Firefly Magic® patented firefly LED lights are the world's most accurate recreation of Mother Nature's real-life fireflies.

Designed & Distributed by
Spartus Technology LLC - USA
Assembled in China

Spartus Technology LLC
*Model **FMT-8S1***

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

Limited 1-Year Warranty

Low Voltage (12V) Firefly Lights

Model FMT-8S1FL2 Series

Spartus Technology LLC
Makers of **Firefly Magic®**
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Firefly Magic® Firefly Lights — Model FMT-8S1FL2 Series

- Connect up to 10 end-to-end.
- Do not connect other light fixtures or devices in series with the FMT-8S1FL2 Series firefly clusters, as they are not designed to provide power for loads other than the FMT-8S1FL2 Series clusters (up to 10, end-to-end).
- Do not allow unused power leads to short together or to other wires, power sources or conductive surfaces - terminate unused leads with tape, wire nuts or similar.
- The two FMT-8S1FL2 Series power leads (9ft and 7ft lengths) can be used interchangeably as power-in or power-out.
- These devices are not intended to be connected or configured in "power loops." That is, power must be provided to each cluster using one of the 2-conductor zip cords; the remaining 2-conductor power zip cord may be used to connect an additional FMT-8S1FL2 Series cluster, up to 10 end-to-end; the second power zip cord (of a FMT-8S1FL2 Series cluster) should NOT be used to connect to the power source in a "loop" configuration: there should be only one connectin to the power source.
- The FMT-8S1FL2 Series fireflies perform well with voltage input ranging from 10 to 14VAC RMS, and they are designed to work with landscape lighting transformers of all types, including typical in-ground wiring configurations (but not power "loops"). Note that there will be some voltage drop along the length of wire along a "string" of several clusters if connected end-to-end. For this reason, if as many as 10 clusters ARE connected end-to-end, it is recommended to provide AT LEAST 10.5V to the first cluster (nearest the power source), in order to ensure a voltage of at least 10V to the 10th cluster in the string.

Power Budget

The FMT-8S1FL2 Series model firefly lights cluster is a low power device.The average power consumption is less than 0.2 watts; however, the peak power consumption of 1 watt should be used for caculating or allocating transformer power capacity.

To calculate the power required from a power supply - including low voltage lighting transformers - **simply multiply the number of FMT-8S1FL2 Series firefly clusters by 1W** (peak power consumption of the FMT-8S1FL2 Series).

Power Connection and Wire Termination

A low voltage power source with output voltage in the range of 10 to 14V AC or DC is required for operation. The most common system configuration for outdoor use involves connecting the FMT-8S1FL2 Series to a low voltage $12V_{AC}$ dighting transformer, either magnetic or electronic. Indoor aplications frequently involve $12V_{DC}$ power sources of varying types, using a range of power distribution wiring methods. In either case, power connection is simple and flexible. Two 2-conductor power supply wires are provided. Either may be used for input or output; however, a wire used as a power output should be used only for connecting additional FMT-8S1FL2 Series firefly light clusters (up to 10, end-to-end), as these devices are not designed or intended to provide power to other devices that may present a high power load.

Power input wiring is non-polarized, so either conductor of the wire chosen for input power may be connected to either conductor of the power supply wire. Power connections may be made with a wire nut, crimp, screw terminal, spring terminal, solder, IDC (insulation displacement connector) or any splice or termination method. The most common wire connection methods used for outdoor applications are the wire nut or IDC methods.

Voltage Drop Calculation

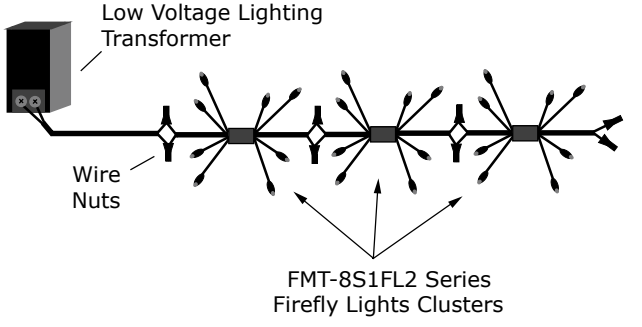
Lighting system designers and installers often need to consider voltage drop on system power wiring that is contributed by the various light fixture loads connected in the system.

