

GV-RU9003 UHF RFID Reader

Introduction

GV-RU9003 is a Radio Frequency Identification (RFID) reader of ISO18000-6C (EPC GEN2) standard. Designed for parking lot management, the reader can read RFID tag within 10 m (32.8 ft).

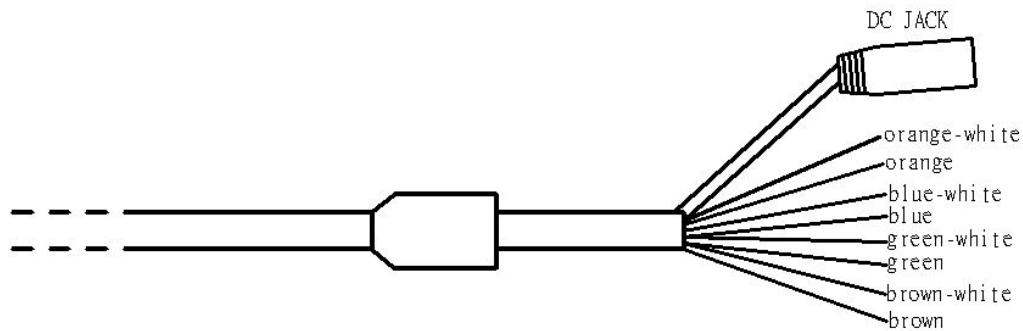
Features

- Built-in antenna and RF module
- Effective identification with specially designed antenna pattern
- Compatible with access controller using Wiegand 64 interface
- Ideal sensing range within 10 m (32.8 ft)
- Special energy-saving design reducing power consumption
- Support for external sensors and controllers
- Electronic tag compliant with EPC Gen II (ISO18000-6C) standard
- R&D patent for EMI reduction
- NCC/FCC/CE certification

Notice

1. The product pattern is certified by the FCC. Unauthorized modification of the frequency, power, or originally designed functions and characteristics of the RFID reader are prohibited.
2. This product has a water-resistant design. Unauthorized removal of the screws and case of the product will damage the water-resistant performance and void product warranty.
3. Cables are water-resistant. Do not damage the shield, as it will also damage water-resistant performance.
4. The reader should be positioned so that personnel in the area for prolonged periods may safely remain at least 20 cm (8 in) in an uncontrolled environment from the reader's surface.
5. Avoid the interference of other radio frequencies with the look-up table frequency-hopping spread spectrum (FHSS).

Output Cable Descriptions

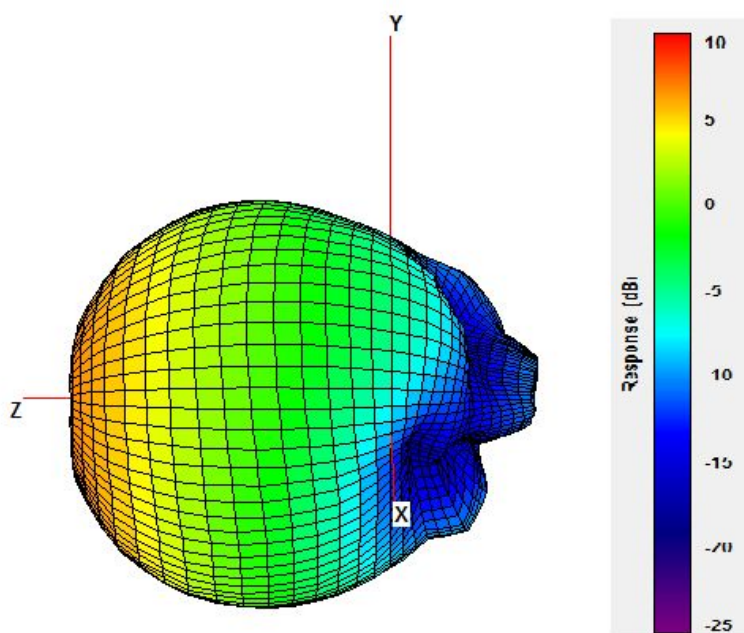


Wire Color	Definition	Function
Orange-White	D485+	Not functional
Orange	D485-	
Blue-White	GND	GND
Blue	GND	GND
Green-White	DATA 1	Wiegand communication interface
Green	DATA 0	
Brown-White	DI	External control signal input, H:3.3V / L:0V
Brown	DO	Not functional

1. Wiegand Communication Interface
 - 1.1. Connect with access controller using Wiegand interface (one-way operation).
 - 1.2. Support by Wiegand 64 interface.
2. DI (external control signal input)
 - 2.1. Signal level defining: High level (H) : 3.3V / Low level (L) : 0V (GND signal)
 - 2.2. When the external control signal input is at high level and the GV-RU9003 is in the standby mode, the GV-RU9003 will not output any identification code to the back-end access controller.
 - 2.3. When the external control signal input is at low level and the GV-RU9003 is in the working mode, the GV-RU9003 will output the identification code on the tag to the back-end access controller.
 - 2.4. If DI is not in use, connect it with the blue or blue-white wire.

