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TenaControls Brings Models to Life

- Wiring Diagram & Instructions -

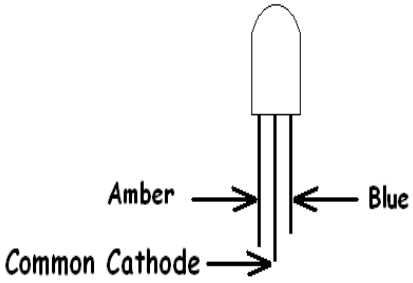
Combo-D Board for the Enterprise 1701 and 1701-A

Items You Will Need:

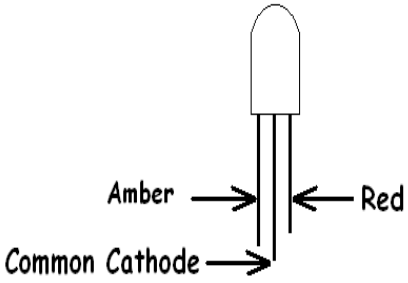
Soldering Iron
Solder
Cutter
Wire Stripper

Refer to the master wiring diagram shown on page 9 for all external connections to the circuit board.

Below is a pictorial of how to tell which side is the Amber, Blue and which is the Cathode on the Bicolor LED for the Deflector Dish. Also pictured, image of how to tell which side is the Amber, Red and which is the Cathode on the Bicolor LED for the Impulse Engine.
It's very important to wire it correctly.



Deflector Dish LED



Impulse Engine LED

Instructions

1. Connect the 9 volt battery clip, red to one side of the on/off switch, the other side of switch to plus terminal block side, then the black to minus of the terminal block side.

2. Connect the momentary switch as shown below in the master wiring diagram

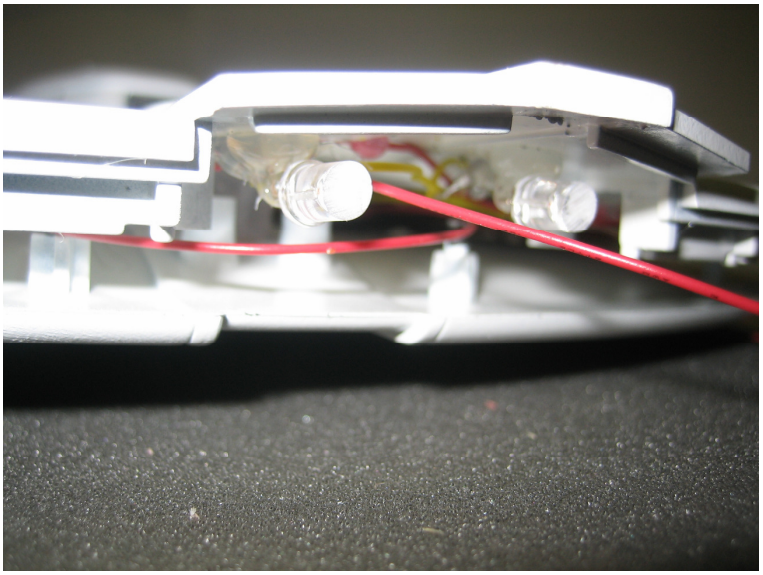
3. Connect the Bicolor LED inside the Deflector Dish as explained below. For best fit, make the hole as tight as possible and hot glue the LED in place on the back side. It's easy to use, sets in minutes and if you make a mistake you can un-stick it and start again.

4. Run the wires to the Deflector Dish board. You can refer to the master wiring diagram shown on page 9, as well as the actual pics of the process.

***A digital version of this Manual can be requested via email: ***
sales@tenacontrols.com

Housing with hole just big enough for the LED

Push the LED in from the back and hot glue in place



For a more diffused look, file the top of the LED's

5. Connect the three wires from the Deflector Dish Amber/Blue LED as well as the six wires from the Impulse Engines Amber/Red LED. See above picture as well as master wiring diagram on page 9.

