AI SYSTEM Co.,Ltd.
Automation & IoT

JA900-R3F
H/W User Guide

UHF RFID Reader
2022.11.28 Rev.1.0

Table of Contents

1 PRODUCT SPECIFICATIONS **4**

2 PRODUCT COMPOSITION **5**

2.1 product appearance 5

2.2 Description of each part 5

3 PRODUCT DIMENSION **7**

4 PRODUCT INSTALLATION **8**

4.1 Reader installation 8

4.2 Antenna installation 8

4.3 Antenna connecting 8

5 PRODUCT A/S. **9**

6 FCC STATEMENT **10**

7 ISED STATEMENT **12**

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Revision History

Version	Date	Description
1.0	2022.11.28	First Release By Igoh H/W Version : 1.0 (1ch Reader)

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Caution

☞ Please be sure to read this user manual before use and use the product safely and correctly.

- This user manual explains based on the product's default settings.
- We are not responsible for any losses incurred by operating the product without understanding the contents of this user manual.
- Quality is not guaranteed if this product is operated using software that has not been agreed upon in advance.
- This product is an RFID wireless device, so cannot be used for purposes other than its original purpose.
- Accessories provided with the product may change without notice to the user depending on circumstances.
- In the event of a product malfunction, after-sales service is provided only if the product is not handled and stored properly, or if the product is not modified or repaired.
- This product may cause radio wave interference during operation.
- Do not use outside operating temperature.
- There is a risk of damage to the product in case of external impact.
- This product is not designed to be waterproof or dustproof. If used for a long time in a special environment (an environment using chemicals, an environment with a lot of fine dust, high humidity, or water use, etc.), the product may malfunction.
- If the user arbitrarily disassembles, repairs, or modifies the product, normal A/S cannot be provided.
- This product does not come with an adapter. If you use a separate adapter, please use a product that has received electrical safety certification, and use an adapter with an acceptable capacity. We are not responsible for any problems that arise when you use the adapter arbitrarily..
- This product is an external antenna product and use other than a certified antenna is prohibited.
- This user manual is a work protected by copyright law. It may not be copied, distributed, or translated in part or in whole without prior permission from AI System Co., Ltd.

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1 Product Specifications

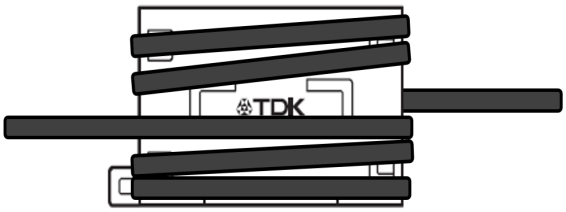
- **Air Interface Protocol : ISO18000-6C (EPC Global Gen2)**
- **Operating Frequency : FCC Part 15.247(902.75MHz ~927.25MHz)**
- **Communication : Ethernet(TCP/IP)/ Wifi / Bluetooth v4.2**
- **Dimension : 123x84x37(mm)**
- **Case Material : AL**
- **LED Indicators : Green**
- **Power capacity : 24V/1.5A**
- **Operating Temp : -20℃ ~ 80℃**
- **Operating humidity : 10% ~ 90%**
- **Operating pressure : 1atm**
- **Storage Temp : -30℃ ~ 80℃**
- **Storage humidity : 10% ~ 90%**

⚠ Caution

One ferrite core is in-boxed. Please use the enclosed ferrite core by winding the power cable 5 times. The ferrite core should be installed about 5cm away from the port.

※ The adapter is not in-boxed.

