ZJ Technology Limited.

RF900 User Manual

Rev. .1.0

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Contents

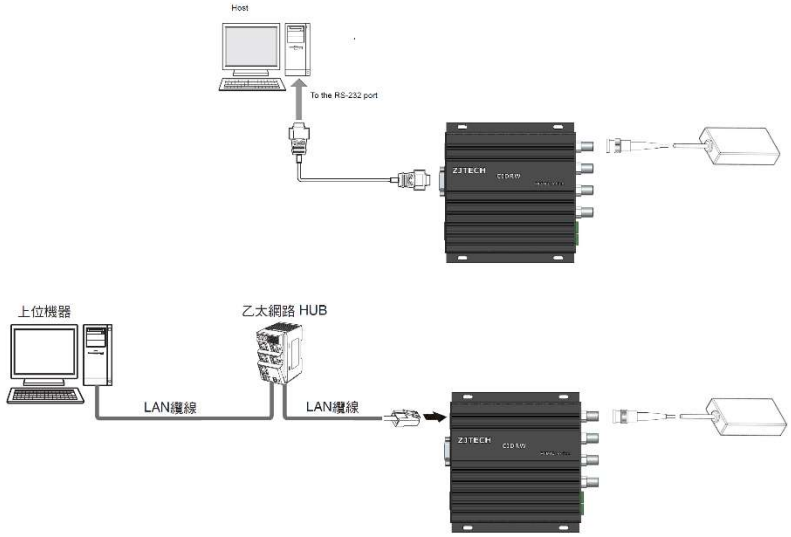
1. Product Outline

The RF900 Reader, designed to meet SEMI and Carrier ID standards, read and write to the Tag. It is a device that reads and writes to TI LF transponders. The main component of this unit is a transmitter than generates radio waves through an antenna. This low-frequency(134.2KHz), low-power RF energy is used to read from or wrote to a transponder near the antenna. The RF900 provides serial communication or TCP/IP Server with a host through an RS232 port or Ethernet port, using ASCII.

Technical Data (Specifications)

Power	DC 24V, 1A
Communications	1. Ethernet: TCP/IP Server, Port:7090 2. RS232: 115200,N,8,1 Protocol: ASCII
Environmental	Operating Temperature 0~30 C(non-condensing) Operating Humidity 30%~90% (non-condensing) Storge Temperature 0 ~ 55 C Storge Humidity 5%~90%
Housing material	Aluminum
Dimension	L:,155,W:142.5,H:31 (mm)

