

VT-M2M-L335 User's Manual



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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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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-L335 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-L335 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.

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.



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 M2M products are based on the most advanced ARM and Intel Atom processors and have low-power consumption and high integration. The products are designed for applications of M2M in industrials, medicals, financial, retail, vehicle, and transportations etc.

3 VT-M2M-L335 Hardware Instructions

3.1 Product Appearance



Front Side View



Back View



Debug Panel View

3.2 Specifications

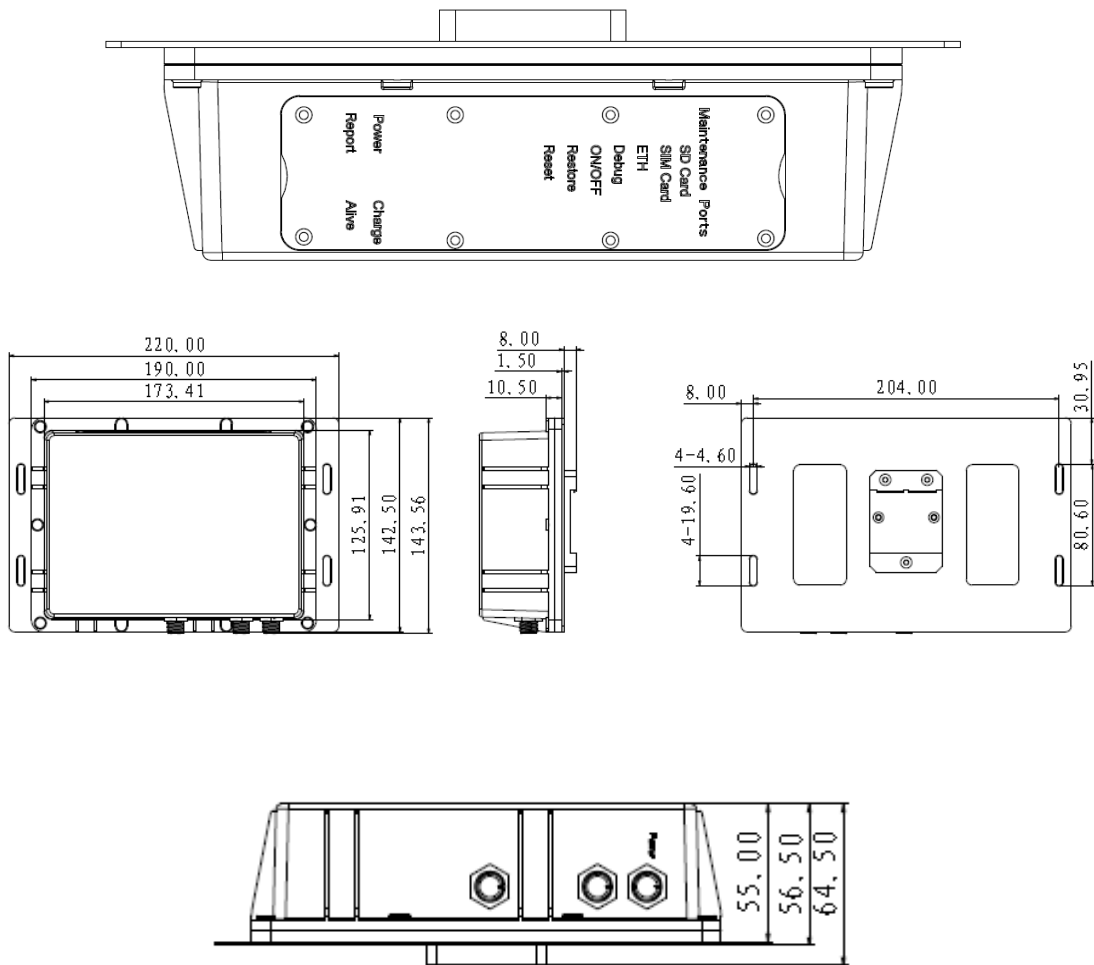
Features	
■ CPU:	TI, AM335x Series, ARM Cortex-A8, 32-Bit RISC Microprocessor, Support wide operating frequency range from 275MHz to 1GHz
■ L335 with	16GB EMMC Flash, 512MB DDR3L
■ Embedded	GPS(on board), GPRS modem (Optional 3G modem)
■ Optional	80.211 b/g/n WLAN+BT4.0 Module, ZigBee/LoRa Module or others
■ Optional	1x10/100-BaseT Ethernet, by M12 connector
■ 6xGPIN,	3xRelay OUT, 2 x Analog Input (by M3)
■ 1xRS232	for configuration, Optional 1xRS232, 1xRS485
■ Ultra-low	power consumption managed by M3 MCU
■ DC Power	Input 5/12/24/36/48V(6-36V , option 5V), Embedded Chargeable 11800mAh Battery

