LUMENFOCUS

Project: _____

Location: _____

Cat. #: _____

Type: _____

Quantity: _____

LED

PBL G2 HD-4 | LED Heavy Duty High Bay

Features:

- High performance LED technology
- 0-10V dimming drivers standard on all models - dimmable to <10% 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

Applications:

Suitable for most commercial, industrial and institutional applications

- Gymnasiums
- Recreation Centers
- Manufacturing
- Warehouse
- Cold/Frozen Storage

Ambient Operating Temp.:

- -30°C to 50°C

Predicted L70 Lifetime:

- L70 > 188,000 hrs (calculated)
- L90 > 60,000 hrs (reported)

(based on LM-80, TM-21 and in-situ laboratory testing)

Construction:

- Housing is precision brake formed from heavy duty 0.063" 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/

Warranty:

- 5 year limited system warranty - see www.LumenFocus.com for complete warranty terms and conditions
- 10 year warranty option available on specific models

(Not available on all models. Certain conditions apply. Consult factory or sales representative for details.)

MADE IN USA

USING DOMESTIC AND FOREIGN COMPONENTS

10 YEAR EXTENDED WARRANTY AVAILABLE ON CERTAIN MODELS

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www.lumenfocus.com
880 Facet Rd. | Henderson, NC 27537
252-430-6970

Ordering Guide:

example: PBL G2 4 HI UV 850 HDW PMS SL

Series	Length	Output	Performance	Voltage	Shielding	CRI/CCT	Gauge	Hanging	Controls	Options	Finish
PBL G2	4						HDW				
PBL G2	**4** 4'	**MD** Medium **HI** High **VH** Very High	**Blank** Standard **HE** High Efficiency	**UV** 120-277 **34** 347V **48** 480V	**Blank** No Lenses **FR** Frosted Acrylic Diffusers	**835** 80 CRI/3500K **840** 80 CRI/4000K **850** 80 CRI/5000K	**HDW** Heavy Duty 0.063" Aluminum Wide-Body Housing	**Blank** None **QC** 10' Quick Hang Cable Kit **QC20** 20' Quick Hang Cable Kit **PMS** Pendant Mount with Stabilizer **ST(x)** 3/4" Stem (Specify Length)	**Blank** No Controls **ZOS** Occupancy Sensor (On/Off) **ZOSD** Occupancy Sensor (On/Off/Dim) **Z221BL_** Wattstopper Programmable Photo/Motion Multi-Voltage Sensor (high/low/off)[1] **Z321BL_** Wattstopper Bluetooth-enabled Programmable Photo/Motion Multi-Voltage Sensor (high/low/off)[1] **ZPC** Photocell **ZFMS** Douglas FMS Sensor with Dimming/Occupancy/Daylight Harvesting with Newtork Capabilities[2] **ZENLO** Enlighted Ruggedized Sensor with Dimming/Occupancy/Daylight Harvesting and Enlighted One System[3] **ZENLC** Enlighted Ruggedized Sensor with Dimming/Occupancy/Daylight Harvesting and Enlighted Connected System[3] **ZENLI** Enlighted Ruggedized Sensor with Dimming/Occupancy/Daylight Harvesting and Enlighted IoT System[3]	**Blank** No Options **EXT10** 10-Year Extended Warranty[4] **C6** 6' Single Circuit Cord **C65W** 6' Single Circuit Cord with Low Voltage Connections **C10** 10' Single Circuit Cord **C105W** 10' Single Circuit Cord with Low Voltage Connections **D6** 6' Dual Circuit Cord **D10** 10' Dual Circuit Cord **P(NEMA)** Plug (Specify NEMA configuration) **SC** Safety Cable **F** Fuse **EM2** Emergency Pack[5] **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	**Blank** White **BK** Matte Black **SL** Metallic Silver

Notes

[1] "_" = lens type. See Page 6 for lens descriptions.
[2] Max ceiling height for Douglas FMS sensor: 40 feet.
See Page 5 for more details on advanced controls.
[3] Max ceiling height for Enlighted Ruggedized sensor 50 feet.
See Page 5 for more details on advanced controls.
[4] Not available on all models. Certain conditions apply.
Consult factory or sales representative for details.
[5] EM2 - Up to 16W. 120-277V / 0°C-50°C ambient.

