



Fixed RFID Reader

RF1B1AMUS

User Manual



Version 1.00

2008/07/10

Preface

Notices

- ◆ Please carefully read all notices and instructions in this manual before using the device.
- ◆ Safety precaution: DO NOT throw or press the device. DO NOT expose the device to heat and liquid.
- ◆ The device is the certificated low-power radio-frequency electric machinery. Without the express written permission of AMOS Technologies Inc., any company, enterprise or user is not allowed to change the frequency, increased the transmitting power or altered original features and functions.
- ◆ Low-power radio-frequency devices shall not influence aviation safety or interfere with legal communications; if found, the user shall immediately cease operating until no interference is achieved. The aforesaid legal communication means radio communication is operated in compliance with the Telecommunications Act. Low-power radio-frequency devices must be susceptible with the interference from legal communications, or industrial, scientific and medical radio wave radiated devices.

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1 Introduction

This manual describes how to install and use the Fixed RFID Reader RF1B1AMUS (“Reader”). There are two types of readers: infrared triggered and non-infrared triggered. Non-infrared triggered readers keep on operating to read the UHF Card every 0.1 second. The Reader in this manual is an infrared triggered one which starts to read just after detecting the approach of the UHF Card. Both readers are ideal for Access Control System.

1.1 Access Control System

Figure 1-1 shows the Access Control System. When a user comes close to the Reader with an UHF Card, the IR will begin to send signals to the Interface right after detecting the Card. After the Interface receives signals, it will deliver an instruction to the RM to read the information of the UHF Card. After the RM discriminates validity of the UHF Card, the Reader will reflect the status by changing LED lights and the buzzer. The information is sent to the Control Box to verify the user’s identity for controlling the Door’s openness. Captions of this system are listed below:

- **IR (Infrared Sensor)** : It detects whether anything blocked in front of infrared. When the object in the range of infrared detecting, IR will send signals to the Interface.
- **Interface** : When the Interface receives the signal from IR, it will deliver instructions to operate the RM.
- **RM (Reader Module)** : It is in charge of sending and reading radio frequency. When the RM receives the instruction, it will send or read signals through antenna to get or write the information from or into the UHF Card.
- **Antenna** : Induction Area, sending signals from the RM and receiving signals from the UHF Card.
- **UHF Card(optional)** : UHF Card here means user identification card. A card which is compatible to the specifications of EPC Class 1 Generation 2 is a valid UHF Card.
- **Control Box(optional)** : It checks user’s information, control the openness of the Door and provide the power to the Reader.

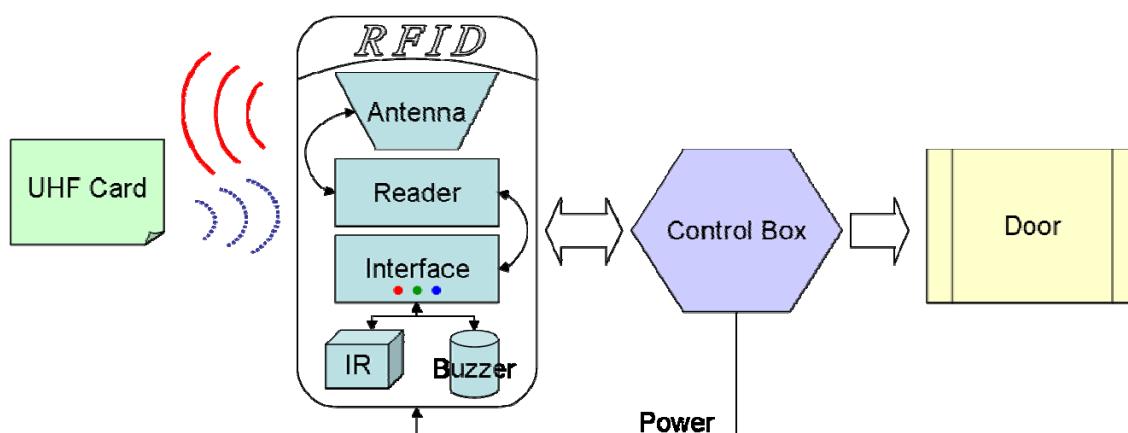


Figure 1-1: Access Control System

2 Specifications and Functions

2.1 Overview

Front View, Rear View & Wall Mount (see Figure 2-1) and Signal Cable (see Figure 2-2).

