Industrial Fluorescent
Energy Solutions

FLUORESCENT HIGH BAYS
FLUORESCENT LOW BAYS
COMPLEX ENVIRONMENT
Our world is increasingly recognizing the importance of environmental sustainability and efficiency in building design. While cost containment and productivity gains are universal demands, increasing lighting efficiency requires an understanding of the role lighting plays in the business environment.

Cooper Lighting has always been at the forefront in adopting and adapting to the latest advancements in lighting technology. Over the years, businesses and communities have benefitted from partnering with Cooper Lighting to improve energy efficiency and reduce costs while protecting and enriching the environment.

To those of you considering a more efficient lighting upgrade, this brochure presents a variety of products and provides tips on how to make your retrofit project a success. A Cooper Lighting energy efficient lighting upgrade will reduce your utility bill; improve employee morale and productivity; and help protect and preserve the environment.
Table of Contents

The Fluorescent Advantage ................................. pg. 3
Energy Savings .............................................. pg. 3
Lamp Life and Lumen Maintenance ......................... pg. 3
Uniformity ..................................................... pg. 3
Instant On/Off and Occupancy Sensors ...................... pg. 4
T8 or T5HO? ................................................ pg. 4
Thermal Performance and Light Output ..................... pg. 5
Visible Light and the Scotopic/Photopic (S/P) Ratio ...... pg. 5
Environmentally Friendly ..................................... pg. 6
Product Index ................................................ pgs. 7-8
HBI ............................................................ pgs. 9-14
HBE ............................................................. pgs. 15-20
I5/I8 ............................................................ pgs. 21-24
HBL ............................................................. pgs. 25-30
MBF ............................................................. pgs. 31-32
2HBG ............................................................ pgs. 33-34
HBHD ............................................................. pgs. 35-36
HBHT ............................................................. pgs. 37-38
ARCTIC BAY - ABI ........................................ pgs. 39-40
VT4 ............................................................. pgs. 41-42
VT3 ............................................................. pgs. 43-44
VT1 ............................................................. pgs. 45-46
Lamp Options ................................................ pgs. 47
Emergency Options Matrix .................................... pgs. 48
F-Bay Mounting Accessories Matrix ....................... pgs. 48
Packaging Options Matrix ................................... pgs. 48
Mounting Accessories ......................................... pgs. 49-50
Occupancy Sensors ........................................... pgs. 51
Power Connections ........................................... pgs. 52
I5/I8 Lens, Door Frames and Wireguards .................... pgs. 53
HBI, HBL and HBE Lens, Door Frames and Wireguards ..... pgs. 54
The Fluorescent Advantage
The most popular and productive lighting upgrades today involve replacing outdated fluorescent or HID (High Intensity Discharge) lighting systems. High Performance fluorescent lighting systems from Cooper Lighting utilize the latest technologies and design platforms to provide dramatic energy savings and superior performance.

Energy Savings
Cooper Lighting fluorescent high bays offer dramatic energy savings opportunities over HID Lighting systems and provide quick returns.

Lamp Life and Lumen Maintenance
T5 and T8 fluorescent systems provide better maintained light levels over magnetic HID lighting systems with twice the lamp life. Multiple lamped fluorescent luminaires reduce the need for immediate maintenance. With fluorescent systems, the other lamps will stay illuminated when individual lamps extinguish.

Uniformity
Linear fluorescent systems improve lighting uniformity compared with HID systems.

<table>
<thead>
<tr>
<th>Dimensions 160’x 10’</th>
<th>400W MH High Bay</th>
<th>4-Lamp 54W T5HO IS Series</th>
<th>6-Lamp 32W HBI Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixtures Type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Fixtures</td>
<td>13</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Initial Lumens per Lamp</td>
<td>36000</td>
<td>4400</td>
<td>2850</td>
</tr>
<tr>
<td>Initial Lumens per Fixture</td>
<td>36000</td>
<td>17600</td>
<td>17100</td>
</tr>
<tr>
<td>Light Loss Factor</td>
<td>0.66</td>
<td>0.855</td>
<td>0.963</td>
</tr>
<tr>
<td>Input Wattage</td>
<td>455</td>
<td>229</td>
<td>221</td>
</tr>
<tr>
<td>Maintained Average FC</td>
<td>43</td>
<td>33</td>
<td>43</td>
</tr>
<tr>
<td>Max FC</td>
<td>47</td>
<td>38</td>
<td>48</td>
</tr>
<tr>
<td>Min FC</td>
<td>37</td>
<td>27</td>
<td>36</td>
</tr>
<tr>
<td>Average to Min</td>
<td>1.2</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Max to Min</td>
<td>1.3</td>
<td>1.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Vertical Average FC</td>
<td>22</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>Max FC</td>
<td>35</td>
<td>23</td>
<td>30</td>
</tr>
<tr>
<td>Min FC</td>
<td>12</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Average to Min</td>
<td>2.9</td>
<td>1.7</td>
<td>2.7</td>
</tr>
</tbody>
</table>
**Instant On/Off and Occupancy Sensors**

Fluorescent systems can be used with occupancy sensors to provide instant on/off capabilities to maximize energy savings.

When using T8 lamps and occupancy sensors, Cooper Lighting industrial fluorescent luminaires use only softer starting “program start” ballasts to minimize damage to the lamp. Under frequent on/off cycles, program start ballasts will dramatically extend lamp life over “instant start” ballasts. Cooper Lighting does not recommend or warranty instant start ballast and lamps used with motion sensors.

