RFID/USN Wireless Device

(SMRF900-Ⅱ)

Product	**SMRF900-Ⅱ**
Standard	**RFID/USN Wireless Device**

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Java Information Technology Development Dept.

(주) As this document is based on technical terms of 900MHzranges and fixed RFID Reader 1W system specification, which indicates, System standard, figures, function, and interface communications and standards of equipments.

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◈ Caution ◈

- ✓ When the unusual smoke or smell occurs , Please advice to stop the reader.
  - A. This can cause fire or electric shock.
  - B. Remove Power Cable.
  - C. Do not open the Reader without technicians.

- ✓ Do not open and upgrade the Reader for repairing.
  This can cause electronic shock or fire.
- ✓ Use proper power for uses..
- ✓ This can cause electronic shock or fire.

- ✓ Do not use any other Power Adaptor, except the right Adaptor
- ✓ This can cause electric shock or fire and others.
- ✓ Power plug must be on the right place.
  Unproved power can cause electric shock or fire and others.

  Please following references for operating the Power Adaptor.

  - A. Check the surface conditions (dust and others), before connecting.
  - B. Check the connectivity of the plug till the end of operation.
  - C. Do not use any loosen Power Plugs.
  - D. Do not pull the plug , when you un plug the plug, which can cause electric shock or fire and others.
    Remove power cables, if the Reader is not in use.
  - E. Avoid wet hands to operate cables or power.
    Wet hands can cause electric shock or fire and others.

Please turn off the power, when network cables are going to be connected, which can cause electric shock or fire and others.

Do not put any heavy objects on the Reader

- ✓ Reader can be defected by falling

Do not install the reader in any of humid and dust places. , which can cause electric shock or fire and others.

- ✓ Install the reader within steady places. The reader can be defected, if it is not installed in unstable places.

- ✓ Prefered to use Null-Modem, referring from Serial Cable specification 을 사양에 의거하여 Null-Modem.

- ✓ When the Tagis read properly, check the connection of the antenna ports.

This Product provides high RF Receiving device that distract other electronic devices.

- ✓ Do not locate the reader nearby Cardiac Pump Assist Devices

FCC 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 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 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.

IMPORTANT NOTE

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

1. System Summary and Feature

A. Summary

This product is a fixed reader, which reads UHF Class 1 Gen 2 / ISO 18000-6C RFID TAG then transfers data to Middleware (or applications) via wire or wireless service and this also supports EPCglobal

B. Feature

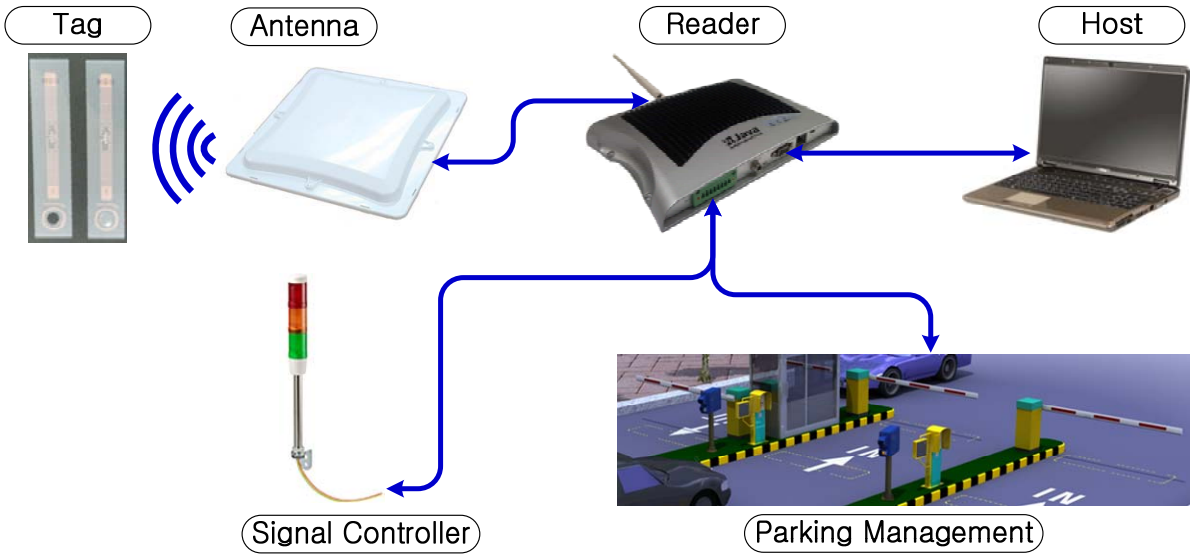
This is designed for the parking management system, through loop sensor and gate bar can be controlled by External I/O directly without any additional expenses.
For automatic factory RFID system

