13.56MHz RFID READER

MODEL : HFR-2AM

User's Manual

Be sure to read the precautions for safety before use..

Federal Communication Commission Interference Statement

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 undesired operation.

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 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Industry Canada Statement

This device complies with RSS-210 of the Industry Canada 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 undesired operation. Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Industry Canada Radiation Exposure Statement

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

Déclaration d'exposition aux radiations

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non con trôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

. Contents

1. Product Introduction

● Safety Precautions

Please be sure to keep it for safety.

Please read the following precautions carefully before use..

CAUTION :
In case of a possibility of minor injury or damage to the product when violating the notice

▣ When installing **Caution**

》 Do not install in an unstable place.

- If READER may fall down, it may break or cause personal injury.
- Do not install in direct sunlight.
- Do not install in a place with high or low temperature or humidity.

》 Please install more than 2cm from the metal when installing the antenna..

▣ During operation **Caution**

》 Do not give any external impact during operation.

》 Do not drop or subject it to severe shocks..

- It may cause injury or malfunction.

▣ **Others** **Caution**

》 Do not let foreign material get inside the product..

》 Never attempt to disassemble, repair, or modify anything other than a repair technician..

》 If you need to repair, please contact the service center..

- **Checking the components**

▣ RFID READER SET

HF RFID READER

Electrical Power ADAPTOR

▣ RFID ANTENNA SET

HF ANTENNA (HFA-13S) X 2

ANTENNA CABLE (2.5m) X 2

● Introduction of Product

▣ HF RFID Reader

This product is HF RFID Reader which uses 13.56Mhz frequency band and it is a device that reads and records information recorded in a tag by recognizing non-contact information of Tag attached to product, animal, person etc

