An Eaton Intelligent Power™ solution

Champ® VMV
Connected lighting for hazardous areas

EATON
Powering Business Worldwide
Get connected with Champ VMV.
An Eaton Intelligent Power™ solution:
Remote monitoring and control for use in hazardous and hard-to-access areas.

Eaton’s Crouse-Hinds Division now has an innovative and reliable solution that optimizes your industrial lighting applications based on space and specific usage requirements.

Combining our advanced LED lighting fixtures with communications and sensing technology, we put full lighting control at your fingertips allowing you to maximize energy savings and minimize maintenance costs.

Connected lighting benefits:
- Eliminate over-usage of lights
  - Optimize facility illumination by using light where and when you need it
  - Up to 80% more efficient than standard LED luminaires*
  - Up to 2 times more fixture life due to reduced run time*
  - Reduced maintenance
  - Reduced light pollution
- Flexible & intuitive software controls
  - Tune light output to meet safety and task needs – light where you need it
  - Permission-based user control for added security
  - Software alarms that notify on fixture, sensor, and radio issues
  - Ability to group fixtures by area for zone based control

*Assuming 24/7 operation base case for LED.
Advanced scheduling control allows for improving energy efficiency during non-operational hours. Easy software control lets a user set up schedules for lights to be on and off at pre-defined times, removing the challenges of manual management.

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

Fixture grouping is an added benefit that maximizes control in a defined area. By grouping light fixtures, same control settings can be applied to them to increase efficiency and response time.

Occupancy sensing is best used in areas that see infrequent traffic, such as storage areas of warehouses. Innovative occupancy sensor controls can automatically illuminate the area once presence is sensed in an area and also turn it back off when sensors stop sensing the presence.

Advanced dimming controls help reduce the energy consumptions by setting dimming levels. Dimming controls could be used in conjunction with other control features, such as scheduling and occupancy sensing, to improve energy savings.

**Connected lighting functionality:**

**Powered by SmartMesh® WirelessHART**

Field-proven and robust even in the harshest environments, the SmartMesh WirelessHART technology is a full mesh networking solution for industrial applications.
How it works

**Management software**
Manage and monitor remotely via easy-to-use web-based software.

**Energy management module**
Management hub (server) that discovers, commissions and manages smart devices.

**Remote sensing**
Integral control and sensing built into the fixture.

**Modular design & custom control**
One fixture with a control and sensing unit (HZS-X12 or HZS-X40) can send commands to multiple fixtures with just the controller (CNTRL-X) installed.

**Wireless gateway**
Connects the fixture and energy management module and relays information.
Design features

Safety and security:
• Fully certified for Class I, Division 2 hazardous rated areas
• Powered by SmartMesh WirelessHART technology
• Permission-based user control to ensure software security

SmartMesh WirelessHART technology:
• Better reliability, security and power management versus other wireless protocols
• Developed as a multi-vendor, interoperable wireless technology
• Field-proven and robust even in the harshest environments

Controller:
• Controls lighting levels per predefined settings (scheduling, dimming, etc.)
• Sends system notifications/alarms on fixture, sensor and radio
• Provides energy metering capability
• Field replaceable

Integral sensor:
• Detects and measures area occupancy, lighting levels and ambient temperatures
• Field install in minutes
• Upgradable to accommodate future customer needs and functionality
• Up to 40 ft. sensor range

Why choose Champ Connected lighting?
• Flexible and intuitive software control
• Energy efficiency
• Dark sky friendly, reduced light pollution through advanced controls
• Up to two times product life over standard LED
• Improved productivity through reduced run time and maintenance needs

Assumptions:
Savings calculations based on overall life of connected LED system with scheduling, occupancy sensing and daylight savings. Energy cost of $0.09 per kilowatt, 24 hour per day operation, labor rate of $80 each for 2 workers, average time for HID fixture maintenance of 1 hour.

EATON’S CROUSE-HINDS SERIES Champ VMV LED luminaires
Connected lighting application example:

**Application:**
Multi-use area with high traffic production area and minimally used warehousing

**Goal:**
Optimize light levels and minimize energy usage and run time

**Solution:**
- Split the area into zones based on usage rates and location
- Schedule lights to be OFF during non-operational hours
- Set safe minimum light levels for unoccupied areas and control with occupancy sensors
- Set custom targeted lighting levels in high use areas
- Utilize daylight harvesting feature where applicable

**Daylight harvesting**
Advanced photo sensing technology senses changing light levels and saves energy by maximizing the natural sunlight to provide consistent light levels throughout the day into night.

