VT-TAB10-RK66

Hardware User Manual

Product Version: 1.0

Date: 2021-1-7

Vantron

For any question, please contact Chengdu Vantron Technology, Ltd.

Change History

This table describes the version and release date.

Rev.	Date	Description	Author
1.0	2021-1-7	First release.	Shun Zhang

Foreword

Copyright

While all information contained herein have been carefully checked to assure its accuracy in technical details and printing, Vantron assumes no responsibility resulting from any error or features of this manual, or from improper uses of this manual or the software. Please contact our technical department for relevant operation solutions if there is any problem that cannot be solved according to this manual.

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Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Type	Description
	Notice	Important information and regulations
	Caution	Caution for latent damage to system or harm to personnel

Statement & Disclaimer

It is recommended to read and comply with this manual which provides important guidance and helps decreasing the danger of injury, electric shock, fire, or any damage to the device.

Vantron assumes no legal liability of accidents resulting from failure of conforming to the safety instructions.

Limitation of Liability/Non-warranty

For direct or indirect damage to this device or other devices of Vantron caused by failure of conforming to this manual or the safety instructions on device label, Vantron assumes neither warranty nor legal liability even if the device is still under warranty.

The device should be installed, debugged and maintained by professionals.

The outside antennas are not permitted to be installed or to be changed by non-professionals. To run the device normally, only specified antennas are approved to be assembled together by professionals.

Unit shall be used with indoor-use antenna only. No antenna for this unit can be installed outdoor.

Safety Instructions

- ✧ Keep and comply with all operation instructions, warnings, and information.
- ✧ Pay attention to warnings on this device.
- ✧ Read the following precautions so as to decrease the danger of injury, electric shock, fire, or any damage to the device.
- ✧ Operations and service instructions are provided with the equipment.
- ✧ Unit shall be used with indoor-use antenna only. No antenna for this unit can be installed outdoor.
- ✧ The maximum operation temperature is 45°C.

Precautions

- ✧ Pay attention to the product labels/safety instructions printed on silk screens.
- ✧ Do not try repairing this product unless declared in this manual.
- ✧ Keep away from heat source, such as heater, heat dissipater, or engine casing.
- ✧ Do not insert other items into the slot (if any) of this device.
- ◆ Ensure ventilation of the ventilation slot.
- ◆ System fault may arise if other items are inserted into this device.
- ✧ Installation: ensure correct installation according to instructions from the manufacturer with recommended installation tools.

✧ Ensure ventilation and smoothness according to relevant ventilation standards.

Safety Instructions for Power Cables and Accessories

⚠Use Proper power source only. Start only with power source that satisfies voltage label and the voltage necessary according to this manual. Please contact technical support personnel of Vantron for any uncertainty about the requirements of necessary power source.

⚠Use tested power source. This product still contains a button lithium battery as a real-time clock after its external power source is removed and therefore should not be short-circuited during transportation or placed under high temperature.

⚠ Place cables properly: Do not place cables at any place with extrusion danger.

⚠**Cleaning Instructions**

✧ Please power off before cleaning the device.

✧ Do not use spray detergent.

✧ Clean with a damp cloth.

✧ Do not try cleaning exposed electronic components unless with a dust collector.

✧ Support for special fault: Power off and contact technical support personnel of Vantron in case of the following faults:

- ➢ The device is damaged.
- ➢ The temperature is excessively high.
- ➢ Fault is still not solved after operations according to the manual.

Contents

1 Introduction

1.1 Product Description

Vantron offers both ARM and ATOM based Single Boards Computer (SBC) platforms including Cirrus Logic EP9315, RockChip RK3128, RK3368, RK3288, RK3399, Freescale iMX6, iMX8, TI OMAP35xx CortexA8 series, and Intel Skylake and ApolloLake processor boards. In additional to offering the standard SBCs, we also provide professional customization board design services. Our seamless project management, efficient error-free development process, strong fundamentals in technology, sufficient in human resources, and on-time delivery will guarantee the success in your project development.

Based on idea of “Application Ready” products and services, our embedded computers have embedded basic operation system which includes the drivers of its interfaces. So it is easy to be used by adding your application software only. It can speed Time to Market of your products, and save more cost.

1.2 Connector Description

This table respectively describes the valid signal of connectors on the Vantron board.