To apply for Factory Automatic Management System, there is no extra fee for installation of wired LAN constructions and can be installed wherever the power supply is capable.
This product can be installed in anywhere of existing Wieand Communication by replacing to improve the service quality.
This product can provide Read/Write function for RFID TAGS. This can be distinguished by Indicator LED lights for the condition of the reader.
Even it is a Compact size form, however, this product is outstanding in performance.

2. Reader Specification

No	List	Standard	Ref
1	Operating Frequencies	902.5 MHz - 927.0 MHz (RFID) 2412 Mhz - 2462 MHz (WLAN)	
2	Transmit Power	29.52 dBm (RFID) 10.50 dBm (WLAN)	
3	Attenuation Range	17~30dB(0.5dB step)	
4	Antennas	Patch antenna, Gain : 6.39 dBi (RFID) Dipole antenna, Gain 4 dBi (WLAN)	
5	Network Connectivity	10/100Mbps Ethernet	
6	External Interface	Ethernet(RJ45), RS-232C(DB9), Wi-Fi(IEEE 802.11b/g)	
7	GPIO	Two inputs, optically isolated 5~30V; Two outputs, 5~30V	
8	Power Source	+7.5VDC @ 3A via external universal power supply with locking connector	
9	Power Consumption	Typical 13.5W @ 7.5V, +30dBm	
10	Method	Frequency Hopping Spread Spectrum	
11	Application interface	SMRF Protocol	
12	Air Interface Protocol	EPCglobal UHF Class 1 Gen 2 / ISO 18000-6C	
13	Temperature Operate	-20℃ ~ +50℃	
14	Humidity	5% to 95%, non-condensing	
15	Dimmensions (H×W×D)	220 × 160 × 35 (mm)	
16	Environmental Sealing	IP52	
17	Weight	1.1kg	

