

# **VT-M2M-BTA-DE-A**

## **User's Manual**





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# Table of Contents

<b>1</b>	<b>Foreword</b> .....	<b>5</b>
1.1	Copyright Notice .....	5
1.2	Notes .....	5
1.3	Statement .....	6
1.4	Disclaimer .....	6
1.5	Limitation of Liability/Non-warranty .....	6
1.6	Safety Instructions .....	7
1.7	Precautions .....	7
1.8	Safety Instructions for Power Cables and Accessories .....	7
1.9	Cleaning Instructions .....	8
<b>2</b>	<b>Overview</b> .....	<b>9</b>
2.1	Introduction .....	9
2.2	Product Series .....	9
2.2.1	Product Order Coding Rule .....	9
2.2.2	Ordering Information .....	10
<b>3</b>	<b>VT-M2M-BTA-DE-A Hardware Instructions</b> .....	<b>11</b>
3.1	Product Appearance .....	11
	Top View .....	12
3.2	Specifications.....	13
3.3	Interface Description.....	15
3.3.1	Wide-Range Power Interface.....	15
3.3.2	Ethernet Interface .....	15
3.3.3	D Sub-9 RS232 Connector .....	16
3.3.4	VGA Interface .....	18
3.3.5	USB Host Connector .....	19

3.4	Operation Notice.....	20
3.4.1	Change SIM Card.....	20
3.4.2	Power Supply .....	20
<b>4</b>	<b>Tips .....</b>	<b>21</b>

# 1 Foreword

## 1.1 Copyright Notice

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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Vantron reserves the right of all publicly-released copies of this manual.

## 1.2 Notes

Applicable notes are listed in the following table:

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

### 1.3 Statement

It is recommended to read and comply with this manual before operating VT-M2M-BTA-DE-A which provides important guidance and helps decreasing the danger of injury, electric shock, fire, or any damage to the device.

### 1.4 Disclaimer

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

### 1.5 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 VT-M2M-BTA-DE-A should be installed, debugged and maintained by professional people.

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

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

## 1.6 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 61°C.

## 1.7 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.
  - Keep the ventilation slot ventilated for cooling.
  - 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 standard.

## 1.8 Safety Instructions for Power Cables and Accessories



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.



## 1.9 **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 the operation according to the manual.



## 2 Overview

### 2.1 Introduction

Thank you for choosing Vantron. It is our commitment to provide our valued customers with the embedded devices equipped with the state-of-the-art technology and the best product services.

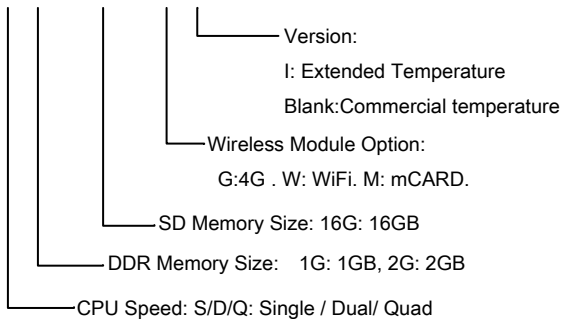
Vantron's VT-M2M-BTA-DE-A is based on the most advanced ARM and Intel Atom processors and has low-power consumption and high integration. The products are designed for applications of Gateway in industrials, medicals, financial, retail, vehicle, and transportations etc.

### 2.2 Product Series

#### 2.2.1 Product Order Coding Rule

##### Order Code

VT-M2M-BTA-DE-A-S-1GM-16GF-GWZ-V



## 2.2.2 Ordering Information

Order Examples:

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**VT-M2M-BTA-DE-A-S-2GM-16GF-  
GWM-I**

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ATOM Baytrail single Processor, 2GB DDR3L, 16GB SSD, 4G, WiFi,  
mCARD, extended temperature