N/C	Not connect
GND	Ground
/	Active low signal
+	Positive of difference signal
-	negative of difference signal

I	Input
O	Output
I/O	input/output
P	Power or ground
A	Analog
OD	Open drain
CMOS	3.3 V CMOS
LVCMOS	Low Voltage CMOS
LVTTL	Low Voltage TTL

3.3V	3.3 V signal level
5V	5 V signal level
USB	5 V tolerant signal
PCIe	PCI Express signal, not 3.3 V tolerant
NC	No Connection

2 Overview

2.1 Introduction

VT-TAB10-RK66 is a tablet computer designed for entertainment application. This product is based on RK3566 which has Quad-cores and one of them is Cortex-A55 with a maximum clock frequency of 1.8GHz, supporting 10.1" LCD and capacity touch screen.

2.2 Feature

Specification		
System	CPU	Rockchip RK3566, Quad core, ARM Cortex-A55, 1.8GHz (Max)
	GPU	Mali-G52
	Memory	4GB
	Storage	32GB 1 x Micro-SD Slot, up to 128GB
Communication	Wi-Fi & Bluetooth	Wi-Fi 802.11 ac/a/b/g/n + BT 5.0
Media	Display	10.1" IPS TFT LCD Resolution: 1280x800 Brightness: 280cd/m²
	TP	10-point capacitive touch screen
	Camera	Front camera: 5MP, fixed focus Rear camera: 8MP, auto focus
	Audio	1 x 3.5mm combo audio jack 1 x 1W/8Ω Speaker 1 x Mic
I/Os	USB	1 x USB 2.0 Type-A 1 x USB 2.0 Type-C (USB OTG supported)
	Button	1 x Power on/off 1 x Volume -/+
	SIM slot	1 x Micro-SIM slot
Sensor	Light sensor	Optional
	Proximity sensor	Optional
	G-Sensor	Supported
Clock	RTC	Supported
Software	OS	Android 11, GMS certified
Power	Input	Type-C USB power input, 5V/2A DC (Default) (9V/2A DC fast charge supported)
	Battery	Single Li-ion battery: 8000mAh/3.8V
	LED	Yellow: Charging Red: Low power Green: Charged
Mechanical	Dimensions	255 x 161.5 x 13.2mm

Environment Condition	Temperature	Operating: 0℃~+45℃ Storage: -20℃~+45℃
	Humidity	Operating: RH 20%-80% Storage: RH 20%-80%
	Certification	FCC (Part 15 Class B) ESD (contact: ±4KV and air: ±8KV)

