13.56MHz RFID READER

MODEL : HFR-4AM

User's

Please read the safety precautions before use..

KC Certification Number: MSIP-CRM-RFE-HFR-4AM

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-247 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-247 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.

Antennas Statement

This radio transmitter (identify the device by certification number or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.
Le present emetteur radio (identifier le dispositif par son numero de certification ou son numero de modele s'il fait partie du materiel de categorie II) a ete approuve par Industrie Canada pour fonctionner avec les types d'antenne enumeres ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est superieur au gain maximal indique, sont strictement interdits pour l'exploitation de l'emetteur.

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1. Product descriptions

- Precautions for Product Safety

Please be sure to keep it safe.

Please read the following precautions carefully before use.

CAUTION (CAUTION)

If there is a possibility of slight injury or product damage in case of violation of the indication

▣ When installing caution

》 Do not install in an unstable place

- The reader may break or become damaged.
- Do not install in direct sunlight.
- Do not install in locations with high or low temperature or humidity.

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

▣ During operation caution

》 Do not apply any external shock during operation.

》 Do not drop or subject it to severe shocks.

- It may cause injury or breakdown.

▣ Other ⚠ caution

》 Do not let foreign objects get inside the product.

》 Never attempt to disassemble, repair, or modify the product unless you are a service technician.

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

● Checking the components

▣ RFID READER SET

HF RFID READER(HFR-4AM)

POWER ADAPTOR(5V,2A)

