SCON SB018K assembly instructions

Thank you for purchasing this Scon product. Please feel free to contact us at service@sconcon.com with any assembly or testing questions

Required tools: Small quality soldering iron / pencil; Close cut wire cutters; .031" diameter or smaller solder. One servo or a servo's connector. Magnifier to inspect your work.

Note: The Sconscript firmware program on the SCON SB018K is installed after the surface mount components are placed on the board. At that time the board is tested for functionality. The tests include, flash memory verification, servo output functionality.

Assembly:

First insert all of the resistors into the board. It does not matter which direction they face, but it is important to put the correct values where they belong. Insert both leads, pull the leads until the part is snug, and bend the leads slightly so the part stays in place when you solder it. You can insert them, solder and trim them one part at a time or insert them all, bend the leads to hold them, then solder and trim them all.

Next insert the two diodes D1 and D2 the same way as the resistors. The polarity is critical, the band faces inward on the board.

The capacitors are next. After soldering, trim the leads just like the resistors. Start with the large electrolytic caps C1 and C3. Be sure to get the polarity correct. These caps are marked with a + or a – sign, the square pin on the board is +; you should also refer to the drawing to confirm polarity.

Polarity is also important on the remaining electrolytic caps. Certain boards may have surface mount caps already installed, if not they are provided in the kit. Make sure the polarity is correct and install all the caps. The smaller caps C5 and C9 are not polarity sensitive.

Install and solder the push button.

Now install CON2, the serial interface connector. You must hold the plastic insulator flat on the board when you make the first solder joint. Do not trim the pins after soldering the connector.

Now install VR1, VR2, Q1 and Q2. You may wish to install them one at a time. Be sure to install VR1 and VR2 in the correct locations, they are different components. They are polarity sensitive; install them as shown on the drawing (radiused half / straight half). Press them down firmly so that they are slightly higher than the serial connector. Be careful not to push them down so far that the leads are damaged.

Install CON5A and CON5B. Install the single strip on the inside, the double on the outside. Before (and while) soldering the pins, plug a servo into the connectors to align them correctly. Do not trim the soldered pins.

Strip and solder in the three power leads. You will want to trim them if they protrude more than 1/8".

Using a magnifier, carefully check your work for cold solder joints, shorted connections and missed solder points.

Power the unit. Batteries may be used for this, however a power supply with a current indicator is preferred. If one is available, use a power supply with a current limiter set at 100 ma. As soon as power is applied, the LED will flash. If it does not, disconnect the power and check your work.

Once the led flashes when powered, you are ready to test and use your SB018. Start PScon on your PC. Connect a serial adaptor such as a Scon232, and refer to the Scon / PScon manual for operation and testing.

If you have trouble:

Double check all part placement. Using a voltmeter with the common (negative) lead on the negative power connection, measure the voltage on pins 1 and 4 of the serial port connector. Pin 1 is near C3 and is common and should have 0 volts. Pin 4 is near the R11 & R12, pin 4 should have 5 volts with the power connected. If you don't have 5 volts DC, then VR1 may not be soldered in correctly or power is not applied correctly. Check VR1, if it is hot then there may be a short. If VR1 is hot and you can't find any shorts a capacitor may be installed backwards. If this is the case, the cap is most likely defective because they can't tolerate reverse voltage, however the regulator (VR1) is self-protecting against overload and should be OK.

