

Instruction of SR-RU-390 UHF RFID Reader

SR-RU-390 UHF RFID Reader has many perfect characteristic such as non-touching, not being effected by environment, long-distance reading and writing, good capability of applying to object high speed moving, convenient operating, anti-conflict and so on. It is very useful far-ranging. At present, SR-RU-390 UHF RFID Reader is applied to no parking and charging fee management of high-speed road(bridge), indentifying car's brand management, cars' management of organizing into groups and attempering, management of intelligent park, management of checking cars' entering and leaving frontier, supervising material's being out and in and identifying management, baggage and package's indentifying management and containers on dock management and other fields.

1. summary

SR-RU-390 is a kind of 915M RFID reader, which is full frame and function. It includes RF module, digital signal managing, input/output port and serial communication port, synchronization function.

SR-RU-390 reader is multi-protocol UHF reader, which supports ISO18000-6B and EPC protocol international standard it can read and write UCODE, TI, Alien and other label. Besides, it can optimize main applying label clip. It is convenient to upgrade reader's software to satisfying protocol expanding and function expanding to protect user's investment.

2. Function brief introduction

- Support multi-protocol: SR-RU-390 reader supports ISO18000-6B, EPC Class 1, EPC Class 1 GEN 2 standard, and also support many protocols and function expanding by through upgrading reader's software.
- Label capability optimizing: SYNCO serial readers can optimize Label's operating used far-ranging. It uses different labels' expanding function to enhance the price-quality ratio of system's applying.
- Out off line function: the reader is designed with nonvolatile memory place. When the reader fail to communicate with applying system, it can memory identified ID Label into the reader to make sure the system is stable.
- ID match function: the reader is designed with nonvolatile memory place. In a close applying system, it can memorize ID Label into the reader in advance. When the reader indentifies Label ID, It can compare with the ID memorized the local PC, then depending on the result, it can run the reader's predefining or user designing action.
- Synchronization function: In practice, many readers must be installed a near place, to make sure the reliability when readers working, SYNCO serial readers were designed especially with synchronization function to make sure the reliability of indentifying label and reading rate.
- Time function: There is real-time clock within reader, which can setup and read reader's time, identify time-stamp function under out off line. It can exactly satisfy the applying design that uses were sensitive for time.

- Input and output function: the reader is designed 2-way triggering input, which can identify the label when occurring outer things to satisfy green environment protecting and decrease energy consuming. It is especial suitable for parking port and producing line management. It is designed 2-way relay output, which user can use for outer controlling so that saving user's cost of applying system designed. User can transfer and control relay's switch status through the API function of SYNCO-reader SDK and also can customize the controlling relationship according to the number of indentified Label ID.
- Launching power separated control: can setup separated every channel's launching power to meet applying and installing complexity, which is the first designed and created in internal country.

3. Technology parameter

SR-RU-390 reader's technology parameter as below:

Form 1 SR-RU-390 reader's technology parameter

Specification	Explanation
Operating Frequency	902MHz~928MHz
RF protocol	ISO18000-6B、EPC Class 1、EPC Class 1 GEN 2
Operating Method	FHSS or fixed frequency(set by software)
Antenna ports	2ports,SMA
Max RF power	30 dBm
Power smoothness	<0.5 DB
RF power range	20~30 dBm, Adjustable by software
Identify tag mode	Fixed time automatically reads the tag; external trigger control reads the tag or the software control reads the tag, Identify tag mode can be set
Identify tag time	<8ms(Identify single tag)
Reading/Writing tag time	Reads every 8 bytes to be smaller than 5ms,writes every 4 bytes to be smaller than 25ms
Reading/Writing tag distance	>8m(antenna dependent)
Communication interface	Type A: RS-232、RS-485、Wiegand26/34 Type B: RS-232、RS-485、Wiegand、USB Type E: RS-232、Wiegand、Ethernet
Input/output	2triggering inputs,2 relays outputs
Power supply	DC 5V
Power consumption	≤5W
Size	200mm×190mm×80mm
Weight	
Work Temperature	-10℃~+55℃
Storage Temperature	-20℃~+85℃
Work status indication	Buzzer and LED



4. Installing method and caution

The set of product includes one SR-RU-390 reader, one bar of RS232 serial port communicating line, one +5V/1A power adapter and four tran-connecting lines. Please confirm if there are all fittings in it when you opening the box, if any question, please contact our dealer quickly or contact our after-sales Dept directly.

4.1 Appearance

The reader is black cuboid. One side of it is antenna channel port, opposing it from left there are direct power input port, serial communication interface, eight LEDs and RS232 port (SR-RU-390A), USB port (SR-RU-390B) and RJ port (SR-RU-390E) . There are screw holes to settle and fasten the reader on its bottom.