▣ RFID ANTENNA SET

HF ANTENNA (HFA-13S) x 4

ANTENNA CABLE (2.5m) x 4

● Product Introduction

▣ HF RFID Reader Explanation

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 Characteristic

》ISO15693 Read & Write

》Compact size And light weight: 95x145x24mm(HxWxD), about 395g

》High Performance Anti-collision

》Four Antenna SMA Port

》TCP/IP & RS-232C Communication

》Support Firmware Upgrade

》4-Trigger input, 1-Relay output

▣ HF RFID Reader Application field

》Factory Automation

》Access & Security Control

》Inventory

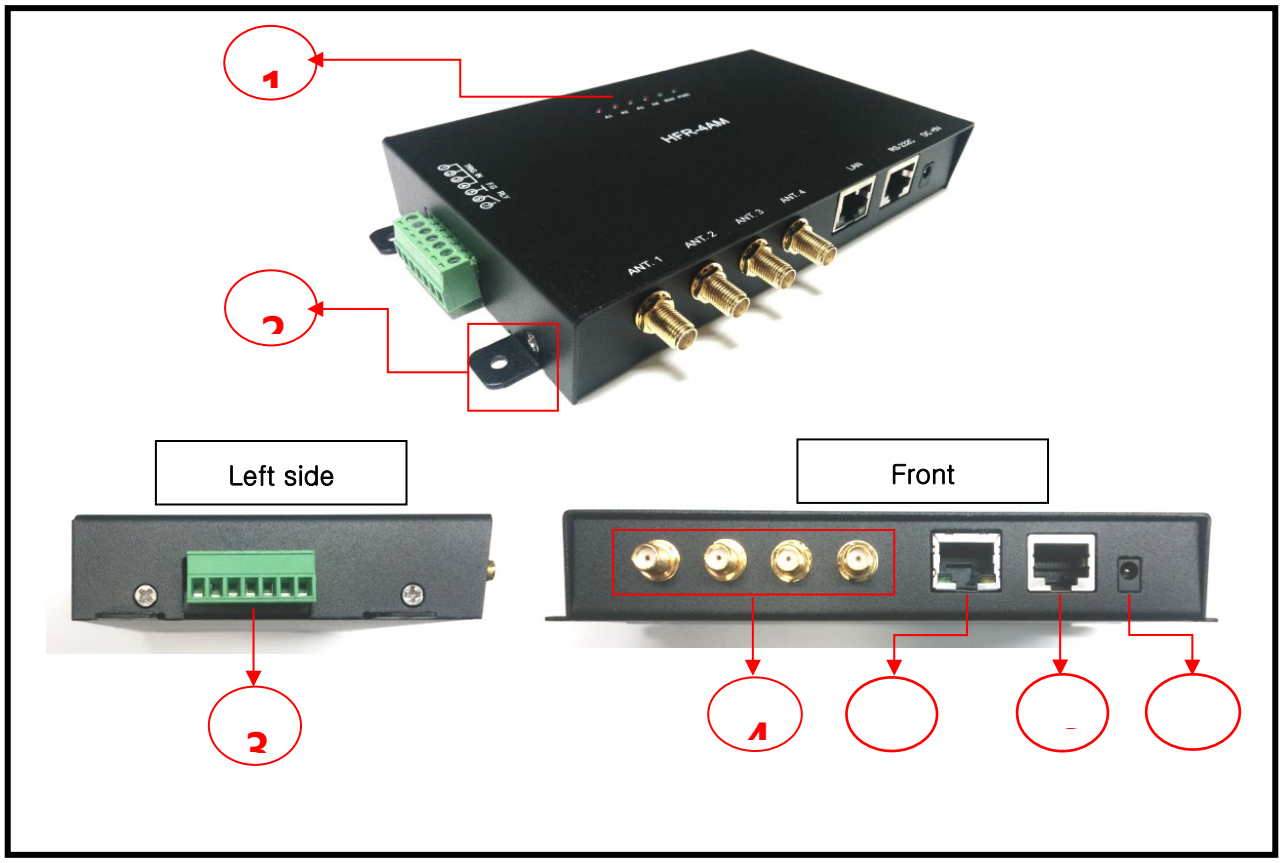
》School Attendance

》Asset Management

》Supply Chain Management

》Tag Read & Write

- **Name of each department**

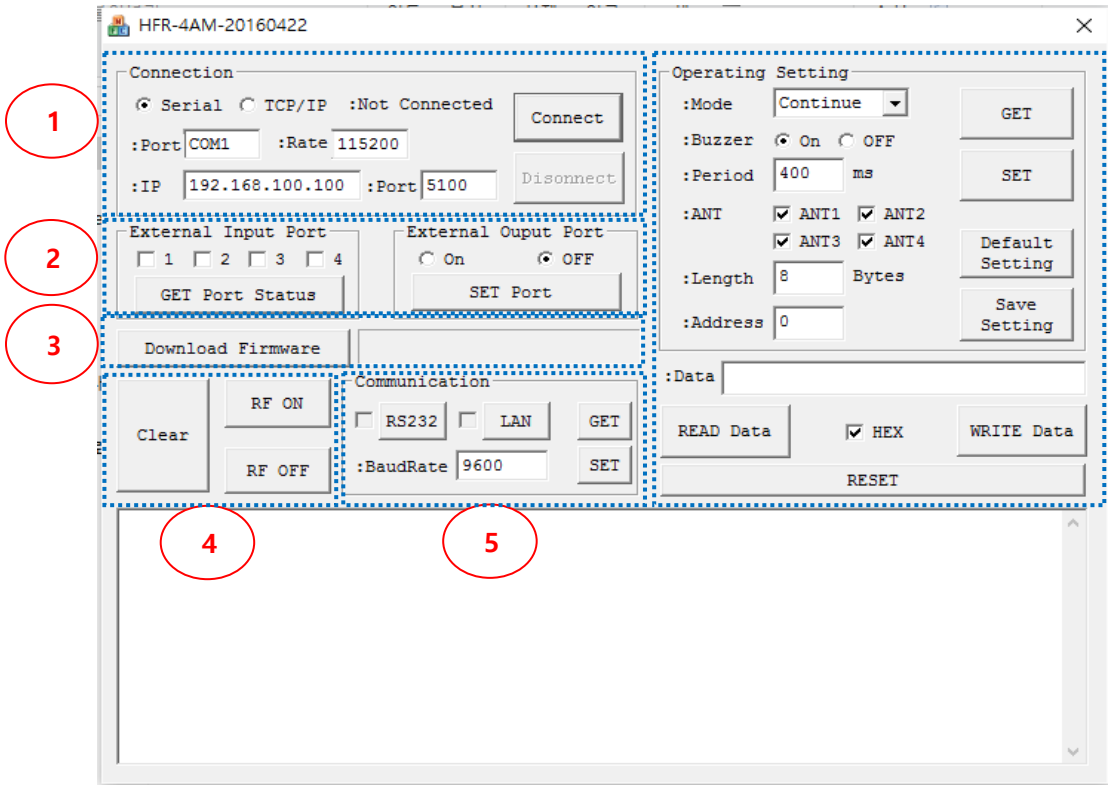


Name and description

② 6-LED : ANT1 / ANT2 / ANT3 / ANT4 / Read & Write / Power
② Installation Bracket : ø3.5 Hole 4EA (Using M3 Bolt or Screw)
③ Terminal Block : 7Pin (4-Trigger Input, 1-Relay Output)
④ ANT 1~4 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 (Use a dedicated adapter)

2. SOFTWARE

