LUMENFOCUS

Project: _____

Location: _____

Cat. #: _____

Type: _____

Quantity: _____

LED

PBL V2 4W | LED High Bay

Features:
- High performance LED technology
- 0-10V dimming drivers standard on all models - dimmable to 5% on all models, with most dimmable to 1%
- DALI drivers available based on configuration
- Field replaceable LED boards and drivers through Re-boardABILITY (more info on Page 3)
- Frosted diffusers available to help minimize glare and improve aesthetics
- A wide variety of lumen packages allows for flexibility in design and helps maximize energy savings
- Multiple controls options available
- The PBL V2's unibody design is surface mountable with easy access to the driver compartment from below

Applications:
Suitable for most commercial, industrial and institutional applications
- Retail
- Warehouse
- Manufacturing
- **Not** recommended for cold/frozen storage applications

Ambient Operating Temp.:
- -30°C to 40°C*

* for suspended mount applications. Contact factory for ambient temperature ratings for surface mount applications.

Construction:
- Housing and LED tray is precision brake formed from aluminum
- Pre-painted with a highly durable, highly reflective white finish

Certifications:
- UL 1598 listed for US and Canada, suitable for damp locations
- DesignLights Consortium qualified on specific configurations (refer to DLC qualified products list for exact model numbers) http://designlights.org/

Predicted Lifetime:
- L70: 165,000 hrs (calculated)
- L80: 104,000 hrs (calculated)
- L90: 50,000 hrs (reported)
- 88% lumen maintenance @ 60,000 hrs

(based on LM80 and insitu laboratory testing)

Warranty:
- 5 year limited system warranty - see www.LumenFocus.com for complete warranty terms and conditions

MADE IN USA
USING DOMESTIC AND FOREIGN COMPONENTS

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Ordering Guide:

example: PBL V2 4W HI UV 850 QC20

Series	Length	Output	Voltage	Shielding	CRI/CCT	Hanging	Controls	Options	Finish
PBL V2	4W								
PBL V2 PBL Version 2	**4W** 4'	**LW** Low	**UV** 120-277	**Blank** No Lenses	**835** 80 CRI/3500K	**Blank** None	**Blank** No Controls	**Blank** No Options	**Blank** White
		MD Medium	**34** 347V	**FR** Frosted Acrylic Diffusers[1]	**840** 80 CRI/4000K	**QC** 10' Quick Hang Cable Kit	**ZOS** Occupancy Sensor (On/Off)	**C6** 6' Single Circuit Cord	**BK** Matte Black
		HI High	**48** 480V		**850** 80 CRI/5000K	**QC20** 20' Quick Hang Cable Kit	**ZOSD** Occupancy Sensor (On/Off/Dim)	**C65W** 6' Single Circuit Cord with Low Voltage Connections	**SL** Metallic Silver
		VH Very High				**SM** Surface Mount	**ZOFD1** Leviton Bluetooth-enabled Programmable Dimming/ Occupancy/Daylight Harvesting Sensor with Grouping (120-277V)[2]	**C10** 10' Single Circuit Cord	
		SH Super High		**Blank** No Lenses			**ZOFDU** Leviton Bluetooth-enabled Programmable Dimming/ Occupancy/Daylight Harvesting Sensor with Grouping, Scheduling (120-480V)[2]	**C105W** 10' Single Circuit Cord with Low Voltage Connections	
							Z221BL_ Wattstopper Programmable Photo/Motion Multi-Voltage Sensor (high/low/off)[3]	**D6** 6' Dual Circuit Cord	
							Z321BL_ Wattstopper Bluetooth-enabled Programmable Photo/Motion Multi-Voltage Sensor (high/low/off)[3]	**D10** 10' Dual Circuit Cord	
							ZOSMHB Leviton High Bay Microwave 0-10V Multi-Level Occupancy Sensor with Photocell [4]	**P(NEMA)** Plug (Specify NEMA configuration)	
							ZPC Photocell	**SC** Safety Cable	
							ZENLC Enlighted Ruggedized Sensor with Dimming/Occupancy/ Daylight Harvesting and Enlighted Connected System[5]	**F** Fuse	
							ZENLI Enlighted Ruggedized Sensor with Dimming/Occupancy/Daylight Harvesting and Enlighted IoT System[5]	**EM6** 6.5W Emergency Pack[6]	
								EM10 10W Emergency Pack[6]	
								EM14 14W Emergency Pack[6]	
								EM20 20W Emergency Pack[6]	
								SDT(480V) 480V to 277V Step Down Transformer	
								CC Conformal Coating	
								LVL 0-10V Dimming Leads for Easy Field Access	
								BAA Buy American Act Compliant	

Notes

[1] Frosted Lenses (FR) not available on SH output models

[2] For 8' to 40' mounting heights. See Page 5 for more details.

