

2.4G Bluetooth Datalink & iPad Ground Station User Guide V1.14

Thank you for purchasing DJI products. Please strictly follow this user guide to mount and connect the 2.4G Bluetooth Datalink, install the Assistant Software on your computer, as well as the App on your mobile device.

Note : The map of Mainland China download from Mainland China IP addresses has differences with the actual geographic environments. If users download the map of Mainland China from foreign IP addresses, which will be more accurate.

2.4G Bluetooth Datalink

The 2.4G Bluetooth Datalink consists of the Air end and the Ground end, which provides reliable and stable remote wireless transmissions for Ground Station based applications. The signal flow is as shown below.



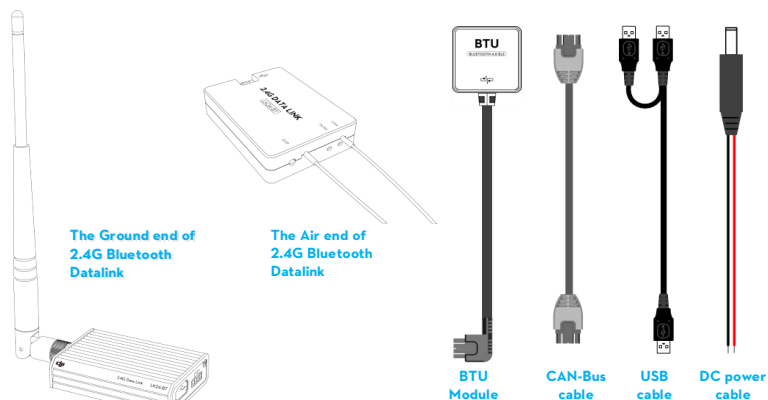
Flight control systems that support the 2.4G Bluetooth Datalink

ACE ONE(Firmware V4.02 or above), WKM(Firmware V5.24 or above),

NAZA-M, NAZA-M V2(Firmware V4.00 or above), A2(Firmware V2.0 or above)

Important: To make your Phantom 2 compatible with the 2.4G Bluetooth Datalink, please update the firmware of Phantom 2 and BTU module to the latest version.

1.1 In the box



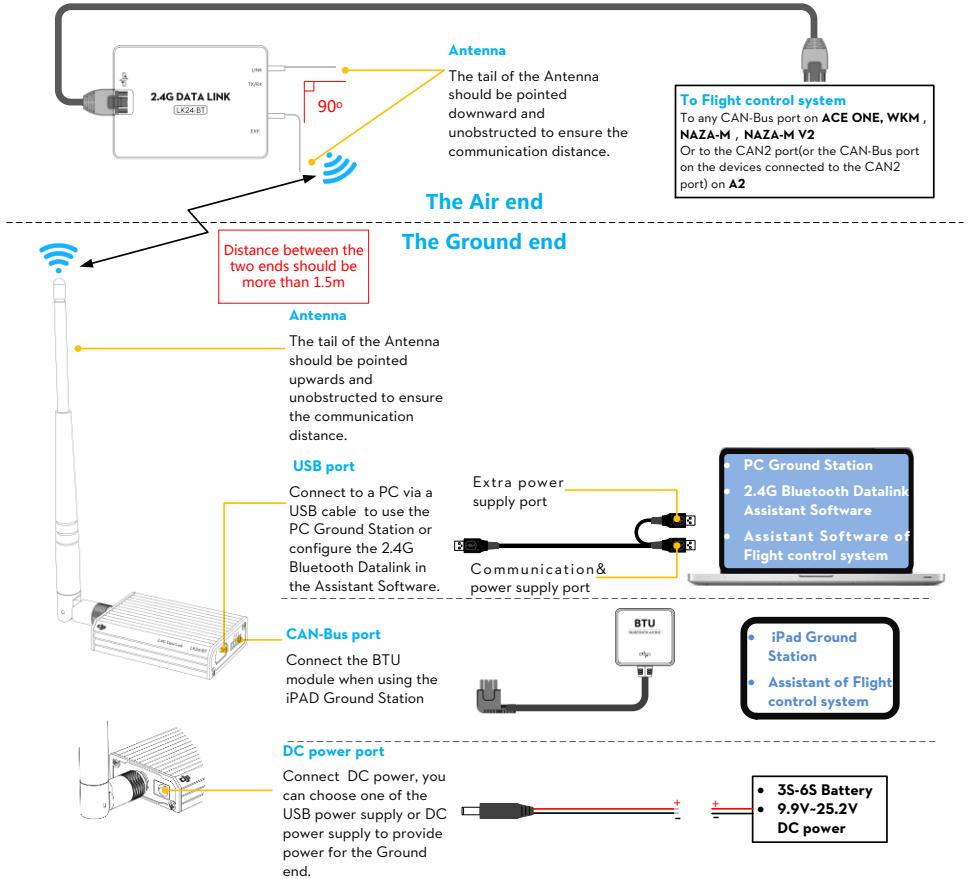
Important : the firmware of BTU should be upgraded to version 1.0.12 or above to use with the 2.4G Bluetooth Datalink.

