

# Pure in Form and Function, Defining Performance

PureForm Specification Grade LED Luminaires



**PHILIPS**



# PureForm ... Purely Gardco

Over 50 years ago, Gardco Lighting changed the lighting industry with the introduction of the world's first cutoff outdoor luminaire. Utilizing faceted optics and intelligent construction features, the Form Ten product line set the standard for what an outdoor luminaire should be. Today many of these Gardco innovations have become industry standards.

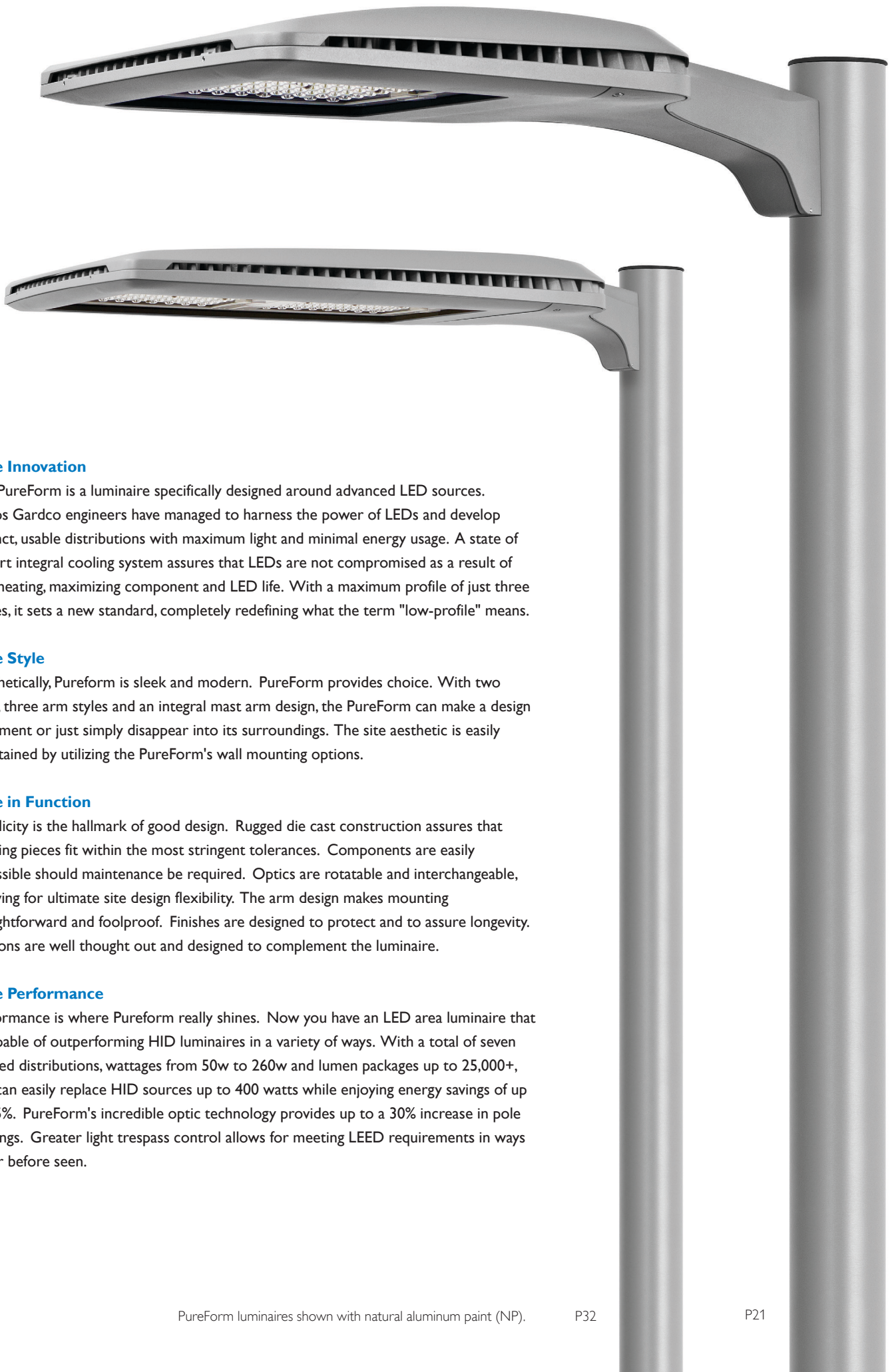
The driving factors that were once so important to the lighting specifier - performance, aesthetics, ease of maintenance and construction integrity - are no longer at the forefront. In today's environment, sustainability and saving energy are leading factors in selecting a luminaire.

There are numerous LED fixtures vying for attention, all offering the requisite energy savings over traditional HID sources. But in the rush to jump on the LED bandwagon, the original needs of the lighting community are being left behind.

The PureForm from Philips Gardco changes all that. PureForm defines LED area lighting, setting the standard for specification grade.







### Pure Innovation

The PureForm is a luminaire specifically designed around advanced LED sources. Philips Gardco engineers have managed to harness the power of LEDs and develop distinct, usable distributions with maximum light and minimal energy usage. A state of the art integral cooling system assures that LEDs are not compromised as a result of overheating, maximizing component and LED life. With a maximum profile of just three inches, it sets a new standard, completely redefining what the term "low-profile" means.

### Pure Style

Aesthetically, Pureform is sleek and modern. PureForm provides choice. With two sizes, three arm styles and an integral mast arm design, the PureForm can make a design statement or just simply disappear into its surroundings. The site aesthetic is easily maintained by utilizing the PureForm's wall mounting options.

### Pure in Function

Simplicity is the hallmark of good design. Rugged die cast construction assures that housing pieces fit within the most stringent tolerances. Components are easily accessible should maintenance be required. Optics are rotatable and interchangeable, allowing for ultimate site design flexibility. The arm design makes mounting straightforward and foolproof. Finishes are designed to protect and to assure longevity. Options are well thought out and designed to complement the luminaire.

### Pure Performance

Performance is where Pureform really shines. Now you have an LED area luminaire that is capable of outperforming HID luminaires in a variety of ways. With a total of seven defined distributions, wattages from 50w to 260w and lumen packages up to 25,000+, you can easily replace HID sources up to 400 watts while enjoying energy savings of up to 65%. PureForm's incredible optic technology provides up to a 30% increase in pole spacings. Greater light trespass control allows for meeting LEED requirements in ways never before seen.



## The power of choice

With a profile a mere 3" deep, these sleek luminaires establish a new benchmark in outdoor illumination. Visually, PureForm exhibits a streamlined simplicity that naturally enhances any architectural motif. Scale and proportion are pleasing from every perspective. The shapes are stylish and elegant with seamless transitions and concealed hardware.

The refined integration of the mounting arm permits a consistent transition from the luminaire to the pole. The attractive result is that the luminaire and arm become one continuous form. The style and design serve a functional purpose as well by reducing wind load requirements and strengthening the overall assembly.

The arm itself is available in four unique styles, each giving the PureForm a unique look. Each arm seamlessly integrates with both the small and large luminaire housings, essentially creating eight distinct luminaires, each offering it's own perspective on the future of site lighting.

Philips Gardco TGIC powdercoat finishes offer many choices. Four standard colors and over 210 optional colors provide the designer with a broad palette to either showcase the luminaire and its refined beauty, or minimize its effect on the space.





Single PureForm P21 luminaire with the mast arm shown with natural aluminum paint (NAP).



Single PureForm P21 luminaire with the A3 decorative arm shown with bronze paint (BRP).



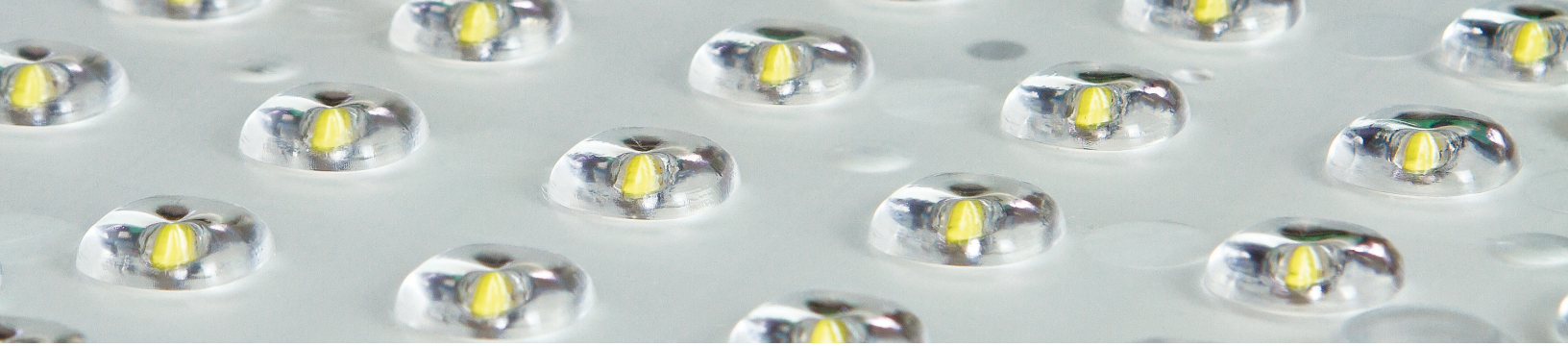
Single PureForm P21 luminaire with the A1 standard length arm shown with black paint (BLP).



Single PureForm P21 luminaire with the A2 short arm shown with white paint (WVP).



Single PureForm P21 luminaire with the A2 short arm and wall mount bracket (W) shown with white paint (WVP).



