# Cooper Lighting
by **E·T·N**

# Area and Site Lighting Redefined

## A New Benchmark in Performance and Features

The Galleon LED luminaire delivers a new level of performance and versatility for commercial area, site and roadway applications. Incorporating industry-leading, patented optics, the Galleon LED luminaire offers a choice of 16 specialized optical distributions that deliver superior control and maximize light levels. With a choice of 30 lumen packages, the Galleon LED luminaire allows scalability from 3,000 to over 53,000 delivered lumens. The 4000K/70 CRI is standard, with 6000K/70 CRI and 3000K/70 CRI options available.

## Long Life with Low Maintenance Costs

In addition to delivering superior performance, the Galleon LED Luminaire is designed for low maintenance, long life and low cost of ownership. These are key benefits that provide compelling justification to retrofit traditional HID solutions, or allow end users to capitalize on these advantages in new construction applications. The Galleon LED luminaire can be tailored to meet your most important needs without compromising on specification features. The LED components and fixture housing are IP66 rated, which provides years of reliable operation with minimal service requirements.

## Engineered for Reliability

At Eaton's Cooper Lighting business we believe credibility is the key to our success. We are committed to providing LED solutions that meet the highest standards of reliability and performance. Our deep-rooted understanding of outdoor product markets and application needs have been resulted through decades of supplying quality products, service and support.

# Galleon LED Design Excellence

## Stepping Up to the Challenge

The Galleon LED luminaire delivers exceptional performance in a highly scalable, low-profile design. The patented, high-efficiency AccuLED Optics™ system provides uniform and energy-conscious illumination to walkways, parking lots, roadways, building areas and security lighting applications. With HID equivalents ranging from 100W up to 1000W, the Galleon LED luminaire is designed to meet the toughest lighting challenges.

## Construction

- Extruded aluminum driver enclosure
- Heavy-wall die-cast aluminum end caps
- 3G vibration rated
- IP66-rated housing and LED Light Squares
- Optional tool-less entry

## Electrical

- Operates in -40°C to 40°C ambient with optional high ambient 50°C ambient configuration
- Proprietary circuit module designed to withstand 10kV of transient line surge
- >L90 60,000 hours at 40°C, compliant with IESNA TM-21
- 120V-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation

## Controls

- Standard with 0-10V dimming driver(s)
- Optional occupancy sensor
- Optional wireless control and monitoring system

## Finish

- Five-stage, super durable TGIC paint resists extreme weather conditions while providing optimal color and gloss retention. It's available in standard grey or optional bronze, black, dark platinum, graphite metallic or white.

Grey     Bronze     Black

Dark Platinum     Graphite Metallic     White
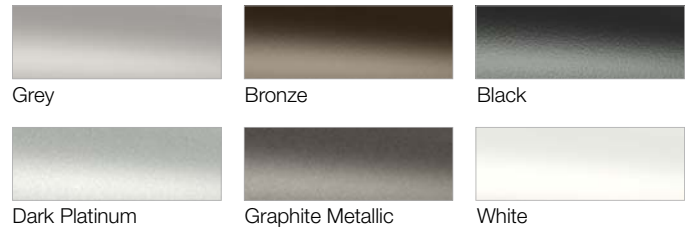
## Warranty

- Five-year warranty

### Surge Protection

A 10kV common surge (line-to-ground) and differential surge (line-to-line) mode protection is standard.

### NEMA Twistlock Photocontrol Receptacle

An optional gasketed receptacle allows for mounting the standard NEMA photocontrol (order separately).

### Light Square Trim Plate Finish

An optional finish to match LED trim plates to the housings exterior allows luminaire to blend seamlessly in any site lighting application.

**. . . Die-cast Aluminum Heat Sinks**

**Scalable Lumen Packages
from 3,000 to 53,000 Lumens . . .**

**IP66-Rated Housing
and LED Light Squares. . .**

## Mounting Options

### Occupancy Sensor
The optional motion sensor reduces
energy use for site lighting applications.

### Mast Arm Adapter
An optional cast aluminum mast arm
adapter secures fixture head to nominal
2" (2-3/8" O.D. pipe size) horizontal steel
tenon arm.

### Wall Mount Bracket
An optional wall-mount plate is secured to
wall by four lag bolts (supplied by others).

# Scalable Illumination with LED Light Squares

## Energy Savings and Environmental Stewardship

The simplest and most effective way to reduce a lighting fixture's impact on the environment is to minimize its energy consumption. By incorporating Light Squares from Eaton's Cooper Lighting business, the Galleon LED luminaire provides energy savings up to 75 percent compared to standard HID solutions.

