



BOM:

- 2x 470K (R1,R4)
- 2x 220K (R2,R5)
- 2x 1K (R3,R6)
- 2x 100nF Ceramic (C1,C2)
- 1x LT1013 – or TL072 (U1)
- 1x 150K Linear Joystick (RV1)

Choosing Component Values:

R3 & R6 are not critical (so can be omitted) but protect the op-amp. 470 ohms is the minimum. Anything between 470R and 1K is fine

The bypass capacitors (C1 & C2) are also optional but are useful in reducing noise from the power supply

R1 & R2 set the output gain which is calculated as R2 divided by R1
 If the supply rails are +/-15V (ie 30V) and you want an output of +/-7.5V (15V) then a gain of 0.5 is required
 The value of R2 will therefore be half the value of R1
 For an output of +/-5V a gain of 0.333 is required and so R2 is a third of the value of R1

The value of the joystick pot does not alter the gain calculation, but does affect the output response of the joystick.
 However the value of R1 needs to be greater than the value of the pot and at least 100K
 If R1 is considerably lower than the pot value then the joystick will exhibit a rather non-linear response (which may or may not be desirable).
 Setting R1 at 470K allows a nice safe starting point for a variety of joystick pots, although for a 150K pot, R1 needs to be at least 220K

An optional Range pot can be added. Here the total value of the pot and R1 should be calculated using the provisions described above
 If the pot and R1 both have the same value then the range will be adjustable from 50% to 100%

For this circuit a joystick pot of at least 10K is required

*** Un! Title: JLH Joystick Controller**

Dedicated to the late J Larry Hendry (aka Stooge Larry) who designed this for me
 Originally drawn up in 2001/2002