**T8 or TSHO?**

If your facility currently has T8 or TSHO lamps installed, the decision on lamp choice may be easy and allow for inventory consolidation. Both lamp types provide excellent performance but the attributes of each lamp type vary. Selection of lamp type is an important consideration. The following operating characteristics should be considered when making the selection:

**Fluorescent High Bay System Comparison**

<table>
<thead>
<tr>
<th></th>
<th>T8 Lighting Systems</th>
<th>TSHO Lighting Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Costs</strong></td>
<td>Similar within ranges to T5 systems with lower lamp costs offset by larger luminaire sizes.</td>
<td>Similar within ranges to T8 systems with higher lamp costs offset by smaller luminaire sizes.</td>
</tr>
<tr>
<td><strong>Lamp Replacement Costs</strong></td>
<td>Lower cost lamps offset with higher quantity for similar light output</td>
<td>Higher cost lamps offset with lower required quantity for similar light output</td>
</tr>
<tr>
<td><strong>Lumens Per Watt</strong></td>
<td>91</td>
<td>87</td>
</tr>
<tr>
<td><strong>Application Heights</strong></td>
<td>Suitable in wide ranges. Lower lumen output T8’s are ideal for lower mounting heights below 15’ while less ideal at mounting heights above 30’.</td>
<td>Suitable in wide ranges. Higher output TSHO lamps are ideal for higher mounting heights where higher lumen values allow for a reduced number of lamps.</td>
</tr>
<tr>
<td><strong>Ambient Environments</strong></td>
<td>Dependent on luminaire. T8 systems achieve maximum output in 78°F (25°C) ambient environments. Starting temperature ranges as low as 0°F (-18°C) dependent on manufacturer of lamp, ballast, age of lamps and luminaire design</td>
<td>Dependent on luminaire. TSHO systems achieve maximum output in 95°F (35°C) ambient environments. Starting temperature ranges as low as -20°F (-29°C) dependent on manufacturer of lamps, ballast, age of lamps and luminaire design</td>
</tr>
<tr>
<td><strong>Frequency of Starts</strong></td>
<td>Standard T8 systems with instant start ballasts and frequent on/off cycles can dramatically reduce lamp life. Program Start T8 ballasts should be specified when used with high occurrence of on/off cycles.</td>
<td>Standard Program Start ballast systems are ideal for frequent starts and use with occupancy sensors.</td>
</tr>
<tr>
<td><strong>Ballasts Light Level Flexibility</strong></td>
<td>Offered in multiple light output ranges from 71% to 115% of rated lamp life output, allowing for flexibility in application without changing lamp type.</td>
<td>Currently offered in fixed Light output ranges.</td>
</tr>
<tr>
<td><strong>Luminaires in Comparison</strong></td>
<td>Metalux HB632 using (6) 80+CRI T8 lamps with High Output ballasts.</td>
<td>Metalux IS5455 using (4) TSHO 80+CRI lamps.</td>
</tr>
</tbody>
</table>

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**Lamp Life Comparison**

<table>
<thead>
<tr>
<th>START FREQUENCY</th>
<th>Program Start Ballasts</th>
<th>Instant Start Ballasts</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 min.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 min.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 hr.</td>
<td></td>
<td></td>
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<tr>
<td>3 hr.</td>
<td></td>
<td></td>
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<tr>
<td>12 hr.</td>
<td></td>
<td></td>
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<tr>
<td>Continuous</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Net Lumens**: 20,000 **Wattage**: 221

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**Net Lumens**: 20,000 **Wattage**: 229

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Metalux integral Occupancy Sensors are available in Aisle or 360° distributions.
Thermal Performance and Light Output

Unlike HID lamps, T5 and T8 lamps reach optimal light output in specific temperature ranges. In partially or unconditioned spaces, temperatures from floor to ceiling can increase by over 20° in summer months.

Partially Conditioned Spaces

Thermally advanced Cooper Lighting industrial products optimize light output of T5HO and T8 lamps for their designed temperature ranges. Choose lamp types that optimize light output for your ambient environment and consider the use of T5HO Amalgam lamps for higher performance over wider temperature ranges.

ARCTIC BAY – ABI Series

The Metalux Arctic Bay retains and manages heat allowing it to provide over 70% of light output in freezer applications down to -20°F (-29°C).

Metalux’s F-Bay series can be operated in environments up to 149°F (65°C) in open uplight configurations.
Visible Light and the Scotopic/Photopic (S/P) Ratio

Scotopic/photopic ratios have been developed that attempt to replicate a measurement system more akin to how our eyes perceive brightness. Even though our eyes use both rods and cones to see light, the rods are more sensitive to blue light (scotopic vision) and cones to yellow light (photopic vision). A traditional light meter measures only photopic lumens, which are the stated lumens referenced in lamp catalogs.

The S/P Ratio acts as an adjustment to the existing photopic measurement by multiplying the standard lumens of a source with the S/P ratio or a factor thereof. As a result, an environment illuminated with warmer light sources, such as High Pressure Sodium, may appear darker than an environment illuminated with cooler light sources, like high CCT fluorescent lamps.

