

Intelligent lighting control for harsh and heavy industrial areas

Safe. Reliable. Efficient.

3,000 to 7,000 lumens



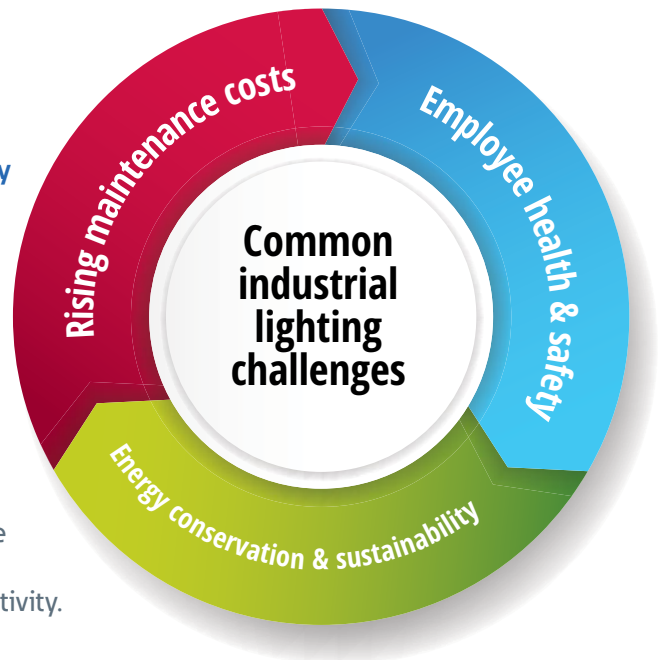
Powering Business Worldwide

Intelligent lighting control and insights

For hazardous, harsh and hard-to-access areas

Reliable lighting is a critical aspect of **industrial workplace safety and performance**. Poor or inadequate lighting is a leading factor in workplace accidents and injuries, and the risk goes up exponentially in classified environments. Lighting systems must provide high visibility while minimizing shadows and glare to help create a safe and productive work environment for your employees.

In addition to safety challenges, lighting systems in harsh and hazardous applications face **rising energy and maintenance costs** due to the over-usage of lights. Running lights more than necessary, often due to a lack of effective control, shortens the life of the fixtures and drives up material and labor costs. Slowing or stopping production to replace failed lighting impacts your productivity.



Champ Intelligent Lighting overcomes these challenges



Crouse-Hinds™ series Champ™ Intelligent Lighting fixtures are renowned for their reliability and safety in harsh and hazardous lighting applications. Now available with intelligent control and insight capabilities, they deliver more operational value and better total cost of ownership.

An intuitive app-based interface provides full lighting control at your fingertips—improving safety, maximizing energy savings and minimizing maintenance costs.



Control and insights—right from your phone!



Bluetooth low energy (BLE)



Fixture designed for performance and protection in harsh areas



Groups of lights with a shared intelligent profile to optimize lighting systems based on space and usage requirements

The benefits of Champ Intelligent Lighting



Note: Fixture shown without sensor.



Maintain up-time and minimize maintenance costs

Operate your lighting WHEN and WHERE you need it

Running lights more than necessary shortens the life of the fixtures and drives up material and labor costs. With Champ Intelligent Lighting control and insights, you can optimize your system to help eliminate over-usage and double the life of your lighting fixtures.

Maximize energy savings and sustainability

Provide the right amount of light at the right time

Full lighting control is at your fingertips with a range of intelligent features, including grouping, scheduling, dimming, occupancy sensing, high end trim and daylight harvesting. With an intuitive app, you can easily tune your light output based on space and specific usage requirements. Optimizing your lighting system through intelligent control can help reduce your energy consumption by up to 50%.

Improve safety and alarming

Help minimize personnel time spent in harsh areas

Champ Intelligent Lighting fixtures monitor ambient light, temperature, motion, energy consumption and overall fixture health. Any irregularities in these factors generate feedback alarms to your team, so you can take planned, proactive action and help maintain a safe work environment.

Bluetooth Low Energy (BLE) technology

Intuitive commissioning and control provide effortless management of your lighting system

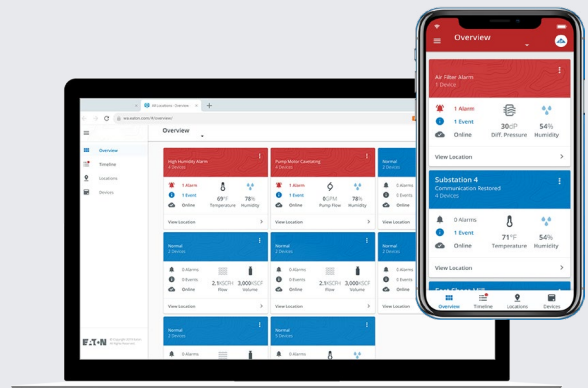
Unlike other "connected" lighting solutions that use complex hardware and software, Champ Intelligent Lighting fixtures feature a robust, easy-to-use interface.

- Designed to simplify light fixture control
- App-based configuration for effortless customization
- Creates a connected infrastructure for future scalability

Powered by Brightlayer

Champ Intelligent Lighting utilizes Eaton's Brightlayer Industrial suite, an industry-focused software solution that provides data and insights to drive real operational value for your facility, process or asset. With Brightlayer, you can use data from your operation, including installed equipment, to bring new opportunities into focus.