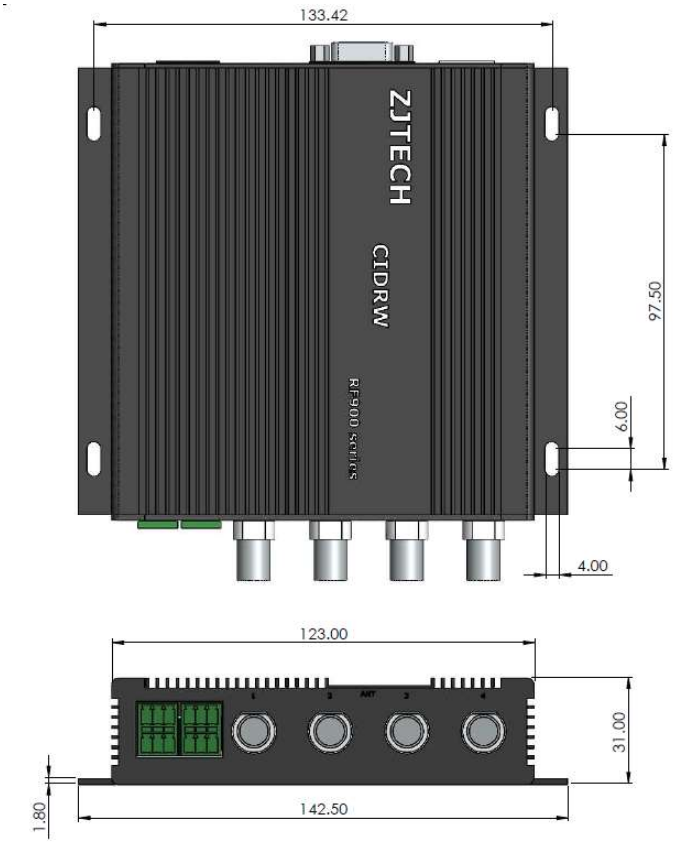
System Configuration



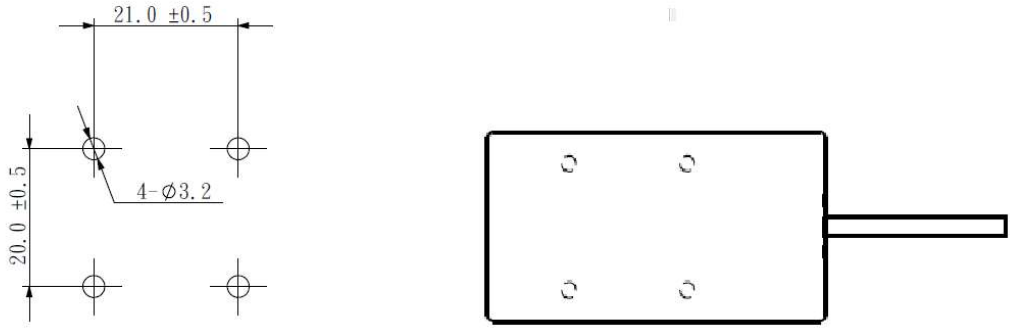
2. Installation and Connections/Wiring

Install

Main Unit: (unit: mm)

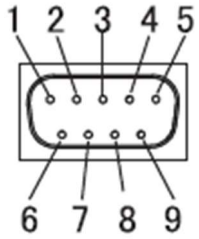


Antenna: (unit: mm)

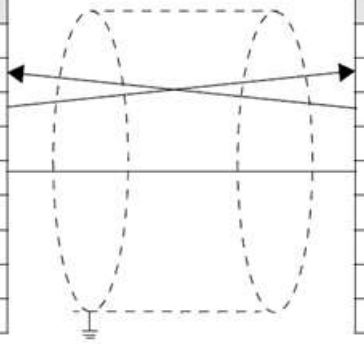


Wiring

Host/RS232

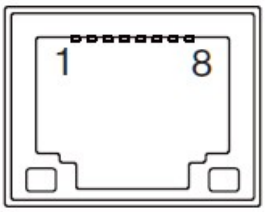


CIDRW Controller D-SUB, 9-pin Female	
Name	Pin No.
NC	1
RD	2
SD	3
NC	4
SG	5
NC	6
RS	7
NC	8
NC	9