Specifications

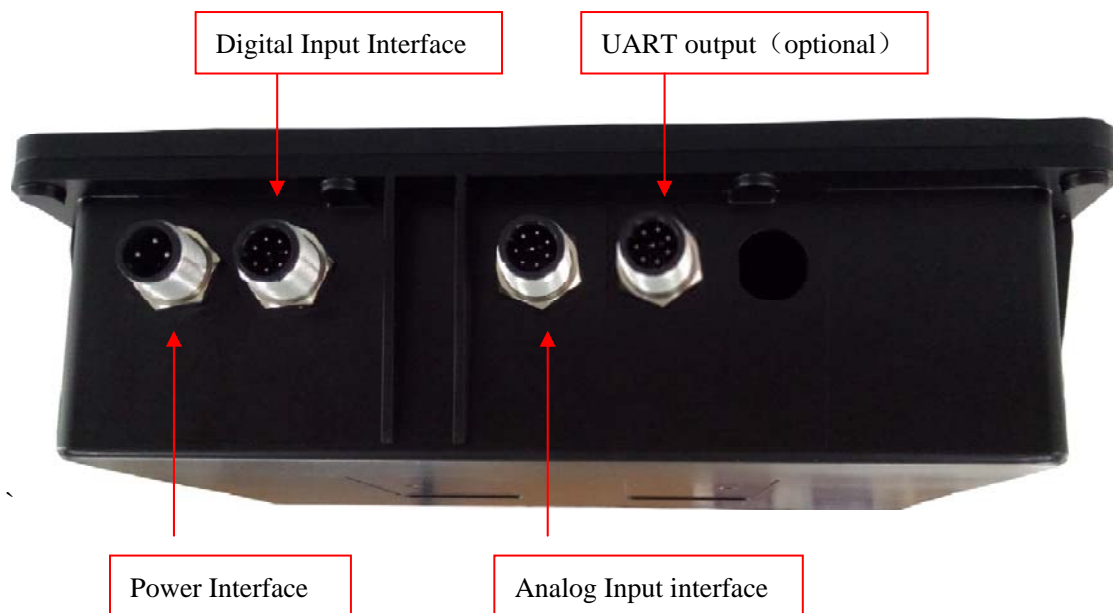
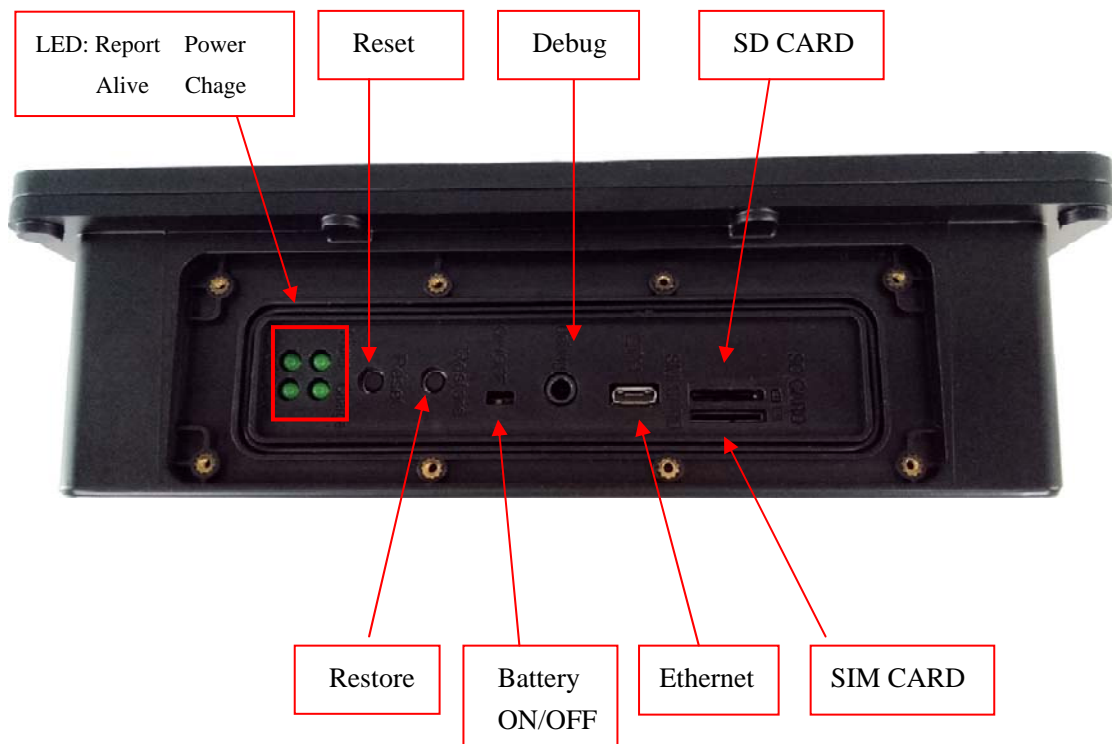
CPU	Processor	TI, AM3358, ARM Cortex-A8, 32-Bit, 1GHz Low Power Processor Optional AM3352, 3354 and others CPU frequency. Lower power MCU: ARM 32-bit Cortex-M3 (214uA/Mhz, 0.9uA @standby +RTC)
	RAM	512MB DDR3L
Memory	Flash	16GB EMMC Flash, M3:128KB + 1KB EEPROM
	Cellular	mini-PCIe 3G/GPRS module, in USB or UART interface, Flexible for the selection of kinds module by customer.
Wireless Communication	WLAN+BT4.0	Optional Embedded 80.211 b/g/n WLAN +BT4.0 Module
	ZigBee	Optional ZigBee module
	GPS	uBlox: NEO-6M, Support GPS (Optional BeiDou)
	Satellite (Optional)	Optional support Iridium Satellite Modem based on NAL: 9603-I or others (Activated by customer)
	Antenna	Internal antennas, Support external antenna by different cable & enclosure
Peripheral Interfaces	Ethernet	Optional pin out 1x10/100Base-T by M12 connector
	USB	Optional, 1xUSB Host, Pin out to M12
	Acceleromet	FreeScale:MMA8451(By M3)
	Temp	TI:TMP112, ±0.5°C(By M3)
	Humiture	SHT30 ±2%RH and ±0.2°C (By M3)
	Light	ISL29023IROZ-T7(By M3)
	RTC	Supported
	LED	Status LED (Charging / Alive / Report / Status)(By M3)