1.2 User supplied

To use the 2.4G Bluetooth Datalink and Ground Station, please prepare the Flight control system, the aircraft, batteries, PC or iPad etc.

1.3 Connections and use

- (1) Please assemble the antenna of the Ground end first.
- (2) For connections and use please refer to the diagram below.



Notes :


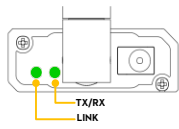
- (1) You can configure the Flight control system using the Assistant software on a PC or iOS mobile Device wirelessly over the link of the 2.4G Bluetooth Datalink, however you cannot upgrade the firmware of the Flight control system using this communication route.
- (2) When connecting a BTU module or a LED Bluetooth unit to the Flight control system to configure in the Assistant on mobile devices, as well as connecting a BTU module to the Ground end to use the iPad Ground station, the two Bluetooth communication links will not interfere with each other.
- (3) If the Air end is changed to connect to a new Main controller, you should power cycle the Ground end.
- (4) Make sure the LED indicator of BTU module is green after power on, for specific usage details please refer to the BTU Manual.
- (5) For usage of the PC Ground Station please refer to the latest Ground Station User Manual.

Important :

- (1) If there are obstacles between the ground and air ends then the radio signal of the 2.4G Bluetooth Datalink will be weak; please make sure the antennas are always visibly unobstructed during the flight. Human body, trees, buildings or hills will disconnect the link between the Air end and the Ground end.
- (2) Make sure the antenna of the Air end is pointing down, and the antenna of the Ground end is pointing upwards; it's better to put the Ground end at a high place to get further transmission distance.
- (3) When using the ACE ONE Flight control system with the 2.4G Bluetooth Datalink, the Ground Station will connect to the Main controller 15s after power on.

1.4 LED Indicator descriptions

The LED Indicators of the 2.4G Bluetooth Datalink will work after power on, the descriptions are shown below.

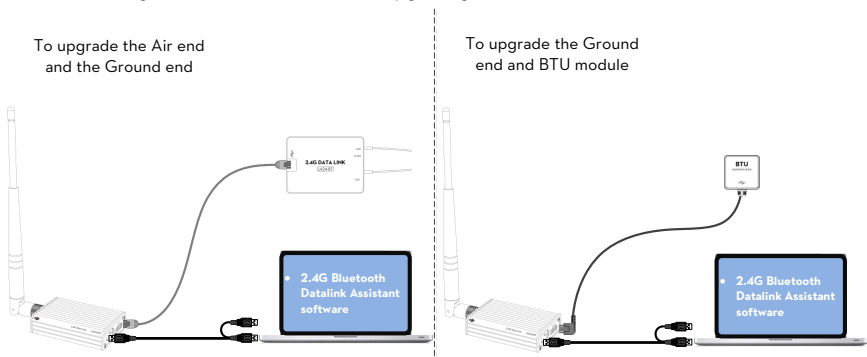
	LED		TX/RX		LINK
The Air end		● Green blinks	Sending	● Solid Green	The Air end links with the Ground end successfully
		● Red blinks	Receiving	● Solid Red	The Air end delinks with the Ground end
		● Yellow blinks	Searching the Main controller		
The Ground end		● Green blinks	Sending	● Solid Green	The Air end links with the Ground end successfully
		● Red blinks	Receiving	● Solid Red	The Air end delinks with the Ground end
		● Yellow blinks	Power voltage of the Ground end is less than 9.9V		