A S/P Comparison of Fluorescent vs. HID

While an increasing number of lighting designers are endorsing the use of S/P ratios, this has not yet been endorsed by the Illuminating Engineering Society (IES). Cooper Lighting provides S/P adjusted lumen values throughout the product specification sections as reference information only and maintains no formal position on its application. Always test proposed products in application to validate results to your expectations.

Environmentally Friendly

Cooper Lighting fluorescent luminaires are environmentally friendly. Housings and reflector assemblies are manufactured of recyclable steel and aluminum substrates, while corrugated packaging is both recyclable and optimized in design to reduce waste on the job site.

The use of low mercury fluorescent lamps also offers an attractive alternative to HID systems. A low mercury T5HO fluorescent lamp can contain as little 1.4 Mg. of mercury compared with up to 70 Mg. for a 400 watt Metal Halide lamp.
<table>
<thead>
<tr>
<th></th>
<th><strong>HBI</strong></th>
<th><strong>HBE</strong></th>
<th><strong>I5/I8</strong></th>
<th><strong>HBL</strong></th>
<th><strong>MBF</strong></th>
<th><strong>HBG</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Industry-leading fluorescent high bay, HBI series features specification grade full body housing with three optical distributions - narrow, medium and wide - providing structural integrity and optimal performance in conventional HID applications.</td>
<td>Full body construction in an open body high bay. Standard side rails provide a strong, clean finished frame while still offering energy efficiency and performance in a compact body. Features include lens door or wireguard option.</td>
<td>Narrow 11&quot; specification grade body with two optics for medium and wide distribution, and shielding options for industrial and aesthetic upgrades for retail and commercial applications.</td>
<td>Open body linear high bay, the HBL series offers energy efficiency and performance in a compact body. Features include three optical distributions, and wireguard.</td>
<td>High performance in a narrow package with three optical distributions – Focus, Task, Normal – providing lower lighting power densities than HID and T12 sources at higher mounting heights. Continuous row installations provide unmatched uniform performance.</td>
<td>Energy-efficient alternative for recessed grid/lay-in concealed T, and slot grid ceilings and flange trim applications. HBG is available with optional shielding options for a seamless ceiling line.</td>
</tr>
<tr>
<td><strong>Lamping</strong></td>
<td></td>
<td></td>
<td></td>
<td>4&quot;: 1, 2 lamp – T5, TSHO, T8</td>
<td>4&quot;: 2, 3, 4 lamp – T5, TSHO, T8</td>
<td>2HBG: 4, 6 lamp – T5, TSHO, T8</td>
</tr>
<tr>
<td><strong>Replaces</strong></td>
<td>150-400 Watt HPS</td>
<td>150-1000 Watt HPS</td>
<td>150-400 Watt HPS</td>
<td>150-1000 Watt HPS</td>
<td>150-400 Watt HPS</td>
<td>150-400 Watt HPS</td>
</tr>
<tr>
<td><strong>UL/cUL Listed Damp Location</strong></td>
<td>UL/cUL Listed Damp Location</td>
<td>UL/cUL Listed Damp Location</td>
<td>UL/cUL Listed Damp Location</td>
<td>UL/cUL Listed Damp Location</td>
<td>UL/cUL Listed Damp Location</td>
<td>UL/cUL Listed Damp Location</td>
</tr>
<tr>
<td><strong>Modular power receptacle meets UL2459 and NEC 410.73</strong></td>
<td>Modular power receptacle meets UL2459 and NEC 410.73 (G)</td>
<td>Modular power receptacle meets UL2459 and NEC 410.73 (G)</td>
<td>Modular power receptacle meets UL2459 and NEC 410.73 (G)</td>
<td>Modular power receptacle meets UL2459 and NEC 410.73 (G)</td>
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<td>Modular power receptacle meets UL2459 and NEC 410.73 (G)</td>
</tr>
<tr>
<td><strong>(G) for make and break under load from outside to the luminaire to speed maintenance</strong></td>
<td>Thermally optimized for environments up to 149°F (65°C) when used with high temperature ballasts in open upright and downlight configurations</td>
<td>Thermally optimized for environments up to 131°F (55°C) in open upright configurations</td>
<td>Thermally optimized for environments up to 149°F (65°C) when used with high temperature ballasts in open upright and downlight configurations</td>
<td>Thermally optimized for environments up to 149°F (65°C) when used with high temperature ballasts in open upright and downlight configurations</td>
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<td>Thermally optimized for environments up to 149°F (65°C) when used with high temperature ballasts in open upright and downlight configurations</td>
</tr>
<tr>
<td><strong>T5 systems are warranted for ambient environments up to 149°F (65°C) in open upright configurations</strong></td>
<td>T5 systems are warranted for ambient environments up to 149°F (65°C) in open upright configurations</td>
<td>T5 systems are warranted for ambient environments up to 131°F (55°C) in open upright configurations</td>
<td>T5 systems are warranted for ambient environments up to 149°F (65°C) in open upright configurations</td>
<td>T5 systems are warranted for ambient environments up to 149°F (65°C) in open upright configurations</td>
