# Nexus V2

## Full HD Digital Link

## User Manual V 1.0

Please read through this manual before use, thank you!

www.aomway.com

# 1. Product Introduction

Nexus V2 is equipped with high performance decoding chip and can do the most advanced low latency algorithm for HD video transmission. The whole system latency is estimated to be 70ms and reach up to 7km transmission distance, also adapt to multiple antennas for different application purposes. This digital link device enables real time aerial photography in full HD resolution.

5.8GHz high frequency comes with better anti-interference feature and guarantees high image quality. Dual signal output can do auto switch, one for 1080p micro HD camera and the other for HDin. It also has wide working voltage range 7-26V for different power supplies. The kit perfectly supports MAVLink protocol, can do overlapping display and set up for the OSD data at receiver, support both HD video recording in transmitter and receiver.

# 2. Main Features

> Resolution： Full HD input:1080p 60fps（downward compatibility）
Camera: 1080 25fps（downward compatibility）

> Auto switch frequency or manual frequency setup

> Minimum transmission latency down to 30ms

> HD camera with HD type C port, and HD type A port

> Transmitter antenna connector is MMCX,
Receiver antenna connector is SMA-jack

> Fully support all MavLink protocol flight controller, and real time display OSD data on screen, such as flight controller parameters, frequency, bit stream, transmission RSSI and recording indicator etc.

> HD recording on both of transmitter and receiver side (MP4 format and every 3min to save a recording file)

> Advance algorithm for H.264 compressed format, 20Mbps bit stream and auto adjustment

> High frequency transmission at 5.8GHz for perfect image quality

> Use TF card for firmware upgrade (by manufacturer)

> Weight: Transmitter 60g; Receiver 108g (not include the antennas)

> Working environment: 0°C- 50°C

> Dimensions：Transmitter 32x62x24mm; Receiver 93x58x17mm

> Working voltage range：DC7-26V（2S-6S battery）

## 3. Attentions!

> Please learn how to use the product before starting operation on this device, it is high precision electronic equipment, read this manual thoroughly to avoid any unwanted problems or damages.

> This high frequency transmission system will generate high heat when start to work, do **NOT** touch the product surface directly, especially when there is no good condition for cooling down the device.

> Please do **NOT** use it under harsh environments such as extremely cold, hot, dusty or humid environment, this can affect device performance or causing problems.

> As a wireless transmission system, the performance and stability to be affected by various factors, strong electromagnetic interference, basement, high altitude, or underwater environment may result in uncontrollable compromised performance.

> Here we reserve the right for improving the device performance, the contents of this manual can be updated later, please follow our newly published information on our website or online forum.

> Transmitter's antenna connector type is MMCX, and SMA connector for receiver side. Make sure all interfaces are connected firmly and verify all settings to be good prior to use the equipments.

> For long term storage, please keep the device under cool or dry, sealing preservation, and occasionally power on and check the device condition after a certain time period.

> This device is recommended to be used by people above 14 year old.

> Before purchase and use this device please observe the local regulation and laws, since all the related legal risks and consequences shall be borne by the user.

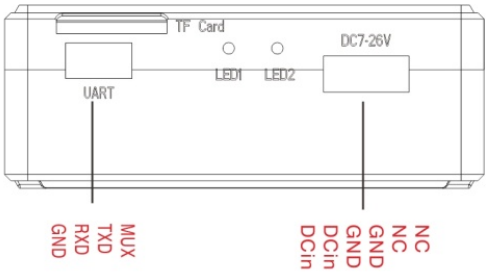
## 4. Accessories

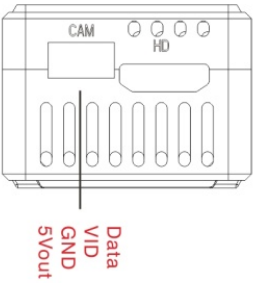
| | | |
|---|---|---|
| 1x Nexus 2 HD link | 1x HD data cable | 2x power cord |
| 1x camera link cable | 1x flight controller cable | 1x user manual |

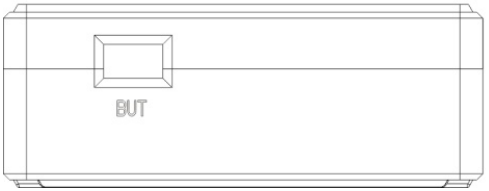
4x antennas

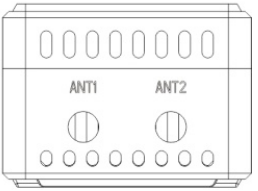
## 5. Interface diagram and button functions

