

VI-IR600

RFID Industrial Reader

Product Information Guide

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1 Product Description

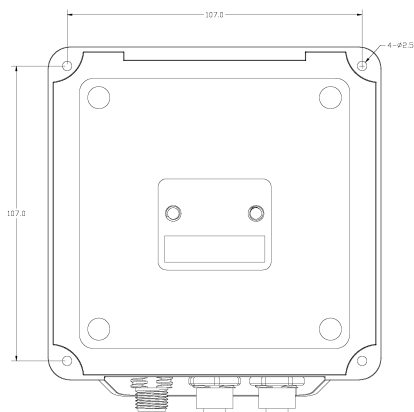
VI-IR600 industrial reader is the latest generation product developed by our company. The product can read and write "electronic tags" (or "cards"-in this manual, the two have the same meaning) that meet the ISO18000-6C standard. The industrial reader can be widely used in data acquisition systems such as vehicle access control management, personnel access control management, electronic anti-counterfeiting, logistics monitoring, production automation management, and industrial fields.

1.1 Surface hole position and interface

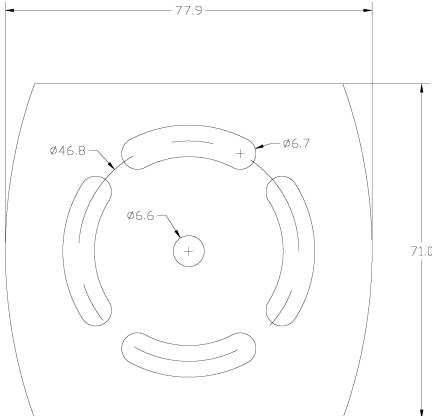
The appearance of the VI-IR600 industrial reader is shown on the cover. It uses ABS+ aluminum alloy shell, meets the industrial IEC IP67 protection grade, can be installed indoors or outdoors in good ventilation, dust and rain conditions.



Installation method



• Installation mode 1



Installation method 2

1.2 Interface definition

Reader left interface terminal (4 pins) : Power interface (nput: AC100-240V, 50/60Hz 2.0AOutput: DC 12.0V,3.0A) Intermediate interface terminal (12-pin port) : GPIO interface;

Port terminal (12-pin port) on the right: a group of RS232 ports, RS485 ports, and network ports (standard 568A).

GPIO interface terminal definition:

white	green	brown	blue	pink	yellow	black	grey	red	purple	orange	cyan
relay								grou nd	flip- flop		NC
DO1+	DO1-	DO2+	DO2-	DO3+	DO3-	DO4+	DO4-	GND	DI1	DI2	

Note: Relay 1 is connected, DO1+ and DO1- are switched on;

Relay 2 is connected, DO2+ and DO2- are switched on;

Relay 3 is connected, DO3+ and DO3- are switched on;

Relay 4 is connected, DO4+ and DO4- are switched on;

The trigger DI1 and GND pins form a group of input, which is triggered by low level.

The trigger DI2 and GND pins form a group of input, which is triggered by low level.

NC is the suspended pin.

1.3 Performance indicators

(1) Read and write tags: electronic tags that comply with ISO18000-6C standards

(2) Working frequency:

865~868MHz (EU)

902~928MHz (US)

Note: Please adjust the working frequency according to the country or region before use, so as not to interfere with other radio communication equipment.

(3) Working mode: Work with wide-spectrum frequency hopping (FHSS) or fixed frequency transmission.

(4) Output power: 0~33dBm (may vary slightly depending on the country or region)

(5) Reading and writing distance:

① 5dbi four-wall spiral antenna:

The maximum card reading distance is 7500mm, and the maximum card reading distance is 4000mm(AZ-9662 white card label).

② -10dbi near-field antenna:

The maximum reading distance of the card is 300mm, and the maximum reading distance of the card is 160mm(AZ-9662 white card label);

(6) Relay: the maximum load of the contact is DC30V/2A, AC125V/0.5A;

(7) Trigger: The default is low level trigger (low level trigger reference voltage 0-2V, note: the signal line level of the access point does not exceed 12V);

(8) Card reading speed: the average reading time per single word (32bits) is 6ms;

- (9) Card writing speed: the average writing time per single word (32bits) is 50ms;
- (10) Power supply: Method 1: nput: AC100-240V, 50/60Hz 2.0A Output: DC 12.0V,3.0A
- (11) Power consumption: the maximum power consumption is 3W, the maximum starting current is 1A;
- (12) Working environment temperature: -20℃~+40℃;
- (13) Working environment humidity: 5%-95% non-condensing.