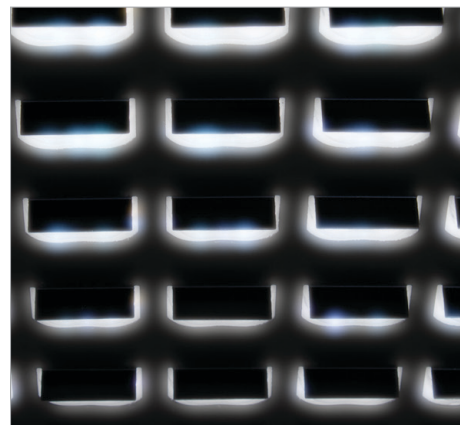
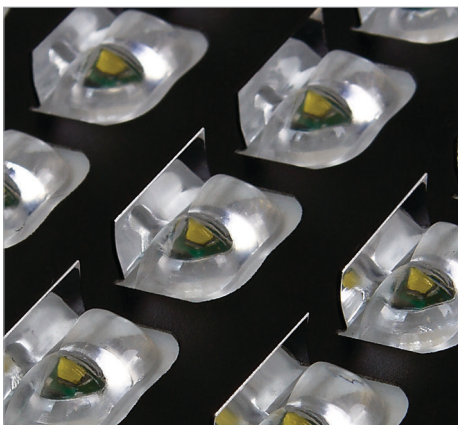
## Advanced LED source maximizes performance

PureForm offers an advanced LED array system that redefines site illumination. Enhanced visibility, greater efficiency and tighter control reduces the number of luminaires necessary to light an area to the desired levels. This results in considerable savings and decreased environmental impact in both the short and long term. Utilizing energy efficient advanced LED technology provides for increased light output and an extended lifespan when compared with traditional HID sources, while drawing a much smaller amount of power.

While LEDs are beginning to become commonplace in outdoor lighting, it is important to note that not all LED systems are created equal. Drawing from its long tradition of providing efficient, high performance optics, Philips Gardco engineers work tirelessly to capture the light output from each individual LED and direct it to where it's needed most. Each LED is encased in its own unique optic and placed within the array to provide precise patterns not previously seen before. Not only are these patterns designed to correspond to the most typical area lighting scenarios, but edge lighting is tightly controlled as well. This allows for lighting layouts that can easily achieve stringent LEED outdoor lighting requirements.

Of course, like all Philips Gardco performance optics, these systems deliver uniform illumination free from hot spots and striations. Glare is significantly reduced. Luminaires provide full cutoff, night sky friendly performance – even with wide pole spacings.

Philips Gardco's Applications Engineering Department stands ready to assist with site lighting analysis and development.



### Innovative Optic Design

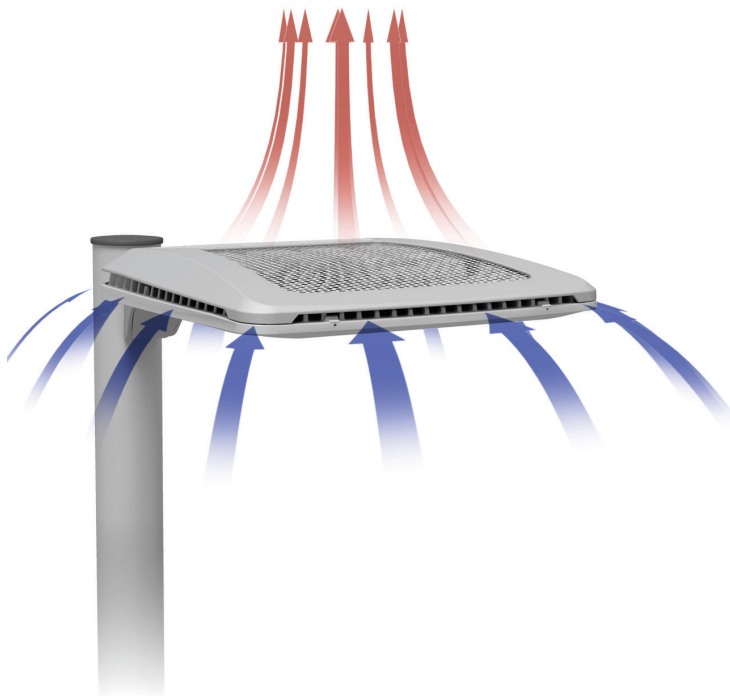
Types 2, 3, 4, BLC and LCR/LCL optical systems utilize an innovative redirecting reflector system to complement the performance of the LED optic. These individual shields help to limit unwanted spill light and lessen direct back light from the LED, while the black surrounding surface curbs reflected light. Many complaints concerning light trespass are really more about luminaire glare. A beneficial by-product of this system is a sharp reduction in the perceived aperture brightness of the luminaire when viewed from behind.



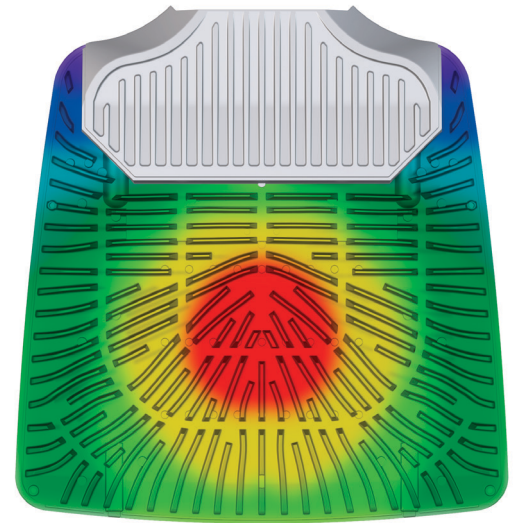
# The thing to do is to supply light, not heat

Controlling light is only part of the challenge when operating an advanced LED system. The thermal management of high power LEDs is particularly critical. LEDs produce an extraordinary amount of heat. If this heat is not sufficiently removed, the LEDs will operate at greater temperatures, forcing them to be drastically less efficient, significantly less reliable and ultimately reducing both their lifespan and the life of their components.

In order to provide optimal operating conditions, the engineers at Philips Gardco developed an innovative airflow ventilation system for the PureForm luminaire. As a result, PureForm provides a sophisticated solution to the inherent challenges of LED thermal management.



The key outcome of PureForm's innovative design is that the LED junction temperature is held to an absolute minimum. Thoroughly tested and meticulously fine-tuned to maximize flow and to minimize hot spots, the unique design provides the longest possible LED and component life.



PureForm incorporates die cast radiating fins within the housing itself, efficiently conducting heat away from the LED components. These fins are arranged in a unique pattern designed to maximize airflow and to increase the overall thermal efficiency of the luminaire.

Cooling air enters the luminaire by means of unique and distinctive side and front ports. Substantial airflow is directed over and through the aluminum fins, ultimately venting up through the aluminum top mesh and exhausting heat harmlessly out of the housing.



Heatsink fins are cast into the top of the luminaire, above the driver compartment. These work by convecting heat away from the driver assembly, helping to assure long component life.

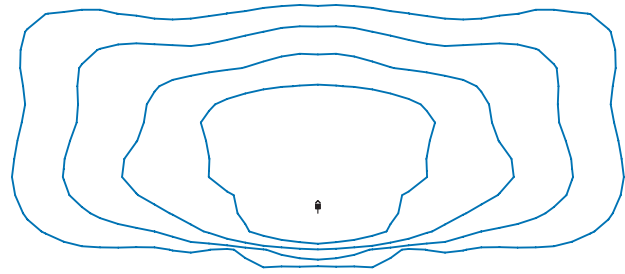
# Pure performance

Performance defines the PureForm luminaire. PureForm features the widest selection of distinct optical systems ever offered by Philips Gardco. These unique systems provide remarkable flexibility in precisely matching light distribution patterns to specific site geometry and mounting requirements. Because each lens array is fully interchangeable within the PureForm product line, a uniform site aesthetic can be achieved regardless of luminaire size or mounting height.

In addition to the typical IES types II, III and IV, PureForm offers two enhanced Type V optics. The Type 5 Wide (5W) is a straightforward choice for maximizing pole spacing within interior parking areas. The Type 5 Medium (5M) provides exceptional confinement of light within a targeted area, with impressive cutoff at the edges. This optic now makes it possible to meet LEED light trespass requirements from interior pole locations.

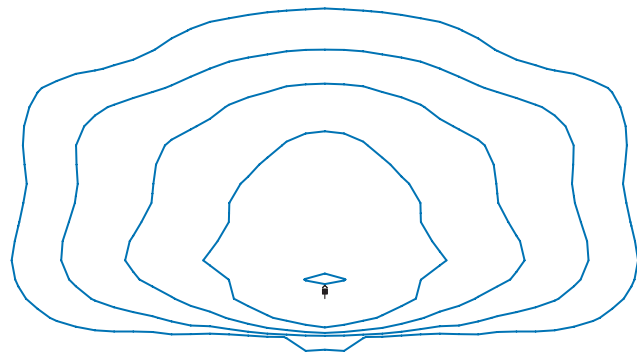
The BLC optic provides powerful backlight control for those situations where light cutoff directly behind the pole is critical.

Finally, the innovative LEED Corner optics, available in LCR (right) and LCL (left), are ideal for a LEED project where corner positioning of a pole cannot be avoided.



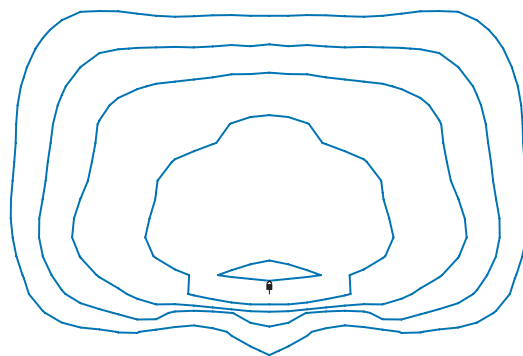
## Type 2

The IES Type II is the preferred choice for roadway or narrow entrance areas. The PureForm Type 2 distribution provides a clean, asymmetric pattern with maximized lateral throw, yet still provides a favorable amount of forward throw. The tight backlight control built into the optical design further enhances its usability. The Type 2 distribution works extremely well in walkway and roadway applications where more light is required “street side” than “house side.”



## Type 3

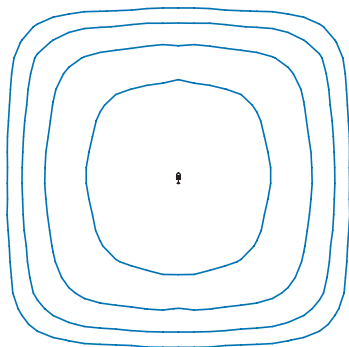
IES Type III optics usually produce an asymmetrical pattern that directs the majority of the light forward and equally on both sides of the luminaire. The PureForm Type 3 brings in the lateral spacing slightly, while significantly increasing the forward throw, making it extremely useful along the site perimeter. In a twin back-to-back configuration, it creates a beautiful rectangular pattern which can extend pole spacings for parking lot interiors. Again, the inherent backlight control is evident.



