



Gardco PureForm LED bollard PBL integrates a sleek, low profile design, extraordinary light output, and energy savings into an innovative pedestrian scale luminaire. PureForm bollard features a high performance optical system designed to achieve wide spacings and full cutoff performance. Three heights available for a customized look. IP66 optics ensure dust or moisture will never interfere with performance.

Project: _____

Location: _____

Cat.No: _____

Type: _____

Lamps: _____ Qty: _____

Notes: _____

Ordering guide

example: PBL-42-14L-450-NW-G2-5-UNV

Prefix	Shaft Height	Number of LEDs	Drive Current	LED Color - Generation	Distribution	Emergency	Voltage
PBL							
PBL PureForm bollard	36 Standard Shaft 36"	14L 14 LEDs (full ring)	100 100mA	WW-G2 Warm White 3000K, 70 CRI Generation 2	Type 3 3 Type 3 Type 5 5 Type 5	Leave blank for no battery EBP Emergency battery ^{2,8,11}	120 120V
	42 Standard Shaft 42"		200 200mA				208 208V
	60 Standard Shaft 60"		350 350mA	NW-G2 Neutral White 4000K, 70 CRI Generation 2			240 240V
			450 450mA				277 277V
			600 600mA				347 347V
			800 800mA				480 480V
1050 1050mA	CW-G2 Cool White 5000K, 70 CRI Generation 2 ¹	UNV 120-277V (50/60Hz)					

Options				Finish
Dimming controls	Motion sensing	Photo-sensing	Electrical	
DD 0-10V External dimming (by others) ^{4,5} FAWS Field Adjustable ^{4,5} SW Interface module for SiteWise ^{3,4,5,6} LLC Wireless controls without PIR sensor ^{4,5,6} BL Bi-level functionality with motion sensor ^{4,12} DynaDimmer: Automatic Profile Dimming ^{4,5} CS50 Security 50% Dimming, 7 hours CM50 Median 50% Dimming, 8 hours CS30 Security 30% Dimming, 7 hours CM30 Median 30% Dimming, 8 hours	IMRI Integral infrared ^{7,12}	PCB Photocontrol Button ^{9,13}	Fusing F1 Single (120, 277, 347VAC) ⁹ F2 Double (208, 240, 480VAC) ⁹ F3 Canadian Double Pull (208, 240, 480VAC) ⁹ Surge Protection (10kA standard) SP2 Increased 20kA GFCI Ground Fault Interrupt Outlet ¹⁰	Textured BK Black WH White BZ Bronze DGY Dark Gray MGY Medium Gray Customer specified RAL Specify optional color or RAL (ex: RAL7024) CC Custom color (Must supply color chip for required factory quote)

1. Extended lead times apply. Contact factory for details.
 2. Not available in 100, 200 or 350mA.
 3. Available in 120V or 277V only.
 4. Not available with other control options.
 5. Not available with motion sensor.

6. Not available with photocontrol.
 7. Available only with BL dimming control.
 8. Not available with SW, LLC, and CS/CM.
 9. Must specify input voltage.
 10. Available in 120V only.

11. Not available in 347 or 480V.
 12. Not available in 100, 200, and 1050mA.
 13. Not available with SW or LLC.

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Site & Area

LED Wattage and Lumen Values

Ordering Code	LED Qty	LED Current (mA)	Color Temp.	Average System Watts	Type 3			Type 5		
					Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)
PBL-14L-100-NW-G2-xx	14	100	4000	6.1	492	B0-U0-G0	81	538	B1-U0-G0	88
PBL-14L-200-NW-G2-xx	14	200	4000	10.6	965	B0-U0-G0	91	1055	B1-U0-G0	100
PBL-14L-350-NW-G2-xx	14	350	4000	17.7	1608	B0-U0-G0	91	1758	B1-U0-G0	99
PBL-14L-450-NW-G2-xx	14	450	4000	23.1	2007	B0-U0-G1	87	2195	B2-U0-G1	95
PBL-14L-600-NW-G2-xx	14	600	4000	30.3	2551	B1-U0-G1	84	2789	B2-U0-G1	92
PBL-14L-800-NW-G2-xx	14	800	4000	40.5	3198	B1-U0-G1	79	3497	B2-U0-G1	86
PBL-14L-1050-NW-G2-xx	14	1050	4000	53.8	3853	B1-U0-G1	72	4213	B3-U0-G1	78

Values from photometric tests performed in accordance with IESNA LM-79 and are representative of the configurations shown. Actual performance may vary due to installation and environmental variables, LED and driver tolerances, and field measurement considerations. It is highly recommended to confirm performance with a photometric layout.

