

LOW VOLTAGE

Many of our products utilize low voltage lamps, requiring a transformer. We recommend toroidal magnetic transformers for the power supply because they are more efficient and quieter than 'core and coil' magnetic transformers. Our products contain a high density of lamps per linear foot, so it is important that the transformers not produce harmonic resonance or the filaments may vibrate. Dimming will intensify the noise problem, so whenever dimmers are specified, toroidal transformers should be used.

We are often asked to supply toroidal transformers with our low voltage lighting equipment. They are made with a thermocouple on the primary windings to protect the transformer from overheating. They also come equipped with auto-reset circuit breakers on the secondary output (low voltage) leads to protect the transformer from an electrical short or an overload of wattage. These circuit breakers do not need to be accessed to reset. It is only necessary to repair the short or remove the overwattage lamp to reset them.

Because of their superior efficiency, toroidal transformers are more susceptible to in-rush current. When a circuit is loaded near to its current carrying capacity, the in-rush current may open the circuit breaker when the power is turned on. To avoid this inconvenience, it is recommended that when using toroidal transformers, a HACR breaker be installed in the panel supplying power to the fixture. HACR breakers have a built in time delay circuit that enables them to stay closed (on) when there is in-rush current.

IMPORTANT: Always use stranded copper wire of sufficient gauge to handle the amperage. 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 following chart.

Divide the number associated with the wire gauge by the watts to obtain the maximum allowable distance between transformer and fixture to insure no visible voltage drop.

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

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 ga. wire will suffice. If the distance is 12 feet, then #8 ga. is required. Please consult with our engineering department for assistance in planning low voltage circuitry to power our low voltage equipment.

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



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These specifications subject to change without notice.