- ☐ Readers connection and default settings
- ▣ **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

. 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

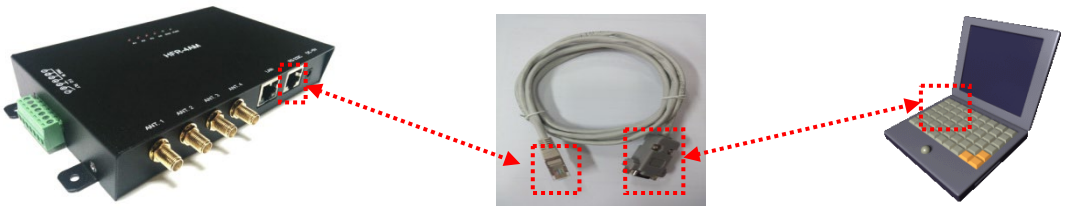
. Communication method (RS232, Lan) and speed status can be checked or set.

Reader connection and default settings

▣ Use the PC's serial port Connect (Serial communication)

》 How to connect the cable

1. Connect to RS-232C port of reader and serial port of PC using RJ45 to Dsub9 Cable
2. The final connection is as shown below.



HFR-4AM | RJ45 to Dsub9 Cable | PC

》 How to set the program

1. Make sure that the power and communication cables are properly connected to the reader.
2. Run the program and click "Connect" tab after setting as shown in "Figure 1".
   In a normal connection, Not Connected is displayed as Connected.
   (Settings may vary depending on the PC environment.)
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". In the program message window
   The connection between the reader and the PC is displayed.

