

RDRC-A4FZ
Wireless Relay Control in 433 MHz
User Manual
Rev 1.0



Reindeer Systems Pvt Ltd

Excellence Through Innovation

B-1, "SHOBA", #26
10th Avenue, Ashok Nagar,
Chennai – 600083
India.



Document Revision History

Revision No.	Date	Description/Changes
V1.0	16/6/2008	Initial Release



Table of Contents

1 OVERVIEW	4
2 FEATURES	5
3 APPLICATIONS	5
4 CONNECTION DETAILS	6
5 RDRC-A4FZ BOARD DIMENSIONS	8
6 THEORY OF OPERATION	9
6.1 Control Unit	9
6.2 Relay Unit	9
7 ELECTRICAL SPECIFICATIONS	10
8 ACCESSORIES	11
9 CONTACT US	12
9.1 Technical Support	12
9.2 Sales Support	12



1 Overview

The RDRC-A4FZ is capable of covering a range of 1000 meters with error-free operation. It operates in 433 MHz frequency band. It consists of a control unit and a relay unit. The control unit requires 3.6V DC for operation, while the relay unit requires a 12V DC supply. The battery life in the control unit can come up to 1-year as the unit will be in sleep mode when not in operation. The relay unit can be used to drive any kind of AC or DC circuits or devices that can take up to 7 Amps load.

The CSMA-CA protocol has been implemented in RDRC-A4FZ which avoids false triggering and collisions among the devices operating in the same frequency. The transmit/receive loop is complete with the control unit receiving the acknowledgement from the relay unit for all successful transmissions.



2 Features

- Covers from 100 meters to around a range of 1km line of sight.
- Longer distances can be achieved using high gain directional antenna.
- Can be used to operate any AC or DC devices up to 7A load.
- Completely customizable control and relay unit in terms of switch operations.
- CSMA-CA protocol to avoid false triggers and collisions.
- Return acknowledgement can be received at the control unit.
- Additional four I/O line's are available which allows us to do customizations upon user request.

3 Applications

- Wireless switches and remotes
- Remote control / security systems
- Keyless entry
- Home and industrial automation
- Process and building control
- Automotive systems