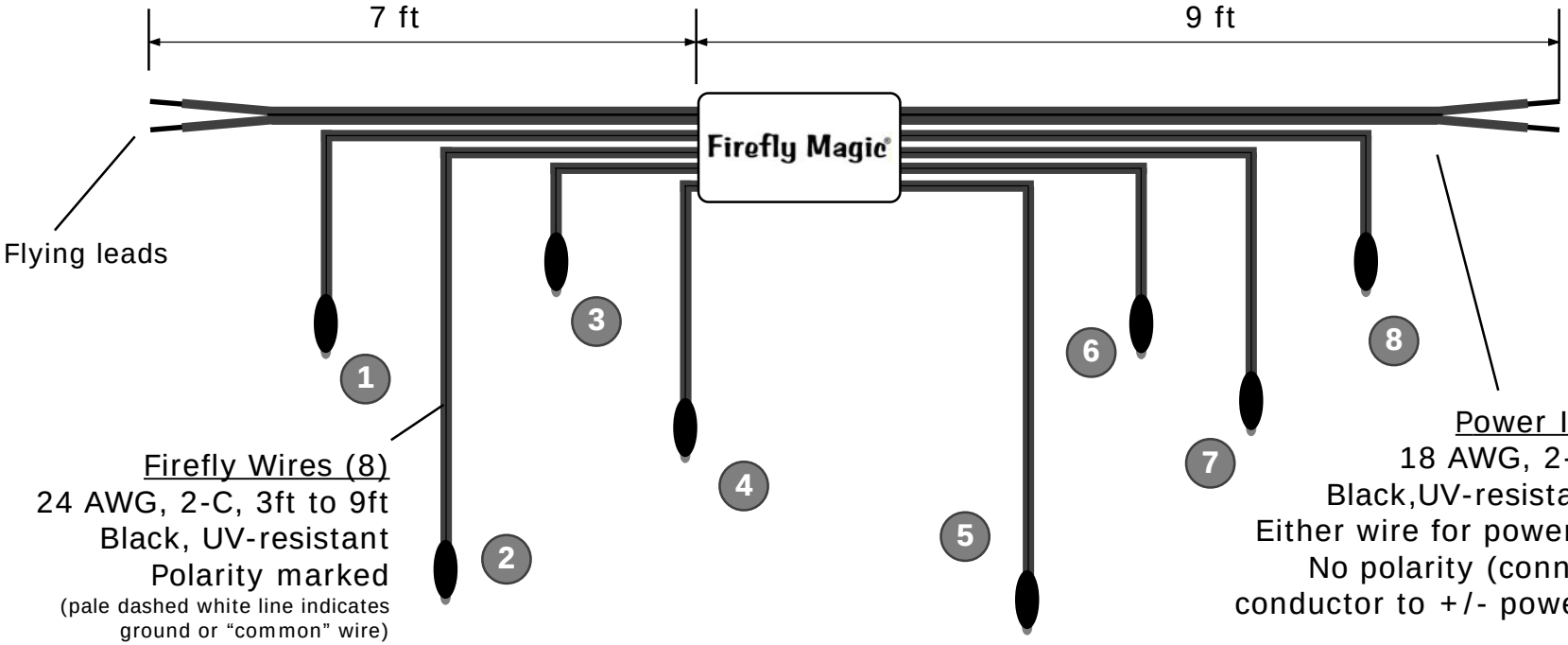
The FMT-8S1FL2 Series is unique in that it draws very little current, and so for many installations the voltage drop contribution is negligible.

The peak current draw (0.07A) should be used to calculate the voltage drop on power wiring, or the voltage drop can be estimated using the reference values in the following table:

Power Supply Wire Size	Voltage Drop (per 100 ft, per cluster)
10 AWG	0.02 volts (peak/maximum)
12 AWG	0.03 volts (peak/maximum)
16 AWG	0.06 volts (peak/maximum)

Wiring Example:





Firefly Wire Lengths (approximate)

Firefly #	Feet	Firefly #	Feet
1	8	5	6
2	8	6	6
3	3	7	9
4	3	8	9

Electrical Operating Requirements

Input Voltage (Range): 12V AC or DC (10 to 14V)
Current: <0.07A peak, <0.015A average
Power Consumption: <1.0W peak, <0.2W average

End-to-End connection - recommended power supply input voltage to first cluster

- 2 clusters: 10.1 to 14.0 volts
- 3 clusters: 10.2 to 14.0 volts
- 4 clusters: 10.3 to 14.0 volts
- 5 clusters: 10.4 to 14.0 volts
- 6 clusters: 10.5 to 14.0 volts
- 7 clusters: 10.6 to 14.0 volts
- 8 clusters: 10.7 to 14.0 volts
- 9 clusters: 10.8 to 14.0 volts
- 10 clusters: 10.9 to 14.0 volts