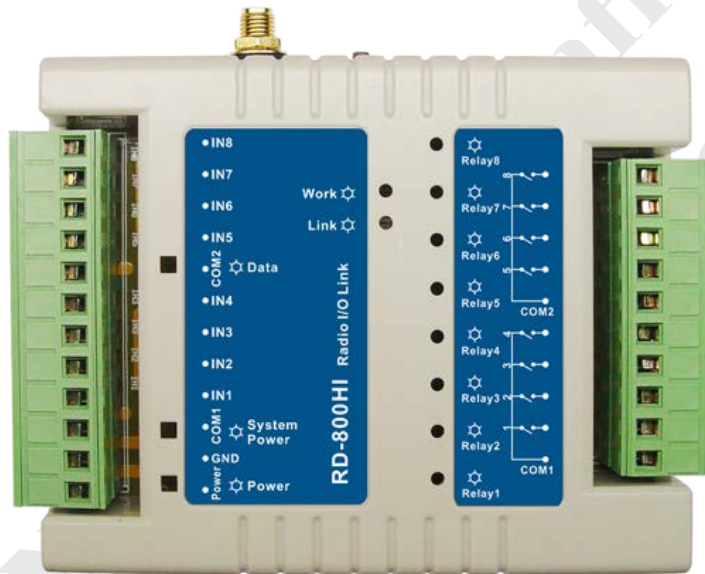

 922~928MHz 16 Loop Wireless Hi Power Controller



Version History

Version	Date	Changes
V1.01	Jun. 10, 2009	1 st Edition
V1.02	July.16, 2009	2 nd Edition
V1.03	July.14, 2022	3 rd Edition

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Important Event

- This product is in general use for the equipment on the premise of the development, design, manufacture. Do not use that require high security purposes, such as machinery or medical, aviation equipment, machinery and transport-related deaths are directly or indirectly related to the system.
- This product should be in this brochure by the instructions of the types and rated voltage power under the current proper use. If violation of this statement by the safety records of the supply operation, I am afraid our company cannot afford any of the responsibility.
- Do not self-decomposition, alteration, repair of the products also will cause fire, electric shock, fault, and dangerous. In addition, their decomposition, alteration, and repair the product, failure is not within the scope of warranty.
- The products are not waterproof, so please do not use and touch water. Take off and on also please note. Rain, spray, drinks, steam, sweat may be a failure.
- Use of this product, please be sure to use according to the statement recorded by the use of methods to operate. Please do not violate particular attention to the matter reminded to use.
- Please respect this statement recorded by the note. When consumers in contravention of this statement recorded note of the operation, I am afraid our company could not shoulder any responsibility.
- Products are defective, the Company will be responsible for free to amend the flaws, or to the same flawless product or its equivalent products in exchange. However, the Company does not assume based on the requirements of the flaw and loss responsibility.
- The Company reserves the right to retain without notice to users of the cases, the product of hardware / software (version upgrade) is with the right to edit.
- All script, communications, forms and images may not be private information without permission to use.

Warranty

The warranty time is within one year from purchased date. The warranty scope is used in normal situation and none vandalism. (Some function harmful out of warranty scope and Vandalism are Un-warranty).

- Because the natural disaster, accident or human factor to cause the bad damage.
- Violate the product instruction manual to cause the damage of the products.
- The improper assemble causes damage.
- The products used the unsanctioned accessory to cause damaged.
- Overstep the allowed used environment to cause the products damaged.

Contact Us

WENSHING ELECTRONICS CO., LTD.

82, Chong De St. 11054 Shin Yi Dist, Taipei, Taiwan

Tel: +886-2-27353055

Fax: +886-2-27328813

Product Instruction

RD-800HI is the latest new product from WENSHING Electronics Co., Ltd. that is hi power wireless 8 junction industrial control products, mainly provide a wireless control interface for industry control equipment. The RD-800HI communication mode is taking hopping technology. The system will self-detect the available frequency band and be able effectively to reduce interference with the external environment. Group internal offered 8 sets input signal control and 8 sets output equipment control. The farthest distance can up to more than 1KM. It's only needed several simple wiring steps. The wired environment will be replaced into a wireless control environment and effective reducing the connecting cost of the equipment. Also, user can collocate with our Wireless RS232 Hi Power through the equipment which is provide RS232 interface to do wireless control and monitor RD-800HI actions to modify every set within RD-800HI.

Introduce

The following describes detail of RD-800HI wireless 8 junctions industrial control box of relevant hardware interfaces and operation instructions. RD-800HI integrates the intact circuit radio frequency, especially suitable for the connection all kinds of industrial control apparatus. The scope of application is very extensive. The RF module of RD-800HI is used TRW-909HI RF Transceiver Module, it will greatly reduce the size and weight of this product.

Block Diagram

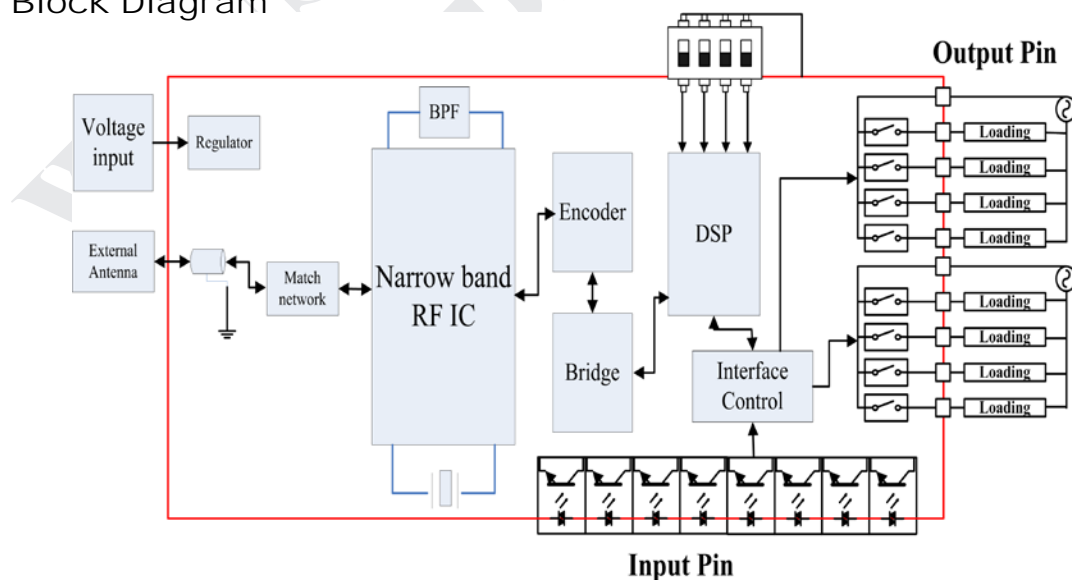
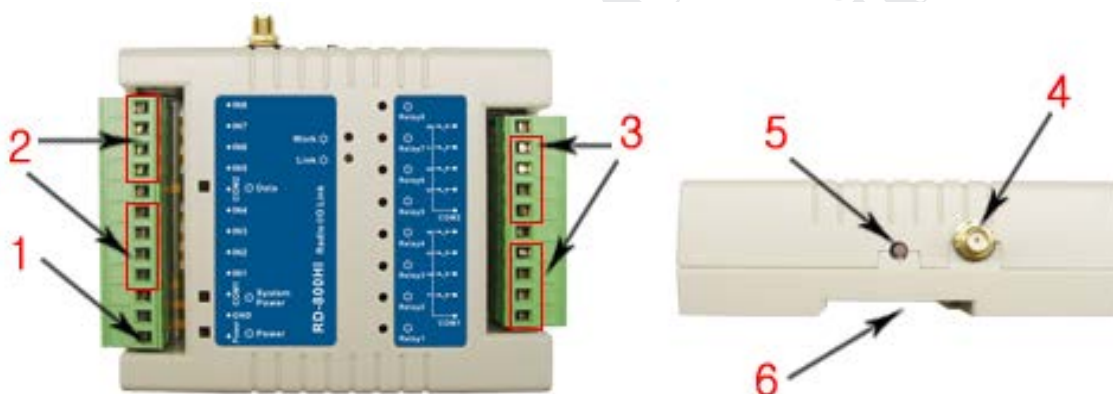


