GENEINNO

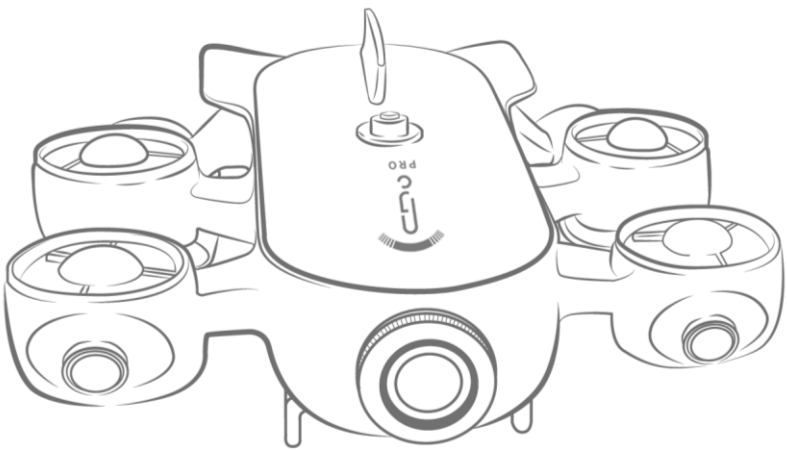
Geneinno Intelligent Robot T1 Pro

Product Name：Under water robot

Model Name：T1 Pro

User Manual

V1.0.1　2020.12



Shenzhen Geneinno Technology Co., Ltd
www.geneinno.com

Disclaimer

1. Collisions and burns occurred not caused by product quality issues;
2. Damage caused by unauthorized modification, disassembly, and main shell opening; Any violations of the official instructions result in injury, disease or property loss of the user;
3. Damage or leaking water caused by incorrect installation, usage and operation not following the user manual instructions;
4. Damage caused by the customer's self-repair, assembly and installations not following official instructions;
5. Damage caused by unauthorized circuit modifications, improper use of battery packs, non-standard chargers;
6. Any damage caused by improper diving activities and underwater filming not following user manual instructions;
7. Damage caused by application in harsh environment, such as in strong current, against big waves and etc.;
8. Damage caused by applications in a complex electromagnetic environment or near strong interference source, such as mining areas, transmission towers, high-voltage lines, transformer substations and etc.;
9. Device malfunctions caused by applications when interfering with other wireless devices, such as high-power transmitter, image transmission device, Wi-Fi signal interference and etc.;
10. Further damage caused by usage when the parts are aged or damaged;
11. Damage caused by reliability and compatibility issues when used with non-certified third-party components;
12. Damage caused by insufficient discharge when the battery capacity is low, or using battery with quality issues;
13. Failure or damage caused by third-party products, including products provided or embedded into T1 Pro by GENEINNO at your request;
14. Damage caused by unofficial technology or third-party guidance, such as incorrect product settings, installation, and firmware upgrades;
15. Problems caused by operations in sensitive areas (military bases, nature reserves, marine conservation bases and etc.);
16. Damage caused by force majeure, such as operation in dark currents, cave collapse, animal hunting and etc.;
17. Products or parts which labels or identification codes have been replaced or deliberately daubed;
18. Water droplets or water marks may appear on the product. These may be caused by testing after production, and they will not affect the use of the product.