▣ HF RFID Reader feature

》ISO15693 Read & Write

》Compact size and Light weight: 85x120x24mm(HxWxD), 약 295g

》High Performance Anti-collision

》Two Antenna SMA Port

》TCP/IP & RS-232C Communication

》Support Firmware Upgrade

》KCC Certification : MSIP-CRM-RFE-HFR-2AM

》

▣ HF RFID Reader Application Field

》Factory Automation

》Access & Security Control

》Inventory

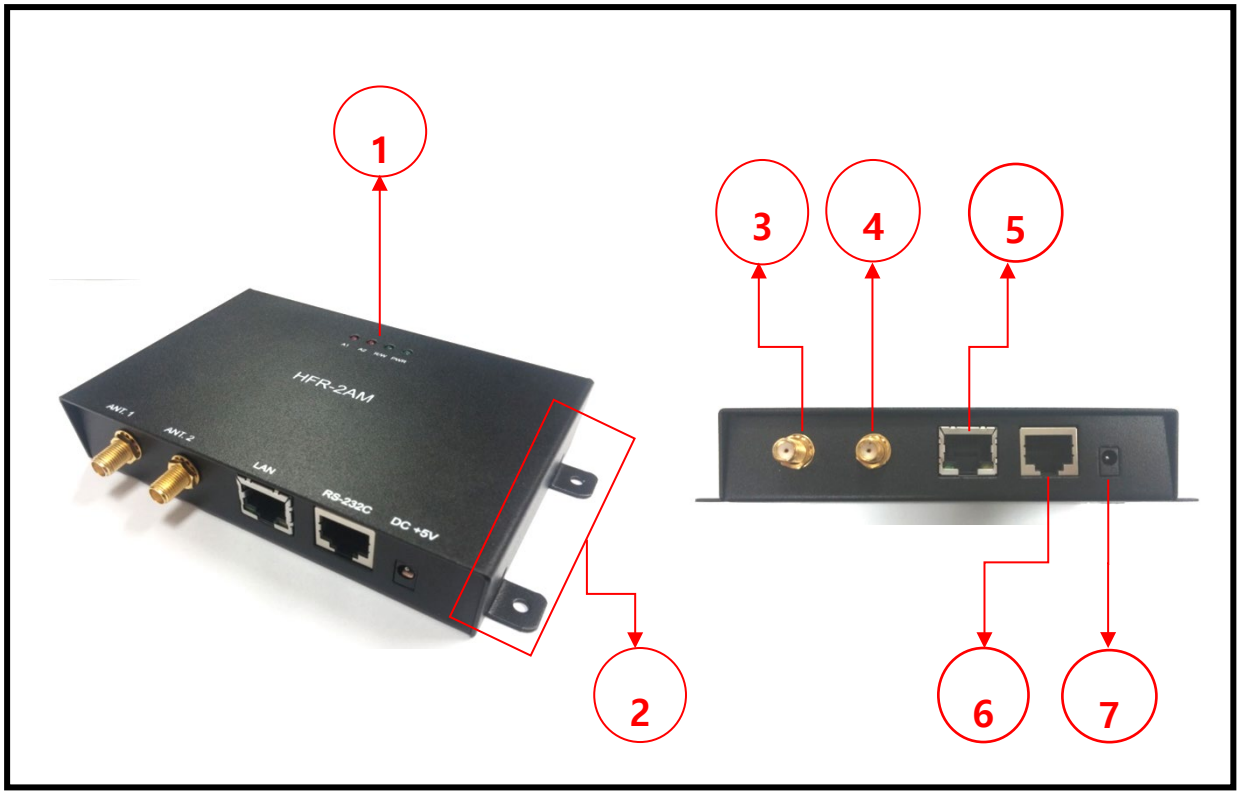
》School Attendance

》Asset Management

》Supply Chain Management

》Tag Read & Write

- **Name of Parts**



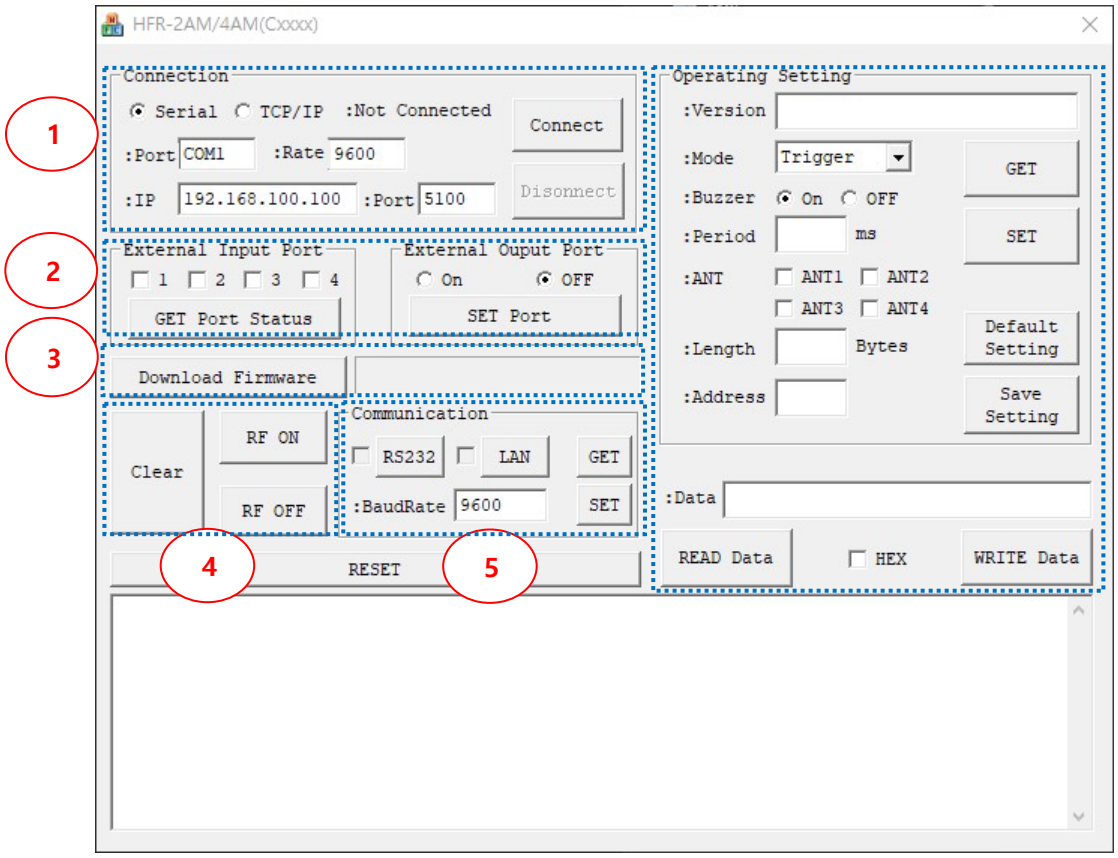
Part name and Feature

② 4-LED : ANT1 / ANT2 / Read & Write / Power
② Installing Bracket : ø3.5 Hole 4EA (M3 Volt or Screw use)
③ ANT 1 Port : SMA Female Connector
④ ANT 2 Port : SMA Female Connector
⑤ LAN Port : TCP/IP (RJ-45 with 2-LED)
⑥ RS-232C Port : Serial (RJ45)
⑦ DC Jack : Power Input (Exclusive Adaptor use)

2. Software

● Set Reader Connection

▣ Screen Layout



1. Connection

. You can connect / disconnect the communication with the reader by setting the communication method (Serial, TCP / IP), port and speed.