Chart 1 RD-800HI Product Block Diagram

RD-800HI has the complete RF receiving and transmitting circuit and interface. Chart 1 is the function block diagram of RD-800HI, main components are as followings: DSP processor, circuit of RF frequency, memory, power and system connector and all can connect outer antenna. When through system connector is able to link 8 sets control signal input port and 8 sets equipment control output port.

In Chart 1, inside the red line frame is each component part of the main board of RD-800HI. The outside of red line is outer interface. RD-800HI main board has finished all the function of wireless control. Include RF specification and the code of RF data, regulation frequency indication. Additionally, the main board also include: 8sets control signal input port and 8 sets equipment control output port. LED light instruction. Following, we will separate to introduce each part function of main board and outer interface.

Part of Name and Function



Pin	Name	Description
1	AC/DC Input	Outer power input
2	Control Signal Input	Provide 8 sets signal input
3	Device Control Output	Provide 8 sets signal output
4	Antenna	The position for antenna inserts
5	Setting Button	Function setting
6	Track	Put in the position of aluminum track

Introduction of Function

- **DSP Processor**

DSP processor finished all signals handling function of RD-800HI includes receiving and transmitting RF data, LED light instruction, and judgment of the button.

- **Circuit of radio frequency**

The circuit of radio frequency offers the pass way of receiving and transmitting of 922~928MHz, including receiving circuit, transmitting circuit, frequency compose the circuit.

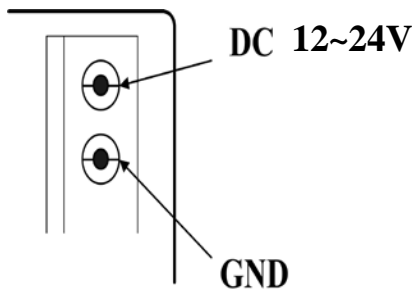
- **Memory**

The memory is mainly used in storing the present working frequency and RF transmitting speed.

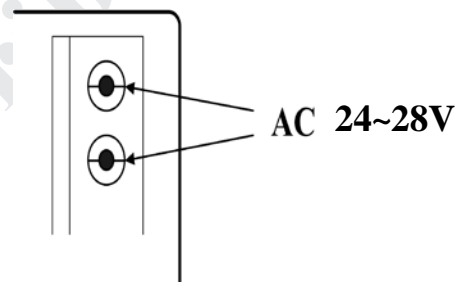
- **Circuit of the power**

Circuit of the power offer AC 24~28V or DC 12~24V input in power supply.

DC Linking Mode



AC Linking Mode



Electronic Characteristic

Item	Specification	Remark
Voltage Range	AC 24~28V/DC 12~24V	
Frequency Range	922~928MHz	
Output Power	0.5W	It can be adjusted to 100mW~2W when equipped with RS232 wireless data transmitter.
Antenna	1/4λ wire antenna	Gain of 2.14 dBi or less
Antenna Power	Within 8 (+20% -50%)	Contact (50 Ω)
Modulation System	Binary FSK	Hopping
Oscillation System	PLL synthesizer system	
Radio Communication Speed	12.8Kbps	
Number of Channels	5	
Receiver Sensitivity	-118dBm (1200bps)	Packet error rate 1% (253 bytes/1 packet)
Input I/O	$V_{IL} \leq 10V$ · $12V \leq V_{IH} \leq 28V$	Pulse wide > 200ms
Output I/O	AC 125V 5A · AC 250V 3A · DC 30V 3A	
Working Temperature	-10°C ~+70°C	
Storage Temperature	-30°C ~+95°C	
Consumption Current	MAX : 300mA MIN : Disconnect : 40mA Connect : 25mA	
External Dimension	109 × 86.4 × 33.3 mm (L × W × H)	