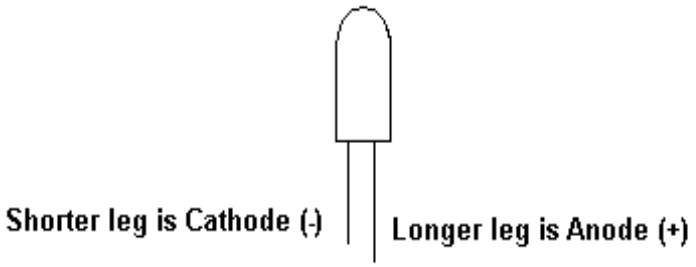
6. Attach a 9 volt battery to the 9 volt battery clip. Turn on/off switch to the on position.

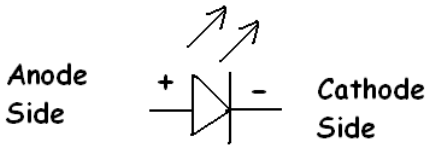
7. When it is all hooked up, press the momentary switch and the Deflector Dish Amber LED will ramp-up to full brightness, at the same time the Impulse Engines Amber LED will start glowing and remain glowing until the switch is pressed again. Which will cause the Deflector Dish Amber LED to ramp-down off and start the Blue LED to ramp-up to full brightness, while at the same time the Impulse Engine LED's will switch from Amber glow to a Red glow, and stay like that until the switch is pressed again. Press the switch again and the Deflector Dish Blue LED will ramp-down and stay off, as well as the Impulse Engines LED's, until the cycle is started again.

NAVIGATION/STROBE SECTION

**Note: When using the shrink tubing, you need to only slide the shrink tubing over one leg of the LED to keep it from shorting against the other leg. Then use heat gun or flame from lighter to heat the shrink tubing until it shrinks around the wire connected to one of the led legs.

How to distinguish a LED:





STROBE SIDE

1. **Four White LED's: LED10-LED13**
   All the Four Anodes (+) of the Strobe LED's, LED10-LED13 will terminate to terminal block connection "1" on the pc board. Then, connect the Cathode (-) of LED10-LED13, to one end of their respective resistor and the other end of resistor will terminate to terminal block connection "12" on the pc board **(See master wiring diagram pg. 9)**

Navigation Side

1. **Five White LED's: LED5-LED9**
   All the Five Anodes (+) of the Navigation LED's, LED5-LED9 will terminate to terminal block connection "1" on the pc board. Then, connect the Cathode (-) of LED5-LED9, to one end of their respective resistor and the other end of resistor will terminate to terminal block connection "11" on the pc board. **(See master wiring diagram pg. 9)**

2. **Two Green LED's: LED3-LED4**
   The Two Anodes (+) of the Navigation LED's, LED3-LED4 will terminate to terminal block connection "1" on the pc board. Then, connect the Cathode (-) of LED3-LED4, to one end of their respective resistor and the other end of resistor will terminate to terminal block connection "11" on the pc board. **(See master wiring diagram pg. 9)**

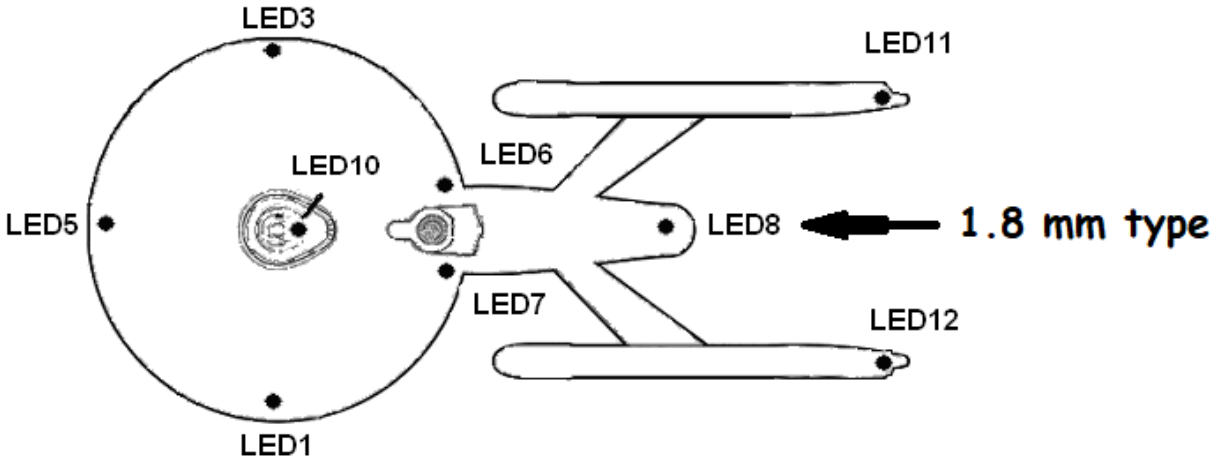
3. **Two Red LED's: LED1-LED2**
   The Two Anodes (+) of the Navigation LED's, LED1-LED2 will terminate to terminal block connection "1" on the pc board. Then, connect the Cathode (-) of LED1-LED2, to one end of their respective resistor and the other end of resistor will terminate to terminal block connection "11" on the pc board. **(See master wiring diagram pg. 9)**