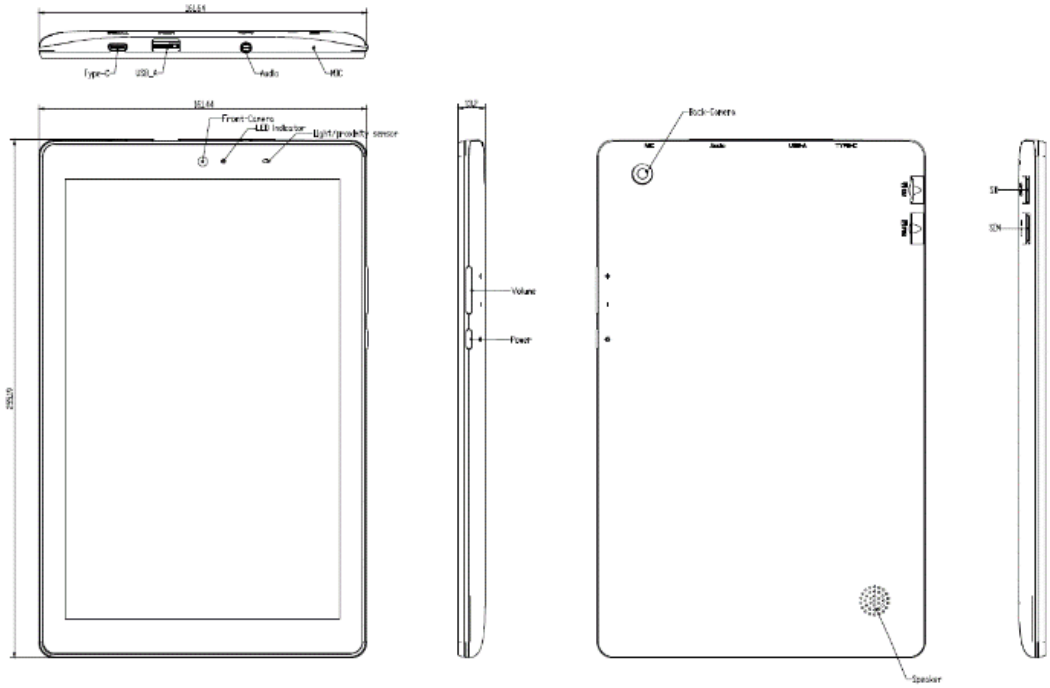
2.3 Order Information

Order Info	-x	-xx	-xxx
M10 Pro	-2: NFC supported -1: NFC not supported	-x2: Light/proximity sensor supported -x1: Light/proximity sensor not supported	-xx2: 9V/2A fast charge -xx1: 5V/2A standard charge
Example	M10 Lite-221: 2GB DDR and Wi-Fi ac/a/b/g/n & BT5.0, 4000mAH battery M10 Pro -112: No NFC, no light/proximity sensor, but 9V/2A fast change		

