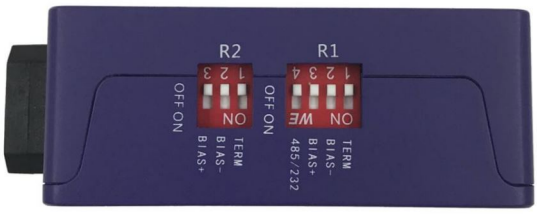


Vantron FPC-N64 M2M Gateway User Manual

Contents

Vantron

Vantron FPC-N64 M2M Gateway

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

Change History
This document describes FPC-N64 briefly and is intended for all readers. This table describes the version and release date.

No.	Version	Description	Date	Author
1	V1.0	First release.	2019-11-02	Guomin 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.

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 before operating FPC-N64 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 FPC-N64 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 61°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.

Overview

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 industry, finance, retailing, vehicle, transportation, etc.

Specifications/Features

Table 1-1 describes specifications.
Table 1-1 Specifications

CPU	Processor	TI, AM3352, ARM Cortex-A8, 32-Bit, 1 GHz Low Power Processor
Memory	On Board RAM	DDR3, 256 MB
	Flash	1 GB
Wireless Communication	Bluetooth	OPT Bluetooth V4.0, 2.4 GHz Internal Antenna
	Ethernet	2 x 1000M

	SD card	1 x Micro SD card
	COM Port	1 x RS485, 1 x RS232/RS485 (Isolated)
Peripheral Interfaces	LED	2 x LED for UART2 (RXD and TXD) 2 x LED for UART4 (RXD and TXD) 1 x LED for power 1 x LED for state of error 1 x LED for state of SS
	RTC	Supported, separately RTC chip, power for super capacitor
	Control	Button of Restored to Default setting
	GPIO	4 x GPIO (Optional)
Software	OS	Linux
	Applications	Provide SDK
Power	Input	Wide Range (9-30V DC or 24V AC), 3 x 3.81 mm Black Ter minal
	Dimensions	155 x 105 x 50 mm (Box)
Mechanical	Install Brackets	100 x 70 x 28 mm
	Enclosure	Sheet Metal with Gray Color

	Temperature	Operating: -20°C ~ +50°C
Environment Condition		Storage: -40°C ~ +85°C
	Humidity	5-95%RH at 25-35 (Non-Condensation)
	Cooling Mode	Fanless
	Approvals	RoHS Compliance

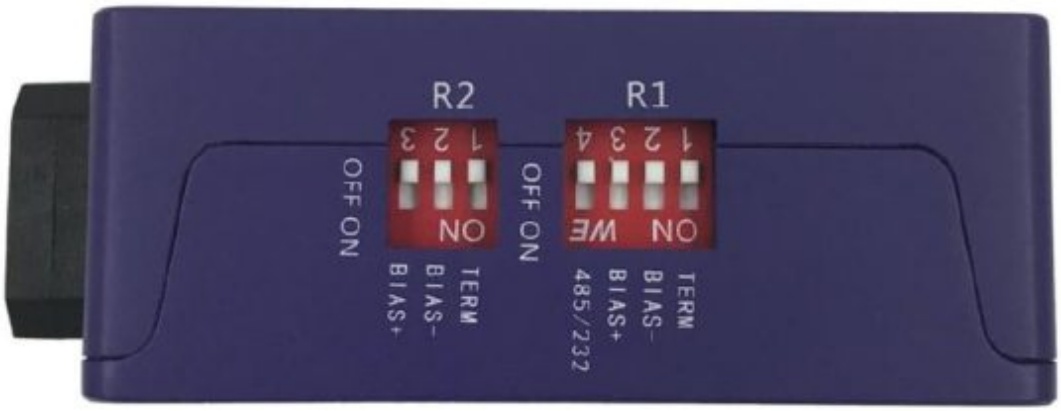
FPC-N64 Hardware Instructions

Product Appearance

Figure 2-1 Front view

Figure 2-2 Side view (right)

Figure 2-3 Side view (left)