**Advanced scheduling and occupancy sensing**

**Custom zones**
Easily set up the zones based on your needs to create safer, more energy-efficient working conditions.

**Low traffic/usage zones**
Dimming function used to set lighting to a safe minimum level and activates by zone to working level when triggered by occupancy sensing

**High traffic/usage zone**
Lighting set to maximum level taking into account daylight harvesting and occupancy sensing
Applications:
- Suited for customer specifically seeking to optimize benefits from control features such as scheduling, occupancy sensing, dimming, etc.
- Convenient centralized controls through software (scheduling, dimming, etc,) instead of circuit level control
- Where opportunities exist for optimizing light levels and minimizing energy usage and run time
- Where extremely corrosive, wet, dusty, hot and/or cold conditions exist
- Manufacturing plants; heavy industrial, chemical, food and beverage facilities; mining; platforms; loading docks; tunnels; outdoor wall and pole mounted areas

Drivers:
- Option Voltage: VMV3L-VMV11L
  - UNV1 120-277 VAC, 50/60 Hz; 108-250 VDC, 50/60 Hz

Connected lighting benefits:
- Up to 80% more efficient than standard LED luminaires*
- Convenient centralized controls through software
- Up to two times more fixture life with reduced run time
- Reduced light pollution
- Reduced maintenance needs
- Tune light output to meet safety and task needs
- System alarms capability
* Assuming 24/7 operation base case for conventional LED.

LED system:
- High intensity discrete power emitters
- Standard: cool white (5000K, 70 CRI)
  Optional: warm white (3000K, 80 CRI)
- Custom Type I, III and V optics available

Fixture life:*
- Rated life of 60,000 hours at 55°C and 50,000 hours at 65°C operating ambient and 24/7 continuous operation for 365 days
- Up to twice the economic life than conventional LED at 25°C ambient
- L70 >100,000 hours at 55°C
  * Assuming 24/7 operation base case for conventional LED.

Standard materials:
- Lamp housing and adapter - die cast aluminum with Corro-free™ epoxy powder coat
- Lens - heat- and impact-resistant glass
- Gaskets - silicone (non silicon gasket available- consult factory)
- External hardware - stainless steel
- Factory sealed, no external seals required

Qualifications and compliances:
- DesignLights Consortium® (pending)
Simultaneous rating
Class I, Zone 2
Class III, Div. 1
Class II, Div. 1,
Groups E, F, G

Lamp/lumen output
Driver type
Ambient temperature
Class I, Div. 2
Class II, Div. I
Simultaneous rating
Class I, Div. 2,
Class II, Div. 1
Class I, Zone 2
Class II, Div. 1,
Groups E, F, G
Class III, Div. 1
Zone 21, AEx tb

Weights:

<table>
<thead>
<tr>
<th>Luminaires†</th>
<th>lbs.</th>
<th>kg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMV3L-11L CTRL-X/UNV1</td>
<td>21.5</td>
<td>9.75</td>
</tr>
<tr>
<td>VMV3L-11L HZS-X12/UNV1</td>
<td>22.0</td>
<td>9.98</td>
</tr>
<tr>
<td>VMV3L-11L HZS-X40/UNV1</td>
<td>22.0</td>
<td>9.98</td>
</tr>
</tbody>
</table>

† Tolerance +/- 1 lb.

