

Low Voltage Guide

Unios™ provides a large range of luminaires which operate at 24 Volts. Incorporating this in mind, allows for longer distance runs. We have designed the guide below to maintain lamp performance with your low-voltage wiring layout.

Sizing of Low Voltage Wiring

1. Locate and plot fixtures on plan. Choose the lighting equipment necessary to create the desired lighting effects. Mark lamp wattage for each fixture location.
2. Identify potential transformer locations. The ideal locations are those which provide for the shortest possible low voltage distances (inconspicuous areas, behind rocks, shrubbery, etc., within the landscape).
3. Add the total wattage for the proposed low voltage run. Measure the wire lengths from the transformer to the fixture locations. Find the distance to the "Center of Load" of the low voltage run.

$$\begin{aligned} &\text{Center of Load} \\ &= \\ &\frac{\text{Distance from first to last fixture}}{(2) \text{ Two}} \\ &+ \\ &\text{Distance from} \\ &\text{transformer to first fixture} \end{aligned}$$

4. Using the Lighting Wire Selection Table, select the wattage column which applies. Look down the column stopping at a distance, in meters, that is equal or greater than the "Center of Load" distance. Look across to find the proper wire size for your layout.

24 Volt Wire Selection Table

Wire Size (mm ²)	Total Wattage (W)				
	15	35	60	120	230
1	27m	11m	6.8m	3.4m	1.3m
1.5	41m	17m	10m	5m	1.9m
2.5	68m	29m	17m	8.5m	3.2m
4	109m	46m	27m	14m	5.2m
6	164m	70m	41m	20m	7.8m
10	274m	117m	68m	34m	13m

Note

The Wire Selection Table provided is based on a maximum allowable voltage drop of 5%. Electrical designs which allow greater than 5% voltage drop, reduce rated light output beyond acceptable levels.

The importance of the proper wire selection is demonstrated below. Both examples have the same total watts and identical overall lengths of wire run, yet require different wire sizes, or multiple wire runs, to operate within the 5% maximum voltage drop Lighting criteria.

Note: Installations should be in accordance with the Australian Standards AS/NZS 3000 and applicable local codes.

Note: The above table should be used as a guide only.

Example

Total wattage: 10W x 5 = 50 watts Center of Load: 10m/2 + 5m = 10m Single Wire Run: 1.5mm²



Total wattage: 10W x 5 = 50 watts Center of Load: 5m/2 + 10m = 12.5m Single Wire Run: 2.5mm²