[3] "_" = lens type. See Page 5 for lens descriptions.

[4] 120-277V Only. Max ceiling height is 50 feet. See page 5 for more details.

[5] Max ceiling height for Enlighted Ruggedized sensor 50 feet. See Page 6 for more details on advanced controls.

[6] 120-277V / 0°C-55°C ambient. To estimate lumen output in emergency mode, multiply EM wattage by the Lumens per Watt of the luminaire it is installed in.
 ex. PBL V2 4W MD UV 850 EM14 → 161.3 LPW x 14W = 2,258 lm

Accessories *(order separately)*

WG(PBL4W) Wire Guard
WGE(PBL4W) Extended Wire Guard for use with end-mounted sensor

Controls Accessories *(order separately)*

For Enlighted Controls
WS-2-00 Enlighted Remote Control Wall Switch (for Enlighted Connected & IoT)

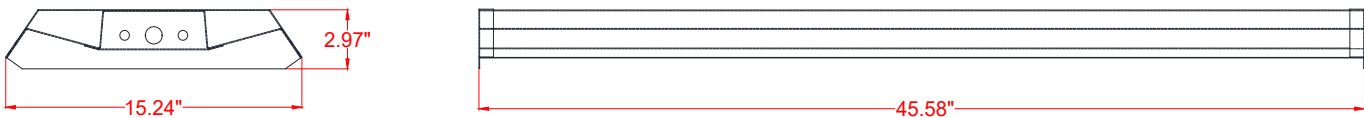**For Z221BL_ Sensor**
FSIR-100 Wireless Configuration Tool

**For ZOSMHB Sensor**
ZLS0R Wireless Configuration Tool

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Schematic:

2.97"

15.24"

45.58"

Performance Chart:

Catalog #	Lumens	Watts	LPW
PBL V2 4W LW UV 835	30955.1	190.8	162.3
PBL V2 4W MD UV 835	34873.0	222.2	156.9
PBL V2 4W HI UV 835	39112.3	254.1	153.9
PBL V2 4W VH UV 835	51640.0	334.9	154.2
PBL V2 4W SH UV 835	63487.1	397.1	159.9
PBL V2 4W LW UV FR 835	29160.1	190.8	152.8
PBL V2 4W MD UV FR 835	32850.7	222.2	147.8
PBL V2 4W HI UV FR 835	36844.2	254.1	145.0
PBL V2 4W VH UV FR 835	48645.4	334.9	145.2

Catalog #	Lumens	Watts	LPW
PBL V2 4W LW UV 840	31814.1	190.8	166.8
PBL V2 4W MD UV 840	35840.7	222.2	161.3
PBL V2 4W HI UV 840	40197.7	254.1	158.2
PBL V2 4W VH UV 840	53072.9	334.9	158.5
PBL V2 4W SH UV 840	65248.9	397.1	164.3
PBL V2 4W LW UV FR 840	29969.2	190.8	157.1
PBL V2 4W MD UV FR 840	33762.3	222.2	151.9
PBL V2 4W HI UV FR 840	37866.6	254.1	149.0
PBL V2 4W VH UV FR 840	49995.3	334.9	149.3

Catalog #	Lumens	Watts	LPW
PBL V2 4W LW UV 850	31814.1	190.8	166.8
PBL V2 4W MD UV 850	35840.7	222.2	161.3
PBL V2 4W HI UV 850	40197.7	254.1	158.2
PBL V2 4W VH UV 850	53072.9	334.9	158.5
PBL V2 4W SH UV 850	65248.9	397.1	164.3
PBL V2 4W LW UV FR 850	29969.2	190.8	157.1
PBL V2 4W MD UV FR 850	33762.3	222.2	151.9
PBL V2 4W HI UV FR 850	37866.6	254.1	149.0
PBL V2 4W VH UV FR 850	49995.3	334.9	149.3

