



LED
**Exterior
Illumination**

Focus Industries®
Plug & Play
LED Technology

GO GREEN 



LEDS by CREE 

Built for long term savings.

- Proprietary **LED** technology with all the features and benefits required in exterior lighting.
- No special installation or wiring required. In fact, to go **LED** with Focus it is as easy as replacing a light bulb.
- Durable driver circuitry provides consistent light output over a wide range of voltages for balanced warm white incandescent/halogen type light.
OMNI **LED** - 9v to 24v (Optimum 10-15 volts)
ARROW **LED** - 9v to 18v (Optimum 10-15 volts)
- Transformers that will allow for 4 to 5 times more fixtures using less power.

Energy efficient & Environmentally sound.

- Long-term cost savings built in. Focus **LED** technology uses on average 75% less energy than traditional incandescent/Halogen low voltage lighting.
- With average life of 35,000 hours and 50,000 hours respectively for the **OMNI** S.C. **LED** and **ARROW** MR16 **LED** there is no need for replacing and throwing away failed incandescent light bulbs.
- **LEDs** are mercury free.

Designed for exterior use.

- Focus **LEDs** were designed from the beginning for use in outdoor environments and in any climate.
- Warm White **LEDs** comparable to color temperature of Halogen for integration into any outdoor setting.
- Flood 35° (BAB) and Spot 12° (ESX) beam angles for precise lighting.
- Multiple wattages ranging from 1.5 watts to 6 watts match output of Halogen 10, 20 and 35 watt bulbs

**Area • Path • Well
Directional • Step
Underwater • Surface
Brick • Hanging**

You name the application and Focus has the **LED** technology for you to

GO LED NOW! 

Not just one or two fixtures. The entire line of Focus Area Lights and over 20 models of Focus Path Lights are **LED NOW.**

Using our 1.5 watt single contact bayonet base **OMNI LED**, any Focus area light is now an **LED** area light. Plug and Play technology also allows for retrofitting any single contact fixture in the field. The **OMNI's** weather proof proprietary design combined with minimum life rating of 35,000 hours will provide up to 15 years of maintenance free performance. The **OMNI LED's** energy efficiency allows for multiple area / path lights. Creating beautiful lighting effects on any surface.



Warm White 2700K color bathes flower beds, lawns and other landscape material in the traditional warm light we all know and love.



DIRECTIONAL LIGHTING



Unsurpassed performance, quality and energy efficiency available in all MR-16 12 volt and most 120 volt fixtures.

The **ARROW LED** is available in all Focus MR16 fixtures. Optimized to deliver the punch and color of a 20 watt Halogen but using only 4 watts, the **ARROW** is the answer to any directional lighting need - Up or Down.



Accenting architecture, statuary, specimen trees and sign lighting has never been easier or more energy efficient.



Unobtrusive in-grade **LED** lighting solutions able to reach the tallest tree tops and architecture with unmatched energy savings.

Uplighting with familiar 35° (BAB) or 12° (ESX) takes the guess work out of **LED** well lighting. All focus Well Lights are **LED NOW** with the **ARROW LED** installed.



Performance so close to Halogen it is impossible to tell the difference... until the energy bill arrives.



HARDSCAPE AND SPECIALTY SURFACE LIGHTING



Warm 2700K - 3000K color to accent the beauty of any outdoor living area using 75% less energy.

Your families gathering places and outdoor kitchens deserve to be illuminated with beautiful color that does not interfere with the setting.

Long life and low energy costs allow for multiple lighting applications for safety, security and beautification; All night long.



SL-16-MR16-LED-SS



SL-07-LED-BRS

Why sacrifice the traditional warm white color for artificial LED blue color when you can use Focus LED Plug and Play technology?



SL-08-LED-BRT



SL-18-LED-BLT



Take your waterscapes lighting into the 21st century.

The SL-33 underwater light, already a best seller and well trusted underwater fixture, is **LED NOW**. The **ARROW MR16** combined with the tried and true design of the SL-33 allows for multiple underwater lighting applications.



- Fountains
- Spillways
- Waterfalls
- Streams
- Statuary



Along with the **ARROW Plug and Play** system, you can use any Focus color or beam control lens to create beautiful & dramatic water effects.

FOCUS PLUG & PLAY

Not just a handful of fixtures.