4 Connection Details

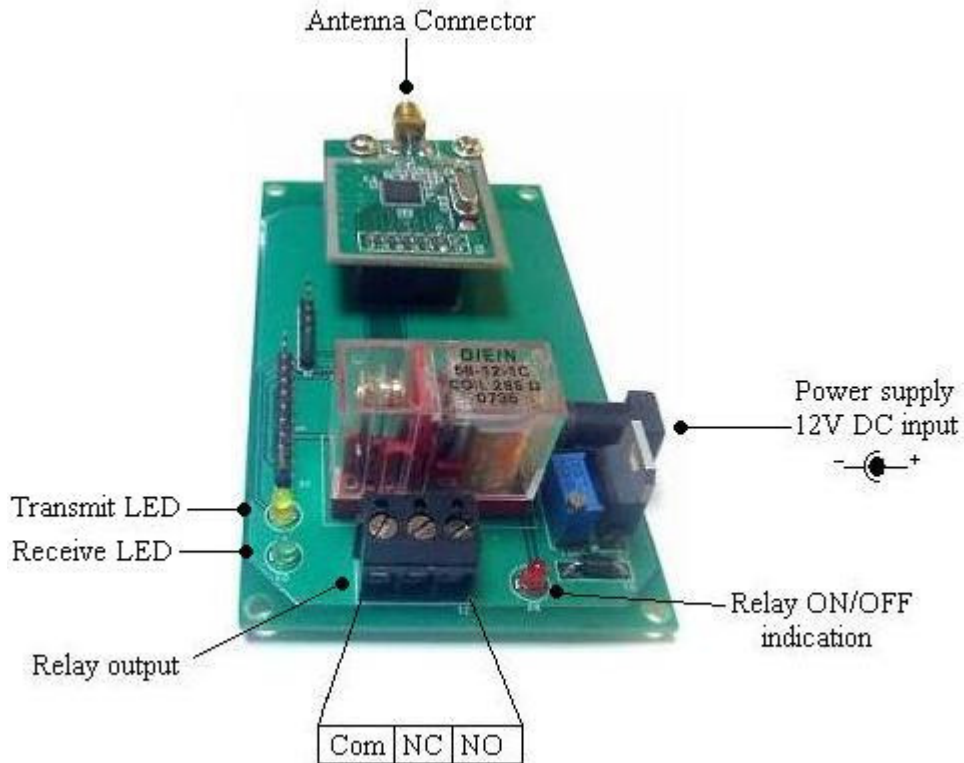


Figure1: Relay unit connection details

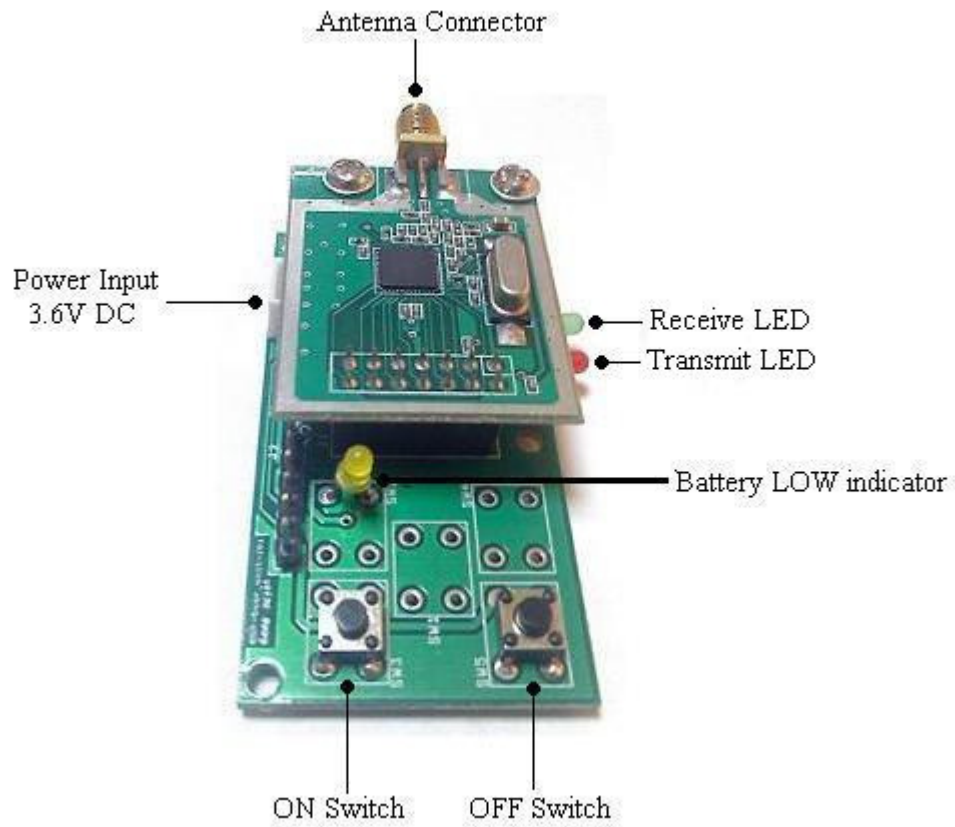
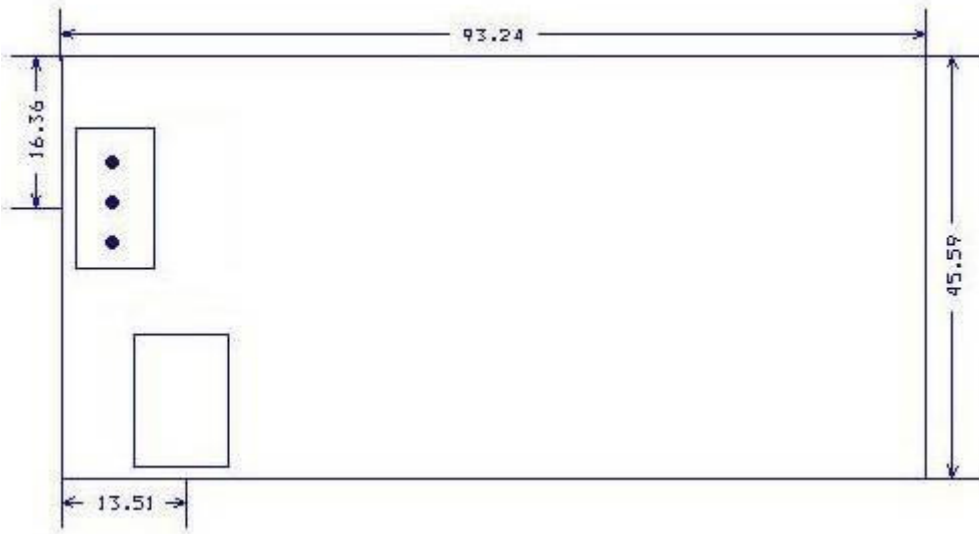