Temperature codes:

| Lamp/lumen output | Driver type | Ambient temperature | Class I, Div. 2 | Class II, Div. I | Simultaneous rating | Class I, Zone 2 | Class II, Div. 1,
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3L, 5L, 7L, 9L, 11L</td>
<td>/UNV1</td>
<td>40°C</td>
<td>T5</td>
<td>T5</td>
<td>T3C</td>
<td>T6</td>
<td>T66°C</td>
</tr>
<tr>
<td>3L, 5L, 7L, 9L, 11L</td>
<td>/UNV1</td>
<td>55°C</td>
<td>T5</td>
<td>T4A</td>
<td>T3A</td>
<td>T5</td>
<td>T83°C</td>
</tr>
<tr>
<td>3L, 5L, 7L, 9L, 11L</td>
<td>/UNV1</td>
<td>65°C</td>
<td>T4A</td>
<td>T4A</td>
<td>T3A</td>
<td>T4</td>
<td>T92°C</td>
</tr>
<tr>
<td>3L, 5L, 7L, 9L, 11L</td>
<td>/UNV34</td>
<td>40°C</td>
<td>T3C</td>
<td>T5</td>
<td>T3C</td>
<td>T4</td>
<td>T70°C</td>
</tr>
<tr>
<td>3L, 5L, 7L, 9L, 11L</td>
<td>/UNV34</td>
<td>55°C</td>
<td>T3A</td>
<td>T4A</td>
<td>T3A</td>
<td>T4</td>
<td>T85°C</td>
</tr>
<tr>
<td>3L, 5L, 7L, 9L, 11L</td>
<td>/UNV34</td>
<td>65°C</td>
<td>T3A</td>
<td>T4A</td>
<td>T3A</td>
<td>T4</td>
<td>T92°C</td>
</tr>
</tbody>
</table>

Certifications and compliances:

NEC, CEC and ROW:
- cULus Class I, Division 2, Groups A, B, C, D
- cULus Class I, Zone 2, nA nR
- cULus Class II, Groups E, F, G
- cULus Class III
- cULus Zone 21 tb
- Simultaneous Presence
- Wet Locations, Type 4X, IP66
- Marine Listed
- R/C for sensor and controller
- ATEX/IECEx nA, nR, ia (pending)
- CE (pending)

National Fire Protection Association (NFPA)
- NEC NFPA 70

Underwriters Laboratories, Inc. (UL):
- UL1598; UL1598A; UL8750; UL844; UL60079-0; UL60079-11; UL60079-15; UL60730; UL913; UL50; UL50E

ISA12.12.01:
- Non-incendive equipments

CSA:
- cUL Listed to CSA Standard C22.2 No. 250 (for Luminaires)
- cUL Listed to CSA Standard C22.2 No. 137 (Electric Luminaires for Hazardous Locations)
- CSA 60079-11
- CSA 60079-0

IEC/EN Standards: (pending)
- IEC 60529
- IEC 60598

National Electrical Manufacturers Association (NEMA):
- NEMA 250

Electrical:

<table>
<thead>
<tr>
<th>Electrical</th>
<th>VMV3L</th>
<th>VMV5L</th>
<th>VMV7L</th>
<th>VMV9L</th>
<th>VMV11L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage range, VAC</td>
<td>120-277</td>
<td>120-277</td>
<td>120-277</td>
<td>120-277</td>
<td>120-277</td>
</tr>
<tr>
<td>Frequency</td>
<td>50/60 Hz</td>
<td>50/60 Hz</td>
<td>50/60 Hz</td>
<td>50/60 Hz</td>
<td>50/60 Hz</td>
</tr>
<tr>
<td>Input power (watts)</td>
<td>26.4</td>
<td>42.4</td>
<td>58.4</td>
<td>74.4</td>
<td>90.4</td>
</tr>
<tr>
<td>Input amps at 120 VAC</td>
<td>.220</td>
<td>.353</td>
<td>.487</td>
<td>.620</td>
<td>.753</td>
</tr>
<tr>
<td>Input amps at 277 VAC</td>
<td>.118</td>
<td>.184</td>
<td>.205</td>
<td>.277</td>
<td>.338</td>
</tr>
<tr>
<td>Power factor</td>
<td>&lt;0.90</td>
<td>&lt;0.90</td>
<td>&lt;0.90</td>
<td>&lt;0.90</td>
<td>&lt;0.90</td>
</tr>
<tr>
<td>Total harmonic distortion (THD)</td>
<td>&lt;20%</td>
<td>&lt;20%</td>
<td>&lt;20%</td>
<td>&lt;20%</td>
<td>&lt;20%</td>
</tr>
<tr>
<td>Nominal lumens* (Type V)</td>
<td>3,300</td>
<td>5,300</td>
<td>7,300</td>
<td>9,300</td>
<td>11,300</td>
</tr>
</tbody>
</table>

* Tolerance +/- 10%.

