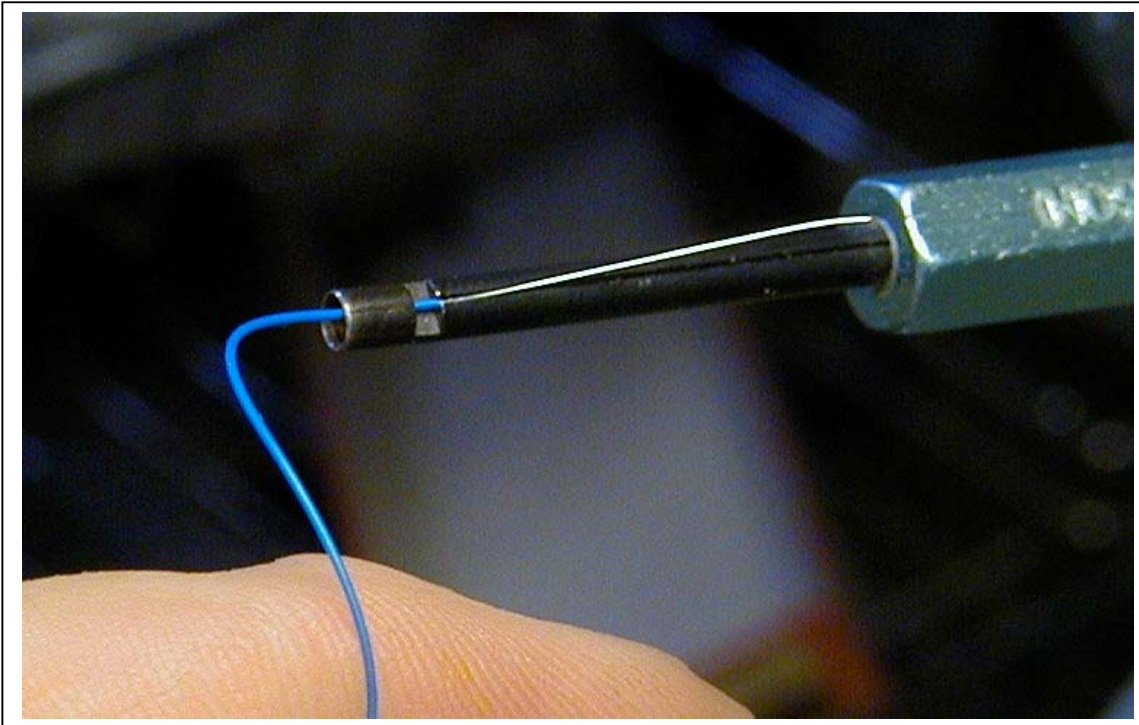


CONCEPT MODELS

Web Address: <http://www.con-sys.com>

44609 W. Canyon Creek Dr.
Maricopa, AZ 85239-5019



Wire Wrap tool with stripped wire in place ready to apply.

**LED WIRE WRAPPING
INSTRUCTIONS**

Tools

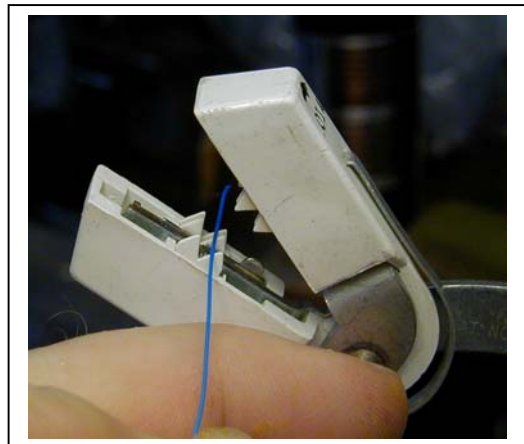
| | Description | Source/Data |
|----|--|---|
| 1 | No-Nick Wire Strippers | 30 Gauge (.015") http://www.twacomm.com/catalog/model_NN008.htm This tool is preferred for high volume. The tool below includes a wire stripper. |
| 2 | Wire-Wrap Tool | http://elexp.com/pro_sr30.htm |
| 3 | Wire-Wrap Wire | Red or Yellow – bright color for (+) lead Electronics Express http://www.elexp.com/ http://elexp.com/cbl_wwrld.htm |
| 4 | Wire-Wrap Wire | Green or Blue – Cool color for (-) lead http://elexp.com/cbl_wwrld.htm |
| 5 | 510 ohm ¼ watt resistors | Mouser 291-510-RC http://www.mouser.com/catalog/catalogUSD/639/658.pdf |
| 6 | Pactra Transparent Amber Paint – RC ACRYL – PAC5314 | http://www.wholesaletrains.com |
| 7 | Soldering Iron | 35W |
| 8 | Rosin Core Solder for Electronic work | |
| 9 | Quik Grip Glue | Wal-Mart Craft Dept. |
| 10 | Styrene sheet .080 | Cut in ~5/8" squares |
| 11 | Styrene Strip .080" x .125" | Cut 5/8" lengths |
| 12 | .025" Pins | http://elexp.com/con_210s.htm |
| 13 | Bright White LEDs | See application sheet on las page for polarity and current limiting specifications. |

