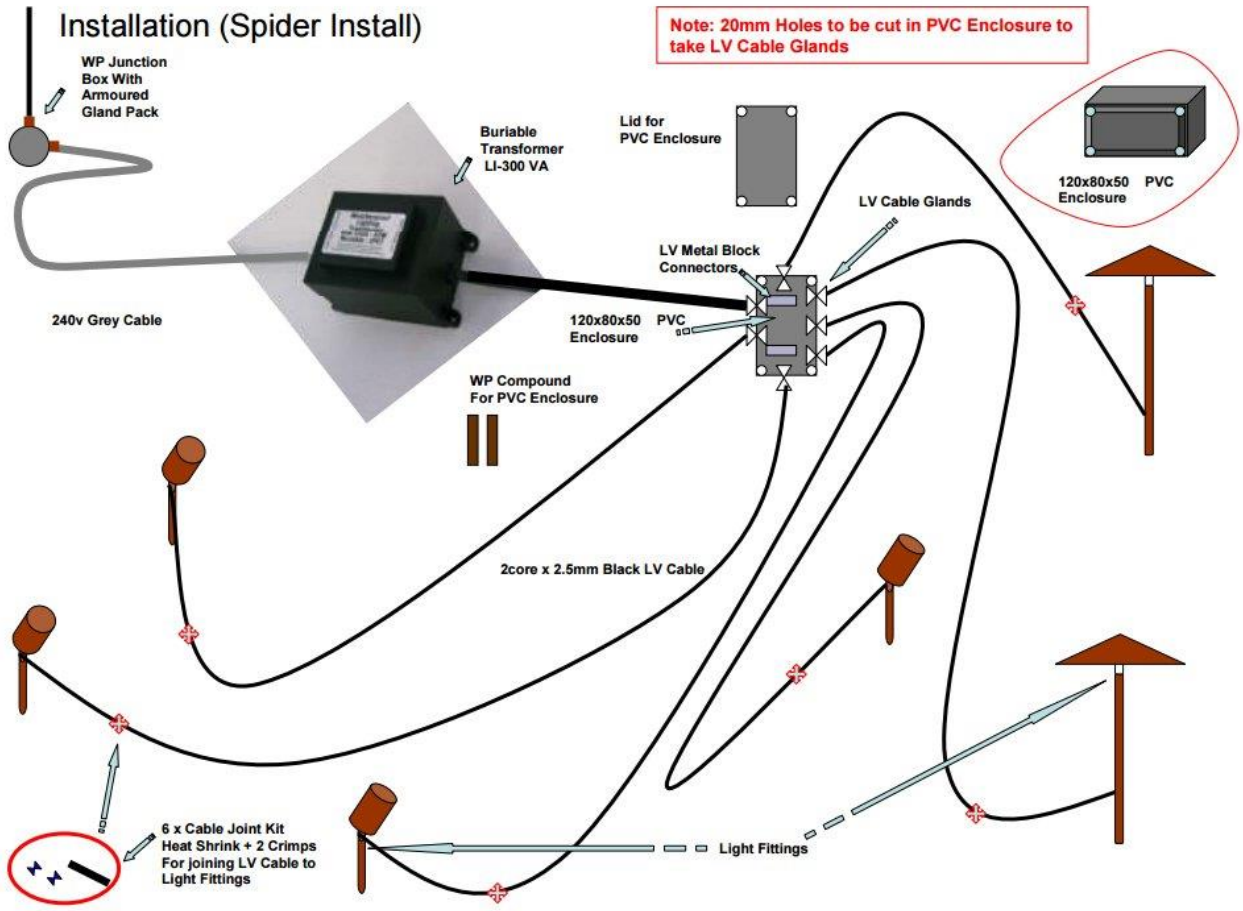
Outdoor transformer wiring diagram:



Garden Lighting Technical Information

Transformer	Transformer – Devise for changing voltage, usually from 240v to low voltage commonly 12v. The reason for this is that when garden lighting it is much safer and easier to run cables across beds and lawns than to run mains voltage.
Luminaire	Current term for garden lighting fitting
Lamp	Industry name for a light bulb
Wattage	Load required to power one or a number of garden lighting fittings.
Voltage Drop	When running distances in 12 volts the cable needs to be matched to the load and distance. Otherwise you may end up with less than 12 volts at the end of the cable run. This will not cause damage to the luminaire but if the voltage drop is large then the light produced will have a slightly yellow effect and may also seem slightly dim **Click here for Garden Lighting Voltage Drop Chart**
IP Ratings	The rating the garden lighting product (luminaire) is given to show its resistance to particles in the atmosphere and its resistance to water. The first number is resistance to particles and the second number shows the resistance to water. IE IP 67 OR IP 68 for pond or pool lighting. **Click here to see Garden Lighting IP Ratings Chart**

Low Voltage Cabling

This is the cable used to run out from the transformer to the garden lighting product (luminaire). The size of cable depends on the total wattage of garden lights and length of cable run.

Click here to see Garden Lighting Voltage Drop Chart

Waterproof Connections

There are many different ways of making all joints fully waterproof, this is very important when outdoor garden lighting as without correct joints when the lamp cools it will pull in moisture from the ground and also the atmosphere. This will rapidly deteriorate the lamp and lamp holder and will eventually cause failure.

IP Enclosure

These are waterproof boxes that must be fitted with the correct glands to ensure watertight seal where the cables exit the box. Very useful to run a number of cables out to eachgarden lighting product (luminaire).

Garden Lighting Voltage Drop Chart

Maximum distances in metres for stated wattage with Voltage Drop of up to 1 Volt

Load in Watts	2.5 mm cable (metres)	4 mm cable (metres)	6 mm cable (metres)	10 mm cable (metres)
20 W	40	65	97	164
40 W	20	32	48	81
50 W	16	25	38	65
60 W	13	20	32	54
70 W	11	18	27	46
80 W	10	16	24	40
90 W	8.5	14	21	35
100 W	8	13	19	33
120 W	6	10	16	27

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Garden Lighting IP Ratings

	First Number - Protection against solids	Second Number - Protection against liquids
0	No Protection	No Protection
1	Protected against solid objects over 50mm	Protected against vertically falling drops of water
2	Protected against solid objects over 12mm	Protected against direct sprays up to 15° from vertical
3	Protected against solid objects over 2.5mm	Protected against direct sprays up to 60° from vertical
4	Protected against solid objects over 1mm	Protected against direct sprays from all directions - limited ingress permitted
5	Protected against dust - limited ingress permitted	Protected against low pressure jets from all directions - limited ingress permitted
6	Totally protected against dust	Protected against strong jets from all directions - limited ingress permitted
7		Protected against effects of immersion from 15cm - 1m
8		Protected against long periods of immersion under pressure

Garden Lighting Technical Notes:

IP numbers are often quoted on enclosures, connectors and fittings etc. to indicate protection from solids, liquids and impact. The table above gives a description of these ratings.