Software, data and services coupled with our industry expertise help give you the ability to leverage reliable, secure and actionable data to power your operation smarter.



Learn more about Brightlayer
Scan QR code or go to:

Eaton.com/Brightlayer

System control functionality



Live fixture ID

Our intuitive app-based dashboard enables quick and easy identification of individual lights installed in the field. Simply select "live id" for a specific fixture and it will cycle on and off three times.



Device grouping ^A

An added benefit that maximizes control in a defined area. By grouping light fixtures, the same control settings can be applied to them all, increasing efficiency and response time.



Wireless ON/OFF and dimming

Turn lights on and off directly from the app. Reduce energy consumption by setting dimming levels or high end trim. Used in conjunction with other control features, such as scheduling and occupancy sensing, to further improve energy savings.



Intelligent scheduling ^A

Allows for improving energy efficiency during non-operational hours. Easy app-based configuration lets a user set up schedules for lights to be on and off at pre-defined times, removing the challenges of manual management.



Occupancy sensing ^A

Ideal for areas that see infrequent traffic, such as storage areas of warehouses. Sensor controls can automatically illuminate the area once presence is sensed and turn lights back off when presence is no longer sensed.



Daylight harvesting ^A

Allows for use of the daylight and adjusts the light level of the luminaire to maintain desired light levels. It is best suited for outdoor environments or indoor areas where daylight is present during operational hours of a facility.

^A Requires advanced service plan subscription. Refer to page 5 for more information.

Provide the **RIGHT** amount of light, **WHEN** and **WHERE** you need it

With our intuitive app-based interface, you can utilize combinations of the above control functions across your facility to optimize light levels by site, while minimizing run time to lower your energy and maintenance costs.



Site 1: Low traffic, remote or restricted areas

- Keep lights off or dimmed to a safe minimum
- Utilize occupancy sensing to immediately bring grouped lights to a working level when triggered by movement
- Return lights to OFF or dimmed setting after a set period of inactivity

Site 2: High traffic area with heavy employee activity, typically during shifts

- Schedule lights to be OFF during non-operational hours and turn on when work starts
- Utilize daylight harvesting where applicable for system-driven changes of fixture light output to maintain consistent lumen levels throughout the day

Champ LED + Brightlayer

Unlock intelligent lighting control and insights that maximize safety, productivity and savings with Brightlayer Industrial software

The Brightlayer service plan provide flexible solutions for your specific lighting applications.

The advanced subscription plan provides customized lighting control with a wide range of intelligent features. Create lighting groups and set light levels that can be managed by schedule, available daylight and occupancy. This ensures that the safest light levels are maintained while minimizing energy consumption and eliminating the over-usage of lights.

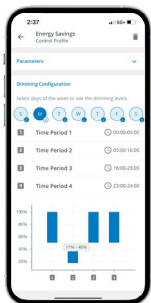
In addition to customized lighting control, our advanced plan provides you with each fixture's estimated remaining usable life. Use this data to schedule planned maintenance events to avoid possible safety issues from failed lights and to minimize personnel time spent in the hazardous areas.

The hardware only plan provides a standard fixture without controls. The fixture has the ability to be lighting control capable at a later date by adding the subscription plan.

How it works— designed for simplicity

1. Identify the light (Live ID)
2. Commission the light
3. Add light to a group
4. Set up group's intelligent control profile

All from your mobile device—no gateways or servers required



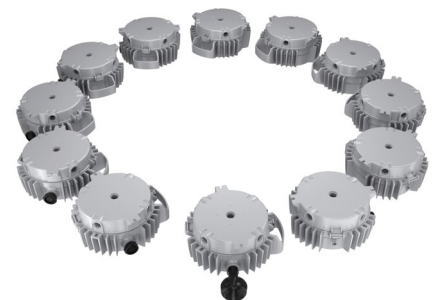
Brightlayer Industrial suite app



Bluetooth Low Energy (BLE) technology



Champ Intelligent Lighting fixture



Group of lights with a shared intelligent lighting profile

SERVICE PLANS

Hardware Only **ADVANCED**

SUPPORT

Pre-sale product training and lighting layout support	●	●
Post-sales technical support	●	●
Warranty	7 YEARS	10 YEARS

LIGHTING CONTROL FUNCTIONALITY

Wireless on/off/dimming		●
Live fixture ID		●
Fixture grouping		●
Advanced scheduling		●
Occupancy sensing		●
Daylight harvesting		●

LIVE INSIGHTS AND DATA

Remaining usable life		●
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OPERATION AND HARDWARE

iOS-based control/commissioning		●
Multiple fixtures/sites/groups/users support		●

Design features

The anatomy of a Champ Intelligent Lighting fixture

The Champ Intelligent Lighting fixture is a field-proven design that helps ensure safety, reliability and performance in harsh areas. Now, it's combined with intelligent control and insight capabilities to deliver more operational value and better total cost of ownership.