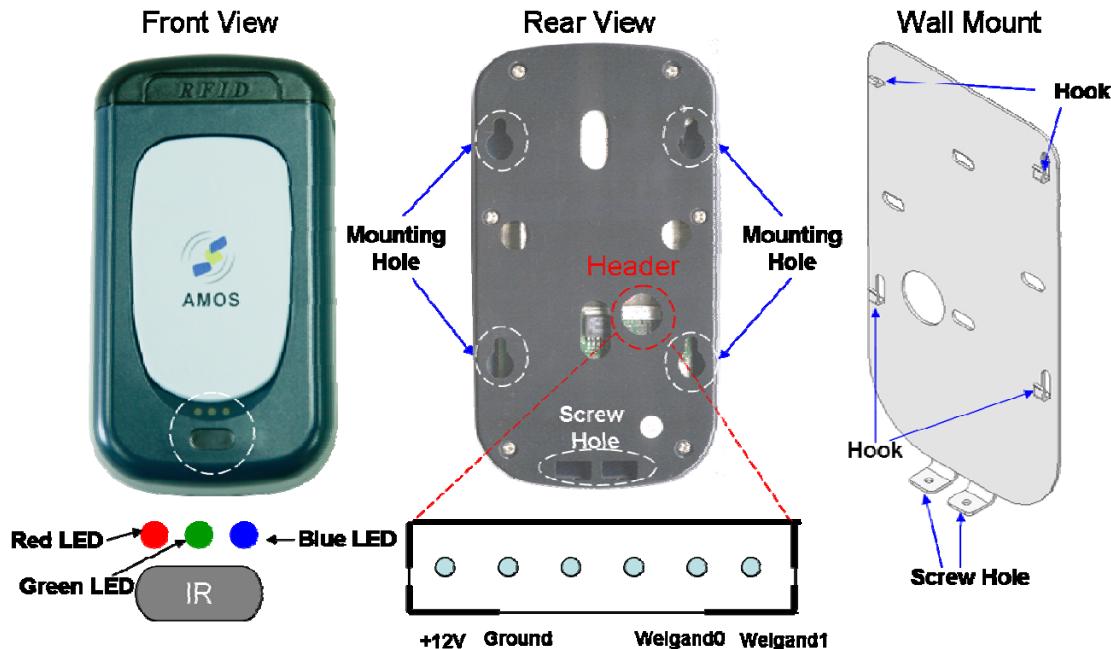


Figure 2-1: Product Overview



Figure 2-2: Signal Cable

2.2 Internal Structure

Refer to the Figure 2-3 below to identify the components of the Reader.

