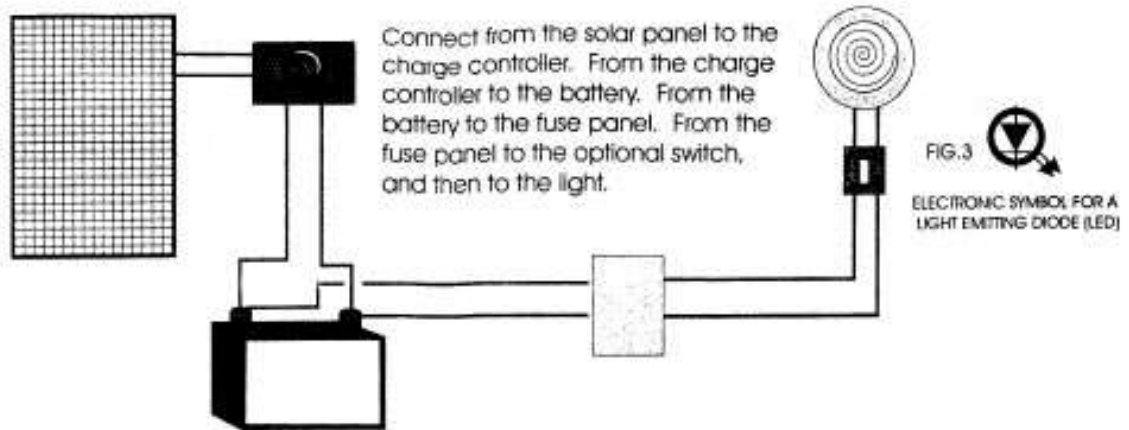
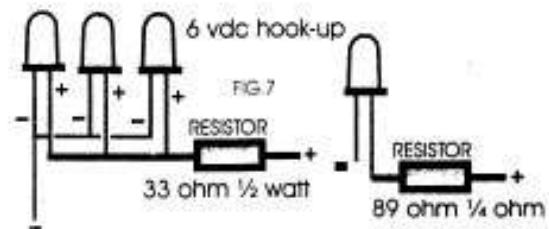
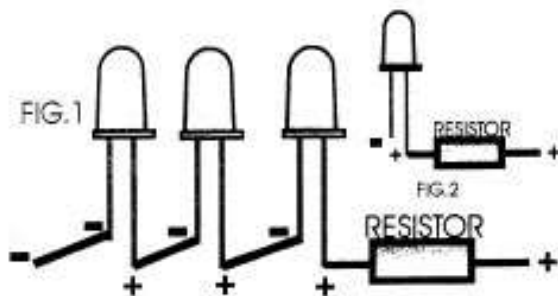


# INSTALLATION INSTRUCTIONS for WHITE LEDs



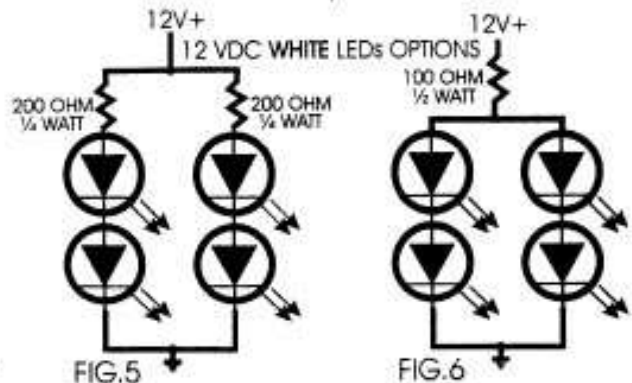
Below are basic instructions for making your own WHITE light using our new LED. Fig.1 shows 3 white LEDs hooked in series using a current limiting resistor. The resistor gives protection to the LED(s) from over voltage spikes. In Fig. 2 we have a parallel connection of a single LED. If you are thinking of laying out a circuit, Fig. 3 displays the symbol for a light emitting diode. The chart on Fig.4 will help you select the proper resistor at the proper voltage. Fig. 5 & 6 presents two different options of hooking up four LEDs in series. Fig 7 is a simple installation for 6 volts dc.