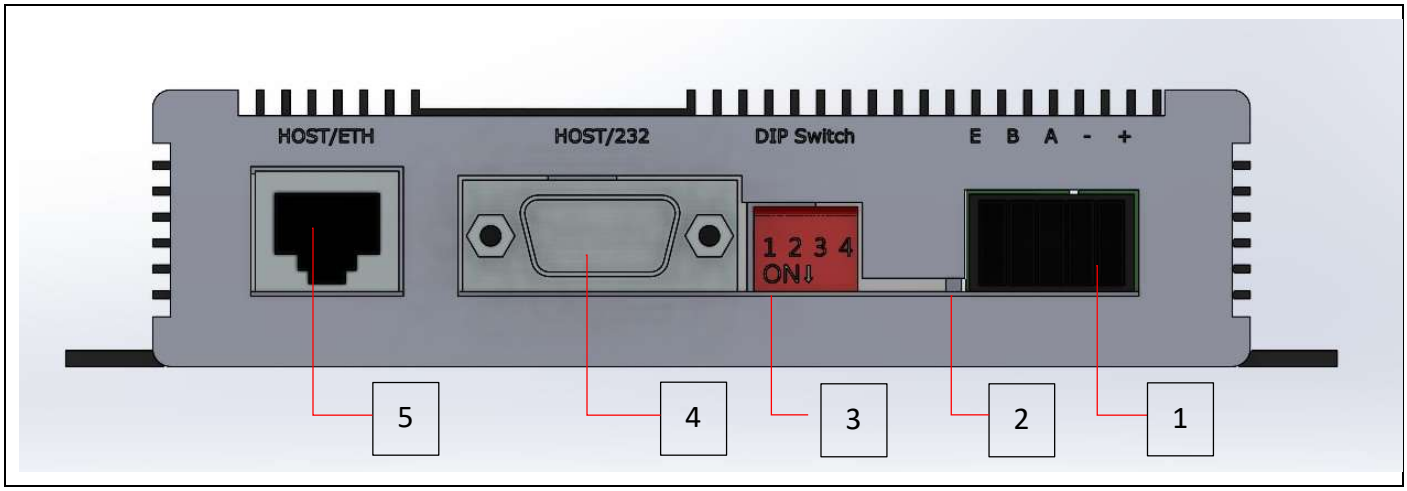
PC/AT Computer D-SUB, 9-pin Socket type #4-40	
Pin No.	Name
1	NC
2	RD
3	SD
4	NC
5	SG
6	NC
7	RS
8	CS
9	NC

Host/Ethernet



Pin No.	Signal name	Description	I/O
1	TX_D+	Send data +	Output
2	TX_D–	Send data –	Output
3	RX_D+	Receive data +	Input
4	–	–	–
5	–	–	–
6	RX_D–	Receive data –	Input
7	–	–	–
8	–	–	–

3. Product overview



1	Power	DC24V 1A
2	LED Indicators	Red Lit: Read NG. Green Lit: Read OK, Blinking: Reading, Blue: Lit: Initializing, Blinking: Normal
3	DIP Switch	1: Test Mode Enable 2,3: Test Port Selected 2 / 3 / Ant. OFF / OFF / 1 OFF / ON / 2 ON / OFF / 3 ON / ON / 4 4: Default Net Setting/ HOST selected in test mode Mode / ON/OFF / Function Power On / On / Use default Net setting Test Mode / OFF / Ethernet Port Test Mode / ON / RS232 Port
4	RS232 Port	Serial Port (115200,N,8,1)
5	Ethernet Port	TCP/IP Server, Port:7090.

Default IP Address Settings of the RF900

IP address 192.168.1.200
Subnet mask 255.255.255.0
Port:7090

4. Communication Protocol

1:1 Protocol (ASCII)

Command

SOH	Ant. No		Command code		Test Data								CR
					Data1		Data2		Data3		Data4		
01h	0	1	1	0	1	2	3	4	5	6	7	8	0Dh

Response

SOH	Ant. No		Response code		Test Data								CR
					Data1		Data2		Data3		Data4		
01h	0	1	0	0	1	2	3	4	5	6	7	8	0Dh

Command List

Name	Value	Function
READ	0100	When this command is received, the system communicates with the ID Tag, and reads the specified page(s) of data. Any pages up to a maximum of 16 can be selected.
WRITE	0200	When this command is received, the system communicates with the ID Tag, and writes the specified page(s) of data. Any pages up to a maximum of 16 can be selected.
SAME WRITE	0300	When this command is received, the system communicates with the ID Tag, and writes the same data in page units to the specified pages. Up to 17 pages, which is the maximum number of pages for an ID Tag, can be specified.
SET NETWORK	A300	Sets the network.
TEST	10	Sends received data to the host devic

Response Code List

Type	Response code	Name	Description
Normal end	00	Normal end	Command execution is completed normally.
Host communications error	14	Format error	There is a mistake in the command format. (For example, the command code is undefined, or the page or address specification is inappropriate.) Communications error
Communications error	70	Communications error	Noise or another hindrance occurs during communications with an ID Tag, and communications cannot be completed normally.
	71	Verification error	Correct data cannot be written to an ID Tag.
	72	Verification error	Either there is no ID Tag in front of the CIDRW Head, or the CIDRW Head is unable to detect the ID Tag due to environmental factors (e.g., noise).
	7B	Outside write area	A write operation was not completed normally because the ID Tag was in an area in which the ID Tag could be read but not written.
	7E	ID system error (1)	The ID Tag is in a status where it cannot execute command processing
	7F	ID system error (2)	An inapplicable ID Tag has been used.