Recommended Installation of GV-RU9003 RFID Reader

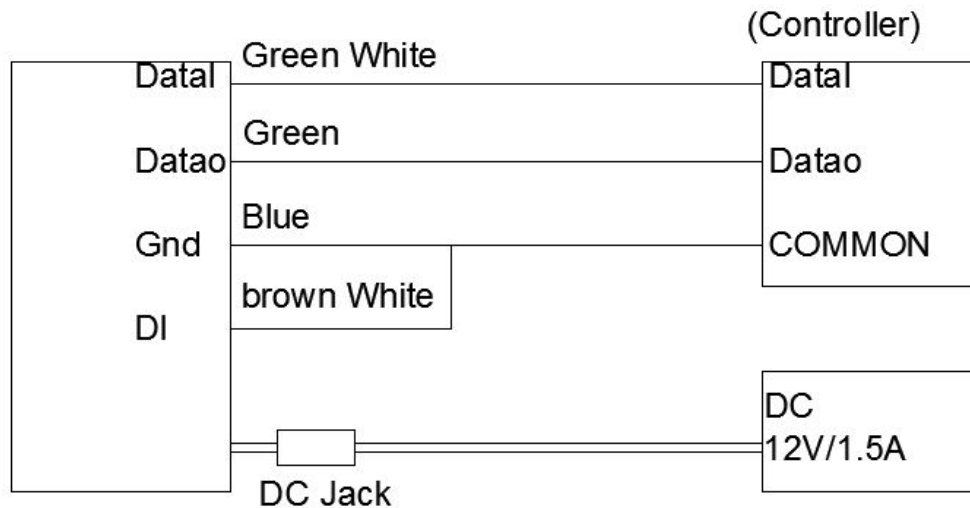
1. Secure the GV-RU9003 RFID reader on a column, pedestal, wall, or beam at a height between 1.8 - 2.2 m (5.9 – 7.2 ft) above the ground. Be sure to leave some space to adjust the reader's angle to the upper, lower, left, or right position.
2. Check the antenna pattern as listed below and make sure that the tags on the passing vehicles will be on the opposite side of the reader.



3. Although the ideal sensing range of GV-RU9003 is within 10 m (32.8 ft), the actual sensing range varies due to weather (raining, fog, sunny) and installation method (horizontal, inclining).

Connection of GV-RU9003 RFID Reader

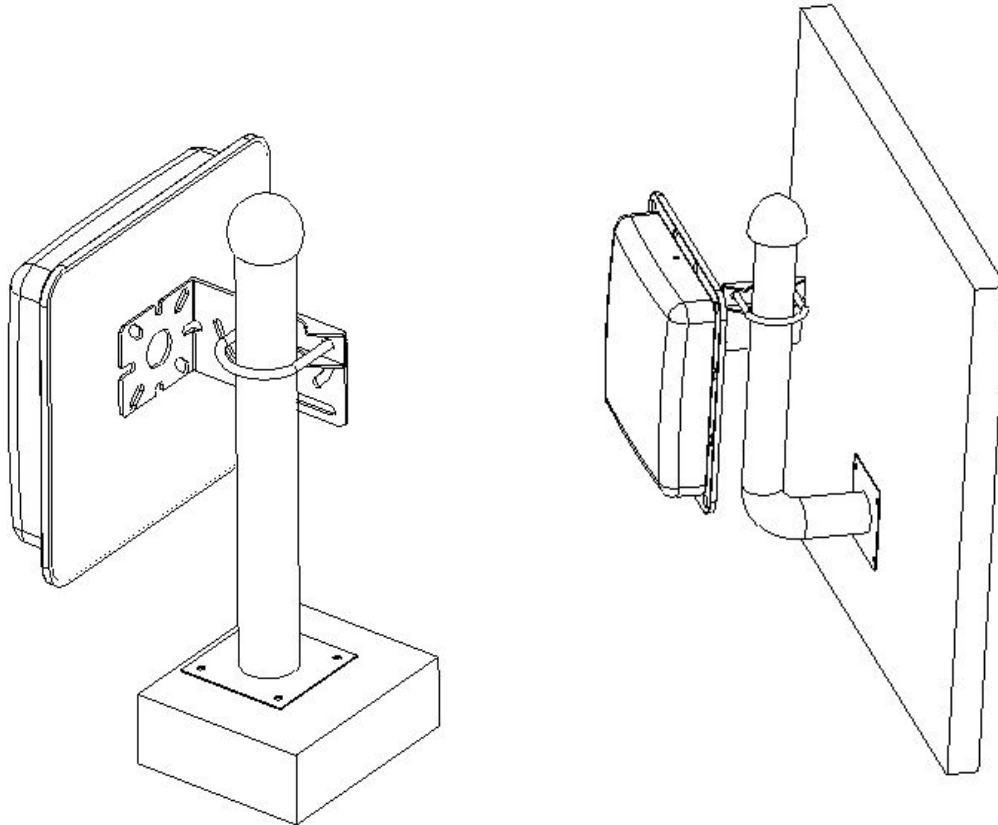
1. Connect the GV-RU9003 to a Wiegand signal source based on the communication interface of the access controller.