Mounting module

<table>
<thead>
<tr>
<th>Mounting module</th>
<th>lbs.</th>
<th>kg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pendant</td>
<td>1.25</td>
<td>0.57</td>
</tr>
<tr>
<td>Cone pendant</td>
<td>4.00</td>
<td>1.81</td>
</tr>
<tr>
<td>Flexible pendant</td>
<td>1.50</td>
<td>0.68</td>
</tr>
<tr>
<td>Ceiling</td>
<td>2.75</td>
<td>1.25</td>
</tr>
<tr>
<td>Wall</td>
<td>4.50</td>
<td>2.04</td>
</tr>
<tr>
<td>Angled stanchion*</td>
<td>3.50</td>
<td>1.59</td>
</tr>
<tr>
<td>Straight stanchion</td>
<td>4.50</td>
<td>2.04</td>
</tr>
</tbody>
</table>

* Angled stanchion for VMV3L-VMV11L models only.

8 EATON’S CROUSE-HINDS SERIES Champ VMV LED luminaires
### Part number example

**VMV11LW2AR1G/UNV1 S890 CNTRL-X**

#### VMV 11L W 2A R1 G /UNV1 S890 CNTRL-X

<table>
<thead>
<tr>
<th>Lamp/function</th>
<th>Color temperature</th>
<th>Guard</th>
<th>Control options*</th>
</tr>
</thead>
<tbody>
<tr>
<td>3L</td>
<td>BLANK Cool (5000K), colored</td>
<td>BLANK No guard</td>
<td>CNTRL-X Controller unit only</td>
</tr>
<tr>
<td>5L</td>
<td>BLANK Cool (5000K), colored</td>
<td>G P3001 wire guard</td>
<td>HZS-X12 Sensor unit with controller (up to 30 ft. mounting option)</td>
</tr>
<tr>
<td>7L</td>
<td>W Warm (3000K)</td>
<td></td>
<td>HZS-X40 Sensor unit with controller (30-40 ft. mounting option)</td>
</tr>
<tr>
<td>9L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11L</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Voltage

<table>
<thead>
<tr>
<th>/UNV1 Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>120-277 VAC, 50/60 Hz; 108-250 VDC, 50/60 Hz</td>
</tr>
</tbody>
</table>

#### Optics

<table>
<thead>
<tr>
<th>Optics</th>
<th>Mounting style</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLANK Type V optic standard (all mounts)</td>
<td>BLANK No cover</td>
</tr>
<tr>
<td>R1 Type I optic (all mounts minus ceiling)</td>
<td>J 1-1/2&quot; stanchion, 25° angled</td>
</tr>
<tr>
<td>R1A Type I optic (cooling with conduit 45° clockwise or 135° counter clockwise from hinge)</td>
<td>P 1-1/2&quot; stanchion, straight</td>
</tr>
<tr>
<td>R1B Type I optic (cooling with conduit 45° clockwise or 135° counter clockwise from hinge)</td>
<td>2A 1&quot; pendant</td>
</tr>
<tr>
<td>R2 Type III optic (all mounts minus ceiling)</td>
<td>2C 3/4&quot; ceiling</td>
</tr>
<tr>
<td>R3 Type III optic (all mounts minus ceiling)</td>
<td>3C 3/4&quot; ceiling</td>
</tr>
<tr>
<td>R3A Type III optic (cooling with conduit 45° clockwise from top hat hinge)</td>
<td>30C 20mm ceiling</td>
</tr>
<tr>
<td>R3A1 Type III optic (cooling with conduit 45° counter clockwise from top hat hinge)</td>
<td>25C 25mm ceiling</td>
</tr>
<tr>
<td>R3A2 Type III optic (cooling with conduit 135° clockwise from top hat hinge)</td>
<td>2HA 3/4&quot; flexible pendant</td>
</tr>
<tr>
<td>R3B Type III optic (cooling with conduit 45° clockwise from top hat hinge)</td>
<td>2B 1/2&quot; wall</td>
</tr>
<tr>
<td>R3B1 Type III optic (cooling with conduit 135° counter clockwise from top hat hinge)</td>
<td>3B 1&quot; wall</td>
</tr>
<tr>
<td>R3B2 Type III optic (cooling with conduit 135° counter clockwise from top hat hinge)</td>
<td>20A 1&quot; pendant</td>
</tr>
<tr>
<td></td>
<td>25A 25mm pendant</td>
</tr>
<tr>
<td></td>
<td>2A 20mm pendant</td>
</tr>
<tr>
<td></td>
<td>25A 25mm pendant</td>
</tr>
<tr>
<td></td>
<td>2B 1/2&quot; cone pendant</td>
</tr>
<tr>
<td></td>
<td>3B 1&quot; cone pendant</td>
</tr>
</tbody>
</table>