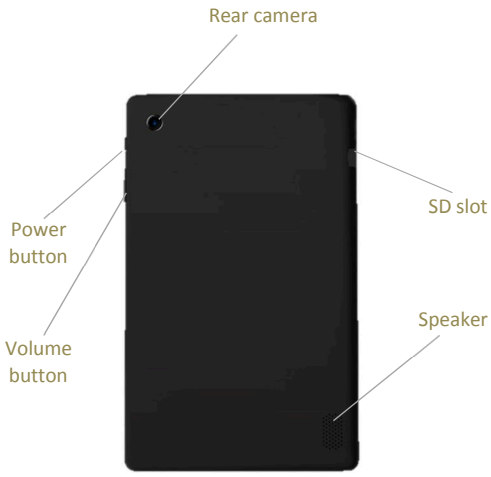
3 Hardware Instructions

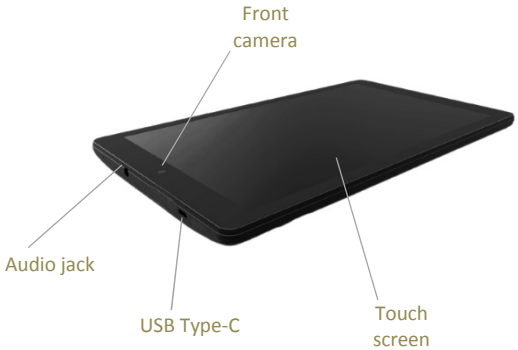
3.1 Appearance

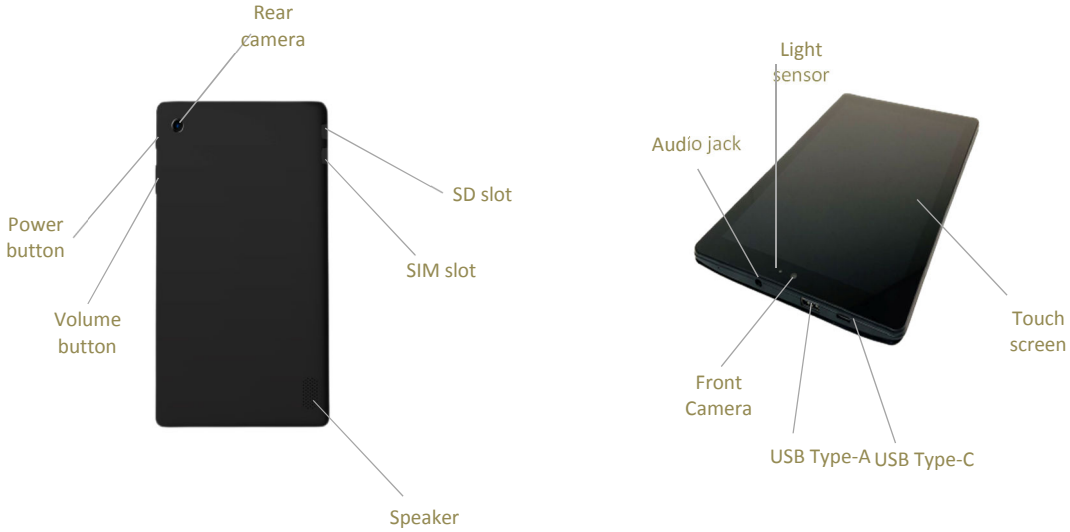
Figure 3-1 Views



3.2 Interface Description





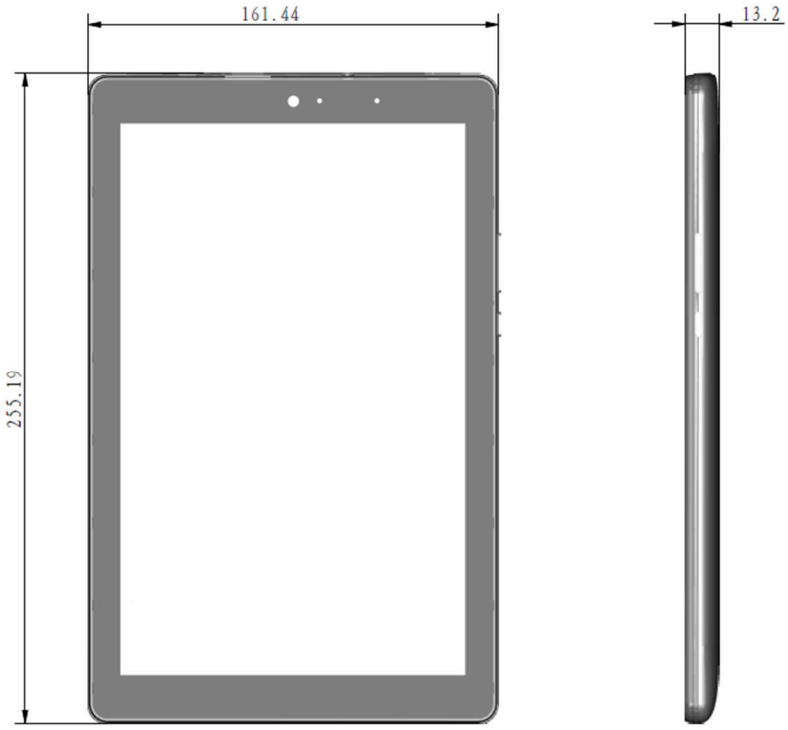


3.3 Structure

Download the board structure document from Vantron technology or Vantron net site: www.vantrontech.com.cn

Figure 3-4 Structure

Unit: mm



4 Hardware Function Description

This chapter mainly describes the main hardware functions of this product, including 4G, WIFI/BT, audio, display, camera,and,NFC.

4.1 WIFI/BT

The wireless module inside the tablet complies with IEEE 802.11 a/b/g/n/ac standard and it can achieve up to a speed of 433.3 Mbps with single stream in 802.11ac connect to the wireless LAN. The integrated module provides SDIO interface for Wi-Fi, and UART interface for Bluetooth.

Features:

- TX and RX low-density parity check (LDPC) support for improved range and power efficiency.
- Single-stream spatial multiplexing up to 433.3 Mbps data rate.
- Supports 20, 40, 80 MHz channels with optional SGI (256 QAM modulation).
- Supports standard SDIO v3.0, compatible with SDIO v2.0 HOST interfaces.
- BT host digital interface:
  - -HCI UART (up to 4 Mbps),
  - -PCM for audio data.
- Simultaneous BT/WLAN receive with single antenna.
- Complies with Bluetooth Core Specification Version 5.0 with provisions for supporting future specifications. With Bluetooth Class 1 or Class2 transmitter operation.
- Supports extended synchronous connections (eSCO), for enhanced voice quality by allowing for retransmission of dropped packets.
- Adaptive frequency hopping (AFH) for reducing radio frequency interference. A simplified block diagram of the module is depicted in the figure.

4.2 Audio

VT-TAB10-RK66 has a 3.5 mm Headphone jack, a 1.0W Speaker and a MIC. The headphone jack supports drive-by-wire control and mic function. If you want to use both of these features, your headphones must support them, too. Our headphone jack is compatible with three-section headphone and four-section headphone.

4.3 Display

VT-TAB10-RK66 has a 10.1" screen. The screen is made up of a display screen and a touch screen, which are fitted together by full-fit technology. More parameters are shown in the table.

Item	Specifications	Unit
Screen Size	10.1"	Inch
Viewing direction	Full View	-
Resolution	800x1280	-
Display Mode	Normally Black	-
Number of Colors	16.7M	-
LCM Luminance	280 (Typ.)	cd/m2
Contrast Ratio	800:1	-
Interface	MIPI	-
Touch Screen	Cap-touch, 10-point	

4.4 Camera

VT-TAB10-RK66 has two camera.Front camera has 5 million pixel with fix focus and 8 bit CIF interface.Rear camera has 8 million pixel with auto focus and 4 line MIPI interface.