## Long Life

With a 60,000+ hour rated life (at greater than 90 percent lumen maintenance), the Galleon LED Luminaire operates six times longer than traditional metal halide fixtures.
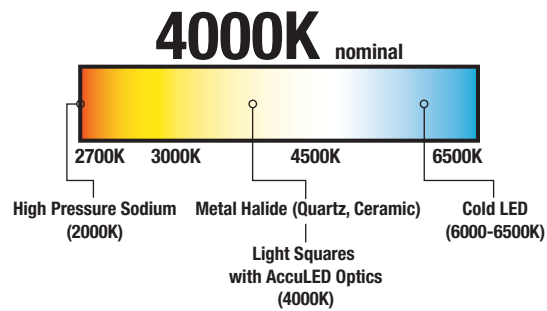
## Low Maintenance

With simple quick disconnects, the Light Squares are easily removed in the field for replacement or for the rotation of the optics.

**Lumen Maintenance**
**>90%**

**Hours of Operation**
**60,000**
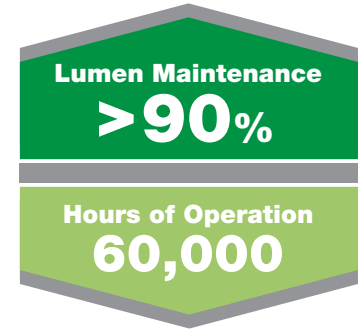
**NOTE:** Compliant with IESNA TM-21

## Warm White Color

Lighting designers, architects and specifying engineers have long preferred light sources that provide a balanced spectral power distribution and warm white light. Many LED solutions standardize on a cold blue 6000-6500K correlated color temperature (CCT) to maximize lumen output. The Galleon LED luminaire provides warm white light at a standard 4000K CCT with no sacrifice in lumen output.

**4000K** nominal

| 2700K | 3000K | 4500K | 6500K |

**High Pressure Sodium (2000K)**

**Metal Halide (Quartz, Ceramic)**

**Light Squares with AccuLED Optics (4000K)**

**Cold LED (6000-6500K)**



## Superior Efficiency and Control

With efficiencies as high as 95 percent, the patented AccuLED Optics™ system is up to 30 percent more efficient than traditional HID optical systems. Available in 16 optional distributions, this system provides the flexibility and performance required for outdoor applications.



## House Side Shield

For stringent light trespass requirements and the ultimate level of backlight control, a house side shield accessory is available for factory or field installation. Designed to seamlessly integrate with the SL2, SL3, SL4 and AFL distributions, the house side shield virtually eliminates backlight and also enhances visual comfort.
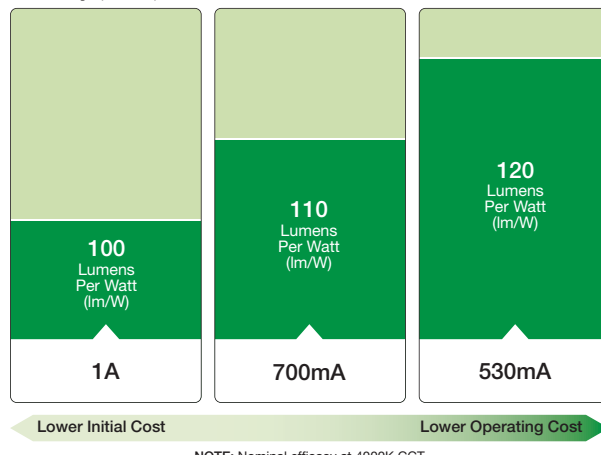
# Optical Performance Redefined

## Performance and Scalability

The Galleon LED luminaire is designed around superior optical performance and scalability. With a choice of 30 lumen packages and 16 optical distributions, the optimal configuration can be used to maximize light levels while minimizing operating costs.

**Power Consumption** (Watts)

| Number of Light Squares | Drive Current | | |
|---|---|---|---|
| | 530mA | 700mA | 1A |
| 1 | 30 | 38 | 56 |
| 2 | 54 | 72 | 107 |
| 3 | 80 | 105 | 157 |
| 4 | 105 | 138 | 213 |
| 5 | 130 | 176 | 264 |
| 6 | 159 | 210 | 315 |
| 7 | 184 | 243 | 370 |
| 8 | 209 | 276 | 421 |
| 9 | 234 | 314 | 475 |
| 10 | 259 | 348 | 528 |

