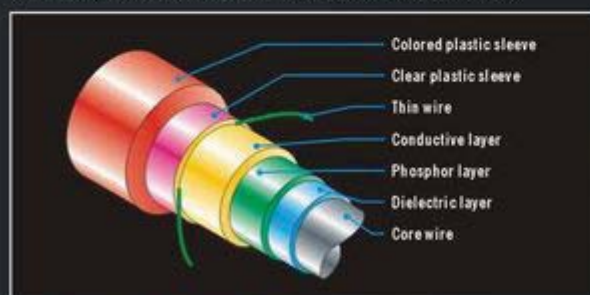


# Electroluminescent Wires

## Polar Light 2

### Structure of EL wire

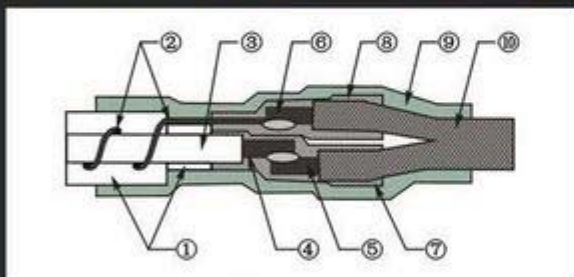
The core wire of EL wire is silver-plated copper wire, it works as a pole. This core wire is coated with a dielectric layer, and a phosphor layer coated on the dielectric layer, on the phosphor layer a conductive layer coated on. Two very thin wires are spirally wound around the conductive layer, they work as another pole. Surrounding them is a very thin clear plastic sleeve. Finally, surrounding this clear plastic sleeve is a colored plastic sleeve. When putting the AC power on two poles, an electric field was created, the phosphor layer was activated and luminesce.



### Feature of EL wire

- 360degrees glow, soft light goes evenly along with its length around the wire (Not a series of points)
- Flexible to bend any shape
- Be cut to any length
- 11 colors. Customized color is acceptable
- From 0.9mm - 5.0mm diameters. Customized diameter is acceptable
- Power save
- No hot release and small working current is safe to human body
- Non-toxic, RoHS compliant
- When water pressure does not exist(such as using in the rain), EL wire is waterproof as long as the soldering connection and end of the EL wire is sealed completely. But if there is water pressure on the EL wire(such as in the deep-sea) it is not suitable to use for a long time, unless the outer layer of EL wire is made by waterproof plastic.

### How to solder the EL wire with Lead wire



- ① Plastic sleeve(Two layers) of EL wire
- ② Two thin wires of EL wire
- ③ Chemical material layer of EL wire (Including Dielectric layer, Phosphor layer, and Conductive layer)
- ④ Core wire of EL wire
- ⑤⑥ Copper wire of leadwire
- ⑦⑧  $\phi$  1.5mm black shrink tube
- ⑨ Color shrink tube
- ⑩ Lead wire

### Parameter

#### Current (mA / meter)

Volt. (VAC)	Fre.(Hz)		
	1000	1500	2000
50	1.88	3.16	4.58
80	3.38	5.97	8.13
110	4.85	7.74	11.11

#### Capacitance (nF/meter, calculated)

Volt. (VAC)	Fre.(Hz)		
	1000	1500	2000
50	6.80	6.75	6.70
80	6.85	6.80	6.75
110	6.90	6.85	6.80

Remark: Static Capacitance, 5.5nf /meter

#### Power (mW / meter)

Volt. (VAC)	Fre.(Hz)		
	1000	1500	2000
50	94	158	230
80	270	478	650
110	533	851	1223

#### Operating lifetime (hours)

Volt. (VAC)	Fre.(Hz)		
	1000	1500	2000
50	6000	5000	4000
80	4500	4000	3500
110	4000	3500	3000

Remark: Keep operating, no stop.

#### Chromatogram(1500Hz, 30V)

Color	Pink	Purple	Blue	Lime green	Grass green	Blue green	Orange	White	Red
X	0.5308	0.2398	0.1183	0.2142	0.1289	0.1616	0.5308	0.2535	0.6543
Y	0.2751	0.1567	0.2873	0.6067	0.4383	0.3575	0.4811	0.2879	0.3398
Peak value of Absorbance	608	463	496	511	506	502	585	467	624

Diameter: 0.9mm/1.4mm/2.2mm/3.2mm/4.0mm/5.0mm

Brightness: 50cd/m<sup>2</sup>(30VAC/400Hz)~500cd/m<sup>2</sup>(150VAC/5000Hz)

Operating Voltage: 30-150VAC

Operating Frequency: 400-5000Hz

Operating Temperature: -10°C ~ +60°C

Operating Humidity: <60%

Storage Temperature: +5°C ~ +35°C

Storage Humidity: <30%

Storage Time: 2 years

Instant Breakdown Voltage: 3500VAC

Recommend Operating Voltage: 80-90VAC

Recommend Operating Frequency: 1000-2000Hz

Bending Diameter: >4 times of 'Polar Light 2' EL wire diameter

Twisting Angle: <30°

Stretching Force: 0.9mm-0.4Kg/1.4mm-0.8Kg/2.2mm-1.0Kg/  
3.2mm-1.2Kg/4.0mm-1.4Kg/5.0mm-1.6Kg

There will be error of  $\pm 15\%$  between above data and actual data in application

#### Soldering steps:

1. Peel off Plastic sleeve ① of EL wire. Be careful not to break the two thin wires ②;
2. Take out the two thin wires ② and twist them together, they work as one electrode of EL wire;
3. Scrape off the Chemical material layer ③ and make the Core wire ④ exposed, it works as another electrode of EL wire;
4. Peel off Plastic coat of Lead wire ⑤ and make Copper wire ⑤ and ⑥ exposed;
5. Slip a Color shrink tube ⑨ which match the EL wire's diameter and color on EL wire;
6. Slip two  $\phi$  1.5mm black shrink tube ⑦ and ⑧ on Copper wire ⑤ and ⑥;
7. Solder Core wire ④ and Copper wire ⑤ together, and use the  $\phi$  1.5mm black shrink tube ⑦ cover the connection, and contract it by hot wind;
8. Solder Two thin wires ② and Copper wire ⑥ together, then do the same work as above;
9. Last, slip the Color shrink tube ⑨ cover entire connections and contract it by hot wind.