## Type 4

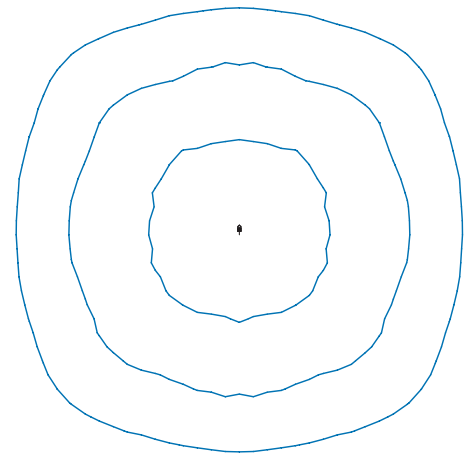
The PureForm Type 4 maximizes the forward throw projection with only a modest compromise in the lateral directions. The squared corner performance, significant limitation of backlight and the strong forward throw make this distribution an exceptional choice when lighting from the site perimeter.





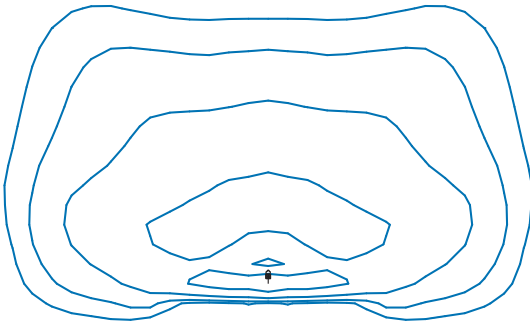
### Type 5M

The PureForm Type 5 Medium (5M) is the choice when the goal is to effectively limit light from the interior of a parking area to a confined space. Proper pole placement combined with the sharp corners of the 5M distribution assure appropriate coverage of light where needed. The impressive dropoff to extremely low light levels enables meeting LEED light trespass levels that were difficult or impossible before. Type 5M is also the choice when higher than normal light levels are desired.



### Type 5W

For large area lighting, where maximizing pole spacing is the goal, the PureForm Type 5 Wide (5W) is the answer. Utilizing this extremely efficient optic, PureForm can provide pole spacings up to a remarkable 6.5MH x 6.5MH.



### Type BLC

In situations where backlight control is critical, the PureForm's BLC optic is the perfect choice. By sacrificing a small amount of forward and lateral projection, PureForm is able to severely restrict backlight, limiting the 1/10 fc line to just one-half mounting height behind the pole, while the 1/100th fc line, is only 1.5 mh behind the pole.



### Types LCR & LCL

The ultimate in light trespass control is provided by the PureForm's unique LEED corner optics. Available in LCR (right) and LCL (left), these distributions limit the .01 LEED light trespass line to just 1.5 mounting heights from the pole, both behind and to the side, ideal for use with projects seeking LEED certification.

# How does it stack up against HID?

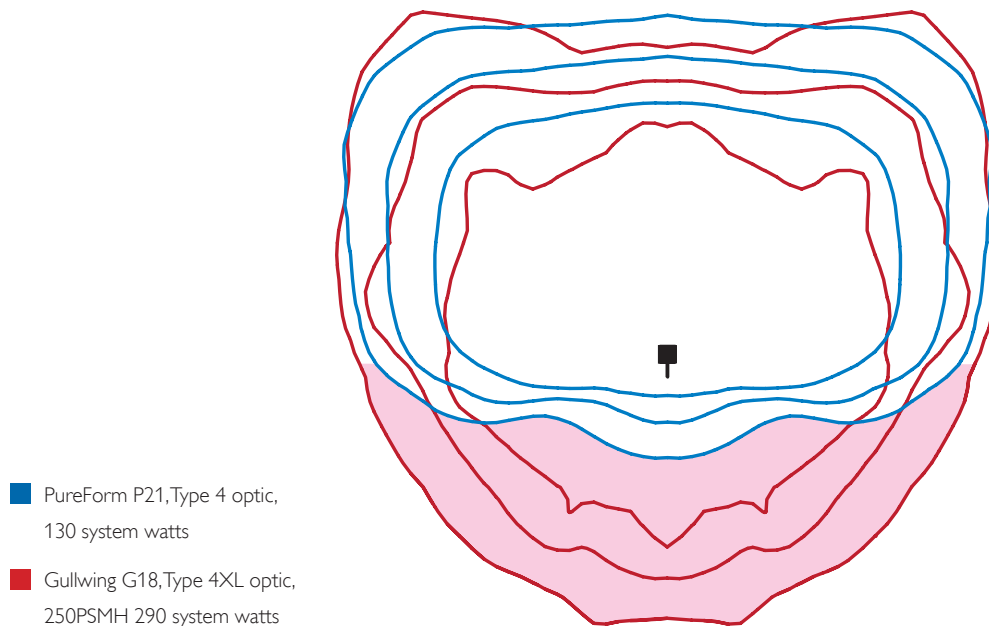
As Lighting Specifiers begin to shift from designating HID sources to LED, a comparison between the two is often requested. Unfortunately this is not an easy task. Uniformity, varying distribution patterns, and constantly advancing technologies make this extremely difficult.

Today, thanks to advancements in LED technology, it is starting to make more sense.

The engineers at Philips Gardco have been able to truly capitalize on the advances in high performance LEDs. So much so, that the phenomenal performance and resulting energy savings are truly exciting.

Philips Gardco has always been known for performance. In fact, the performance of one its flagship luminaires - the Gullwing - has long been the industry standard to beat. The performance of the PureForm is better.

One might expect that a comparison between the two would begin by comparing the smaller G13 with the PureForm P21. That expectation is incorrect. The P21 outperforms the 150w HID Gullwing G13 significantly. What this means is that the smaller PureForm, while perfectly suited as a pedestrian scale luminaire, is a strong player in area lighting as well.



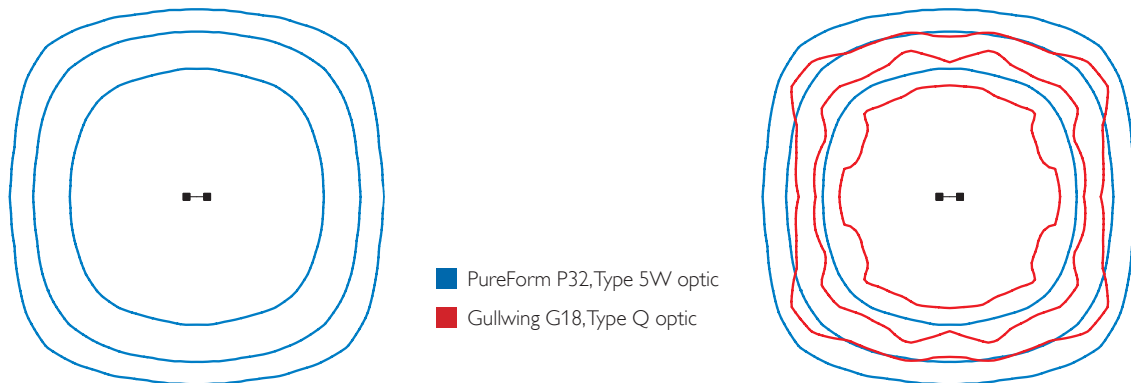
When the 130w PureForm P21 is compared with the larger Gullwing G18 at 250PSMH (above) we find that it is very comparable. Both the forward throw and the lateral throw are essentially equal. The PureForm, however provides a lower maximum for even greater uniformity. And, as the shaded area shows, PureForm has much greater backlight control.

This comparison illustrates the true performance provided by PureForm. Now, the smaller P21 PureForm becomes the preferred choice for projects previously done with 250 watt HID luminaires. This is particularly true for projects requiring 1 fc minimum or ½ fc minimum light levels, two of the most popular light levels being specified for area lighting today.



The real power available from the PureForm emerges in the larger 32" housing (P32), shown here in a twin back to back configuration, at 260 watts, mounted at 30 feet.

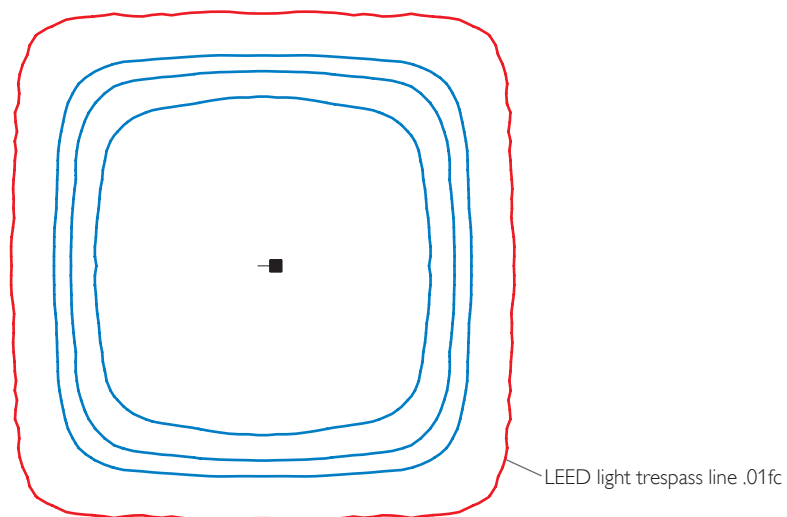
The impressive performance of the PureForm becomes evident when we compare it to a 400PSMH Gullwing, shown here in a twin Type V (Q) configuration.



The performance advantage of the PureForm is incredible. While the Gullwing provides a 5 MH x 5 MH pole spacing, the PureForm delivers equal performance with pole spacing extended to 6.5MH x 6.5MH - a 30% improvement, based on uniformity, and up to 6MH x 6MH based on equal minimum footcandle levels.

