

# The SC1 ServoCore Driver



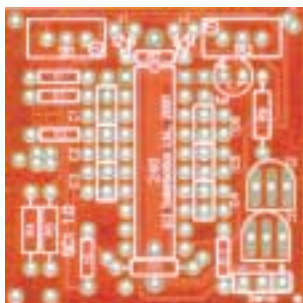
The SC1 ServoCore is a Bicare specifically designed for driving unmodified hobby servos. Unlike regular DC gearmotors, a servo has internal circuitry that interprets the pulses fed to it as an angular position. Up until now, most BEAM applications using servos started out by removing the brains of the servo, turning it into a dumb gearmotor. With the SC1, you just plug it into the module, set the left and right limits, and the time duration between the limits. Then treat it just like a BC2 module!

It is necessary to use a 74HCT240 buffer (rather than the regular 74AC240) in this application, as the logic gates in the HCT version are less likely to influence the other gates on the chip. If you do not use an HCT, you will have very jittery performance. We also strongly suggest using the C7 buffer capacitor in this circuit to help isolate the module from power fluctuation problems.

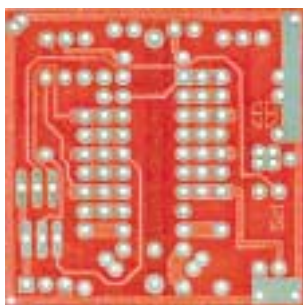
The SC1 module consists of three Bicare circuits: one to set the clockwise rotation limit, one to set the counter-clockwise limit, and one to set the interval between travelling to these two limits. Counter-clockwise rotation is set by TR1, Clockwise by TR2. Interval timing is set by R8 and C3/C4. You'll notice that there are additional pads to each side of R8 to allow for additional biasing from external sources.

## Necessary Parts:

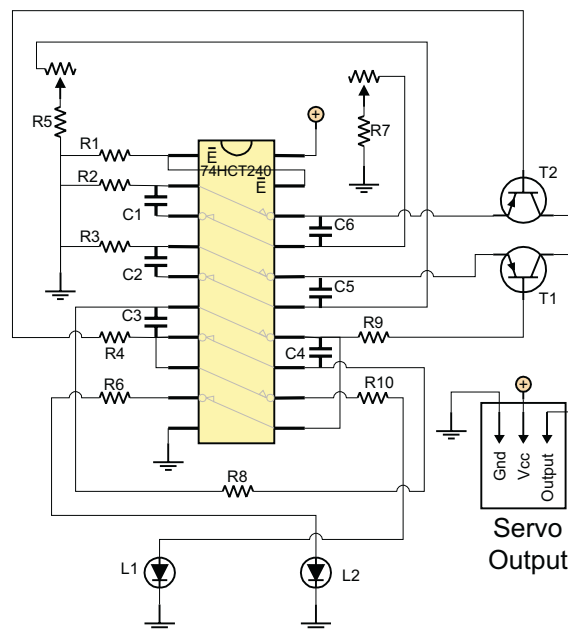
- 1 x 74HCT240
- 1 x 22 $\mu$ F Electrolytic Pwr Filtration Capacitor (C7)
- 4 x 0.1 $\mu$ F Monolithic Capacitors (C1-2, C5-6)
- 2 x 0.47 $\mu$ F Monolithic Capacitors (C3, C4)
- 5 x 1k Resistors (Br/Blk/Rd) (R4, R6-7, R9-10)
- 2 x 1M Resistors (Br/Blk/Gr) (R2, R3)
- 2 x 100k Resistors (Br/blk/Yel) (R1, R5)
- 1 x 5.1M Resistor (Gr/Brn/Gr) (R8)
- 2 x 20k Trimpots (TR1, TR2)
- 2 x LEDs (L1, L2)
- 2 x 2n3906 Transistors (T1, T2)
- 1 x 3 pin header ("Servo")



Top



Bottom



- Edge Rail of PCB is Ground (-).
- Top/Bottom Center pad is Vcc (+).
- USE 74HCT240, not AC!
- TR1 sets CCW rotation limit.
- TR2 sets CW rotation limit.
- R8 & C3/C4 govern period between CCW and CW.
- T1 & T2 are gates for the CCW and CW signals.
- Make sure Servo is connected matching black/red/signal pins on module.