SAAT-F527A Active RFID Reader User Manual

Contents

Dear Customers:

Thanks for your trust and support! We try best to provide you comprehensive service and technical support.

This manual will introduce specific usage of managing software of SAAT-520A series Reader. Managing software mainly works for SAAT-520A series reader system, parameters configuration and inquiry, communication options, tags reading and demo function, etc. Please read the user manual and related reference of CD disk carefully before development. Welcome to contact us for any feedback and suggestion. Please consult our technical support if you have problems of using products.

This manual is suitable for the following readers: SAAT-520A Series Reader

The manual is supposed that the user already owns basic RFID and computer knowledge, so that related terms such as RFID, RF and Ethernet is not described in details, the users can search and inquire reference, or consult our technical department.

There are some signs with the following definitions:

Warning

if violate the signed operation method or usage environment, which will do damage to health or devices.

Advice

it will come to better effect according to the signed method.

1 Product Overview

1. 1 Overview

Image1 SAAT-F527A

F527A omni-directional reader is independently R&D by HTRFID, operating in the 2.4—2.48 GHz band, which is widely used with characteristics of high-recognition, long-range, powerful, high-reliability & scalability, etc.

1. 2 Applications and usage

F527A serial readers support RS-232, RS-485, Ether net interfaces as well as expansion GPRS and other wireless digital modules, with the function of 2-channel relays (AC125V/1A or DC30V/1A current) output and 2- channel trigger input. Compliant with private protocol, F527A can identify T50X series tags developed by HTRFID.

1. 3 Product model

This file is suitable for F527A omni directional active rfid reader only.

1. 4 Working environment

Working temperature:-20℃~+60℃

Storage temperature:-30℃~+70℃

Humidity:20%~95%(RH)

1. 5 **Safety and protection**

 Please check your power voltage before install and connect the device. The input voltage of our rfid reader is 100V~240V/50~60Hz.

2 Technical characters

2. 1 **Functions**

SAAT-F527A is a omni directional 2.45GHz active rfid reader with work between 2.4-2.4835GHz working frequency. Main functions of it are listed below:

(1) Can detect all our SAAT-T5XX serial active rfid tags

(2) Filter tags

(3) Support both single tag and multiple tags reading

(4) Support one RF antenna

(5) RSSI available

(6) Support upgrade online

2. 2 **Main technical specifications**

2.2.1 Mechanical & Electrical parameters

(1) Working temperature:-20℃～+60℃

(2) Storage temperature:-30℃～+70℃

(3) Humidity:20％~95％（RH）

(4) Voltage:DC12V/3A

(5) Volume:189.7×125.08×36.74mm^3

(6) Net Wight:590g

2.2.2 RF Parameters

(1) Operating frequency:2400MHz~2483.5MHz

(2) Output power:-5dBm~+20dBm@50Ω (software adjustment, 2dBm)

(3) Modulation: GFSK

(4) Communication rate:1Mbps(Default)

(5) Reading distance:≥80m@EIRP=0dBm

2. 3 **Communication Interfaces**

(1) Communication interfaces: RS-232, 10/100M Adaptive Ethernet interfaces

(2) RF Port: SMA×1

(3) GPIO:Input×2,12V Output×2,Relay output×2

(4) Power: 9～32V

3 Structural Features

3. 1 **Composition**

Outer case Made of aluminum die-casting, F527A reader has better strength and electromagnetic compatibility. RF interface and communication interface in different panels, to facilitate wiring and operation, structure and size is shown as Image2 below.