4.5 Battery and Charging

VT-TAB10-RK66 has a powerful 8000 mAh battery. The time to play the video, listen to the music and standby is not confirmed. It theoretically supports 5V/2A charging and 9V/2A fast charging.

Note: Please use the Vantron-provided charger.

5 Hardware Operation Note

This chapter provides a guide to set up and use some of the features of the tablet. For more details, see hardware description.

5.1 Power Preparation

5.1.1 Environment

Before the equipment is powered on, please confirm whether the environmental conditions meet the requirements. Environmental conditions are as follows:

- Operation Temperature: 0°C ~ +45°C
- Operation Humidity: 10-85%RH (Non-Condensation)

5.1.2 Type-C Power Input

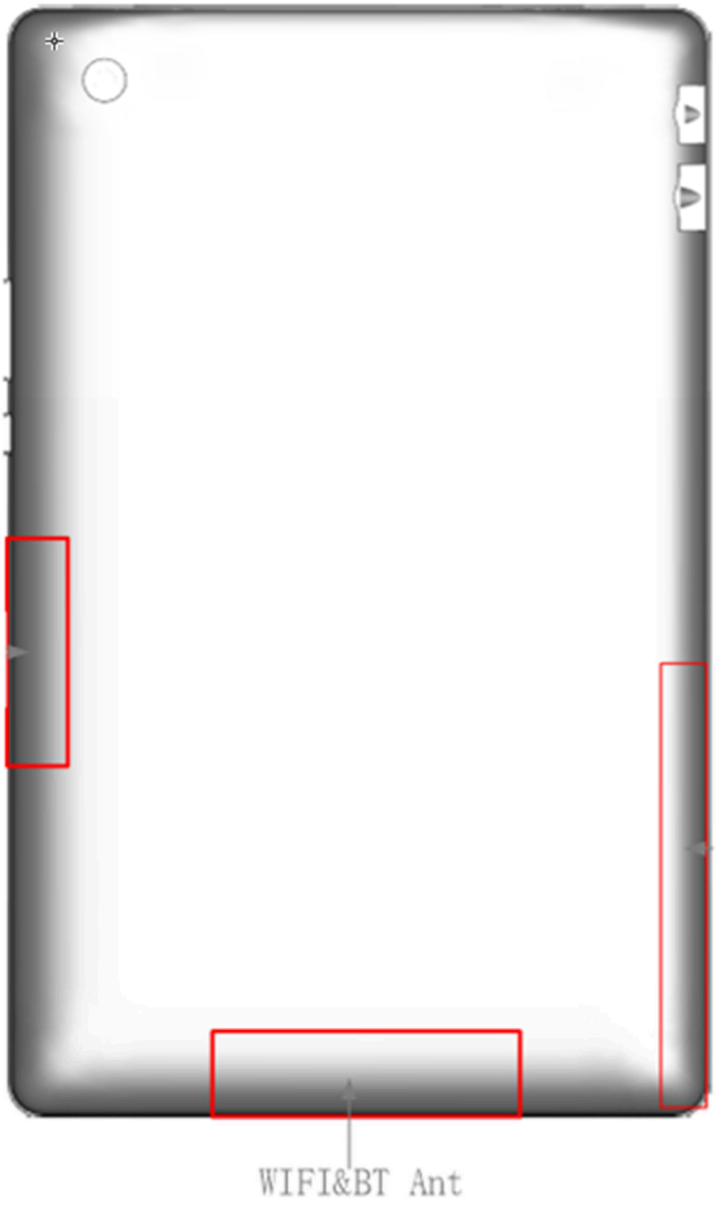
Please confirm the power input is 5V, and the reference current is 2A.


Do not use unauthorized or incompatible power adaptors to charge the device, otherwise fire, explosion or other danger may be caused.

5.2 Antenna

The design of the internal antenna position of VT-TAB10-RK66 will be shown as follows:

Figure 5-1 Internal antenna



In order to ensure that the tablet functions can work properly, please do not cover the antenna area with metal shielding devices.

WIFI and BT antenna frequency is 2.4G and 5G respectively.