INTELLIGENT CONTROL AND INSIGHTS

A Smart driver and controller

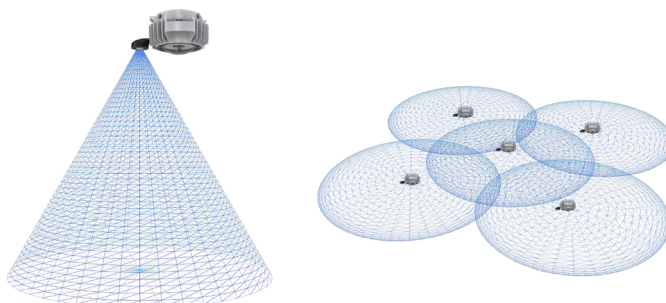
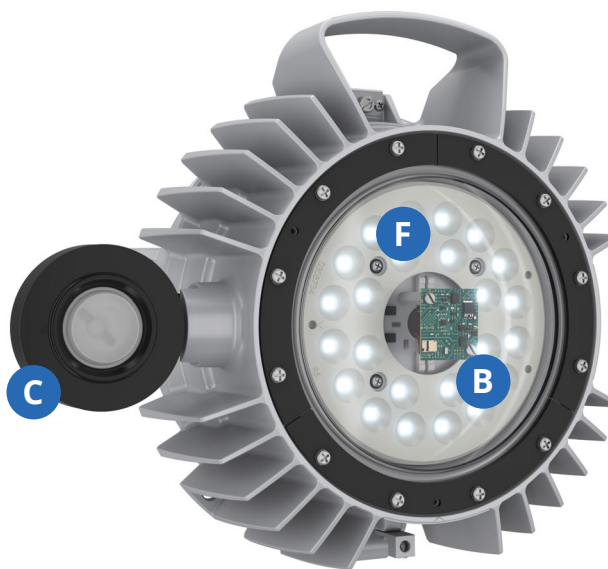
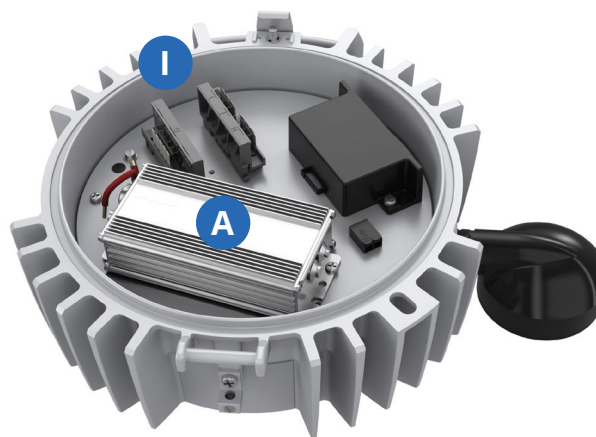
- Fully serviceable drivers are isolated from the primary heat source (LED engine) to maximize economic life
- User-selected option for thermal-rollback enables driver and LED protection during extreme temperature events
- 90-minute on-board back-up memory maintains system clock and control profiles in event of power disruption
- Controller manages dimming, scheduling and grouping functionality, as well as notifications and alarming
- Every PVML intelligent light fixture features connectivity capability

B Integrated antenna

- Attached to the optics board inside the lens, maintaining the fixture's harsh ratings
- Enables effortless connection to our Brightlayer Industrial lighting control interface. No complex hardware required to commission and control the lights
- Bluetooth Low Energy (BLE) protocol enables decentralized control of the system without complex and expensive IT network gear
- Up to 30 foot range fixture-to-fixture
- Backed by Eaton's Cybersecurity Center of Excellence, which enforces security through training, technology, best practices and industry standards

C Intelligent multi-sensor

- Replaceable sensor can be factory installed at purchase, or field installed at a later date
- Sensor is integral to light fixture—no field wiring required
- PIR occupancy sensor with LED indicator
 - Automatically illuminates the area once presence is detected
 - Light turns back off when presence is no longer sensed for a set period of time
- Photo sensor for daylight harvesting and lux reporting
 - Measures available daylight and adjusts the light level of the luminaire to maintain desired light levels



LONG-LIFE RELIABILITY

- D Thermal management**
 - Heat fins help ensure proper air flow and facilitate dust-shedding for effective heat dissipation and thermal management of LED engine
- E Performance in extreme environments**
 - Operating ambient -40 °C to +65 °C
 - Type 4X, IP66
 - Corrosion-resistant aluminum housing with Corro-free™ epoxy power coating
 - Vibration tested in accordance with Section 33 of UL 844
 - Impact tested in accordance with Section 68 of UL 844
 - 6 kV surge protection

LIGHT PERFORMANCE AND QUALITY

- F Custom optics and colors**
 - Directs light where you need it, helping eliminate gaps and dark spots
 - Can potentially reduce the number of light fixtures required in your application
 - Green and amber LEDs available for wildlife conservation applications



TYPE I
Long and rectangular for hallways, walkways, loading docks, catwalks

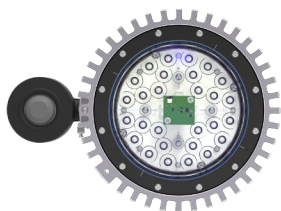


TYPE III
Stanchion and wall-mount light distribution, minimizing spillover on the wall