1.4 Function

- (1) Suitable for ISO18000-6C electronic tags
- (2) Support 100M/10M wired network port (support TCP and UDP protocol)
- (3) Support RS232, RS485 serial communication;
- (5) Support 4 relay outputs;
- (6) Support 2 trigger inputs;
- (7) Meet the IEC IP67 industrial isolation protection level;
- (8) Support TCP/IP, UDP/IP protocol;
- (9) Support Modbus RTU, Modbus TCP protocol;
- (10) The maximum length of 512Bit tags can be recognized;
- (11) Support tag access, lock, and destruction.

2 Equipment installation

2.1 Connection

In the application system, the connection relationship between the reader, electronic tag, and controller (or PC) is shown in the following picture:



Figure 2-1 Schematic diagram of device connection

2.2 Connect the reader and the controller

The VI-IR600 reader can communicate through any of the network ports, RS485 ports, or RS232 ports.

(1) RJ45

Use RJ45 interface to communicate, support 10M/100M transmission rate, using network cable, it is recommended that the transmission distance should not be greater than 50 meters.

(2) RS485 port

To use RS485 interface to communicate, you need to connect the two wires RS485+ (brown) and RS485- (blue) on the reader to the corresponding two pins of the controller. It is recommended that the transmission distance should not be greater than 80 meters.

(3) RS232 port

The RS232 interface can be directly connected to the PC with a supporting cable. It is recommended that the transmission distance should not be greater than 10 meters. The connection diagram is shown below:

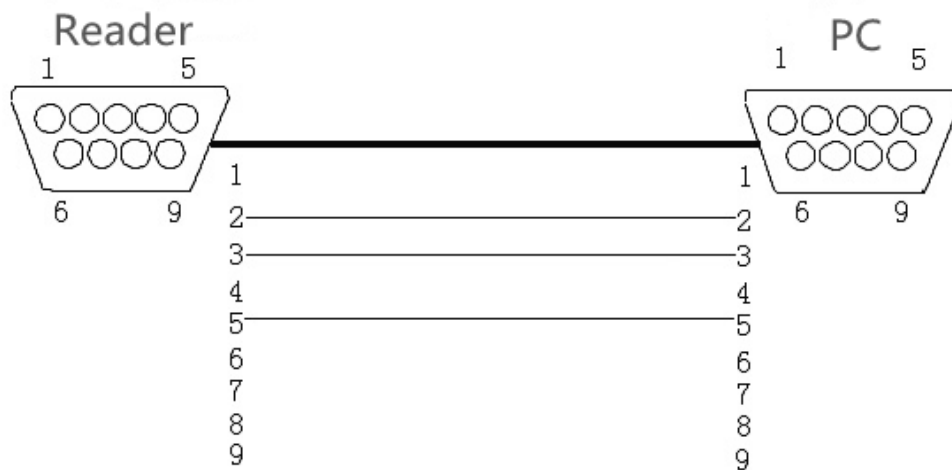


Figure 2-2-1 The RS232 reader connects to the

2.2 Connect power supply

VI-IR600 reader adopts +12V/3A DC power supply. The AC/DC converter that meets this requirement is provided by our company together with the reader. The power connection method is as follows:

- (1) Check and confirm whether the voltage and operating frequency of the AC power supply meet the requirements of: nput: AC100-240V, 50/60Hz
2.0AOutput: DC 12.0V,3.0A
- (2) Insert the DC output plug of the power converter into the +12V DC input port of the reader
- (3) Insert or connect the 220V AC power input line of the converter to the AC power supply line
- (4) The power indicator of the reader should be lit, indicating that the power input is normal.

Device indicator logic:

Name	Light color	logic	
POWER灯	red	Steady light	Power-on operation
		Not bright	Not powered on
RF灯	green	flicker	Reading card
		Slow flicker	Unread card
RUN灯	blue	flicker	Normal operation
		non-flash	Program not running
Link	yellow	flicker	Ethernet port data traffic
		Steady light	PROFINET protocol
RS232	blue	flicker	Data transmission
		Not bright	There is no
RS485	blue	flicker	Data transmission
		Not bright	There is no
四角异形LED灯	Ice blue	Slow flicker	No reading card in standby mode
		flicker	Reading card

2.3 Equipment joint debugging

The key of equipment joint debugging is to adjust the height, direction angle and inclination angle of the antenna so that the reader can read the electronic tags within the desired range. The debugging method is:

(1) Turn on the power of the reader, set the reader to continuous working mode, close the parameter setting program and disconnect the connection with the PC.

