

Product: RXC6 Wireless 4channel 433MHz receiver module

Product Code: SQ8456

Radio frequency is known as the frequency range that encompasses approximately the values from 3KHz to 300GHz, which corresponds to the frequency used by radio waves. Radiofrequency is known as electromagnetic oscillations, and it can be said that all wireless signal sending and receiving is based on radiofrequency.

The use of RF allows the control of the most diverse devices without the need for cabling. A basic example of RF application is the electronic gate of homes, which is controlled through a remote control that operates within a certain frequency range and this allows us to operate the gate from a great distance.

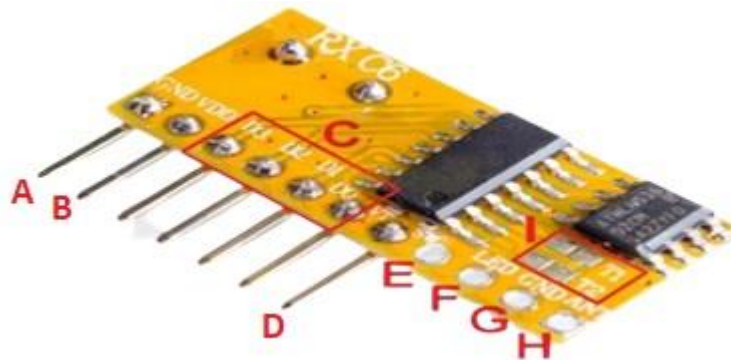
This RXC6 Wireless RF 433MHz Receiver Module, is commonly used in projects with Arduino, PIC, Raspberry, NodeMCU ESP8266 or other microcontrolled platforms where it is necessary to remotely trigger modules, sensors and other electronic components through RF 433MHz.

After assembling the circuit with the RXC6 Wireless RF 433MHz Receiver Module, to record or erase from memory a remote control, transmitter or other device that works within your specifications, do:

Record: keep pressed the SMD button on the board until the LED lights up, release the SMD button and then press one of the buttons on the remote control that will be recorded and if you are using any other device or transmitter, just send the RF signal to let the module do the recording. After receiving the 433MHz RF signal, the board LED will flash confirming the signal reception.

Turn off: keep the SMD button pressed on the board, the LED will light up and you must keep the SMD button pressed for a few seconds until the LED turns off. As soon as the LED erases all device memory on the module it will be clear.

In the images below you can see the front/back of the module and the board IDs:



A: SYN470R receiver responsible for decoding 433MHz RF signals;

B: SMD LED that shows when the module receives a 433MHz RF signal and that serves as a parameter to know if the module is in recording mode and if the memory of controls registered in the module has been erased;

C: SMD button responsible for enabling the recording of RF 433MHz controls and for erasing all memory of controls registered in the module;

D: VT is the 'transmit valid' pin which is triggered whenever the information (RF signal 433MHz) received is valid/acknowledged;

E: SW is a terminal for connecting an external push button that will perform the same function as the SMD button on the front of the module;

F: terminal for connecting an external LED that will perform the same function as the SMD LED on the front of the module;

G: extra GND terminal;

H: terminal for connecting an antenna to broaden the reception of 433MHz RF signal;

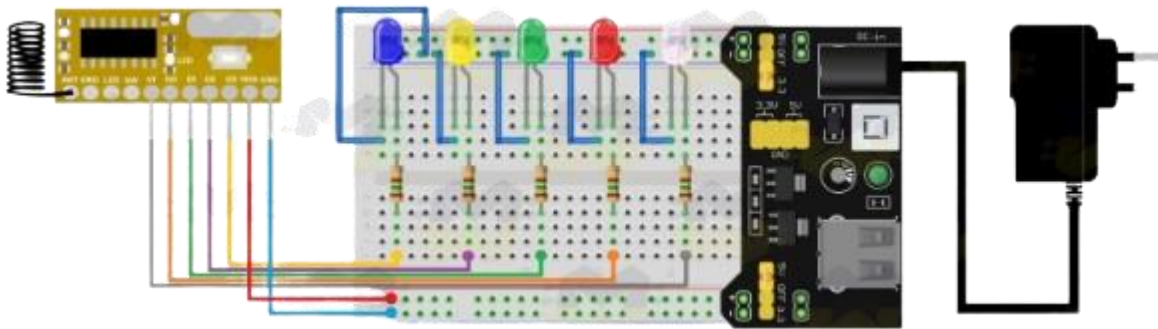
I: T1 and T2 are terminals that can be used to change the way the outputs D0 to D3 work. By default, the module leaves the factory with open contacts T1 and T2, that is, without soldering connecting the two contacts. To close the terminals, simply solder the contacts of T1 and T2 horizontally according to the guidelines below:

