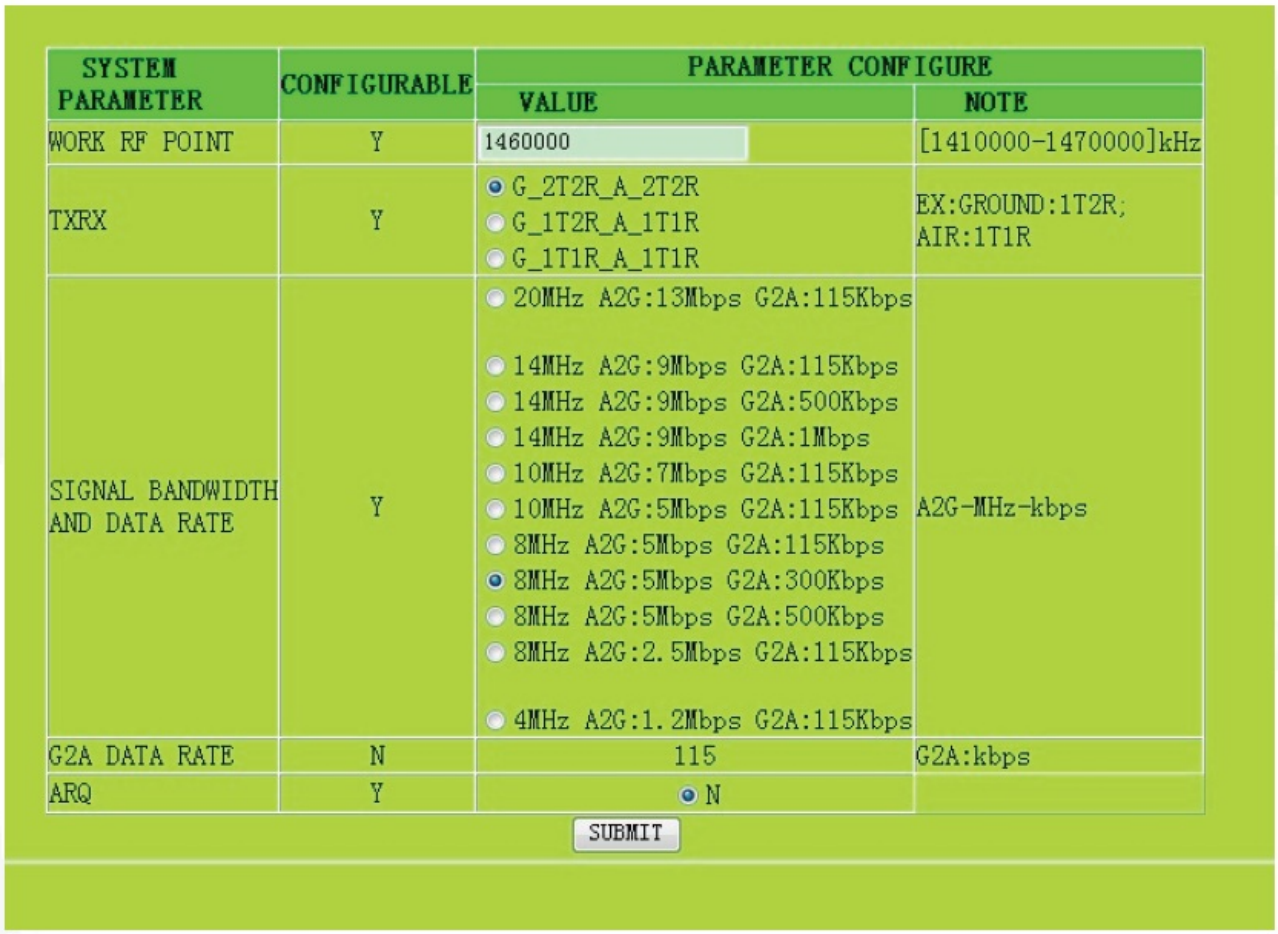
  Search 192.168.0.9 and enter on browser, next it will show a configuration interface as figure 6., Select the configuration according to the actual transmission rate, and click “SUBMIT” after the configuration is complete Refer to Table 8 for the parameter description on the configuration interface.

