UNIQUE
LIGHTING SYSTEMS®

Installation & Product Information

Things to Know

Ohm's Law

Amps = Watts ÷ Volts
Watts = Volts x Amps

Critical Three

1. Amp Test Primary Amperage:

A. Use a true RMS Amp Clamp to measure 120 VAC amperage.

B. 120 VAC Amp table:
150W.....1.5 Amps
200W.....1.7 Amps
300W.....2.5 Amps
360W.....3.0 Amps
500W.....4.2 Amps
600W.....5.0 Amps
840W.....7.0 Amps
1120W.....9.3 Amps

2. Test Secondary Amperage:

A. Use a true RMS Amp Clamp to measure 12 VAC amperage.

B. NEC states not to exceed 80% of rated electrical rating.

C. Wire table:

Wire Size	Max. Amps	Max. VA @80%
14 AWG	16 Amp	192
12 AWG	20 Amp	240
10 AWG	24 Amp	288

3. Test Secondary Voltage at HUB:

A. Test and adjust voltage at the transformer until point of connection (POC) voltage is at 12 VAC +/- .5 VAC.

B. Get as close to 12v as possible by adjusting voltage tap in the transformer.

HUB Rules of Thumb

Intelli-HUB: Voltage up to 13v
Satellite HUB: Voltage no less than 11v

Voltage Drop

1. To calculate LED use VA in place of watts
2. 100 feet 12/2 wire, 35 VA = -1 volt
3. 100 feet 14/2 wire, 20 VA = -1 volt

Example:

What is the voltage drop for twelve 5W MR16 on 100' of 12/2 wire?

Steps:

1. 5W MR16 = 6.0 VA each
2. 6 VA x 12 qty = 72 VA
3. 72 ÷ 35 (total VA divided by 35). Each 35 VA is a one volt drop per 100' on 12/2 wire.
4. 72 ÷ 35 = 2.1 volts drop

Volt Amps

Calculate Volt Amps with this formula:

Lamp Watts _____ X 1.5 = _____ VA

Why do Volt Amps matter? Volt Amps are the blend of LED chips and driver draw. This value represents *true lamp watt draw.*

Lamp Type	Model	Watts	VA
T3	LED-2W-T327K-12	2.4	3.0
MR16	LED-3W-CM6FL27K	3	4.2
MR16	LED-E4W-CM6FL27K	4	5.3
MR16	LED-4W-CM6FL27K	4	6.7
MR16	LED-5W-CM6FL27K	5	6.0
MR16	LED-8W-CM6FL27K	8	8.9
MR16	VIVID CCT	5	6.4
MR16	VIVID RGB Gen 2	5	7.3
PAR36	VIVID RGB	10	14.3
PAR36	LED-5W-CPFL27K	5	6.7
PAR36	LED-7W-CPFL27K	7	10.9
PAR36	LED-13W-CPFL27K	13	20.8

Maximum Volt Amps For Wire

Tap	14 Gauge 12 amp max.	12 Gauge 16 amp max.	10 Gauge 24 amp max.
Max VA	144	182	288

Transformer Information

Transformer	VA Max.	Taps	Max. Amps
60 Watt DA-60-12WB-1	48	12v	.05
150 Watt 150SSSL-LED	150	12,13,14,15v	1.5
300 Watt 300SSSL-LED	240	12,13,14,15v	2.5
300 Watt 300IF-PRO	240	12,14,16,18 20, 22, 24v	2.5
600 Watt 600IF-PRO	480	12,14,16,18 20, 22, 24v	5.0

How Many FLEX GOLD™ Series LED's On A Run?

LED	14 Gauge 12 amp max.	12 Gauge 6 amp max.	10 Gauge 24 amp max.
2W T3	38	51	76
3W MR16	27	36	54
4W MR16E	21	28	43
4W MR16	17	22	34
5W MR16	19	25	38
5W MR16	19	25	38
8W MR16	12	17	32
5W MR16 VIVID CCT	18	23	36
5W MR16 VIVID RGB Gen. 2	15	20	31
10W PAR36 VIVID RGB	8	10	32
5W PAR36	21	22	34
7W PAR36	10	14	21
13W PAR36	7	7	13