Almost the entire line of Focus fixtures are



OMNI 1.5 WATT S.C. BAYONET
comparable to 10 WATT Halogen

OMNI 3 WATT S.C BAYONET (coming soon)
comparable to 20 WATT Halogen

- 1.5 watt S.C. single contact bayonet base (ba15s)
- Omni-Directional beam (360° horizontal, 275° vertical)
- High lumen output
- 2700K warm white
- Operates on 12v to 24v AC/DC systems
- Operating range of 6v to 24v (optimum 10v-15v)
- Superior performance in outdoor environments
- No glass or fragile parts
- Water resistant
- 35,000 hours average rated life
- Must be powered by magnetic transformer
- 4 year limited warranty
- DOE LM79 tested. LM80 compliant LEDs



12v.



Interchangeable
color diodes

ORDERING INFORMATION:

Catalog Number

Watts

ARROW LEDs 10 YEAR WARRANTY ON LED COMPONENTS

FL-LED-MR16-BAB

4w

FL-LED-MR16-ESX

4w

FL-LED-MR16-120-BAB

4w

FL-LED-MR16-120-ESX

4w

OMNI LEDs 4 YEAR WARRANTY

FL-LED-OMNI27K

1.5w

FL-LED-RPOMNI-RED

1.5w

FL-LED-RPOMNI-GRN

1.5w

FL-LED-RPOMNI-BLU

1.5w

FL-LED-RPOMNI-AMB

1.5w

FL-LED-RPOMNI-27K

1.5w

LED ADVANTAGES

LED NOW using **Plug & Play** technology.



LEDS by CREE

ARROW 4 WATT MR-16
comparable to 20 WATT Halogen
ARROW 6 WATT MR-16 (coming soon)
comparable to 35 WATT Halogen

- 4 watt GU5.3 bi-pin base
- High power LED light source
- 2 popular beam spreads:
 - 20w 35° MR16 FL(BAB) equivalent luminosity
 - 20w 12° MR16 SP(ESX) equivalent luminosity
- 2900K - 3000K Halogen like color
- High CRI ~ 85 (color rendering index)
- Operates on 12v AC/DC systems
- Operating range of 9v - 18v (optimum 10v-15v)
- 50,000 hours average rated life
- Cool beam
- Must be powered by magnetic transformer
- 10 year limited warranty on LED components
- DOE LM79 tested. LM80 compliant LEDs



12v.



120v.

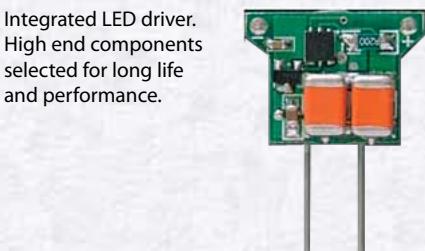
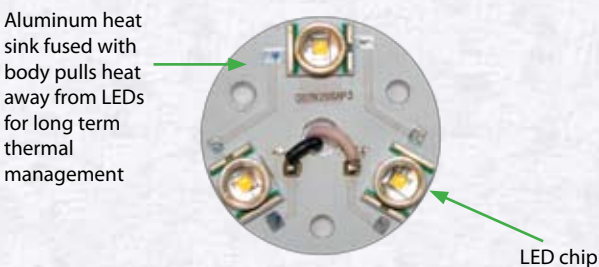
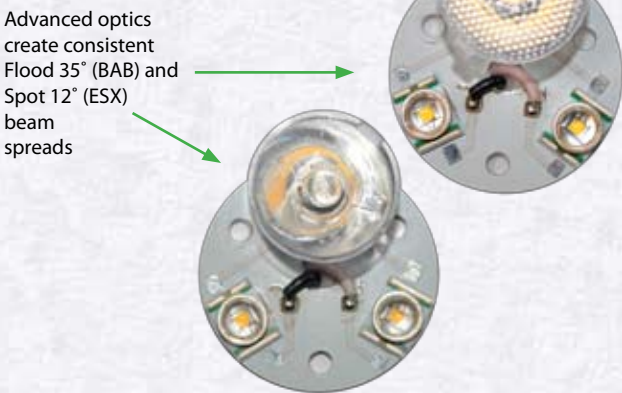
Description