2. DI (brown-white) is the input signal (e.g. ground induction loop or photo interrupter) controlling the operating mode of the GV-RU9003 with external control. If external control is not in use, please connect it with the blue or blue/white wire.

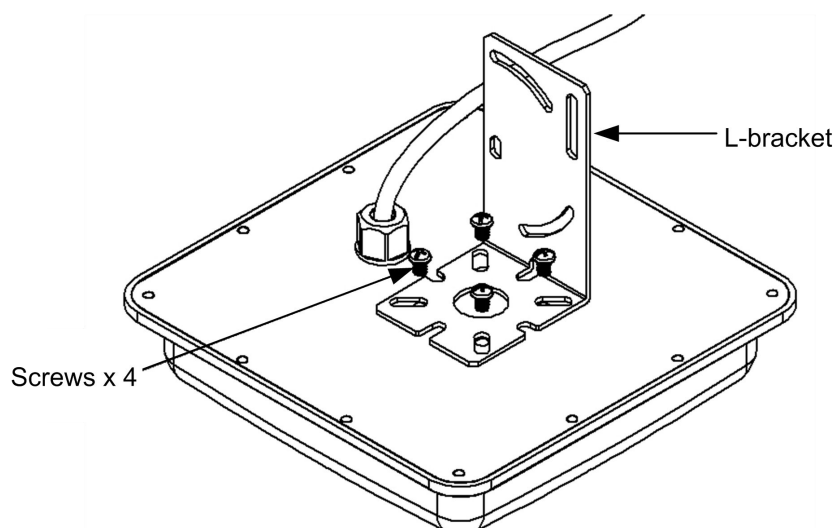
Installing GV-RU9003

You can install the reader on a pole or a pillar. Two types of pole mounts are recommended, as indicated below.