These types of comparisons are beneficial in showing a comparison between the sources, but they really do not show the complete story. With HID systems, reflector inefficiency and nadir candlepower worked against the application engineer, resulting in poor site uniformity and hotspots directly beneath the luminaire. Additionally, controlling falloff at the edges of a given distribution is extremely difficult, if not impossible. By fine tuning individual LEDs, Philips Gardco engineers have been able to capitalize on the LED's ability to thoroughly concentrate and control light output.

Looking at another example, the PureForm Type 5 Medium (5M) would be the primary choice when the goal of the lighting designer is to limit light from the interior of a parking area within a confined zone. Note the LEED light trespass line at .01fc.



With proper pole placement, the sharp corners of the 5M distribution assure adequate coverage of light where it is needed. The quick dropoff to the .01 fc level, less than three-quarters mounting height beyond the .25 fc line, means that LEED light trespass levels can be easily met when needed.

# More control means greater savings

One of the many benefits of LED is the ability to dim the source. This opens up tremendous opportunities for additional energy savings through the use of controls and motion sensors. PureForm offers complete standard “set and forget” control options and can be specified in a number of configurations that can save up to 50% more than using the LED source alone.

### 0-10V Dimming (DIM)

The PureForm with 0-10V Dimming (-DIM) is designed for control by a 0-10v dimming system (supplied by others).

### Dual Circuit Control (DCC)

The DCC configuration allows for separate circuiting of each LED board.

### Automatic Profile Dimming (APD)

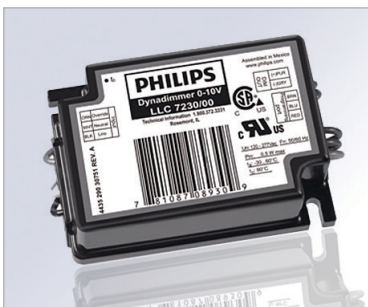
The PureForm with Automatic Profile Dimming (-APD) provides guaranteed savings by reducing power and light output by 50% during periods of low traffic. By calculating the night-time midpoint, power is reduced by 50% during the two hours prior to and the six hours after. This results in additional energy savings of 33% on average.

### Motion Response (MR50)

The PureForm with Motion Response (-MR50) provides light only when it's needed, reducing power by 50% when the site is not in use. Once motion is detected, the luminaire switches to full light output until no motion is recognized for a 15 minute period. The duration and sensitivity of the motion sensor is easily adjusted in the field. The P21 uses an integral motion sensor while the larger P32 utilizes a pole mounted motion sensor.

### Automatic Profile Dimming with Motion Response Override (APD-MRO)

The PureForm with Automatic Profile Dimming with Motion Response Override (-APD-MRO) provides the benefits of both configurations. As with the APD version, power and light output are reduced by 50% during the two hours prior and the six hours after the midpoint. However, if motion is detected during this time, the luminaire increases light output and power to 100%, until no motion is recognized for a 15 minute period. This provides the savings of automatic profile dimming with the assurance that motion response will provide the required light levels should someone be on the site during a normally low traffic period.



### DynaDimmer

The PureForm is available in several configurations that utilize the Philips DynaDimmer module. This energy saving module allows for energy savings up to 50% or more.



### MRI Motion Sensor

The MRI motion sensor is mounted on the driver door and is ideal for situations with a maximum 20 ft. or lower mounting height.



### MR50/MRO Motion Sensor

For taller applications, a pole mounted area motion detector provides coverage of up to 6 times the sensor height above ground and 270° from the front-center.

# Pure in function



Typically, LED drivers are the components that are most likely to fail and require replacement. PureForm makes replacing the driver simple. The door of the driver compartment easily opens with a phillips screwdriver, revealing the LED driver(s). The screws are captive to prevent them from falling to the ground during service. The drivers are assembled on an easy to remove tray for quick replacement.

The LED arrays are accessed by loosening the hex-head recessed set screws located in the front end of the luminaire. This allows the door frame to hinge down providing access to the LED arrays.

Several of the LED arrays are rotatable within the luminaire (Types 2, 3, 4 & BLC). Optical rotation requires the removal and re-insertion of phillips screws to orient the optic in the desired direction.

Although unlikely during the luminaire's lifetime, LED arrays can also be easily replaced.

PureForm is available with optional toolless access. This option allows for opening the driver door and removing the driver tray without the need for tools. This option also provides toolless entry through the door frame to access the LED arrays.



## Access to the LED Array

The LED arrays are accessed by loosening the hex-head recessed set screws located in the front end of the luminaire.



## Integral Driver Tray

PureForm luminaires feature factory pre-wired electrical components with quick disconnect plugs for easy maintenance.



## Weatherproof Gasketing

When the door frame is closed, the 1/8" EPDM gasketing is compressed, forming a continuous, positive seal.



# Construction features

The configuration of hardware, internal components, material transitions and accessories demonstrate the impressive design and craftsmanship of the PureForm luminaire. Each feature reveals an innovative, sensible and highly sophisticated approach to achieving long-term performance and trouble-free operation.

## Mesh Screen

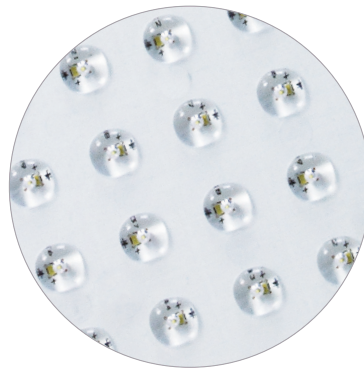
The top of the PureForm is open and covered with a mesh screen that keeps dirt and contaminants out of the luminaire while permitting necessary airflow to aid in cooling.

## Heat Sink

The heat sink is the heart of PureForm's thermal system. These radiating fins of die cast aluminum make up the bulk of the luminaire and efficiently conduct heat away from the LED components. These fins are arranged in a unique pattern designed to maximize airflow and to increase the overall thermal efficiency of the luminaire.

## Advanced LED Arrays

The Class 1 advanced LED arrays are available in seven unique configurations. PureForm Class 1 LED arrays do not require a glass lens. A glass lens can be ordered as an option. Each LED is encased in its own unique optic and placed within the array to provide precise illumination patterns. Arrays are interchangeable and many are rotatable within the housing at 90°.

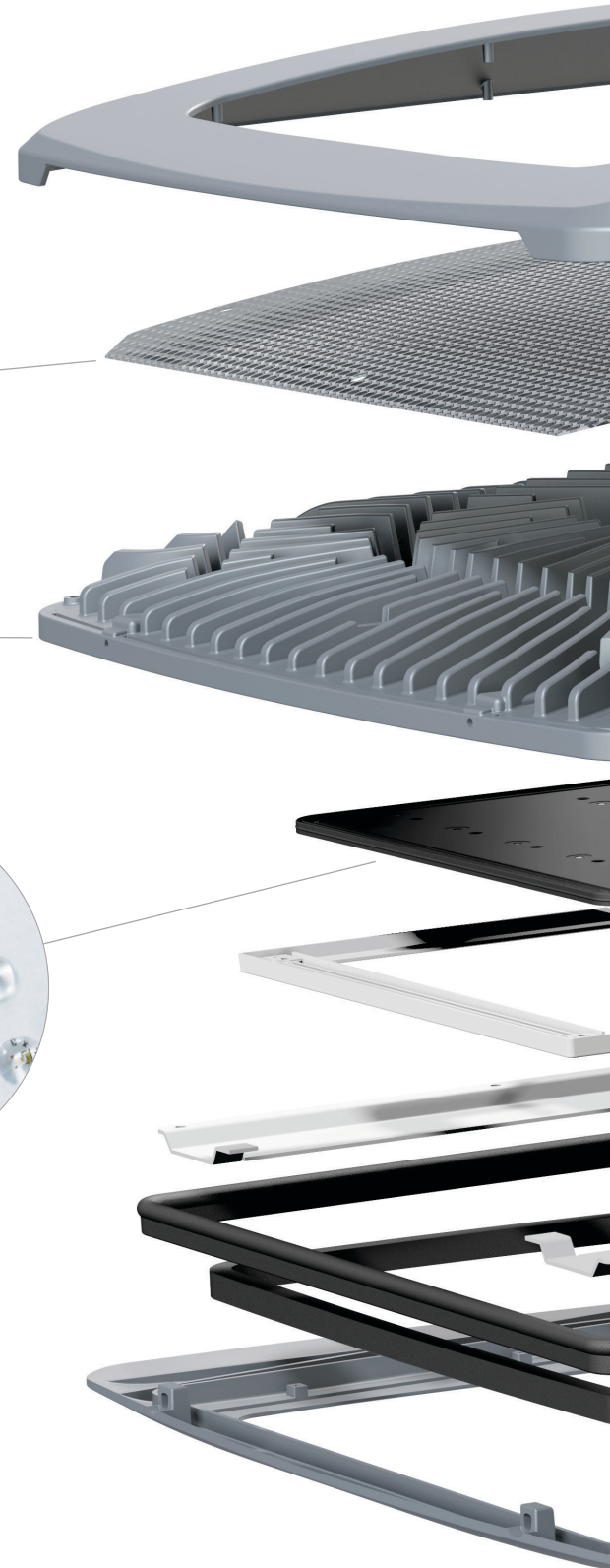


## Long-Lasting Finishes

The finish is a fade and abrasion resistant, electrostatically applied, thermally cured TGIC powdercoat. PureForm housings are thoroughly cleaned and chromate acid treated prior to paint application. Standard colors feature the lightly textured Philips Gardco finish. Custom colors may vary in texture, so please consult factory.

## Vibration Resistance

PureForm has been designed to withstand the rigors of the harsh and complex environments. PureForm carries a 3G vibration rating that conforms to standards set forth by ANSI C136.31. Testing includes vibration to 3G acceleration in three axes, all performed on the same luminaire, and is applicable towards bridge and overpass applications.



### Die Cast Aluminum Outer Housing

The outer housing functions as a protective covering. Working in conjunction with the door frame, the housing assembly is engineered to provide convective airflow and pass-through ventilation.

### Rugged Arm Design

The arms and mast arm attachment are perfectly matched with the housing, allowing for precise alignment. Each arm is firmly attached at the factory and is held in place with (2) 7/16" bolts. The result is that although separate, it appears and functions as an integral arm.