Color

35° GU5.3 Bi-Pin 12v LED	2900K-3000K
12° GU5.3 Bi-Pin 12v LED	2900K-3000K
35° GU10 Bi-Pin 120v LED	2900K-3000K
12° GU10 Bi-Pin 120v LED	2900K-3000K
SC Base, OMNI LED, Warm White	2700K
OMNI Replacement Light Diode	Red
OMNI Replacement Light Diode	Green
OMNI Replacement Light Diode	Blue
OMNI Replacement Light Diode	Amber
OMNI Replacement Light Diode	Warm White 2700K

LED ANATOMY

- **Active Heat Dissipation**
- **Superior Optics**
- **Quality Driver Components**



LED CHIP SELECTION

NOT ALL LED CHIPS ARE CREATED EQUAL.

LED chips are sorted into bins after manufacturing. Low bins for the imperfect light output and reduced quality. High bins for the superior light output and highest quality.

Focus selects LED chips from only the highest quality, top level bins. In addition, Focus LED chips are selected from only 2 of the top bins while others select from as many as 16 different bins. Why only 2 bins? For color consistency of 2800K to 3000K, and best possible quality. Choosing LEDs from as many as 16 bins creates a wide color range, from 2700K up to 3200K and a wide spread in performance.

WARM WHITE LED BINS

	3100K	3000K	2900K	2800K	2700K
HIGH QUALITY	A2	A1 Focus	B1 Focus	B2	
	C2	C1	D1	D2	
	E2	E1	F1	F2	
LOW QUALITY	G2	G1	H1	H2	

Focus selects LED chips from only 2 bins (A1 & B1) while other low quality competitors select from all 16 Warm White bins.

How can you tell the difference? Just compare our light output and consistent color to any other LED on the market. Focus LEDs outperform them all because we start with only the best quality LED chips.

Above Grade IP55 LED aluminum transformers.
Upgradable with many options including Multi Volt, Photocells, Timers & Astronomical Timers.

WT-12-60	12.5V, 60 Watt LED
WT-12-60-MV	Multi Volt 12.5/13.5/14.5, 60 Watt
WT-12-120	12.5V, 120 Watt LED
WT-12-120-MV	Multi Volt 12.5/13.5/14.5, 120 Watt
WT-12-180	12.5V, 180 Watt LED
WT-12-180-MV	Multi Volt 12.5/13.5/14.5, 180 Watt

Note: All WT & DB models are magnetic transformers.

WT-12-120 Transformer, 120 Watt Output 40 Total Fixtures on 4 runs of 250 Feet Total Wattage: 112.5

Zone #1

Run #1: 250 feet 14/2 wire
5 Omni Area Lights
5 Arrow Directional Lights

Zone #2

Run #2: 500 feet 14/2 wire
5 Arrow Directional Lights +
5 Arrow Well Lights



Zone #3

Run #3: 250 feet 14/2 wire
4 Arrow Well Lights +
6 Omni Path & Area Lights

Zone #4

Run #4: 500 feet 14/2 wire
3 Arrow Directional Lights
2 Arrow Well Lights +
5 Omni Path & Area Lights

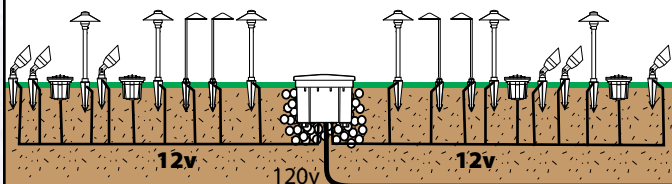


Direct Burial IP67 Composite LED transformers.
NEMA 12 Enclosures with 1/2" and 3/4" hubs for
Line Voltage input.