- Model : ZCAT3035-1330
- Manufacturer : TDK



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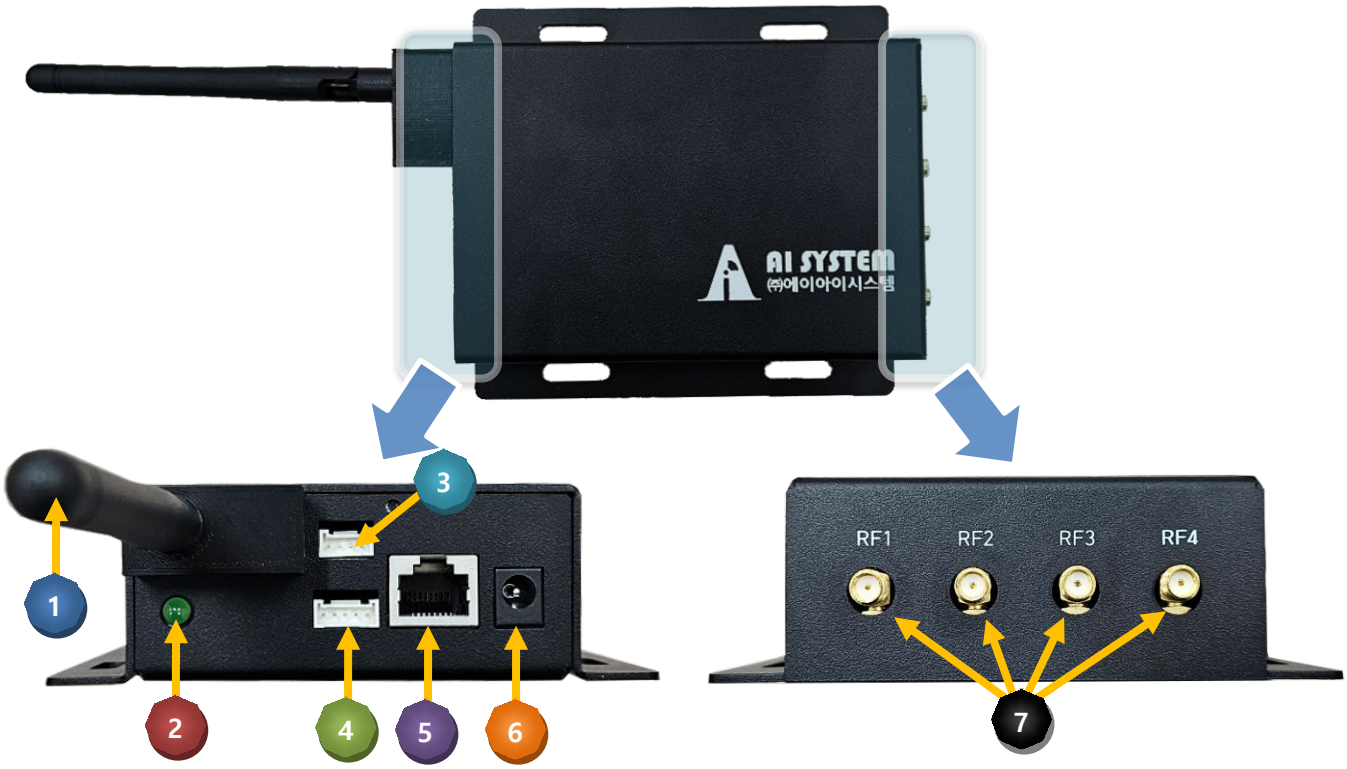
2 Product Composition

2.1 product appearance



2.2 Description of each part

1 Wifi/Bluetooth Antenna

This is the antenna part for Wifi/Bluetooth communication.
No separate manipulation is required, but if the area is covered with metal or radio-blocking material,
Wifi/Bluetooth communication may not work smoothly. ※ The antenna cannot be replaced.

2 LED Indicator

Displays the current status of the reader.

color	LED status	Reader status
Green	ON	Power On
Green	OFF	Power Off

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3 RS-232C Port

This is a port for RS-232C communication. This port is used for debugging and is not recommended for use by general users.

4 I/O Port

This is an MCU spare I/O port. This port is for debugging and is not recommended for use by general users.

5 Ethernet Port

This port is for TCP/IP (ethernet) communication. You can communicate with the host using a general Ethernet LAN cable for communication via this port.

6 DC INPUT Port

This is the power supply port. The power capacity of this product is 24V / 1.5A, and apply power using a 5Φ DC plug.

7 RF Port

This port for connecting an external RFID antenna, and the standard is SMA Female.