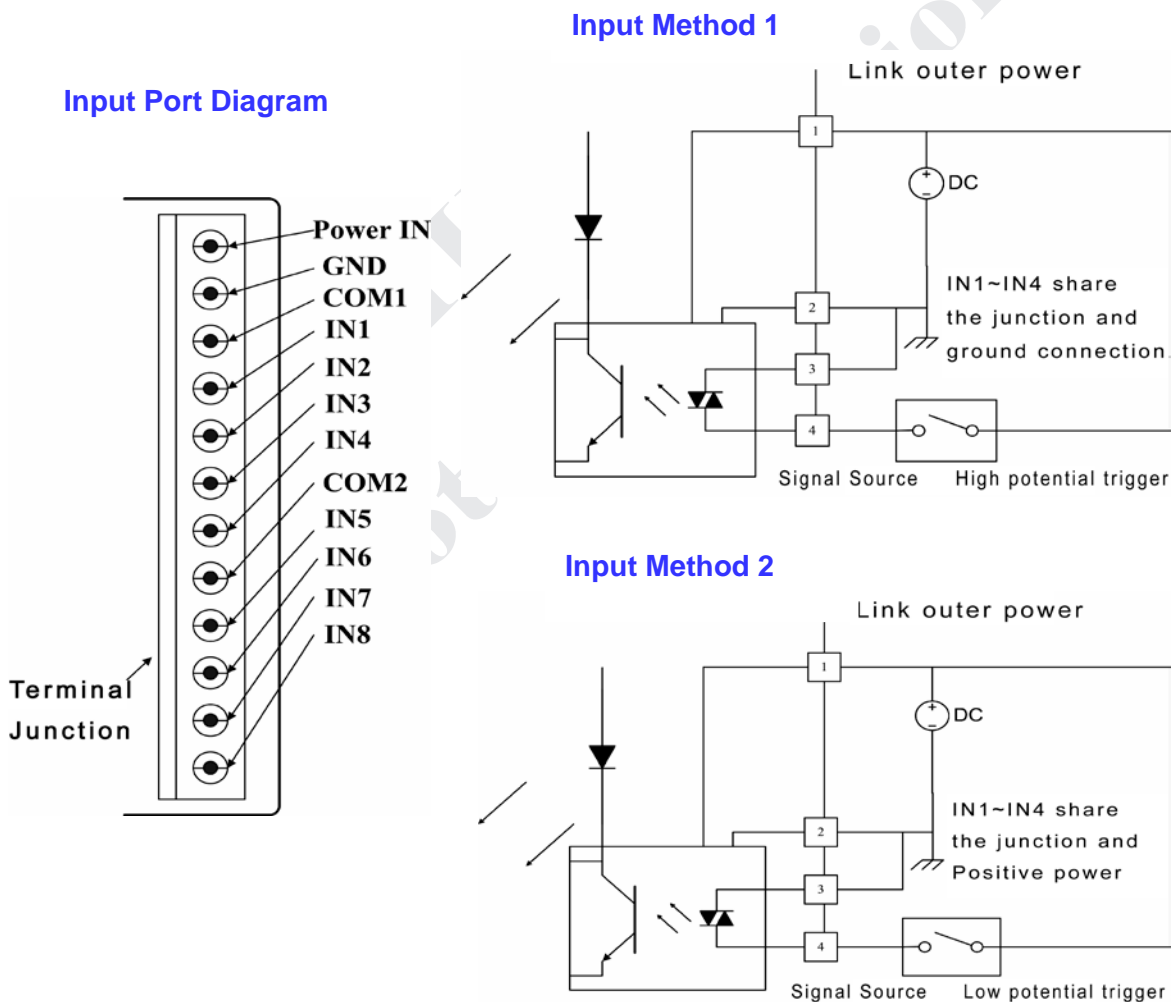
Interface Description

Power

RD-800HI provides 2 methods of linking outer power which are AC 24V~28V or DC 12V~24V. In order to guarantee the module works normally, the direct current source should have the output ability of 500mA of peak value electric current.

Input Connection

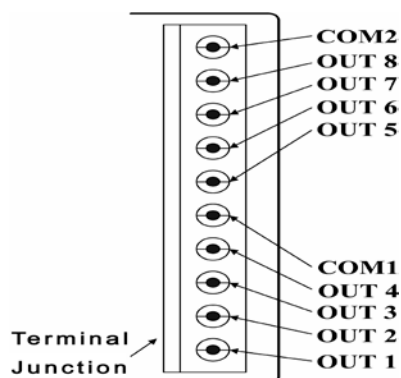
RD-800HI is able to offer 8 sets signal input port. IN1~IN4 shares COM1 and IN5 ~ IN8 shares COM2. The two sets of input ports can use different trigger modes. One is connected to the common point (COM), low electric potential, and the trigger signal (IN) is high electric potential. Another one is connected to the high potential of the common contact (COM), the trigger signal (IN) is low electric potential, and the trigger signal width needs to be greater than 200ms, which can be used according to various purposes.



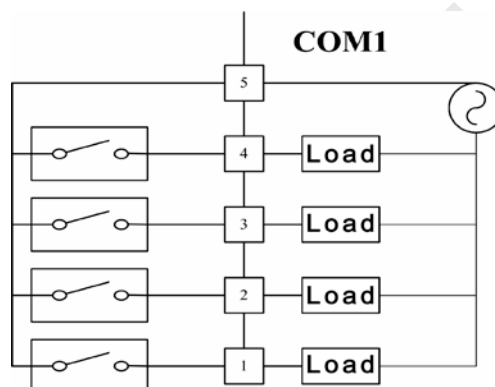
Output Connection

RD-800HI offers 8 sets signal output port, OUT1~OUT4 share with COM1 and OUT5 ~ OUT8 share with COM2. Also provide high bearing press and the high electric current relay (AC 125V 5A, AC 250V 3A, DC 30V 3A) to be the output exchange switch. It makes RD-800HI can be applied in extensive purpose.

Output Port Diagram

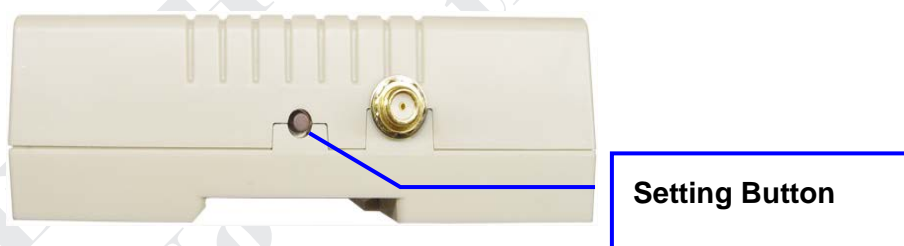


Output Port Model



Equipment Connect Button

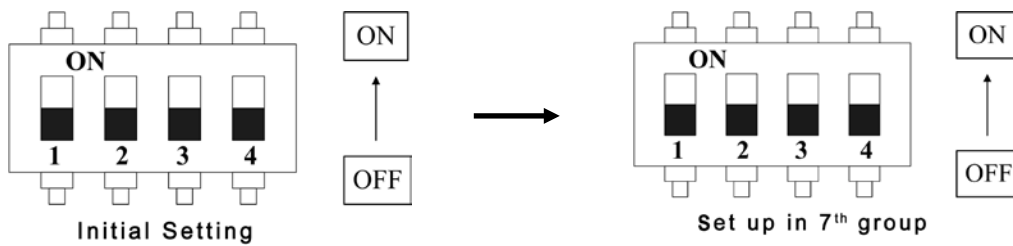
Press the Setting Button in the power on state until the LED light flashes and release the button to enter the setting mode. The internal parameters of the RD-800HI can be modified by wireless transmission via our RS232 wireless data transmitter. (For detailed setting, please refer to the instructions for using the RS232 wireless data transmitter.)