Lumen Adjustment Factors: WG: 0.947

LUMENFOCUS
Re-boardABILITY

The PBL V2 features field replaceable boards and drivers. This allows you to upgrade to more efficient technology in the future. Or, in the rare event of a failure, you can rapidly replace defective components. Re-boardABILITY helps to ensure you won't get stuck with an obsolete light fixture. Learn more about Re-boardABILITY here.
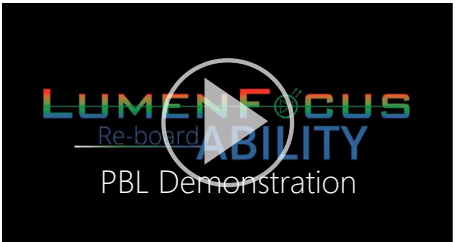
PBL Demonstration

Click here for a video demonstration of the re-boarding process on a PBL.
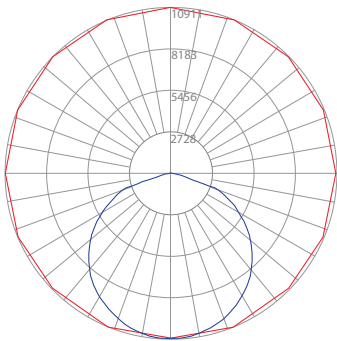Note: Exact time varies depending on the model.

Photometric Data:

PBL V2 4W LW UV 850

Test No.: LLIA001687-021
Luminaire Lumens: 31,814 lm
Luminaire Watts: 190.8W
Efficacy: 166.8 LPW
Spacing Criterion (0-180): 1.30
Spacing Criterion (90-270): 1.28

Luminance Data (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	24445	23991	24121
55	23983	23463	23776
65	22670	22272	22893
75	18908	20452	7936
85	9710	6182	6697

— Vert. Plane
— Horiz. Cone

Coefficients Of Utilization - Zonal Cavity Method
Effective Floor Cavity Reflectance 0.20

RC		80				70				50				30		
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106
1	109	104	100	96	106	102	98	95	98	95	92	94	91	89
2	99	91	84	78	96	89	83	77	85	80	76	82	78	74
3	90	80	71	65	88	78	70	64	75	68	63	72	67	62
4	82	70	62	55	80	69	61	54	66	59	54	64	58	53
5	76	63	54	47	74	62	53	47	59	52	46	57	51	46
6	70	56	47	41	68	55	47	41	54	46	40	52	45	40
7	65	51	42	36	63	50	42	36	49	41	36	47	40	35
8	60	46	38	32	59	46	38	32	44	37	32	43	36	32
9	56	43	34	29	55	42	34	29	41	34	29	40	33	28
10	53	39	31	26	51	39	31	26	38	31	26	37	30	26

Zonal Lumen Summary

Zone	Lumens	%Fixt
0-20	3974.7	12.5
0-30	8492.6	26.7
0-40	14027.1	44.1
0-60	25257.4	79.4
0-80	31453.2	98.9
0-90	31810.9	100.0
90-120	3.6	0.0
90-130	3.6	0.0
90-150	3.6	0.0
90-180	3.6	0.0
0-180	31814.5	100.0

Tested in accordance with IES standards utilizing absolute photometry per LM-79-08

PBL V2 4W MD UV FR 850

Test No.: LLIA001687-022
Luminaire Lumens: 33,763 lm
Luminaire Watts: 222.2W
Efficacy: 151.9 LPW
Spacing Criterion (0-180): 1.24
Spacing Criterion (90-270): 1.28

Luminance Data (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	23076	24298	25337
55	20162	23041	24717
65	16454	21619	23998
75	12328	20039	17209
85	7707	11715	11153

— Vert. Plane
— Horiz. Cone

Coefficients Of Utilization - Zonal Cavity Method
Effective Floor Cavity Reflectance 0.20