<td>T5 systems are warranted for ambient environments up to 149°F (65°C) in open upright configurations</td>
<td>T5 systems are warranted for ambient environments up to 149°F (65°C) in open upright configurations</td>
</tr>
<tr>
<td><strong>T8 systems are warranted for environments up to 122°F (50°C) in open upright configurations</strong></td>
<td>T8 systems are warranted for environments up to 122°F (50°C) in open upright configurations</td>
<td></td>
<td>T8 systems are warranted for environments up to 122°F (50°C) in open upright configurations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mounting</strong></td>
<td>HBAYC, Chain, Single Point Mount, Y-Toggle, Stem Sets</td>
<td>HBAYC, Chain, Single Point Mount, Loop, Y-Toggle</td>
<td>AYC Chain, Top Connector Box, Loop, Single-Toggle</td>
<td>HBAYC Chain, Single Point Mount, Loop, Y-Toggle</td>
<td>AYC Chain, Y &amp; Single Toggle</td>
<td>Recessed Grid or Flange</td>
</tr>
<tr>
<td>HBHD</td>
<td>HBHT</td>
<td>Arctic Bay</td>
<td>VT4</td>
<td>VT3</td>
<td>VT1</td>
<td></td>
</tr>
<tr>
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<td>--------</td>
<td>--------</td>
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<td></td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td><strong>Lamping</strong></td>
<td><strong>Replaces</strong></td>
<td><strong>Listings &amp; Certification</strong></td>
<td><strong>Mounting</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Designed for use in high mounting height applications where periodic cleaning with high pressure is required. The HBHD is a surface mounted luminaire with a hole-free design, enclosed and gasketed to provide 800 psi hose down protection.</td>
<td>2HBHD: 4, 6 lamp – T5, T5HO, T8</td>
<td></td>
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<tr>
<td></td>
<td>Pendant mount hose down fixture with articulated top for water run-off. Perfect for cleanroom and food processing areas where periodic cleaning is required.</td>
<td>HBHT: 4, 6 lamp – T5, T5HO, T8</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>The Arctic Bay's enclosed full body housing and sealed and gasketed door frame provide optimal lamp operation - 70% rated light output down to -15°F (-26°C).</td>
<td>ABI: 4, 5, 6 lamp – T3HO</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Vaportite high bay featuring T8, T8VHO and TSHO configurations up to six lamps. Rugged and durable, the VT4 has the certifications to meet your energy requirements in the dirtiest environments.</td>
<td>VT4: 4, 6 lamp – TSHO, T8, T8VHO</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Energy efficient Vaportite fixture featuring T8 and TSHO lamp configurations with two optical distributions. The VT3 features a rugged and durable fiberglass housing and high impact diffuser.</td>
<td>VT3 4’: 1, 2, 3 lamp – T8 and TSHO &gt;’ 1, 2, 3 lamp – T8 and TSHO</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Slim profile Vaportite fixture features T8 and T5 one lamp configurations enclosed in a rugged and durable weatherproof housing and diffuser assembly.</td>
<td>VT1: 1 lamp – T5, T5HO, and T8</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lamping</th>
<th>Replaces</th>
<th>Listings &amp; Certification</th>
<th>Mounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>150-400 Watt HPS</td>
<td>150-400 Watt HPS</td>
<td>UL/cUL Listed Damp Location</td>
<td>Chain or Cable Mount, Y-Snap Hook, 3/4” Stem</td>
</tr>
<tr>
<td>175-400 Watt MH</td>
<td>175-400 Watt MH</td>
<td>IP65 Compliant</td>
<td>HBAYC Chain, Single Point Mount, Y-Toggle, Stem Sets</td>
</tr>
<tr>
<td>HQ, VHO T12 Fluorescent</td>
<td>HQ, VHO T12 Fluorescent</td>
<td>800 PSI NSF</td>
<td>Mounting Bail, Y-Toggle, Surface Mount Bracket</td>
</tr>
<tr>
<td>150-400 Watt HPS</td>
<td>150-400 Watt HPS</td>
<td>UL/cUL Listed Wet Location</td>
<td>Mounting Bracket Included, VT2 Chain/Set-U, Snap on Bracket (BK5)</td>
</tr>
<tr>
<td>175-400 Watt MH</td>
<td>175-400 Watt MH</td>
<td>Thermally optimized for environments down to -20°F (-29°C)</td>
<td>Mounting Bracket Included or VT2 Chain/Set-U</td>
</tr>
<tr>
<td>HQ, VHO T12 Fluorescent</td>
<td>HQ, VHO T12 Fluorescent</td>
<td>UL/cUL Listed Wet Location</td>
<td>IP65 Compliant NSF</td>
</tr>
<tr>
<td>50-150 Watt HPS</td>
<td>50-150 Watt HPS</td>
<td>UL/cUL Listed Wet Location</td>
<td>NSF</td>
</tr>
<tr>
<td>50-250 Watt MH</td>
<td>50-250 Watt MH</td>
<td>IP65 Compliant NSF</td>
<td>NSF</td>
</tr>
<tr>
<td>50-100 Watt HPS</td>
<td>50-100 Watt HPS</td>
<td>NEMA 4X</td>
<td>NSF</td>
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</tbody>
</table>
**HBI HIGH-BAY INDUSTRIAL LUMINAIRE**

- Full bodied housing utilizes captive fasteners to protect optical assembly and assure structural integrity.
- Optional uplight apertures (approximately 8% uplight).
- Access plate located in the center of housing for easy access to wiring.
- Includes V Hangers for rapid installation!

**Modular F-Bay Power Supply**

- Cooper Lighting’s modular power receptacle meets UL2459 and NEC 410.73 and is UL/cUL rated for make and break under load from outside the luminaire to speed maintenance.