	COM Port	1xRS232, Audio jack , for Local Configure Optional, 1xRS232, isolated, 8x1.25mm, pin out to M12. Optional, 1xRS485, isolated, 8x1.25mm, pin out to M12. Optional, 1xCAN 2.0b, pin out to M12. Optional, 2xI2C inner connectors for Ambient Sensors.
	GPIOs (By M3)	6xGPIN (with transient protection) Optional, 3xRelay Output, Drive >8A/220VAC
	Analogs(Optional)	1 or 2xAnalog Input, 12bit, support 4-20mA or 0-5V Input, High input impedance, with Transient protection(By M3)
Software	OS	Real-Time OS on M3, Linux on M4
	Applications	Provide SDK and transparent communication. Support Over the air update. Power management of DC and battery monitor. Optional: Support at least 1 Geofence, Radial can be set, Position report once a day or report on motion, and store 30 days of position reports.
Power	DC Input	DC 5/12/24/36/48V(6-36V , option 5V) Support Kinds of Solar Pad
	Battery	Internal Battery, Manually Changeable, with IP67 Cover, 3.7V, 11800mAh Battery Supported.
	Consumption	Ultra-low consumption, 5W pulse, 100uA Idle Without Solar Input can work 12 weeks, once report a day.
Mechanical	Dimensions	160(L) x 118(W) x 53(H) (TBD)
	Weight	TBD –Depending on options selected
	Enclosure	Black Plastic Box, IP67 Optional Spec (J1455 (Cab/Chassis Mount), Chemical Resistance, UV Resistant, Gravel Bombardment)
	Mounting	Optional DIN method, or Magnetic mount method, or with Mounting Bolts / Zip Tie
Environment Condition	Temperature	Operating: -40°C ~ +85°C (Lower temperature battery may reduce the capacitance)
		Storage: -20°C ~ +70°C, (ETR: -40°C ~ +85°C Optional)
	Humidity	5-95%RH at 25-35 (Non-Condensation)
	Cooling	Fanless
	Approvals	UL, FCC, CE, and PCTRB Certifications in Process