### 3 VT-M2M-BTA-DE-A Hardware Instructions

#### 3.1 Product Appearance



Front View



Rear View



Top View

## 3.2 Specifications

Specifications		
CPU	Processor	Intel® ATOM™, E3815/1.46GHz, 512KB L2 cache per core
	On Board RAM	On Board DDRIII 1066MT/s , up to 2GB
Memory	SSD Internal	Half-Slim SSD Module Internal (16GB)
	Resolution	Up to 2560x1600@60Hz for VGA
Display	Interface	1xVGA (DB15)
	WLAN	Optional 802.11 b/g/n Wireless Module, external antenna , Support 1x Half PCIe Wireless card
Wireless Communication	4G Module	1xPCIE 4G/LTE Cellular Module with SIM slot
	RF Module	Zigbee Module with external antenna
	BT	BT module, external antenna
Peripheral Interfaces	Ethernet	2x10/100/1000-BaseT(RJ45)
	USB	2xUSB2.0 Host (Type A)
	Audio	HD Audio, 1xMIC in 3.5mm, 1xline Out 3.5mm
	COM Port	1xRS232/485/422(DB9 full function), 1xRS232/485(2 wires on Green Terminal)
	Alarm	Buzzer Out
	SD card	1xSD card Slot
	RTC	Supported
	Control	Reset and On/Off Button on the top
	GPIO	Reserved GPIO (Terminal)
	CAN	1x CAN2.0b

	Accelerometer	On Board Accelerometer, 3-Axis
<b>Security</b>	security	On board Registration Serial Number, and SHA-1 Encrypt/Decrypt Chip DS28E01(Optional) Optional TPM module
<b>Software</b>	OS	Linux, XOS, Paker's pre-program golden image
	Applications	SDK Available
<b>Power</b>	Input	DC12 / 24V(9-36V), Locked Power Jack
	Consumption	6W (Pulse10W), Sleep 2W. (without 4G,WLAN)
<b>Mechanical</b>	Dimensions	176x101x52mm (Box)
	Install Brackets	198x101x52mm
	Weight	0.6Kg (1.2Kg package Kit)
	Enclosure	Aluminum Alloy with Black Color
<b>Environment Condition</b>	Temperature	Operating:-20°C ~ +60°C ( ETR:-40°C ~ +80°C Optional)
		Storage:-40°C ~ +85°C
	Humidity	5-95%RH at 25-35 (Non-Condensation)
	Cooling Mode	Fan less, Heat Sink
	Approvals	UL, FCC, IC, CE, RoHS, and PTCRB Compliance

### 3.3 Interface Description

#### 3.3.1 Wide-Range Power Interface

Power JACK with lock



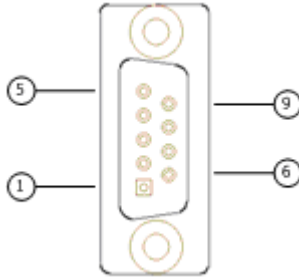
Pin	Description
1,3	DGND (ground pin)
2	Power (+12 DC, UP to 36V)

#### 3.3.2 Ethernet Interface

Standard RJ45 interface, supporting 10M/100M/1000M self-adaptation, this is a standard RJ45 ethernet port.

### 3.3.3 D Sub-9 RS232 Connector

Standard vertical DB-9 male connector



Pin	Description	Remarks
1	DCD1/422TX+/485_A	BIOS set
2	RXD1/422TX-/485_B	BIOS set
3	TXD1/422RX+	BIOS set
4	DTR1/422RX-	BIOS set
5	DGND (ground pin)	
6	DSR1	
7	RTS1	
8	CTS1	
9	RI1	



### RS232/485 ,CAN,External IO Connector

12pins 3.81 pitch terminal with screw lock

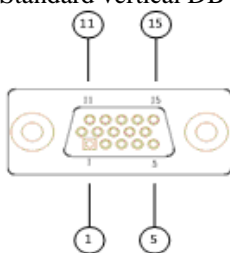
Load capacity: more than 128 nodes/RS485 channel



Pin	Description	Remarks
1	TXD2/485_2_A	BIOS set
2	RXD2/485_2_B	BIOS set
3	DGND	
4	CANH	
5	CANL	
6	DGND	
7	EXTIO0	3.3V Level
8	EXTIO1	3.3V Level
9	EXTIO2	3.3V Level
10	EXTIO3	3.3V Level
11	EXTIO4	3.3V Level
12	EXTIO5	3.3V Level