Notes :

- (1) LED Indicators on both ends will blink ● when powering on, then the TX/RX indicator of the Air end will blink ● when searching the Main controller.
- (2) The LED Indicators of LINK on both ends should be solid green to indicate that the two ends have linked successfully.
- (3) It's recommended to check the power voltage of the Ground end regularly when using batteries for power supply, in order to avoid over-discharging.

1.5 Upgrade

Use the 2.4G Bluetooth Datalink Assistant software to upgrade the 2.4G Bluetooth Datalink and BTU module. Please refer to the diagram below to connect when upgrading.



Important : POWER CYCLE the Flight control system and 2.4G Bluetooth Datalink after upgrade.

iPad Ground Station App

The iPad Ground Station is designed for remote flight control in applications of surveillance, aerial photography, etc., it should be used with the 2.4G Bluetooth Datalink to achieve auto flight after the setting of the routes. The application with easy usable design offers great portability and simple operation, which will provide users with an extraordinary flight experiences.

2.1 Introduction

Functions		
Map information display	Joystick mode	One key Take off/ Go Home
Flight display in real time	Single waypoint	Auto Landing
Flight simulator	Waypoints	Customized Waypoints
4 kinds of Route Template	Customized Route Template	Low voltage alert
Voice guidance function	GPS SNR Display	

Flight control systems that support the iPad Ground Station















WKM(Firmware V5.24 or above), NAZA-M, NAZA-M V2(Firmware V4.00 or above) , A2(Firmware V2.0 or above).

Important: Phantom 2 supports iPad Ground Station V1.4.58. To use the iPad Ground Station with the Phantom 2, please update the main controller firmware to V2.00 or above, update the central board firmware to V1.0.1.24 or above while the BTU firmware should be updated to V1.0.1.3 or above.

iOS Devices that support the iPad Ground Station

iPad3 , iPad4 , iPad mini , iPad mini with Retina display , iPad Air (iOS 6.1 or above)



2.2 First Time Use

First time use	Tips and Notes
1. Open your iPad and search "DJI" in the App Store to download and install the Ground Station(GS) App.	
2. Open the Bluetooth function of your iPad.	There will have popups if you forget to enable the Bluetooth
3. Connect the 2.4G Bluetooth Datalink and BTU module to the Flight control system, power on.	Please refer to the Datalink part to connect
4. Run the GS App, create an account through the Internet and login.	PC account is available to login.
5. The GS will search your Main controller and named with "NEW" , you will be asked to set a new name and a password for the Main controller.	LED in GS indicates ● ● after the GS is connected with the Main controller
6. Please read the tips text carefully after login. Open the FirstUse function to make use of the help text.	FirstUse function can be opened and closed in "More  →"Settings 
7. Enable the Flight Simulator and try out the follow functions:	(1) Flight Simulator can be opened and closed in "More  →"Settings 
 Joystick	Use the sticks on the screen to control the aircraft
 Single waypoint	Edit a single waypoint and go
 Waypoints	Use the templates  to set routes,  batch the waypoints and upload the routes, then confirm and go
 Location	Use to locate the aircraft  or the iPad 
 Auto Landing	The aircraft will land slowly
 One key Go	Default Home point is the one recorded by the aircraft
	(2) When using the GS the Flight control system will enter into GPS control mode and the aquired satellites shoule be more than 6. (3) In GPS control mode the GS control priorto the Transmitter, Users can toggle the control mode switch to other mode and back to the GPS mode quickly to get the