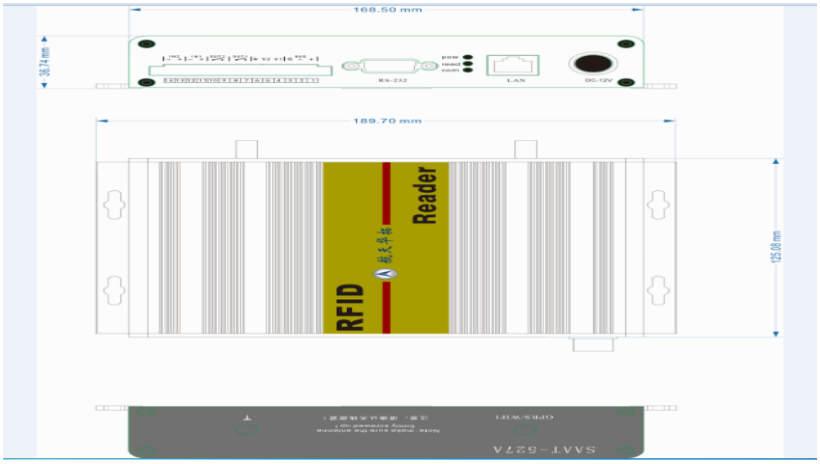

Image 2 SAAT-F527A Structure

3. 2 **Volume and weight**

Volume is 189.7mm×125.08mm×36.74mm and net weight is 590g

3. 3 **Power and communication interfaces**

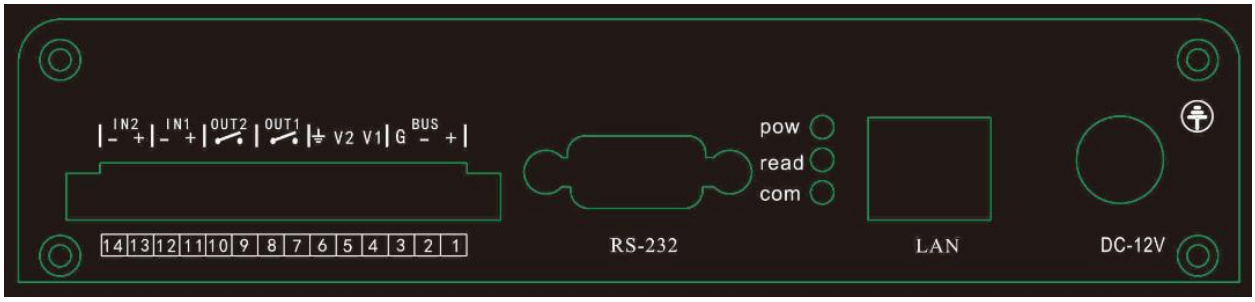

Image 3

3. 4 **LED lights**

There are 3 LED lights to show the working status of SAAT-F527A:

LED lights

3. 5 **Antenna ports**

Antenna ports

Right port is for GPRS/WiFi and the left one is for 2.45Ghz active rfid antenna.

4 Interfaces description

4. 1 **Hardware interfaces**

4.1.1 GPIO ports

GPIO Port definition

Pin NO.	Signal Name	Signal flow	Remark

1	BUS+	RS485 /Wiegand+	Wiegand and RS484 output
2	BUS-	RS485 / Wiegand -	
3	G	Ground	12V output
4	V1	Power output	
5	V2	Power output	12V output
6	G	Ground	
7	OUT1	Relay 1	Relay 1
8	OUT1	Relay 1	
9	OUT2	Relay 2	Relay 2
10	OUT2	Relay 2	
11	IN1 +	Optoelectronic input +	Optoelectronic input 1
12	IN1 -	Optoelectronic input -	
13	IN2 +	Optoelectronic input +	Optoelectronic input 2
14	IN2 -	Optoelectronic input -	

4.1.2 RS232 ports

Serial port definition

Pin NO.	Signal Name	Signal flow	Color	Remark
3	TX	Output	Green	Differential signal line
2	RX	Inout	White	
5	GND	Ground	Black	

4.1.3 Ethernet port

Ethernet port definition

Pin NO.	Signal Name	Signal flow	Color	Remark
6	T+	Output	Red	Differential signal line
3	T-		Purple	
2	R+	Inout	Orange	
1	R-		Gray	

4. 2 **Software operation**

Please refer to software instruction

5 Installation and Configuration

Note

Please read this chapter carefully before SAAT-F527A reader installation.

