

Installation Instructions: Low Voltage Transformers

1. Before Installation: Please read and thoroughly understand this installation guide to ensure safe and efficient operation of this Transformer.
2. Open shipping carton and carefully remove the transformer.
3. Inspect transformer for any damage that may have been incurred during shipment.

IMPORTANT SAFETY INSTRUCTIONS: Save these instructions for future reference. Install and maintain to comply with all applicable codes.

WARNING: RISK OF ELECTRIC SHOCK. INSTALL POWER UNIT 5 FEET (1.5m) OR MORE FROM A POOL, SPA, OR FOUNTAIN. WHERE THE POWER UNIT IS INSTALLED (A) INDOORS WITHIN 10 FEET (3.0m) OF A POOL, SPA, OR FOUNTAIN OR (B) OUTDOORS, CONNECT POWER UNIT TO A RECEPTACLE PROTECTED BY A GFCI.

WARNING: DO NOT USE WITH AN EXTENSION CORD. THE POWER UNIT SHALL BE CONNECTED TO A GFCI PROTECTED HOODED FLUSH TYPE COVER PLATE RECEPTACLE MARKED "WET LOCATION".

This power unit is only for use with Low Voltage Landscape Lighting Systems. This device is accepted as a component of a low voltage landscape lighting system where the suitability of the combination shall be determined by CSA or local authorities having jurisdiction. To comply with CSA requirements, this transformer should be installed by a qualified electrician.

NOT FOR USE WITH SUBMERSIBLE FIXTURES

The secondary wiring is intended for shallow burial less than six inches (152mm) unless marked for direct burial. To order additional lengths of wire for the secondary contact the distributor or manufacturer of the lighting or power unit.

Beginning Your Installation Process:

1. **MOUNTING THE TRANSFORMER:** Mount the Transformer to a solid surface using the keyhole slots in the mounting bracket. Make sure to mount the transformer at least one foot above ground level with the wire terminals facing downward as shown in Figure 1.

Completely secure the Transformer to the wall using mounting screws with the appropriate anchors for wall type. (Wall mounting screws and anchors not supplied.)

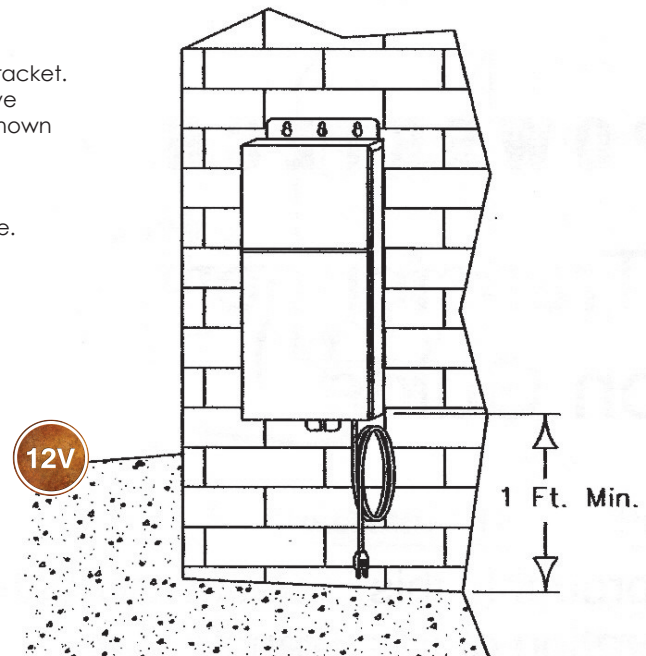


Figure 1

Installation Instructions: Low Voltage Transformers

- CONFIGURE THE SYSTEM:** This Multi-Tap transformer is equipped with secondary circuit breakers that are connected to the COM terminal block. The primary purpose of these circuit breakers is to protect the transformer and the output wiring from over-current or short-circuit conditions. It is very important to understand and follow these instructions in order to properly drive the lights and to prevent any possible overload conditions. The tables on the last page provide the combinations of voltage taps, wiring lengths, and lamp loads that should be used. For example, if a 300W transformer tap is to be 100% loaded using a 50-foot run of 10AWG wire, the 15V tap should be used with approximately 250W of lamps. If more than one wiring run is to be used, adjust the loading for each so that their total percentage adds up to 100% as shown in Figure 2.

NOTE: When using LED lamps as replacements for incandescent lamps, the effects of power factor (PF) may need to be accounted for. Incandescent lamps are purely resistive having a PF = 1.0 and therefore they do not require any correction factor. With LED lamps, some if not all will have a PF < 1 and therefore a correction factor will need to be applied. To determine the number of LED lamps that can be connected, first multiply the lamp load specified in the Wiring & Lamp Combinations table by the LED PF and then divide this value by the LED lamp wattage to determine how many LED lamps can be connected.