**Efficacy** (lm/W)

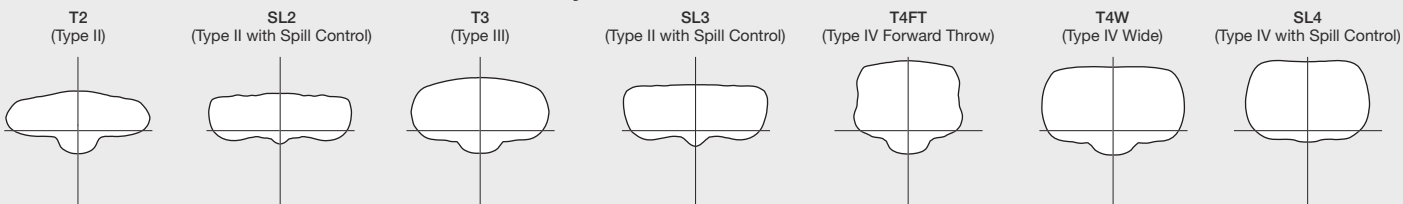| 1A | 700mA | 530mA |
|---|---|---|
| 100 Lumens Per Watt (lm/W) | 110 Lumens Per Watt (lm/W) | 120 Lumens Per Watt (lm/W) |

Lower Initial Cost ← → Lower Operating Cost
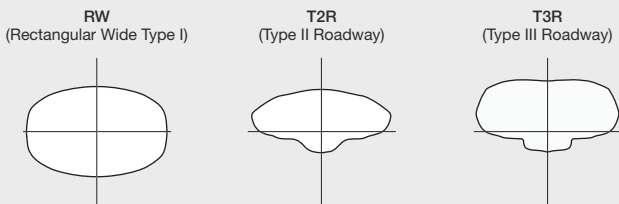
**NOTE:** Nominal efficacy at 4000K CCT

## Optical Distributions

The Galleon luminaire has a choice of seven asymmetric area, three asymmetric roadway, three symmetric and three specialized distributions.
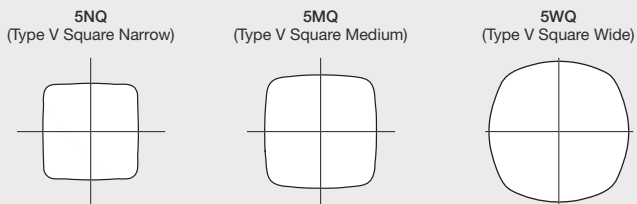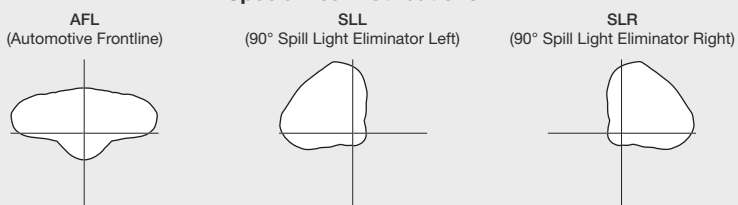
**Asymmetric Area Distributions**

| T2 (Type II) | SL2 (Type II with Spill Control) | T3 (Type III) | SL3 (Type II with Spill Control) | T4FT (Type IV Forward Throw) | T4W (Type IV Wide) | SL4 (Type IV with Spill Control) |
|---|---|---|---|---|---|---|

**Asymmetric Roadway Distributions**

| RW (Rectangular Wide Type I) | T2R (Type II Roadway) | T3R (Type III Roadway) |
|---|---|---|

**Symmertric Distributions**

| 5NQ (Type V Square Narrow) | 5MQ (Type V Square Medium) | 5WQ (Type V Square Wide) |
|---|---|---|

**Specialized Distributions**

| AFL (Automotive Frontline) | SLL (90° Spill Light Eliminator Left) | SLR (90° Spill Light Eliminator Right) |
|---|---|---|

# Occupancy Sensing

## Accelerate Payback on your Investment

To further enhance energy savings, the Galleon luminaire offers an optional occupancy sensor that is integral to each individual luminaire. When the area surrounding the luminaire is unoccupied, the sensor has the ability to reduce light levels and power consumption. In addition to financial benefits, all the control options for the Galleon luminaire are designed to be simple and cost-effective ASHRAE and Title 24 compliant solutions.
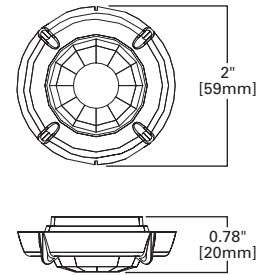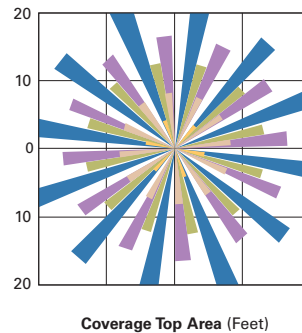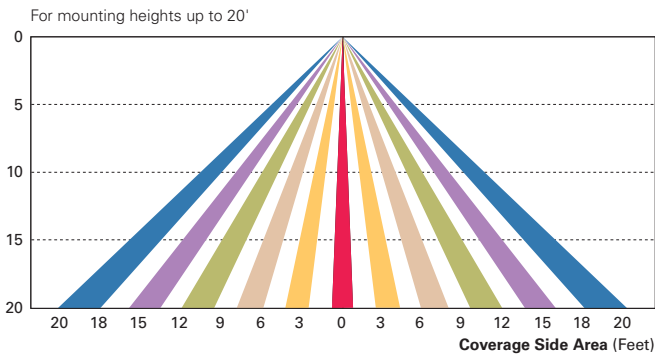
## Dimming Occupancy Sensor (DOS)