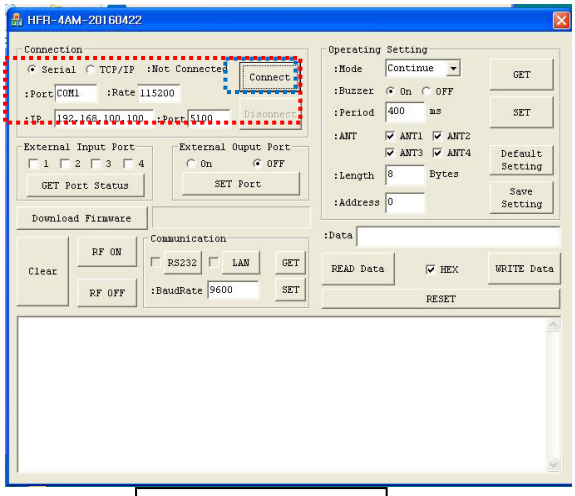


Figure 1

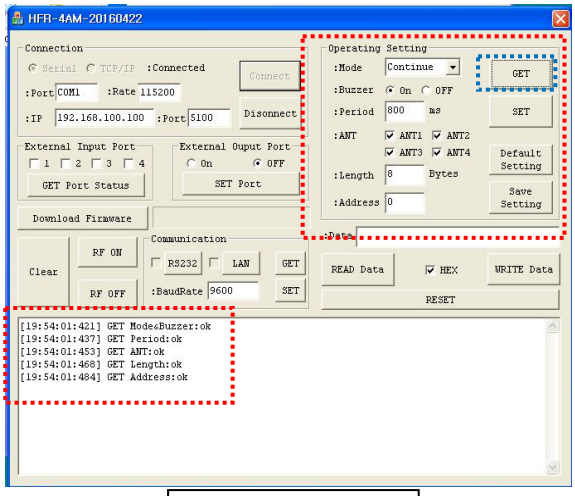
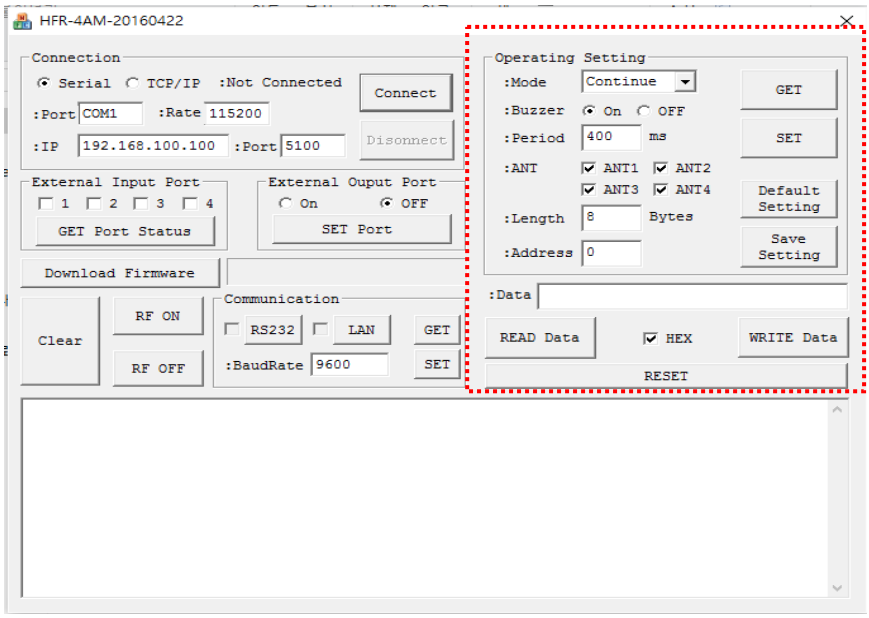


Figure 2

● Set reader control

▣ Screen Layout



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

Operating Setting

. Mode > Continue : The reader continues the read operation in a period.

Continue Once : Within 3 seconds Display the same data only once.

Trigger : When a read command is received from the PC, it performs a certain period of time.

. Buzzer > Turn Buzzer On or Off.

. Period > Specify the read operation time.

. ANT > Select the antenna. (ANT 1 to ANT 4)

. Length > Specifies how many bytes of data to read.

. Address > Specifies the address of the tag to read.

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

. GET > Reads the settings applied to the reader.

. SET > Set reader to Mode, Period, Size, Address.

. Default Setting > Set default setting value to be applied at shipment.

. Save Setting > Mode, Period, Length, Address value.