### Integral Driver Tray

PureForm luminaires feature factory pre-wired electrical components with quick disconnect plugs for easy maintenance.

### Driver Access Door

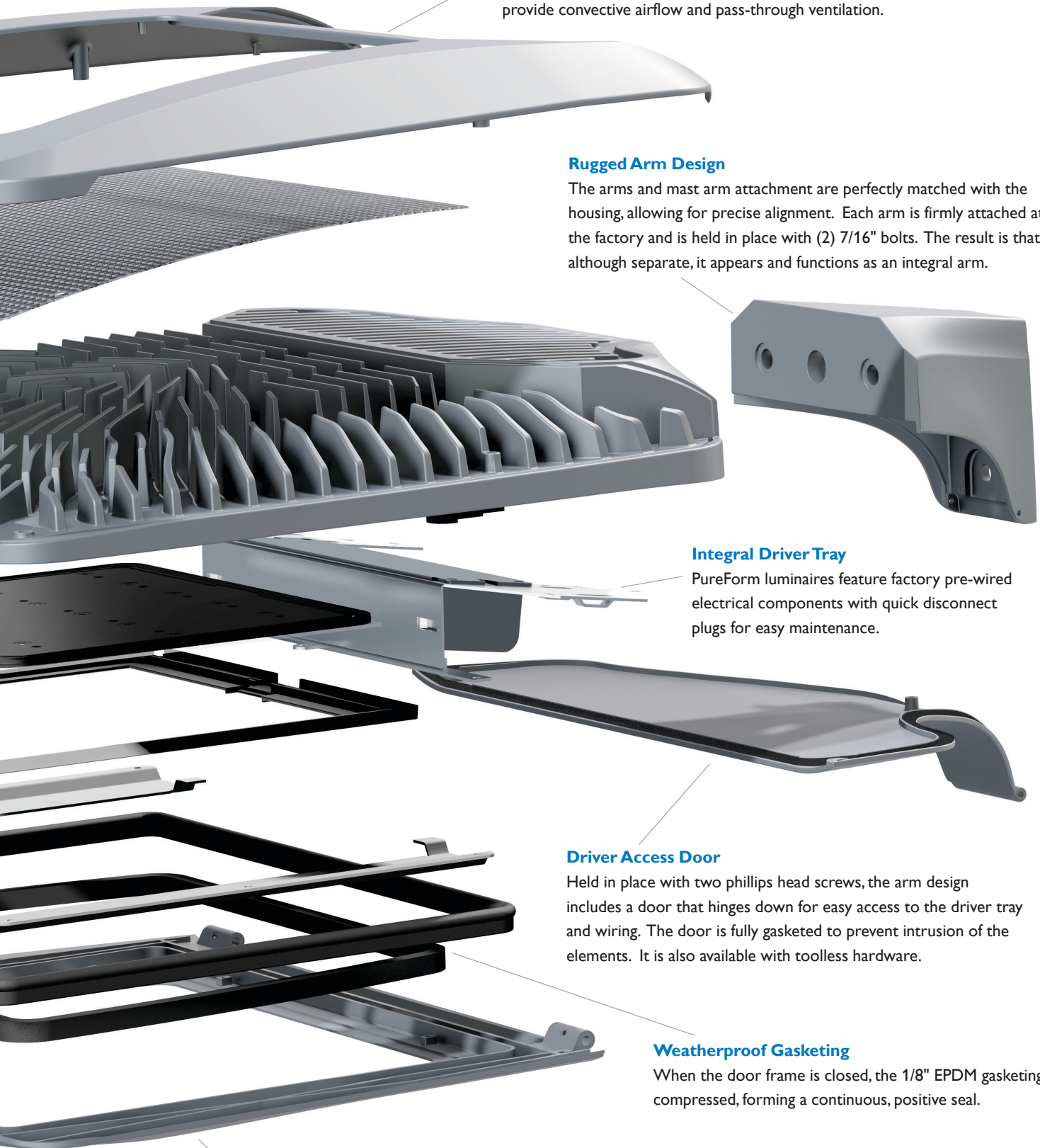
Held in place with two phillips head screws, the arm design includes a door that hinges down for easy access to the driver tray and wiring. The door is fully gasketed to prevent intrusion of the elements. It is also available with toolless hardware.

### Weatherproof Gasketing

When the door frame is closed, the 1/8" EPDM gasketing is compressed, forming a continuous, positive seal.

### Die Cast Aluminum Door Frame

The door frame hinges down to allow easy access to the LED assembly. It is secured in place with (2) recessed hex-head screws located in the front of the luminaire and is also available with optional toolless access. A glass lens is optional.





## Applications

PureForm is at home in any architectural environment. Whether site specifications require tall poles and wide spacings or are more pedestrian in scale, the refined beauty of the PureForm luminaire complements its surroundings. A choice of two sizes, multiple arm configurations and a wide variety of colors provide further design flexibility, assuring that the PureForm is the right choice in any situation.







# PureForm P21 Specifications

**GENERAL DESCRIPTION:** Philips Gardco PureForm luminaires combine LED performance excellence and advanced Gardco LED thermal management technology with a distinct purity of style to provide outdoor area lighting that is both energy efficient and aesthetically pleasing. PureForm is defined by its high performance, sleek low profile design and rugged construction. The die cast aluminum housing mounts directly to a pole or wall, and has a maximum profile of just 3". All LED wattages utilize high performance Class 1 LED systems. The luminaire features a state of the art integral thermal control system to maximize LED performance and life, and to extend component life. The door frame is die cast aluminum. Luminaires are finished with a fade and abrasion resistant TGIC powdercoat. PureForm luminaires are available in a wide variety of mountings and arms.

**HOUSING:** The PureForm features a die cast aluminum housing, and mounts directly to a pole or wall. The low profile rounded form reduces the effective projected area of the luminaire significantly.

PureForm luminaires supplied with A1, A2 and A3 arms are provided with arms firmly attached to the main luminaire housing body. As a result, the luminaires provide the functionality, strength and installation ease of an integral arm luminaire.

Mast arm mount luminaires are provided with the mast arm mounting assembly firmly attached to the main luminaire housing body.

**IP RATING:** PureForm luminaires have a rating of IP66.

**VIBRATION RESISTANCE:** PureForm carries a 3G vibration rating that conforms to standards set forth by ANSI C136.31. Testing includes vibration to 3G acceleration in three axes, all performed on the same luminaire.

**OPTICAL SYSTEMS:** The advanced LED optical systems provide IES Types II, III, IV and V distributions, as well as a Backlight Control optic. Special LEED corner cutoff optics are also available, both as LCR (right) and LCL (left). All optical systems feature unitized lens optic construction.

Types 2, 3, 4, BLC and LCR/LCL optical systems utilize an innovative redirecting reflector system to complement the performance of the LED optic. The redirecting reflector system includes a black surrounding surface to minimize aperture brightness when viewed from the rear of the luminaire.

PureForm luminaires are provided standard without a glass lens, for maximized performance. A glass lens is available as an option, resulting in reduced performance. All PureForm luminaires provide full cutoff performance.

## LED RELIABILITY:

PREDICTED LUMEN DEPRECIATION DATA		
Ambient Temperature °C	Driver mA	L <sub>70</sub> Hours
25 °C	350 mA	240,000
	530 mA	180,000
40 °C	350 mA	225,000
	530 mA	160,000

Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions. L<sub>70</sub> is the predicted time when LED performance depreciates to 70% of initial lumen output.

**THERMAL MANAGEMENT:** The Philips Gardco PureForm LED provides die cast aluminum integral thermal radiation fins to provide the excellent thermal management so critical to long LED system life.

**ELECTRICAL:** Luminaires are equipped with an LED driver that accepts 120V through 277V, or 347V through 480V, 50hz to 60hz, input. Driver output is based on the LED wattage selected. Component-to-component wiring within the luminaire will carry no more than 80% of rated current and is listed by UL for use at 600 VAC at 302°F / 150°C or higher. Plug disconnects are listed by UL for use at 600 VAC, 15A or higher. Power factor is not less than 90%. Luminaire consumes 0.0 watts in the off state. All motion sensors utilized consume 0.0 watts in the off state.

**FINISH:** Each standard color luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) textured polyester powdercoat finish. Standard colors include bronze (BRP), black (BLP), white (WP), and natural aluminum (NP). Consult factory for specs on optional or custom colors.

**LABELS:** All luminaires bear UL or CUL (where applicable) Wet Location labels.

**WARRANTY:** Philips Gardco luminaires feature a 5 year limited warranty. Philips Gardco LED luminaires with LED arrays feature a 5 year limited warranty covering the LED arrays. LED Drivers also carry a 5 year limited warranty. Motion sensors are covered by warranty for 5 years by the motion sensor manufacturer. See Warranty Information on [sitelighting.com](http://sitelighting.com) for complete details and exclusions. Polycarbonate lenses carry a 1 year warranty.

Philips Gardco reserves the right to change materials or modify the design of its product without notification as part of the company's continuing product improvement program.

Prior to ordering, consult submittal data sheet #G200-035 - P21 Area and Pedestrian Scale Luminaires at [sitelighting.com/literature/g\\_p21\\_cut.pdf](http://sitelighting.com/literature/g_p21_cut.pdf) for the most current information, notes and exclusions, as well as detailed specifications for luminaire configurations, controls and delivered lumen data.