DB-12-LED8	12V DC, 8 Watt LED Driver
DB-12-25	12.5V, 25 Watt LED
DB-12-60	12.5V, 60 Watt LED
DB-12-60-MV	Multi Volt 12.5/13.5/14.5, 60 Watt
DB-12-120	12.5V, 120 Watt LED
DB-12-120-MV	Multi Volt 12.5/13.5/14.5, 120 Watt
DB-12-180	12.5V, 180 Watt LED
DB-12-180-MV	Multi Volt 12.5/13.5/14.5, 180 Watt

DB-12-60 Direct Burial Transformer, 60 Watt Output

20 Total Fixtures: 10 on 500 foot run, 10 on 250 foot run
Total Wattage: 55



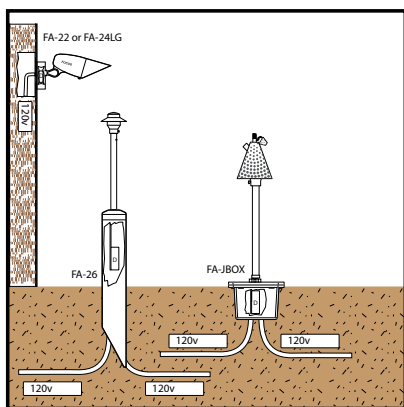
Run #1: 250 feet 14/2 wire
 3 Arrow Directional Lights +
 2 Arrow Well Lights +
 5 Omni Path & Area Lights

Run #2: 500 feet 12/2 wire
 3 Arrow Directional Lights +
 2 Arrow Well Lights +
 5 Omni Path & Area Lights



Hard Wire LED Driver

Use to supply proper voltage to 1 or 2 LED fixtures where
a low voltage transformer is not accessible.




- HW-12-LED8** 12V DC, Hard Wire 8 Watt LED Driver
- Input 120v -230v
 - Installs in FA-24-LG Canopies
 - Installs in FA-26 Mounting Pedestal
 - Installs in FA-JBOX

LED ENERGY SAVINGS

Lifetime Cost: LED vs Standard Light Bulb

Save 80% on energy and 50% on total lifetime cost with Focus LED systems

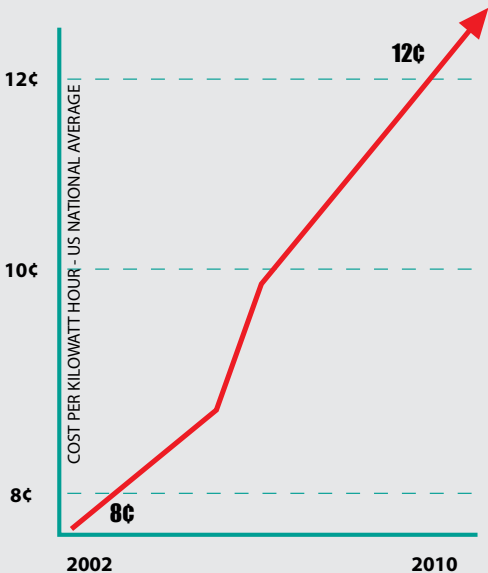
Plus additional savings on installation time/charges

SYSTEM COMPONENTS	STANDARD LANDSCAPE SYSTEM	FOCUS LED SYSTEM 
FIXTURES	\$1,000.00	\$2,000.00
TRANSFORMERS & CABLE	\$1,375.00	\$750.00
REPLACEMENT BULBS & SERVICE CHARGES	\$2,000.00	\$0.00
ELECTRICITY	\$2,880.00	\$576.00 80% Energy Savings!
TOTAL	\$7,255.00	\$3326.00 54% Total Savings!

System costs based on average landscape of 2,000 square foot home illuminated with 600 watts of incandescent/halogen lighting. Electricity costs based on 40,000 hours at \$0.12 per kilowatt hour (national average). **The sooner you convert to LED, the sooner you will realize increased savings.**

COST OF ELECTRICITY

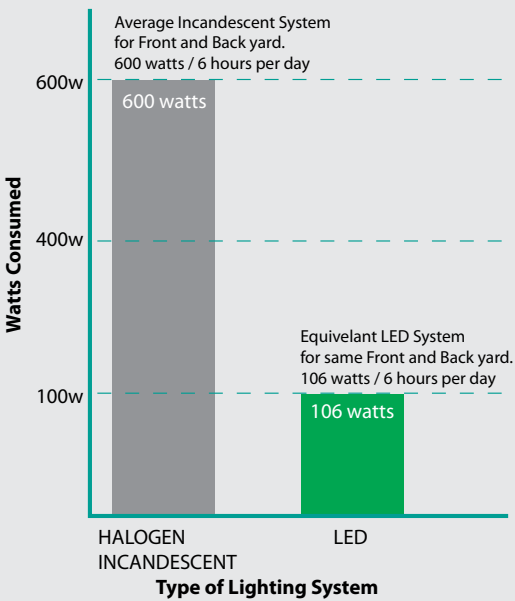
THE AVERAGE COST OF ELECTRICITY ROSE 33% BETWEEN 2002 AND 2010 AND CONTINUES TO RISE