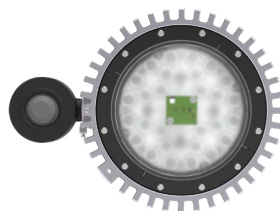


TYPE V
Regular circular distribution pattern for high/low bay indoor and outdoor ceiling or pendant mount lighting

- G Glass or polycarbonate lens with clear or diffused finish**
 - A variety of lens materials and finishes available to meet customer requirements or preference



CLEAR



DIFFUSED

INSTALLATION EASE

- H Retrofit-friendly universal top hats**
 - Crouse-Hinds series Champ LED luminaires utilize the same mounting modules as our legacy products, simplifying installation and significantly reducing costs in retrofit projects
 - We also offer mounting adapters and kits for quick connection to other manufacturers' modules (Appleton, Thomas and Betts, GE)
- I Lever lock connectors and terminal blocks**
 - Plug and play wiring simplifies and speeds installations
 - Accepts 10-20 AWG wire

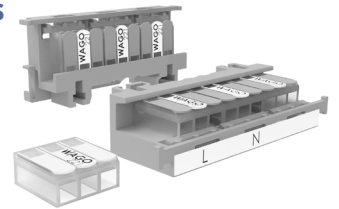
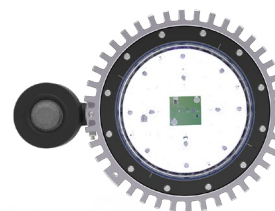
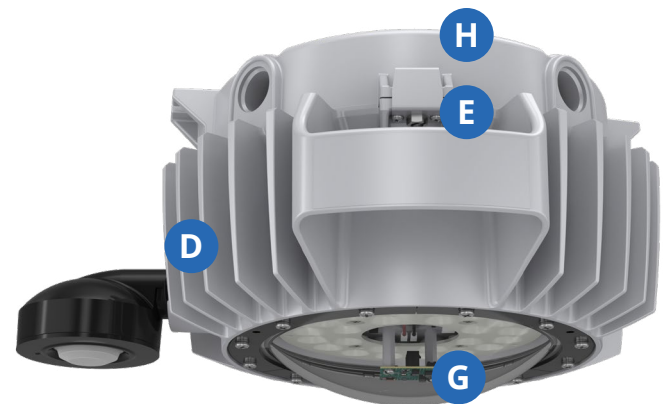
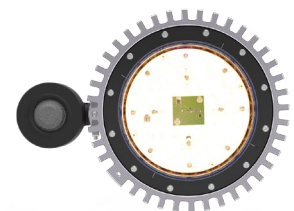


Image is representative only.

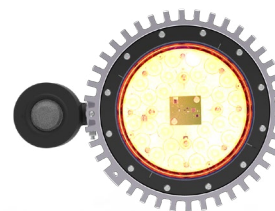


5000 K – COOL
Crisp, bright white with a blue hue

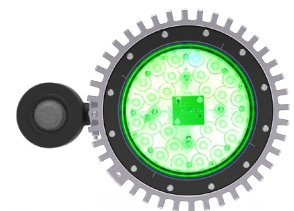


3000 K – WARM
Warm white with a yellow hue

Note: Also available in 2200 K and 4000 K upon request.



TRUE AMBER



TRUE GREEN

Champ PVML LED product specifications

Certifications and compliances

NEC® and CEC

- Wet locations, Type 4X, IP66

UL® standards

- UL 1598 Luminaires, UL 1598A Marine

CSA® standard

- cUL Listed to CSA C22.2 No. 250

IEC® standard

- CE
- DesignLights Consortium® Qualified (pending) ^A

^A Refer to www.designlights.org qualified products list under family models for full listing details. Not all models are approved for all application categories.

Design features

- **Installation flexibility:** seven mounting module styles help ensure that the fixtures are installed in the correct location to properly light your facility
- **Energy-efficient technology:** up to 77% energy savings over HID fixtures
- **Contains no mercury** or other hazardous substances
- **Shock- and vibration-resistant** solid-state luminaires have no filaments or glass components that could break—greatly reduces the risk of premature failure
- **Operating ambient:** -40 °C to +65 °C
- **Up to 60,000 hours lifetime** at +65 °C
- **7-year fixture warranty** *

* Refer to the authorized distributor price book for Crouse-Hinds standard Terms and Conditions. Standard 7-year warranty extends to 10-year warranty from date of installation with active subscription to Brightlayer Industrial Advanced plan.