(2) Turn off the power of the reader and then turn it on again, the reader will automatically enter the continuous working state.

(3) Since the material of the identified object is different, the required label is also different. Therefore, when debugging, the electronic label should be affixed to the object with the same material as the surface of the identified object, and back and forth within the range where the label is expected to be read. Move objects. If the reader can read the electronic label correctly, the built-in buzzer will sound and the green LED will flash.

Note: The reader only radiates microwave power when reading and writing tags. At this time, the installation and debugging personnel should be at least 30cm away from the antenna to meet the requirements of the United States FCC for the maximum allowable radio frequency (RF) radiation requirements for human exposure.

2.4 Equipment joint debugging

The key of equipment joint debugging is to adjust the height, direction angle and inclination of the antenna so that the reader can read the electronic tags within the desired range. The debugging method is:

(1) Power on the device, use the "RFID Reader Management System" to connect the reader, turn on the reader's buzzer, set the reader to automatic working mode, select the corresponding interface for the reporting interface, and select the reporting mode Report immediately or report regularly or report in real time.

(2) Because the material of the identified object is different, the required label is also different. Therefore, when debugging, the electronic label should be affixed to an object with the same material as the surface of the identified object, and the object should be moved back and forth within the range where the label is expected to be read. If the reader can read the electronic label correctly, the built-in buzzer will sound and the blue LED will flash.

Note: The reader only radiates microwave power when reading and writing tags. The installation and debugging personnel should be at least 40cm away from the antenna to meet the requirements of the US FCC for the maximum allowable radio frequency (RF) radiation requirements for human exposure.

2.5 Stick tag

In the application process of radio frequency identification system, labeling

is often done. The issues that need to be paid attention to when labeling are:

- (1) Use the adhesive glue recommended by the manufacturer.
- (2) For labels applied to metal surfaces, special adhesive glue should be used.
- (3) The position of the label on the surface of the object must also undergo field tests to ensure the best reading and writing effect.

3 Common malfunctions

Table 3-1 Common faults of readers and solutions

Failure phenomenon	Possible Causes	Solution
Can't read tag	Antenna not connected	Check the antenna connection
	Beyond the reading area of the reading and writing module	Move the card closer to the antenna of the reader module
	The antenna is damaged	Replace the reader antenna
	The parameter RF Power value is too low	Restore factory parameters
	Bad label	Change to other label test
	The reader is broken	Contact technical support
Cannot connect to the reader	Not powered	Check the power connector and adapter
	Com is occupied or broken	Check the port occupancy through the software and test whether the port can communicate
	Inconsistent baud rate settings	Set to a consistent baud rate by software
	The reader is broken	Contact technical

Failure phenomenon	Possible Causes	Solution
		support
Card reading distance is very close	Antenna not connected	Check the antenna connection
	The parameter RF Power value is too low	Restore factory parameters
	The label and the antenna polarization direction are inconsistent	Rotate the label 90 degrees
	The reader is broken	Contact technical support
	Bad label	Change other labels

4 After-sales service

4.1 Support and service

Customer Support If you have questions about this manual or the content of the website cannot answer your questions, you can contact our customer service staff. If your machine needs repair, please contact our company for service information, shipping instructions, and out-of-warranty repair costs before sending it.

Service If your machine needs diagnostic service or other service information, please contact our customer service staff. Please do not send out your machine before contacting our company. If your machine meets the warranty conditions during the warranty period, please prepare proof of your purchase date.

Before you contact the company, please be sure:

- A. Prepare your device:
 - mode
 - Proof of purchase date
- B. Prepare your machine, the service staff may ask you to operate the machine.
- C. Prepare the questions you want to ask, a detailed description of the problem can assist the customer service staff to quickly solve your problem.

Warranty

Important information This article is the warranty statement of the hardware product. Please read carefully.

One-year limited hardware warranty

Shenzhen Vanch Intelligent Technology Co., Ltd. provides the hardware product with a warranty of no defects in materials and manufacturing within one year from the date on the original purchaser's receipt.

If Shenzhen Vanch Intelligent Technology Co., Ltd. receives the notice of the above-defined defect during the warranty period, Shenzhen Vanch Intelligent Technology Co., Ltd. can decide on its own whether to repair or replace the product that has been proven to be defective.