**Code Compliance**

- UL/cUL Certified for Make/Break under load (UL2549)
- Meets NEC requirements for ballast disconnect (NEC 410.73G)
- Allows for addition of Occupancy Sensor without hard connections
- Receptacles complete with insulating/dust cap

Cooper Lighting’s F-Bay Modular Power Supply allows external fixture access for safe and easy servicing. There is no need to remove lamps or reflectors to disconnect fixture power with F-Bay Modular Power Supply. Access to the individual fixture’s power supply allows servicing without turning off all the fixtures disrupting occupants. F-Bay Modular Power Supply is a time saver in installation – simply plug & power.

1. Modular Power Supply Receptacle supplied mounted into fixture Access Plate
2. Modular Power Cord & Plugs in 120, 277, 347, & 480V configurations for easy plug & power into existing supply

**Factory Installed Code Compliant Disconnect**

- For safe and convenient means of disconnecting power.

**Linear Disconnect**

- Thermally optimized F-Bay is suitable for environments up to 149°F (65°C) when used with high temperature environment ballasts. T5 and T8 systems are warranted for ambient environments up to 149°F (65°C) for three years and 131°F (55°C) for five years in open uplight and downlight configurations.

Die formed reflectors are faceted for 4, 5, and 6 lamp configurations with three optical distributions narrow, medium, and wide. Narrow beam optical modules utilize 95% specular aluminum, the Medium beam utilizes a 95% micro matte aluminum, and the Wide beam uses a high performance 92% reflective polyester powder coated finish.

Integral occupancy sensor available and provides from 600 sq. ft. up to 1250 sq. ft. of coverage in a maximum mounting height of 40’.
To optimize luminaire performance, HBI series offers a variety of lamp and shielding options. Use the Thermal Optimization chart to determine the options that are appropriate for the ambient environments in which they will be installed.

### System Performance

**HBI**

<table>
<thead>
<tr>
<th>Mounting Height</th>
<th>40’</th>
<th>30’</th>
<th>20’</th>
<th>10’</th>
</tr>
</thead>
<tbody>
<tr>
<td>250W MH</td>
<td></td>
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</tr>
<tr>
<td>400W MH</td>
<td></td>
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<td></td>
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<tr>
<td>400W HPS</td>
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<table>
<thead>
<tr>
<th>Energy Savings</th>
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</thead>
<tbody>
<tr>
<td>0%</td>
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<tr>
<td>0%</td>
</tr>
<tr>
<td>5%</td>
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<tr>
<td>5%</td>
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<tr>
<td>4%</td>
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<tr>
<td>4%</td>
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<tr>
<td>5%</td>
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<tr>
<td>5%</td>
</tr>
<tr>
<td>0%</td>
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</table>

<table>
<thead>
<tr>
<th>% Light Gain/Loss</th>
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<tbody>
<tr>
<td>0%</td>
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<tr>
<td>0%</td>
</tr>
<tr>
<td>4%</td>
</tr>
<tr>
<td>4%</td>
</tr>
<tr>
<td>5%</td>
</tr>
<tr>
<td>5%</td>
</tr>
<tr>
<td>0%</td>
</tr>
<tr>
<td>0%</td>
</tr>
<tr>
<td>4%</td>
</tr>
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<td>4%</td>
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<table>
<thead>
<tr>
<th>Part Number</th>
</tr>
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<tbody>
<tr>
<td>HB432UPL or HB432PSUPL</td>
</tr>
<tr>
<td>HB454T5UPL or HB454T5SUPL</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>T8</th>
<th>T5</th>
</tr>
</thead>
</table>

% light gain/light loss utilize S/P adjusted lumens.
HBI T8 HIGH-BAY INDUSTRIAL LUMINAIRE

Ordering Information
Sample Number: HBI-632-N-UNV-EB82/PLUS-MP-UPL-U

Includes V Hangers for rapid installation

Quick Ship Ordering Information
Sample Number: HBI632-MP-UPL-L5

Includes V Hangers for rapid installation

Quick Ship orders ship in 5 days in order quantities not to exceed 200 pieces.

NOTE: Orders received after noon are entered on the following day.

Options
MP=Modular Power Receptacle (Used for all cord or cord and plug options)
NVAU=No uplight apertures in housing. (Cannot be combined with UPL)
UPL=Uplight Apertures
MWS=Module Wiring System
MS=360° or 180° Motion Sensor, 120 through 347, or 480V
G2=Gap-sealed Door (Requires selection of Lensed Doorframe)
SDF=Slotted Doorframe (Requires selection of Lensed Doorframe)

Accessories (order separately)
HB-SPM=Single Monopoint Hanger w/Hub
RH-1=Retrofit Hanger
FH-1=Fixure Hook
FL-1=Fixure Loop
Y-TOGGLE=1Y Mounting Toggle, #2 Cable
HBAYC-CHAIN/SET/U=V-Hook Hangers, 36" Chain Sets w/5-Hooks
MC3=3 Modular Power Cord
MPC6=6 Modular Power Cord & Plug (Specify Voltage)
MWS=360° or 180° Asile Motion Sensor with Modular Power Receptacle (120-277V)
SWG=Heavy Duty Wireguard for Field Installation