When the DOS option is selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when there is no activity detected. When activity is detected, the luminaire returns to full light output. The sensor is factory preset to dim down to approximately 50 percent lumen output with a time delay of five minutes. To change these settings, a FSIR-100 accessory can be purchased. The FSIR-100 is a wireless configuration tool that allows the dimming level, time delay, sensitivity and other parameters to be changed. Consult a representative from Eaton's Cooper Lighting business for additional details.
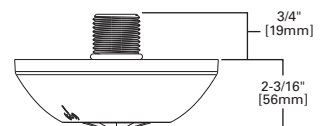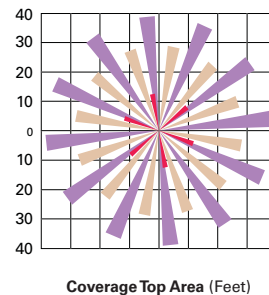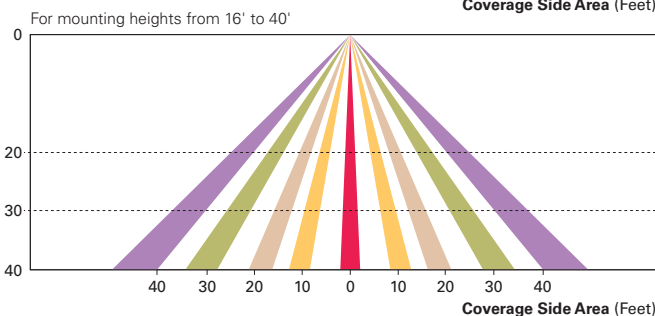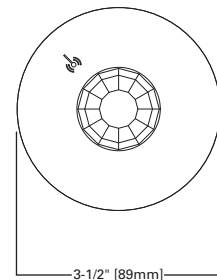
## LumaWatt Wireless Control and Monitoring System (DIMRF-LW and DIMRF-LN)

The LumaWatt system is best described as a peer-to-peer wireless network of luminaire-integral sensors that operate in accordance with programmable profiles. The end user can create and manage sensor profiles with browser-based management software and broadcast to the sensors as necessary via wireless gateways. Each sensor is capable of motion and photo sensing, metering power consumption and wireless communication. For additional details, refer to www.cooperlighting.com.

### Dimming Occupancy Sensor (DOS)

For mounting heights up to 20'

**Coverage Side Area** (Feet)

**Coverage Top Area** (Feet)

2" [59mm]

0.78" [20mm]

### LumaWatt (DIMRF-LW and DIMRF-LN)

For mounting heights from 8' to 16'

**Coverage Side Area** (Feet)

**Coverage Top Area** (Feet)

For mounting heights from 16' to 40'

**Coverage Side Area** (Feet)

**Coverage Top Area** (Feet)

3-1/2" [89mm]

3/4" [19mm]

2-3/16" [56mm]
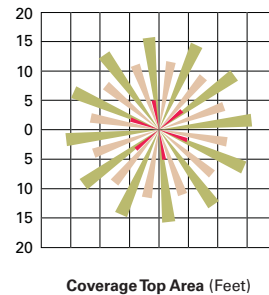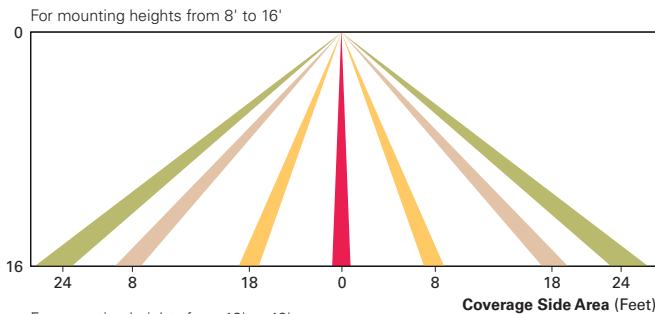
# Scheduled Dimming and Occupancy Detection