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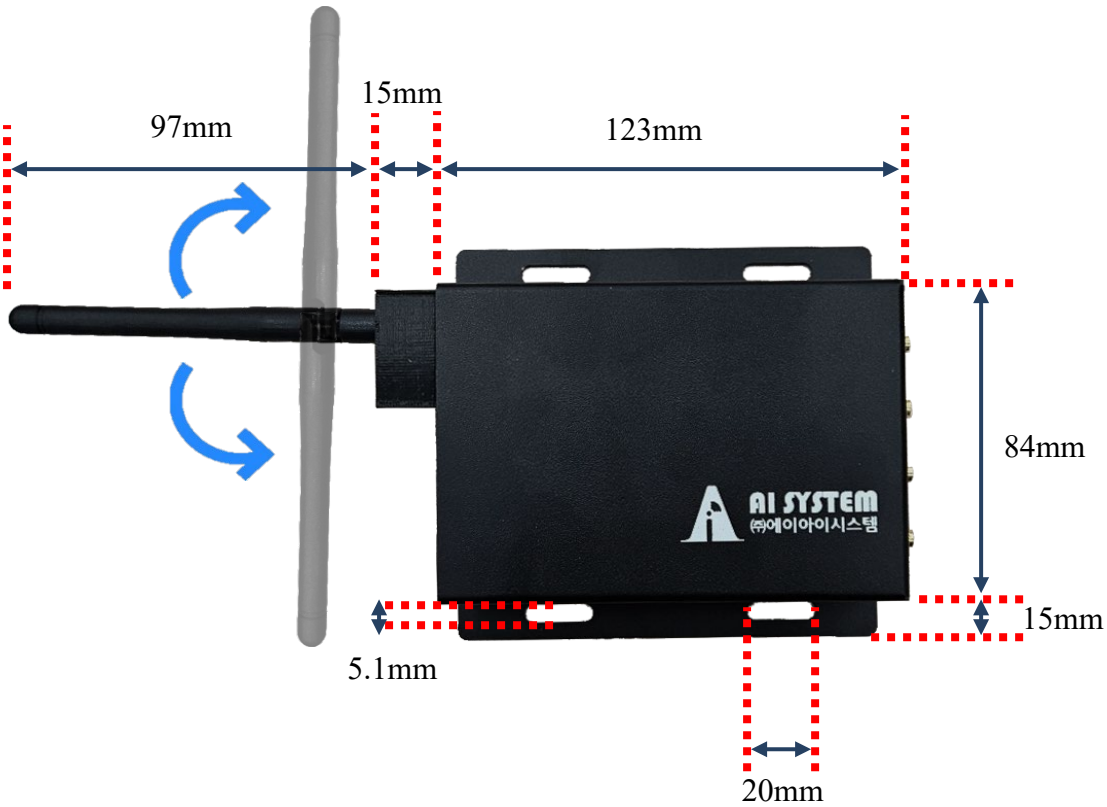
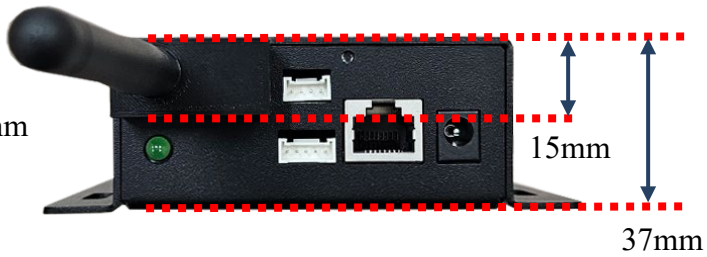
3 Product Dimension





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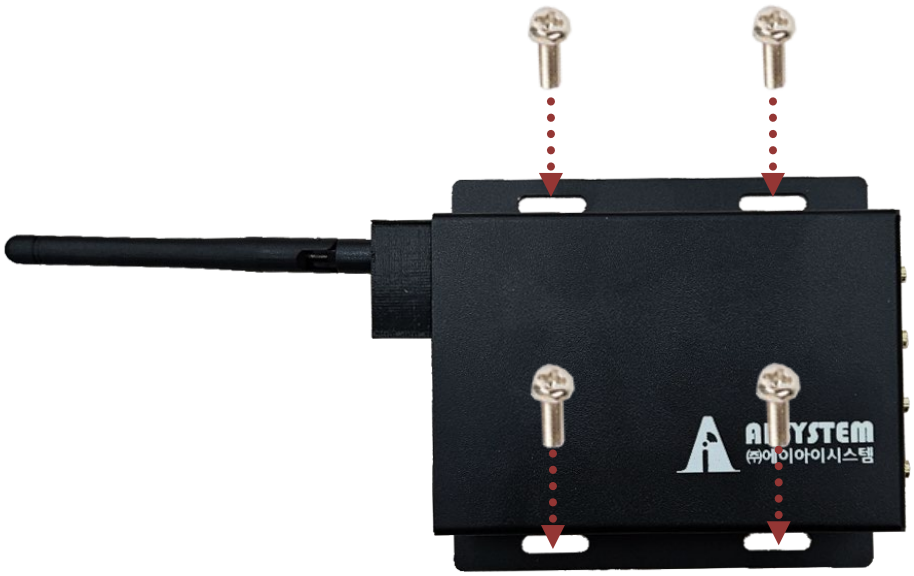
4 Product installation