2. External Input Port / External Ouput Port (for HFR-4AM)

. You can check the status of the trigger signal input of the reader.

. Realy's contact point can be turned on / off.

3. Download Firmware

. You can upgrade the firmware of the reader.

4. Clear / RF ON, RF OFF

. Clear: Clears the event sending / receiving result of ⑦.

. RF On, RF Off: RF signal can be On or Off.

5. Communication

. Communication method (RS232, Lan) and speed status can be checked or set.

● Set Reader Connection

▣ Connection by using the PC's serial port(Serial Com.)

》 How to connect the cable

1. Connect RJ45 to Dsub9 Cable to PC serial port.
2. Connect RJ45 to Dsub9 cable to the reader RS-232C port.
3. It is finally connected as shown below..

》 How to set the program

1. Ensure that the power and communication cables are properly connected to the Reader.
2. Run the program and click "OPEN" tab after setting 1 window as in "Figure 1" and Serial Connected message will be displayed. (Settings may vary by PC.)
3. Click the "GET" tab in the Operation Setting window.
   In normal connection, the setting values are displayed on the Reader as shown in "Figure 2" and the connection status between the Reader and the PC is displayed in the program message window..

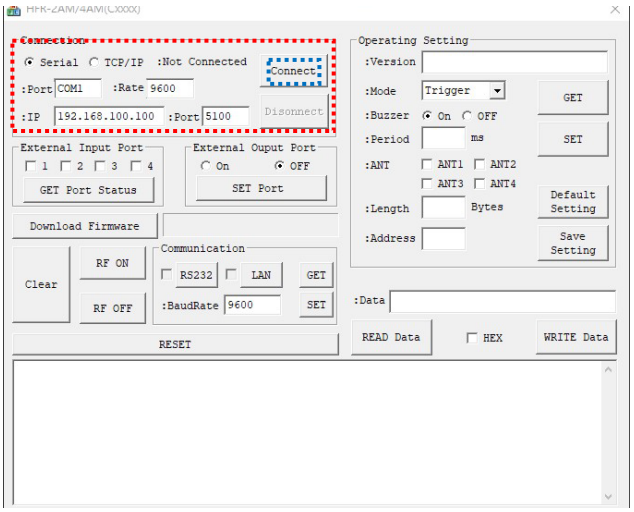


Figure 1

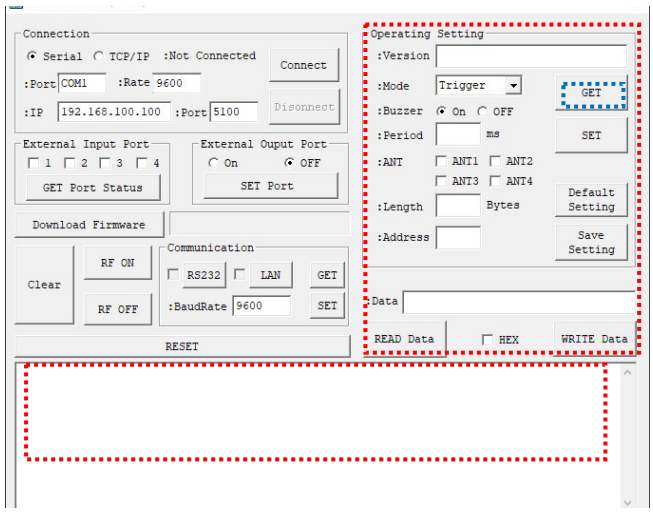


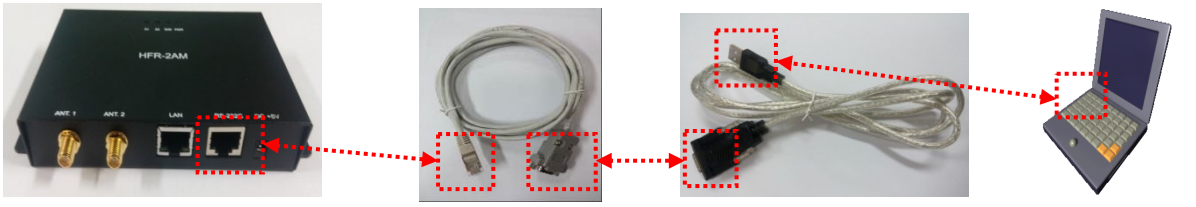
Figure 2

● Set Reader Connection

▣ Connection by using PC's USB port(Serial Communication)