How Far To Run A HUB On 12/2 Wire

Tap	35 VA	70 VA	105 VA	140 VA	175 VA
13V	100'	50'	33'	25'	20'
14V	200'	100'	66'	50'	40'
15V	300'	150'	99'	75'	60'
16V	400'	200'	132'	100'	80'
18V	600'	300'	198'	150'	120'
20V	800'	400'	264'	200'	160'
22V	1000'	500'	330'	250'	200'
24V	1200'	600'	398'	300'	240'

Halogen To Lumen Conversion

Halogen Wattage	Lumen Equivalent
10 Watt	80 - 150 Lumens
20 Watt	170 - 250 Lumens
35 Watt	270 - 400 Lumens
50 Watt	400 - 550 Lumens
75 Watt	More than 550 Lumens

FLEX GOLD™ Series LED Lumen

Lamp Type	Model	Lumens
T3 WR	LED-2W-T327K-12-WR	250
T3	LED-1W-T330K-12	100
T3	LED-2W-T327K-12	200
MR11	LED-2W-M1FL27K-12	110
MR16	LED-3W-CM6FL27K	200
MR16	LED-4W-CM6FL27K	270
MR16	LED-5W-CM6FL27K	380
MR16	VIVID CCT	0-380
MR16	LED-8W-CM6FL27K	590
PAR36	LED-5W-CPFL27K	300
PAR36	LED-7W-CPFL27K	450
PAR36	LED-13W-CPFL27K	800

Tips You Need To Know

1. Total VA for all LED on the project or for each section

A. Use transformer information table to size the transformer.
B. Total VA should be less than the maximum allowable VA.
C. Consider upsizing transformer to allow future expansion.

2. Total VA = 170

A. Looking at the transformer information table 170 puts in a minimum transformer size of 300 watts.

3. Calculate the voltage drop for the most critical runs. (longest and most load/VA)

A. The longest run (most distance).
B. The run with most VA.
C. Possible that the most critical run is both most VA and longest.
D. This will tell you which voltage tap is required to overcome voltage drop.

Example A: longest run is 200' and has 105VA. VD = 6. 12v + 6v = 18v tap. Transformers with an 18v tap are the 300 watt or 600 watt Pro-Force transformers.

Example B: Run with the largest load is 175VA at 200'. VD = 10v. 12v + 10v = 20v tap. Again look at the 300 watt or 600 watt Pro-Force.

*The longest run has the most voltage drop unless we split the load.

Key Transformers

1. 150SSSL-LED
2. 300SSSL-LED
3. 600IF-PRO

Timing & Control

1. SMRT Logic®: SMRT-T Internet Gateway & LPCU-A SMRT Relay
2. DT-2 - Astronomical Timer
3. T - Mechanical Timer
4. SNPC2 - Snap-in Photocell

Connections

1. SHUB - Satellite HUB (homerun and 5 fixtures)
2. INTELLIHUB - Intelli-HUB (large connections for multiple 12 gauge wires and fixtures)
3. Optional-Buchanan Crimp setup

Key Accessories

1. UNIBRACKET - Gutter mounted bracket
2. SHEREBASE - Round brass mounting base
3. PARTICLE - Elements™ Series mounting base
4. Risers - Brass or copper risers (varying hieghts)
5. HUBBLE - Plug-in adaptor for outdoor living spaces

Fixture Series & Key Product Offerings

Odyssey Series: High-quality, cast brass fixtures carry a lifetime limited warranty, standard 25' wire lead and optical designer lenses.

- Pulsar up light, Nova well light, Stellar up light, Big Bang up light, Starburst up light, and Centaurus area light.

Knights Series: Brass fixtures carry a 15-year limited warranty and standard 25' wire lead.

- Noble up light, Lancer area light, Bishop up light, Vanguard ledge light.

Fixture Series & Key Product Offerings (continued)

Elements Series: Contractor-grade brass and powder-coated alloy fixtures carry a 10-year limited warranty and dual 12" and 15' wire leads.

- Positron up light, Fission area light, Transmittance up light and ISO ledge light.

Design Services Program

The Unique Lighting Design Services program offers complimentary lighting design services for landscape architects and lighting contractors. Designs include fixture layout, product specifications, and wiring layout and configurations. Contact us at sdsp@uniquelighting.com to learn more and to get your design started.

Design Questions

How Do I Best Light A House?

