# LOW VOLTAGE SUPPLY WIRING

When planning a low voltage supply care must be taken to ensure that wires that interconnect the transformer and the light fixture are of sufficient gauge to permit full voltage to reach the lamps. In addition to voltage drop the wire must be sized to handle the amperage. Many of our linear products have 25 amp circuits and require a minimum of 10 gauge wire.

We recommend that stranded copper be used as it provides less resistance at the connection points than solid copper wire. The wiring connections on the secondary side should be tightly twisted around each other. To calculate the wire gauge needed to carry a given amperage load, at 12 volts supply, for a given distance between the fixture and transformer; please refer to the chart below.

**12 VOLT WIRING**

| | | DISTANCES IN FEET | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WATTS | 12 | 20 | 40 | 60 | 75 | 100 | 150 | 160 | 180 | 200 | 250 | 280 | 300 |
| **WIRE GAUGE** | 14 | 112 | 67 | 34 | 22 | 18 | 13 | 9 | 8 | 7 | 7 | 5 | 5 | 4 |
| | 12 | 178 | 107 | 53 | 36 | 28 | 21 | 14 | 13 | 12 | 11 | 9 | 8 | 7 |
| | 10 | 283 | 170 | 85 | 57 | 45 | 34 | 23 | 21 | 19 | 17 | 14 | 12 | 11 |
| | 8 | 450 | 270 | 135 | 90 | 72 | 54 | 36 | 34 | 30 | 27 | 22 | 19 | 18 |
| | 6 | 716 | 429 | 215 | 143 | 115 | 86 | 57 | 54 | 48 | 43 | 34 | 31 | 29 |

For example, if a 12 volt system has a load of 300 watts, and the distance is 8 feet from transformer to fixture, then #10 gauge wire will suffice. If the distance is 12 feet, then #8 gauge wire is required.

For loads and distances not on the chart the maximum allowable distance between transformer and fixture without visible voltage drop can be determined by dividing the number associated with the wire gauge by the watts

# 14 Ga. = 1345
# 12 Ga. = 2137
# 10 Ga. = 3397
# 8 Ga. = 5403
# 6 Ga. = 8588

Please consult with our engineering department if you need further assistance in planning low voltage circuitry to power our low voltage equipment.

**SPECIALTY LIGHTING INDUSTRIES, INC.**