

# **R1605-80001**

## **User's Manual**



## Revision History:

| No. | Version | Description                                   | Date           |
|-----|---------|---|----------------|
| 1   | V1.0    | First release                                 | Sep.26, 2016   |
| 2   | V1.1    | Update Temperature                            | Dec.5, 2016    |
| 3   | V1.2    | Update Introduction                           | Jan.17.2017    |
| 4   | V1.3    | Append FCC applicant                          | Feb 14, 2017   |
| 5   | V1.4    | Change the model number from R1605-80001      | March 2, 2017  |
| 6   | V1.5    | Update the information of applicant           | March 21, 2017 |
| 7   | V1.6    | Append the description of using to the device | April 28, 2017 |

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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 R1605-80001 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 R1605-80001 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 PLUM product is 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 PLUM in industrials, financial, retail, vehicle, and transportations etc.

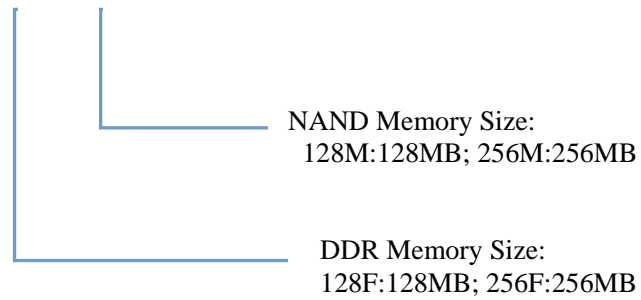
### **2.2 How to use the device PLUM**

PLUM is a measure and control device, it can be used for monitoring the power supply and GPIB data communication. Usually, the PLUM is powered through the cord with IEC C14 plug, and the PLUM's load is powered by the cord of PLUM with IEC C15 connector. Using PLUM can remotely monitor the power consuming status powered through PLUM. The GPIB port on PLUM can be used for monitoring the communication between the GPIB devices on the customer side. Its Ethernet and WLAN function can be used for reporting the monitoring data to remote devices such as a remote computer server.

## 2.3 Product Series

### Order Code

128M-128F



### Order Examples:

|           |   |
|-----------|---|
| 128M-128F | TI ARM9, 456MHz CPU, 128MB DDR, 128MB Flash |
| 128M-256F | TI ARM9, 456MHz CPU, 128MB DDR, 256MB Flash |



### 3. R1605-80001 Hardware Instructions

#### 3.1 Product Appearance



Left Side View



Right Side View

### 3.2 Specifications

| Specifications         |              |  |
|------------------------|--------------|--|
| CPU                    | Processor    | ARM9 processor   |
|                        |              |  |
| Memory                 | On Board RAM | DDR2 128MB(64Meg x 16)   |
|                        | ROM Internal | NAND 128MB (256MB or others)                                       |
| Wireless Communication | WLAN         | SDIO WLAN Module, 802.11b, 802.11g, 802.11n ht20, 2.4GHz, interior |
|                        | Bluetooth    | On Board Bluetooth4.0 module , interior Antenna                    |
| Peripheral Interfaces  | Ethernet     | 1x10/100M-BaseT(RJ45)  |
|                        | GPIO         | 1x GPIO monitor interface  |
|                        | RTC          | Supported, separately RTC chip                                     |
|                        | SD card      | 1xSD card Slot (Optional )   |
|                        | Sensor       | Temperature and Humidity sensor<br>Accelerometer sensor            |
|                        | Control      | Button of Restored to Default setting                              |
|                        | Led          | 3xStatus LEDs  |
|                        |              |  |
| Software               | OS           | Linux  |
|                        | Applications | Provide SDK  |
| Power                  | Input        | Wide Range (85-265VAC), C14 Terminal                               |
|                        | Consumption  | 1.1W Average (without WLAN)  |
|                        | Dimensions   | 100x60x43mm (Box)  |
|                        | Weight       | 0.3Kg (0.6Kg package Kit)  |
| Environment Condition  | Temperature  | Operating: 0°C ~ +70°C<br>( 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  |

