

K92. IR Remote Control & Decoder IC

This Kit uses a commercial 14-pin remote control unit to put an active low signal onto one of 14 pins on a decoder IC. That is, when a RC button is pressed, the pin corresponding to that button on the decoder IC goes low. Normally, each of the 14 output pins is high. It is up to the user to use this information in their own circuit where remote control is required. For example, to control up to 14 relays or to control the movement of a robot. We supply all the necessary extra components required for the decoder IC to function properly. No PCB is supplied. It is up to the user to breadboard their application then make their own PCB. A sample application/test circuit is provided. A 330Ω resistor & LED are supplied for testing the active low on a pin in response to a button press.

We supply three sets of components:

1. a 14 button Infra Red Remote Control unit. It just needs you to add 2 x AAA batteries.
2. a 3-pin Infrared Receiver Module, the Waitrony PIC1018SCL which converts the modulated 38kHz signal into data pulses.
3. an Atmel 89C2051-24PC microcontroller which we have preprogrammed to decode the IR data pulses from the remote control into one of 14 active low outputs. All required components for the microcontroller are supplied – a 12MHz ceramic resonator for the oscillator, resistor, capacitor and diode for the power-on reset circuit plus two 10K pullup resistors (see below).

CIRCUIT DESCRIPTION

The remote control unit sends out a 38KHz signal modulated with data pulses for the particular button pressed. The infrared receiver module removes the 38KHz signal and outputs the data pulse stream. This is fed into the microcontroller where it is decoded by onboard firmware and one of the fourteen outputs will go low. The microcontroller outputs are normally held high by internal pullups except for pins 12 and 13 which require external pullup resistors (10K). (Note it may be a good idea to have 10K pull-ups on all output pins.)

DECODER IC PINOUTS

Pin	Description	Pin	Description
1	RESET, active high	20	VCC (+5V)
2	Output 14, BUTTON 14	19	Output 1, BUTTON 1
3	Output 13, BUTTON 13	18	Output 2, BUTTON 2
4	Ceramic resonator	17	Output 3, BUTTON 3
5	Ceramic resonator	16	Output 4, BUTTON 4
6	Data input (from IR receiver module)	15	Output 5, BUTTON 5
7	Output 12, BUTTON 12	14	Output 6, BUTTON 6
8	Output 11, BUTTON 11	13	Output 7, BUTTON 7
8	Output 10, BUTTON 10	12	Output 8, BUTTON 8
10	GND	11	Output 9, BUTTON 9

COMPONENTS

330R resistor 1/4W	1
10K resistors 1/4W	4
5mm LED	1
1N4148 diode	1
10uF/25V mini ecap	1
12MHz ceramic res.	1
AT89C2051 IC	1
IR Receiver module	1
27pF ceramic caps	2
IR Remote Control	1

See our website at <http://kitsrus.com>

Email us at peter@kitsrus.com if you have any questions. Yes, we will supply any extra components you wish. Just email us. The code inside the decoder IC is locked and is not available.

The data sheet for the Waitrony IR Receiver module can be seen at <http://kitsrus.com/pdf/pic1018scl.pdf>

K92. IR Remote Control & Decoder IC