4. Then, place the Strobe and Navigation LEDs in the locations shown on the LED locations drawings shown below in the master wiring diagram (pg. 9)

Top View of LED Locations

LED1-LED2 ARE RED NAV LED'S, LED3-LED4 ARE GREEN NAV LED'S, LED5-LED9 ARE WHITE NAV LED'S

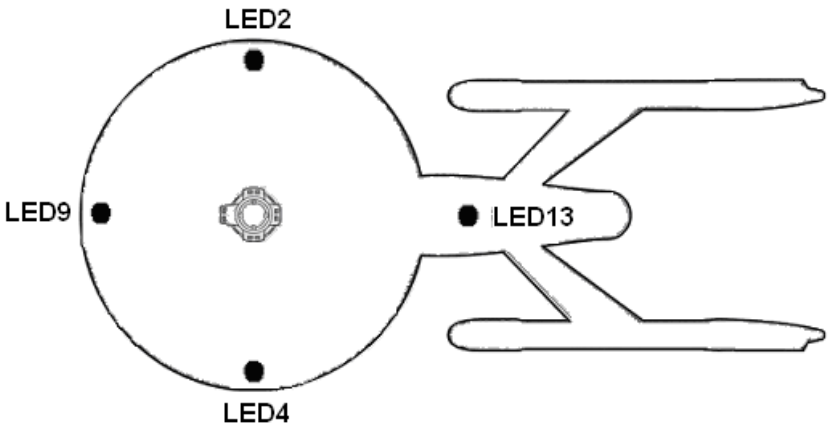
LED10-LED13 ARE WHITE STROBE LED'S



Bottom View of LED Locations

LED1-LED2 ARE RED NAV LED'S, LED3-LED4 ARE GREEN NAV LED'S, LED5-LED9 ARE WHITE NAV LED'S

LED10-LED13 ARE WHITE STROBE LED'S



LANDING BAY SECTION

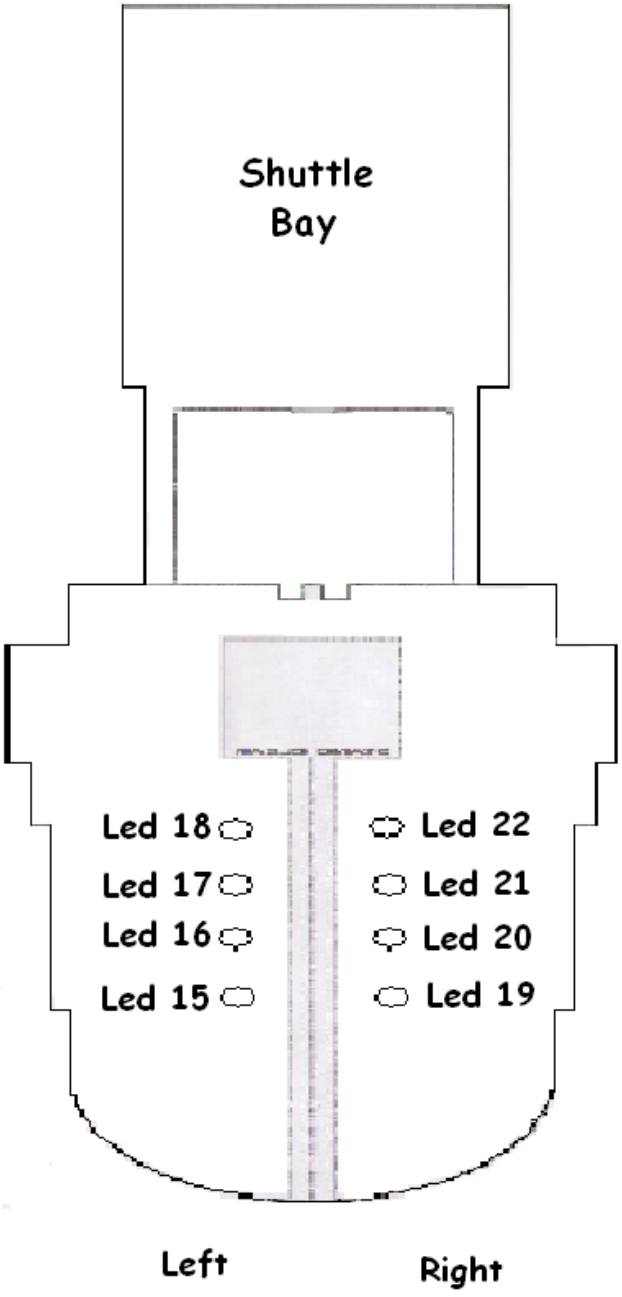
1. Connect the four pairs of LED's under the landing of model according to the below wiring diagram. The anode of LED 15 and LED 19 connect to terminal block position 7. The anode of LED 16 and LED 20 connect to terminal block position 8. The anode of LED 17 and LED 21 connect to terminal block position 9. The anode of LED 18 and LED 22 connect to terminal block position 10. **(See master wiring diagram pg. 9)**

2. Connect all eight Cathodes of LED15-LED22 to terminal block position 14. Some of the LED's may need to be ground down to fit in the small space under the landing bay and the rear hull of the Enterprise, or you can use surface mount led's if you want. The easiest way to adhere LED 15 through LED 22 is by using a hot glue gun. It's easy to use, sets in seconds and if you make a mistake you can un-stick it and start again. **(See master wiring diagram pg. 9)**

3. Run the wires to the Landing Bay connection points as shown below in the master wiring diagram. **(See master wiring diagram pg. 9)**