For outdoor parking area applications, lighting should be dimmed or turned off within one hour of business closing. Scheduled dimming and occupancy 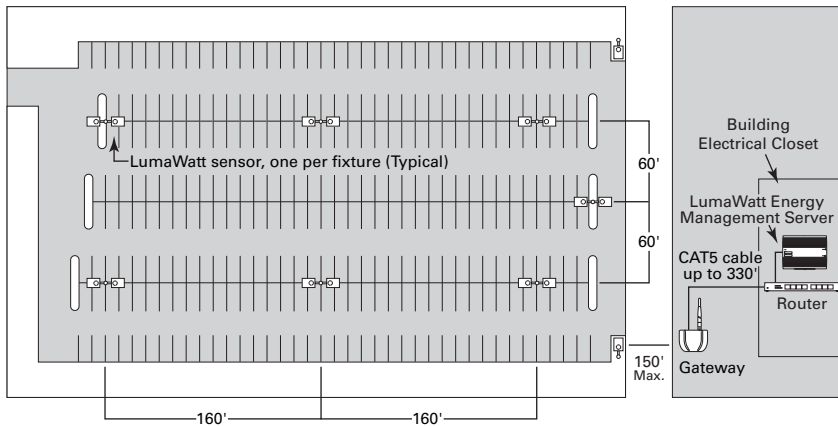detection can be combined to reduce maximum lighting levels outside business hours. Egress and security lighting is available on occupancy detection.

## Sides of Drive Fixture Location
Fixture Spacing = 160' x 120' on center
20 fixtures per 60' wide drive lane; 40 fixtures total for 420' x 120' parking deck



### IESNA Lighting Handbook 10th Edition
### Illuminance Values for Area and Site Applications

**Parking Lot Design Guide**

| Illuminance | Minimum Horizontal Illuminance [1] | Uniformity Ratio Max. / Min. | Minimum Vertical Illuminance [2] |
|---|---|---|---|
| | lux/fc | | |
| Basic | 2.0 / 0.2 | 20:1 | 1.0 / 0.1 |
| Basic Enhanced Security | 5.0 / 0.5 | 15:1 | 2.5 / 0.25 |
| Security | 10.0 / 1.0 | 15:1 | 5.8-8.0 / 0.5-0.5 |
| High Security | 30.0-60.0 / 3.0-6.0 | 4:1 | 12-60 / 1.2-6.0 |

**NOTES:**

1 Measured on parking surface without shadowing from any object

2 For facial recognition measured at 5' above the parking surface at the point of lowest horizontal illuminance



## Energy Savings Calculations

| Configuration | Daily Hours of Operation | Control Event | Annual Load (KWh) |
|---|---|---|---|
| **14 Sensor Integrated Luminaires 35' on Mounting Height, Centered at 120' x 160'** | | | |
| **Bill-of-Material (BOM)** | | | |
| (1) RF-EM1, (1) RF-ROUT1, (1) RF-GW1 (14) GAN-AE10-LED-E1-T2-BZ-DIMRF-LN (515W) | 11 | 100% On | 28,948 |
| **Control Schedule** | | | |
| 7:30 PM-11:30 AM | 4 | 100% On | 10,526 |
| 11:30 PM-6:30 AM | 7 | 40% On, On Occupancy 70% | 7,268 |
| **Total Controlled Load** | 11 | 2 Events | 17,895 |
| **Energy Saving** | | | 38% |
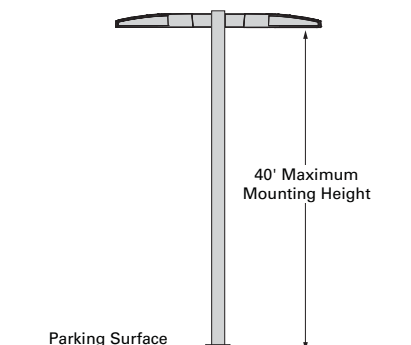
# Configuration Flexibility

## A New Level of Scalable Solutions

The Galleon LED luminaire is available in one to 10 Light Squares. As the number of Light Squares increases, the luminaire width increases proportionally.