3. System Configuration



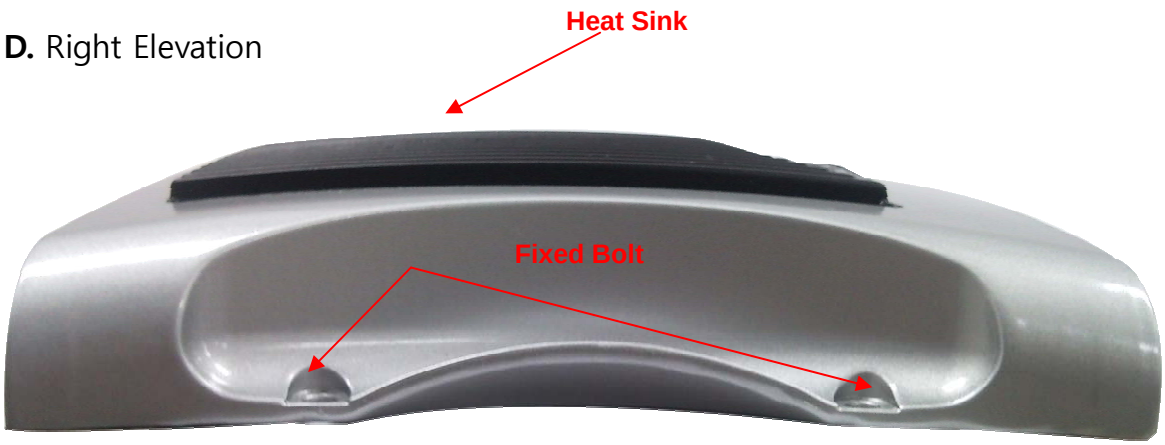
4. Reader Device Image

A. Plan

B. Front

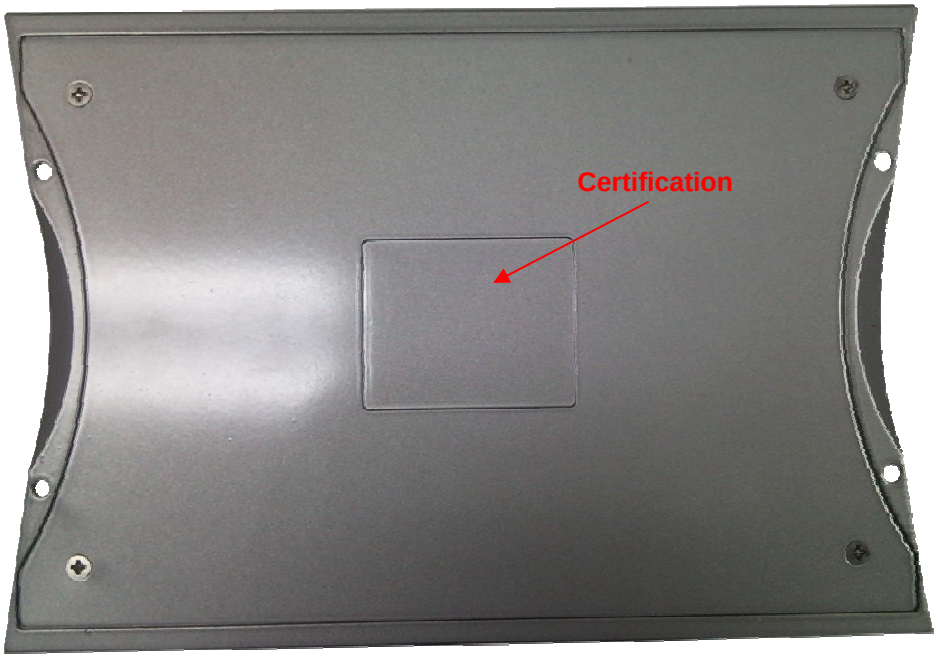
C. Left Elevation

D. Right Elevation

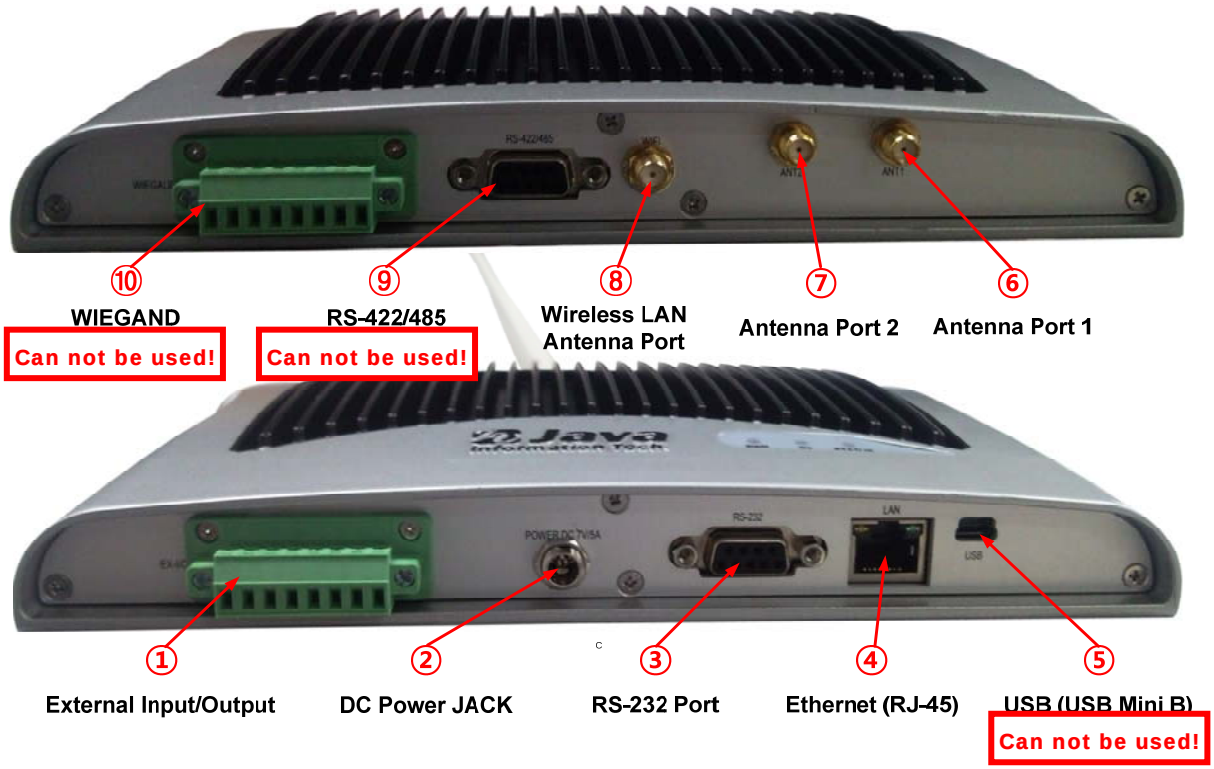


E. Back

F. Base Plan



5. Connector Pin Configuration



A. External Input/Output

Alert signal and parking control bar From Reader connected with external devices.

Port Input1,2 of External Input receives signals from external devices and operates command from the reader.

Port Output1,2 of External Outputis used for operating external devices by commands from the reader.

Pin No	Pin Name	Ref.
1	N,C	
2	GPIO Input GND	GND
3	Port Input1	0 ~ 24V
4	Port Input2	
5	Port Output1	
6	Port Output2	
7	GPIO Output GND	GMD
8	GPIO Output VCC	0 ~ 24V

B. DC Power JACK

DC Power JACK is used for 7.5V/3A, DC Adapter .

Pin No	Pin Name	Ref.
1	GND	
2	VCC	7.5V/3A
3	GND	

C. RS-232 Port

RS -232 is used for external devices and Serial networks.

Pin No	Pin Name	Ref.
1	N,C	
2	TXD	
3	RXD	
4	N,C	
5	GND	
6	N,C	
7	N,C	
8	N,C	
9	N,C	

D. Ethernet (RJ-45)

Use one of Ethernet (RJ-45) or Wireless LAN, as a wired Ethernet Port to control the computer through connecting.

Pin No	Pin Name	Ref.
1	T_TX +	
2	T_TX -	
3	VCC	
4	N,C	
5	N,C	
6	N,C	
7	T_RX +	
8	T_RX -	
9	GND	