| | | |
|--|--|--|
| | | <p>LEDs are available in quantity on eBay from Hong Kong sources at reasonable prices.</p> <p>http://stores.shop.ebay.com/hktaiyuen-LED-store_W0QQ_armrsZ1</p> <p>http://shop.ebay.com/led-hk/m.html?_nkw=&_armrs=1&_from=&_ipg=25</p> |
| | | |

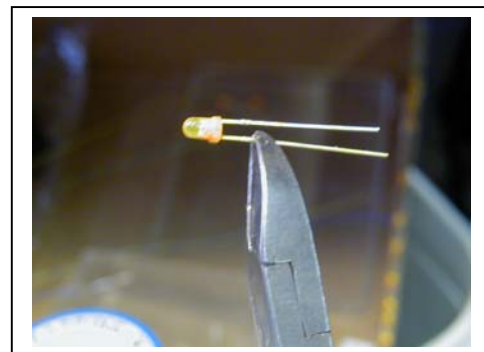
Instructions

1 Color the LEDs by dunking the head in the amber paint. This gives the bright white of the LED an incandescent type of coloration. Amber LEDs would be too dark. The cut edge of a corrugated box makes a good dry rack. Do not proceed until the paint is dry.

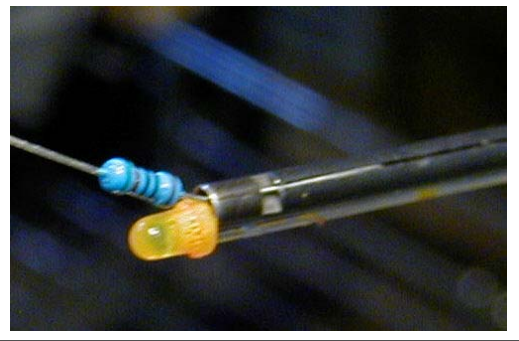
2 Prepare equal lengths of the wires in the colors you have selected for the + and – lead wires by stripping approximately 1” of insulation from one end of the lead wires.



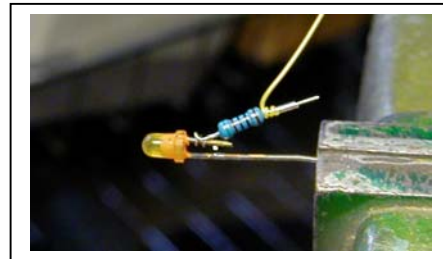
3 Cut off the long lead of the LEDs which is the + lead. Save the cut off pins since they make good terminating leads for the thin 30 gauge wire.



4 Cut the resistor leads to 1" on one end and 1/2" on the other end. Insert the 1" end of resistor into the slot of the wire wrap tool. Insert the + lead of the LED (was cut off in previous step) in the center hole of the wire wrap tool. Rotate the wire wrap tool until all of the resistor lead is applied to the LED.

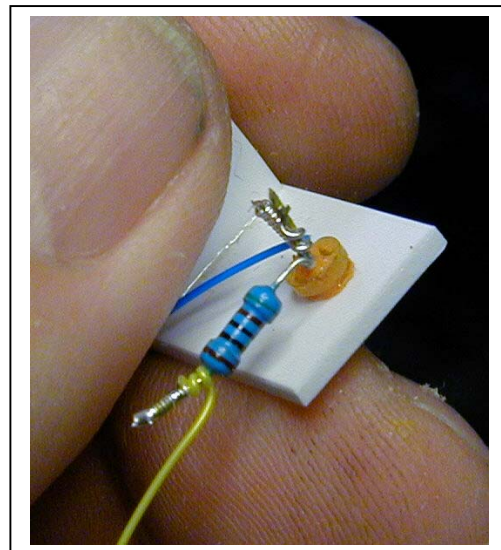


5 Now take the + wire and wire wrap it onto the resistor lead as shown. Apply solder to this connection since the resistor lead is round. Soldering is not required when wrapping wire to a square post such as the LED terminals.