Interface Description

Power Interface

Figure 2-4 Power connector outlook

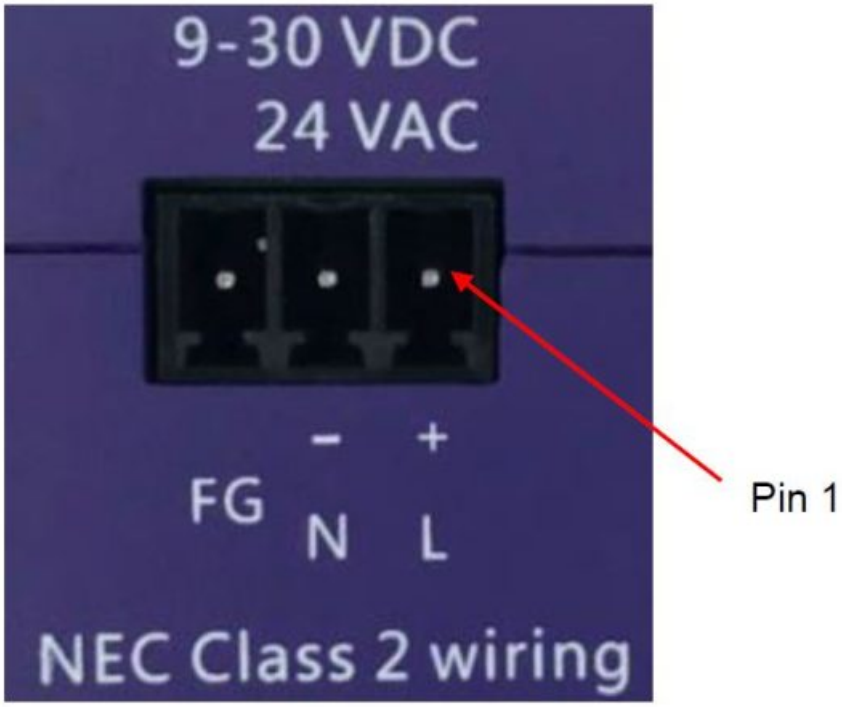


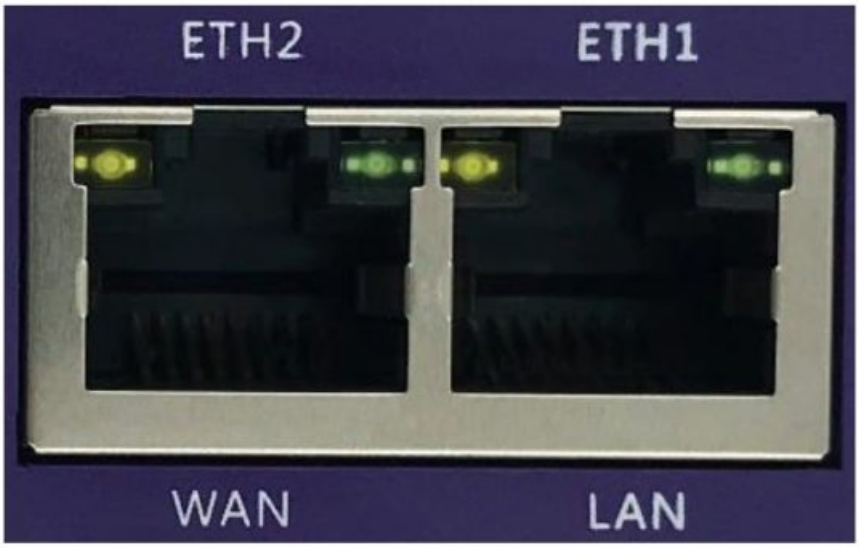
Table 2.2 Pin description of p ower connector

Pin	Description
1	Power input range: DC9-30V or AC24V L
2	DC Ground or AC24V N
3	Shell ground

Ethernet Interface

Standard RJ45 interface, supporting 1 0 0 M Full/Half Duplex , is a standard RJ45 Ethernet port