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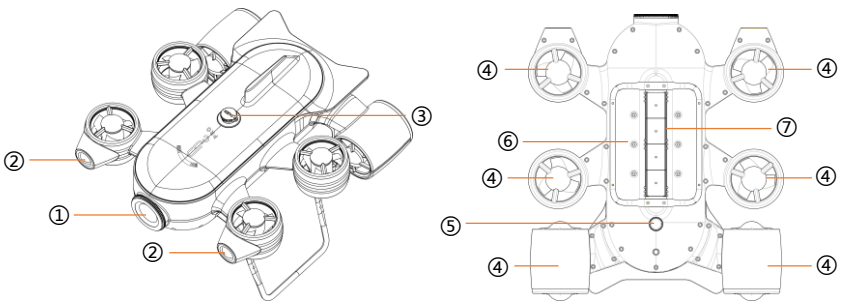
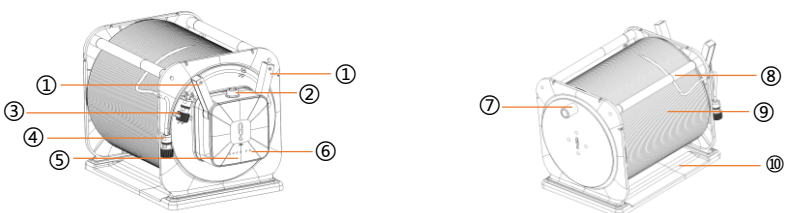
I. Introduction

Geneinno T1 Pro is a light industrial-grade intelligent underwater robot able to dive to 175m depth. CarriedA17/A7 dual cores CPU, support H264/265 ultra-HD 4K video codec, built-in 12-million-pixel class professional camera, 3000lm led fill light in front. built-in dedicated image processing DSP, significantly improve the graphics processing capabilities of various scenes, meantime, the whole machine apply industrial-grade waterproof solution. Max speed underwater is 2m/s. With 2 lateral thrusters, 4 vertical thrusters, Using closed-loop control algorithm, can effectively achieve 360° full attitude motion control, apply functions such as underwater hovering, self-balancing, tilting, fixed depth and orientation, and one-button floating. Has a strong anti-current ability to handle with complex environments. Built-in large-capacity lithium battery guarantees long operating hours. Geneinno T1 Pro also supports omnidirectional scanning sonar, water quality detector, laser ruler, etc. peripheral devices, meets requirements including aquaculture, hull inspection, underwater sampling, salvage, rescue and various underwater exploration and operation.



① Camera ② LED light ③ Signal/ Charging port
④ Thruster ⑤ Extension port ⑥ Drainage hole
⑦ Multifunctional slide (for install balancing weights, manipulators and other accessories)



① Wireless relay antenna ② Signal/Charging port ③ Wireless relay connector
④ Host connector ⑤ Battery indicator ⑥ Connection status indicator
⑦ Winding handle ⑧ Cable winder support rod ⑨ Buoyancy cabl
⑩ Support chassis

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Safety Guide

1. Please use our product in open water and in an environment with relatively clear water quality. Try to avoid operating in an environment with too many aquatic plants, too turbid, or very complicated underwater structures.
2. Make sure there are no dense radio devices or huge metal objects around the wireless relay and turn on the antenna correctly to avoid affecting the reception of the wireless relay signal.
3. Please use the official standard charger to charge, please charge in time after the battery is alarmed, and do not completely use up.
4. After use, please rinse with fresh water and dry in time to avoid seawater corrosion, and store in a dry and ventilated place.
5. The host is designed with positive buoyancy before installed buoyancy material. It is recommended not to install buoyancy material in fresh water, in seawater can be installed buoyancy material, please adjust the installation position according to the actual balance of the host, subject to the best balance the host can achieve
6. The wireless relay is designed as low-grade waterproof standards, please do not use it directly in water or wash it directly with water.
7. Before using/charging, please check all waterproof connectors if any liquid left such as water, please make it clear before connect. It is recommended to connect the wireless relay first, then connect to the host, the system will boot, when finish using, only needs to disconnect the cable and the host.
8. Please carefully check the motor and propeller make sure it clear before use, do not put your fingers or other body parts into the thruster net cover when the product is working, please clean the surface attachments of the motor and propeller after the machine is off, and wash with fresh water.
9. Aged 16 and below must be under surveillance of adults when use this product, please control the speed while using, avoid excessively fast movement in case scratches or damage equipment.
10. Do not place heavy objects on this product, do not expose it to the sun, and do not store it in a very humid/corrosive environment.
11. Please connect the host and the wireless relay and connect to the APP, follow the instructions to calibrate the compass, and check that the video, data transmission and control are normal, then put it in the water. According to the use environment, should set sea water or fresh water in the APP to avoid affecting the water depth data.