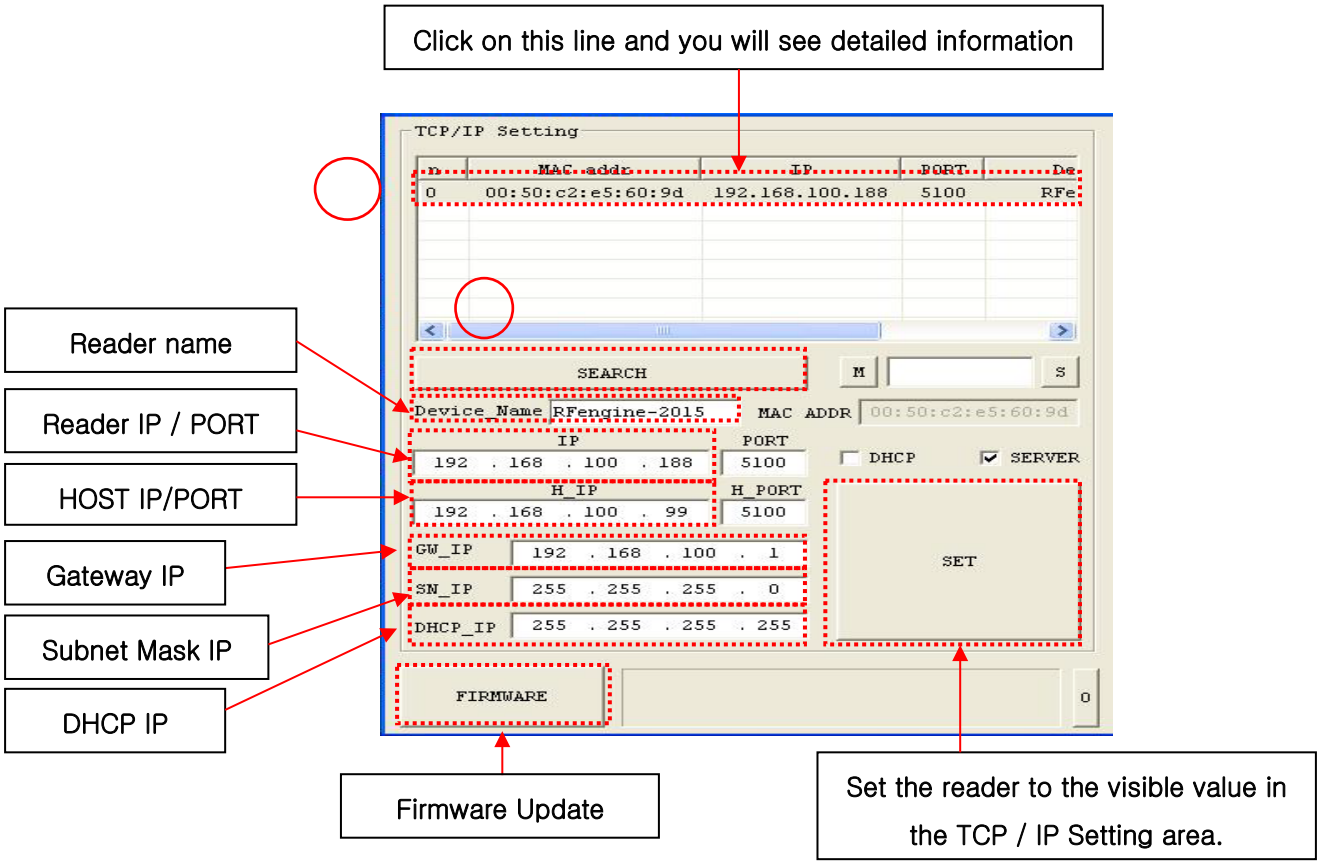
. READ Data > Reads the specified (Size, Address) tag memory value from the screen.

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

. 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.

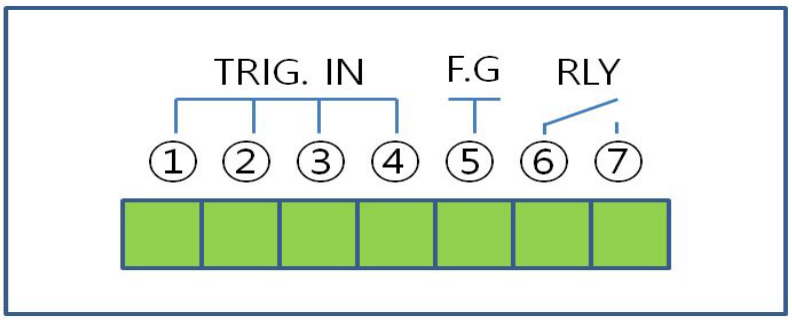
1. When you press the Search button, all the scanned readers are displayed.
Wait until the search is finished (END!).
2. When the reader line is clicked, information about the reader is displayed on the screen.
: DHCP > The IP address to be used by the reader is automatically allocated from the DHCP 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 STANDARD