Setup the Group Switch

Built-in setup group switch in RD-800HI, provide users to adjust transmitting and receiving working group. Simplify the complex installation process and make more user-friendly settings Please refer to the following instructions and forms for the setting method.

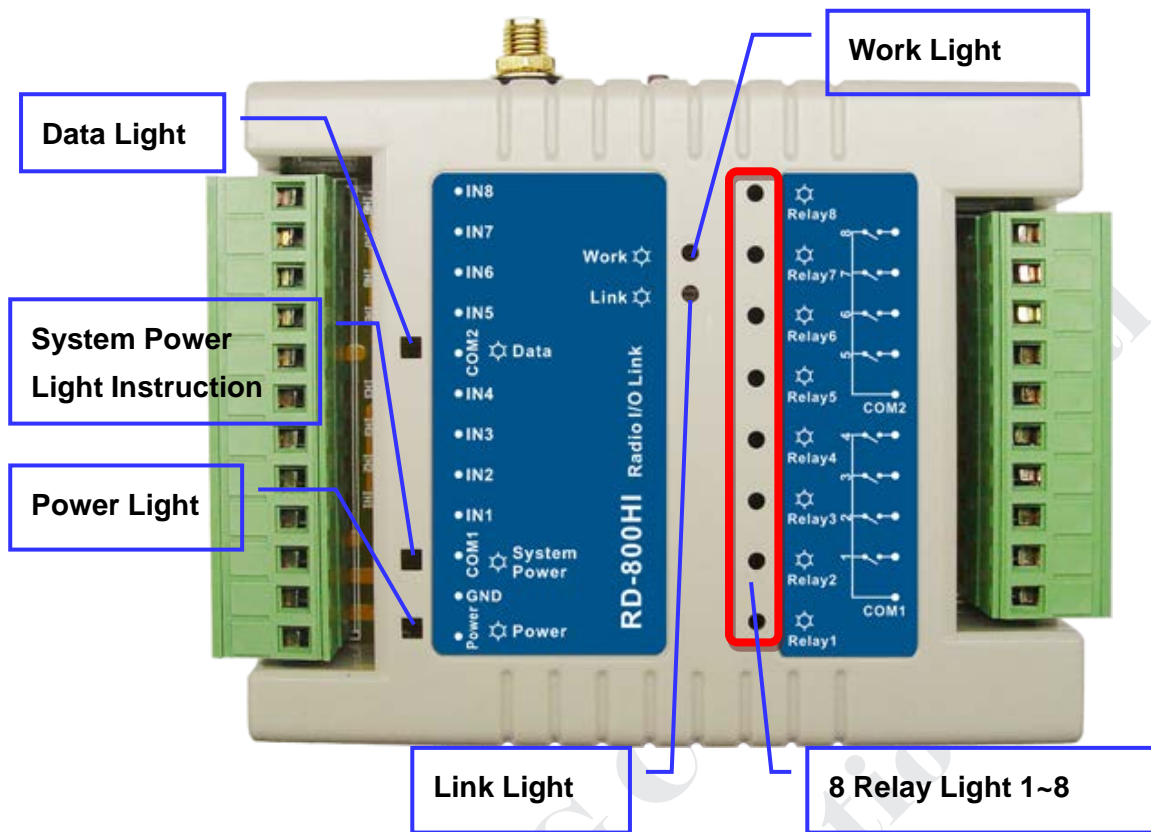
To set in the 6th group, simply turn the group setting switches 2 and 3 on the back to the ON position, and the group setting switches 1 and 4 do not need to be changed. After powering on, the RD-800HI will automatically connect to the set group. To set other groups, please refer to the following setting table.



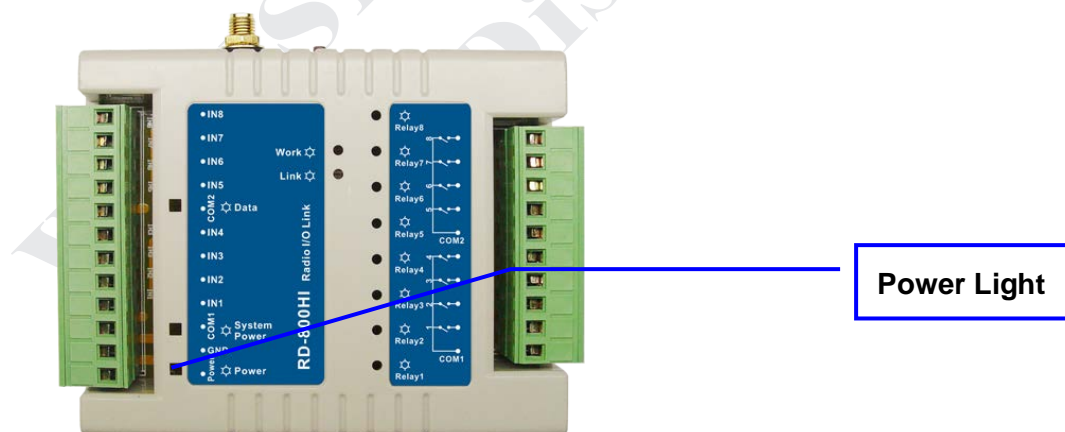
Switch 1	Switch 2	Switch 3	Switch 4	Working Speed
0	0	0	0	Test Mode
1	0	0	0	1st Group
0	1	0	0	2nd Group
1	1	0	0	3 rd Group
0	0	1	0	4 th Group
1	0	1	0	5 th Group
0	1	1	0	6 th Group
1	1	1	0	7 th Group
0	0	0	1	8 th Group
1	0	0	1	9 th Group
0	1	0	1	10 th Group
1	1	0	1	11 th Group
0	0	1	1	12 th Group
1	0	1	1	13 th Group
0	1	1	1	14 th Group
1	1	1	1	Command Mode

- When users adjust the switch to test mode, user will easily test where the problem is and decrease equipment setting time and cost. Also, users can test Output side is normal working or users can input signal through Input side, corresponding Relay side will action.

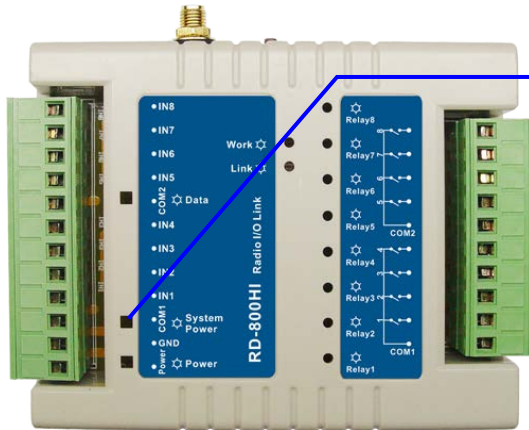
LED Indication Light



- **Power Light:** When the power indicator lights up, it represents power.