》 How to connect the cable

1. Connect RJ45 to Dsub9 Cable to USB to RS232 Cable and connect USB to RS232 Cable to USB port of PC.
2. Connect RJ45 to Dsub9 cable to the Reader RS-232C port.
3. It is finally connected as shown below..

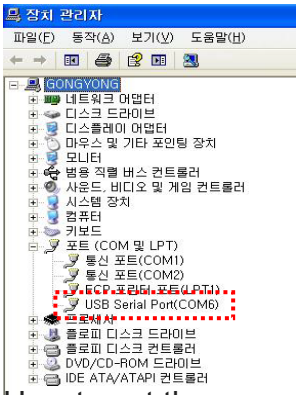


》 Installing the Driver

1. Install USB to RS232 conversion driver on PC.
2. The installation method is included in the supplied driver installation CD, and the driver is installed according to the manual on the CD.

》 Finding a port

1. Control Panel> System> Hardware> Device Manager> Ports (COM and LPT)
   Connect the Reader then, "USB Serial Port" is created as shown in the figure below.
   (The port number may vary depending on the PC installed and appears only when the reader is connected..)

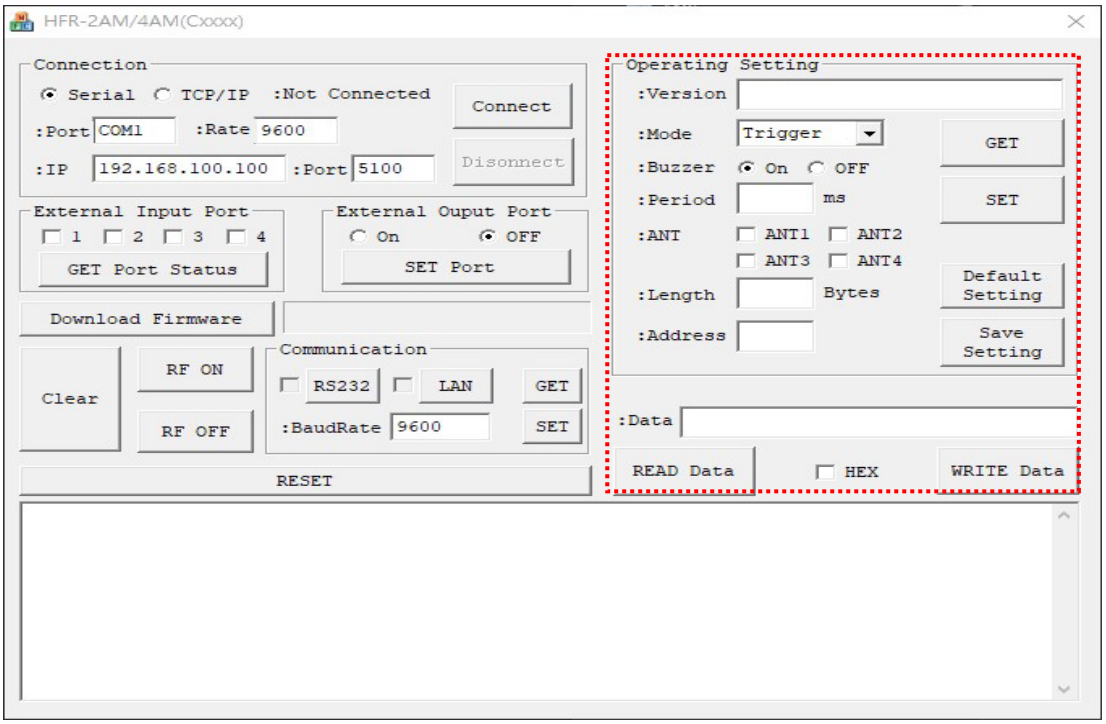


》 How to set the program

1. In the Port section of the Serial Connection window, set the port number created in Finding a Port.
2. The connection is the same as the serial port direct connection method.(See page 8)

● Reader Control

▣ Screen Layout



. When the Reader and the PC are successfully connected (LAN or serial), the Reader can be controlled.