300W TRANSFORMER

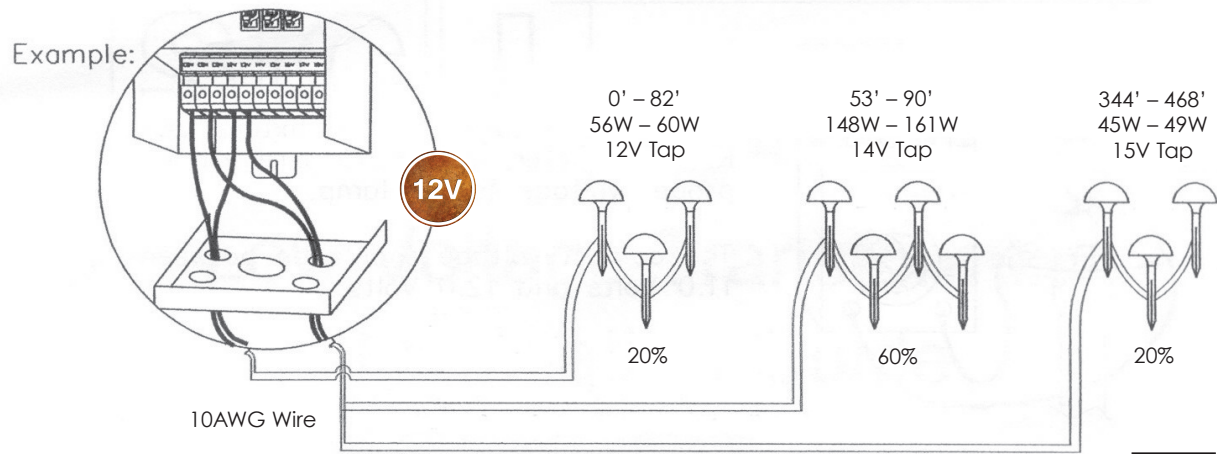


Figure 2

- Loosen the two screws that hold the unit cover in place and remove the cover. Run the low voltage lighting cables through the knockouts in the Bottom Plate as shown in Figure 3.

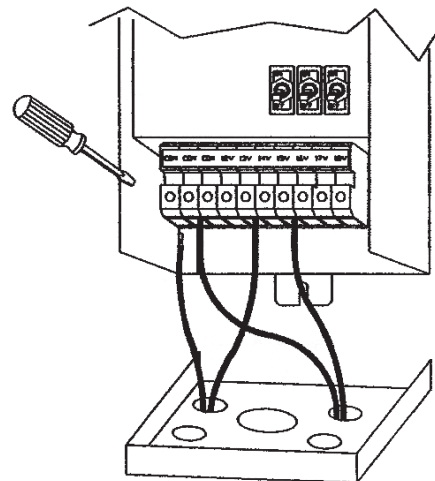


Figure 3



Installation Instructions: Low Voltage Transformers

4. **CONNECTING THE CABLES:** Connect each cable to a COM terminal and to one of the labeled low voltage Terminal Blocks as determined in Step 2. Make sure that all screw terminals are secure and tight.

Turn off ALL circuit breakers in the transformer unit. Plug the 120V line cord directly into a grounded, GFCI protected outlet; DO NOT USE AN EXTENSION CORD.

Turn on one breaker at a time until all lighting circuits are energized. Verify that there are no short circuits and that the transformer input current is within specification.

PHOTOCELL JUMPER (Example 900W)

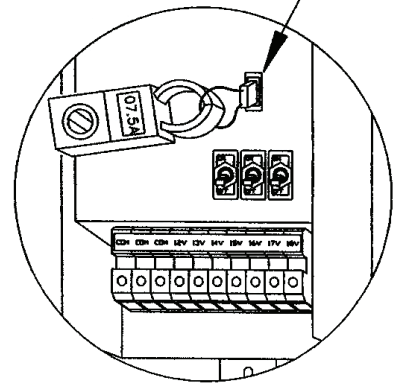


Figure 4

5. **CHECKING THE INPUT CURRENT:** The Transformer is equipped with a wire loop in the optional photocell plug that can be utilized to measure the input current using a clamp-on ammeter as show in Figure 4. For the best accuracy, this meter should be of the True RMS type. DO NOT EXCEED THE MAXIMUM INPUT CURRENT specified in Table 1. If the measured value exceeds the maximum specification, first shut down the transformer and then adjust the load by removing fixtures and/or reducing lamp wattages in the fixtures until the input current is brought within limits. The Transformer is marked with a label specifying the maximum input current.