**1 - 4 Light Squares**

**5 - 6 Light Squares**
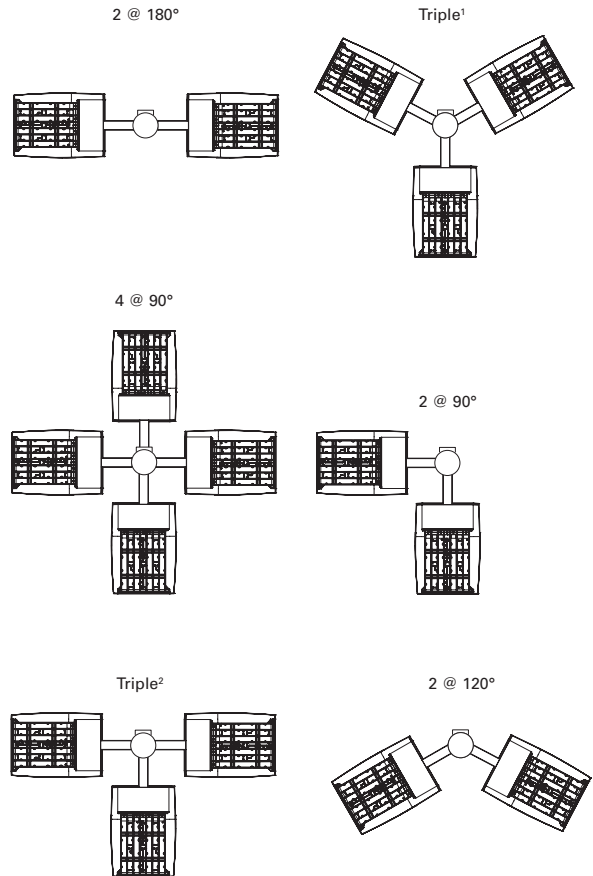
**7 - 8 Light Squares**

**9 - 10 Light Squares**

## Pole Mounting Configurations

The standard Galleon LED luminaire configuration is designed to mount to a round or square pole. When mounting two or more fixtures at 90° or 120° apart, a longer Extended Arm (EA) may be required. Please reference the table below to determine when the Extended Arm is required and designate "EA" in the catalog logic.

**Arm Mounting Requirements**

| Configuration | 90° Apart | 120° Apart |
|---|---|---|
| GAN-AE-01 | 7" Arm (Standard) | 7" Arm (Standard) |
| GAN-AE-02 | 7" Arm (Standard) | 7" Arm (Standard) |
| GAN-AE-03 | 7" Arm (Standard) | 7" Arm (Standard) |
| GAN-AE-04 | 7" Arm (Standard) | 7" Arm (Standard) |
| GAN-AE-05 | 10" Extended Arm (Required) | 7" Arm (Standard) |
| GAN-AE-06 | 10" Extended Arm (Required) | 7" Arm (Standard) |
| GAN-AE-07 | 13" Extended Arm (Required) | 13" Extended Arm (Required) |
| GAN-AE-08 | 13" Extended Arm (Required) | 13" Extended Arm (Required) |
| GAN-AE-09 | 16" Extended Arm (Required) | 16" Extended Arm (Required) |
| GAN-AE-10 | 16" Extended Arm (Required) | 16" Extended Arm (Required) |

2 @ 180°

Triple[1]

4 @ 90°

2 @ 90°

Triple[2]

2 @ 120°

**NOTES: 1.** Round poles are 3 @ 120°. Square poles are 3 @ 90°. **2.** Round poles are 3 @ 90°.

# Ordering Information

**Sample Number:** GAN-AE-04-LED-U-T3A-AP

| Product Family | Light Engine | Number of Light Squares [1] | Lamp Type | Voltage | Distribution | | Color | Mounting |
|---|---|---|---|---|---|---|---|---|
| **GAN**=Galleon | **AE**=1A Drive Current | **01**=1<br>**02**=2<br>**03**=3<br>**04**=4<br>**05**=5<br>**06**=6<br>**07**=7<br>**08**=8<br>**09**=9<br>**10**=10 | **LED**=Solid State Light Emitting Diodes | **U**=Universal (120-277V)<br>**9**=347V [2]<br>**8**=480V [2] | **T2**=Type II<br>**T2R**=Type II Roadway<br>**T3**=Type III<br>**T3R**=Type III Roadway<br>**T4FT**=Type IV Forward Throw<br>**T4W**=Type IV Wide<br>**5NQ**=Type V Square Narrow<br>**5MQ**=Type V Square Medium<br>**5WQ**=Type V Square Wide | **SL2**=Type II w/Spill Control<br>**SL3**=Type III w/Spill Control<br>**SL4**=Type IV w/Spill Control<br>**SLL**=90° Spill Light Eliminator Left<br>**SLR**=90° Spill Light Eliminator Right<br>**RW**=Rectangular Wide Type I<br>**AFL**=Automotive Frontline | **AP**=Grey<br>**BZ**=Bronze<br>**BK**=Black<br>**DP**=Dark Platinum<br>**GM**=Graphite Metallic<br>**WH**=White | **[BLANK]**=Arm for Round or Square Pole<br>**EA**=Extended Arm [3]<br>**MA**=Mast Arm Adapter [4]<br>**WM**=Wall Mount |