DIRECT CURRENT VOLTAGE (DC)

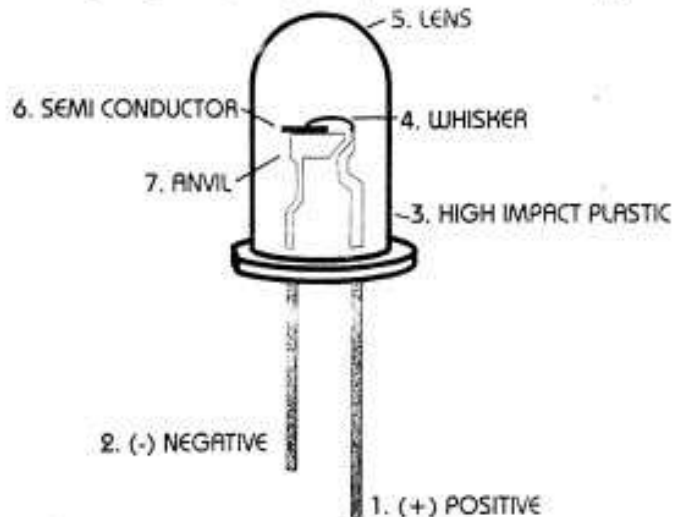
		12	24	36	48
NUMBER OF LEDs	1	330 OHM 1/2 WATT	820 OHM 1 WATT	1.3K 1 WATT	1.8K 2 WATT
	2	200 OHM 1/4 WATT	680 OHM 1/2 WATT	1.2K 1 WATT	1.6K 2 WATT
	3	75 OHM 1/4 WATT	560 OHM 1/2 WATT	1.0K 1 WATT	1.5K 1 WATT
	4	SEE BELOW	390 OHM 1/2 WATT	910 ohm 1 WATT	1.3K 1 WATT

$V_{led} = 3.6$   
 $I = 25 \text{ MA}$



# WHITE LED LIGHTING

WHITE LEDs are "LIGHT EMITTING DIODES" a type of semiconductor. They are the newest item in today's lighting technology. Unlike other light sources, these WHITE LEDs can take a lot of punishment from vibration, heat, and severe cold. Now you have a new option for those hard to solve lighting problems. Our WHITE LEDs can be made waterproof, and put into a lighting package with 1 to 1000 WHITE LEDs. We can design and manufacture street lights, sign lighting, bookcase back lighting or anything else your creative thinking can come up with. GIVE US A CALL.



How does a LED work? This is a very simple explanation of their construction and function. WHITE LEDs need 3.6 VDC and use approx. 30 milliamps of current, a power dissipation of 110 milliwatts. The positive power is applied to one side of the LED semiconductor (6) through a lead (1) and a whisker (4). The other side of the semiconductor is attached to the top of the anvil (7) that is the negative power lead (2). It is the chemical makeup of the LED semiconductor (6) that determines the color of the light the LED produces. The plastic housing (3&5) has three functions: it is designed to allow the most light to escape from the semiconductor; it focuses the light; and it protects the led semiconductor from the elements.

## SOME BASIC FACTS ABOUT WHITE LEDs

- ☛ WHITE LEDs CAN BE PLACED IN **ABUSIVE** ENVIRONMENTS
- ☛ WHITE LEDs CAN BE "AC" OR "DC" POWERED (DEPENDING ON THE MODEL)
- ☛ WHITE LEDs ARE THE **NEWEST** LIGHTING DEVICE ON THE MARKET TODAY
- ☛ WHITE LEDs DO NOT PRODUCE "RF" TO INTERFERE WITH RADIO EQUIPMENT
- ☛ WHITE LEDs ARE A **PROVEN** TECHNOLOGY
- ☛ WHITE LEDs LAST ABOUT **100,000 HOURS** OF CONTINUOUS USE (11 YEARS)
- ☛ WHITE LEDs RADIATE LIGHT AT A **15 TO 45** DEGREE ANGLE DEPENDING ON THE MODEL
- ☛ WHITE LEDs CAN BE MADE COMPLETELY **WATERPROOF** FOR MANY MARINE APPLICATIONS
- ☛ WHITE LEDs ARE POLARITY **PROTECTED**, SO IT IS HARD TO MAKE AN INSTALLATION MISTAKE