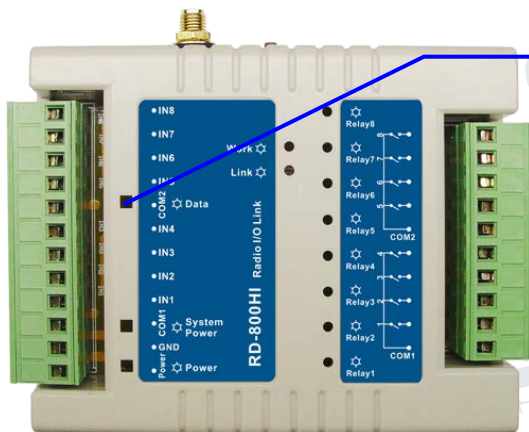


- System Power Light: When the indicator light is steady, it indicates that the working voltage is normal.



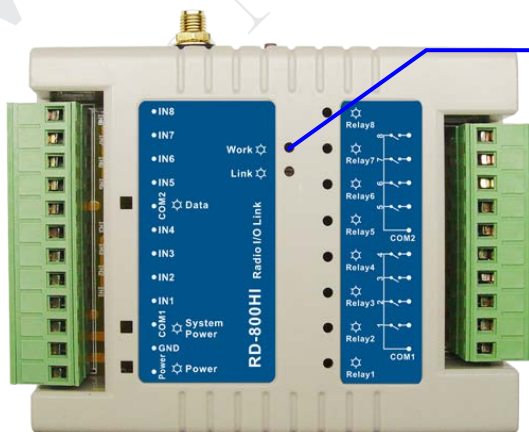
When the indicator light is steady, it indicates that the working voltage is normal.

- Data Light: When the RD-800HI receives the input signal and the Data indicator will flash once.



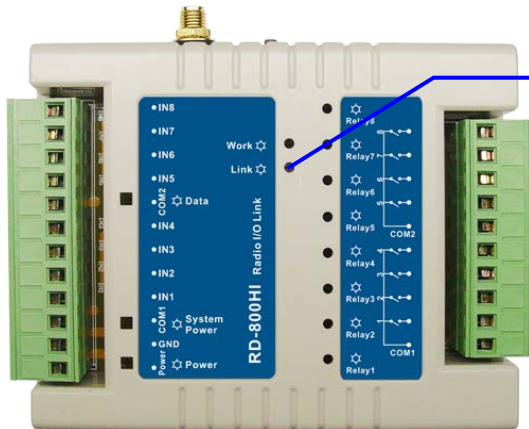
When the RD-800HI receives the input signal and the Data indicator will flash once.

- Work Light: When the RD-800HI is in normal working condition, the Work indicator is steady on.



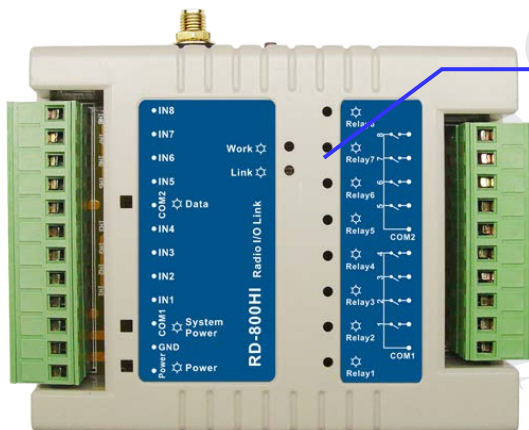
When the RD-800HI is in normal working condition, the Work indicator is steady on.

- Link Light: When the RD-800HI is connected to the setting group within the working range, the Link indicator lights up steadily.



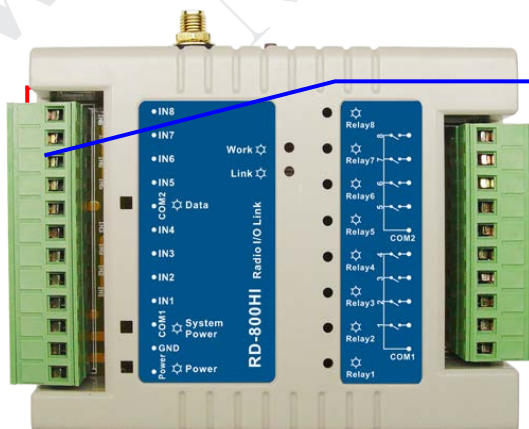
When the RD-800HI is connected to the setting group within the working range, the Link indicator lights up steadily.

- Relay Light 1~8: When the RD-800HI receives the control signal to drive the Relay action, the corresponding Relay light will flash or steady light up according to the Relay action.



When the RD-800HI receives the control signal to drive the Relay action, the corresponding Relay light will flash or steady light up according to the Relay action.