● Electrical specifications

Division	Standard	Remarks
CPU	W7100A	
RF Frequency	13.56MHz	
Tag Interface	ISO 15693	
Communication	TCP/IP	
	RS-232C	
Input Power	DC+5V , 2A	
Firmware Upgrade	Through TCP/IP & RS-232C Port	
Port	ANT1 , ANT2 , ANT3 , ANT4	
	LAN , RS-232C , Terminal Block	
Display	6-LED (Red, Red, Red, Red, Green, Green) (ANT 1~4, Read & Write, Power)	
Terminal Block	4-TIN : Trigger Signal Input(12~24VDC) 1-F.G. : Frame Ground 1-RLY : Relay Output(0~24VDC)	
Sound	Buzzer	On / Off
Antenna	External Antenna	
Operation Temp.	-20 ~ +50 ℃	
Dimension	145(/167)(W)*95(D)*24(H)mm	
Weight	395g	

● Terminal Block Specifications



▣ Trigger Signal Input (① ② ③ ④)

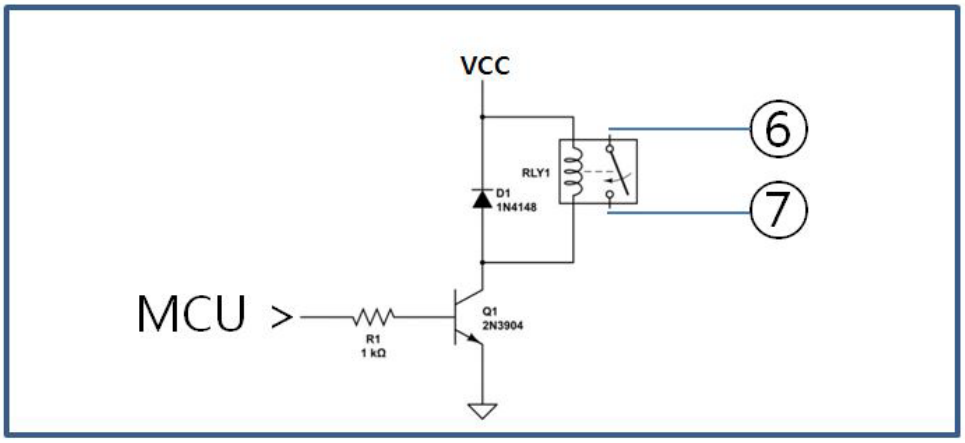
- Inputs 4 Trigger signals.
- Input voltage range: 12 ~ 24VDC (Example: PLC synchronous signal).

▣ Frame Ground (⑤)