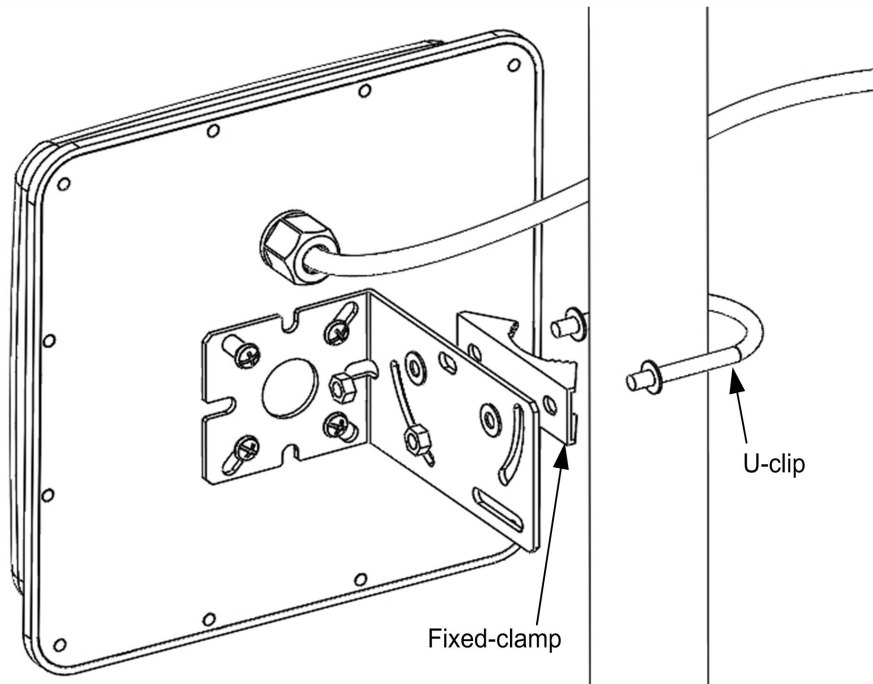


Note: Make sure the diameter of the pole is within 53 mm (0.17 ft).

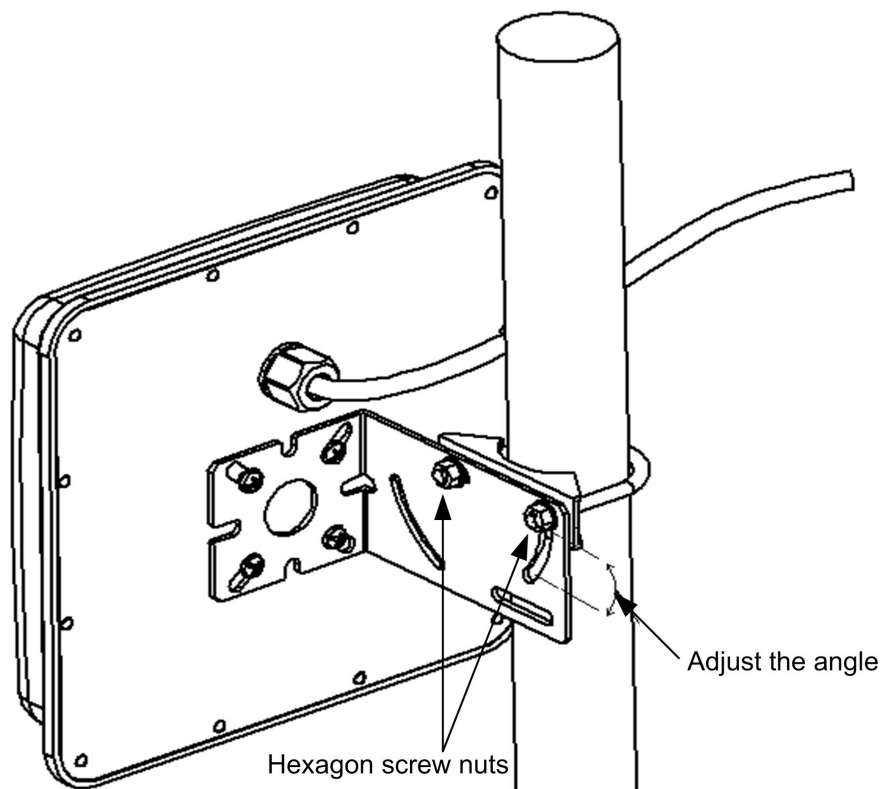
1. Secure the L-bracket with four screws (supplied) on the rear side of the UHF RFID Reader.