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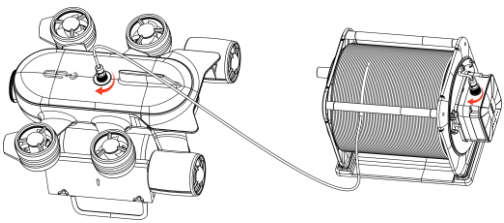
II. User Manual

1. APP Download

Android **IOS**

- Scan QR code to download “Geneinno” APP.
- Open APP, Please register as a Geneinno member and log in.
- Search "Geneinno" in IOS APP Store or Google Play to download our APP or visit "www.geneinno.com" to download APP from "Support/APP Download" for Android phones.

2. Start



- Connect the two ends of buoyancy cable separately to T1 PRO and the wireless relay, and then tighten the fastening nut.

Note: Check whether the O-ring on the waterproof connectors missing or damaged. If missing or damaged, please replace it in time.

Device Connect：

- Open APP choose T1 Pro, click “Device not connected” icon, jump to the Wi-Fi setting page, find and connect the Wi-Fi named GENEINNO-5G-XXXX/GENEINNO-XXXX, default code is: 88886666
- After Wi-Fi connected, back to APP main interface, click “Device connected” icon to enter the control interface.

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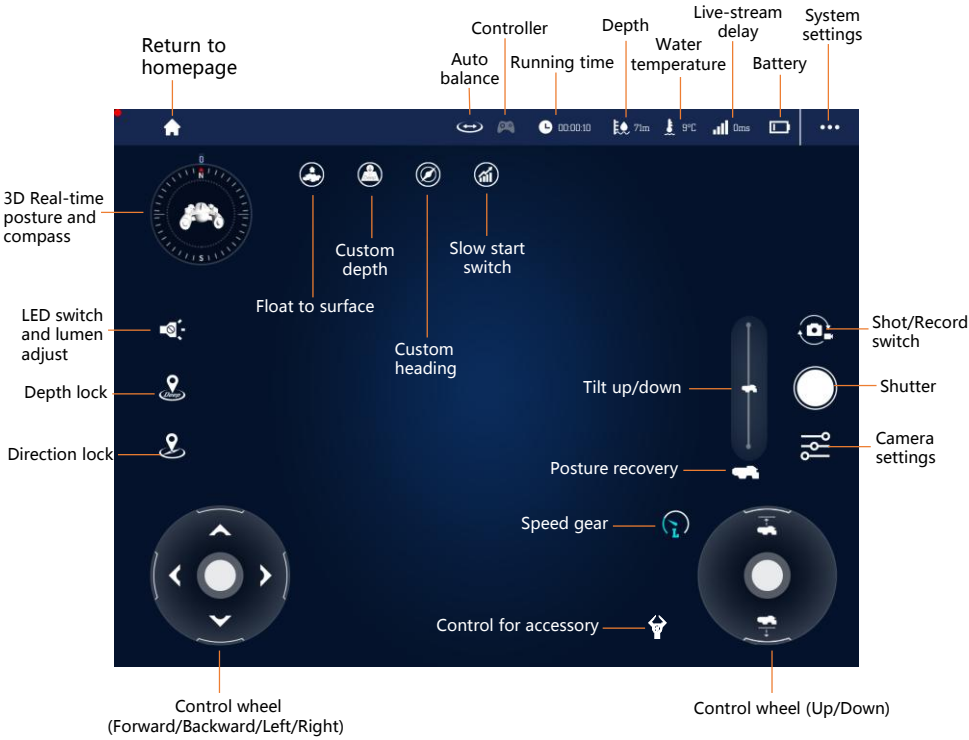
3.Device Operation