### Options (Add as Suffix)

**2L**=Two Circuits [5, 6]
**7030**=70 CRI 3000K [7]
**7060**=70 CRI 6000K [7]
**530**=Drive Current Factory Set to 530mA [8]
**700**=Drive Current Factory Set to 700mA [8]
**3**=Three-Position Terminal Block
**P**=Button Type Photocontrol (120, 208, 240 or 277V)
**4**=NEMA Twistlock Photocontrol Receptacle

**HA**=50°C High Ambient [6]
**MS/DIM-L08**=Motion Sensor for Dimming Operation, Maximum 8' Mounting Height [9, 10, 11, 12]
**MS/DIM-L20**=Motion Sensor for Dimming Operation, 9' - 20' Mounting Height [9, 10, 11, 12]
**MS/DIM-L40**=Motion Sensor for Dimming Operation, 21'- 40' Mounting Height [9, 10, 11, 12]
**MS/X-L08**=Bi-Level Motion Sensor, Maximum 8' Mounting Height [11, 12, 13, 14]
**MS/X-L20**=Bi-Level Motion Sensor, 9' - 20' Mounting Height [11, 12, 14]
**MS/X-L40**=Bi-Level Motion Sensor, 21' - 40' Mounting Height [11, 12, 14]
**DIMRF-LW**=LumaWatt Wireless Sensor, Wide Lens for 8' - 16' Mounting Height [13]
**DIMRF-LN**=LumaWatt Wireless Sensor, Narrow Lens for 16' - 40' Mounting Height [13]

**L90**=Optics Rotated 90° Left
**R90**=Optics Rotated 90° Right
**MT**=Factory Installed Mesh Top
**TH**=Tool-less Door Hardware
**LCF**=Light Square Trim Plate Painted to Match Housing
**HSS**=Factory Installed House Side Shield [15]

### Accessories (Order Separately)

**OA/RA1016**=NEMA Photocontrol Multi-Tap - 105-285V
**OA/RA1027**=NEMA Photocontrol - 480V
**OA/RA1201**=NEMA Photocontrol - 347V
**OA/RA1013**=Photocontrol Shorting Cap
**OA/RA1014**=120V Photocontrol
**SA1252**=10kV Surge Module Replacement
**SA1036-XX**=Single Tenon Adapter for 2-3/8" O.D. Tenon
**SA1037-XX**=2 @ 180° Tenon Adapter for 2-3/8" O.D. Tenon
**SA1197-XX**=3 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon

**SA1197-XX**=3 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon
**SA1188-XX**=4 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon
**SA1189-XX**=2 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon
**SA1190-XX**=3 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon
**SA1191-XX**=2 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon
**SA1038-XX**=Single Tenon Adapter for 3-1/2" O.D. Tenon
**SA1039-XX**=2 @ 180° Tenon Adapter for 3-1/2" O.D. Tenon
**SA1192-XX**=3 @ 120° Tenon Adapter for 3-1/2" O.D. Tenon
**SA1193-XX**=4 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon

**SA1194-XX**=2 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon
**SA1195-XX**=3 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon
**FSIR-100**=Wireless Configuration Tool for Occupancy Sensor [16]
**GAN-MT1**=Field Installed Mesh Top for 1-4 Light Squares
**GAN-MT2**=Field Installed Mesh Top for 5-6 Light Squares
**GAN-MT3**=Field Installed Mesh Top for 7-8 Light Squares
**GAN-MT4**=Field Installed Mesh Top for 9-10 Light Squares
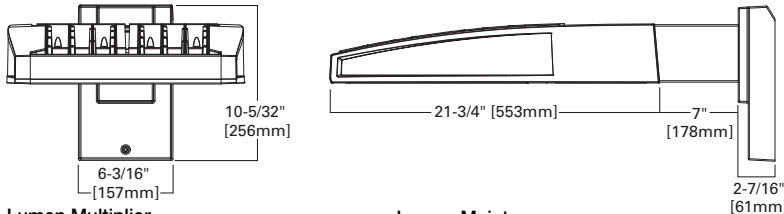**LS/HSS**=Field Installed House Side Shield [15, 17]