# PureForm P21 Ordering

PREFIX	ARM*	MOUNTING	OPTICAL SYSTEM	LED WATTAGE	LED SELECTION	VOLTAGE	PAINTED FINISH	OPTIONS
<b>P21</b>	<b>A1</b>	<b>1</b>	<b>5W</b>	<b>130LA</b>	<b>NW</b>	<b>HVU</b>	<b>NP</b>	<b>LF</b>
<b>P21</b>	<b>A1</b>	<b>1</b>	<b>2</b>	<i>350mA</i>	<b>CW</b>	<b>UNIV</b>	<b>BRP</b> Bronze	<b>F</b> <b>SPA1-2</b>
<b>P21-DIM</b>	<b>A2</b>	<b>2</b>	<b>3</b>	<b>55LA</b>	<i>Cool White</i>	<i>120V through 277V</i>	<b>BLP</b> Black	<b>LF</b> <b>SPA3</b>
<b>P21-MR50</b>	<b>A3</b>	<b>2@90</b>	<b>4</b>	<b>70LA</b>	<b>NW</b>	<b>HVU</b>	<b>WP</b> White	<b>BD</b> <b>DL</b>
<b>P21-APD</b>		<b>3</b>	<b>5M</b>	<b>90LA</b>	<i>Neutral White</i>	<i>347V through 480V</i>	<b>NP</b> Natural Aluminum	<b>PC</b> <b>CLR</b>
<b>P21-APD-MRO</b>		<b>3@120</b>	<b>5W</b>	<i>530mA</i>	<b>WW</b>		<b>OC</b> <i>Optional Color</i>	<b>PCR</b> <b>POLY</b>
<b>P21-MRI</b>		<b>4</b>	<b>BLC</b>	<b>80LA</b>	<i>Warm White</i>		<b>SC</b> <i>Special Color</i>	<b>PCB</b> <b>SPR</b>
<b>P21-APD-MRI</b>		<b>MA</b>	<b>LCR</b>	<b>105LA</b>				<b>EHHS</b> <b>SPRH</b>
		<b>W</b>	<b>LCL</b>	<b>130LA</b>				<b>PTF2</b> <b>TB</b>
		<b>WS</b>						<b>PTF3</b> <b>TL</b>
								<b>PTF4</b>

Refer to Submittal Data Sheet on [sitelighting.com](http://sitelighting.com) for complete details and restrictions for luminaire configurations.  
\*Omit for Mast Arm Luminaires

## PREFIX

<b>P21</b>	21" PureForm - Constant Wattage
<b>P21-DIM</b>	21" PureForm with 0-10V Dimming
<b>P21-MR50</b>	21" PureForm with Motion Response - 50% Low, Pole Mounted Motion Sensor
<b>P21-APD</b>	21" PureForm with Automatic Profile Dimming
<b>P21-APD-MRO</b>	21" PureForm with Automatic Profile Dimming and Motion Response Override - Pole Mounted Motion Sensor
<b>P21-MRI</b>	21" PureForm with Motion Response - 50% Low, Integral Motion Sensor
<b>P21-APD-MRI</b>	21" PureForm with Automatic Profile Dimming and Motion Response Override - Integral Motion Sensor

## ARM

<b>A1</b>	Standard 9" Arm ( <i>Direct to pole and wall mount</i> )
<b>A2</b>	Short 5" Arm ( <i>Direct to pole and wall mount</i> )
<b>A3</b>	Decorative Arm ( <i>Direct to pole mount only</i> )

## OPTICAL SYSTEM

<b>2</b>	IES Type II
<b>3</b>	IES Type III
<b>4</b>	IES Type IV
<b>5M</b>	IES Type V Medium
<b>5W</b>	IES Type V Wide
<b>BLC</b>	Backlight Control
<b>LCR</b>	LEED Corner Cutoff Optic - Right
<b>LCL</b>	LEED Corner Cutoff Optic - Left

## MOUNTING

<u>Direct to Pole Mount</u>	
<b>1</b>	Single pole mount
<b>2</b>	Twin pole mount @180°
<b>2@90</b>	Twin pole mount @90°
<b>3</b>	Triple pole mount @90°
<b>3@120</b>	Triple pole mount @120°
<b>4</b>	4 way pole mount
<u>Mast Arm Mount</u>	
<b>MA</b>	Mast Arm mount ( <i>requires 2 3/8" OD mast arm</i> )

## Wall Mount

<b>W</b>	Wall Mount
<b>WS</b>	Wall Mount, Surface Conduit

## OPTIONS

<b>F</b>	Fusing
<b>LF</b>	In-Line/In-Pole Fusing
<b>BD</b>	Bird Deterrent Spike Kit
<b>PC</b>	Photocontrol and Receptacle
<b>PCR</b>	Photocontrol Receptacle only
<b>PCB</b>	Button Photocontrol
<b>EHHS</b>	External House Side Shield
<b>PTF2</b>	Pole Top Fitter - 2 3/8" - 3" Dia. Tenon
<b>PTF3</b>	Pole Top Fitter - 3" - 3 1/2" Dia. Tenon
<b>PTF4</b>	Pole Top Fitter - 3 1/2" - 4" Dia. Tenon
<b>SPA1-2</b>	Square Pole Adapter for use with A1 and A2 Arms
<b>SPA3</b>	Square Pole Adapter for use with A3 Arms
<b>DL</b>	Diffusing Lens
<b>CLR</b>	Clear Glass Lens
<b>POLY</b>	Polycarbonate Lens
<b>SPR</b>	Surge Protection for 120V through 277V Input (ANSI C62.41.2)
<b>SPRH</b>	Surge Protection for 347V through 480V Input (ANSI C62.41.2)
<b>TB</b>	Terminal Block
<b>TL</b>	Provides for Toolless Access to the LED arrays and Driver

## ACCESSORIES (*Ordered separately*)

<b>MS-A-120V</b>	Area Motion Sensor for P21-MR50 or P21-APD-MRO - 120V input
<b>MS-A-277V</b>	Area Motion Sensor for P21-MR50 or P21-APD-MRO - 277V input

Motion Sensors are ordered separately, with one (1) motion sensor required per pole location for P21-MR50 or P21-APD-MRO luminaires. Refer to Submittal Data Sheet on [sitelighting.com](http://sitelighting.com) for more details. Area motion sensor color is Arctic White. P21-MRI and P21-APD-MRI luminaires include an integral motion sensor.

Prior to ordering, consult the Submittal Data Sheet on [sitelighting.com](http://sitelighting.com) for the most current information, notes and exclusions. Philips Gardco reserves the right to change materials or modify the design of its product without notification as part of the company's continuing product improvement program.



# PureForm P32 Specifications

**GENERAL DESCRIPTION:** Philips Gardco PureForm luminaires combine LED performance excellence and advanced Gardco LED thermal management technology with a distinct purity of style to provide outdoor area lighting that is both energy efficient and aesthetically pleasing. PureForm is defined by its high performance, sleek low profile design and rugged construction. The die cast aluminum housing mounts directly to a pole or wall, and has a maximum profile of just 3". All LED wattages utilize high performance Class 1 LED systems. The luminaire features a state of the art integral thermal control system to maximize LED performance and life, and to extend component life. The door frame is die cast aluminum. Luminaires are finished with a fade and abrasion resistant TGIC powdercoat. PureForm luminaires are available in a wide variety of mountings and arms.

**HOUSING:** The PureForm features a die cast aluminum housing, and mounts directly to a pole or wall. The low profile rounded form reduces the effective projected area of the luminaire significantly.

PureForm luminaires supplied with A1, A2 and A3 arms are provided with arms firmly attached to the main luminaire housing body. As a result, the luminaires provide the functionality, strength and installation ease of an integral arm luminaire.

Mast arm mount luminaires are provided with the mast arm mounting assembly firmly attached to the main luminaire housing body.

**IP RATING:** PureForm luminaires have a rating of IP66.

**VIBRATION RESISTANCE:** PureForm carries a 3G vibration rating that conforms to standards set forth by ANSI C136.31. Testing includes vibration to 3G acceleration in three axes, all performed on the same luminaire.

**OPTICAL SYSTEMS:** The advanced LED optical systems provide IES Types II, III, IV and V distributions, as well as a Backlight Control optic. Special LEED corner cutoff optics are also available, both as LCR (right) and LCL (left). All optical systems feature unitized lens optic construction.

Types 2, 3, 4, BLC and LCR/LCL optical systems utilize an innovative redirecting reflector system to complement the performance of the LED optic. The redirecting reflector system includes a black surrounding surface to minimize aperture brightness when viewed from the rear of the luminaire.

PureForm luminaires are provided standard without a glass lens, for maximized performance. A glass lens is available as an option, resulting in reduced performance. All PureForm luminaires provide full cutoff performance.

## LED RELIABILITY:

PREDICTED LUMEN DEPRECIATION DATA		
Ambient Temperature °C	Driver mA	L <sub>70</sub> Hours
25 °C	350 mA	240,000
	530 mA	165,000
40 °C	350 mA	215,000
	530 mA	148,000

Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions. L<sub>70</sub> is the predicted time when LED performance depreciates to 70% of initial lumen output.

**THERMAL MANAGEMENT:** The Philips Gardco PureForm LED provides die cast aluminum integral thermal radiation fins to provide the excellent thermal management so critical to long LED system life.

**ELECTRICAL:** Luminaires are equipped with an LED driver that accepts 120V through 277V, or 347V through 480V, 50hz to 60hz, input. Driver output is based on the LED wattage selected. Component-to-component wiring within the luminaire will carry no more than 80% of rated current and is listed by UL for use at 600 VAC at 302°F / 150°C or higher. Plug disconnects are listed by UL for use at 600 VAC, 15A or higher. Power factor is not less than 90%. Luminaire consumes 0.0 watts in the off state. All motion sensors utilized consume 0.0 watts in the off state.

**FINISH:** Each standard color luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) textured polyester powdercoat finish. Standard colors include bronze (BRP), black (BLP), white (WP), and natural aluminum (NP). Consult factory for specs on optional or custom colors.

**LABELS:** All luminaires bear UL or CUL (where applicable) Wet Location labels.

**WARRANTY:** Philips Gardco luminaires feature a 5 year limited warranty. Philips Gardco LED luminaires with LED arrays feature a 5 year limited warranty covering the LED arrays. LED Drivers also carry a 5 year limited warranty. Motion sensors are covered by warranty for 5 years by the motion sensor manufacturer. See Warranty Information on [sitelighting.com](http://sitelighting.com) for complete details and exclusions. Polycarbonate lenses carry a 1 year warranty.

Philips Gardco reserves the right to change materials or modify the design of its product without notification as part of the company's continuing product improvement program.