Home	automatically after recording conditions are satisfied	control by Transmitter.
8. Disable the Flight Simulator and power cycle the Flight control system to start real flights. Click on Joystick and you can use One key Take off to take off your aircraft		<p>(1) Please view the map of fight fields via Internet in the GS before outdoors flights, then the maps can be used off-line.</p> <p>(2) Please use the GS for real flights after you are familiar with its use and functions, Refer to all help text in the App.</p>

2.3 Using Tips

1. Customized Route Template


In Waypoints mode, users can set a route and click   to save it as a template. Users can view all the customized route templates in the template menu, slip from right to left on a template and you can choose to delete it.

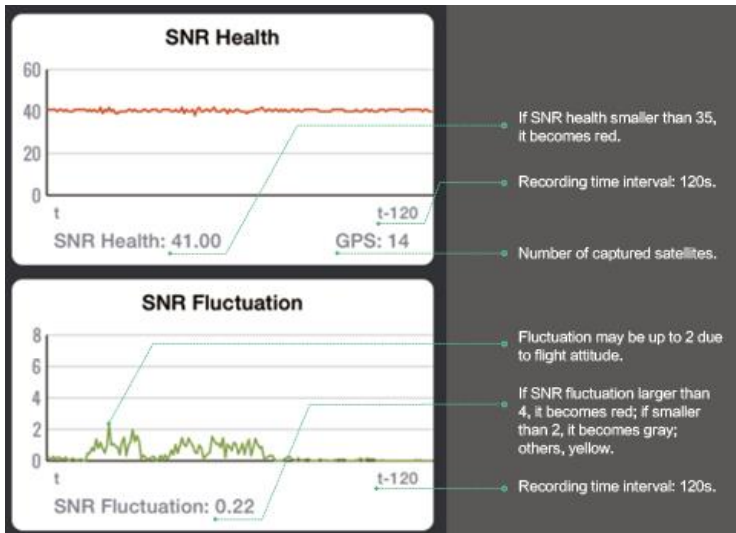
2. Capturing waypoints

In Waypoints mode, click  to capture the aircraft attitude (including longitude, latitude, height and nose pointing direction) properties to build a new waypoint during flight. This function is always available when the UAV is hovering or flying.

3. GPS SNR Display

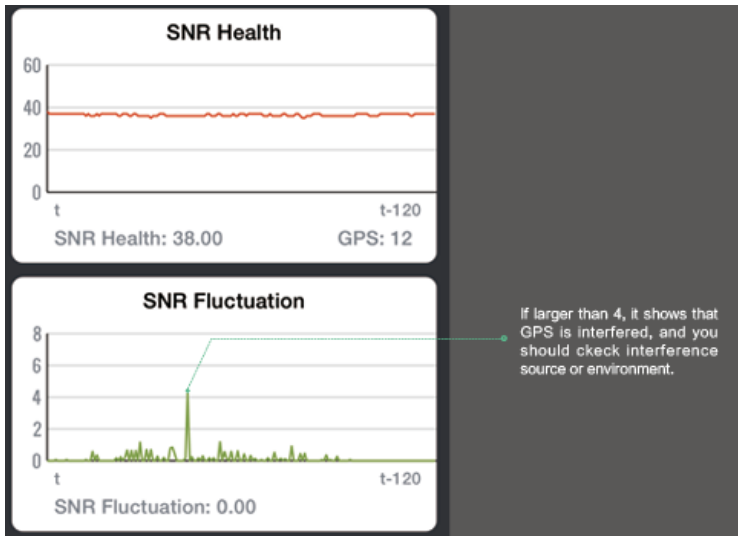
iPad Ground Station has added “SNR Health” and “SNR Fluctuation” index monitors for GPS signals. Pilots will be able to monitor GPS signal quality, ensuring they have strong and stable signals for better flight performance. By referring to these two values, pilots will be empowered to find the best locations for takeoff and flight, while also detecting areas that might interfere with GPS signals.