- Operate via the virtual joystick and function buttons on the APP control page.
- Detailed APP operating instructions can be viewed in the "Beginner Help" of APP or download the latest version of the operating instructions on the official website of Geneinno.(www.geneinno.com)

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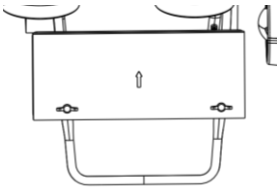
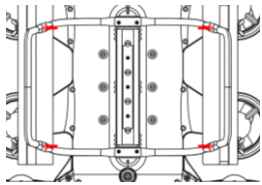
III. T1 Pro Special Accessory Guideline

Accessory Buoyancy Block Installation





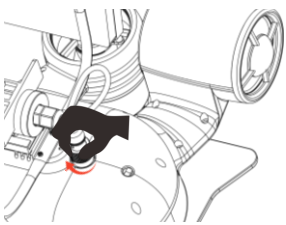
① ②

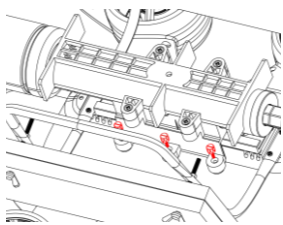
① Align the mounting hole with the hole on bracket, with the arrow of buoyancy block upward.

② Install the wing screw through the hole, insert from the outside to the inside, and tighten the nut by hand.

Note: External battery needs 4 blocks; other devices do not need to install buoyancy blocks.

Underwater Gripper





① ②

Installation

① Match the mounting bracket of the underwater gripper to the mounting hole at the bottom of the host, and fix with screws.

② Insert the connector of the underwater gripper into the extension port, and tighten it clockwise.

Device

After underwater gripper plugged in, APP will automatically identified and showing the icon on the interface, it can operate by click the icon.

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Lateral Thruster

Installation

① Unscrew the sealing metal cover of the extension port of the intelligent underwater robot counterclockwise. Match the slot of thruster to the slide rail in the bottom of the host, slide the thruster according to direction indicated by the arrow.

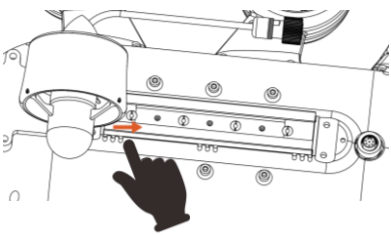
② Fix by screws when it is in right position.

③ Insert the connector of the thruster into the extension port . Tighten it clockwise.

Note: The connector has an anti-reversal insertion design, please pay attention when inserting, please do not rotate when inserting, to avoid damage to the pin and its internal structure.

Using

- **Install and connect the Lateral Thruster to underwater robot first, and then power on the robot. Use a tablet or smart phone to connect, and enter the control page in the Geneinno APP.**
- **Operate the right joystick to control the horizontal movement, the left and right direction is the movement direction of the T1.**



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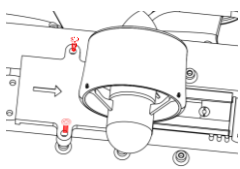

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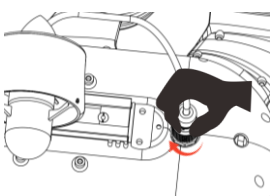

③

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External Battery with LED

Installation

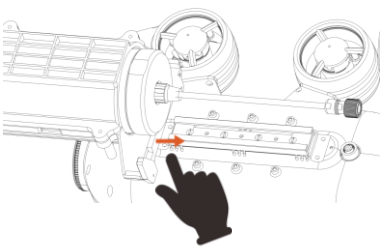
① Unscrew the sealing metal cover of the waterproof connector of the intelligent underwater robot counterclockwise. Match the slot of battery to the slide rail in the bottom of the host. Slide the battery according to direction indicated by the arrow.

② Push the tail lock to the right to lock the position of the support, the bearing does not move back and forth.