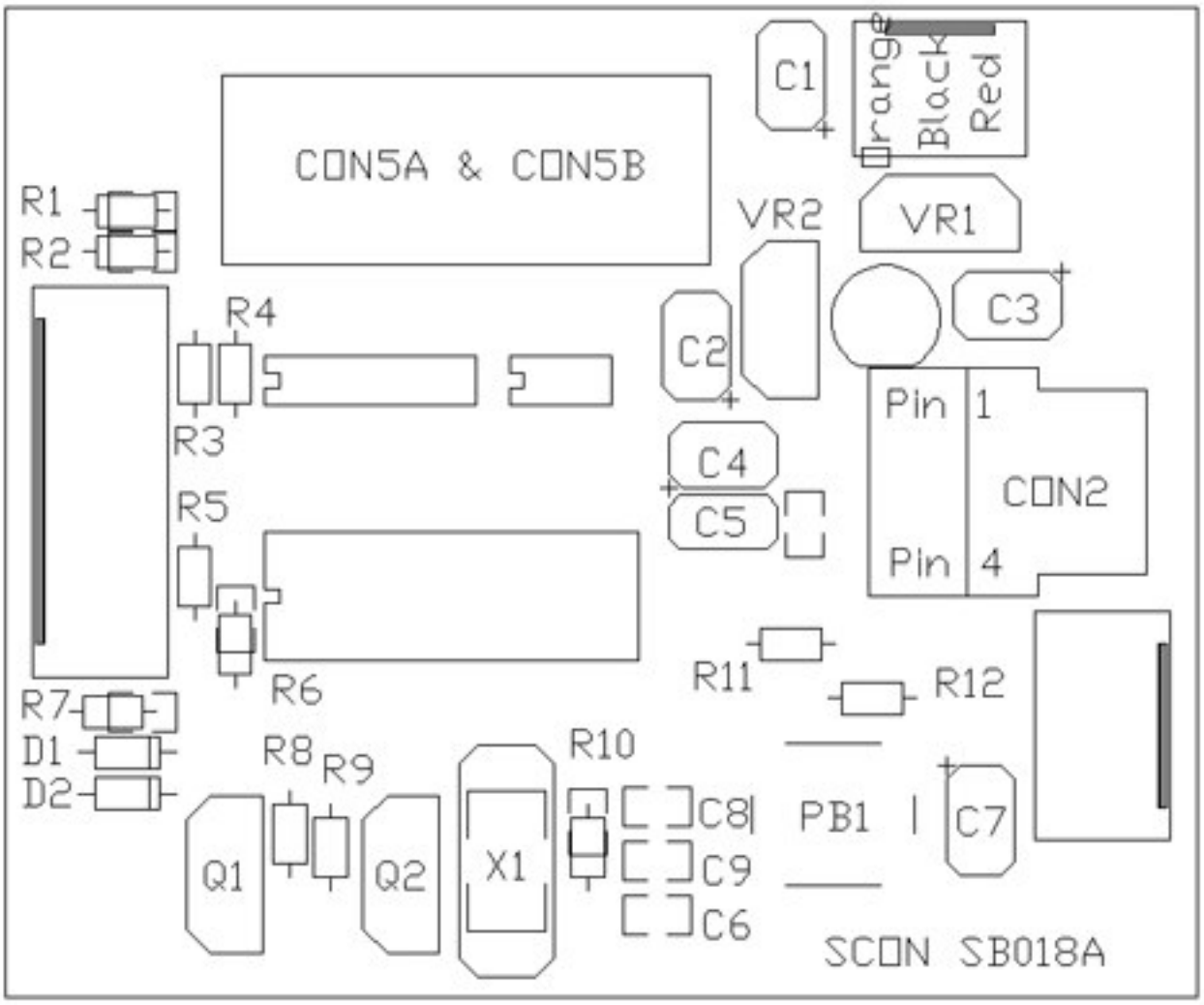
Remember that you must provide servo power on the orange lead or the servos will not operate. If you are using 6 volts or less for your power source, for testing, just connect the orange lead to the red lead and power the servos from the processor power source.

If the LED flashes and the unit does not function, VR2 may be installed incorrectly VR2 provides regulated power for the flash memory. Failure of the flash memory will prevent several critical functions from working correctly. Check the regulator and capacitors.

If you cannot get the board to function, you may send it to Scon Technologies for inspection. Please include $20.00 - this flat fee includes return shipping (US only). If we determine that the device was defective or questionable when shipped from Scon, we will return the entire $20 with the repaired unit. Be sure to include your email address so that we can contact you. If you are outside the US, please email us at service@sconcon.com for a flat rate repair including shipping.

If you have trouble after you were using the unit successfully, some parameters may have been inadvertently changed to invalid values; disconnect the power for several seconds, then hold down the pushbutton while applying power. This will reload all factory default values.

Assembly layout



SB 018K Parts List

Part	Value	ID
R3	47K	Yellow, Purple, Orange
R4	47K	
R5	47K	
R8	470	Yellow, Purple, Brown
R9	470	
R11	470	
R12	10K	Brown, Black, Orange
VR1	L4931-50	
VR2	L4931-33	
Q1	2N3904	Or similar such as 2N2222
Q2	2N3904	
D1	Zenar 24-39V	
D2	Zenar 24-39V	
X1	10 Mhz crystal	
PB1	Push Button	
C1	47 uf	Electrolytic or tant
C3	47 uf	Electrolytic or tant
C2	10 uf or 22uf	Electrolytic, tant Ceramic
C4	10 uf or 22uf	Electrolytic, tant Ceramic
C7	22uf	Electrolytic or tant
C9	.1 or .22 uf	
C5	.1 or .22 uf	
		Orange, Black, Red Leads
Con2	Molx KK	4 prong connector
CON5A&B		1 and 2 Row servo connector
PCB		Processor & SMT components