This product is intended for indoor installation and must be installed using a separate waterproof and dustproof enclosure.

4.1 Reader installation

Secure it with screws (M5) at the location where you want to install it.

☞ If possible, avoid places with high-voltage lines and metal components and install it on a flat surface.



4.2 Antenna installation

When installing the antenna, please refer to the separate bracket drawing provided by our company and install it within 4m from the main body if possible.

Other antennas are not available except for the following antennas.

Item	Antenna list	Model name
RFID	AIR PATCH Antenna	1212F-25C4A-920
WLAN, Bluetooth	2.4-2.5GHz Dipole swivel stick antenna	W1030

4.3 Antenna connecting

The antenna and main body are connected using a standard SMA Male to SMA Male cable, and since the port specifications of the antenna and main body are the same, there is no separate direction.

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5 Product A/S.

☞ **Please check the following before inquiring after A/S.**

- When the LED does not appear on the reader and does not operate.
  - Check whether the power cable is connected correctly.
- **When tag reading does not work.**
  - **Make sure you have a wireless or wired LAN connection**
  - **Check if the tag is defective by changing the tag.**
  - Check the buzzer status to see if there is a communication problem.
- If you cannot connect to the server.
  - Check whether the wired/wireless router or router is turned on.
  - Check whether data from the wired/wireless router or router is available.
  - In case of wired connection, check for defects such as cable disconnection or damaged connector.

If the problem is not resolved after checking the above, or if you have any other inquiries, please contact our head office.

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6 FCC Statement

FCC Part 15.19 Statements:

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

FCC Part 15.105 statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Part 15.21 statement

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This device must not be co-located or operating in conjunction with any other antenna or transmitter

RF Exposure Statement (MPE)

The antenna(s) must be installed such that a minimum separation distance of at least 20 cm is maintained between the radiator (antenna) and all persons at all times.

Supplier's Declaration of Conformity
47 CFR § 2.1077 Compliance Information

Unique Identifier: (e.g., Trade Name, Model Number)
Responsible Party – U.S. Contact Information
Americas Compliance Consulting LLC dba iCertifi
1001 SW Disk Drive, Ste 250
Bend, Oregon 97702 USA
FCC_sDoC@icertifi.com
icertifi.com

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Professional installation

This device is professional installation so it does not permit use of the antennas other than specific antennas listed below.

-. RFID: Antenna type: AIR PATCH Antenna, Model name: 1212F-25C4A-920, Peak antenna gain: 2.16 dBi

-. Wi-Fi/BT: 1/2 λ Swivel Type Dipole Antenna, Model name: W1030, Peak Antenna gain: 2.33 dBi

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7 ISED Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development 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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. 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.

The antenna(s) must be installed such that a minimum separation distance of at least 20 cm is maintained between the radiator (antenna) and all persons at all times.

-. RFID: Antenna type: AIR PATCH Antenna, Model name: 1212F-25C4A-920, Peak antenna gain: 2.16 dBi

-. Wi-Fi/BT: 1/2 λ Swivel Type Dipole Antenna, Model name: W1030, Peak Antenna gain: 2.33 dBi

l'exposition aux RF L'antenne (ou les antennes) doit être installée de façon à maintenir à tout instant une distance minimum de au moins 20 cm entre la source de radiation (l'antenne) et toute personne physique.

This radio transmitter [enter the device's ISED certification number] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Le présent émetteur radio [identifier le dispositif par son numéro de certification d'ISDE] a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué pour tout type figurant sur la liste, sont strictement interdits pour l'exploitation de l'émetteur.

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