6 Parts Description

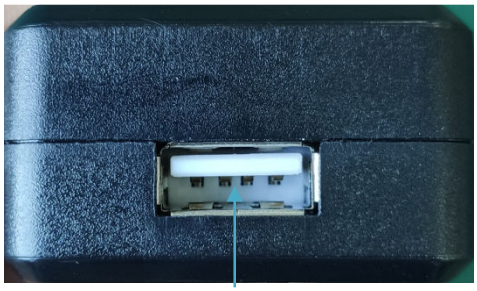
6.1 USB Power Adapter

6.1.1 Appearance

Figure 6-1 View

6.1.2 Interfaces

Figure 6-2 Interfaces



USB TYPE-A

US 2 pins plug

6.1.3 Structure

Figure 6-3 Structure (1)

Unit: mm

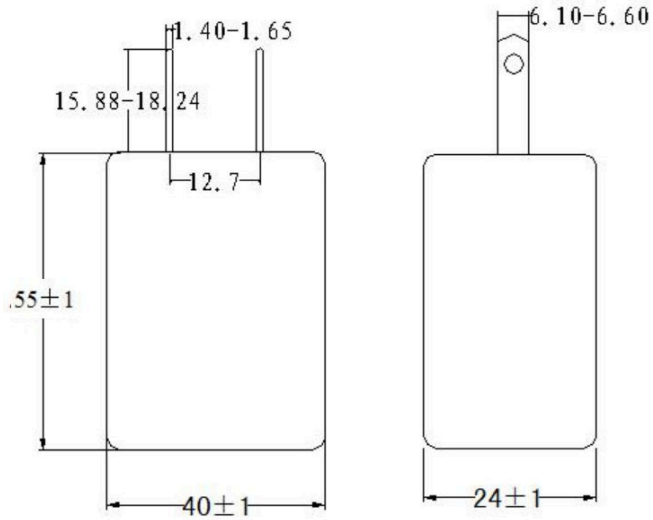
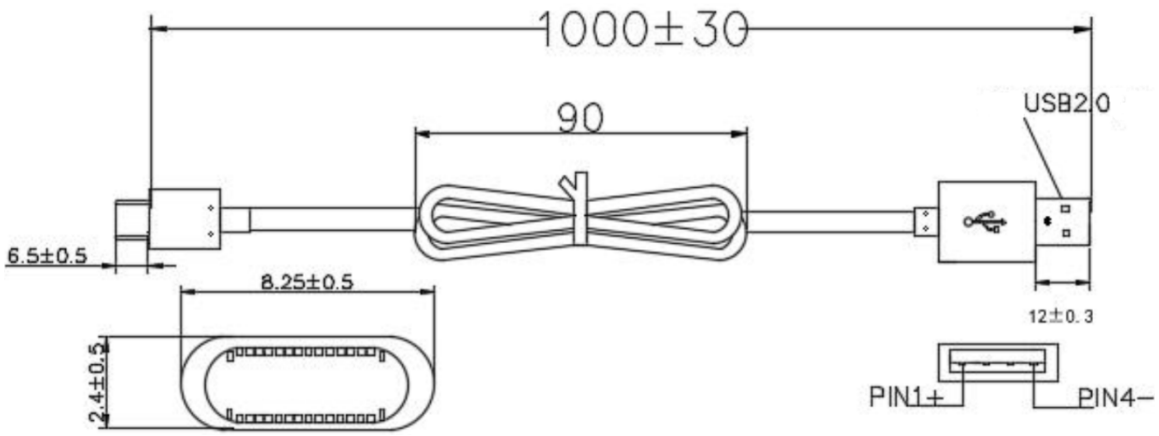


Figure 6-4 Structure (2)

Unit: mm



6.1.4 Hardware Instructions

Specifications	
Product Name	AC/DC ADAPTER
MODEL No.	MX15U-0503000UU
Interface Type	USB Type-A (Female)
Input Parameter	100-240V ~ 50-60 Hz 0.5A
Output Parameter	5 VDC 3A
Product Dimensions	40 x 24 x 55 mm (Pins are not included)
Operating Temperature	0℃-40℃

7 Software Instructions

VT-TAB10-RK66 has been pre-loaded firmware. For more information, please refer to software user manual for software operation.

8 Tips

 Waste Disposal

It is recommended to disassemble the device before abandoning it in conformity with local regulations. Please ensure that the abandoned batteries are disposed according to local regulations on waste disposal. Do not throw batteries into fire (explosive) or put in common waste canister. Products or product packages with the sign of “explosive” should not be disposed like household waste but delivered to specialized electrical&electronic waste recycling/disposal center. Proper disposal of this sort of waste helps avoiding harm and adverse effect upon surroundings and people’s health. Please contact local organizations or recycling/disposal center for more recycling/disposal methods of related products.