Accessories *(order separately)*

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

Controls Accessories *(order separately)*

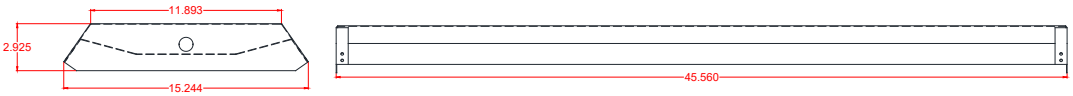
For Douglas Controls

BT-DMSW-U-A	Bluetooth 1 Zone Dimmer
BT-4BTSW-U-A	Bluetooth 4-Button Wall Station
BT-8BTSW-U-A	Bluetooth 8-Button Wall Station

For Enlighted Controls

WS-2-00	Enlighted Remote Control Wall Switch (for Enlighted Connected & IoT)
WS-2-00-IL	Enlighted Remote Control Wall Switch (for Enlighted One)

Schematic:



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Performance Chart:

Catalog #	Lumens	Watts	LPW
PBL G2 4 MD HE UV 835	19777	115	172.2
PBL G2 4 HI HE UV 835	23965	140	170.8
PBL G2 4 VH HE UV 835	27123	161	168.7
PBL G2 4 MD UV 835	19461	117	166.0
PBL G2 4 HI UV 835	23413	142	164.4
PBL G2 4 VH UV 835	27049	167	162.1
PBL G2 4 MD HE UV FR 835	18593	115	161.9
PBL G2 4 HI HE UV FR 835	22529	140	160.5
PBL G2 4 VH HE UV FR 835	25498	161	158.6
PBL G2 4 MD UV FR 835	18295	117	156.0
PBL G2 4 HI UV FR 835	22010	142	154.6
PBL G2 4 VH UV FR 835	25485	167	152.9

Catalog #	Lumens	Watts	LPW
PBL G2 4 MD HE UV 840	20486	115	178.4
PBL G2 4 HI HE UV 840	24824	140	176.9
PBL G2 4 VH HE UV 840	28095	161	174.7
PBL G2 4 MD UV 840	20159	117	171.9
PBL G2 4 HI UV 840	24252	142	170.3
PBL G2 4 VH UV 840	28018	167	167.9
PBL G2 4 MD HE UV FR 840	19259	115	167.7
PBL G2 4 HI HE UV FR 840	23337	140	166.3
PBL G2 4 VH HE UV FR 840	26412	161	164.3
PBL G2 4 MD UV FR 840	18951	117	161.6
PBL G2 4 HI UV FR 840	22799	142	160.1
PBL G2 4 VH UV FR 840	26399	167	158.4

Catalog #	Lumens	Watts	LPW
PBL G2 4 MD HE UV 850	20486	115	178.4
PBL G2 4 HI HE UV 850	24824	140	176.9
PBL G2 4 VH HE UV 850	28095	161	174.7
PBL G2 4 MD UV 850	20159	117	171.9
PBL G2 4 HI UV 850	24252	142	170.3
PBL G2 4 VH UV 850	28018	167	167.9
PBL G2 4 MD HE UV FR 850	19259	115	167.7
PBL G2 4 HI HE UV FR 850	23337	140	166.3
PBL G2 4 VH HE UV FR 850	26412	161	164.3
PBL G2 4 MD UV FR 850	18951	117	161.6
PBL G2 4 HI UV FR 850	22799	142	160.1
PBL G2 4 VH UV FR 850	26399	167	158.4

Lumen Adjustment Factors: WG: 0.95

Controls Summary:

Control Code	Type	Capabilities	Communication
ZOS	Motion (PIR)	On/Off	Wired
ZOSD	Motion (PIR), Photosensor	On/Low/Off	Wired 1-10V
Z221BLx	Motion (PIR), Photosensor	High/Low/Off, High-End Trim	Wired 0-10V, Programmable via IR remote (sold separately)
Z321BLx	Motion (PIR), Photosensor	High/Low/Off, High-End Trim	Wired 0-10V, Programmable via Bluetooth App (iOS, Android)
ZPC	Photosensor	On/Off	Wired
ZFMS	Motion (PIR), Daylight Harvesting	High/Low/Off, High-End Trim, Grouping, LLLC (Douglas Lighting Controls-Dialog)*	Wireless Bluetooth Mesh, Programmable via iOS App or Douglas Dialog Software
ZENLO	Motion (PIR), Daylight Harvesting	High/Low/Off, High-End Trim, Grouping, Upgradable to Connected (ZENLC) or IoT (ZENLI)	Wireless Bluetooth Low Energy Mesh, Programmable via Enlighted Room Controller WS-2-00-IL (sold separately)
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

LUMENFOCUS Re-boardABILITY

The PBL G2 HD 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.

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

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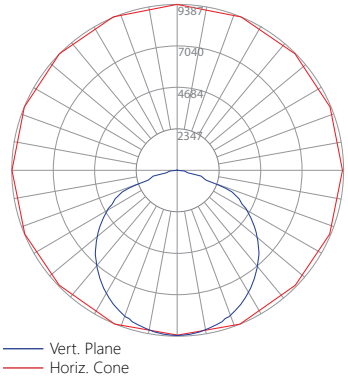
Photometric Data:

PBL G2 4 VH UV 835

Test No.: LLIA001249-011
Luminaire Lumens: 27,049 lm
Luminaire Watts: 166.9W
Efficacy: 162.1 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	28870	28262	28354
55	28145	27644	28070
65	26651	26549	27749
75	22345	15223	16059
85	10539	5606	7239



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	105	100	97	106	102	98	95	98	95	92	94	92	89
2	99	91	84	79	97	89	83	78	86	80	76	82	78	74
3	90	80	72	65	88	78	71	65	75	69	64	73	67	62
4	83	71	62	55	80	69	61	55	67	60	54	64	58	53
5	76	63	54	47	74	62	53	47	60	52	47	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	39	32	26	51	39	31	26	38	31	26	37	31	26

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

Zonal Lumen Summary

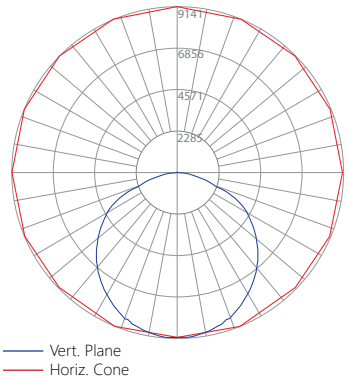
Zone	Lumens	%Fixt
0-20	3422.5	12.7
0-30	7301.8	27.0
0-40	12043.5	44.5
0-60	21642.9	80.0
0-80	26793.2	99.1
0-90	27044.8	100.0
90-120	3.8	0.0
90-130	3.8	0.0
90-150	3.8	0.0
90-180	3.8	0.0
0-180	27048.6	100.0

PBL G2 4 VH UV FR 835

Test No.: LLIA001249-010A
Luminaire Lumens: 25,485 lm
Luminaire Watts: 166.7W
Efficacy: 152.9 LPW
Spacing Criterion (0-180): 1.26
Spacing Criterion (90-270): 1.28

Luminance Data (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	24916	26347	27366
55	21869	25401	27142
65	17892	24419	26461
75	13502	21329	16848
85	8729	15719	12171



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	94	92	94	91	89
2	99	91	84	78	96	89	83	77	85	80	76	82	78	74
3	90	80	72	65	88	78	71	65	75	69	63	72	67	62
4	83	71	62	55	80	69	61	55	67	60	54	65	58	53
5	76	63	54	48	74	62	54	47	60	52	47	58	51	46
6	70	57	48	41	68	56	47	41	54	47	41	52	46	41
7	65	52	43	37	63	51	42	36	49	42	36	48	41	36
8	61	47	39	33	59	46	38	33	45	38	32	44	37	32
9	57	43	35	29	55	43	35	29	41	34	29	40	34	29
10	53	40	32	27	52	39	32	27	38	31	26	37	31	26