**NOTES: 1** Standard 4000K CCT and minimum 70 CRI. **2** LumaWatt Wireless Sensors not currently available for 347V or 480V applications. **3** May be required when two or more luminaires are oriented on a 90° or 120° drilling pattern. Refer to arm mounting requirement table. **4** Factory installed. **5** Only available in 5-10 Light Squares. **6** Not available with LumaWatt wireless sensors. **7** Use dedicated IES files for 3000K and 6000K when performing layouts. These files are published on the Galleon luminaire product page on the website. **8** 1 Amp standard. Use dedicated IES files when performing layouts. These files are published on the Galleon luminaire product page on the website. **9** Must specify dimming driver. Consult factory for more information. **10** 120V or 277V 60Hz and 230V 50Hz only. Replace E1 with specific voltage. Consult factory for availability in 347V and 480V. **11** The FSIR-100 accessory is required to adjust parameters. **12** Not available with HA option. **13** LumaWatt wireless sensors are factory installed only requiring network components RF-EM1, RF-GW1 and RF-ROUT1 in appropriate quantities. See www.cooperlighting.com for LumaWatt application information. **14** Sensor mounted externally. Available in 2, 3, 4 or 6 Light Square configurations. Replace "X" with number of Light Squares in low output mode. For ON/OFF operation, replace "X" with "0". Maximum two Light Squares in low output mode. Not available with dimming driver. No terminal block with bi-level operation. **15** Only for use with SL2, SL3, SL4 and AFL distributions. The Light Square trim plate is painted black when the HSS option is selected. **16** This tool enables adjustment of parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your Eaton's Cooper Lighting business representative for additional details. **17** One required for each Light Square.

## Dimensions

### Pole Mount



3-15/16" [100mm]

"A"

21-3/4" [553mm] — "B"

### Wall Mount



10-5/32" [256mm]

6-3/16" [157mm]

21-3/4" [553mm] — 7" [178mm]

2-7/16" [61mm]

## Dimensional Data

| Number of Light Squares | "A" Width | "B" Standard Arm Length | "B" Optional Arm Length [1] |
|---|---|---|---|
| 1-4 | 15-1/2" (394mm) | 7" (178mm) | 10" (254mm) |
| 5-6 | 21-5/8" (549mm) | 7" (178mm) | 10" (254mm) |
| 7-8 | 27-5/8" (702mm) | 7" (178mm) | 13" (330mm) |
| 9-10 | 33-3/4" (857mm) | 7" (178mm) | 16" (406mm) |

**NOTES: 1** Optional arm length to be used when mounting two fixtures at 90° on a single pole.
**2** EPA calculated with optional arm length.

### Drilling Pattern

**TYPE "N"**



3/4" [19mm] Diameter Hole
2" [51mm]
7/8" [22mm]
1-3/4" [44mm]
(2) 9/16" [14mm] Diameter Holes

## Lumen Multiplier

| Ambient Temperature | Lumen Multiplier |
|---|---|
| 0°C | 1.02 |
| 10°C | 1.01 |
| 25°C | 1.00 |
| 40°C | 0.99 |
| 50°C | 0.97 |

## Lumen Maintenance

| Ambient Temperature | TM-21 Lumen Maintenance (60,000 Hours) | Theoretical L70 (Hours) |
|---|---|---|
| 25°C | > 94% | > 350,000 |
| 40°C | > 93% | > 250,000 |
| 50°C | > 90% | > 170,000 |
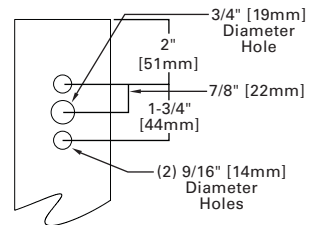
## Additional Information

| Compliances | Technical Data (Electronic LED Driver) | Approximate Weight | EPA (Effective Projected Area - Square Feet) |
|---|---|---|---|
| UL and cUL Wet Location Listed<br>IP66 Light Squares<br>3G Vibration Rated<br>ARRA Compliant<br>ISO 9001 | +40°C (104°F) Ambient Temperature Rating<br>-40°C (-40°F) Ambient Temperature Rating<br>Optional 50°F (HA) Ambient Temperature Rating<br>>0.9 Power Factor<br><20% Total Harmonic Distortion<br>120V-277V/50 and 60 Hz<br>347V/60 Hz, 480V/60 Hz | 1-4 Light Squares 33 lbs. (15.0 kgs.)<br>5-6 Light Squares 44 lbs. (20.0 kgs.)<br>7-8 Light Squares 54 lbs. (24.5 kgs.)<br>9-10 Light Squares 63 lbs. (28.6 kgs.) | 1-4 Light Squares 0.96<br>5-6 Light Squares 1.00<br>7-8 Light Squares 1.07<br>9-10 Light Squares 1.12 |

**NOTE:** Specifications and dimensions subject to change without notice.

c UL us LISTED    RoHS Compliant    IP66 Rated

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