Figure 2-5 Ethernet interface



RS232 or RS 485 Connector

Standard vertical 1 x 3 x 3.81 mm male Terminal Block

Figure 2-6 RS232 or RS485 connector

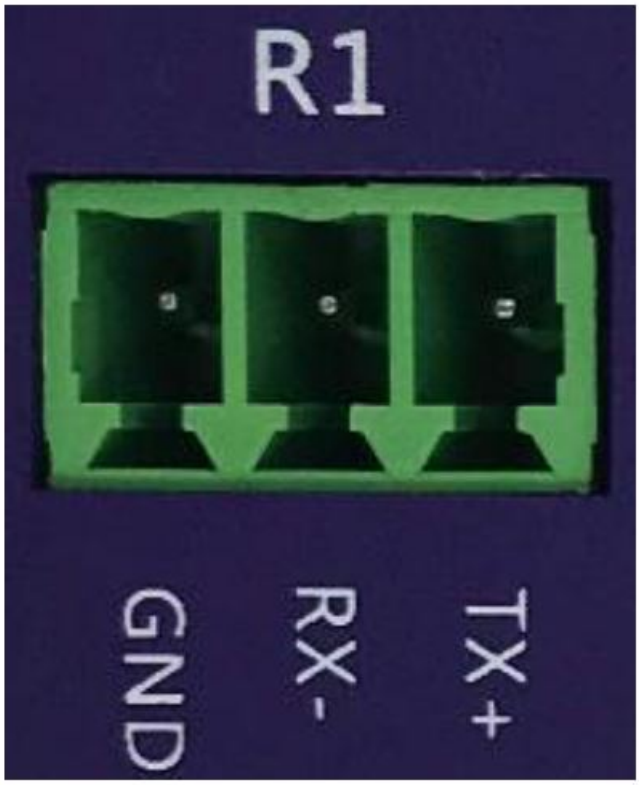


Table 2.3 Pin description of RS232 or RS485 connector

Pin	Description	Remarks
1	TX or RS485_A	IO
2	RX or RS485_B	IO
3	GND	

Figure 2-7 DIP Switch for selection

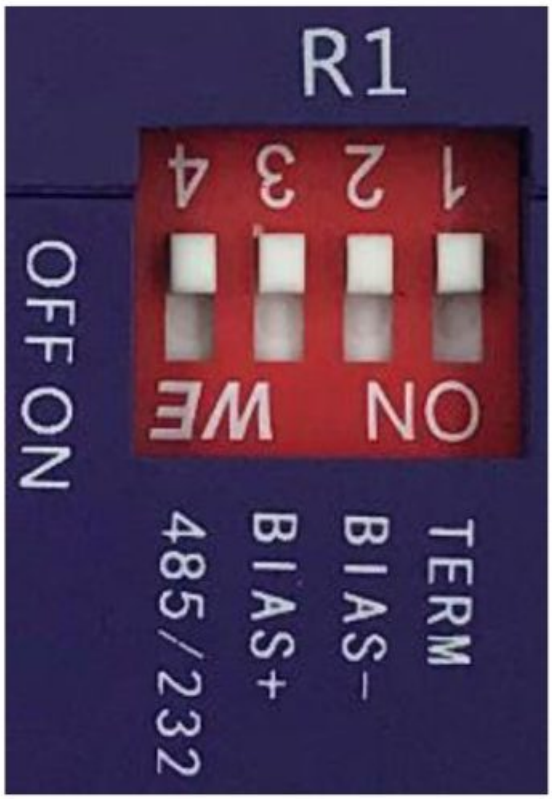


Table 2.4 Bit description of RS232 or RS485 connector

Bit	Description	Single
1	ON: Have matched with a resistor of 120 ohm OFF: No	Term
2	ON: Have pulled up a resistor of 510 ohm OFF: No	Bias-
3	ON: Have pulled down a resistor of 510 ohm OFF: No	Bias+
4	ON: Select RS232 OFF: Select RS485	Select RS232 or RS485