RC		80				70				50				30		
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106
1	109	104	100	96	106	102	98	94	97	94	91	93	91	88
2	99	90	84	78	96	89	82	77	85	80	75	82	77	73
3	90	79	71	65	87	78	70	64	75	68	63	72	66	62
4	82	70	61	55	80	69	61	54	66	59	54	64	58	53
5	76	63	54	47	74	62	53	47	60	52	46	58	51	46
6	70	57	48	41	68	56	47	41	54	46	41	52	45	40
7	65	51	42	36	63	50	42	36	49	41	36	47	41	36
8	60	47	38	32	59	46	38	32	45	37	32	43	37	32
9	56	43	35	29	55	42	34	29	41	34	29	40	33	29
10	53	40	32	26	52	39	31	26	38	31	26	37	31	26

Zonal Lumen Summary

Zone	Lumens	%Fixt
0-20	4354.2	12.9
0-30	9247.3	27.4
0-40	15130.7	44.8
0-60	26578.3	78.7
0-80	33047.8	97.9
0-90	33730.7	99.9
90-120	32.1	0.1
90-130	32.1	0.1
90-150	32.1	0.1
90-180	32.1	0.1
0-180	33762.7	100.0

Tested in accordance with IES standards utilizing absolute photometry per LM-79-08

Controls Summary:

Control Code	Type	Capabilities	Communication
ZOS	Motion (PIR)	On/Off	Wired
ZOSD	Motion (PIR), Photosensor	On/Low/Off	Wired 1-10V
ZOFD1	Motion (PIR), Daylight Harvesting	High/Low/Off, High-End Trim, Grouping	Wired 0-10V, Programmable via Bluetooth App (iOS, Android)
ZOFDU	Motion (PIR), Daylight Harvesting	High/Low/Off, High-End Trim, Grouping, Scheduling	Wired 0-10V, Programmable via Bluetooth App (iOS, Android)
Z221BLx	Motion (PIR), Photosensor	High/Low/Off, High-End Trim	Wired 0-10V, Programmable via IR remote (sold separately)
Z321BLx	Motion (PIR), Daylight Harvesting	High/Low/Off, High-End Trim	Wired 0-10V, Programmable via Bluetooth App (iOS, Android)
ZOSMHB	Motion (Microwave), Photosensor	On/Low/Off	Wired 0-10V, Programmable via ZLS0R IR remote (sold separately)
ZPC	Photosensor	On/Off	Wired
ZENLC	Motion (PIR), Daylight Harvesting	High/Low/Off, High-End Trim, Grouping, Scheduling*, Energy Monitoring*, BMS Integration*, Upgradable to IoT (ZENLI), LLLC (Enlighted IoT)*	Wireless Bluetooth Low Energy Mesh, Programmable via Enlighted IoT Software
ZENLI	MoMotion (PIR), Daylight Harvesting	High/Low/Off, High-End Trim, Grouping, Scheduling*, Energy Monitoring*, BMS Integration*, LLLC (Enlighted IoT)*, Space - Building Utilization*, Where - Real Time Location Services*	Wireless Bluetooth Low Energy Mesh, Programmable via Enlighted IoT Software

LLLC = Luminaire Level Lighting Control
* Additional equipment required. Contact LumenFocus representative for details

Programmable Dimming Sensors:

ZOFDx Sensor Option

- Leviton Smart IP66 passive infrared (PIR) sensors
- Features mesh grouping (16 devices per group), occupancy sensing, daylight harvesting, scheduling (for ZOSFDU only), single-level switching
- Comes pre-installed on the end cap
- Rated for cold locations
- Configurable through the Leviton Smart Sensor App using a smartphone or other Bluetooth-enabled iOS or Android device

The ZOFD option includes four sensor lenses that can easily be installed or swapped out in the field. From left: the high bay lens (20'-40' mounting), the high bay lens with aisleway mask, the low bay lens (8'-20' mounting), and the low bay lens with aisleway mask.