Prior to ordering, consult submittal data sheet #G200-036 - P32 Area and Pedestrian Scale Luminaires at [sitelighting.com/literature/g\\_p32\\_cut.pdf](http://sitelighting.com/literature/g_p32_cut.pdf) for the most current information, notes and exclusions, as well as detailed specifications for luminaire configurations, controls and delivered lumen data.

# PureForm P32 Ordering

PREFIX	ARM*	MOUNTING	OPTICAL SYSTEM	LED WATTAGE	LED SELECTION	VOLTAGE	PAINTED FINISH	OPTIONS
<b>P32</b>	<b>A1</b>	<b>1</b>	<b>5W</b>	<b>260LA</b>	<b>NW</b>	<b>HVU</b>	<b>NP</b>	<b>LF</b>
<b>P32</b>	<b>A1</b>	<b>1</b>	<b>2</b>	<i>350mA</i>	<b>CW</b>	<b>UNIV</b>	<b>BRP</b> Bronze	<b>F</b> <b>SPA1-2</b>
<b>P32-DCC</b>	<b>A2</b>	<b>2</b>	<b>3</b>	<b>110LA</b>	<i>Cool White</i>	<i>120V through 277V</i>	<b>BLP</b> Black	<b>LF</b> <b>SPA3</b>
<b>P32-DIM</b>	<b>A3</b>	<b>2@90</b>	<b>4</b>	<b>140LA</b>	<b>NW</b>	<b>HVU</b>	<b>WP</b> White	<b>BD</b> <b>DL</b>
<b>P32-MR50</b>		<b>3</b>	<b>5M</b>	<b>170LA</b>	<i>Neutral White</i>	<i>347V through 480V</i>	<b>NP</b> Natural Aluminum	<b>PC</b> <b>CLR</b>
<b>P32-APD</b>		<b>3@120</b>	<b>5W</b>	<i>530mA</i>	<b>WW</b>		<b>OC</b> Optional Color	<b>PCR</b> <b>POLY</b>
<b>P32-APD-MRO</b>		<b>4</b>	<b>BLC</b>	<b>160LA</b>	<i>Warm White</i>		<b>SC</b> Special Color	<b>PCB</b> <b>SPR</b>
		<b>MA</b>	<b>LCR</b>	<b>210LA</b>				<b>EHHS</b> <b>SPRH</b>
		<b>W</b>	<b>LCL</b>	<b>260LA</b>				<b>PTF2</b> <b>TB</b>
		<b>WS</b>						<b>PTF3</b> <b>TL</b>
								<b>PTF4</b>

Refer to Submittal Data Sheet on [sitelighting.com](http://sitelighting.com) for complete details and restrictions for luminaire configurations.  
\*Omit for Mast Arm Luminaires

## PREFIX

<b>P32</b>	21" PureForm - Constant Wattage
<b>P32-DCC</b>	21" PureForm - Dual Circuit Control
<b>P32-DIM</b>	21" PureForm with 0-10V Dimming
<b>P32-MR50</b>	21" PureForm with Motion Response - 50% Low, Pole Mounted Motion Sensor
<b>P32-APD</b>	21" PureForm with Automatic Profile Dimming
<b>P32-APD-MRO</b>	21" PureForm with Automatic Profile Dimming and Motion Response Override - Pole Mounted Motion Sensor

## ARM

<b>A1</b>	Standard 9" Arm (Direct to pole and wall mount)
<b>A2</b>	Short 5" Arm (Direct to pole and wall mount)
<b>A3</b>	Decorative Arm (Direct to pole mount only)

## OPTICAL SYSTEM

<b>2</b>	IES Type II
<b>3</b>	IES Type III
<b>4</b>	IES Type IV
<b>5M</b>	IES Type V Medium
<b>5W</b>	IES Type V Wide
<b>BLC</b>	Backlight Control
<b>LCR</b>	LEED Corner Cutoff Optic - Right
<b>LCL</b>	LEED Corner Cutoff Optic - Left

## MOUNTING

### Direct to Pole Mount

<b>1</b>	Single pole mount
<b>2</b>	Twin pole mount @180°
<b>2@90</b>	Twin pole mount @90°
<b>3</b>	Triple pole mount @90°
<b>3@120</b>	Triple pole mount @120°
<b>4</b>	4 way pole mount

### Mast Arm Mount

<b>MA</b>	Mast Arm mount (requires 2 3/8" OD mast arm)
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### Wall Mount

<b>W</b>	Wall Mount
<b>WS</b>	Wall Mount, Surface Conduit

## OPTIONS

<b>F</b>	Fusing
<b>LF</b>	In-Line/In-Pole Fusing
<b>BD</b>	Bird Deterrent Spike Kit
<b>PC</b>	Photocontrol and Receptacle
<b>PCR</b>	Photocontrol Receptacle only
<b>PCB</b>	Button Photocontrol
<b>EHHS</b>	External House Side Shield
<b>PTF2</b>	Pole Top Fitter - 2 3/8" - 3" Dia. Tenon
<b>PTF3</b>	Pole Top Fitter - 3" - 3 1/2" Dia. Tenon
<b>PTF4</b>	Pole Top Fitter - 3 1/2" - 4" Dia. Tenon
<b>SPA1-2</b>	Square Pole Adapter for use with A1 and A2 Arms
<b>SPA3</b>	Square Pole Adapter for use with A3 Arms
<b>DL</b>	Diffusing Lens
<b>CLR</b>	Clear Glass Lens
<b>POLY</b>	Polycarbonate Lens
<b>SPR</b>	Surge Protection for 120V through 277V Input (ANSI C62.41.2)
<b>SPRH</b>	Surge Protection for 347V through 480V Input (ANSI C62.41.2)
<b>TB</b>	Terminal Block
<b>TL</b>	Provides for Toolless Access to the LED arrays and Driver

## ACCESSORIES (Ordered separately)

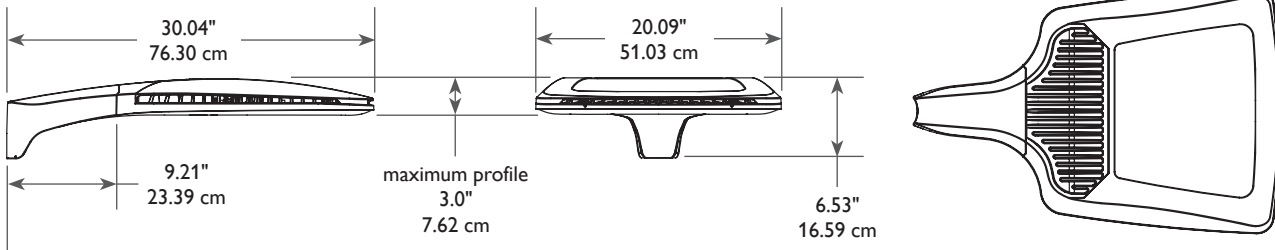
<b>MS-P</b>	Pedestrian Motion Sensor for P32-MR50 or P32-APD-MRO - 120V or 277V input
<b>MS-A-120V</b>	Area Motion Sensor for P32-MR50 or P32-APD-MRO - 120V input
<b>MS-A-277V</b>	Area Motion Sensor for P32-MR50 or P32-APD-MRO - 277V input

Motion Sensors are ordered separately, with one (1) motion sensor required per pole location for P32-MR50 or P32-APD-MRO luminaires. Refer to Submittal Data Sheet on [sitelighting.com](http://sitelighting.com) for more details. Pedestrian motion sensor color is White. Area motion sensor color is Arctic White.

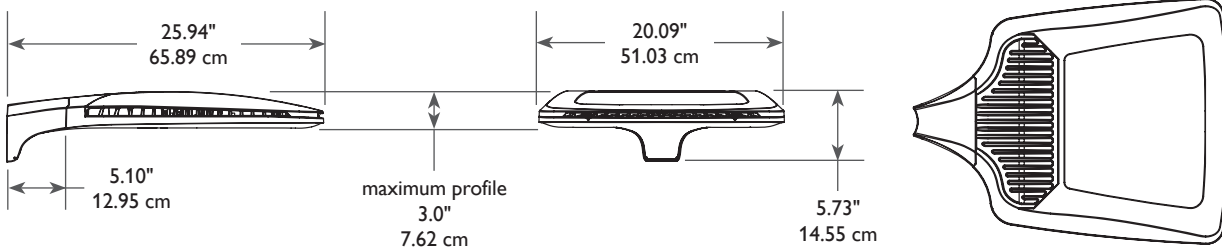
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# PureForm P21 Dimensions

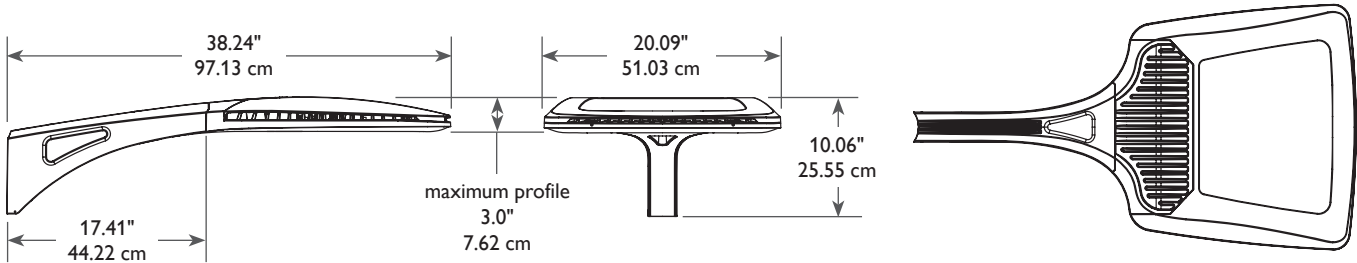
## STANDARD ARM MOUNT (A1)