HBI T8 Lamp Configurations

4-Lamp
4-5\(\frac{1}{16}\) [100mm]
4-5\(\frac{1}{32}\) [81mm]
X=1-1\(\frac{1}{8}\) [28mm]
Y=1-1\(\frac{1}{16}\) [22mm]
4-5\(\frac{1}{8}\) [109mm]

6-Lamp
4-5\(\frac{1}{16}\) [100mm]
X=2-3\(\frac{1}{8}\) [70mm]
Y=2-5\(\frac{1}{32}\) [81mm]
4-5\(\frac{1}{32}\) [81mm]

Dimensions for Top View

V-Hook Hanger Location
Access Plate Opening
X=4-1\(\frac{3}{8}\) [119mm]
Y=2-5\(\frac{1}{8}\) [64mm]
14\(\frac{1}{4}\) [7mm] 3-3\(\frac{3}{8}\) [81mm]
2-3\(\frac{3}{8}\) [84mm]
24-3\(\frac{3}{8}\) [61mm]

Dimensions

High lumen lamps, T8 only
=Add HL at end of lamp for high lumen lamps, T8 only
L8850= T8 Lamp, 85CRI 5000K
L8841= T8 Lamp, 85CRI 4100K
L8835= T8 Lamp, 85CRI 3500K
L8830= T8 Lamp, 85CRI 3000K

Balls Type
EBB= T8 Electronic Instant Start
EBB= T8 Electronic Program Rapid Start
EBB+ PLUS= T8 Electronic Instant Start
EBB= T8 Electronic Program Rapid Start
EBB= T8 Electronic Instant Start
EBB= T8 Electronic Program Rapid Start
EBB= T8 Electronic Instant Start
EBB= T8 Electronic Program Rapid Start

Power Receptacle
Blank= Standard Wiring to Access Plate
MP= Modular Power Receptacle

Lamping
Blank= No Lamps
Lamp= Lamps Installed
Blank= No Lamps
Lamp= Lamps Installed
Blank= No Lamps
Lamp= Lamps Installed
Blank= No Lamps
Lamp= Lamps Installed

Accessories
HBAYC-CHAIN/SET/U= V-Hook Hangers, 36" Chain Sets w/5-Hooks
MC3=3 Modular Power Cord
MPC6=6 Modular Power Cord & Plug (Specify Voltage)
MWS=360° or 180° Asile Motion Sensor with Modular Power Receptacle (120-277V)
SWG=Heavy Duty Wireguard for Field Installation

Electronics
PS=1 Lamp 277V 4L
PS=1 Lamp 277V 4L
PS=1 Lamp 277V 4L

Ballast Type
EBB= T8 Electronic Instant Start
EBB= T8 Electronic Program Rapid Start
EBB+ PLUS= T8 Electronic Instant Start
EBB= T8 Electronic Program Rapid Start

NOTE:
1) Requires use of HB or HBPC accessories, specify voltage for plugs.
2) Voltage must be specified when ordered with plugs or emergency ballasts.
3) Lamps and ballast systems suitable for operation in ambient environments up to 122°F (50°C) in open uplight configuration.
4) When ordering MP option, specify UNV for 120 or 277V, 347 or 480V lamp, 4 lamp T8 lamp ballast configurations in EBB/PLUS only for T8 UNV versions.
5) Can be used in high abuse applications such as gymnasiums.
6) Dimming ballast must be specified at time of order. 
7) See also.

NOTES:
(1) Requires use of HB or HBPC accessories, specify voltage for plugs.
(2) Voltage must be specified when ordered with plugs or emergency ballasts.
(3) Lamps and ballast systems suitable for operation in ambient environments up to 122°F (50°C) in open uplight configuration.
(4) When ordering MP option, specify UNV for 120 or 277V, 347 or 480V lamp, 4 lamp T8 lamp ballast configurations in EBB/PLUS only for T8 UNV versions.
(5) Can be used in high abuse applications such as gymnasiums.
(6) Dimming ballast must be specified at time of order.
(7) See also.
**Coefficients of Utilization**

<table>
<thead>
<tr>
<th>Lumens</th>
<th>%Lamp</th>
<th>%Fixture</th>
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<tr>
<td>0.30</td>
<td>24.8</td>
<td>27.2</td>
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<tr>
<td>0.40</td>
<td>40.2</td>
<td>44.6</td>
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<tr>
<td>0.50</td>
<td>57.0</td>
<td>63.4</td>
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<tr>
<td>0.60</td>
<td>73.8</td>
<td>82.4</td>
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<td>91.3</td>
<td>100.0</td>
</tr>
<tr>
<td>1.18</td>
<td>92.4</td>
<td>100.0</td>
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</table>

### Zonal Lumen Summary

<table>
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<th>25 ft</th>
<th>30 ft</th>
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<tr>
<td>0-30</td>
<td>22.6</td>
<td>0.35</td>
<td>12</td>
<td>16.9</td>
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<tr>
<td>31-60</td>
<td>46.8</td>
<td>0.75</td>
<td>25</td>
<td>34.2</td>
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<td>61-90</td>
<td>71.4</td>
<td>1.05</td>
<td>36</td>
<td>47.3</td>
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<tr>
<td>91-120</td>
<td>97.0</td>
<td>1.35</td>
<td>48</td>
<td>62.3</td>
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### System Performance Table

