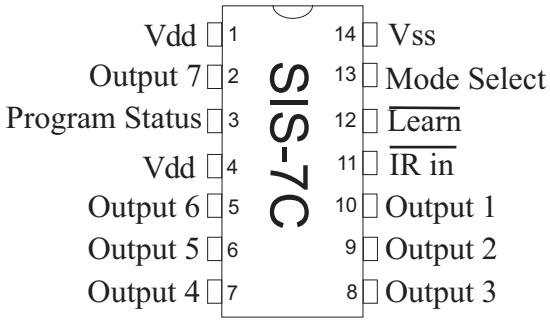
SIS-7C

7 Output, Universal IR Remote Control Receiver Switch

General Description:

The SIS-7C makes it simple to implement an infrared (IR) remote controllable switching solution for a wide variety of applications. When used with an inexpensive IR receiver module, The SIS-7C recognizes IR signals from 7 independent IR remote control sources, and provides 2 modes of switching for your application.

Works with over 99% of IR remotes, both universal and dedicated types.
IR code is easily "taught" by user with a few simple button presses on the IR remote.
Application examples include signal switching, on/off control, volume control, digital pots, and servos.



Vdd (with respect to Vss): 2-5.5V
Provides up to 25 mA per Output pin
Package: 300mil wide Plastic DIP

IR in from IR module: No signal = Vdd, Pulses = Vss
IR code is stored in non-volatile, re-programmable memory.
Logic levels of Outputs 1-7 on power up: Vss (low)

Normal Operation of the SIS-7C

After the SIS-7C has learned to recognize 7 IR codes, there are two modes of normal operation:

Mode 1 -- Mode Select pin = Vss (pin13=low):
Output (1-7) will toggle (change to the opposite logic level) each time its corresponding IR code is received.

Mode 2 -- Mode Select pin = Vdd (pin13=high):
Output (1-7) is normally low, but goes to Vdd (high) when its corresponding IR code is received.

(In Mode 2, the output pin will stay continuously high (Vdd) for as long as the IR code is being received. As long as you hold down on the properly aimed IR remote button, the output pin will stay high.)

Programming the SIS-7C

Each of the IR codes is learned by the SIS-7C sequentially. This means that once the programming process is started, all IR codes are programmed one after the other as prompted by Program Status (pin 3). An LED, logic probe, or other indicator should be connected to Program Status (pin 3) during the learning/programming process.

Once the SIS-7C has learned all of the IR codes, each code will correspond to the Output# in which it was learned. In other words, the first IR code that is learned corresponds to Output 1 (pin 10), the second IR code that is learned corresponds to Output 2 (pin 9), and so on.

So that the IR codes are properly learned by the SIS-7C, you will be prompted to press each of the seven buttons on your IR remote(s) 2 times per button -- except for the first button/code, which requires that you press the IR remote button 3 times.

Steps to program the SIS-7C:

1. Select the buttons (up to 7) from your IR remote that you want the SIS-7C to learn.

2. Momentarily pull pin 12 low until pin 3 goes high, indicating that learning mode is active.

3. Aim the remote at the IR receiver and press-and-hold the first button to be learned. When pin 3 goes low, release the IR remote button.

Pin 3 will go high again, and the main learning procedure is ready to begin.

Starting with the button you just pressed in step 3...

A. Aim the remote at the IR receiver and press-and-hold the button to be learned. When pin 3 goes low, release the IR remote button.

B. Pin 3 will go high again. Repeat step A one more time for the same IR remote button.

C. After steps A and B are completed, pin 3 will pulse several times, then remain high. This indicates that the SIS-7C has learned the IR code for that button, and is now ready to learn the IR code for the next button.

D. Repeat steps A and B for each of the remaining buttons. When complete, pin 3 will pulse several times, then remain low. This indicates that all buttons have been taught.

The SIS-7C is now ready for normal use.

Considerations Using the SIS-7C

Using the SIS-7C with Fewer than Seven IR Codes

If you do not need all seven outputs of the SIS-7, simply exit the learning procedure above by momentarily taking pin 12 low, once you have taught all of the IR codes/buttons that you need. Pin 3 will go low to indicate that learning mode is inactive.

Delay Between Repeated IR Remote Button Presses

In Mode 1 (toggle mode), there is a minimum of a 250ms delay between consecutive IR code recognition. This is designed to prevent unwanted toggling of the output if the user presses the IR remote button a little too long.

Incompatible IR Remotes

The SIS-7C is known to work with over 99% of existing IR remotes. However, it has not been tested with Bang & Olufsen high-frequency remotes, and is assumed not to work.

Using Multiple IR Remotes with One SIS-7C

Most IR remotes use very similar timing, so in most cases, it is possible to use multiple IR remotes with a single SIS-7C. However, the SIS-7C does tune itself to the first button that it is taught when in learning mode. Therefore, if multiple remotes are used, and they have very dissimilar timing, then only those IR codes similar to the first learned code will be recognized during normal operation. (Note that “tuning“ refered to above is re-programmed each time the chip is “re-taught“, which you can do whenever, and as many times as you want.)

IR Receiver Modules

The vast majority of IR receiver modules are use negative logic -- the output from the receiver is high when no IR signal is being detected. The SIS-7C requires a negative logic signal on pin 11. If you choose to use a positive logic IR receiver module, simply use an inverter between the receiver’s output and pin 11 of the SIS-7C.

If you have a problem or questions regarding the SIS-7C, contact us: SUPPORT@SIMEREC.com