Transformer Rating	75W	150W	200W	300W	400W	600W	900W	1200W
Max. Input Current	0.625A	1.25A	1.67A	2.5A	3.33A	5.0A	7.5A	10.0A

Table 1

6. **CHECKING OUTPUT CURRENT:** As done for the Input Current, measure the output current as shown in Figure 5. Verify that the Maximum Output Current is within the limits specified in Table 2 for 12V outputs.

For higher voltage taps, the Maximum Output Current = Transformer Rating divided by Output Tap Voltage.

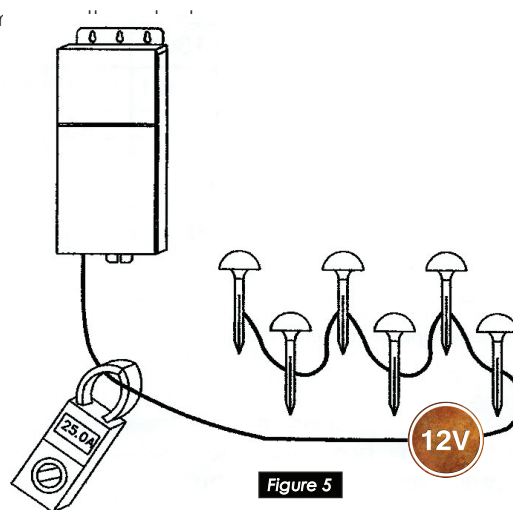


Figure 5



Installation Instructions: Low Voltage Transformers

7. **CHECKING THE LAMP VOLTAGE:** Verify that the voltage to the lamps is between 11.0 and 12.0 Volts as shown in Figure 6, noting that the most important aspect being not to exceed 12.0V. If necessary, adjust the wiring connection at the transformer upwards or downwards one voltage step.

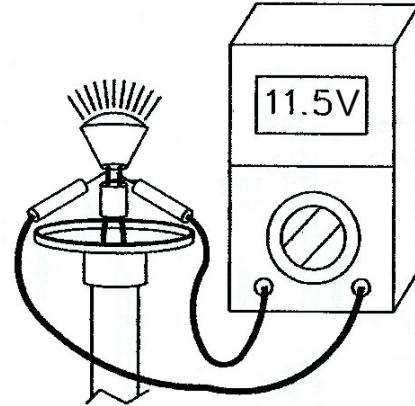


Figure 6

Transformer Rating	75W	150W	200W	300W	400W	600W	900W	1200W
Max. Output Current	6.25A	12.50	16.67A	25A	16.67A	25A	25A	25A

Table 2



Installation Instructions: Low Voltage Transformers

75W TRANSFORMER WIRING AND LAMP COMBINATIONS																
XFMR TAP Rating		Wire Length (ft) & Lamp Load (W) Combinations	Min/Max Wire Lengths/Load Combinations based on Tap Voltage & Transformer Loading Levels													
75			Tap 1 12V		Tap 2 13V		Tap 3 14V		Tap 4 15V		Tap 5 16V		Tap 6 17V		Tap 7 18V	
Regulation (%)	% Loaded		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
7.5	20	10AWG Wire Length	0	329	350	778	831	1292	1377	1871	1988	2515	2664	3224	3405	3997
		12AWG Wire Length	0	207	220	489	523	813	866	1177	1251	1582	1676	2028	2142	2514
		Lamp Load	14	15	13	14	12	13	11	12	10	11	10	11	9	10
7.5	40	10AWG Wire Length	0	129	134	345	365	592	628	871	922	1182	1248	1524	1605	1897
		12AWG Wire Length	0	81	85	217	230	373	395	548	580	743	785	958	1010	1193
		Lamp Load	28	30	26	28	24	26	23	25	21	23	20	22	19	21
7.5	60	10AWG Wire Length	0	64	63	202	211	360	379	539	568	738	777	958	1006	1198
		12AWG Wire Length	0	40	40	127	133	227	239	339	357	464	489	603	633	754
		Lamp Load	43	45	40	43	37	40	34	38	32	35	30	33	29	31
7.5	80	10AWG Wire Length	0	31	28	130	134	245	256	374	392	518	542	676	708	850
		12AWG Wire Length	0	20	18	82	85	154	161	235	246	326	341	425	446	535
		Lamp Load	58	60	54	59	50	54	47	51	44	48	41	45	39	42
7.5	100	10AWG Wire Length	0	12	8	88	89	176	182	275	286	386	403	508	530	642
		12AWG Wire Length	0	8	5	55	56	111	114	173	180	243	253	320	333	404
		Lamp Load	74	75	68	74	63	69	59	65	55	60	52	57	49	54