Figure2: Control Unit Connection Details

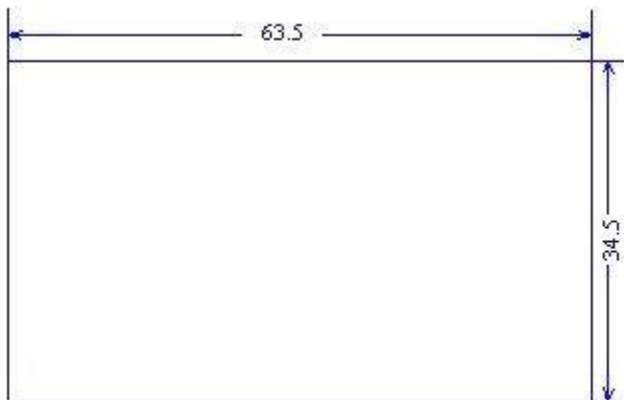


5 RDRC-A4FZ board dimensions

Relay Unit



Control Unit



All dimensions are in mm



6 Theory of operation

The RDRC-A4FZ has two different Components.

- 1) Control Unit
- 2) Relay Unit

6.1 Control Unit

This unit consists of the ON-OFF switches and the RF module. The unit should be powered using a 3.6V dc power supply. This unit by default will be in sleep mode. When any of the switches is pressed the corresponding data is transmitted. The transmission is indicated by the blinking of the Transmit LED. And after reception of the acknowledgement the Receive LED will blink. The unit then goes back to sleep mode. The battery Low indication LED will blink in case of low battery.

6.2 Relay Unit

This unit consists of the relay and the RF module. When data is received from the control unit, this unit will switch on or off the relay depending on the data. The reception of data is indicated by the blinking of the Receive LED. When a valid data is received this unit will transmit back the acknowledgement, which is indicated by the blinking of the Transmit Led. The Relay ON/OFF LED indicates the state of the relay, whether it is in ON position or in OFF position. This unit is should be powered by 12V DC power supply.



7 Electrical Specifications

Control Unit:

Parameter	Min	Max	Units
VCC – Power Supply	3	3.6	V DC
Operating Temperature	-40	+85	°C
RF output power		+13	dBm
Frequency of operation		433	MHz
Operating Current consumption		27	mA
Sleep Mode Current (default Mode)		0.7	mA

Relay Unit:

Parameter	Min	Max	Units
VCC – Power Supply		12	V DC
Operating Temperature	-40	+85	°C
RF output power		+13	dBm
Frequency of operation		433	MHz
Operating Current consumption (Relay OFF position)		22	mA
Operating Current consumption (Relay ON position)		65	mA



8 Accessories

The below mentioned accessories are available upon request. The cost of the product does not include these accessories.

1) Antenna

The antenna is mandatory for normal operation. The type of antenna can be selected from the wide ranges of antenna's available in our website.

Note: - The device should not be operated without antenna.

2) Power Supply

Power adapters for the unit are available upon request.

Note: - This product comes without a casing.



9 Contact Us

9.1 Technical Support

Reindeer Systems Pvt Ltd has built a solid technical support infrastructure so that you can get answers to your questions when you need them.

Our technical support engineers are available Mon-Fri between 9:30 am and 6:00 pm Indian standard time. The best way to reach a technical support engineer is to send an email to support@reindeersystems.com. E-mail support requests are given priority because we can handle them more efficiently than phone support requests.

9.2 Sales Support

Our sales department can be reached via e-mail at sales@reindeersystems.com or by phone at 91-44-45022335/337.

Our sales department is available Mon-Fri between 9:30 am and 6:00 pm.



Reindeer Systems Pvt Ltd

Excellence Through Innovation

B-1, "SHOBA", #26
10th Avenue, Ashok Nagar,
Chennai – 600083
India.

Phone: 91-44-45022335, 91-44-45022337

Fax: 91-44-45022336

Website: www.reindeersystems.com