NOTE: Some data may be scaled based on tests of similar (but not identical) luminaires. Contact factory for configurations not shown.

LED Wattage and Lumen Values (Emergency Mode)

Ordering Code	LED Qty	LED Current (mA)	Color Temp.	Lumen Outputs					
				Avg. System Watts		Type 3		Type 5	
				Normal Mode	Emergency Mode	Normal Mode	Emergency Mode	Normal Mode	Emergency Mode
PBL-14L-450-NW-G2-xx-EBP	14	450	4000	23.1	10.4	2007	1211	2195	1324
PBL-14L-600-NW-G2-xx-EBP	14	600	4000	30.3	10.4	2551	1211	2789	1324
PBL-14L-800-NW-G2-xx-EBP	14	800	4000	40.5	10.4	3198	1211	3497	1324
PBL-14L-1050-NW-G2-xx-EBP	14	1050	4000	53.8	10.4	3853	1211	4213	1324

For emergency EBP option, publish values are based on initial lumens.

Predicted Lumen Depreciation Data

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. L₇₀ is the predicted time when LED performance depreciates to 70% of initial lumen output. Calculated per IESNA TM21-11. Published L₇₀ hours limited to 6 times actual LED test hours

Ambient Temperature °C	Driver mA	Calculated L ₇₀ Hours	L ₇₀ per TM-21	Lumen Maintenance % at 60,000 hrs
25°C	up to 1050mA	>100,000 hours	>60,000 hours	>95%

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Specifications

Housing

Main body housing and yoke made of low copper cast aluminum alloy for a high resistance to corrosion. Luminaire shaft features a cylindrical extruded aluminum base housing. Bottom section has a casted ring for ease of assembly. It attaches to base assembly with four (4) hex head set screws. Most electrical components are integrated in the shaft of the bollard by design. This allows for the sleek profile, giving the freedom to have a clean minimalist aesthetic design with minimum obstruction to optical performance. Luminaire housing rated to IP65, tested in accordance to Section 9 of IEC 60598-1.

Light engine

Light engine comprises of a 14-LED module made out of aluminum metal clad board fully sealed with optics. Module is RoHS compliant. Color temperatures: 3000K +/- 125K, 4000K, 5000K +/- 200K. Minimum CRI of 70. LED light engine is rated IP66 in accordance to IEC 60598.

Energy saving benefits

System efficacy up to 100 lms/W with significant energy savings over Pulse Start Metal Halide luminaires. Optional control options provide added energy savings during unoccupied periods.

Optical systems

Type 3 and 5 distributions available. Performance tested per LM-79 and TM-15 certifying its photometric performance. Luminaire designed with 0% uplight (UO per IESNA TM-15).

Mounting

Base assembly consists of a cast aluminum platform. Assembly is secured and leveled to the mounting foundation with four (4) 3/8" X 8" x 1 1/2" (.953 cm x 20.32 cm x 3.81 cm)-16 anchor bolts on a 2 3/4" (6.9 cm) bolt circle.

Control options

0-10V dimming (DD): Access to 0-10V dimming leads supplied through base of luminaire (for secondary dimming controls by others). Cannot be used with other control options.

Field Adjustable Wattage Selector (FAWS): Luminaire equipped with the ability to manually adjust the wattage in the field to reduce total luminaire lumen output and light levels. Comes pre-set to the highest position at the lumen output selected. Use chart below to estimate reduction in lumen output desired. Cannot be used with other control options or motion response.

FAWS Position	Percent of Typical Lumen Output
1	25%
2	50%
3	55%
4	65%
5	75%
6	80%
7	85%
8	90%
9	95%
10	100%

Note: Typical value accuracy +/- 5%

SiteWise (SW): SiteWise system includes a controller fully integrated in the luminaire that enables the luminaires to communicate with a dimming signal transmitter cabinet located on site using patented central dimming technology. A locally accessible mobile app allows users to access the system and set functionalities such as ON/OFF, dimming levels and scheduling. Cannot be used with other control options, motion response or photocell options. Additional functionalities are available such as communication with indoor lighting and connection to BMS systems. Complete information on the control system can be found on the SiteWise website at signify.com/sitewise.