If Shenzhen Vanch Intelligent Technology Co., Ltd. cannot repair or replace the product within a reasonable time, the customer can choose to refund when returning the product.

Warranty range

The above warranty shall not cover defects caused by the following factors: misuse; unauthorized modification; opening the hardware; operating or storing the product in an environment beyond the specifications; damage in transit; improper maintenance; or the cause Use non- Shenzhen Vanch Intelligent Technology Co., Ltd. software, parts, media, supplies, consumables, or use items that are not designed for this product.

Shenzhen Vanch Intelligent Technology Co., Ltd. has only one warranty statement for this product, and there is no other written or oral warranty statement.

Any merchandise channels or metaphors suitable for special purposes are subject to the one-year term of this written warranty.

Under no circumstances will Shenzhen Vanch Intelligent Technology Co., Ltd. be liable for direct, indirect, special, accidental, or subsequent damages (including loss of profits), whether based on warranty statements, contracts, negligence, or any other laws Theoretical basis.

Non-commitment clause: Any radio transmission equipment may cause interference to the work of industrial, medical, and scientific research equipment that is not properly protected. The operation of this device may also cause interference to other electronic devices. If you have any questions in this regard, you can consult Shenzhen Vanch Intelligent Technology Co., Ltd. to improve the anti-interference ability of the equipment.

4.2 Service Hotline

Thank you for choosing our products. We will provide you with technical support for product integration and application, and answer and deal with various difficult problems.

Company: Shenzhen VANCH Intelligent Technology Co., Ltd.

Address: 401, 4th Floor, Building B, Fuana Industrial Park, Qingning Road,
Qinghu Industrial Zone, Longhua District, Shenzhen, Guangdong, China

Zip code: 518109

Phone: 0755-8242 6775

Fax: 0755-8240 3457

Website: www.vanch.cn

Email: info@vanch.net

1. Use carefully with the earphone maybe possible excessive sound pressure from earphones and headphones can cause hearing loss



2. CAUTION : RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS

3. The product shall only be connected to a USB interface of version USB2.0

4. Adapter shall be installed near the equipment and shall be easily accessible

5. Operation temperature:-20~40° C

6. The plug considered as disconnect device of adapter

7. The device complies with RF specifications when the device used at 40cm from your body

8. AC adapter:

Model No.: TDX-1203000

Input: 100-240V~, 50/60Hz, 2.0A

Output: 12.0Vac, 3.0A

Shenzhen VANCH Intelligent Technology Co.,Ltd , hereby declares that this UHF RFID Industrial Reader is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

This information has to be presented in such a way that the user can readily understand it. Typically, this will necessitate translation into every local language (required by national consumer laws) of the markets where the equipment is intended to be sold. Illustrations, pictograms and using international abbreviations for country names may help reduce the need for translation.

Max power:

RFID: 32.957

865MHz-868MHz

FCC Statement

1. 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.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

The distance between user and product include antenna should be no less than 20cm during normal operations.

IC STATEMENT

This device complies with Industry 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.

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. End user must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

To comply with RF exposure requirements, a minimum separation distance of 20mm must be maintained between the user's body and the handset, including the antenna. Third-party belt-clips, holsters, and similar accessories used by this device should not contain any metallic components. Body-worn accessories that do not meet these requirements may not comply with RF exposure requirements and should be avoided. Use only the supplied or an approved antenna. Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

Ce dispositif est conforme aux normes autoriser-exemptes du Canada RSS d'industrie

L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement. Cet équipement est conforme avec l'exposition aux radiations IC définies pour un environnement non contrôlé. L'utilisateur final doit respecter les instructions de fonctionnement spécifiques pour satisfaire la conformité aux expositions RF. Cet émetteur ne doit pas être co-localisées ou opérant en conjonction avec une autre antenne ou transmetteur.

Pour se conformer

aux exigences d'exposition aux radiofréquences, une distance minimale de 20 mm doit être maintenue entre le corps de l'utilisateur et le combiné, y compris l'antenne. Les pinces de ceinture, les étuis et autres accessoires similaires utilisés par cet appareil ne doivent pas contenir de composants métalliques. Les accessoires portatifs qui ne répondent pas à ces exigences peuvent ne pas se conformer aux exigences d'exposition RF et doit être évitée. Utilisez uniquement l'antenne fournie ou une antenne approuvée