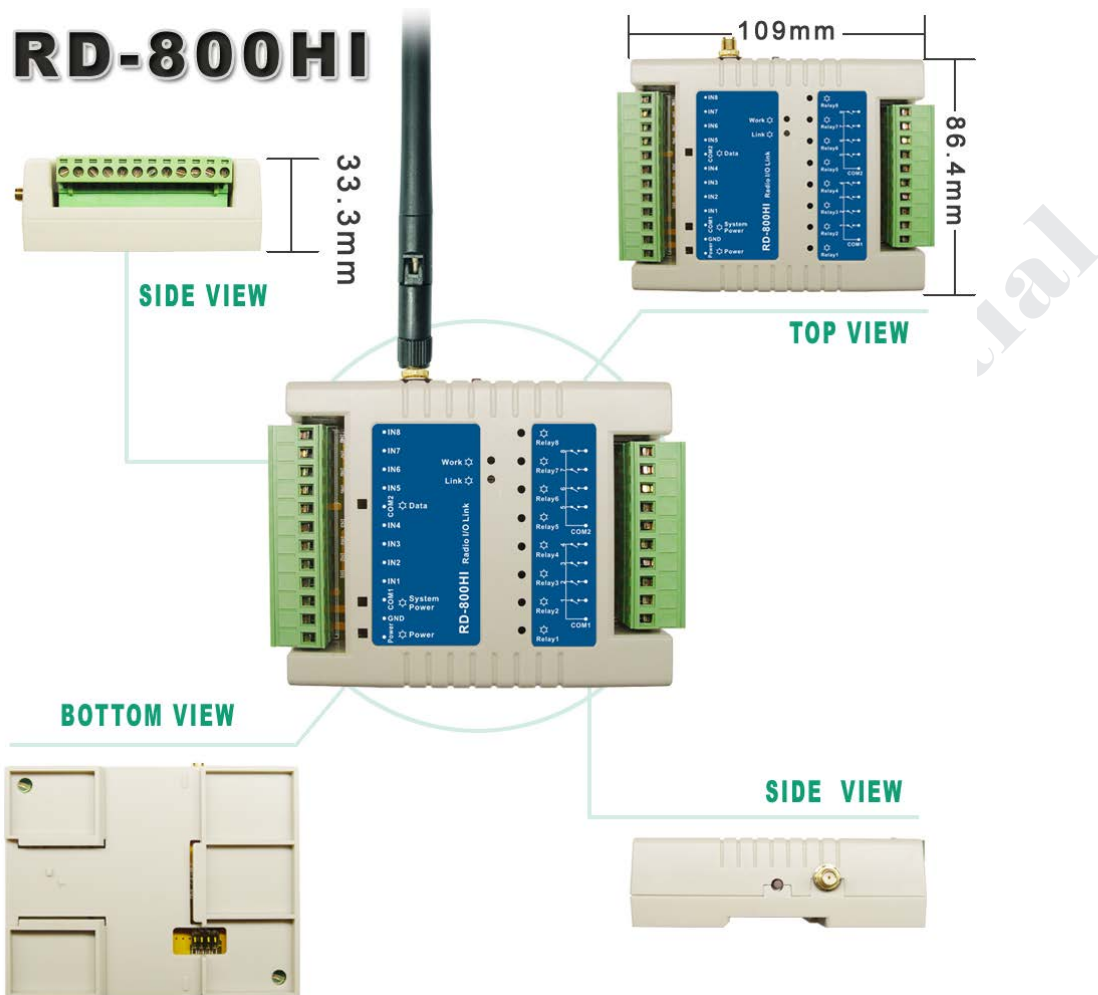
- In1~In8 Light: When there is an input signal on the individual input, the corresponding indicator will flash once.



When there is an input signal on the In1 to In8 individual input, the corresponding indicator will flash once.

Product Dimension

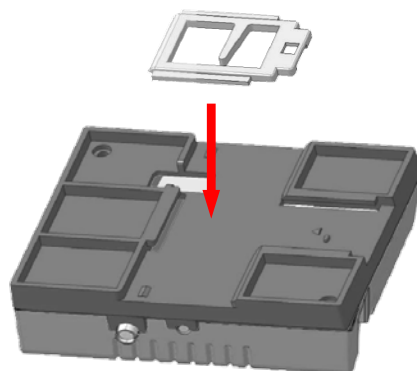
(unit: mm)



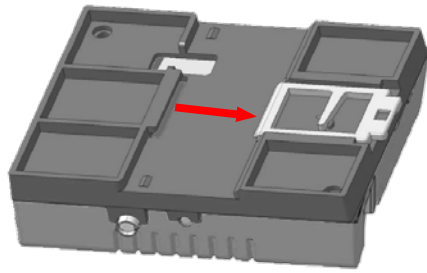
Assemble

Put into Aluminum Rail of Industry Control Box.