<table>
<thead>
<tr>
<th>HBI System Comparison</th>
<th>No. of Lamps</th>
<th>Lamp Lumens</th>
<th>Lumen Maintenance</th>
<th>Fixture Efficiency</th>
<th>Ballast Factor</th>
<th>Design System Lumens</th>
<th>S/P Ratio</th>
<th>Brightness Perception</th>
<th>S/P Adjusted Lumens</th>
<th>Wattage</th>
<th>Cost of 1000 S/P Adjusted Lumens</th>
<th>LER</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBI-432-N-UNV-EBB2/PLUS-UPL-U</td>
<td>4</td>
<td>3100</td>
<td>94%</td>
<td>90%</td>
<td>1.18</td>
<td>12337</td>
<td>1.95</td>
<td>1.40</td>
<td>17228</td>
<td>148</td>
<td>2.60</td>
<td>116</td>
</tr>
<tr>
<td>HBI-532-N-UNV-EBB2/PLUS-UPL-U</td>
<td>5</td>
<td>3100</td>
<td>94%</td>
<td>90%</td>
<td>1.18</td>
<td>15473</td>
<td>1.95</td>
<td>1.40</td>
<td>21607</td>
<td>185</td>
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<td>117</td>
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<tr>
<td>HBI-632-N-UNV-EBB2-UPL-U</td>
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<td>94%</td>
<td>95%</td>
<td>1.18</td>
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<td>1.40</td>
<td>27225</td>
<td>222</td>
<td>2.34</td>
<td>123</td>
</tr>
</tbody>
</table>

### Comparison System

| 400W Metal Halide High Bay | 1 | 36000 | 75% | 78% | 1 | 21087 | 1.50 | 1.22 | 28562 | 455 | 7.22 | 44 |
| 400W High Pressure Sodium High Bay | 1 | 50000 | 81% | 78% | 1 | 31531 | 0.62 | 0.79 | 24906 | 464 | 7.63 | 42 |

### Illuminance Estimator

**Illuminance Levels (FC) & Watts Per Sq. Ft. (LPD)** Based on 100 ft. x 100 ft. Open Room

<table>
<thead>
<tr>
<th>Spacing on Center</th>
<th>15 ft</th>
<th>20 ft</th>
<th>25 ft</th>
<th>30 ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 ft</td>
<td>49</td>
<td>60.1</td>
<td>1.08</td>
<td>25</td>
</tr>
<tr>
<td>25 ft</td>
<td>49</td>
<td>64.0</td>
<td>1.08</td>
<td>25</td>
</tr>
<tr>
<td>30 ft</td>
<td>49</td>
<td>59.0</td>
<td>1.08</td>
<td>25</td>
</tr>
</tbody>
</table>

Choose the spacing and mounting height to determine the average footcandle and watts per square foot values. All the calculations are based on the published IESNA Zonal Cavity Method and associated algorithms. Results are calculated from manufacturer photometric files.
**HBI T5** HIGH-BAY INDUSTRIAL LUMINARE

**Ordering Information** Sample Number: HBI-554T5-N-UNV-EHT2-MP-UPL-U

<table>
<thead>
<tr>
<th>Series</th>
<th>HBI=HBI Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Lamps</td>
<td>4-4 Lamps</td>
</tr>
<tr>
<td>Lamp Type</td>
<td>28T5-22W T5 Lamps (48&quot;)</td>
</tr>
<tr>
<td>Dimensions for Top View</td>
<td>X=2-13/32&quot; (81mm)</td>
</tr>
</tbody>
</table>

**Voltage**

- UNV=Universal 120/277 Volt
- UNC=Universal 347/480 Volt
- 120V=120 Volt
- 277V=277 Volt
- 347V=347 Volt
- 480V=480 Volt

**Ballast Type**

- EHT=T5HO Linear Electronic Program Start
- EBT=T5 Linear Electronic Program Start

**Options**

- MP=Modular Power
- Ballast Type

**Dimensions**

<table>
<thead>
<tr>
<th>Lamp Type</th>
<th>4-Lamp</th>
<th>5-Lamp</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-5/16&quot; [100mm]</td>
<td>16-3/4&quot; [427mm]</td>
<td>16-3/4&quot; [427mm]</td>
</tr>
<tr>
<td>4-5/16&quot; [100mm]</td>
<td>X=3-1/2&quot; (81mm)</td>
<td>X=3-1/2&quot; (81mm)</td>
</tr>
</tbody>
</table>

**Dimensions for Top View**

- V-Hook Hanger Location
- Access Plate Opening
- 7/8" K.O. 3/8" [10mm]
- 2-3/8" [59mm]
- 2-3/8" [48mm]
- 24-3/8" [61mm]
- 48-1/8" [1222mm]

**Quick Ship Ordering Information** Sample Number: HBI454HCTS-MP-UPL-L5

Quick Ship orders ship in 5 days in order quantities not to exceed 200 pieces. Includes V Hangers for rapid installation.

**Quick Ship Made To Order**

**Family**

- HBI

**Damping Type**

- Blank=No Damping
- A=Prismatic Acrylic Lens & Doorframe
- WG=Wireguard & Doorframe
- CL=Clear Acrylic Lens & Doorframe
- CL/WG=Clear Lens, Wireguard & Doorframe

**NOTES:**

1. Requires use of Modular Power Accessories. Specify voltage for plugs. 2. Voltage must be specified when ordered with plugs or emergency ballasts.