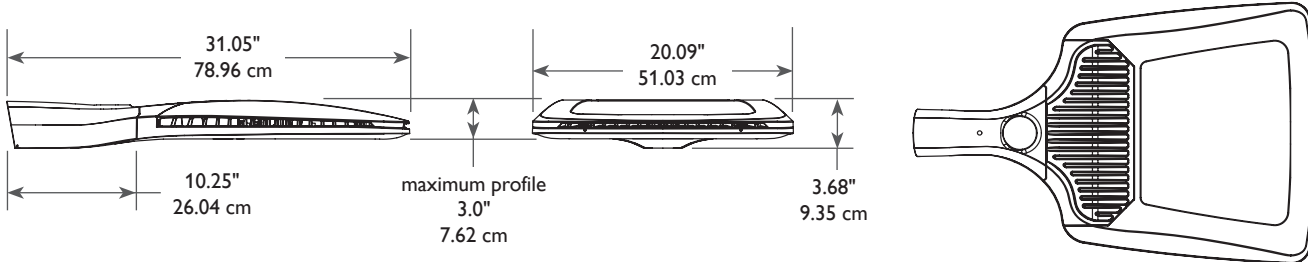
## SHORT ARM MOUNT (A2)



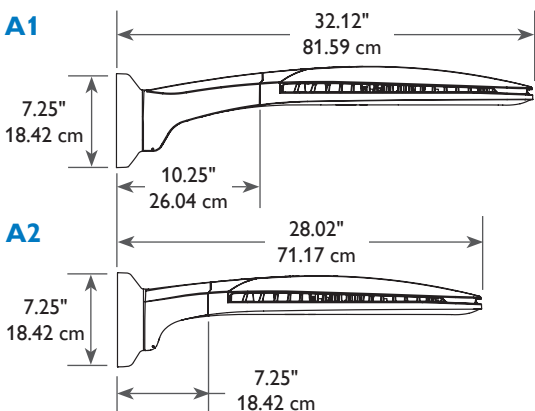
## DECORATIVE ARM MOUNT (A3)



## MAST ARM MOUNT (MA)



## WALL MOUNT (W/WS)

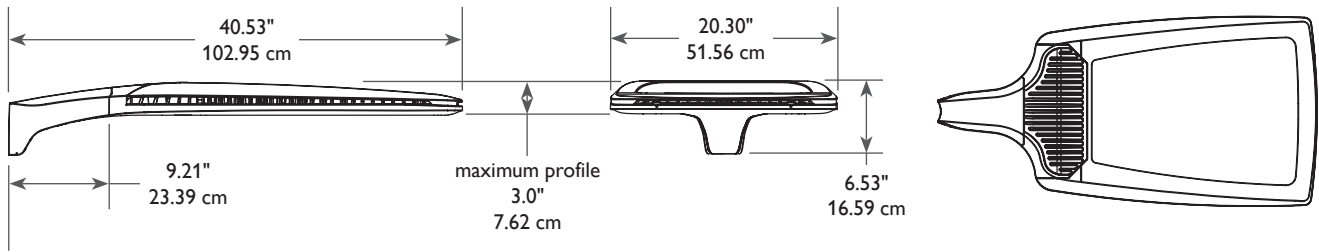


	Effective Projected Area (EPA)			Approximate Weight - Single Luminaire
	Single	Twin	3/4	
P21 A1 Standard Arm	0.35 ft <sup>2</sup> 0.033 m <sup>2</sup>	0.70 ft <sup>2</sup> 0.066 m <sup>2</sup>	1.25 ft <sup>2</sup> 0.117 m <sup>2</sup>	38 lbs 17.24 kg
P21 A2 Short Arm	0.30 ft <sup>2</sup> 0.028 m <sup>2</sup>	0.60 ft <sup>2</sup> 0.056 m <sup>2</sup>	1.10 ft <sup>2</sup> 0.103 m <sup>2</sup>	37 lbs 16.78 kg
P21 A3 Decorative Arm	0.50 ft <sup>2</sup> 0.047 m <sup>2</sup>	1.00 ft <sup>2</sup> 0.093 m <sup>2</sup>	1.70 ft <sup>2</sup> 0.158 m <sup>2</sup>	41.5 lbs 18.82 kg
P21 MA Mast Arm Fitter	0.35 ft <sup>2</sup> 0.033 m <sup>2</sup>			38 lbs 17.24 kg
P21 W/WS Wall Mount				39 lbs 17.69 kg

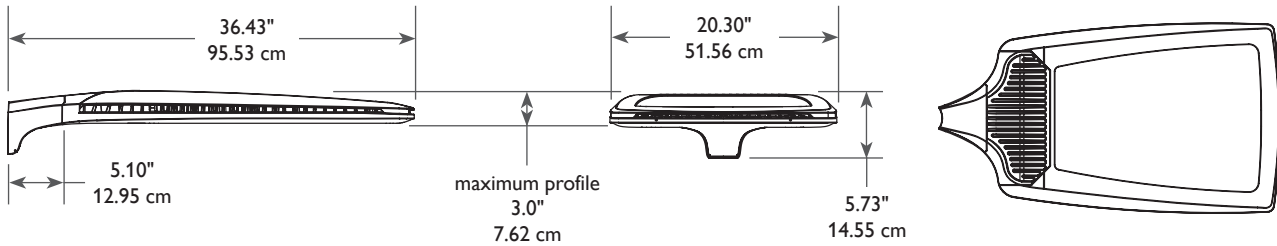


# PureForm P32 Dimensions

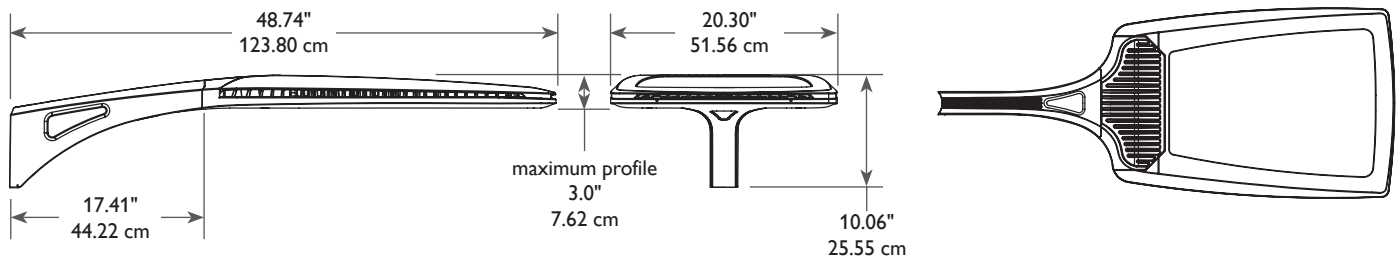
## STANDARD ARM MOUNT (A1)



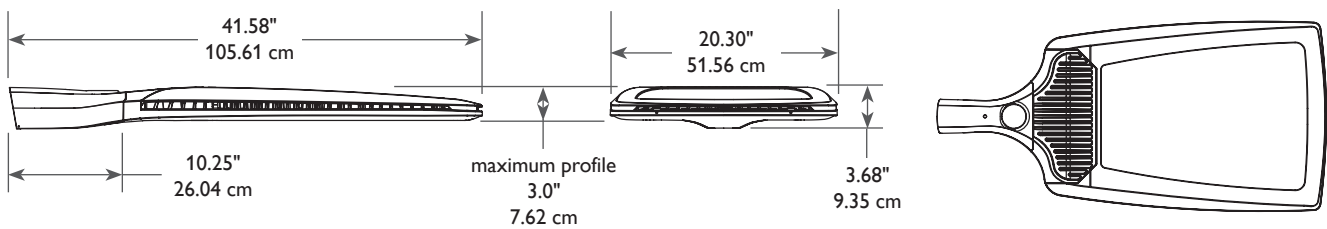
## SHORT ARM MOUNT (A2)



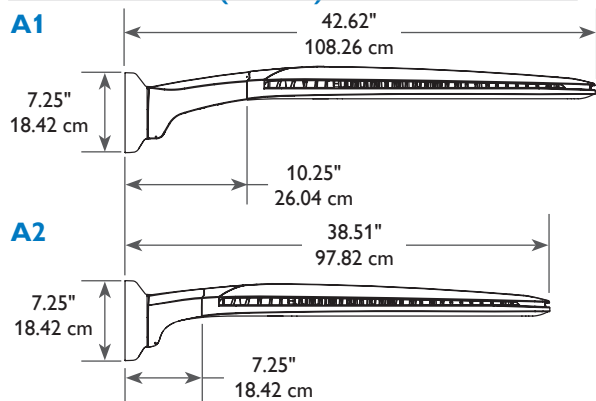
## DECORATIVE ARM MOUNT (A3)



## MAST ARM MOUNT (MA)



## WALL MOUNT (W/WS)



	Effective Projected Area (EPA)			Approximate Weight - Single Luminaire
	Single	Twin	3/4	
P32 A1 Standard Arm	0.40 ft <sup>2</sup> 0.038 m <sup>2</sup>	0.80 ft <sup>2</sup> 0.075 m <sup>2</sup>	1.65 ft <sup>2</sup> 0.154 m <sup>2</sup>	57 lbs 25.87 kg
P32 A2 Short Arm	0.35 ft <sup>2</sup> 0.033 m <sup>2</sup>	0.70 ft <sup>2</sup> 0.066 m <sup>2</sup>	1.45 ft <sup>2</sup> 0.135 m <sup>2</sup>	56 lbs 25.40 kg
P32 A3 Decorative Arm	0.55 ft <sup>2</sup> 0.052 m <sup>2</sup>	1.10 ft <sup>2</sup> 0.103 m <sup>2</sup>	2.00 ft <sup>2</sup> 0.186 m <sup>2</sup>	60.5 lbs 27.44 kg
P32 MA Mast Arm Fitter	0.40 ft <sup>2</sup> 0.038 m <sup>2</sup>			57 lbs 25.87 kg
P32 W/WS Wall Mount				58 lbs 26.31 kg



Learn more about the Philips Gardco PureForm family of luminaires at [sitelighting.com/pureform](http://sitelighting.com/pureform)

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### Philips Gardco Warranty

Philips Gardco luminaires feature a 5 year limited warranty. Philips Gardco LED luminaires with LED arrays feature a 5 year limited warranty covering the LED arrays. LED Drivers also carry a 5 year limited warranty. Motion sensors are covered by warranty for 5 years by the motion sensor manufacturer. See Warranty Information on [sitelighting.com](http://sitelighting.com) for complete details and exclusions. Polycarbonate lenses carry a 1 year warranty.



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Document order number: G100-029/0412