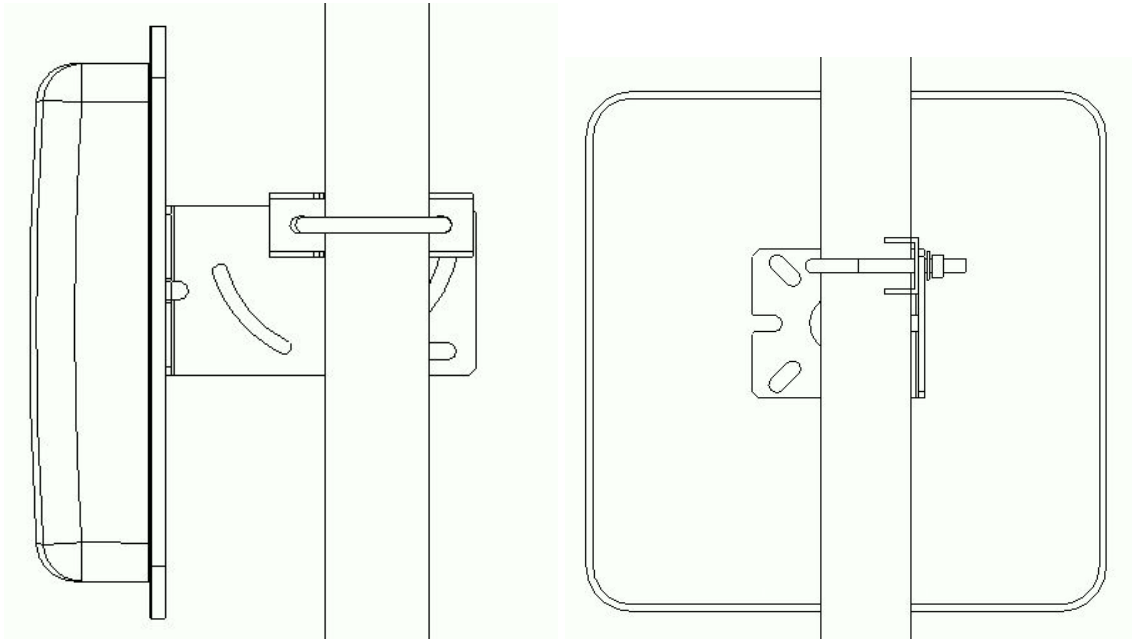
2. Secure the reader on a pillar or a pole using fixed-clamp and U-clip.



3. Adjust the angle of the U-clip on L-bracket and secure the hexagon screw nuts.



4. Overview of pole mount.



Specification

	GV-RU9003
Input voltage	9 ~15 V
Antenna gain	7.71 dBi (circular polarization)
Antenna receiving	50 ohm U.FL.
Wiegand interface	Wiegand 64 bit
Operating frequency	RU9003 TW 922-928 MHz RU9003 US 902-928 MHz RU9003 EU 865-868 MHz
Emission power	27.9 dBm
Modulation scheme	PR-ASK, ASK
Current	<1A max.
Protocol	EPC Gen2 (ISO 18000-6C)
Receiving sensitivity	-85 dBm
Sensing range	10 m (32.8 ft) max.
Water resistance	IP56
Operating temperature	-20°C ~ 55 °C / -7.6°F ~ 131°F
Storage temperature	-20°C ~ 85°C / -7.6°F ~ 185°F
LEDs	Red, Green
Humidity	5-90 %
Dimensions	228 x 228 x 52.3 mm / 8.97 x 8.97 x 2.04 in
Weight	530 g / 1.16 lb
Certification	NCC, FCC, CE

Note:

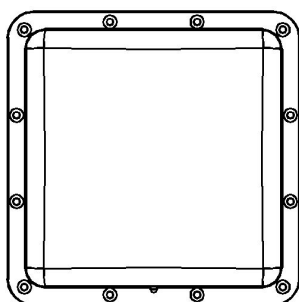
1. The GV-ASManager V4.4.2.0 is required.
2. Wiegand interface supports both GeoVision AS2xxx/4xxx/8xxx controllers and 3rd party controllers (Wiegand 64 Bits).
3. Specifications are subject to change without notice.

GV-RU9003 UHF RFID Reader



Overview

Reader
Front



Antenna Source



LED is under Reader.

Packing List

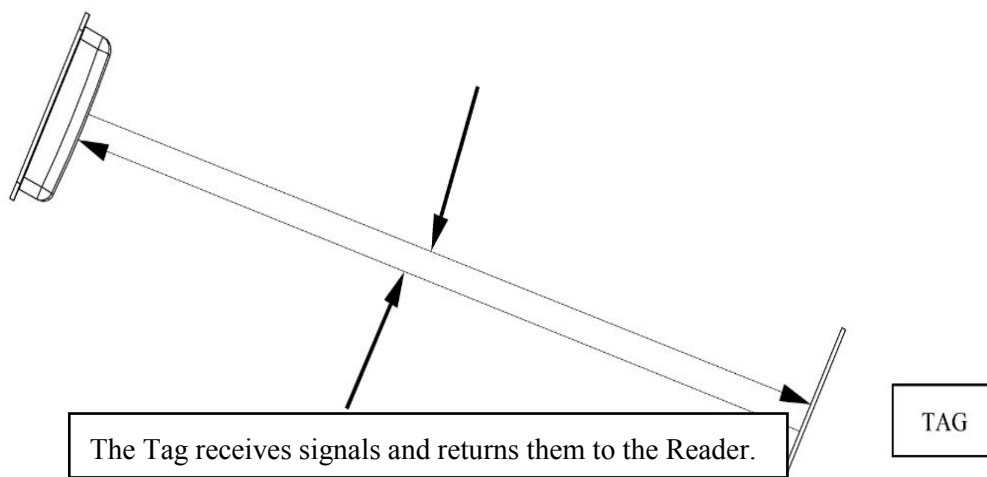
1. GV-RU9003
2. L-Bracket
3. Fixed-clamp
4. U-clip
5. Screws x 4
6. Installation Guide
7. Warranty Card

Note: If any of these items is found missing or damaged, please contact your local supplier for replacement.