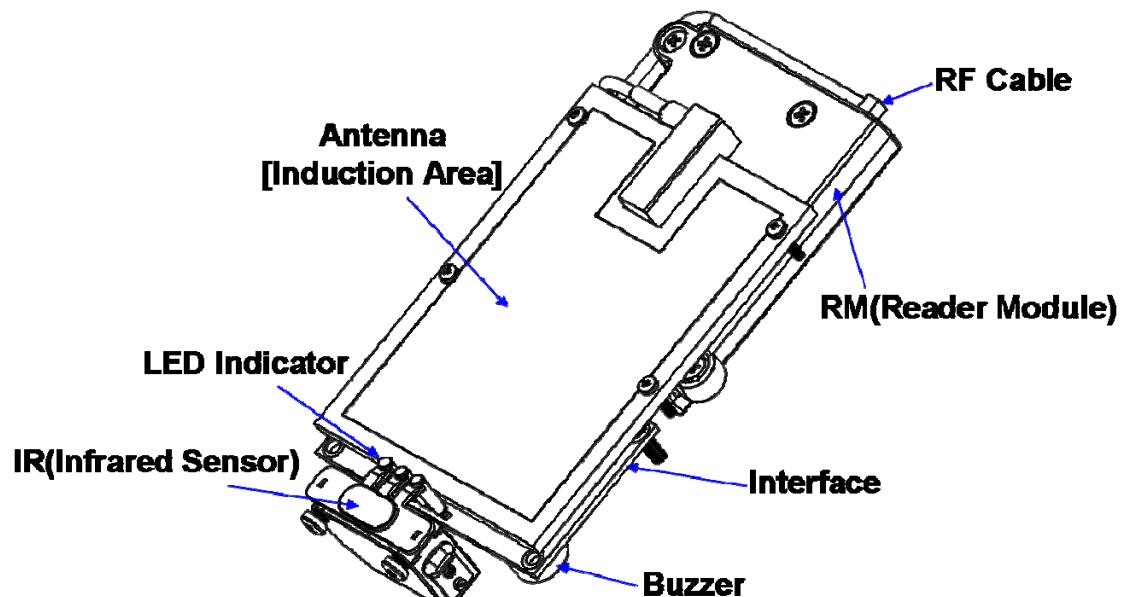


Figure 2-3: Internal Structure

2.3 Specifications

Model No.	RF1B1AMUS
Dimension	160 mm × 90 mm × 25 mm
Standards	Compliant with EPC Class 1 Generation 2 (ISO 18000-6C)
Antenna	Liner Polarization
Frequency	902.0 MHz ~ 928.0 MHz
Operating Channel	51 Channels
Bandwidth	500 KHz
Output Power	11.5 dBm (0.014 W)
Receive Sensitivity	-30 dBm
Modulation	FHSS / DB-ASK
Modulation Depth	80% ~ 100%, 95% Nominal
Power Supply	DC 12 V/0.5 A
Operating Temperature Range	-20°C ~ +50°C
Storage Temperature Range	-35°C ~ +70°C
Humidity	0 ~ 95%, Non-Condensing
Communication Interface	Weigand
Read Range	> 0.1 m
Data Coding	PIE
Bite Rate	26.7 kbps to 128 kbps
Data Decoding	M2
Others	3 LED Indicators, 1 Infrared Sensor, 1 Buzzer

Table 2-1: Specifications

2.4 Status of Buzz

Status	Description
One Long Beep Sound	The information of the UHF Card has been read by the Reader.
Two Short Beep Sounds	The Interface automatically checks the function of the buzzer when the Reader exactly connects to power.

Table 2-2: Status of Buzz

2.5 Status of LED Indicator

Type	Indication
Red LED Indicator	Status of power supply
Green LED Indicator	Status of being reading
Blue LED Indicator	Result of reading the UHF Card

Table 2-3: Status of LED Indicator

3 Installation

- (1) Connect the signal cable to the Control Box accordingly: red wire to +12V wire, black wire to the ground, orange wire to weigand0 wire, yellow wire to weigand1 wire.(Figure 2-2)
- (2) Fasten the Wall Mount onto the wall. (Figure 2-1)
- (3) Plug the housing of the signal cable (Figure 2-2) to the header (Figure 2-1) inside the Reader as Figure3-1.
- (4) Locate the Reader to the Wall Mount and tighten two M4*20 mm screws to screw holes (Figure 2-1) of Wall Mount from the bottom side.
- (5) Installation completed.



Figure 3-1: Installation Example



CAUTION

※ This device is set with stable power supply of DC +12V.
Please ensure the power type before connecting.

4 Operation

Fixed RFID Reader is an integrated device with built-in antenna. It is user-friendly without complicated operating procedures. The Reader will be able to start operation immediately after installation and connecting to power. Its operating procedures are listed below as Figure 4-1:

4.1 Start Mode

It is called "Start Mode" while the Reader is connected with power. At this mode, the red LED indicator is on. And the Reader will automatically check its functions: its green and blue LED indicators flicker twice and the buzzer makes two short beep sounds. Then, the Reader will step into Ready Mode. The red LED indicator will be unceasingly lighting when the power is supplied.

4.2 Ready Mode

It is called "Ready Mode" when no UHF Card in the detectable range of the IR. The red LED indicator is on.

4.3 Read Mode

During Ready Mode, when a UHF Card is coming closer to the Reader and entering into the detecting range of IR, and green LED indicator is blinking, it means the Reader is reading the information from the UHF Card and we called it "Read Mode". After confirming validity of the UHF Card, the blue LED indicator will flicker once and the buzzer will make one long beep sound. The information of the Card will be sent to the Control Box by weigand coding. It depends on the user's authority for the Control to open the Door. After previous actions, the Reader will come back to Ready Mode.