: Mode > Continue : The Reader continues reading operation periodically.

Trigger : When a reading command is received from the PC, it performs a periodical operation.

ANT > Select antenna.

Period > Specify the read operation time.

Size > Specify how many bytes of data to read.

Address > Specify the address of the tag to read.

Data > Data read from the tag or data to be recorded (HEX value)

. SET > Set Reader to Mode, Period, Size and Address.

. READ Data > Reads the specified (Size, Address) tag memory value from the screen.

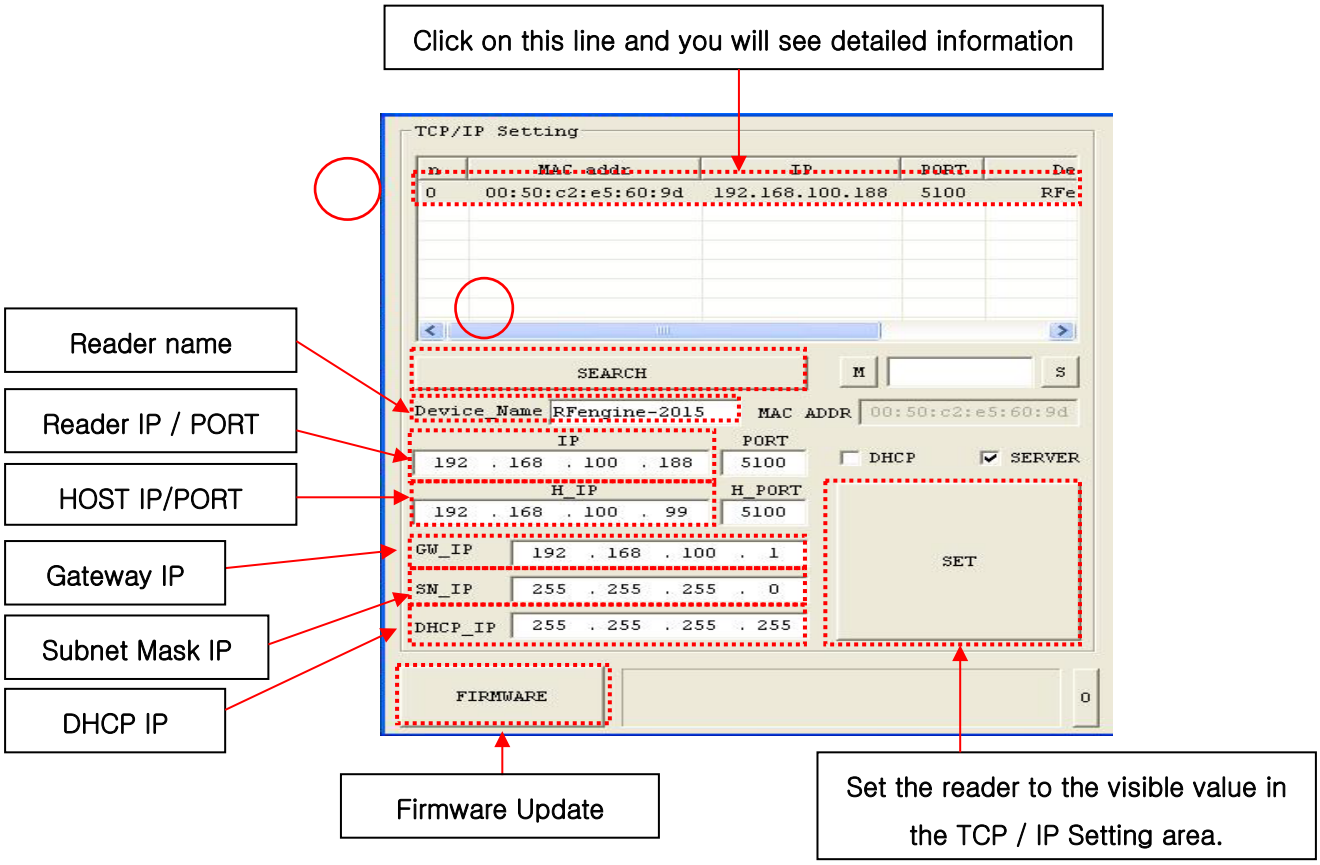
. WRITE Data > Write the (Size, Address) data value specified in the screen to the tag.