– **Mode 1 Pulse** (T1 and T2 open): this is the standard way of functioning of the module, where the outputs operate in the pulse function, that is, the output will be active while the key of the remote control remains pressed.

– **Hold mode 2** (T1 open and T2 closed): the outputs operate in the hold function, that is, the remote control key when pressed will turn on the output and when the key is pressed again it will turn off the output.

– **Mode 3 Interlock** (T1 closed and T2 open): when pressing a key on the remote control the corresponding output will turn on and if another key on the control is pressed, the corresponding output will turn on and the previously connected output will be turned off. Always the previous output will be turned off when another output is turned on.

In the next steps you will learn how to record remote controls in the module, erase the memory of recorded controls and how to use the terminals on the board. As a way of demonstrating the use of the module, I will use LEDs connected to the outputs from D0 to D3 and on the VT pin.



To proceed, in addition to the RXC6 Wireless RF 433MHz Receiver Module you will need the following items:

01 – 4-Channel RF 433MHz Remote Control

12 – Male-Male Jumper Cable

05 – Diffused LED

05 – 150Ω Resistor

01 – Breadboard

01 – 3.3V / 5V Adjustable Power Supply for MB102 breadboard

01 – DC Power Supply 12V 1A Switched

The module is accompanied by an antenna and it must be soldered to the ANT pin of the board so that the signal reception is amplified. After soldering the antenna, unroll it, because if you keep it rolled up, there will be no gain in signal reception.

Another important point when using the adjustable power supply is to pay attention to the side of the breadboard where you are going to connect it, because depending on the side, the VCC (+) and GND (-) will be inverted and this can damage the components and the receiver. If you do not have the adjustable breadboard source, you can use a 5VDC source of at least 500mA.

Once the wiring diagram has been assembled, simply plug the power supply into the socket. In possession of the 4-channel RF 433MHz remote control that is compatible with the RXC6 Wireless RF 433MHz Receiver Module, press any of the 4 keys and if the module is working, you will see the LED on the board flash discreetly, confirming that the RF signal 433MHz is being received.

Even the RXC6 Wireless RF 433MHz Receiver Module flashing the LED and confirming the reception of the 433MHz RF signal when pressing one of the control keys, the LEDs connected to the outputs from D0 to D3 and to the VT pin will not light up, as the remote control in question did not have its keys recorded in the module's memory.

To record the remote control keys on the RXC6 Wireless RF 433MHz Receiver Module, just keep the SMD button on the board pressed until the LED lights up, release the SMD button and then press one of the buttons on the remote control that will be recorded. After receiving the 433MHz RF signal, the board LED will flash confirming the signal recording. Once this procedure is done, each of the keys on the 4-channel remote control will be linked to one of the outputs from D0 to D3 and whenever a key on the control is pressed, the LED corresponding to the channel will remain lit as long as the button is pressed. In addition, the LED connected to the VT (valid transmission pin) will light regardless of which button is pressed.

Next to the RXC6 Wireless RF 433MHz Receiver Module, start pressing the buttons and move away from the receiver and continue to press. You will notice that even from far away the signal from the controller reaches the receiver and the LEDs light up in response to the button pressed.

If you want to record more 4-channel remotes, just do the above procedure with each one. Remembering that you can also use 1-channel, 2-channel or 3-channel remote controls.

NOTE: if you are using any other device that is not a 4-channel remote control, but that is compatible with the module's specifications, just follow the steps above so that the module registers the 433MHz RF signal emitted by the device. Depending on the device you link, only one or two of the four outputs (D0 to D3) will be activated when the recorded device emits the 433MHz RF signal.

The LED and push button connected to the breadboard and module will perform the same functions as the SMD LED and SMD push button on the front of the board.