LED system

- **High-intensity** discrete power emitters
- **Standard:** cool white (5000 K, 70 CRI); **optional:** warm white, (3000 K, 80 CRI), neutral white (4000 K, 70 CRI), deep warm (2200 K, 70 CRI, DarkSky ready)
- **Custom Type I, III and V optics available**

Colored LED options

- **Available in true green and true amber** for wildlife friendly applications ^c
- **Reduction in light pollution** for night space observation and sky glow due to isolating blue wavelength in red and amber colors
- **Improves visibility for telescopes** in observatories during night sky space exploration

Standard materials

- **Lamp housing and adapter:** die cast aluminum with Corro-free epoxy powder coat
- **Lens:** heat- and impact-resistant glass (clear or diffused) or polycarbonate
- **Gaskets:** silicone
- **External hardware:** stainless steel
- **Factory sealed:** no external seals required

Electrical ratings and weights

Catalog number	Weight kg (lb)	Nominal lumens (lm) ^B	Efficacy (lm/W)	Nominal Wattage (W)	Max. ^E Wattage (W)	Voltage	Nominal Amperes (A)	Max. ^E Amperes (A)	Power factor	THD (%)	Surge protection (kV)
PVML-3-UNV1	5.45 (12)	3225	153	21	23	100–277 VAC, 50/60 Hz; 127–250 VDC	0.22–0.08	0.26	> 0.90 ^D	<15	6
PVML-5-UNV1	5.45 (12)	5456	155	35	39	100–277 VAC, 50/60 Hz; 127–250 VDC	0.36–0.13	0.45	> 0.90	<15	6
PVML-7-UNV1	5.45 (12)	7607	152	50	54	100–277 VAC, 50/60 Hz; 127–250 VDC	0.5–0.19	0.60	> 0.90	<15	6
PVML-AT-UNV1	5.45 (12)	2030	75	27	33	100–277 VAC, 50/60 Hz; 127–250 VDC	0.27–0.10	0.37	> 0.90	<15	6
PVML-GT-UNV1	5.45 (12)	2900	145	20	23	100–277 VAC, 50/60 Hz; 127–250 VDC	0.2–0.07	0.27	> 0.90 ^D	<15	6

^B Nominal lumens are based on Type V optics, 5000 K CCT with a clear glass lens. The nominal wattage is measured at 120VAC.

^C Custom optics not available with colored LEDs.

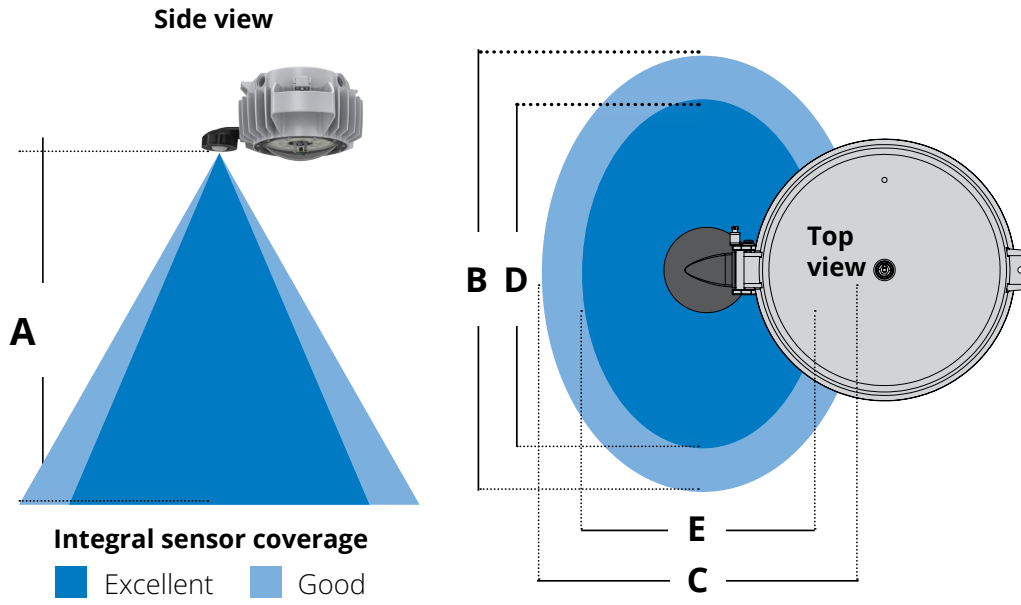
^D For PVML-3-UNV1 & PVML-GT-UNV1: PF>0.9 from 100-255 VAC.

^E In the event of an abnormal condition (single-string functioning), the maximum wattage and current will be reached.

Photometrics

For IES photometric files, please refer to the resource tab of the [PVML LED product page](#) on Eaton.com.

Integral sensor coverage



Mounting height of fixture	Good coverage		Excellent coverage	
	B	C	D	E
12	15	12	12	9
30	40	36	36	30

Numbers above are listed in feet.

Ordering information

Part number example: PVML-3-N-A2-R1-G-UNV1-SS12-M3

Champ PVML LED, 3000 lumens, 4000 K neutral white, ¾-inch pendant mount, Type I optics, clear glass lens, wire guard, 100–277 Vac driver, integrated sensor, intelligent light fixture.