Installing GV-RU9003

Note: For the diagrams listed below, the LED indicator locates at the lower part of UHF RFID Reader.

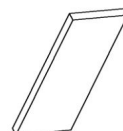
1. Install the RFID reader with the antenna paralleled to the Tag for better reading results.



2. Install the RFID Reader and the Tag as shown below.



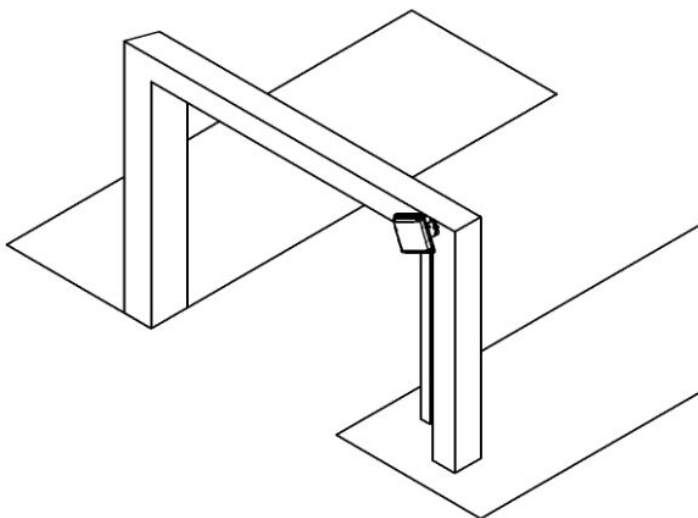
Correct



Misplaced

3. RFID Reader installation position

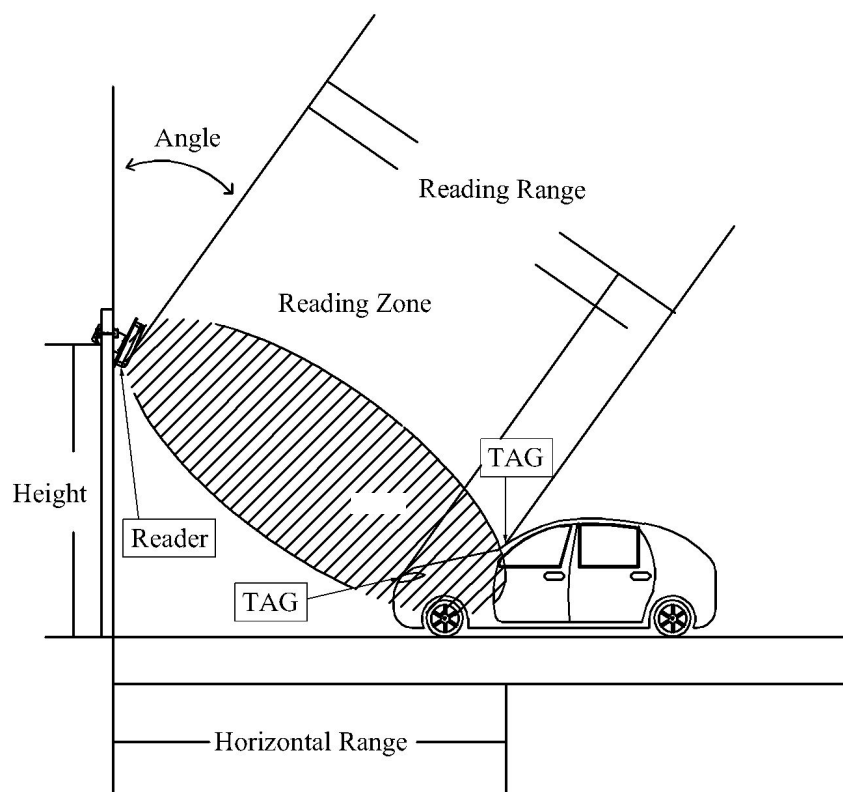
- 3.1 Do not install RFID Reader near mental or the metallic substance will affect the electromagnetic field type.