③ Push the lock in place, install the screws to locate.

④ Insert the connector of the battery into the waterproof connector. Tighten it clockwise.

Note: The connector has an anti-reversal insertion design, please pay attention when inserting, please do not rotate when inserting, to avoid damage to the pin and its internal structure.



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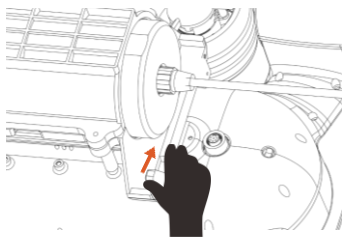

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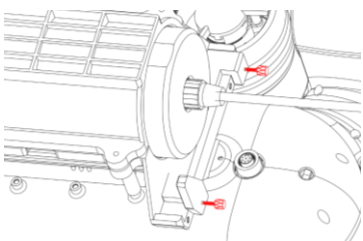

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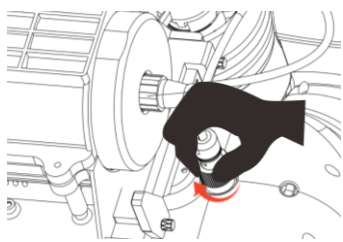

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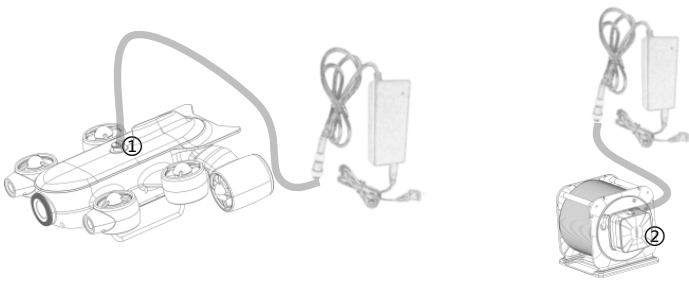
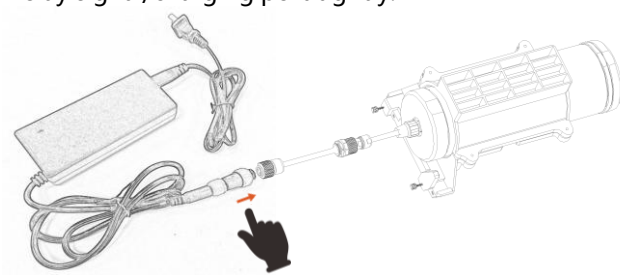
IV. Recharge Guideline

- You can check the battery information of the host on the operation interface, also can be checked by the battery indicator light on the wireless relay. Please charge in time when the battery is low, use the standard charger and connector to charge the host, charging time is about 3 hours, wireless relay is about 2 hours. The indicator on charger showing red light when it' s charging, turn green when it finish charge.
- Charging should be in the dry place on shore, please do not let the charging connector come into contact with water.
- Please use the standard dedicated charger to charge the external battery.



① Underwater robot Charging: Connect the charger connector to the host signal/charging port tightly.

② Wireless Relay Charging: Connect the charger connector and the wireless relay signal/charging port tightly.



③ External Battery with LED Charging: Connect the charger connector to the external battery connector with the special charger tightly. For charging the external battery with LED, please use the standard dedicated charger only.

Note: The special charger for external batteries can only charge external batteries, and is not allowed to charge any other devices.