3.3 Dimension

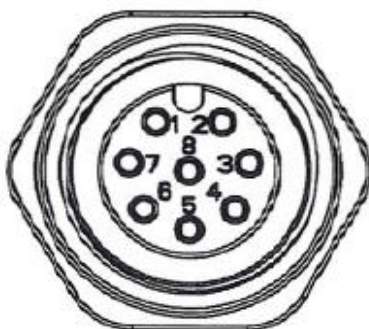


3.4 Interface Description



3.4.1 Analog Input Interface

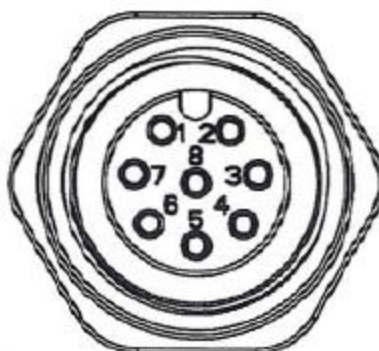
正面视图：



Pin1	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7	Pin8
GND	DOUT1 (Option)	DOUT2 (Option)	DOUT3 (Option)	GND	AIN1	AIN2	GND

3.4.2 Digital Input Interface

正面视图：



Pin1	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7	Pin8
DIN1	DIN2	DIN3	DIN4	DIN5	DIN6	GND	GND

3.4.3 Power Interface



Pin1	Pin2	Pin3
Power	GND	EXT GND

3.4.4 3.5mm Debug Port(AM3352)



Pin	Description
1	GND
2	TXD(232)
3	RXD(232)

3.4.5 Ethernet



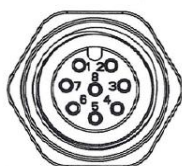
Pin1	Pin2	Pin3	Pin4	Pin5
NC	TX-	TX+	RX-	RX+

3.4.6 BATTERY ON/OFF



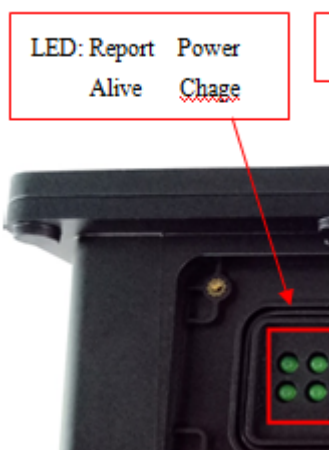
3.4.7 UART output (OPTIONAL)

正面视图：



PIN1	PIN2	PIN3	PIN4	PIN5	PIN6	PIN7	PIN8
RS232_TX	RS232_RX	RS422RX_+	RS422RX_-	DGND	ISO_GND	CANH	CANL
RS485_A	RS485_B						
RS422TX_+	RS422TX_-						

3.4.8 LED



Power led	LED ON indicate Power on
Charge led	Charge led ON indicate charging on, off indicate charging complete
Report led	Reference SW specification
Alive led	Reference SW specification

3.4.9 POWER consume

Static current	<200mA (12V)
Sleep current	<150uA

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

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