RS485 Connector
Standard vertical 1 x 3 x 3.81 mm male Terminal Block

Figure 2-8 RS485 connector

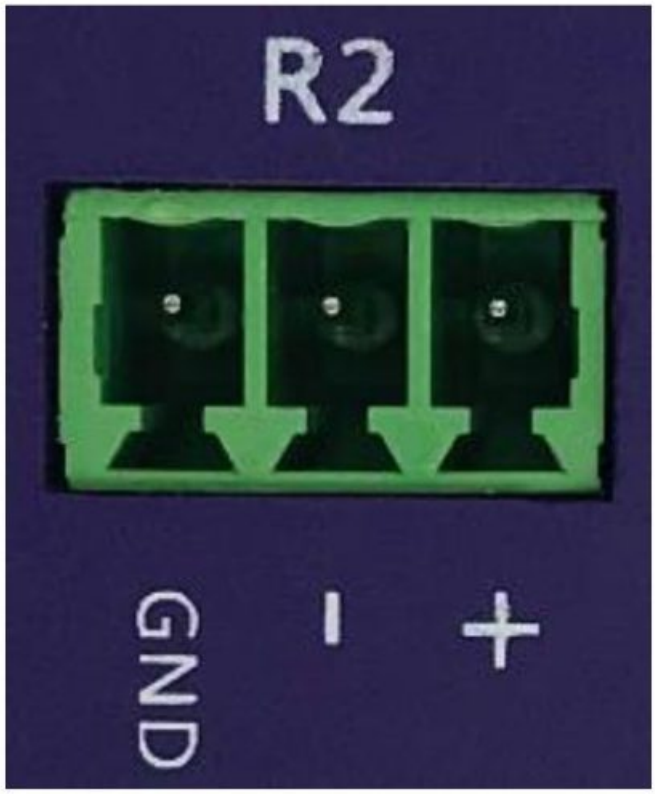


Table 2.5 Pin description of RS485 connector

Pin	Description	Remarks
1	RS485_A	IO
2	RS485_B	IO
3	GND	

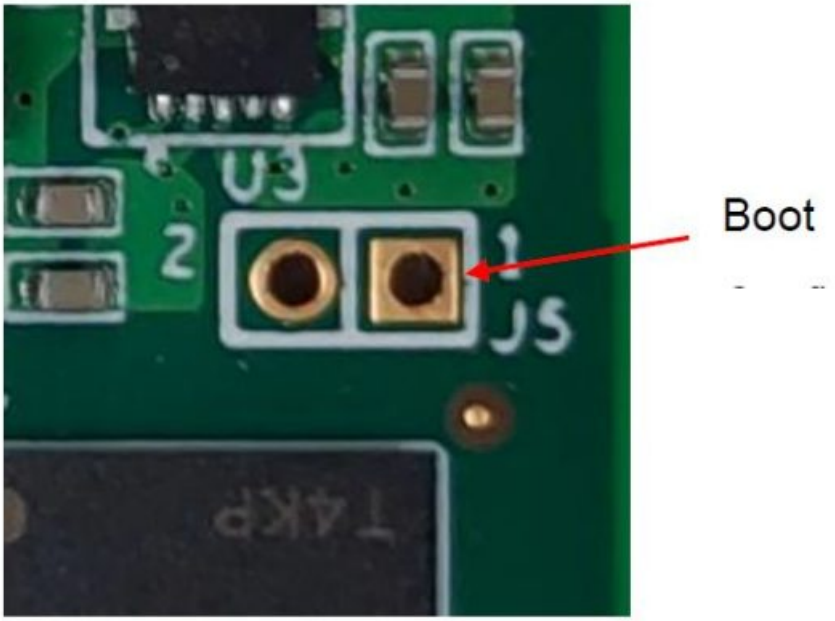
Figure 2-9 DIP Switch for selection

Table 2-6 Bit description of RS485 connector

Bit	Description	Single
1	ON: Have matched with a resistor of 120 ohm OFF: No	Term
2	ON: Have pulled up a resistor of 510 ohm OFF: No	Bias-
3	ON: Have pulled down a resistor of 510 ohm OFF: No	Bias+

Boot Configuration

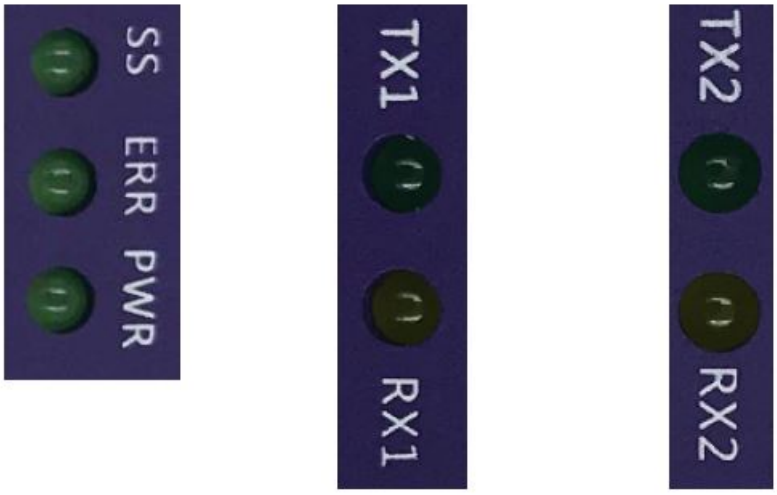
Figure 2-10 Boot configuration



SHORT: Boot from NAND
OPEN: Boot from SD/MMC

LED
PWR LED: If the light is on, the system is successfully started; If the light is off, the system is turned off.
ERR LED: User can define by themselves.
SS LED: User can define by themselves.
TX LED: If R1 sends data, TX1 flashes; if R2 sends data, TX2 flashes.
RX LED: If R1 receives data, RX1 flashes; if R2 receives data, RX2 flashes.