Picture 2 SR-RU-390A Reader



Picture 3 SR-RU-390B Reader



Picture 4 SR-RU-390E Reader

4.2 Port instruction and indicator light

1) DB9 socket is RS232 serial interface, details as follows:

Form 2 RS232 interface instruction

Num.	Signal Name	Function	Direction
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1	NC		
2	RXD	Receiving data	Input
3	TXD	Sending data	Output
4	NC		
5	GND	Ground	
6	NC		
7	NC		
8	NC		
9	+5V	+5V power supply	

2) connecting line port from left to right as follows



Picture 5 connecting line port

Form 3 connecting line port

Signal Name	Function
D0	Wiegand Data 0
D1	Wiegand Data 1
GND	GND Line
A+	RS485 Data A+
B-	RS485 Data B-
GND	GND Line
T1	Triggering 1
T2	Triggering 2
K1	Relay 1 Port 1
K1	Relay 1 Port 2
K2	Relay 2 Port 1
K2	Relay 2 Port 2

3) We added eight LEDs as instructors when we designed, it isn't only beautiful but also convenient for user as he can know reader's working status clearly. Every LED's working status as follows according to corresponding position:

“RF” shows reader is launching power

“READ” shows reading correct electronic label data

“COM” shows RS232 serial interface communication is formal

“POW” shows power supplying is formal

“ANT1” shows reader's the first channel is connected to antenna

“ANT2” shows the second channel of reader is connected to antenna

“ANT3” shows the third channel of reader is connected to antenna

“ANT4” shows the forth channel of reader id connected ot antenna

4.3 Install

The reader could be installed on woody, concrete, or bricky wall according antenna's position and user's necessary, and it can also be put on plan object such as a desk.

5. Reader using instruction

5.1 Connect reliably on end of RS-232 serial line to the end COM1 of PC machine, connect reliably the other end to serial interface of reader.

5.2 voltage of alternating current power supplying of Power supplying adapter inputting end and working frequency according with the request: 100 V ~ 240 VAC/ 50 Hz, the outputting end is inserted the hole of reader's power source to supply power, and then the red LED light is light, it shows that the system had been initialized and being waiting, if not, please check the power source and reader.

After putting through reader, it is waiting. As thinking user's requests, we had already configured basic parameter when it was produced to meet essential operating request. If not configured the parameter, please operate it as the fifth step. If you want to configured individuated the parameter, please observe the steps as follows.

5.2 Open the procedure of configuring parameter on PC, chose the serial interface COM1 matched with serial interface of your PC: Baud rate is chosen and configured on pulling menu, station address is configured “random station”, then click “on line ” button, watch the outputting signal status. If it is shown “communication is normal”, it means that it is connected well between reader and PC; while if “communication abnormal”, it means that it isn't connected well, please check reader and serial line.

5.4 Click the “querying parameter” button, you can watch the reader's working status. Parameter configuring has three modules including working way parameter, reader parameter and protocol parameter configuring. In these modules, it can be configured principal-subordinating working way, fixed time working way, or triggering working way; In reader parameter module, it can be configured power, antenna, reading card way and so on; In protocol parameter, it can be configured support protocol and related parameter, more details please refer to *SYNCO serial reader 's instruction of parameter configuring procedure*

5.5 Open the reader demonstrating procedure on PC, chose the serial interface COM1 matched serial interface of your PC: Baud rate is chosen and configured on pulling menu, station address is configured “random station”, then click “on line” bottom and watch the outputting signal status. If it is shown “communication is normal”, it means that it is connected well between reader and PC; while if “communication abnormal”, it means that it isn't connected well, please check reader and

serial line.

5.6 In the reader demonstrating procedure, it can realize single card indentifying, multi-card indentifying for different labels, reading module, writing module and LOCK operating and so on, more details please refer to *SYNCO serial reader Demo procedure instruction*

6. Upgraded procedure instruction

Users are provided the upgraded procedure, which is a tool software to quick and brief update reader' fixing procedure. The software is the highest version as you first buy it, it can't be provided with along our products. With the technology developing, we will update our products' fixing procedure with new technology and provide it to users so that they can update and upgrade quickly the reader's internal procedure.

6.1 Open the upgraded procedure software on PC, chose the serial interface COM1 matched serial interface of your PC: Baud rate is chosen and configured on pulling menu, station address is configured "random station", then click "on line" button and watch the outputting signal status. If it is shown "communication is normal", it means that it is connected well between reader and PC; while if "communication abnormal" instead, it means that it isn't connected well, please check the reader and serial line.

6.2 click the downloading button, the software can download the procedure into the reader, progress bar shows working status. Appearing hint of upgrading finishing shows downloading is successful, more details please refer to *SYNCO serial reader upgrading procedure instruction*.

7. Caution

7.1 As the reader module working (radiate microwave power), the guy installed and adjusted must keep 30cm from antenna so that it can meet the request of America FCC about the max RF items. The instruction is just suitable for installing on the spot and adjusting the machine.

7.2 Please keep far away strong magnetic field when reader working.

8. After-sale service

We will maintain free for you during one year depending on product's number and producing date. If any impacting, over-high Voltage, improper operating, opening the product by yourself, it isn't our duty for your free maintaining

If any comments and suggestions about our products in using, please don't hesitate to contact us, we shall service for you with all our heart!

If any technology question, please contact our technician anytime.

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