Click . The SNR interface provides you with “SNR Health” and “SNR Fluctuation” index monitors whose values change according to aircraft maneuvers and environmental interference.



- The “SNR Health Index” shows the GPS signal strength captured by the GPS receiver. A larger number indicates a stronger GPS signal. We highly recommend pilots only take off when the SNR health value is greater than 36.

- The “SNR Fluctuation Index” shows the overall stability of the craft’s current GPS signal. A smaller number means that the signals will fluctuate less and provide a more stable GPS signal overall.



2.4 Flight Limit of Special Areas

All UAV operators should abide by all regulations from such organizations at ICAO (International Civil Aviation Organization) and per country airspace regulations. For safety reasons, key areas have been restricted, such as:

- Within the radius of 8Km from the airport.

Users will not be able to build waypoints or Home points in designated special areas and the waypoint routines go through these special areas are invalid, and the UAV will fail to cruise to those areas.

All the special areas have been restricted are specified on the DJI official website and please refer to [Special Areas List \(http://www.dji.com/fly-safe/category-gs\)](http://www.dji.com/fly-safe/category-gs) to obtain details.

Appendix

3.1 2.4G Bluetooth specifications (Deliveries passed FCC)

Performance		
RF Data Rate	1536 kbps	
Indoor/Urban Range	≤ 350 m	
Outdoor/RF Line-of-Sight Range	≤ 2 km	
Transmit Power	≤ 125 mW	
Receiver Sensitivity (1%PER)	-94 dBm	
Power Consumption	The Ground end: ≤ 2.3 W	The Air end: ≤ 1.8 W
Features		
Frequency Band	2.4 G (2400 MHz ~ 2483 MHz)	
Serial Data Rate	115200 bps	
Antenna Options	SMA	
Operating Temperature	-10 °C ~ +60 °C	
Size (No Antenna)	The Ground end: 73 mm x 47.8 mm x 17.1 mm	
	The Air end: 49.8 mm x 36.4 mm x 11.4 mm	
Weight (with Antenna)	The Ground end: 93 g	The Air end: 32 g
Power supply		
Supply Voltage	The Ground end: 9.9 V - 25.2 V	The Air end: 6 V
Current (Transmitting signal)	0.18 A @ 12.5 V	
Current (Receiving signal)	0.30 A @ 6 V	
Regulatory Approvals		
FCC (USA)	Yes	

3.2 2.4G Bluetooth specifications (Deliveries passed CE)

Performance		
RF Data Rate	1536 kbps	
Indoor/Urban Range	≤ 200 m	
Outdoor/RF Line-of-Sight Range	≤ 1.1 km	
EIRP (Equivalent Isotropic Radiated Power)	≤ 100 mW	
Receiver Sensitivity (1%PER)	-94 dBm	
Power Consumption	The Ground end: ≤ 1.3 W	The Air end: ≤ 0.9 W
Features		
Frequency Band	2.4 G (2400 MHz ~ 2483 MHz)	
Serial Data Rate	115200 bps	
Antenna Options	SMA	
Operating Temperature	-10 °C ~ +60 °C	
Size (No Antenna)	The Ground end: 73 mm x 47.8 mm x 17.1 mm	

The Air end: 49.8 mm x 36.4 mm x 11.4 mm

Weight (with Antenna)	The Ground end: 93 g	The Air end: 32 g
Power supply		
Supply Voltage	The Ground end: 9.9 V - 25.2 V	The Air end: 6 V
Current (Transmitting signal)	0.10 A @ 12.5 V	
Current (Receiving signal)	0.15 A @ 6 V	
Regulatory Approvals		
CE (European)	Yes	

3.3 FAQ

2.4G Bluetooth Datalink Failure

The Ground Station fails to connect with the Main controller, please check the following items

- The distance between the two ends of the 2.4G Bluetooth Datalink should be more than 1.5 m.
- Make sure the Ground end is connected correctly and the LED indicator of BTU is green.

If above are ok please power cycle, while this problem continues after powering cycle, there may be hardware problems such as the Antenna is broken, please contact your authorized dealer.