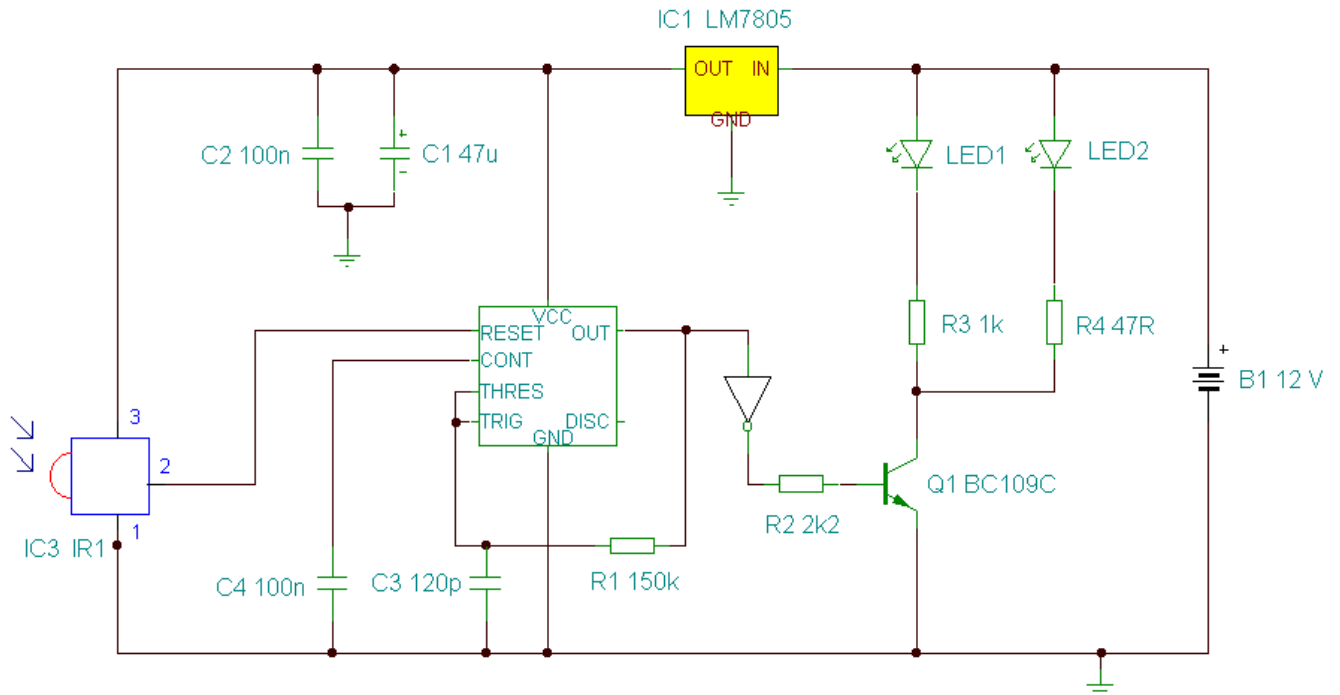


IR Remote Control Extender Circuit (Mark 3)

Description:

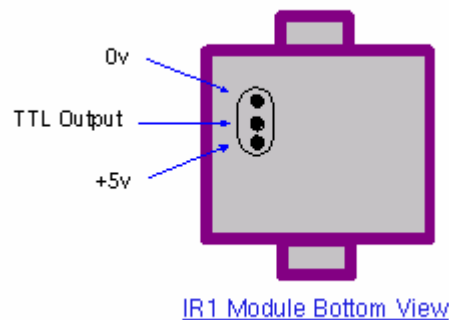
This Mark3 version of the Infra Red extender is a special version designed to control appliances that use high frequency modulated IR remote controls.



Notes:

IR appliances use pulses (control signals) sent over a modulated IR carrier wave. The carrier wave may be modulated at various frequencies, 36-38KHz being the most popular. Some Satellite receivers use even higher frequencies than this. The IR1 remote module receives an infra red signal and separates control pulses from the modulation. To re-transmit, a 555 timer is configured as an astable oscillator. The 555 timer is controlled by the signal on the reset pin, high generating a carrier and low no carrier. Each control pulse turns on the oscillator for the duration of a logic high signal and off for a logic 0 signal, thereby creating a newly modulated IR signal. The IR module, part number IR1 is available from Harrison Electronics in the UK, IR1 may not be listed in their catalogue but if you ask for an IR1, they will send you the correct part. The IR1 arrives in a small aluminium case, the connections viewed from underneath are shown below:

Infra Red Module, IR1 Pinout



The carrier frequency is determined by R1 and C3, values shown work at 39.7 kHz, but these may be altered to provide different carrier frequencies. The final CMOS 4049 inverter ensures that under "no signal" conditions both LED's are also off.

Parts List:

C1 100u 10V

C2 100n polyester

C3 120p silver mica

C4 100n polyester

R1 150k

R2 2k2k

R3 1k

R4 47R 1W

Q1 BC109C

IC1 LM7805

IC2 555

IC3 IR1 module from [Harrison Electronics](#)

IC4 4049 CMOS Inverter LED1 Red LED (or any visible colour)

LED2 TIL38 or part YH70M from Maplin Electronics

Pinouts for the IC's can be found on my IC pinout page, [click here](#).