Figure 2-11 LED



Debug
CONN, Pin header,1 x 4 x 2.0, TH. User can view the debug message and use keyboard to input debug command. It's TTL level, so we need a Uart-debug board when we use it.

Figure 2-12 Debug board

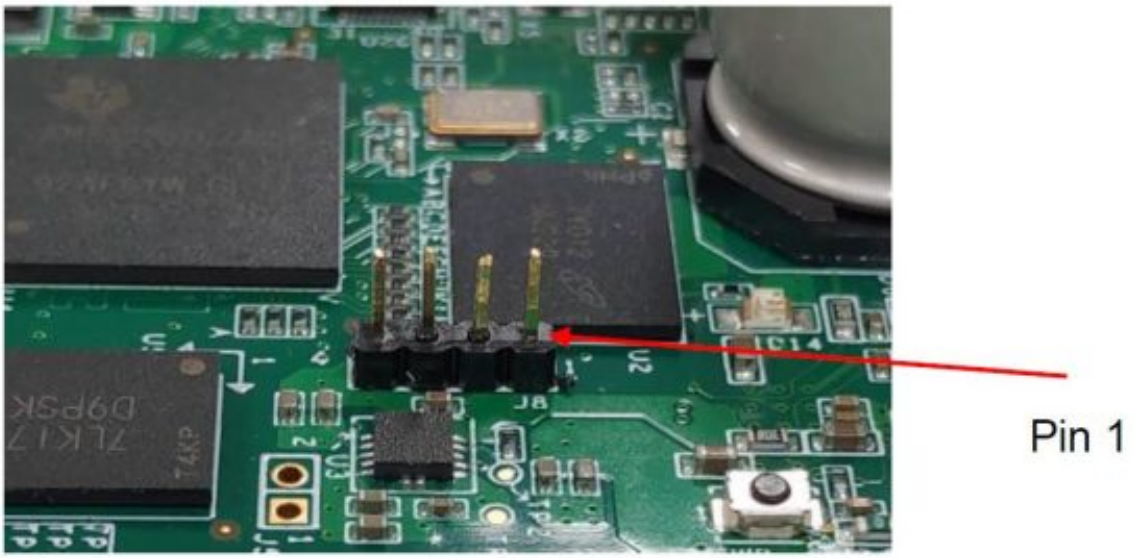


Table 2-7 Pin description of debug board

Pin	Description
1	3.3V
2	TTL_TXD
3	TTL_RXD
4	DGND

Renew Button
Renew button: Press and hold this button to restore factory settings, and the press time is user-defined.

Figure 2-13 Renew button

SD/MMC Socket
This is standard SD card socket where user can save data on this storage.

Figure 2-14 SD/MMC socket

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

FCC Supplier’s Declaration of Conformity

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 u ndesired operation.

Vantron Technology, Inc.
440 Boulder Court, Suite 300,
Ple asanton, CA 94566 , USA
925 621 8758

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.
- 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 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.

Caution: The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

IC statement
This device contains licence exempt transmit ter(s)/receiver(s) that comply with Innovation, Science and Economic Dev elopment Canada’s licence exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Warning This class B digital apparatus complies with Canadian ICES 0 03.
Industry Canada ICES
003 Compliance Label:
CAN ICES
3 (B)/NMB 3(B)

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 provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

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: 6th Floor, 1st Building, No.9, 3rd Wu Ke East Street, Wu Hou District, Chengdu 610045, China
Tel: 86-28-8512-3930/3931, 8515-7572/6320
Email: **sales@vantrontech.com.cn**

Documents / Resources

	**Vantron FPC-N64 M2M Gateway** [pdf] User Manual FPCN64, 2AIVJ-FPCN64, 2AIVJFPCN64, FPC-N64 M2M Gateway, FPC-N64, M2M, Gateway

References

- Vantron sales@vantrontech.com
- Vantron sales@vantrontech.com.cn
- Vantron Technology
- Vantron Technology