150W TRANSFORMER WIRING AND LAMP COMBINATIONS																
XFMR TAP Rating		Wire Length (ft) & Lamp Load (W) Combinations	Min/Max Wire Lengths/Load Combinations based on Tap Voltage & Transformer Loading Levels													
150			Tap 1 12V		Tap 2 13V		Tap 3 14V		Tap 4 15V		Tap 5 16V		Tap 6 17V		Tap 7 18V	
Regulation (%)	% Loaded		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
7.5	20	10AWG Wire Length	0	164	175	389	416	646	689	935	994	1257	1332	1612	1702	1999
		12AWG Wire Length	0	103	110	245	261	406	433	588	625	791	838	1014	1071	1257
		Lamp Load	28	30	26	28	24	26	22	24	21	23	20	21	19	20
7.5	40	10AWG Wire Length	0	65	67	173	183	296	314	436	461	591	624	762	803	948
		12AWG Wire Length	0	41	42	109	115	186	198	274	290	372	392	479	505	597
		Lamp Load	57	60	52	57	48	53	45	49	42	46	40	44	38	41
7.5	60	10AWG Wire Length	0	32	32	101	105	180	190	270	284	369	388	479	503	599
		12AWG Wire Length	0	20	20	63	66	113	119	170	179	232	244	301	317	377
		Lamp Load	86	90	79	87	74	81	69	75	65	70	61	66	57	63
7.5	80	10AWG Wire Length	0	16	14	65	67	122	128	187	196	259	271	338	354	425
		12AWG Wire Length	0	10	9	41	42	77	80	118	123	163	171	213	223	267
		Lamp Load	117	120	108	117	100	109	93	102	87	95	82	90	78	85
7.5	100	10AWG Wire Length	0	6	4	44	44	88	91	138	143	193	201	254	265	321
		12AWG Wire Length	0	4	2	28	28	55	57	87	90	121	127	160	167	202
		Lamp Load	148	150	136	149	127	138	118	129	111	121	104	114	99	108

200W TRANSFORMER WIRING AND LAMP COMBINATIONS																
XFMR TAP Rating		Wire Length (ft) & Lamp Load (W) Combinations	Min/Max Wire Lengths/Load Combinations based on Tap Voltage & Transformer Loading Levels													
200			Tap 1 12V		Tap 2 13V		Tap 3 14V		Tap 4 15V		Tap 5 16V		Tap 6 17V		Tap 7 18V	
Regulation (%)	% Loaded		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
7.5	20	10AWG Wire Length	0	123	131	292	312	484	517	702	746	943	999	1209	1277	1499
		12AWG Wire Length	0	78	83	184	196	305	325	441	469	593	628	760	803	943
		14AWG Wire Length	0	49	52	115	123	192	204	278	295	373	395	478	505	593
7.5	40	Lamp Load	37	40	34	37	32	35	30	32	28	30	26	29	25	27
		10AWG Wire Length	0	49	50	129	137	222	236	327	346	443	468	571	602	711
		12AWG Wire Length	0	31	32	81	86	140	148	206	218	279	294	359	379	447
7.5	60	14AWG Wire Length	0	19	20	51	54	88	93	129	137	175	185	226	238	281
		Lamp Load	75	80	70	76	65	71	60	66	57	62	53	58	50	55
		10AWG Wire Length	0	24	24	76	79	135	142	202	213	277	291	359	377	449
7.5	80	12AWG Wire Length	0	15	15	48	50	85	89	127	134	174	183	226	237	283
		14AWG Wire Length	0	9	9	30	31	53	56	80	84	110	115	142	149	178
		Lamp Load	115	120	106	116	98	107	92	100	86	94	81	88	77	83
7.5	100	10AWG Wire Length	0	12	11	49	50	92	96	140	147	194	203	254	266	319
		12AWG Wire Length	0	7	7	31	32	58	60	88	92	122	128	160	167	201
		14AWG Wire Length	0	5	4	19	20	36	38	55	58	77	80	100	105	126
7.5	100	Lamp Load	155	160	143	156	133	145	124	136	117	127	110	120	104	113
		10AWG Wire Length	0	5	3	33	33	66	68	103	107	145	151	191	199	241
		12AWG Wire Length	0	3	2	21	21	41	43	65	68	91	95	120	125	151
7.5	100	14AWG Wire Length	0	2	1	13	13	26	27	41	42	57	60	75	79	95
		Lamp Load	197	200	182	198	169	184	158	172	148	161	139	152	131	143

Notes:
1. These tables are provided a guideline to get a lighting system properly setup with minimum trial and error effort. However, it is very important to check everything and make any necessary adjustments to assure that the lamp voltages are between 11-12VAC and that no overload or over-current conditions exist.