### 3.3 Interface Instructions



Left Side View

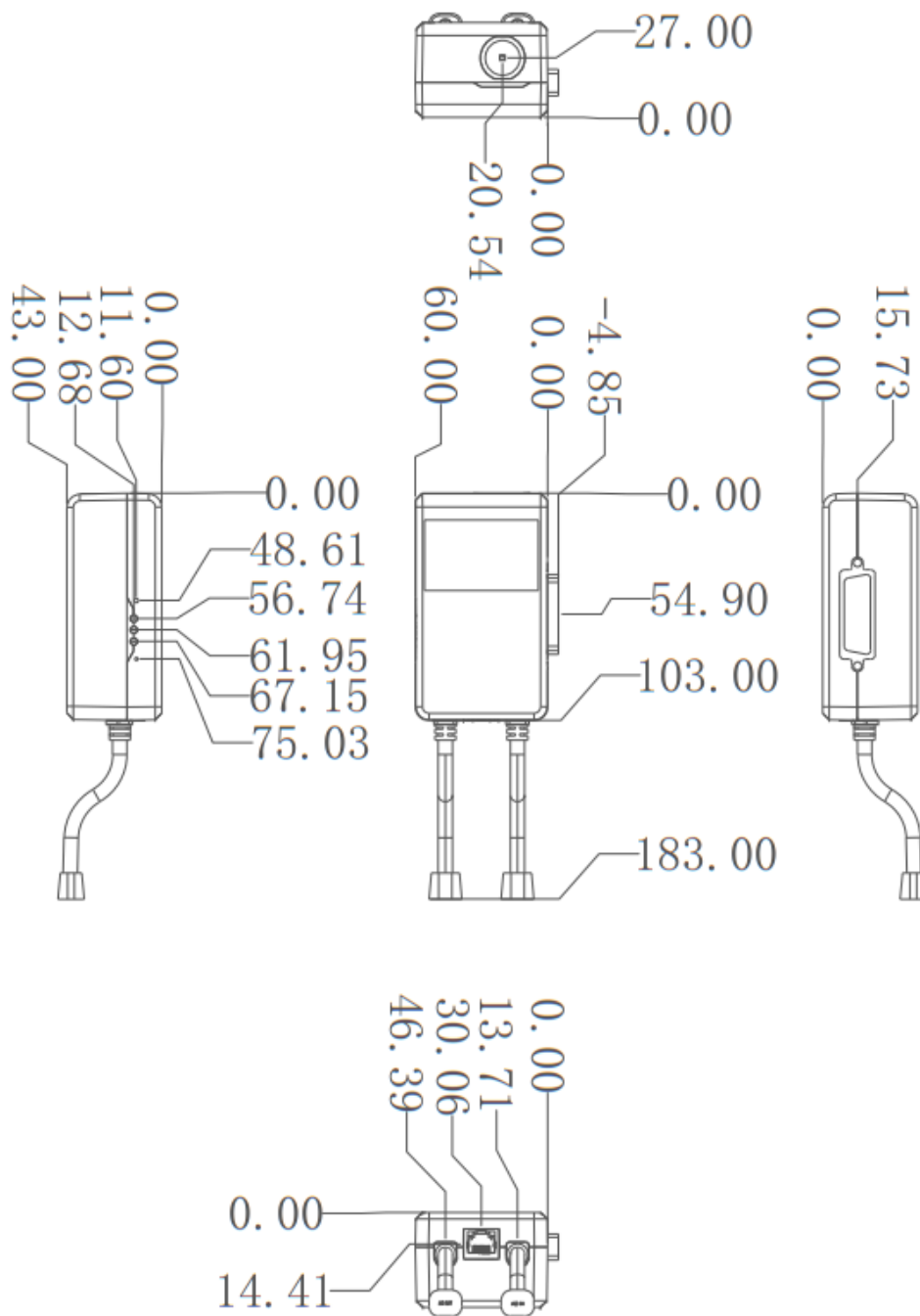


Right Side View



Top Side View

### 3.4 Dimension



### 3.5 Interface Description

#### 3.5.1 Power Interface

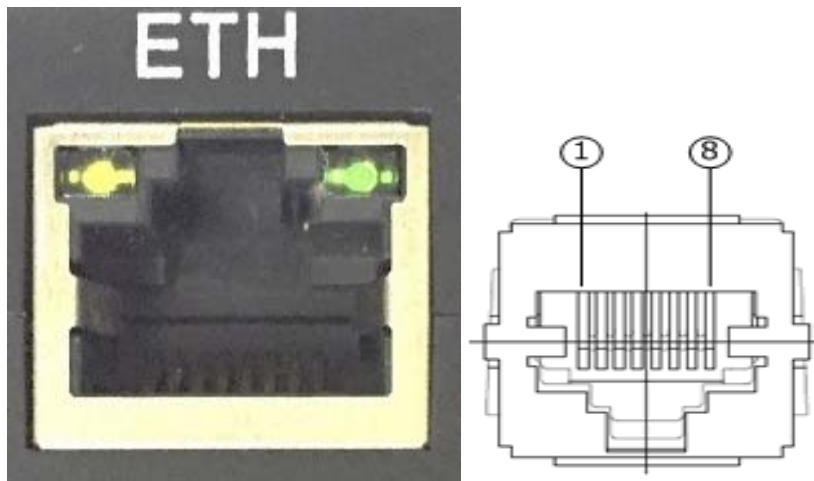


**Power connector outlook**

| Pin | Description |
|-----|-------------|
| 1   | LINE        |
| 2   | NEUTRAL     |
| 3   | Ground      |

### 3.5.2 Ethernet Interface

A standard RJ45 interface, supporting 10M/100M self-adaptation.



| Pin | Description | Remarks |
|-----|-------------|---------|
| 1   | TXP         | IO      |
| 2   | TXN         | IO      |
| 3   | RXP         | IO      |
| 4   | CT          | P       |
| 5   | CT          |         |
| 6   | RXN         | IO      |
| 7   | NC          |         |
| 8   | MH_GND      | P       |

### 3.5.3 Combined temperature, humidity and pressure sensor



### 3.5.4 GPIB Connector

A standard GPIB interface.



| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1   | DIO1        | 13  | DIO5        |
| 2   | DIO2        | 14  | DIO6        |
| 3   | DIO3        | 15  | DIO7        |
| 4   | DIO4        | 16  | DIO8        |
| 5   | EOI         | 17  | REN         |
| 6   | DAV         | 18  | GND         |
| 7   | NRFD        | 19  | GND         |
| 8   | NDAC        | 20  | GND         |
| 9   | IFC         | 21  | GND         |
| 10  | SRQ         | 22  | GND         |
| 11  | ATN         | 23  | GND         |
| 12  | SHIELD      | 24  | GND         |

### 3.5.5 LED



PWR: light indicate system power OK(main power up); off indicate system power turn off

WLAN: light indicate Wi-Fi is OK

SYS: User can define it.

### 3.5.9 Reset button



Reset button:short press this button will reset this device.



## 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. 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 for

**FCC Warning**

This device complies with FCC class B Rules. Operation is subject to the following conditions.

This device may not cause harmful interference.

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

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

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.

**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.

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