- **Step 3**

  Reboot to activate the configured value.

- **Step 4**

  You need to configure the same bandwidth/data rate value for air and ground unit to ensure a successful pairing between them.



SYSTEM PARAMETER	CONFIGURABLE	PARAMETER CONFIGURE	
		VALUE	NOTE
WORK RF POINT	Y	1460000	[1410000-1470000]kHz
TXRX	Y	(•) G_2T2R_A_2T2R ( ) G_1T2R_A_1T1R ( ) G_1T1R_A_1T1R	EX:GROUND:1T2R; AIR:1T1R
SIGNAL BANDWIDTH AND DATA RATE	Y	( ) 20MHz A2G:13Mbps G2A:115Kbps ( ) 14MHz A2G:9Mbps G2A:115Kbps ( ) 14MHz A2G:9Mbps G2A:500Kbps ( ) 14MHz A2G:9Mbps G2A:1Mbps ( ) 10MHz A2G:7Mbps G2A:115Kbps ( ) 10MHz A2G:5Mbps G2A:115Kbps ( ) 8MHz A2G:5Mbps G2A:115Kbps (•) 8MHz A2G:5Mbps G2A:300Kbps ( ) 8MHz A2G:5Mbps G2A:500Kbps ( ) 8MHz A2G:2.5Mbps G2A:115Kbps ( ) 4MHz A2G:1.2Mbps G2A:115Kbps	A2G-MHz-kbps
G2A DATA RATE	N	115	G2A:kbps
ARQ	Y	(•) N	

SUBMIT

Table 8

Name	Note
WORKRF POINT	Center Frequency Point
TXRX	Transmitting Channel 2T2R 1T2R 1T1R
SIGNAL BANDWIDTH AND DATA TATE	Bandwidth and Data Rate Selection A2G: Air Unit to Ground Unit G2A: Ground Unit to Air Unit
ARQ	Automatic Repeat Request: N means request declined

Pairing

In the point-to-point application scenario, after air unit and ground unit are powered on, the two modules need to successfully establish a link before they can communicate. The following describes the link establishment process:

- **Step 1**
  After one unit powers on, the SYNC LED indicator turns green. About 30s later, it starts to blink, which means it is pairing with the other unit.
- **Step 2**
  If two units are powered on and paired, the indicator stops blinking and keeps on.
- **Step 3**
  If the pairing is failed, the indicator blinks green, during which the unit is still searching until two devices are successfully paired. Possible causes of failed pairing:

- One of the unit is powered off.
- Beyond transmission distance
- Strong signal interference

Appendix -1

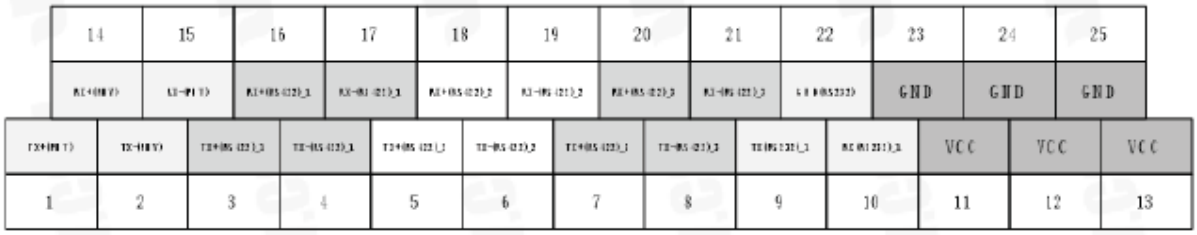


Figure 7 diagram of J30J socket pin definition

Documents / Resources

	**FOXTECH XLINK-50 Long Range Video Wireless Transmitting System** [pdf] User Manual XLINK-50 Long Range Video Wireless Transmitting System, XLINK-50, Long Range Video Wireless Transmitting System