### 3.3.4 VGA Interface

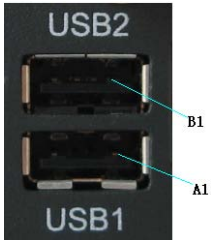
Standard vertical DB-15 Female VGA connector



Pin	Description
1	RED
2	GREEN
3	BLUE
4	N.C.
5	GND
6	GND
7	GND
8	GND
9	+5VDC
10	GND
11	N.C.
12	SD_DDC
13	HSYNC
14	VHYN
15	SC_DDC

### 3.3.5 USB Host Connector

Dual vertical USB A type interface, USB2.0



Pin	Description
A1	USB1_VCC(+5VDC)
A2	USB1_D-
A3	USB1_D+
A4	USB1_DGND(ground pin)
B1	USB2_VCC(+5VDC)
B2	USB2_D-
B3	USB2_D+
B4	USB2_DGND(ground pin)

Notes: Insert external device in USB1 connector should before powering up.

## **3.4 Operation Notice**

### **3.4.1 Change SIM Card**

Push the small button on the left of SIM Card Holder, and install the SIM card to the holder. Then push the holder into the Slot.

### **3.4.2 Power Supply**

Please make sure using adapter in the accessory, or the power is not reversed when powered by other adapter.

## 4 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.

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### FCC 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.

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 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.

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.

Any modification to the product is not permitted unless authorized by Vantron. It's not allowed to disassemble the product. It is not allowed to replace the system or change components unless with permission and certification. Please contact the technical support department of Vantron or local branches for help.





## ISED statement

This radio transmitter [IC:11152A-BTADEALP] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

*cet émetteur radio [IC:11152A-BTADEALP] a été approuvé par l'innovation, science et développement économique canada pour fonctionner avec l'antenne types énumérés ci - dessous, avec le gain maximal admissible. types de d'antenne n'est pas inclus dans cette liste qui ont un gain plus grande que le gain maximal indiqué pour tout type énumérées sont strictement interdits d'utilisation avec cet appareil.*

Mode	Manufacturer	Model Number	Antenna Gain (Max)	Impedance (Ohm)	Antenna Connector	Antenna Type
Wi-Fi	Dongguan Yijia Electronics Communication Technology Co.,Ltd.	YJ042S.100001.S02	2.0dBi	50	Reverse SMA male	Monopole
Bluetooth	Dongguan Yijia Electronics Communication Technology Co.,Ltd.	YJ042S.100001.S02	2.0dBi	50	Reverse SMA male	Monopole
Zigbee	FULL RISE ELECTRONIC CO.,LTD	AN-AI-XOC	2.0dBi	50	Reverse SMA male	Monopole
LTE Main	Asian Creation	AC-Q7027-YZW	3.0 dBi (698-960MHz) 5.0 dBi	50	SMA(Male)	Monopole

			(1710-2700MHz)			
LTE Diversity	Asian Creation	AC-Q7027-YZW	3.0 dBi (698-960MHz) 5.0 dBi (1710-2700MHz)	50	SMA(Male)	Monopole
GPS	Shenzhen Norminson Technology CO., LTD.	NP002	28dBi	50	SMA(Male)	Monopole

This device complies with Innovation, Science and Economic Development Canada licence-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.

*Ce matériel est conforme aux normes RSS de l'Agence canadienne pour l'innovation, la science et le développement économique. Les opérations doivent satisfaire aux deux conditions suivantes:*

- 1) Le dispositif ne risque pas de causer d'interférences; et*
- 2) l'équipement doit accepter toute interférence, y compris toute interférence susceptible d'entraîner une manipulation accidentelle de l'équipement.*



RF exposure warning

This equipment must be installed and operated in accordance with

provide instructions and the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operation in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

*L'installation et l'exploitation de l'appareil doivent être conformes aux spécifications et l'antenne utilisée par l'émetteur doit rester à une distance d' au moins 20 cm du propriétaire et ne peut être installée ou exploitée avec aucune autre antenne ou émetteur. Les utilisateurs finals et les personnes chargées de l'installation doivent fournir une description de l'installation de l'antenne et des conditions de fonctionnement de l'émetteur pour satisfaire aux exigences d'exposition aux radiofréquences.*

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