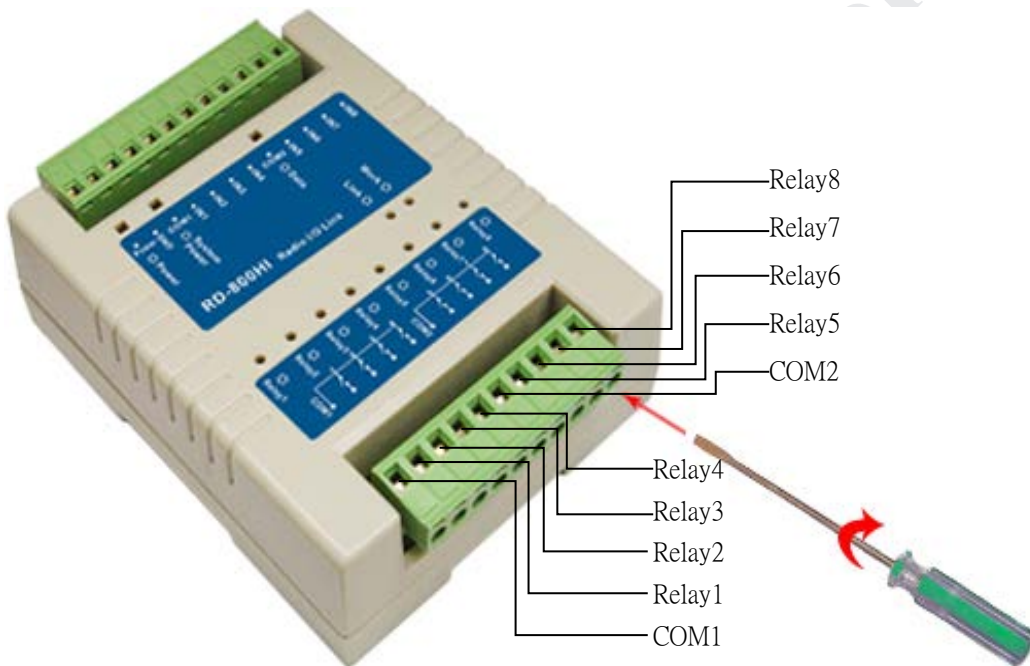
- Step 1



● Step 2

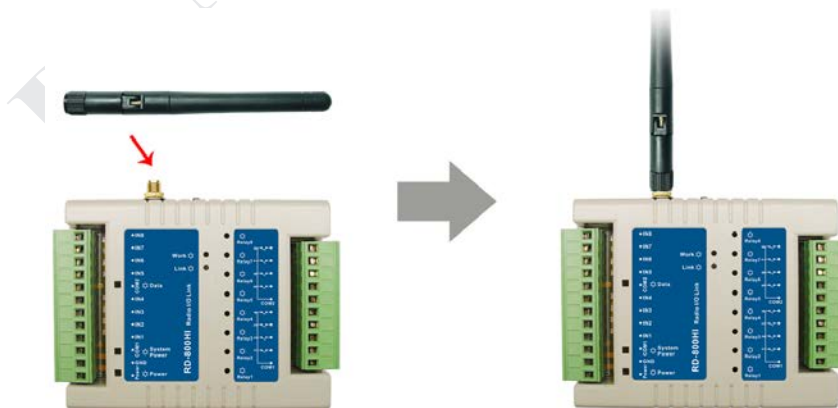


Wiring

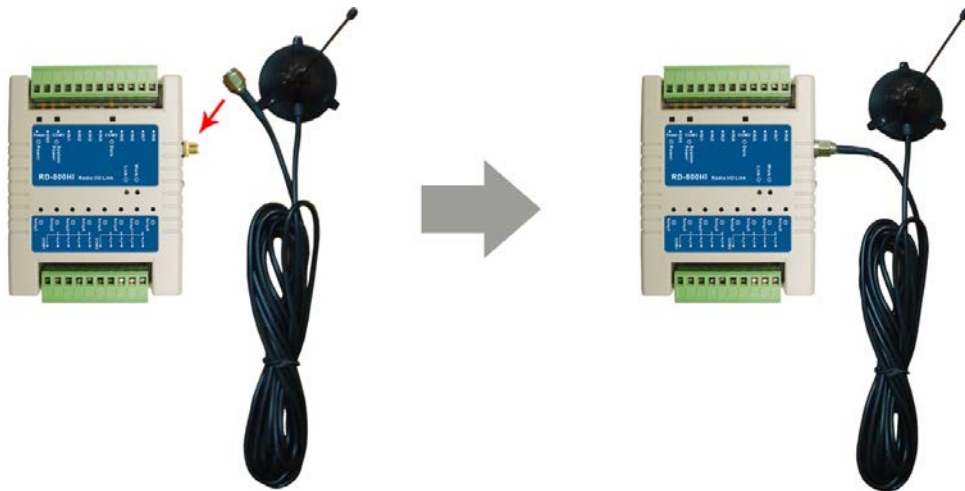


Install Antenna

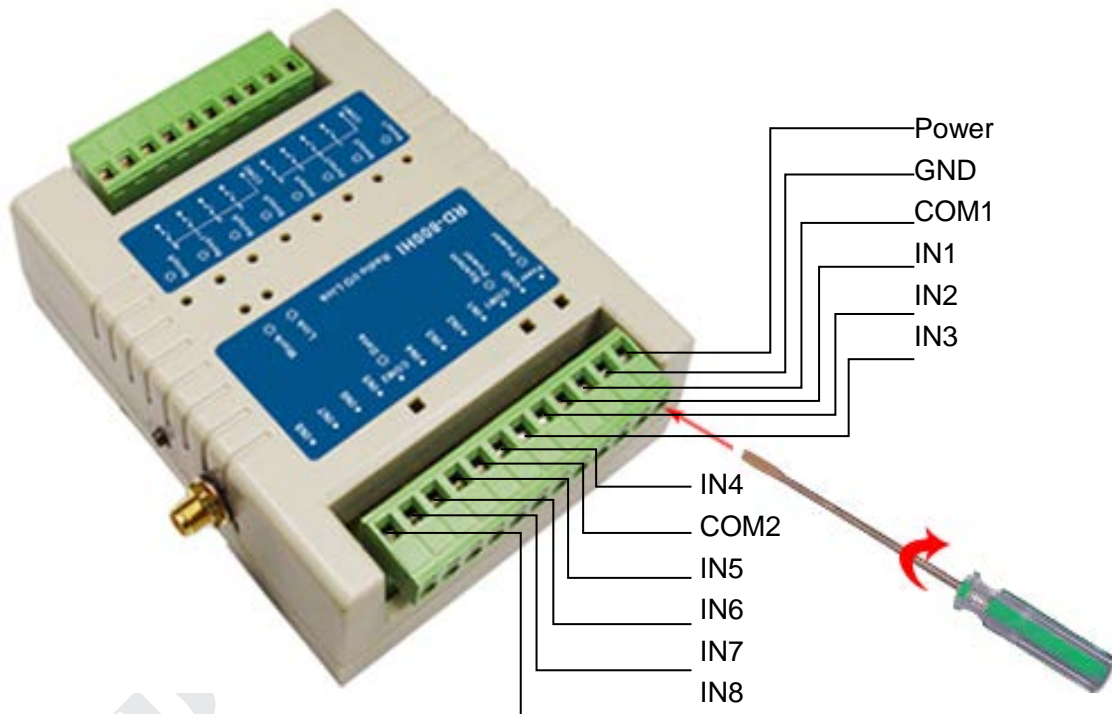
● Standard Antenna



● Suction Cup Antenna

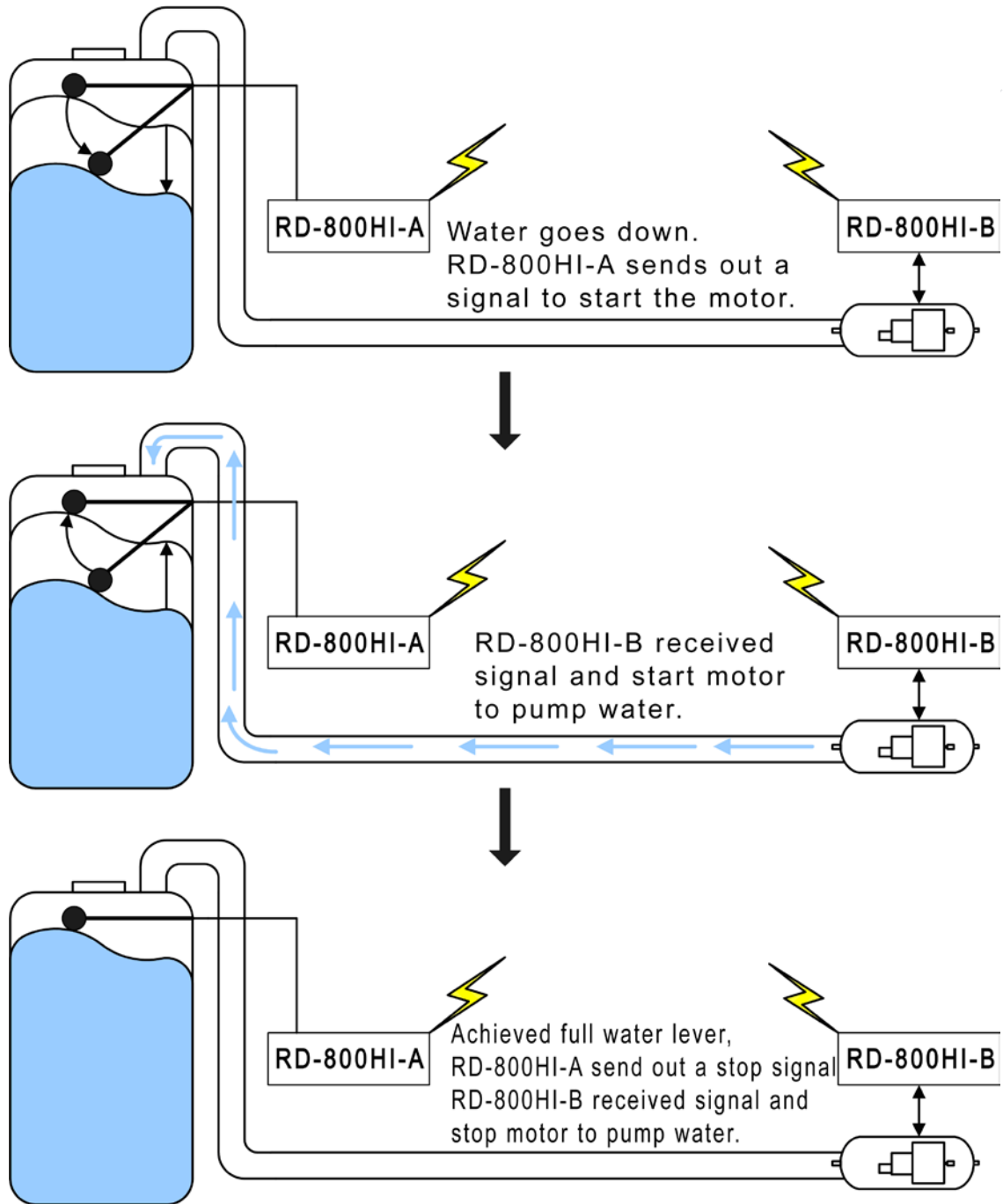


Connect Power



Application

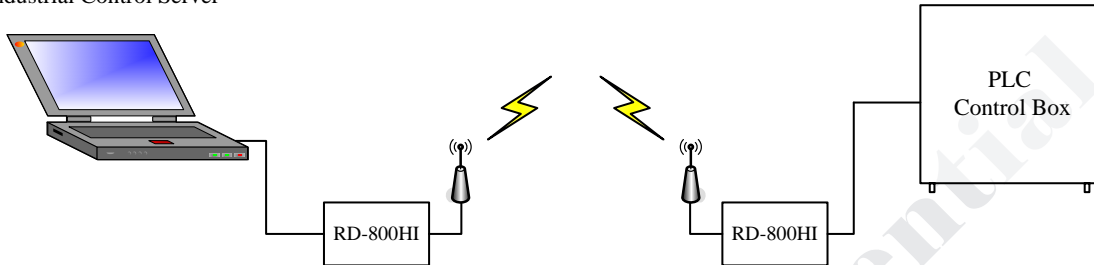
- Example 1



- Example 2

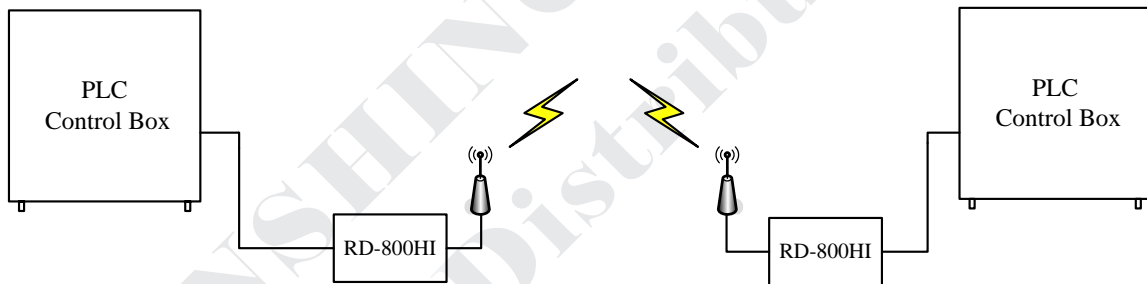
Example 2: Wireless industrial control transmission

Industrial Control Server



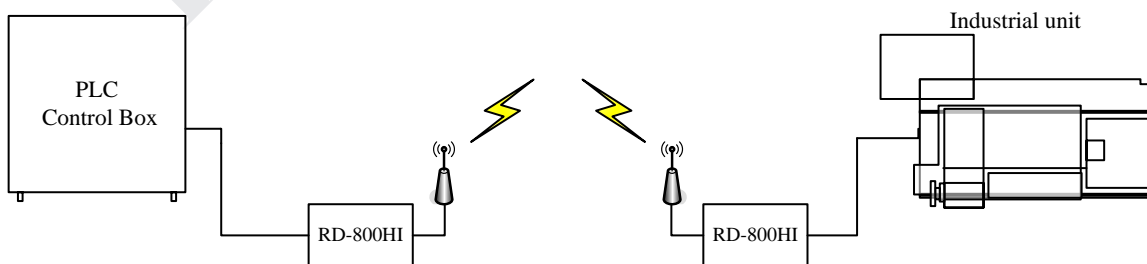
- Example 3

Example 3: Industrial unit transmission data per wireless connect in RD-800HI



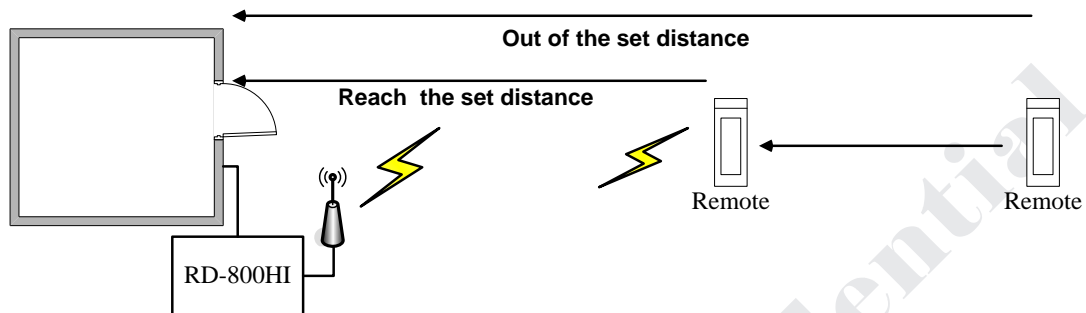
- Example 4

Example 4: PLC Control Box wireless control Industrial unit



- Example 5

Example 5: Wireless Door Access Control system



Failure Rejection

The Device is Unable to Communicate

- Working LED does not work means having trouble in DSP processor and device power.
- The Work LED is on, please confirm that the group settling switch is set to normal.
- Please confirm RD-800HI is during effective distance for receiving and transmitting.

Device Unable Normal Performing

- Confirm the power of the device is within the correct range of motion.
- Confirm that the input signal and voltage level are normal.
- Perform the built-in self-test function to confirm whether the RD-800HI functions are normal.