> Transmitter unit：



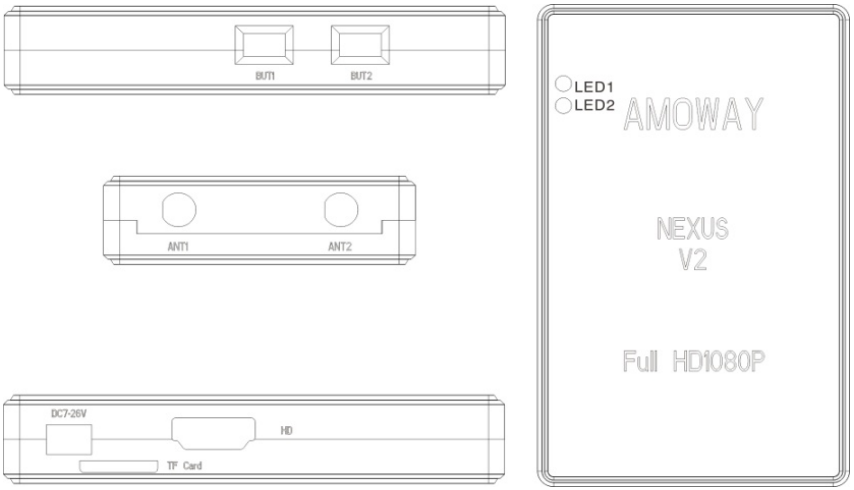




1. UART port: for connection with controller, use RX pin on transmitter to adopt flight controller's TX.
2. TF Card : for HD recording and firmware upgrade on transmitter, maximum support to 128GB.
3. LED1: Red light for indicating power/system working status.
4. LED2: Blue light for indicating data communication.
5. DC7-26V: power supply for transmitter, working voltage is recommended to be 12v and use 3.5mm DC barrel connector(inner plus outer minus type).
6. CAM: for camera connection, up to 1080P 25fps.
7. HD: HD type C connector， max support to 1080P 60fps or below.
8. BUT: press button (inactive, to be determined).
9. ANT1,ANT2: transmitter antenna port type as MMCX.

> Receiver unit（for ground base station)：




1. BUT1: Long press 3s to display menu options (long press 3s to save settings and quit menu).
2. BUT2: downward selection only (cycle operation).
3. ANT1 ,ANT2 :receiver's antenna port as SMA-JACK type.
4. DC7-26V: power supply for receiver（3.5mm DC barrel connector, inner plus outer minus type）.
5. TF Card：for HD recording and firmware upgrade on receiver, maximum support to 128GB.
6. HD: HD type A connector for output video signal.
7. LED1: yellow light for indicating power/system working status.
8. LED2: blue light for data communication.

## 6. Digital HD Recording Function

> Must turn off the power on device when insert or withdraw the TF card to avoid damage to the device.

> This device can only record HD video signal, the overlapping OSD data info cannot be recorded.

> The recording file is in MP4 format, cannot do playback function on this device. When the TF card is inserted, the device will auto save one file in every 3mins. (File name recorded as: AOM01,02, 03…)

> Recommended to use high speed TF card (SDC10), when device starts to record, a REC icon will display on the screen.

> When the TF card is full or there is a card error, the recording process will be stopped

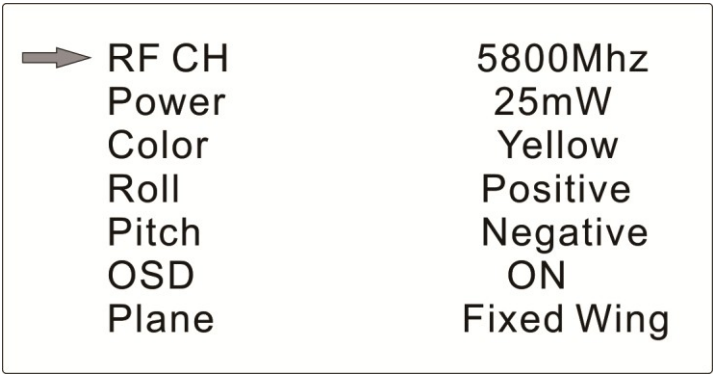
## 7. Digital HD Link Operation

> Transmitter and Receiver unit already bind together (factory setting). Manual re-binding process:
Firstly, power on the receiver and then press BUT2 key for 10s, waiting LED1 and LED2 slow flash (one flash per second), and then release the key, it will enter into binding status. Secondly, power on the transmitter and press BUT key for 10s, waiting both LED indicator to do slow flash, and then release the key, it will enter into binding status. When both LED lights on transmitter and receiver start to quick flash, it means binding process is completed, now you will need to restart the transmitter and receiver for normal use.

> The blue LED light on Transmitter and Receiver is made for data communication status. Quick flash indicates normal status; slow flash (one flash in 3s) indicates no signal input; LED light off for malfunction and data communication is ended.

> Once the binding process is finished, restart the device will still keep the link.