. RF ON / RF OFF > Turn RF on or off.

. If the tag memory read operation is successful when it is set to Continue mode,
It is displayed periodically in the message window.

LAN Setting Program settings

▣ Screen Layout



. Power on the reader, connect to PC with LAN cable,
Run the program.

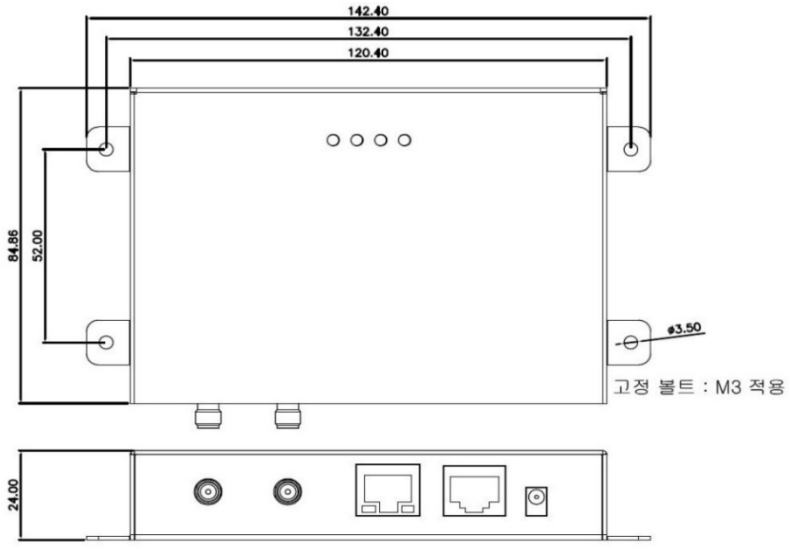
1. When you press the Search button, all the scanned readers are displayed.
Wait until the search is finished (END!).
2. When the reader line is clicked, information about the reader is displayed on the screen.
: DHCP > The IP address to be used by the reader is automatically allocated from the DHCP server.
: SERVER > In server mode, the reader waits for connection from the PC.
When not in server mode, the reader tries to connect with HOST IP.

3. Product Specifications

● Electrical Specifications

Items	Specifications	Remarks
CPU	W7100A	Clock 25MHz
RF Frequency	13.56MHz	Clock 13.56MHz
Tag Interface	ISO 15693	
Communication	TCP/IP	
	RS-232C	
Input Power	DC+5V , 2A	
Upgrade	Through TCP/IP & RS-232C Port	
Port	ANT1 , ANT2	
	LAN , RS-232C	
Display	4-LED (Red, Red, Green, Green) (ANT 1, ANT 2, Read & Write, Power)	
Sound	Buzzer	On / Off
Antenna	External Antenna	
Operation Temp.	-20 ~ +50 ℃	
Dimension	85(H)*120(W)*24(D)mm	Except fixed hole
Weight	295g	

● Mechnical Specifications



4. Customer Support

● In case of trouble

▣ If the fault is obvious, contact your dealer first.

We deliver the product passed the comprehensive inspections under strict quality control at the production line.

If the product is out of order because of a manufacturing defect or malfunction during transportation, please leave it to the dealer shop or service center. Then, we will repair it free of charge within the warranty period. Please don't forget to bring purchasing receipt when repair is needed.

*** Free Warranty Period : 1 year from the date of purchase**

*** Free of charge service may not be offered in case of malfunction caused by carelessness or illegal repair, even within the warranty period.**

* Design and specifications to improve product quality are subject to change without notice

● Customer Support Center

● ▣ Service Center (Factory) / Research Institute

》 1-618, Cheongju Techno-S Tower, 530 jikji-daero, Heungdeok-gu, Chungju-si, Chungcheongbuk-do, Republic of Korea

》 Tel) 043-215-9380 / Fax) 043-277-0008

▣ Headquarters

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》 Tel) 043-215-9380 / Fax) 043-277-0008

▣ Web site

》 http://www.rfengine.com

5. User's Manual Revision History

- **History Status**

No.	Date	Revised	Remarks
01	2015.11.16	Originally written	
02	2016.02.22	Added how to connect serial port	
03	2021.09.08	Added CE certification mark	
04	2024.06.	Added FCC/IC certification mark	
05			
06			
07			