Landing lights location in the Shuttle Bay

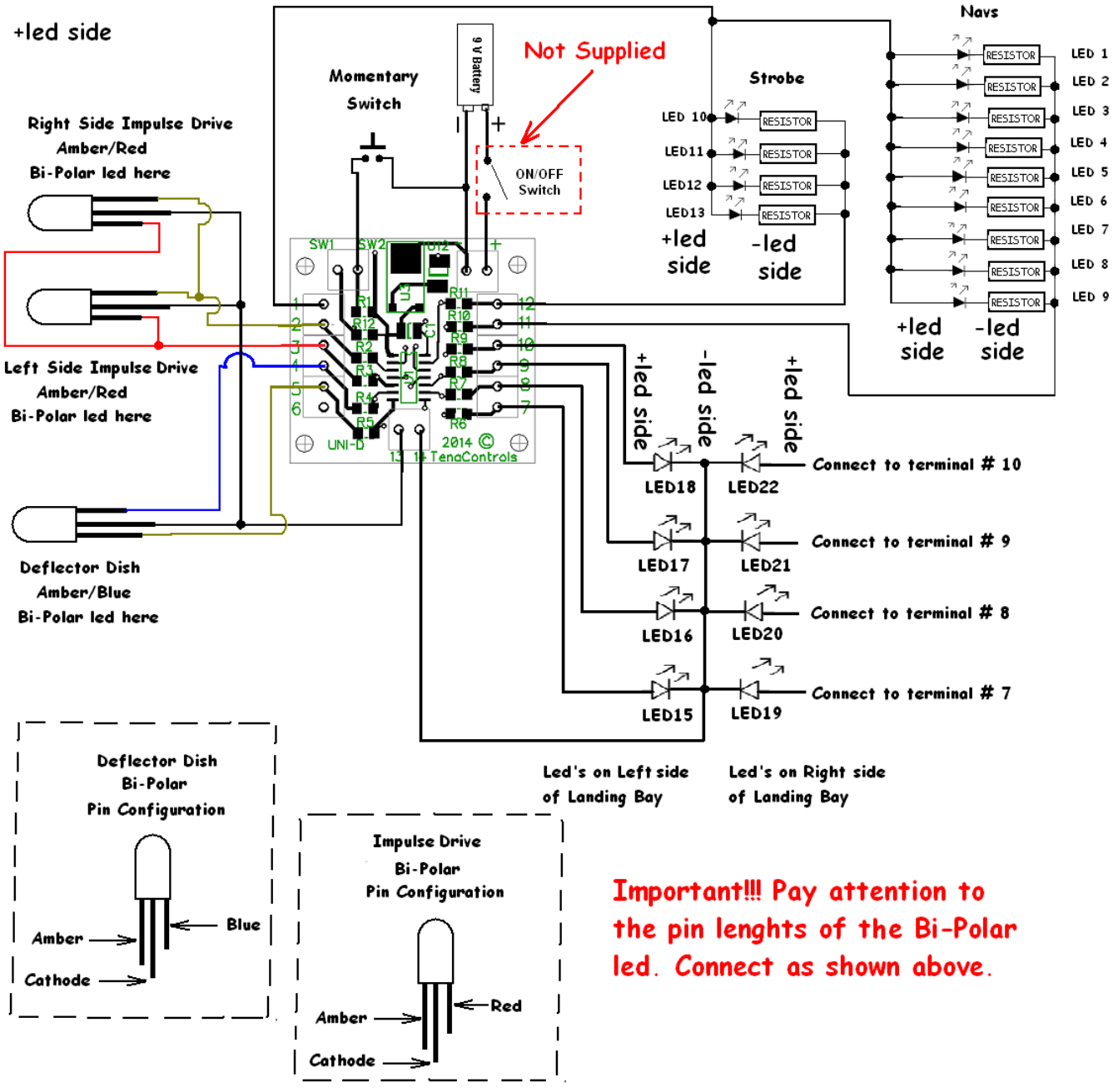
Led15-Led22 are mounted underneath.



Note: LED 15 and 19 will need the top to be shave down to make it fit correctly under the lading bay

Connect the above LED 15 – LED 22 according to the below master wiring diagram.

MASTER WIRING DIAGRAM



Important!!! Pay attention to the pin lenghts of the Bi-Polar led. Connect as shown above.

Warranty

TenaControls LLC warrants that the control boards sold meet TenaControls specifications and are adequately contained, packaged and labeled and conform to the promises and affirmations of fact made on the container and label. THE FOREGOING WARRANTIES ARE EXCLUSIVE, AND ARE IN LIEU OF ALL OTHER WARRANTIES (WHETHER WRITTEN, ORAL OR IMPLIED) INCLUDING WARRANTY OR MERCHANTABILITY IN OTHER RESPECTS THAN EXPRESSLY SET FORTH ABOVE AND WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

In the event that there is a breach of express warranty by the manufacturer made in connection with the purchase of this product, if any, the sole remedy of any buyer shall be to return the product along with original sales receipt, at **buyer's expense** for repair (or replacement of the product if repair is impossible) to the manufacturer's facility in the Commonwealth of Massachusetts, located at 22 Hancock Street, Milford, MA 01757. Some states do not allow the exclusion or limitation of any incidental or consequential damages, so the above limitation may not apply to you. Nothing herein contained shall be construed to be a waiver by the manufacturer of any of the obligations imposed upon said buyer under the laws of the Commonwealth of Massachusetts except as herein specifically stated.

This warranty is enforceable only by the buyer of the product or a person in the buyer's immediate family. This warranty is enforceable for a period of **FIVE YEARS** from the date of purchase. Some states do not allow limitations on how long an implied warranty lasts, so the above warranty may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Warranty Void if:

A) Product is altered in any way.
B) Used for other than its intended use.
C) Buyer mishandling.