1. Graze the face of the home. Fixture should be 4” - 8” off the face of the home directed straight up, parallel to the home.
2. Consider your lamps - for good results, use a 4 Watt MR16 for the 1st story and a 5 Watt MR16 for the 2nd story. For best results use a 5 Watt PAR6 for the 1st story and a 7 Watt PAR36 for the 2nd story.
3. Think about your fixture offerings -
   - Odyssey Series: Pulsar or Big Bang fixtures
   - Knights Series: Noble, Intrepid, or Bishop fixtures
   - Elements™ Series: Positron or Nucleus fixtures

How Do I Best Light A 12' Dogwood Tree In Front Of A House?

1. Side light with two fixtures or backlight with one, never front light in front of a house.
2. Consider your lamps -
   - Side light using two 4w MR16
   - Backlight using one 5w MR16 or one 5w PAR36
3. Think about your fixture offerings -
   - Odyssey Series: Pulsar or Big Bang fixtures
   - Knights Series: Noble, Intrepid, or Bishop fixtures
   - Elements™ Series: Positron or Nucleus fixtures

How Do I Best Light Second Level Dormers?

1. Light using gutter mounted fixtures.
2. Consider your lamps -
   - 2w T3 WR or 5w VIVID CCT
3. Think about your fixture offerings -
   - Odyssey Series: Stellar fixture with a UNIBRACKET mount
   - Knights Series: Noble fixture with a UNIBRACKET mount
   - Elements™ Series: Transmittance fixture with a UNIBRACKET mount

How Do I Best Light 10’-12’ Evergreens?

1. Light using CCT (5000K-6500K)
2. Consider your lamps -
   - 5w MR16 5000k

Always take into account your lamp color temperature and adjust to your surroundings.

3. Think about your fixture offerings -
   - Odyssey Series: Starburst fixture
   - Knights Series: Noble or Intrepid fixtures
   - Elements™ Series: Gamma Ray or Nucleus fixtures

How Do I Create A Good Moonlighting Effect?

1. Using a tree, mount fixtures 25' to 35' from the ground, which gives a soft and natural full moon appearance.
2. Consider your lamps -
   - 5w MR16 5000k LED
3. Think about your fixture offerings -
   - Odyssey Series: Lunar fixture
   - Knights Series: Conquest fixture
   - Elements™ Series: Nucleus fixture with a PARTICLE mount

Lighting Types & Techniques

UP LIGHT

Architectural and landscape elements become visually dramatic features when illuminated from below. Uplighting is the most common technique used to accent key focal points in the landscape and to create shadows on walls.

DOWN LIGHT

Downlighting is illuminating an object or surface from above. Downlighting can be used to highlight specific garden elements and functional areas. Also used for illuminating large spaces for safety, security or recreational purposes.

AREA LIGHT

Area lighting is used to enhance flower beds and also safely illuminate pathways. Area lights are often staggered and alternating from one side to another when used on a pathway.

LEDGE LIGHT

Hardscape lighting enhances the colors and shapes of the hardscape area being lit. Most commonly used areas are block walls, seating areas or barbeques.

HANGING LIGHT

In the garden, a hanging light can be used to create the shadowing patterns of a moonlit night. This type of lighting is a subtle and natural effect, often using cool bluish LED lamps to create the look of natural moonlight.

What Fixtures to Use

Odyssey Series: Big Bang, Pulsar, Nova, Apollo
Knights Series: Bishop, Oxford, Valor, Guardian
Elements Series: Nucleus, Gamma Ray

UP LIGHTING

Odyssey Series: Lunar, Quasar1, Comet
Knights Series: Conquest, Crusader
Elements Series: Nucleus, Photon
(Particle Base needed for Elements)

DOWN LIGHTING

Odyssey Series: Centaurus, Mercury, Saturn
Knights Series: Lancer, Illuminator, Cambridge
Elements Series: Proton, Neutron, Fission

AREA LIGHTING

Odyssey Series: Apollo Star, Nova
Knights Series: Noble, Windsor, Monarch
Elements Series: Nucleus, Gamma Ray, Photon

GRAZE LIGHTING

Odyssey Series: Islander, Vanguard, Voyager
Knights Series: Londoner, Sovereign
Elements Series: Iso, Ion

HARDSCAPE LIGHTING

Odyssey Series: Starburst, Stellar, Nova
Knights Series: Windsor, Monarch
Elements Series: Transmittance, Radiance

WALL WASHING

JOB NOTES

UNIQUE
LIGHTING SYSTEMS®

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