FSP with L7 lens

FSIR-100

Z221B, Z321B Sensor Options

- The Wattstopper FSP sensor provides multi-level control based on motion and/or daylight contribution
- Comes pre-installed on the end cap
- Rated for cold locations
- Parameters for Bluetooth-enabled Z321B adjustable via phone app - iOS or Android
- Parameters for Z221B adjustable via wireless configuration tool (FSIR-100 - sold separately)
- Three lenses available, tailored for the ideal detection area and mounting height:
  - **L2:** 360° lens, maximum coverage 48', diameter from 8' height
  - **L3:** 360° lens, maximum coverage 40', diameter from 20' height
  - **L7:** 360° lens, maximum coverage 100', diameter from 40' height

ZOSMHB Sensor Option

- Provides occupancy detection and multi-level control with adjustable time-outs
- Tri-level dimming control
- Comes pre-installed on the end cap
- Suitable for cold storage locations
- Built-in photocell reads brightness values. Sensor does not switch luminaire on if there is sufficient ambient light
- Control parameters selected manually via DIP switches, or using the optional ZLS0R remote (sold separately) - adjustable parameters include sensitivity, hold time, lux level, stand-by light level, stand-by hold time
- Maximum mounting height of 50 feet, with adjustable coverage radius up to 30 feet

ZLS0R

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Enlighted: All-in-one sensors, upgradeable systems

Enlighted's IP65-rated Ruggedized Sensor is an all-in-one unit: task tuning, high-end trimming, daylight harvesting, and occupancy/vacancy detection. Max installation height is 50 feet.
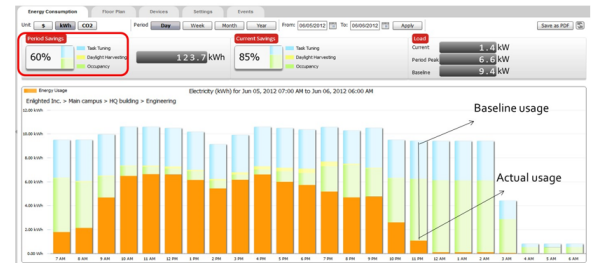
Enlighted Connected ("ZENLC") offers many features, including motion and switch groups, daylight harvesting, energy reporting, and more. The Enlighted IoT ("ZENLI") option allows the full implementation of Enlighted's services. Enlighted Connected can be fully upgraded to the next tier in the future. So if you start with ZENLC but want to add the functionality of the ZENLI option, you can.

Enlighted Capabilities*	Enlighted Connected (ZENLC)	Enlighted IoT (ZENLI)
Motion and Switch Groups	✔	✔
Daylight Harvesting	✔	✔
Schedule Lighting	✔	✔
Energy Reporting & Optimization	✔	✔
Environment Data & Lighting Controls API	✔	✔
Building Management System Integration	✔	✔
Where & Space Applications		✔
Location & Occupancy APIs & Beaconing		✔
Future App & API Ready		✔

Real-time data analytics

Enlighted's control units compile data in real-time, which can be viewed via the Energy Manager. The Energy Manager is part of the Enlighted Connected and Enlighted IoT configurations.
• Real-time measurements and verification of energy savings
• Space analytics - data can be compiled into motion trails and heat maps
• Analyze traffic density and congestion in a space

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Mounting:

Surface Mount
The PBL V2 is designed to be easily mounted to any sturdy surface. Simply remove the hex head screws holding the driver cover (top picture, in green) to access the bottom of the housing below. The housing can be mounted to the surface from the four holes in each corner of the channel (bottom picture, circled).
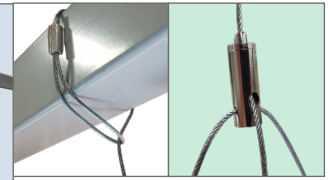
Cable Mount
The optional QC hanging kit comes in 10' or 20'. Cables are pre-looped for easy installation and designed for easy fixture height adjustment. QCs come boxed with each fixture when ordered.

Other Options:
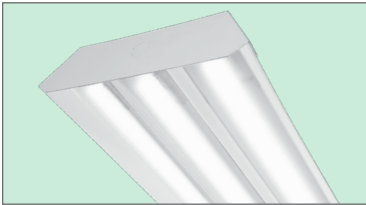
Shielding
Frosted acrylic diffuser lenses minimize glare and improve aesthetics.

Cords
are available in single circuit or dual circuit, 6' or 10'. Standard plug is optional, as are other NEMA configurations if specified.

Conformal coating
Grants LED boards added protection from moisture and corrosion in more hazardous environments.

Finish
In addition to the standard white finish, the PBL V2 is also available in matte black (BK) and metallic silver (SL).