#### Mounting style

<table>
<thead>
<tr>
<th>BLANK No cover</th>
<th>J 1-1/2&quot; stanchion, 25° angled</th>
<th>P 1-1/2&quot; stanchion, straight</th>
</tr>
</thead>
</table>

#### Accessories (ordered separately)

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2S20</td>
<td>Photocell, 120V, 50/60 Hz</td>
</tr>
<tr>
<td>D2S208 277</td>
<td>Photocell, 208-277V</td>
</tr>
<tr>
<td>VMVL S812 K1</td>
<td>Trunnion mount kit with pin</td>
</tr>
</tbody>
</table>

#### Suffixes

<table>
<thead>
<tr>
<th>Suffix</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S812*</td>
<td>Trunnion mount kit with pin</td>
</tr>
<tr>
<td>S831</td>
<td>Safety cable</td>
</tr>
<tr>
<td>S890</td>
<td>Quick clip</td>
</tr>
<tr>
<td>S891</td>
<td>Diffused lens</td>
</tr>
<tr>
<td>S892**</td>
<td>Redundant driver</td>
</tr>
<tr>
<td>S896</td>
<td>Teflon coated lens</td>
</tr>
<tr>
<td>S903</td>
<td>Polycarbonate lens</td>
</tr>
<tr>
<td>TB6</td>
<td>Six-pole terminal block</td>
</tr>
</tbody>
</table>

#### Accessories

* Order with ceiling mount only.
** Available for 5L, 7L, and 9L. Redundant driver standard on 11L model.

#### Lamp/function

<table>
<thead>
<tr>
<th>Lamp/function</th>
<th>Lamp/function</th>
</tr>
</thead>
<tbody>
<tr>
<td>3L</td>
<td>3,300 lumen LED</td>
</tr>
<tr>
<td>5L</td>
<td>5,300 lumen LED</td>
</tr>
<tr>
<td>7L</td>
<td>7,300 lumen LED</td>
</tr>
<tr>
<td>9L</td>
<td>9,300 lumen LED</td>
</tr>
<tr>
<td>11L</td>
<td>11,300 lumen LED</td>
</tr>
</tbody>
</table>

#### Guard

<table>
<thead>
<tr>
<th>Guard</th>
<th>Guard</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLANK</td>
<td>No guard</td>
</tr>
<tr>
<td>G</td>
<td>P3001 wire guard</td>
</tr>
</tbody>
</table>

#### Light Layout & Design Services

Let us help you design your next big project!

Contact Crouse-Hinds Customer Service
crousecustomerctrn @eaton.com
(866) 764-5454
Mounting options and dimensions

Stanchion - 25° angled

Pendant

Ceiling

Wall

Cone pendant

Trunnion
Integral sensor coverage

- **Top view**
- **Side view**

Integral sensor coverage:
- **Excellent**
- **Good**

**Calculation summary**

<table>
<thead>
<tr>
<th>Label</th>
<th>Calc. type (in Fc)</th>
<th>Avg.</th>
<th>Max.</th>
<th>Min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMV 175W MH Grid</td>
<td>Illuminance</td>
<td>0.83</td>
<td>7.2</td>
<td>0.0</td>
</tr>
<tr>
<td>VMV LED Grid</td>
<td>Illuminance</td>
<td>0.64</td>
<td>11.2</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Type V optical pattern:
- 0.50
- 1.0
- 2.5
- 5.0
- 10.0

**Photometric comparison at 15 ft. mounting height**

175W PSMH - Type V

Connected VMV7L - Type V

**Higher uniformity and distribution coverage with less lumens and energy consumption compared to 175W metal halide.**