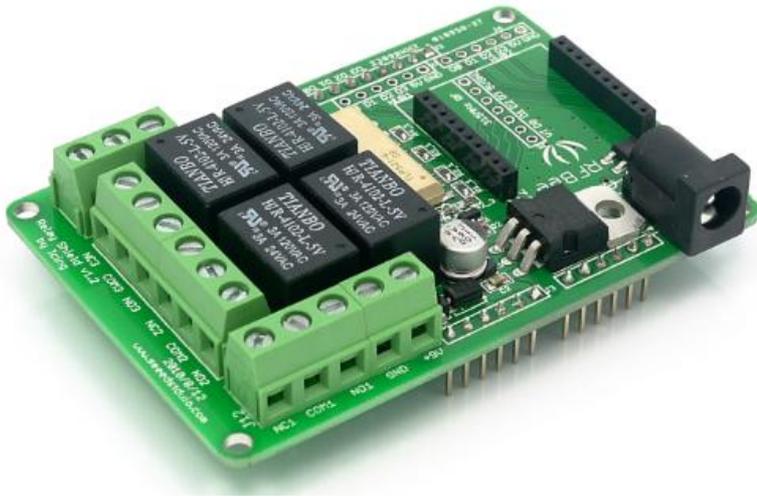


# RELAY SHIELD v1.2b



Seed Relay Shield is a smart module with 4 solid relays providing an easy way for applications of voltage controlling from low to high. The max switching power could be DC90W or AC360VA. It could be directly controlled by [Arduino/Seeeduno](#) through digital IOs with external 9v supply. With the [RFBee](#) socket and [315/433M RF](#) module interface, the Relay shield could be remotely controlled, making it be easily used in robotics, industry control, smart house etc.

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## FEATURES

- | 4 solid relays with photo-coupled circuit
- | Equipped with screw holes for easy installation
- | Light weight
- | Small form factor
- | Native [Arduino/Seeeduino](#) compatibility
- | Extendible

## KEY SPECIFICATIONS (PER CHANNEL)

Contact Rating	3A AC 120V / DC 24V
Maximal Switching Voltage	AC 240V / DC 60V
Max Switching Current	5A
Max Switching Power	AC 360VA / DC 90W
Electrical Life Expectancy	100,000 Operations
Mechanical Life Expectancy	10,000,000 Operations
Safety Standard(relay)	UL cUL TUV CQC
Working Voltage	9VDC
Weight	165g
Working temperature	-30°C to +85°C
Working Humidity	40% - 85%

## LICENSING

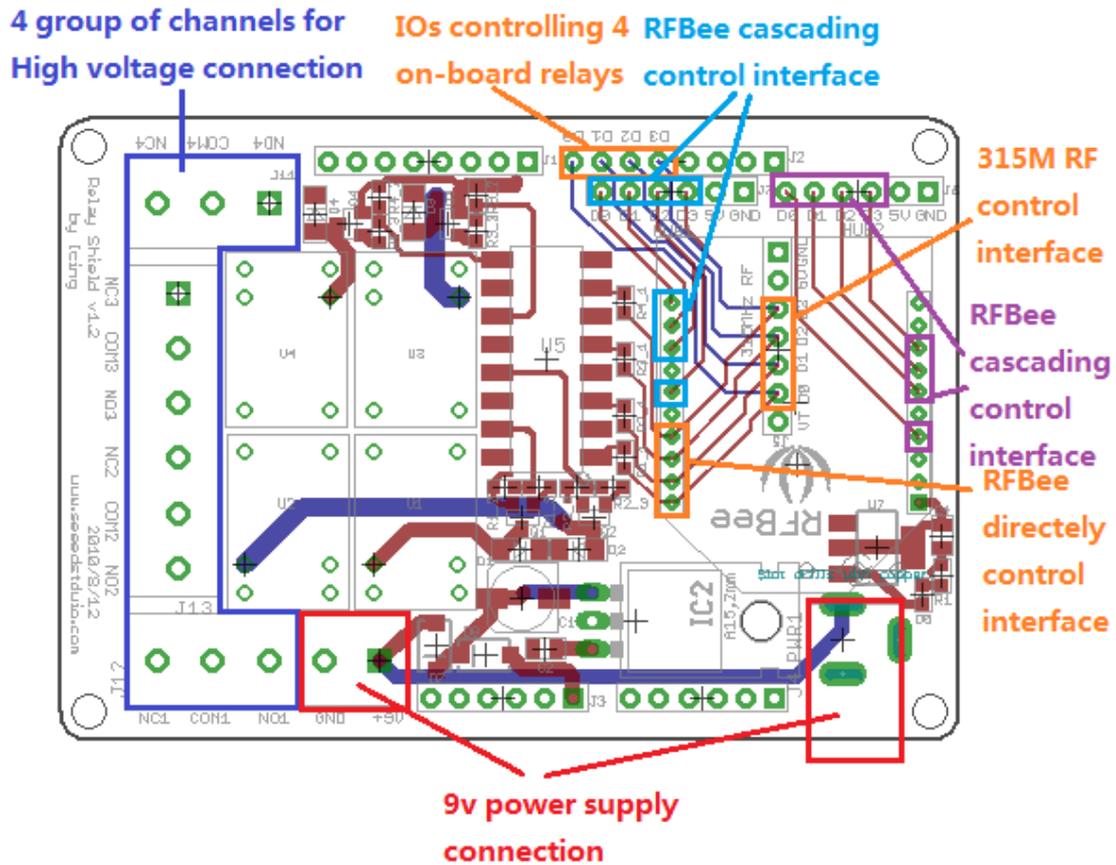
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## CAUTIONS