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

Zonal Lumen Summary

Zone	Lumens	%Fixt
0-20	3325.8	13.0
0-30	7059.4	27.7
0-40	11549.9	45.3
0-60	20303.7	79.7
0-80	25052.6	98.3
0-90	25481.7	100.0
90-120	3.7	0.0
90-130	3.7	0.0
90-150	3.7	0.0
90-180	3.7	0.0
0-180	25485.4	100.0

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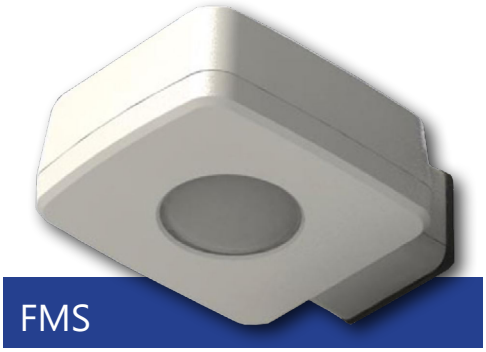
Douglas Lighting Controls, Inc.: Cloud-based controls

The PBL G2 HD can be equipped with the Douglas FMS sensor, which is designed for high bay applications.

With a max sensor height up to 40 feet, the FMS is ideal for applications like warehouses and manufacturing facilities. It can be installed for on/off control or bi-level light functionality. The daylight sensor provides additional savings by dimming the lights to work with the amount of natural available daylight.



- Configuration from the floor via smartphone app
- Bluetooth mesh network is created between devices for control over a group of Douglas sensors
- Occupancy and daylight sensing
- IP65-rated
- 0-10V dimming
- 150 feet clear line of site, 50 feet through standard walls (distances may vary based on location and environment)

CheckLight® Energy Management System

Douglas controls can be integrated with the CheckLight® Energy Management system. This system can help you uncover energy conversion opportunities, create conservation strategies, analyze lighting load inefficiencies, and make configuration changes from anywhere with Douglas' user-friendly interface. You can get measurements, reports, and control your system from a web-based application.

CheckLight® has the capability to look at different facilities within a portfolio and use data benchmarks to compare building performances.

- Find energy conservation opportunities
- Create energy saving strategies
- Analyze load inefficiencies
- Optimize energy management

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 sensors come standard with the Enlighted One system (the "ZENLO" option). Enlighted Connected ("ZENLC") offers even more options. The Enlighted IoT ("ZENLI") option allows the full implementation of Enlighted's services. Each system can be fully upgraded to the next tier in the future. So if you start with Enlighted One but want to add energy reporting or building management systems integration in the future, you can.

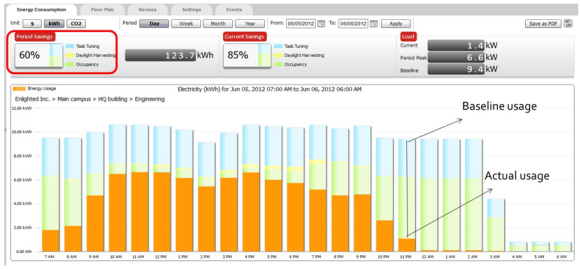
Enlighted Capabilities*	Enlighted One (ZENLO)	Enlighted Connected (ZENLC)	Enlighted IoT (ZENLI)
Motion and Switch Groups	✓	✓	✓
Daylight Harvesting	✓	✓	✓
Schedule Lighting		✓	✓
Energy Reporting & Optimization		✓	✓
Environment Data & Lighting Controls API		✓	✓
Building Management System Integration		✓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

Note: Additional equipment required for ZENLC and ZENLI

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



Learn more about our available advanced controls options here:
www.lumenfocus.com/controls-overview

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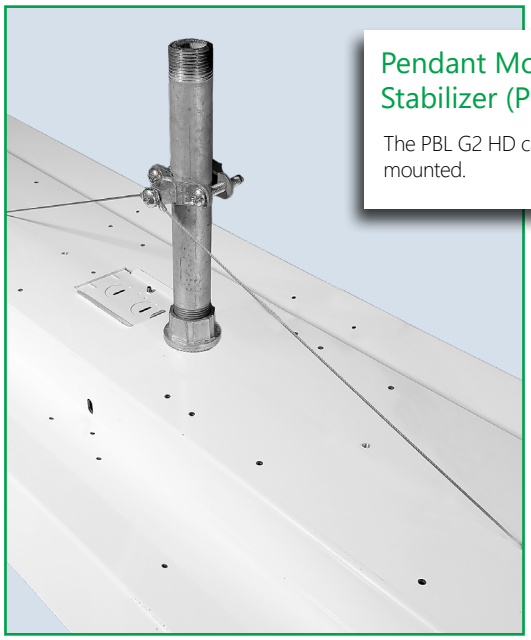
Hanging Options Available:

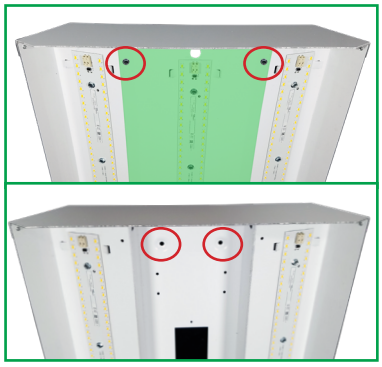


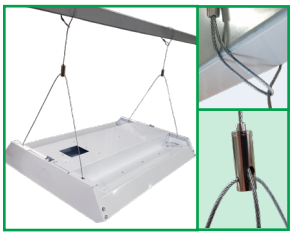
Pendant Mount with Stabilizer (PMS)

The PBL G2 HD can be pendant mounted.

Surface Mount

The PBL G2 HD is designed to be easily mounted to any sturdy surface. Simply remove the hex head screws holdingf 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).



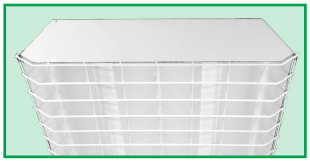


Cable Mount (QC, QC20)

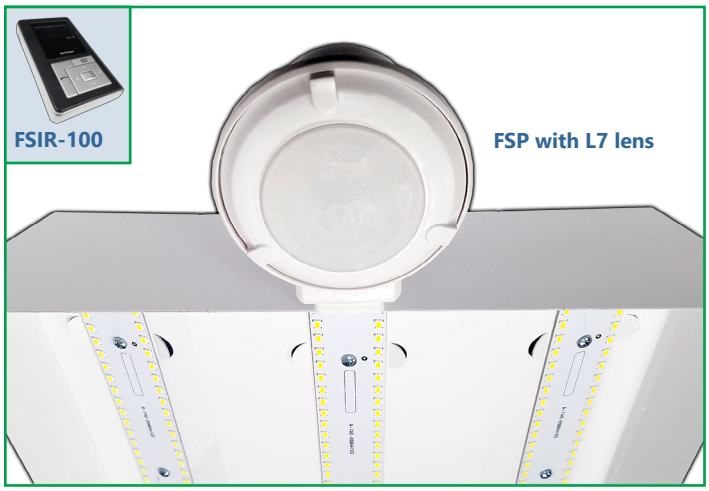
The QC hanging kit from ALP comes in 10' or 20'. Cables are pre-looped for easy installation and designed for easy fixture height adjustment. QCs come boxed with each fixture. A mechanically fastened safety cable (SC) is also optional.

Wireguard and shielding

Add an optional wireguard for added stability and protection - ideal for gymnasiums or other areas where the luminaire may be struck. Optional frosted acrylic diffuser lenses minimize glare and improve aesthetics.



Other controls available:



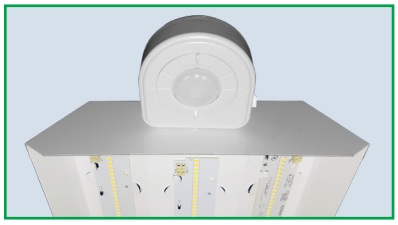
Dimming Sensors (Z221B/Z321B)

- 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:** 360º lens, maximum coverage 48', diameter from 8' height
  - **L3:** 360º lens, maximum coverage 40', diameter from 20' height
  - **L7:** 360º lens, maximum coverage 100', diameter from 40' height

Phone app interface for Z321B

On/Off Occupancy Sensors (ZOS)

An occupancy sensor controls individual fixtures on or off based on occupancy in detection zone. Sensor used: Leviton OSFHU-ITW (pictured), or equivalent.



Other Options:

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.

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