PVML - 3 - N - A2 - R1 - - G - UNV1 - SS12 - M3

Light source/intensity

3	3250 nominal lumens
5	5537 nominal lumens
7	7442 nominal lumens
AT ABC	True Amber LEDs (dominant wavelength 585–595 nm)
GT ABC	True Green LEDs (dominant wavelength 520–535 nm)

Color temperature

BLANK	5000 K, 70 CRI (cool white)
N A	4000 K, 70 CRI (neutral white)
W	3000 K, 80 CRI (warm white)
D	2200 K CCT, 70 CRI (deep warm white)

Mount

BLANK	No mounting module	T2	¾-inch wall	A20	20 mm pendant
J5	1-½-inch stanchion, 25° angled	T3	1-inch wall	A25	25 mm pendant
P5	1-½-inch stanchion, straight	C2	¾-inch ceiling	C20	20 mm ceiling
A2	¾-inch pendant	C3	1-inch ceiling	C25	25 mm ceiling
A3	1-inch pendant	B2	¾-inch dust shedding	T20	20 mm wall
H2	¾-inch offset pendant	B3	1-inch dust shedding	T25	25 mm wall

Lens guard

BLANK	No guard
G	Wire guard

Lens material

BLANK	Clear glass
DG	Diffused glass EF
PC	Polycarbonate E
UP	Uplight glass globe refractor EF
TG	Teflon coated glass EF

Optics

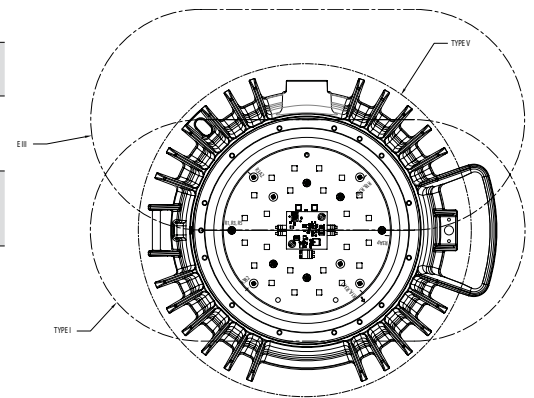
BLANK	Type V optic standard
R1 B	Type I optic (all mounts minus ceiling)
R3 B	Type III optic (all mounts minus ceiling)
R1A B	Type I optic (ceiling with conduit 45° counterclockwise from top hat hinge)
R3A1 B	Type III optic (ceiling with conduit 45° counterclockwise from top hat hinge)

Accessories and options

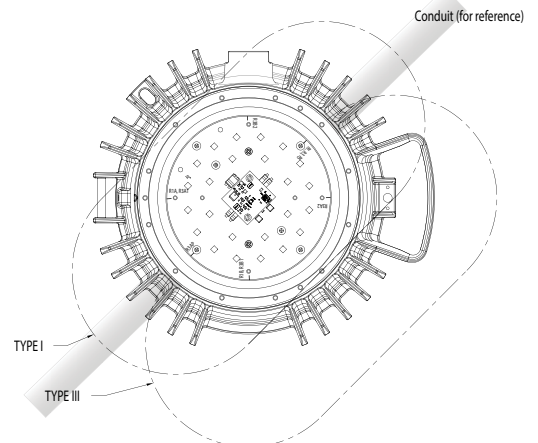
BLANK	No external sensor included
SS12	Sensor with barrier board (12–30 ft mounting height)
SC	Safety cable
TB6	6-pole terminal block
TM G	Trunnion mount kit with pin

Voltage

UNV1	100–277 Vac, 50/60 Hz; 127–250 Vdc
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BOTTOM VIEW (R1, R3)
Type R1 and R3 optic



Type R1A and R3A1 optic

- A Consult customer service for lead time.
- B Green and amber options not available in combination with Color Temperature suffixes (ex., -N, -W, -D).
- C Green and amber options not available with type R1 or R3 optics.
- D Additional clocked optics available upon request. Please contact customer service.
- E Only one lens option may be selected.
- F Available with Type V optic only.
- G Must be used with ceiling mounting modules.

Brightlayer Industrial Intelligent Lighting service plan

BLI-CH-DL-ADV	1 year Advanced service plan—1 device
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Accessories

Mounting modules



Stanchion—straight



Stanchion—25° angled



Wall



Ceiling



Cone pendant



Pendant

Hub size	Stanchion—straight	Stanchion—angled	Pendant	Offset pendant	Wall	Ceiling	Cone pendant
3/4 inches	—	—	APM2	HPM2	TWM2	CM2	BPM2
1 inch	—	—	APM3	—	TWM3	CM3	BPM3
1-1/2 inches	PM5	JM5	—	—	—	—	—
20 mm	—	—	APM20	—	—	—	—
25 mm	—	—	APM25	—	TWM25	—	—

Mounting module	lb	kg
Pendant	1.25	0.57
Cone pendant	4.00	1.81
Flexible pendant	1.50	0.68
Ceiling	2.75	1.25
Wall	4.50	2.04
Angled stanchion	3.50	1.59
Straight stanchion	4.50	2.04

Mounting adapters

CHMM1	Mounting adapter for Appleton MercMaster III mounts
CHMM2	Mounting adapter for Appleton MercMaster II mounts
CHMM3	Mounting adapter for Thomas and Betts HazLux mounts
CHMM4	Mounting adapter for GE H2 Filtr-Gard mounts



CHMM1



CHMM2

Replacement driver kits

VMVL-3-UNV1-M3-DRIVER KIT	UNV1 replacement driver kit for PVML-3 fixtures
VMVL-5-UNV1-M3-DRIVER KIT	UNV1 replacement driver kit for PVML-5 fixtures
VMVL-7-UNV1-M3-DRIVER KIT	UNV1 replacement driver kit for PVML-7 fixtures
VMVL-AT-UNV1-M3-DRIVER KIT	UNV1 replacement driver kit for PVML True Amber
VMVL-GT-UNV1-M3-DRIVER KIT	UNV1 replacement driver kit for PVML True Green



CHMM3



CHMM4

Mounting kits and hardware

VMVL S812 K1	Trunnion mount kit with pin AB
VMVL S812 K1 DBR	PVC coated trunnion mount kit with pin AB
VMVL S831 K1	Safety cable
VMVL S890 K1	Quick clip



VMVL S812 K1



PA3001

A Available with ceiling mounted modules only.