Please be very careful while operating high voltage circuits! You may get hurt or hurt the appliances if used improperly.

## BLOCK DIAGRAM



### 4 groups of channels for High voltage connection

Group1:

COM1- Common pin

NC1- Normally Closed, in which case NC1 is connected with COM1 when D0 is set low and disconnected when D0 is high;

NO1- Normally Open, in which case NO1 is disconnected with COM1 when D0 is set low and connected when D0 is high.

Group2-4 is similar to Group except the control port being D1-D3.

### 9v power supply connection

The function of the Terminal and the Jack is the same since they are internally connected, and you can choose either of them in needs.

### IO controlling 4 on-board relays

D0-D3 4pins could be connected directly with Arduino pin number of 7-4, so that four relays could be easily controlled by the Arduino.

### 315M RF control interface

Together with pin of GND and 5v, they are the interface for 315M RF module to control the 4 relays remotely.

### RFBee directly control interface

The 4 relays could be directly controlled by the RFBee through the 4 DIO ports of RFBee.

### RFBee cascading control interface

As the RFBee has 12 DIO ports, 2 more Relay Shield (8 more relays) could be controlled through one RFBee. HUB1 and HUB2 are the drawn-out ports of RFBee (4 as a group), which is connected to 315M RF interface of the cascading Relay Shield.

## USAGE

### WITH ARDUINO/SEEEDUINO

Relay Shield could be directly controlled by Arduino.



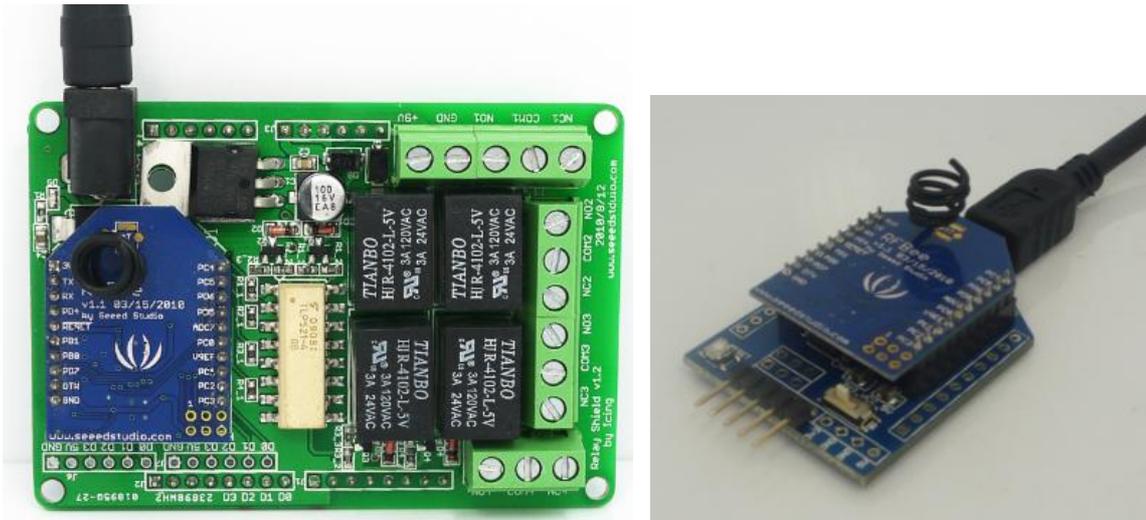
Step1. Plug Relay Shield onto [Arduino Duemilanove](#) (or [compatible](#)) board;

Step2. Supply 9v DC power to Arduino;

Step3. Download the [example code](#) and run in Arduino IDE.