PERFORMANCE COMPARISONS

ENERGY USE

FOCUS LED SYSTEM CONSUMES ABOUT 80% LESS ELECTRICITY THAN INCANDESCENT HALOGEN SYSTEM WITH SIMILAR LIGHT OUTPUT



22+ YEARS OF HIGH LUMEN OUTPUT

Focus ARROW MR16 LED is rated for 50,000 hours L7
(L7 is the time, in hours, for LEDs to reach 70% of the initial lumen output)

All LED's depreciate in lumen output over time.

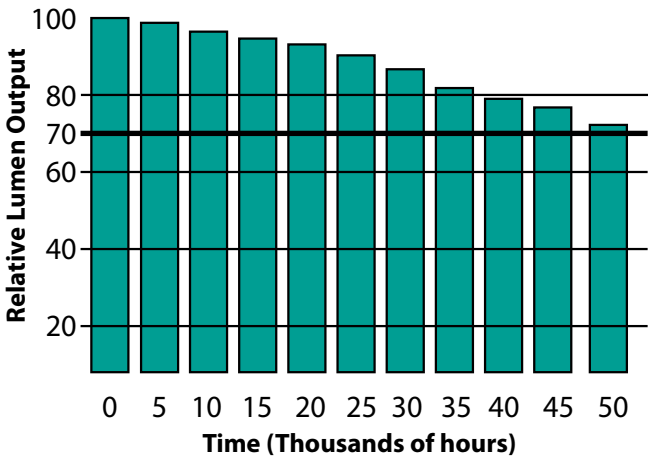
Focus ARROW LED's minimize this degradation by using only the highest grade LED chips and superior thermal management.

4.5% degradation after 2.3 years (5,000 hours of usage)

6.0% degradation after 4.6 years (10,000 hours of usage)

9.0% degradation after 11.5 years (25,000 hours of usage)

Less than 30% degradation after 22.8 years (50,000 hours of usage)



Degradation calculations based on 6 hour per night usage under normal operating conditions

LED INSTALLATION MATRIX

LED Lighting Installation made easy

Focus LEDs are rated with the total wattage consumed (LEDs plus Driver) so there is no need for complicated mathematics to figure the transformer load requirement. As with incandescent/Halogen lighting systems, calculate the total wattage to find the transformer load requirement.

Number of LED fixtures	x	Wattage	=	Transformer Size
8 ARROW LED fixtures	x	4w	=	32 watts
12 OMNI LED fixtures	x	1.5w	=	18 watts
Total			=	50 watts Load Requires a 60 watt transformer

Got Distance?

Up to 1000 feet on a single run

Optimum operation of Focus LEDs is between 10 and 15 volts; therefore, voltage dropping to around 10 volts on a low voltage system is no problem. The graphs below illustrate the number of ARROW MR16 LED and OMNI S.C. LED that can be added to runs up to 1000 feet. Minimum voltage at the last lamp of each run below will be at or above 10 Volts for best performance.

Feet Of Cable Run							
60w MV Transformer			100	250	500	750	1000
12/2 CABLE	12.5 TAP	Arrow	14	14	14	7	5
		Omni	37	37	37	25	17
	13.5 TAP	Arrow	14	14	14	10	8
		Omni	37	37	37	28	19
	14.5 TAP	Arrow	14	14	14	11	9
		Omni	37	37	37	30	23
Number of ARROW or OMNI LED's							

Feet Of Cable Run							
60w MV Transformer			100	250	500	750	1000
14/2 CABLE	12.5 TAP	Arrow	14	8	6	4	3
		Omni	25	18	12	10	9
	13.5 TAP	Arrow	14	10	8	6	5
		Omni	30	20	16	13	11
	14.5 TAP	Arrow	14	14	10*	7	6
		Omni	37	30	22	17	15
Number of ARROW or OMNI LED's							

Note: 3 ARROW LEDs consume same wattage as 8 OMNI LEDs. To mix ARROW and OMNI on the same run simply calculate the change based on the 3 to 8 ratio.