Automatic Profile Dimming (CS/CM): Standard dimming profiles provide flexibility towards energy savings goals while optimizing light levels during specific dark hours. Dimming profiles include two dimming settings including dim to 30% or 50% of the total lumen output. When used in combination with not programmed motion response it overrides the controller's schedule when motion is detected. After 5 minutes with no motion, it will return to the automatic dimming profile schedule.

Automatic dimming profile scheduled with the following settings:

- **CS50/CS30:** Security for 7 hours night duration (Ex., 11 PM - 6 AM)
- **CM50/CM30:** Median for 8 hours night duration (Ex., 10 PM - 6 AM)

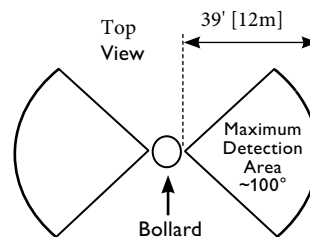
All above profiles are calculated from mid point of the night. Dimming is set for 6 hours after the mid point and 2, or 3 hours before depending of the duration of dimming. Cannot be used with other dimming control options.

Wireless system (LLC): Optional wireless controller integral to luminaire ready to be connected to a Limelight system (sold by others). The system allows you to wirelessly manage the entire site, independent lighting groups or individual luminaires while on-site or remotely. Based on a high-density mesh network with an easy to use web-based portal, you can conveniently access, monitor and manage your lighting network remotely. Wireless controls can be combined with site and area, pedestrian, and parking garage luminaires as well, for a completely connected outdoor solution. Motion response capability can be installed in other luminaires in the mesh or on a remote pod accessory where pod is mounted to pole or wall.

Emergency Battery Pack (EBP): Emergency battery packs included integral to the luminaire, allowing for no field installation of remote emergency equipment. EBP is suitable for use in ambient temperature conditions from 0°C (-32°F) to 40°C (100°F) available on 450mA and up. The system is designed to have a secondary driver with relay to immediately detect AC power loss to power luminaire for a minimum of 90 minutes from the time power is lost. Available with 120-277V, or 'UNV' only.

Motion response options

Infrared Motion Response Integral (BL-IMRI): Motion Response module is mounted integral to luminaire factory pre-programmed to 20% dimming when not ordered with other control options. BL-IMRI is set/operates in the following fashion: When motion is not detected for a 5 -minute period, luminaires automatically dim to 20% power and light, gradually over a 2 -minute period. Once Motion is detected, luminaires immediately ramp to full power and light output until motion is not detected for a 5-minute period.



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Specifications (cont'd)

Electrical

Driver: Driver efficiency (>90% standard). 120-277V available. Bollards with 347V or 480V input require and include a step-down transformer (placed within the bollard shaft) to provide proper input voltage to the LED power supply. Open/short circuit protection. Optional 0-10V dimming to 10% power. RoHS compliant.

Surge protection: Each luminaire is provided as standard with surge protector tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/5kA waveforms for Line Ground, Line Neutral and Neutral Ground, and in accordance with U.S. DOE (Department of Energy) MSSLC (Municipal Solid-State Street Lighting Consortium) Model Specification for LED Roadway Luminaires Appendix D Electrical Immunity High Test Level 10kV / 5kA. Optional 20kV is available for additional protection.

Ground Fault Interrupt Outlet (GFCI): Optional Class A Rated White 15-Amp GFCI (Ground Fault Circuit Interrupter) Duplex Outlet provides electrical shock protection and prevents the risk of electrical fire caused by ground fault current. GFCI only available in MGY finish.

Listings

UL 1598 standard, suitable for Wet Locations. Suitable for use in ambients from -40° to 40°C (-40° to 104°F). The quality systems of this facility have been registered by UL to the ISO 9001 series standards. Most PureForm PBL configurations are DesignLights Consortium® qualified. Consult DLC Qualified Products list for more details.

Finish

Each standard color luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) textured polyester powdercoat finish. The surface treatment achieves a minimum of 1000 hours for salt spray resistant finish in accordance with testing performed and per ASTM B117 standard. Standard colors include bronze (BZ), black (BK), white (WH), dark gray (DGY), and medium gray (MGY). Consult factory for specs on optional or custom colors.

Warranty

PureForm luminaires feature a 5-year limited warranty. See signify.com/warranties for complete details and exclusions.