### WITH RFBEE

## One RFBee controls one Relay Shield



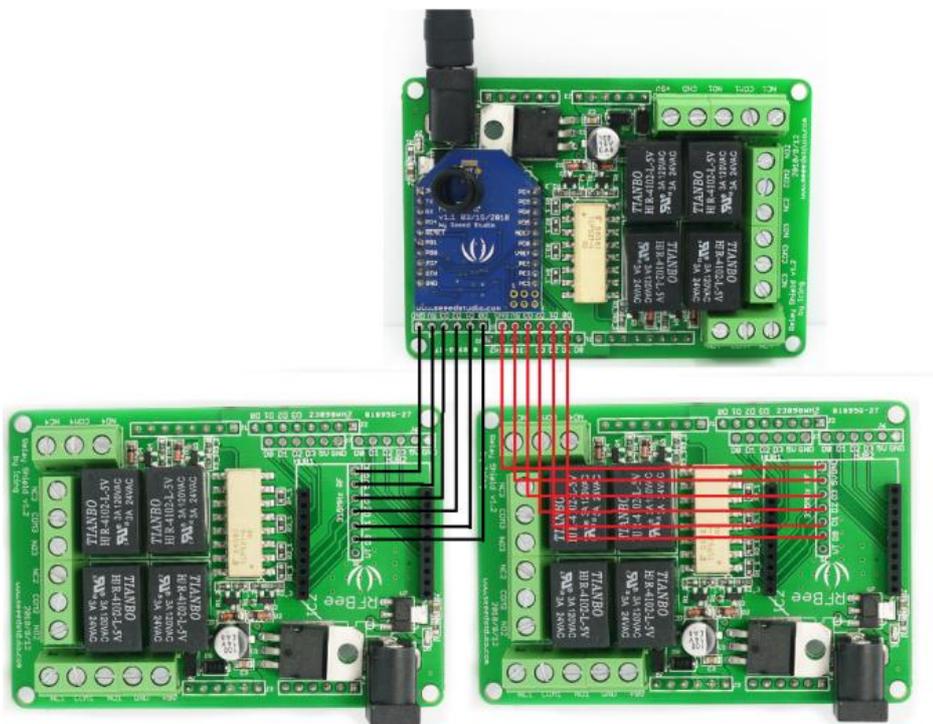
Step1. Download [Arduino code](#) for the slave and master RFBee. ([How to program the Arduino code on RFBee?](#))

Step2. Plug the slave RFBee to the Relay Shield.

Step3. Supply the 9v DC power to the Relay shield.

Step4. Power the master RFBee with 3.3v by [UartSBee v3.1](#) or other supply.

## One RFBee controls 3 Relay Shields



Step1. Download [Arduino code](#) for the slave and master RFBee. For the master, you need to add the new commands to control extended relays, i.e. "RCA1" means set the 11st relay (on hub2, relay3) on.

Step2. Plug the slave RFBee onto the Relay Shield.

Step3. Connect the second and third Relay Shield to the mother shield by connecting 315M RF pins to hub1 and hub2. (Note: 5v and GND also need to be connected).

Step4. Supply the 9v DC power to the Relay shield. (Note: the extended Relay Shields need not extra power supply).

Step5. Power the master RFBee with 3.3v by [UartSBee v3.1](#) or other supply.

### WITH [315M RF MODULE](#)



Step1. Plug the Receiver onto the Relay Shield.

Step2: Supply the Relay Shield with 9v DC power.

Step3: Control the Transmitter. (How? Refer to [here](#)).

## SUPPORT

Please refer to product page for latest documents and development resources, any product related issue could be inquired via [info@seeedstudio.com](mailto:info@seeedstudio.com)

## REVISION HISTORY

Rev.	Descriptions	Editor	Release date
v1.0b	Initial public release		Jun 16, 2010
V1.2b	Intermediate version	Lafier	Sept 23, 2010
V1.2b	Make the structure and usage more clear	Icing	Oct 9, 2010