* Example: Using 14.5v tap with 14/2 cable on 500 foot run will allow for 10 ARROW LEDs. Removing 3 ARROW LEDs will allow you to add 8 OMNI LEDs giving you a total of 7 ARROW and 8 OMNI on a single 500 foot run.

POWER DISTRIBUTION

Simplicity of Installation



New Installation:

- **No Voltage Meters Required**

Focus LEDs are engineered for optimum performance between 10 volts and 15 volts. This eliminates the need to check each fixture to verify if voltage is too low or too high.

- **Select transformer based on distance**

Under 250' use Single Volt. Over 250' use Multi Volt Transformer.

- **Select a voltage tap**

With the freedom to tap from 12 to 15 volts you can't go wrong. No time consuming calculations required.

- **Total System Reliability**

As long as voltage is at or above 10 volts at the last fixture in a run all lights will operate at consistent light levels.

Existing Installation:

- **Can I use LED's on an existing system?**

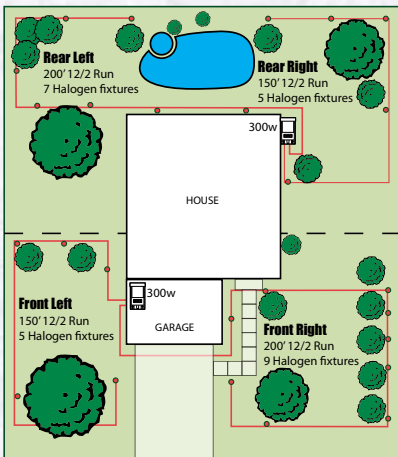
Absolutely! Just make sure to tap from 12-15 volts. For higher voltage transformer taps please consult factory

Typical Halogen Power Distribution

26 Halogen fixtures (20w)

600 watts of power (2 x 300w MV Transformers)

12/2 gauge wire to compensate for voltage drop



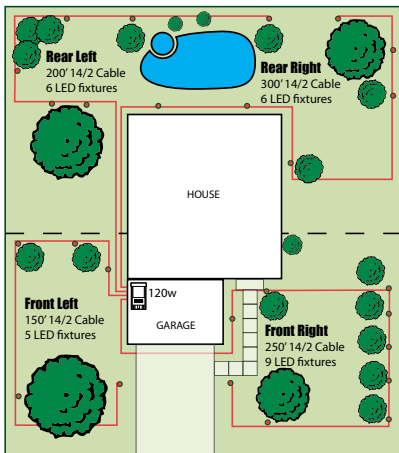
Focus LED Power Distribution

26 LED fixtures

120 watts of power (single 120w MV Transformer)

Thinner and less expensive 14/2 gauge wire

Ability to add up to 20 more LED fixtures



FOCUS ARROW LED vs Halogen
And the winner is..... FOCUS LED!

Can you spot the palms illuminated by ARROW LEDs in this photograph?



Two palms are illuminated by Focus ARROW LEDs. The other palm trees by Halogen.



The Focus ARROW LED (designated by ♥) delivers warm 2900K - 3000K color that is virtually indistinguishable from traditional Halogen light sources.

INDOOR APPLICATIONS

Businesses all over the country are switching to FOCUS LEDs for indoor applications too. They cost less to operate, require less maintenance and help the environment. All while being virtually indistinguishable from traditional Halogen lighting systems.



The left side features two 4w FOCUS ARROW MR16 (BAB) LEDs. The right side is using three 20w Halogen MR16 (BAB). Virtually identical color output but with **energy usage of 8 watts instead of 60 watts!**



One 4w FOCUS ARROW MR16 LED (right ) replaced traditional 20w Halogen (left) for table lighting

**WHOLE
FOODS**
MARKET

Converted entire grocery store track lighting from 20 watt Halogen to 4 watt ARROW MR16 LEDs





GO GREEN 



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- 2** ARIZONA: Ph. (602) 258-1557 • Fax (602) 258-1558
- 3** NORTH CAROLINA: Ph. (704) 642-0280 • Fax (704) 642-0804
- 4** PENNSYLVANIA: Ph. (215) 677-6870 • Toll Free (800) 468-0801 • Fax (215) 677-1261



Made in the U.S.A.