READ [0100]

Command

SOH	Ant. No		Command	Page designation (8 bytes)								CR
01h	0	1	0100									0Dh

Bit	7	-	0	7	-	3	2	1	0	7	6	-	1	0	7	6	-	2	1	0
Page	sys	-	Sys	Sys	-	Sys	17	16	15	14	13		8	7	6	5	-	1	Sys	Sys
	0	0		0	0	0	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	-	0/1	0	0
Value	00			00~07						00~FF					00~FC					

Response

SOH	Ant. No.		Response code		Read data														CR
					Page n						....		Page m(n<m)						
					Data 1		...		Data 8				Data 1		...		Data 8		
01h	0	1	0	0															0Dh

Example: read page 1 and page 2. (MID)

The ID Tag status on normal completion is as shown below:

Page 1	12h	34h	56h	78h	90h	12h	34h	56h
Page 2	11h	22h	33h	44h	55h	66h	77h	88h
Page 3								
...								
Page 17								

Command

SHO	Ant. No.		Command	Page designation (8 bytes)								CR
01h	0	1	0100	0	0	0	0	0	0	0	C	0Dh

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0

Response

SOH	Ant. No.		Response code		Page 1																Page 2																CR
01h	0	1	0	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	0Dh

WRITE [0200]

Command

SOH	Ant. No.		Command Code	Page designation (8 bytes)								Write data												CR
												Page n				...		Page m(n<m)						
												Data1		...		Data8		...		Data1		...		Data8	
01h	0	1	0200																					0Dh

Bit	7	-	0	7	-	3	2	1	0	7	6	-	1	0	7	6	-	2	1	0
Page	sys	-	Sys	Sys	-	Sys	17	16	15	14	13		8	7	6	5	-	1	Sys	Sys
	0	0		0	0	0	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	-	0/1	0	0
Value	00			00~07						00~FF					00~FC					

Response

SOH	Ant. No.		Response Code		CR
01h	0	1	0	0	0Dh

SET NETWORK [A300]

Command

SOH	Node		Command Code	First octet			Second octet			Third octet			Fourth octet			CR
01h	0	0	A300													0Dh

Parameter Description

SOH	Node		Parameter	Description
01h	0	0	First to fourth octet	The address is set in decimal in four octets of three characters each.

Response

SOH	Node		Response Code		CR
01h	0	0	0	0	0Dh

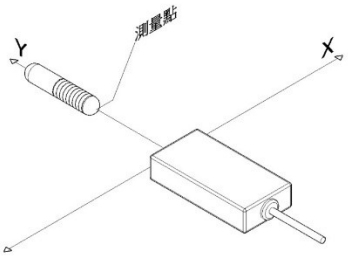
If an error occurs when writing to EEPROM, error 9A will be returned.

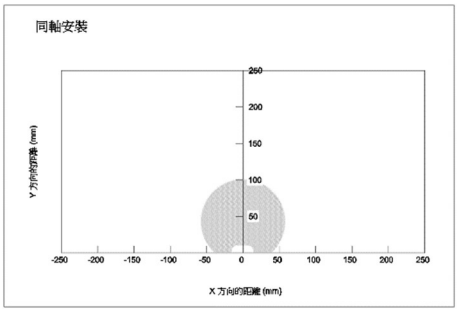
- Never turn OFF the power supply to the Amplifier Unit before a response is received from the Amplifier Unit for this command. Doing so may damage the Amplifier Unit.
- The values are enabled when the Amplifier Unit is restarted.