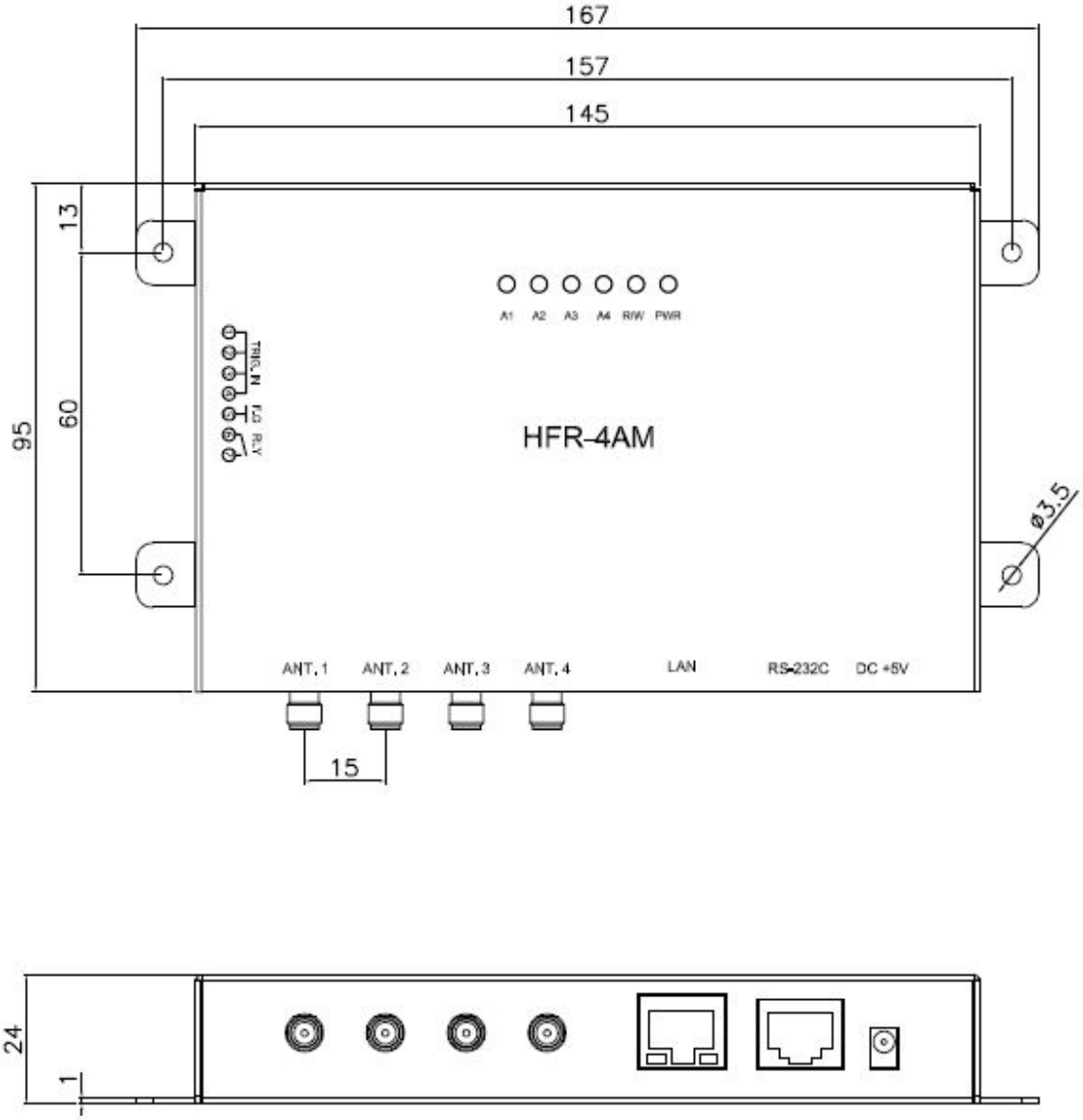
- Ground frame ground.

▣ Relay Output (⑥ ⑦)

- Turn on / off the contact of Realy by signal output of MCU.
- The initial state is Open (Off).
- Turn on / off the external circuit connected to the reader.
- Relay Contact Ratings : Max. 2A @24VDC



● Mechanical specifications



< Mechanical specifications of HFR-4AM >

4. Customer Support

● In case of trouble

● ▣ If the malfunction is obvious, contact your dealer.

Our RF Engine's HF RFID Reader provides rigorous quality control

This product has passed the comprehensive inspection.

If a malfunction or manufacturing defect occurs during transportation,

In the event of occurrence, within the warranty period from the date of purchase,

Or service center, we will repair it free of charge.

When you ask for repair, you must bring your purchase receipt.

If you have any compensation or inquiries about damage, please call the representative

(043-215-9380) Please contact us.

* Warranty: 1 year from date of purchase

* If a consumer malfunctions or malfunctions due to repair or tampering

Even during the warranty period, you can not receive free service.

* Design and specifications 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

》 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

▣ home page

》 http://www.rfengine.com

5. User's Manual Revision history

- **History**

No.	Date	Changes	Remarks
01	2016.04.01	Originally created	
02	2023.11.16	FCC	
03			
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