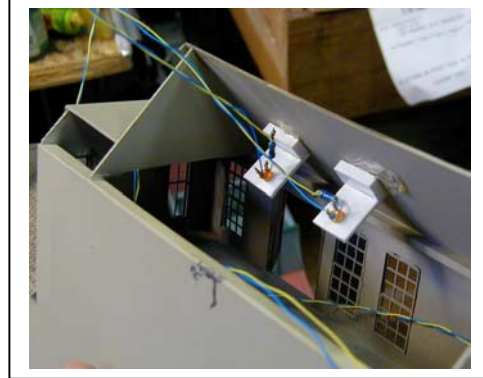


Now cut off the other LED lead and wire wrap the - wire to the - LED lead. You may further trim the LED leads to make as small as possible.

6 Make an angle bracket from two pieces of styrene as shown. Drill a #32 hole through the the bracket and press the LED into place. If you don't have a #32 drill use what you have and glue the LED into place using Quick Grip (Wal-Mart craft section).

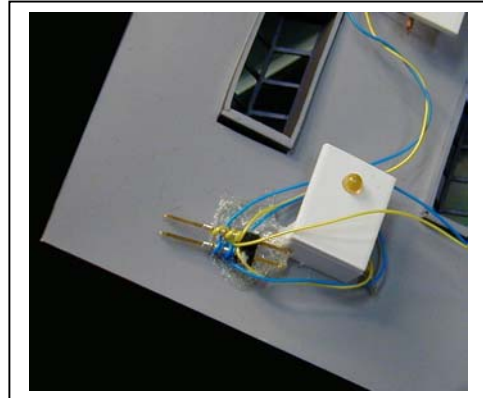


7 Glue the bracket mounted LED's into place in the top of the structure you are going to illuminate as shown.



8 When using more than one LED in a structure, connect them in parallel use the .025" pins as junctions. The pins come in long strip and you snap off in pairs as needed. Connect to a 10-12 volt DC power source.

The Amber coating can be removed with lacquer thinner or more paint can be applied to subdue the light.



9 Here's what the result is. There's plenty of light to make it evident in broad daylight that the buildings are lighted. Now there's a need for detail since it's easy to see inside!



LED Reference Data

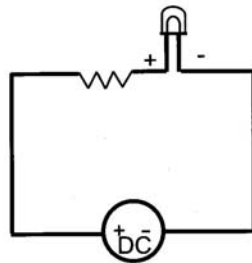


We are here just for you!

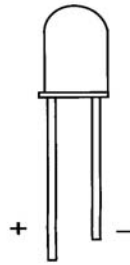
Ultra Bright LEDs, 3mm(5mm), Clear(multiple color) & Free Resistors

User Guide

| Recommended Resistors (1/4 Watts) For Blue, Green, UV, White LEDs | |
|---|------------|
| 5V | 82-100 ohm |
| 7.2V | 220 ohm |
| 9V | 330 ohm |
| 12V | 470 ohm |
| 13.2V | 560 ohm |
| Recommended Resistors (1/4 Watts) For Red, Yellow, Orange, Pink LEDs | |
| 5V | 180 ohm |
| 7.2V | 270 ohm |
| 9V | 390 ohm |
| 12V | 560 ohm |
| 13.2V | 680 ohm |



Schematic



OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Note:
The LED could NEVER be connected to power supply directly. It could be connect with a current-limiting resistor in serial to the power supply. The table below shows how to choose the resistor.

| LED | Color | White | Red | Blue | Green | UV | Orange | Yellow | Pink | Cyan | Infrared |
|-----------|-----------------------|--|-----------|-----------|-------------|---------|-----------|------------|-----------|-----------|----------|
| | Lens Color: | | | | | | | | | | |
| | | Clear Color | | | | | | | | | |
| Size (mm) | Peak Wave Length (nm) | N/A | 625~630 | 460~470 | 520~525 | 400~405 | 600~605 | 585~595 | N/A | 500-505 | 850 |
| | Forward Voltage (V) | 3.0~3.2 | 1.9~2.1 | 3.2~3.4 | 3.0~3.3 | 3.2~3.4 | 1.9~2.1 | 1.9~2.1 | 3.2~3.4 | 3.2~3.4 | 1.1-1.3 |
| | Static Sense | Yes | No | Yes | Yes | Yes | No | No | Yes | Yes | No |
| 3mm | Luminous Intensity: | 15000-17000 | 3500-4000 | 5000-6000 | 12000-15000 | 120~200 | 3500-4000 | About 5000 | 2000-3000 | 4000-5000 | N/A |
| 5mm | View Angle: | 5 - 25° | | | | | | | | | |
| | Maximum Current | 20mA Continuous, 50mA peak for 10% Pulse Width | | | | | | | | | |

<http://www.sure-electronics.net>

support@sure-electronics.net