5. 1 Installation Attention Points

1, Ensure your personal and property safety, the following preparatory work must be done before the installation:

2, Check power plug performance, whether the Reader operating power is in line with the current input power.

3, Ensure the power grounding well.

4, Measure and estimate the distance between the device and system (as Reader & PC, Reader & Power plug).

5, Ensure installation location and direction covers the reading area.

6, Pay attention to the limited length and types of serial/network cable (straight-through cable, crosswire). Note the actual length and relay device delay the data transmission.

7, Check all devices before installation.

8, Investigate carefully the local environment, whether there is special limitation to wireless devices or other devices operating in 2.4~2.5GHz, and make an assessment about the interference.

9, Note the installation ways& minimum distance and avoid mutual interference when install multi-reader and intensive readers.

5. 2 Installation Conditions

Before install SAAT-F527A reader, please check the integrality, and contact the local supplier timely if there is any damage.

Choose Installation Location

Choosing the location is depends on the installation ways, the proper location varies with different installation ways. Usually reader should install in the place of safe and easy install.

Check the Set-Up Working Situation

If connecting by Ethernet, set up the network, check and confirm before installation (for IP can’t conflict with other devices in the same segment).

5. 3 **Installation steps**

5.3.1 Fixing SAAT-F527A Reader

There are the following installation ways according to different locations.

（1）Desktop Installation

Put the reader on the working platform

Attentions：

Reader and related cable are not cut off accidentally, or unexpected power outages. If the working plate surface is shaking or leaning, fixed measures should be taken.

（2）Wall-hanging Installation

SAAT-F527A reader can be fixed on the vertical surface by accessories (mounting screws, nuts) equipped. First fixed the mounting plate with screws on the SAAT-F527A reader, then penetrate the surface with expansion bolt or fixed by nut with bolts.

5.3.2 Connecting External Power

Please turn on the external power according to the following steps

1. Make sure the power voltage and frequency meet the requirements: different types of reader with different input voltage.

2. Insert the power cable into the input port of SAAT-F527A reader, and then put into the AC connector socket.

3.Turn on the power, after SAAT-F527A reader call and issued three times, all lights on and reader into the initial state, when only power light on, the system completes the initialization and standby.

When SAAT-F527A reader in default, the system in standby after booming. When reader receives the command “Start Receiving” from PC, it enters the working state from the initialization state.

5.3.3 Adjust Directions of the Reader

According to the site application; define reader’s reading/writing range. After choosing installation location, adjust (turn) angle to the best reading state according to the tag-reading test, and fixed the reader devices.

6 Debug FAQs

This chapter will explain clearly about Debug FAQs as incorrect and inaccurate installation and solutions provided.

Main FAQs as follows

6.1 Reader no response

Power indicator is off ----> Check the power source.

Power indicator is on ----> Check the related cable connection and corresponding items based on the related indicator state.

Ethernet connecting mode ----> Check if the connected IP is correct and there is conflict between IP address or not.

Serial port connecting mode ----> Check if the management software ports, communication speed and other parameters set correctly or not.

6.2 Unable to Identify Tags

Check if the reader type of management software configured correctly.

Check if reader is compatible with the tag.

Check if attenuation settings, tag placement in the effective reading range or not.

Check if there is electromagnetic interference between readers and other devices.

Check the tag damaged or not.

6.3 Reading range doesn’t meet requirements

Check if the attenuation configured too large.

Check the direction of reader installation.

Check if there is interfering or sources surrounded.

7 Inspection and Acceptance

Standard of Inspection and Acceptance from two ways: Structure and performance.

7. 1 Inspection and Acceptance of Structure

Check if installation is in line with the standard, and the connection between devices is working.

Whether the reader fixed firmly without loose.

Whether Various cables connected and fixed firmly。

Whether Screws are tightened

7. 2 Inspection and Acceptance of performance

Check whether reader works normally from the following two ways:

Whether reader is in normal working state.

Whether reading range meets requirement

FCC Warning
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 inte rference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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 interferenceto 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.
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 20cm between the radiator and your body.