## 8. Menu Selection




Long press BUT1 key for 3s to enter or quit menu, short press will change settings. Short press BUT2 will do downward selection of menu option (cycle operation).

> RF CH: Channel/Frequency selection (AUTO for automatic selection).

> Output Power Levels: 1mw/25mm/200mw/500mw.

> Color：change OSD info color option（red/white/yellow/black/green /blue）.

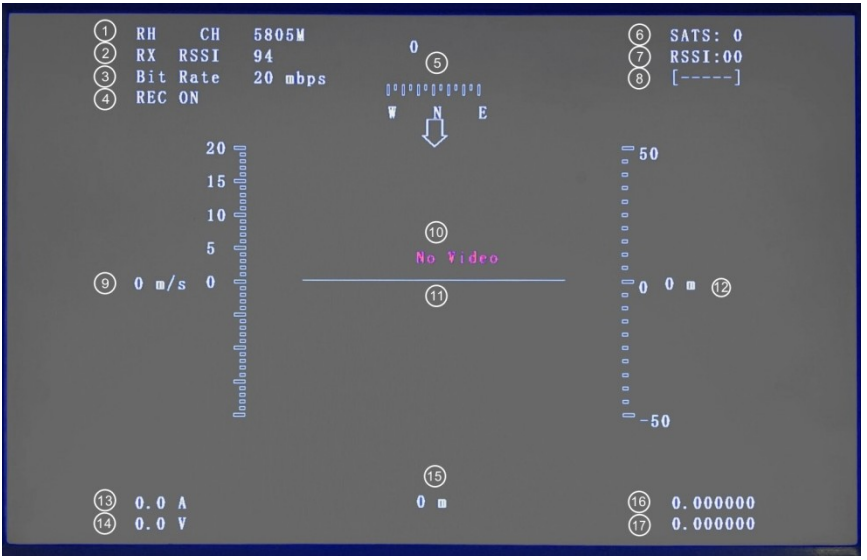
> Roll：cooperating with Radio controller（when direction is reversed）.

> Pitch：cooperating with Radio controller（when direction is reversed）

> OSD: flight controller OSD data info on/off switch。

> Plane：select your aircraft type: fixed wing or FPV racing drone.

## 9. Flight Controller Interface




1. Current working frequency
2. Real time video signal strength
3. Bit stream（image quality）
4. Receiver recording indicator
5. Flight course angle
6. Current GPS satellite numbers
7. Radio controller signal strength
8. Flight mode (flight controller)
9. Numbers indicating IAS；
10. TX and RX signal connection
11. Flight attitude
12. Flight altitude
13. Transmitter current
14. Transmitter voltage status
15. Distance from start point
16. Longitude
17. Latitude

## 10. Firmware Upgrade

Manufacturer will upgrade the firmware version later. The upgrade zip file can be provided to users when it is available. Firmware upgrade steps: firstly download the zip file to the TF card, and then insert the card to the device card slot. Power on the device, the upgrading process will start automatically. During the process, the blue LED indicator will do quick flash. When the upgrade process is finished, the LED indicator will stay solid on. After the upgrading, will need to restart the device for normal use.

## 11. Trouble Shooting

> No image：

1. Verify if the power supply is connected well and check the LED power indicator is solid on.
2. Verify if the HD data cable is in good condition.
3. When the OSD data info is display on screen but no image, please verify if the video signal input to transmitter is normal.
4. Check the LED indicator for connection status. Quick flash indicates data communication is normal, slow flash indicates no signal input; light went off means there is malfunction and causing disconnection.

> Poor signal/close transmission distance:

1. Please check if there is other radio transmitting equipment nearby before use this device, FPV user needs to manually select other frequency or to avoid to use the same frequency at the same location.
2. Please avoid to use this device at railway, airport, military area, radar station, power plant or other high magnetic field.
3. Make sure both of the antenna and receiver's SMA connector is in good condition and antenna is installed correctly on the device.
4. This device should be used in open area, shall avoid any signal block caused by mountain, house, trees or other obstructions between transmitter and receiver.
5. Make sure all antennas set in LHCP or RHCP type, no mixed use.
6. Suggest the antennas on transmitter side to be mounted as 'V' shape.
7. Check if the output power level has been set to maximum, or you can

try to do manual selection on other frequency.

> Signal Source:

1. This device recognizes the signal source automatically, when HD input is available then give the priority for HD signal.
2. Most HD connection issue is caused by the data cable. Recommended to try alternative HD signal source or change to a good quality HD cable.
3. Please choose a HD display device with lowest latency, HD cable shall be in good condition.
4. Make sure all cable connection is done well before power on the device.

> OSD data is sent from flight controller, so if want to display the OSD info on screen, the connection shall be done well between the transmitter and flight controller.