B Can be mounted in 90°, 113° and 135° with fixed locking positions.

Intelligent lighting and control components

NORS-SS12 KIT	Sensor assembly kit
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Lens guard

PA3001	Wire guard
PU3003	Uplight wire guard



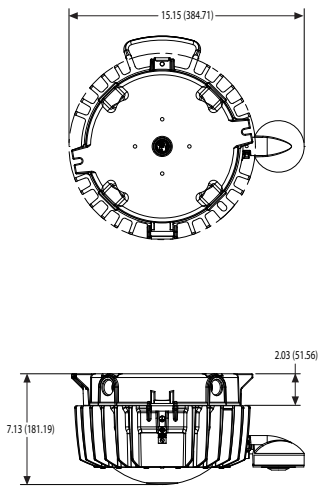
NORS-SS12 KIT



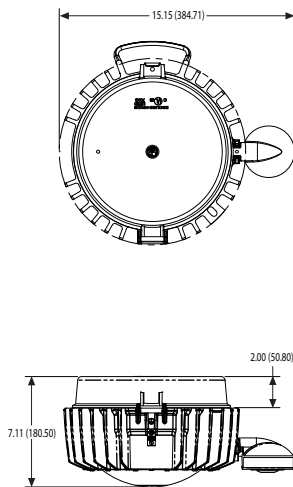
PU3003

Dimensions

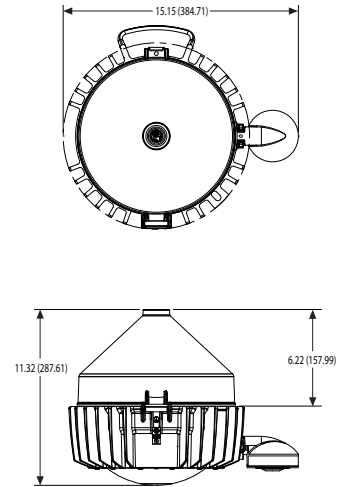
Ceiling



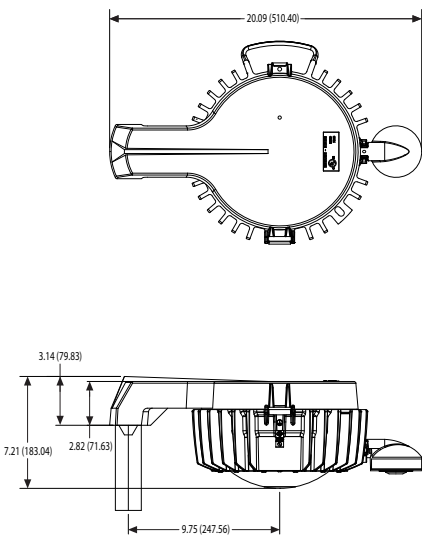
Pendant



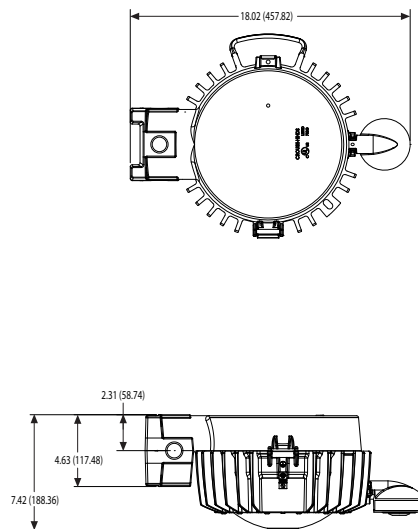
Cone



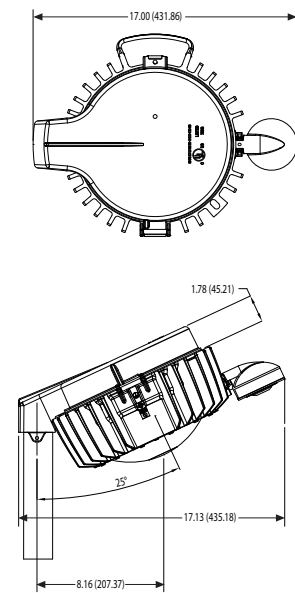
Stanchion—straight



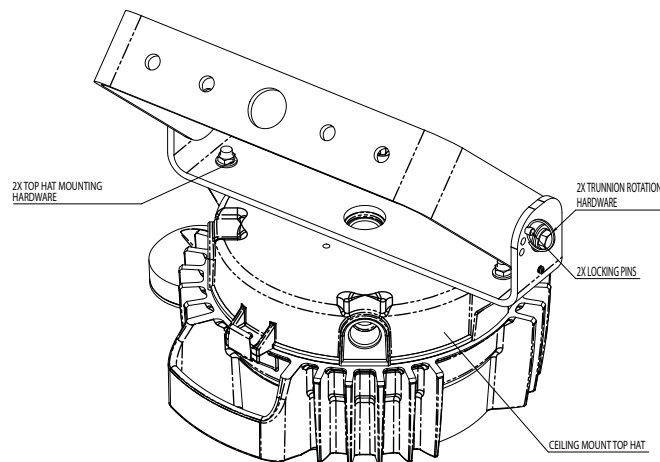
Wall



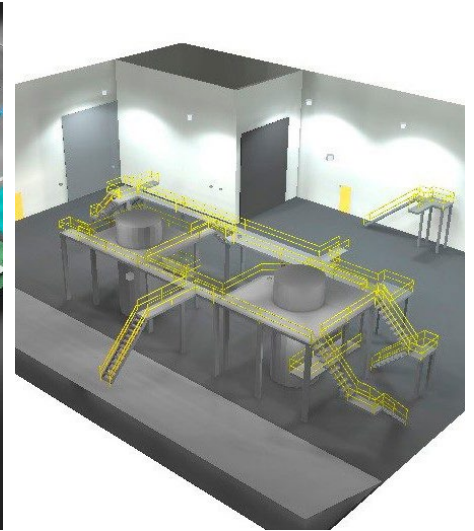
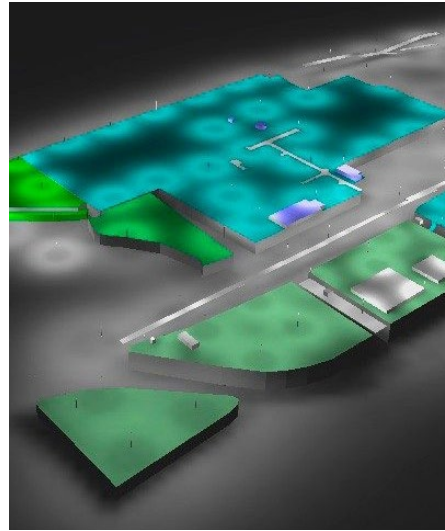
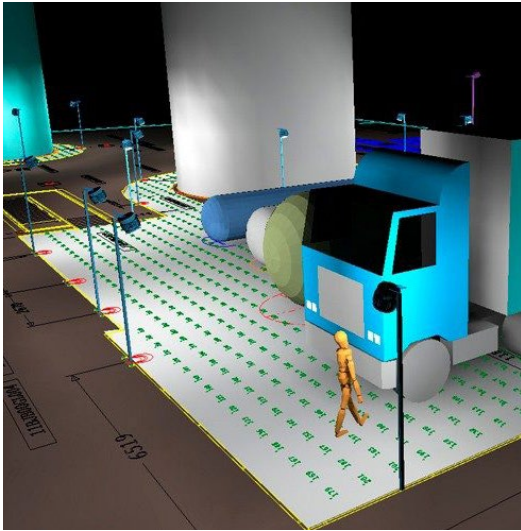
Stanchion— 25° angled



Trunnion



Complimentary lighting layout, analysis and design support for Crouse-Hinds series light fixtures



From simple layouts to complex drawings, our industrial and hazardous area lighting design engineers will work with you to deliver precise, efficient, application and environment-appropriate lighting designs.

Our experts can save you time and money by creating a virtual model of a proposed design, revealing luminaire characteristics and effects that would be hard to detect in anything short of the completed installation.

We provide the following to you:

- 3D fixture placement with comparison of alternate fixtures and mounting heights
- Point-by-point footcandle diagram calculations
- AutoCAD drawings overlaying customer floorplans
- Complete bill of material

Take advantage of our lighting layout services today.



Complete our lighting layout request form and send any supporting project information to lightinglayouts@eaton.com

Eaton offers a complimentary solution for lighting designers and engineers looking for a state-of-the-art, effective and professional light planning software package.

Our experts can save you time and money by creating a virtual model of a proposed design, revealing luminaire characteristics and effects that would be hard to detect in anything short of the completed installation.

Application benefits:

- Generates results showing expected light readings in either footcandles or LUX
- Provides professional quality summary reports
- Allows for energy evaluation reporting
- Planning for whole buildings, including outdoor spaces
- Document your results with photo-realistic visualizations
- Import AutoCAD drawings to use as a background guide with light fixture planning

Two steps to get started:

1 Click here

[To download the latest version of DIALux.](#) DIALux is free of charge and can be downloaded in many languages.

2 Click here

[Click here to download the Eaton's Crouse-Hinds series plugin.](#)

The DIALux software comes without any luminaire (photometric) data. This data (called a "plugin") must be installed separately. The Eaton's Crouse-Hinds series plugin includes the complete photometric database of Eaton's Crouse-Hinds series lighting products.

Note: Users who have already downloaded and installed any DIALux program only need to install the Eaton's Crouse-Hinds series plugin. Our plugin will work with either DIALux or DIALux EVO lighting software programs.

Notes

Notes

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Eaton's Crouse-Hinds business**

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