10	LINK_LED -	
11	GND	
12	RX_LED +	

E. USB (USB Mini For program downloading)

Can not be used!

F. Wireless LAN Antenna Port

Wireless LAN Antenna port uses Di pole Antenna within 2.4 GHz as a Ethernet Antenna Port , also, select one of Ethernet (RJ-45) or Wireless LAN to connect and control the computer.

G. Antenna Port 2

Antenna Port2 is connected within the range of 860MHz ~960MHz of the Antenna to use. Selecting Antenna Port 2 among Antenna Port1 /2 to use, Antenna Port1 can be prevented from defecting by installation of 50Ω Termination.

H. Antenna Port 1

Antenna Port1 is connected within the range of 860MHz ~960MHz of the Antenna to use. Selecting Antenna Port 1 among Antenna Port1 /2 to use, Antenna Port1 can be prevented from defecting by installation of 50Ω Termination.

I. RS-422/485

Can not be used!

J. WIEGAND

Can not be used!

K. External Display

a. PWR

PWR is a display of power supply of DC Adapte.

b. RX

RX is a display of the Tag- reading condition.

c. STATUS

- When STATUS flashes every 1Second, the reader is in normal mode and RF is not in receiving mode.
- When STATUS flashes 100ms, Antenna1 and Antenna2 are receiving RF.
- When STATUS is on, RF is receiving only through Antenna1.
- When STATUS flashes every 3second, RF is receiving only through Antenna2.