5. Maps of Communications Areas (Reference Only)

Antenna type: Z640-HS61

■ Coaxial Mounting Tag:RI-TRP-DR2B-30





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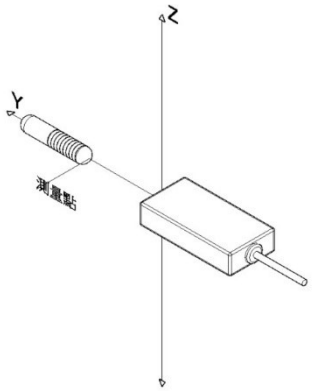
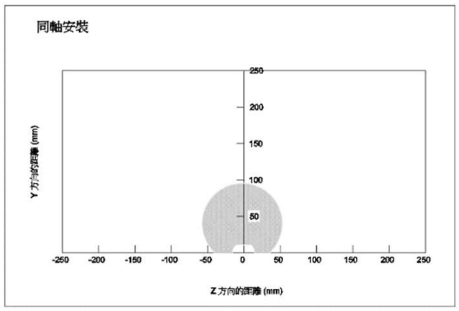
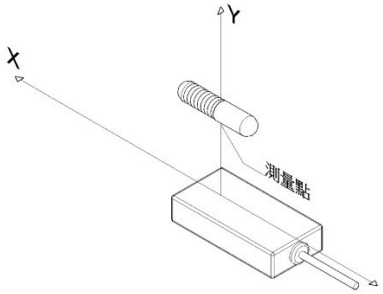
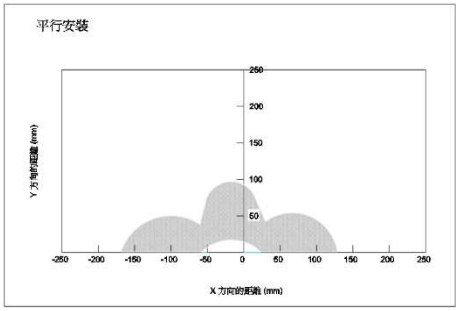




■ Parallel Mounting Tag:RI-TRP-DR2B-30





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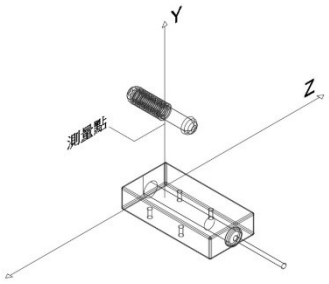
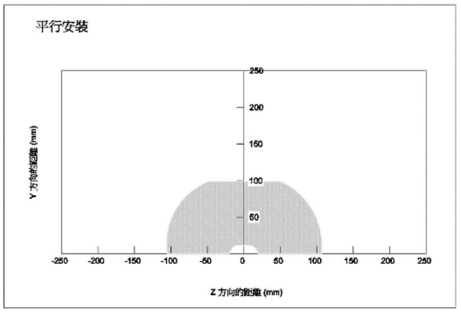
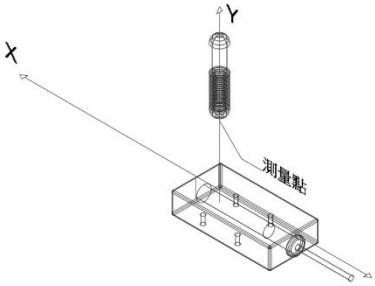
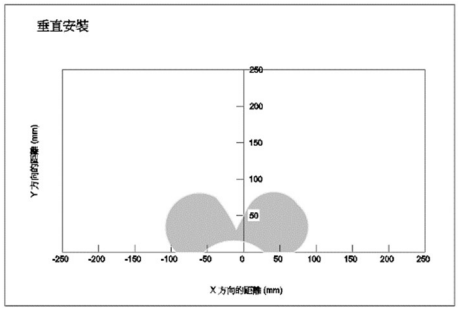




■ Vertical Mounting Tag:RI-TRP-DR2B-30





■ Vertical Mounting Tag:RI-TRP-DR2B-30