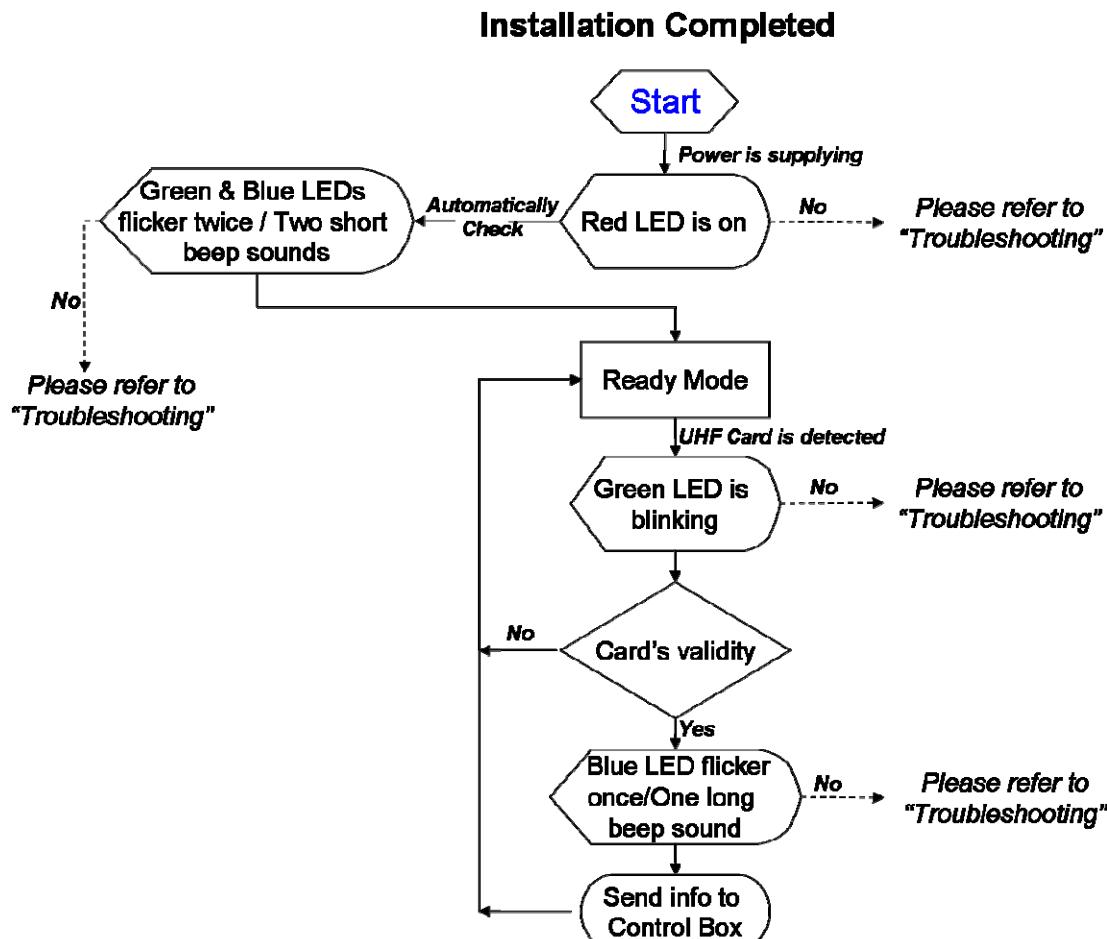


Figure 4-1: Operating Procedures

5 Troubleshooting

Problem		Reason	Solution
Red LED is unlit		There is no power	Ensure the power is applied and power supply is plugged securely, or try different wall outlet
		LED is broken	Return to AMOS for examination and maintenance
Ready Mode	Blue LED is continually lighting	Malfunctions on the Interface	Return to AMOS for examination and maintenance
	Blue and green LEDs are continually lighting	Malfunctions on the RM	Return to AMOS for examination and maintenance
Read Mode	Green LED is unlit	Malfunctions on the RM	Return to AMOS for examination and maintenance
		LED is broken	Return to AMOS for examination and maintenance
		Malfunctions on the IR	Return to AMOS for examination and maintenance
	Green LED is fast flashing and blue LED is slow flashing	Malfunctions on the RM	Return to AMOS for examination and maintenance
	Green LED is blinking	There are beep sounds, but blue LED is unlit	Return to AMOS for examination and maintenance
		Blue LED is flashing, but there is no sound	Buzzer is broken
		Blue LED is unlit and there's no sound	The Reader hasn't read a valid card
			The card is inactive
	Blue LED is unlit and there's no sound, but the UHF Card is normal (authorized and valid)	Wires and cables are in bad connection	Change the UHF Card

Table 5-1: Problems and Solutions

⚠ CAUTION

- ※ All maintenance will be only provided by service department of AMOS Technologies Inc. or its authorized distributors.
- ※ When a problem occurs that is not covered above, please consult AMOS Technologies Inc. or the authorized distributors.

6 Contact Information

If you have any suggestions or comments about Fixed RFID Reader, please contact us.

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FCC Caution:

1. The 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.
2. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.
3. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.