- 3.2 Recommended height to set RFID reader is 1.8 ~ 2.2 m (5.9 ~ 7.2 ft). The height should not be lower than the location of RFID Tag.

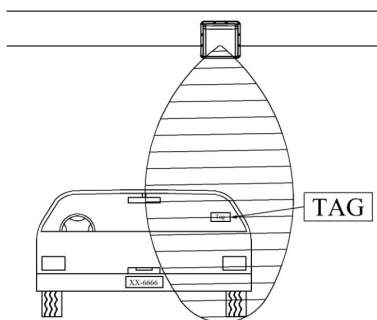
- 3.3 Recommended angle to set RFID reader is 15-20 degree. Adjust the angle according to the actual installation site.

- 3.4 Keep any barrier away from the reading zone between RFID Reader and the Tag.

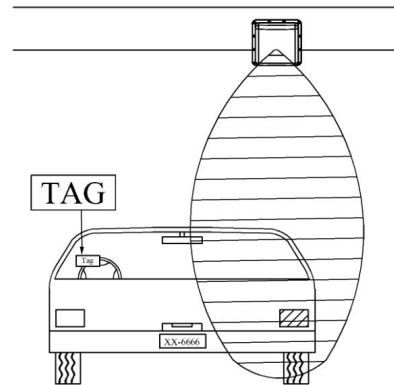


4. The RFID Reader must be installed at same side of the Tag or at the nearest reading range to the Tag.

4.1 Upper Installation

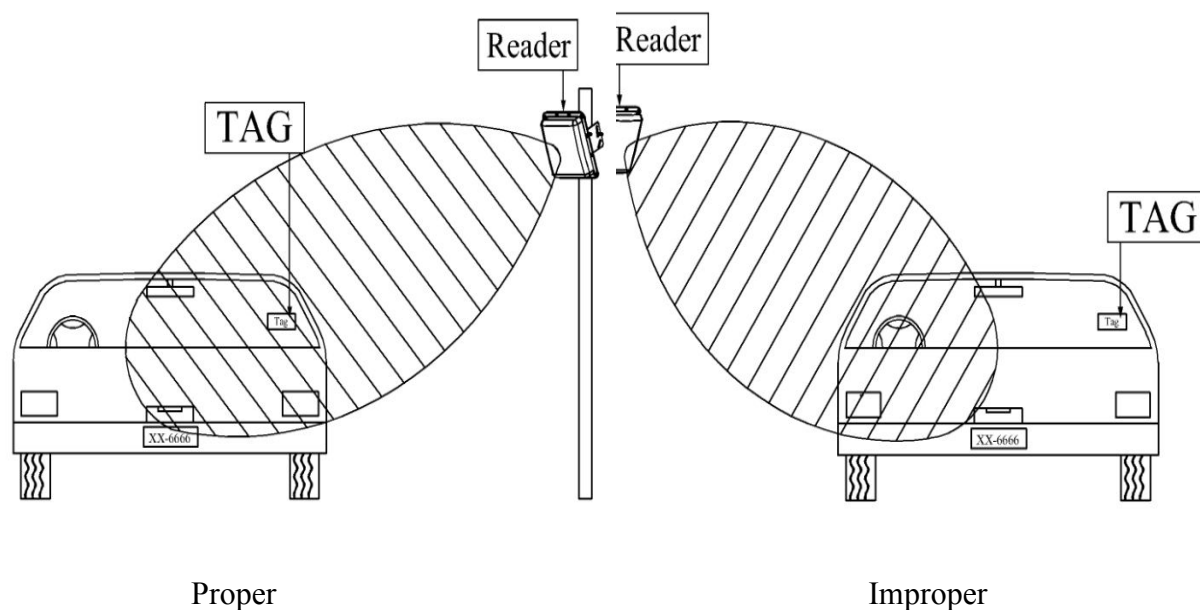


Proper



Improper

4.2 Side Installation

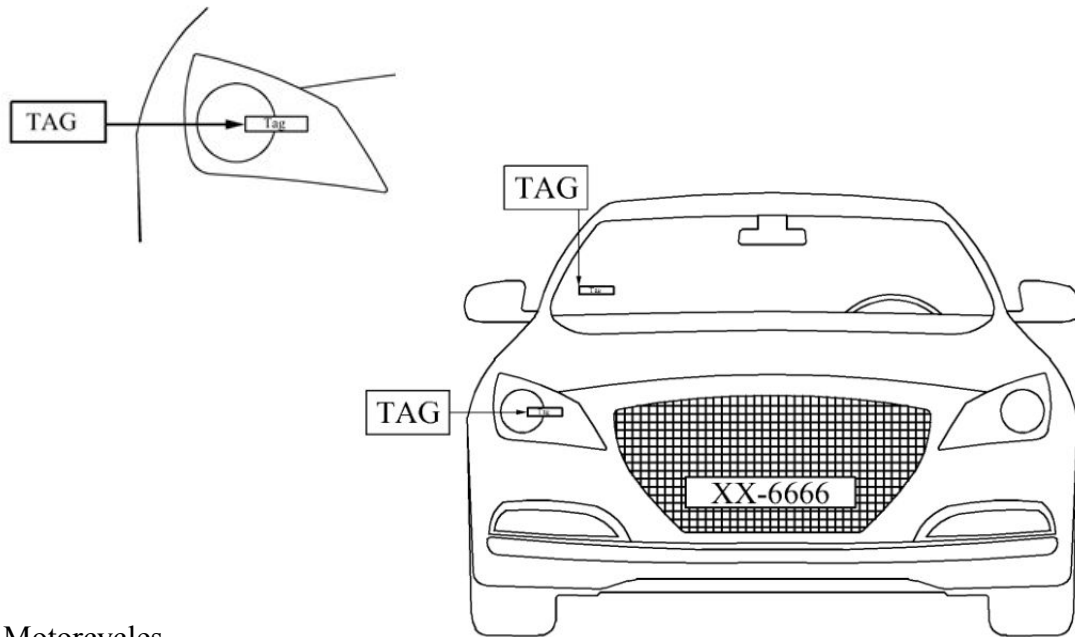


5. Recommended Tag Position

Vehicles

- 5.1 Place the tag on the front windshield or headlight, at the nearest reading range to the reader.
- 5.2 When placing the Tag on the headlight, keep the Tag away from the metal body of the vehicle.
- 5.3 If the car windshield glass contains metallic line, it will affect the reading range. To avoid such situation, install the Tag on the headlight.

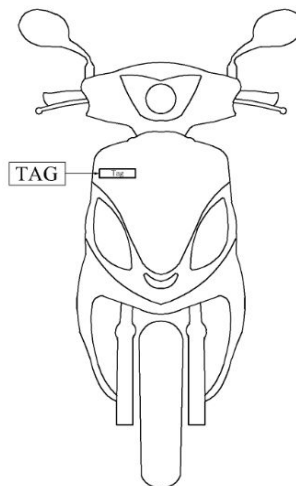
5.4 Windshield insulation films that contain metal ingredients will affect the reading range. To avoid such situation, install the Tag on the headlight.



Motorcycles

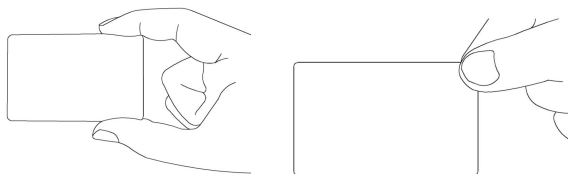
5.5 Install the Tag on the front shield and at the closest range to the RFID Reader.

5.6 If there is no front shield available, it is suggested to install the Tag on the plastic body of motorcycle at the closest range to the RFID Reader.

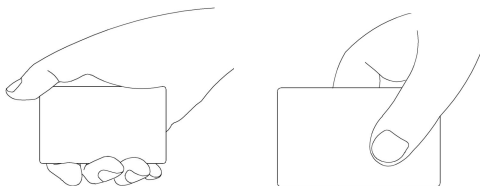


6. For card-type tags, hold the card as shown below to ensure reading results.

Correct



Misplaced



7. Notice

11.1 When the installation is complete, examine and adjust the environment parameters again for better reading results.

11.2 Reading range between RFID Reader and the Tag will be shorten on rainy days.

11.3 When two or more RFID Readers are installed together, co-channel interference might occur. To avoid interference, place the readers away from each other at a distance 5 times the effective reading range or set the readers to separate frequency channels.

11.4 When using the power supply, check if there is an interference problem. If yes, use the filter to attenuate the power supply noise.

Federal Communications Commission (FCC) Statement

15.21

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

15.105(b)

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 or more 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.

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 of the device.

RF exposure:

To comply with the FCC RF exposure compliance requirements, this device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. 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.