Comply with the following safety tips:

 Do not use in combustible and explosive environment

Keep away from combustible and explosive environment for fear of danger.

 Keep away from all energized circuits.

Operators should not remove enclosure from the device. Only the group or person with factory certification is permitted to open the enclosure to adjust and replace the structure and components of the device. Do not change components unless the power cord is removed. In some cases, the device may still have residual voltage even if the power cord is removed. Therefore, it is a must to remove and fully discharge the device before contact so as to avoid injury.

 Unauthorized changes to this product or its components are prohibited.

In the aim of avoiding accidents as far as possible, it is not allowed to replace the system or change components unless with permission and certification. Please contact the technical department of Vantron or local branches for help.

 Pay attention to caution signs.

Caution signs in this manual remind of possible danger. Please comply with relevant safety tips below each sign. Meanwhile, you should strictly conform to all safety tips for operation environment.

 Notice

Considering that reasonable efforts have been made to assure accuracy of this manual, Vantron assumes no responsibility of possible missing contents and information, errors in contents, citations, examples, and source programs. Vantron reserves the right to make necessary changes to this manual without prior notice. No part of this manual may be reprinted or publicly released in forms of photocopy, tape, broadcast, e-document, etc.

FCC compliance statement

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.

Note 1: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of 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 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.

NOTE 2: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE 3: Operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

RF exposure information and statement: this device meets government requirements

for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health. The SAR limit of USA (FCC) is 1.6W/Kg averaged. Has also been tested against this SAR limit. SAR information on this and other pad can be viewed on-line at http://www.fcc.gov/oet/ea/fccid/. Please use the device FCC ID number for search. To maintain compliance with FCC RF exposure requirements, the use of belt clips, holsters and similar accessories should not contain metallic components in its assembly, the use of accessories that do not satisfy these requirements may not comply with FCC RF exposure requirements, and should be avoided

ISED Canada compliance statement

this device complies with ISED Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

RF exposure information and statement: This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health. The SAR limit of ISED is 1.6W/Kg averaged. Has also been tested against this SAR limit. To maintain compliance with ISED RF exposure requirements, the use of belt clips, holsters and similar accessories should not contain metallic components in its assembly, the use of accessories that do not satisfy these requirements may not comply with ISED RF exposure requirements, and should be avoided.

Le présent appareil est conforme aux CNR d’ISDE Canada applicables aux appareils radio

exempts de licence. L’exploitation est autorisée aux deux conditions suivantes : (1)l’appareil ne doit pas produire de brouillage, et (2) l’appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d’en compromettre le fonctionnement.

La bande 5150–5250 MHz est réservée uniquement pour une utilisation à l’intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

Information et déclaration sur l’exposition aux RF : Cet équipement est conforme aux limites d’exposition au rayonnement du CNR-102 de l’IC établies pour un environnement non contrôlé. Les lignes directrices sont fondées sur des normes qui ont été élaborées par des organisations scientifiques indépendantes au moyen d’une évaluation périodique et approfondie des études scientifiques. Les normes comprennent une marge de sécurité substantielle conçue pour assurer la sécurité de toutes les personnes, indépendamment de leur âge ou de leur état de santé. La limite SAR d’ISD est de 1.6 W/Kg en moyenne. A également été testé par rapport à cette limite SAR. Pour maintenir la conformité aux exigences d’ISED en matière d’exposition aux RF, l’utilisation de pinces à courroie, d’étuis et d’accessoires similaires ne devrait pas contenir de composants métalliques dans son assemblage, l’utilisation d’accessoires qui ne satisfont pas à ces exigences peut ne pas être conforme aux exigences d’ISED en matière d’exposition aux RF et devrait être évitée.

Appendix A: How to Contact Us

If you have any problem or want to know more about our products, visit **www.vantrontech.com** or contact us.

US Office: Vantron Technology, Inc.

Address: 440 Boulder Court, Suite 300,

Pleasanton, CA 94566, USA

Tel: 925-621-8758

Email: sales@vantrontech.com

China Office: Chengdu Vantron Technology, Ltd

Address: No.5 GaoPeng Road Hi-Tech Zone

Chengdu, SiChuan, P.R. China

Tel: 86-28-8512-3930/3931, 8515-7572/6320

Email: sales@vantrontech.com.cn