

Nest WPT Manual

Version 1.0

1. Overview

Nest WPT is an image transmission module with 2.4G ISM communication and WPT designed and manufactured by Autel Robotics Co., Ltd.

The module is developed based on the NORDIC nRF24L01+ technology platform and GD32F303 main control unit.. The module provides the function of automatically and manually selecting frequency bands, and has super anti-interference ability.

2. Characteristics

Single power supply

Full industrial grade components to meet the harsh working environment

Product size is small and easy to integrate Specification

Functions and Parameters:

Parameter	Specification
MCU	GD32F303
Frequency	2.4G ISM:2402MHz~2480MHz WPT:160-205kHz
Channel separation	2.4G ISM: 2MHz
Channel number	2.4G ISM: 40 channels
Modulation	2.4G ISM: GFSK WPT: ASK
Antenna	2.4G ISM: Rod Antenna WPT: Coil Antenna
Power Input	48V
Power Output	DC 17.1V/19A (Max.)
Power Output Mode	CV
Changing Distance	10 ~ 15 mm (Tx Coil to Rx Coil)
Horizontal Freedom	± 5 mm
Typical Efficiency	$\geq 87\%$
Standby Power	0.8W Max
Protection Function	OTP, OVP, OCP, FOD
Over-Temperature Protection	Tx: 109 °C Rx: 99 °C
Over-Voltage Protection	> 17.8V

Over-Current Protection	> 20A
Cooling Method	Passive Cooling
Wireless Charging Communication Method	Out-Band Communication
MCU Communication Interface	Tx: RS485 Rx: UART
Communication Protocol	Modbus RTU
Operating Temperature	-35°C~55°C 99% No condensation
Operating Humidity	10 ~ 85% RH (Non-dewing)

Dimension

Item	Specification
Control Board	90 × 68 × 27.8 (mm)
Input Interface	HRB M20036S-2X6-1-B
Coil Interface	HRB A-M63505WF-1X2-W
Antenna Interface	ECT 818052682
NTC	100K/ 3950/ 1%/ AWG26/ L=200
NTC Interface	HRB M20033S-1x2-SR-B
Coil Module Interface	HRB A-M63501WF-1X2-W
Coil Module	OD80 × 7.0max. (mm), L = 550 (mm)
Net Weight	180 (g)

4. IC STATEMENT

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device

Cet appareil contient des émetteurs / récepteurs exemptés de licence conformes aux RSS (RSS) d'Innovation, Sciences et Développement économique Canada. Le fonctionnement est soumis aux deux conditions suivantes :

- (1) Cet appareil ne doit pas causer d'interférences.
- (2) Cet appareil doit accepter toutes les interférences, y compris celles susceptibles de provoquer un fonctionnement indésirable de l'appareil.

IC Radiation Exposure Statement

This equipment complies with radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

FCC Statement

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radiocommunications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

WIFI Antenna:

Dongguan YiJia Electronics Communication Technology Co.,Ltd./ 多旋翼机巢二代

/YJI01.005.117.101A:

3.8 [dBi@2.4-2.5GHz](#)

0.3 dBi@5.15-5.85GHz

Image transmission Type 1:**MINI Fakra :**

Dongguan YiJia Electronics Communication Technology Co.,Ltd./ YJI01.005.122.304A:

3.2 dBi@550-690MHz

0.9 dBi@1420-1510MHz

4.2 dBi@2.4-2.5GHz

4.7 [dBi@5.15-5.85GHz](#)

Image transmission Type 2:**MINI Fakra :**

Dongguan YiJia Electronics Communication Technology Co.,Ltd. / YJI01.005.122.310A:

2.2 dBi@860-928MHz

2.4 dBi@1420-1510MHz

2.7 dBi@2.4-2.5GHz

5.0 dBi@5.15-5.85GHz

RTK Antenna:

MINI Fakra:

Shenzhen Kinvey Communication Technology Co., Ltd./ PM391

BDS: B1/B2/B3

GPS: L1/L2/L5

GLONASS: L1/L2/L3

GALILEO: E1/E5a/E5b/E6L-BAND

Gain: ≥ 5.5 dBi