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V. Specification

Host	
Weight	4.4kg
Dimensions	390×347×165 mm
Max Depth	175m (Fresh Water)
Max Speed	2m/s
IMU	6 axis gyro & accelerometer+3 axis Compass
Depth sensor Precision	± 0.2m
Temperature Sensor Precision	±0.5℃
Degrees of Freedom	Forward/back, rise/fall, turn left/right, roll, pitch, sway (by extra propeller, changeable speed)
Number of Thruster	6
Data Storage	128GB
Battery Capacity	10.8V/9000mAh/97.2Wh
Max Dive-time	≥4 H
Charing Time	3 H
Camera	
CMOS	12M 1/2.3 inches SONY CMOS
Lens	IRIS: F2.5 FOV: 160°
White Balance	3000K~8000K
Video Resolution:	4K
Frame Rate	4K UHD:4000*3000 30fps; 1080P FHD: 1920*1080 60fps
Video Format	MP4(H264/H265)
Photo Format	JPEG
Lumens	2*1500 LM
Cable	
Cable Work Strength	55kg/220lbs
Length	200m/300m
Diameter	4.5mm

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Wireless Relay	
Wi-Fi Frequency	5GHz+2.4GHz
Antenna	Dual antenna
Battery Capacity	10.8V/3200mAh/34.56Wh
Working	6H
Charging Time	3H
App Operation	
OS	IOS 9.0 or above and Android 5.0 or
Underwater Gripper	
Gripping Force	6kg/60N
Maximum Opening Distance	60mm
Total Length	559mm
Length	397mm
Weight	660g(air) 120g(water) Note: with buoyancy material
External Battery with LED	
Dimensions	472mm*φ36mm
Weight	1650g(air), 400g (water)
Battery Parameters	4400mAh/97.68Wh/22.2V
Battery Life	4h
Charing Time	6h
Lateral Thruster	
Dimensions	112mm*φ78mm
Weight	205 g
Maximum thrust output	1.2kg
Maximum Current	3.8A

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VI. Maintenance

1. After each use in sea water, please soak the underwater robot in fresh water for at least 1 hour and run it in fresh water for 10 minutes
2. Keep each port and connector dry and clean, always tighten the protective cover if necessary. Salt and humidity will corrode the conductors of the connectors. Please wash with running water, and use absorbent cotton or handkerchief to wipe off the excess water.
3. After each use, check whether the propeller is entangled with seaweed, fishing line and other foreign objects. Start the fuselage and check whether the propeller can rotate normally.
4. Rinse the sand and gravel regularly, soak the underwater robot in fresh water for at least one hour, and shake the underwater robot upside down to drain the sand and gravel from the drainage holes until clear water flows out.
5. Check the buoyancy cable regularly. If it is found to be worn or broken, please replace it in time.
6. Please store the underwater robot in a dry environment with a temperature range of -20°C to 70°C.
7. If you need to store the machine for a long time, please keep the battery level between 50%-60%. Please keep the battery level between 50% and 60% if you charge it every 90 days. If the storage time is more than 90 days, you must recharge it. If you don’t charge it in time, it may cause the battery to be over-discharged and damaged. This kind of damage is unrecoverable.

After-sale service

More information please check in Geneinno APP Help selection.
If you need other after sales support or technical issue, please contact support@geneinno.com or check our website “Service & Support”, https://www.geneinno.com/support
This manual is subject to update without prior notice

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FCC Caution.
§ 15.19 Labeling requirements.
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, and (2) this device must accept any interference received, including interference that may cause undesired operation.
§ 15.21 Changes or modification warning.
Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
§ 15.105 Information to the user.
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 radio communications. 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 an be determined by turning the equipment off and on, the user is encouraged to try to orrect 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 minimum distance 20cm between the radiator & your body.

-EUT Operating temperature range: -20°C to 70°C .
Thedevice complies with RFspecifications when the device used at 5mmfrom your yourbody.
Riskof explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.
Adaptershall be installed near the equipment and shall be easily accessible.
Adapter：
The plug considered as disconnect device of adapter
Input: AC 100-240V, 50/60Hz,
Output:DC12.6V5A
Declaration of Conformity
Ying Tai Electronics Co., Ltd hereby declares that this GSMMobile Phone is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. This product is allowed to be used in all EU member states.

The manufacturer ensures that the frequency stability of this U-NII device can maintain transmission within the operating frequency band under all normal operating conditions.