Installation Instructions: Low Voltage Transformers

300W TRANSFORMER WIRING AND LAMP COMBINATIONS																
XFMR TAP Rating		Wire Length (ft) & Lamp Load (W) Combinations	Min/Max Wire Lengths/Load Combinations based on Tap Voltage & Transformer Loading Levels													
300			Tap 1 12V		Tap 2 13V		Tap 3 14V		Tap 4 15V		Tap 5 16V		Tap 6 17V		Tap 7 18V	
Regulation (%)	% Loaded		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
7.5	20	10AWG Wire Length	0	82	88	194	208	323	344	468	497	629	666	806	851	999
		12AWG Wire Length	0	52	55	122	131	203	217	294	313	395	419	507	535	629
		Lamp Load	56	60	51	56	48	52	45	49	42	46	39	43	37	41
	40	10AWG Wire Length	0	32	34	86	91	148	157	218	231	295	312	381	401	474
		12AWG Wire Length	0	20	21	54	57	93	99	137	145	186	196	240	252	298
		Lamp Load	113	120	104	114	97	106	91	99	85	93	80	87	75	82
	60	10AWG Wire Length	0	16	16	50	53	90	95	135	142	185	194	240	252	300
		12AWG Wire Length	0	10	10	32	33	57	60	85	89	116	122	151	158	188
		Lamp Load	172	180	159	173	148	161	138	150	129	141	122	133	115	125
	80	10AWG Wire Length	0	8	7	33	34	61	64	93	98	129	136	169	177	213
		12AWG Wire Length	0	5	4	21	21	38	40	59	62	81	85	106	111	134
		Lamp Load	233	240	215	235	200	218	186	203	175	191	164	179	155	169
100	10AWG Wire Length	0	3	2	22	22	44	45	69	72	96	101	127	133	160	
	12AWG Wire Length	0	2	1	14	14	28	29	43	45	61	63	80	83	101	
	Lamp Load	296	300	273	298	253	276	237	258	222	242	209	228	197	215	

400W TRANSFORMER WIRING AND LAMP COMBINATIONS																
XFMR TAP Rating		Wire Length (ft) & Lamp Load (W) Combinations	Min/Max Wire Lengths/Load Combinations based on Tap Voltage & Transformer Loading Levels													
400			Tap 1 12V		Tap 2 13V		Tap 3 14V		Tap 4 15V		Tap 5 16V		Tap 6 17V		Tap 7 18V	
Regulation (%)	% Loaded		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
7.5	20	10AWG Wire Length	0	62	66	146	156	242	258	351	373	472	500	604	638	749
		12AWG Wire Length	0	39	41	92	98	152	162	221	235	297	314	380	402	471
		14AWG Wire Length	0	24	26	58	62	96	102	139	147	187	198	239	253	296
	40	Lamp Load	74	80	69	75	64	70	59	65	56	61	52	57	50	54
		10AWG Wire Length	0	24	25	65	69	111	118	163	173	222	234	286	301	356
		12AWG Wire Length	0	15	16	41	43	70	74	103	109	139	147	180	189	224
	60	14AWG Wire Length	0	10	10	26	27	44	47	65	68	88	93	113	119	141
		Lamp Load	151	160	139	152	129	141	121	132	113	123	107	116	101	110
		10AWG Wire Length	0	12	12	38	40	68	71	101	106	138	146	180	189	225
	80	12AWG Wire Length	0	8	7	24	25	42	45	64	67	87	92	113	119	141
		14AWG Wire Length	0	5	5	15	16	27	28	40	42	55	58	71	75	89
		Lamp Load	230	240	212	231	197	215	184	200	172	188	162	177	153	167
100	10AWG Wire Length	0	6	5	24	25	46	48	70	73	97	102	127	133	159	
	12AWG Wire Length	0	4	3	15	16	29	30	44	46	61	64	80	84	100	
	14AWG Wire Length	0	2	2	10	10	18	19	28	29	38	40	50	53	63	
Lamp Load	311	320	287	313	266	290	249	271	233	254	219	239	207	226		
100	10AWG Wire Length	0	2	1	17	17	33	34	52	54	72	75	95	99	120	
	12AWG Wire Length	0	1	1	10	10	21	21	32	34	46	47	60	63	76	
	14AWG Wire Length	0	1	1	7	7	13	13	20	21	29	30	38	39	48	
Lamp Load	394	400	364	397	338	369	315	344	296	323	278	304	263	287		