**Shading**

- BLANK=Prime Acrylic Lens & Doorframe
- WG=Wireguard & Doorframe
- A/AC=Acrylic Lens, Wireguard & Doorframe
- CL=Clear Acrylic Lens & Doorframe
- CL/WG=Clear Lens, Wireguard & Doorframe

**Lamping**

- LS830-T5 Lamp, ESCI 3000K
- LS835-T5 Lamp, ESCI 3000K
- LS541-T5 Lamp, ESCI 4100K
- LS580-T5 Lamp, ESCI 5000K

**Options**

- GL=Single Element Fuse
- GM=Double Element Fuse
- EL=Emergency Installed

**Distribution**

- N=Narrow Beam (Standard)
- M=Medium Beam
- W=Wide Beam

**Voltage**

- 120V=120 Volt
- 277V=277 Volt
- 347V=347 Volt
- 480V=480 Volt
- 1/2" [13mm] K.O.

**No. of Lamps**

- 4=4 Lamps  | 5=5 Lamps  | 6=6 Lamps  |

**Power Required**

- MP=Modular Power

**Packaging**

- U=Unit Pack
- PALC=Palletized in Carton

**Package**

- PALC=Unit Pack in Carton
- PALC=Unit Pack Out of Carton

**Quick Ship Made To Order**

- HBI454HCTS-MP-UPL-L5

**Orders received after noon are entered on the following day.**

**For Quick Ship, lamping option only available with 54W lamp type.**

**NOTE:**

- Requires use of Modular Power Accessories. Specify voltage for plugs. 2. Voltage must be specified when ordered with plugs or emergency ballasts.

**Options**

- MP=Modular Power
- Ballast Type

**Options**

- EL=Emergency Installed

**Voltage**

- Universal 120/277 Volt
- Universal 347/480 Volt
- 120 Volt
- 277 Volt
- 347 Volt
- 480 Volt
- 480 Volt

**Lamps installed**

- L5850=T5 Lamp, 85CRI 5000K
- L5841=T5 Lamp, 85CRI 4100K
- L5835=T5 Lamp, 85CRI 3000K

**NOTES:**

1. Requires use of Modular Power Accessories. Specify voltage for plugs. 2. Voltage must be specified when ordered with plugs or emergency ballasts. 3. When ordering MS option, specify voltage as UNV (for 120 or 277 Volt), 347 or 480 Volt. 4. Requires use of Modular Power Accessories.

**Electronic Program Rapid Start**

- (1) or (2) 120/277V T5 High Ambient HT5 T5HO Systems

**Distribution**

- N=Narrow Beam (Standard)
- M=Medium Beam
- W=Wide Beam

**Quick Ship Made To Order**

- HBI454HCTS-MP-UPL-L5

**Orders received after noon are entered on the following day.**

**For Quick Ship, lamping option only available with 54W lamp type.**

**NOTE:**

- Requires use of Modular Power Accessories. Specify voltage for plugs. 2. Voltage must be specified when ordered with plugs or emergency ballasts. 3. When ordering MS option, specify voltage as UNV (for 120 or 277 Volt), 347 or 480 Volt. 4. Requires use of Modular Power Accessories.

**Electronic Program Rapid Start**

- (1) or (2) 120/277V T5 High Ambient HT5 T5HO Systems

**Distribution**

- N=Narrow Beam (Standard)
- M=Medium Beam
- W=Wide Beam

**Quick Ship Made To Order**

- HBI454HCTS-MP-UPL-L5

**Orders received after noon are entered on the following day.**

**For Quick Ship, lamping option only available with 54W lamp type.**

**NOTE:**

- Requires use of Modular Power Accessories. Specify voltage for plugs. 2. Voltage must be specified when ordered with plugs or emergency ballasts. 3. When ordering MS option, specify voltage as UNV (for 120 or 277 Volt), 347 or 480 Volt. 4. Requires use of Modular Power Accessories.

**Electronic Program Rapid Start**

- (1) or (2) 120/277V T5 High Ambient HT5 T5HO Systems

**Distribution**

- N=Narrow Beam (Standard)
- M=Medium Beam
- W=Wide Beam

**Quick Ship Made To Order**

- HBI454HCTS-MP-UPL-L5

**Orders received after noon are entered on the following day.**

**For Quick Ship, lamping option only available with 54W lamp type.**

**NOTE:**

- Requires use of Modular Power Accessories. Specify voltage for plugs. 2. Voltage must be specified when ordered with plugs or emergency ballasts. 3. When ordering MS option, specify voltage as UNV (for 120 or 277 Volt), 347 or 480 Volt. 4. Requires use of Modular Power Accessories.

**Electronic Program Rapid Start**

- (1) or (2) 120/277V T5 High Ambient HT5 T5HO Systems

**Distribution**

- N=Narrow Beam (Standard)
- M=Medium Beam
- W=Wide Beam

**Quick Ship Made To Order**

- HBI454HCTS-MP-UPL-L5

**Orders received after noon are entered on the following day.**

**For Quick Ship, lamping option only available with 54W lamp type.**

**NOTE:**

- Requires use of Modular Power Accessories. Specify voltage for plugs. 2. Voltage must be specified when ordered with plugs or emergency ballasts. 3. When ordering MS option, specify voltage as UNV (for 120 or 277 Volt), 347 or 480 Volt. 4. Requires use of Modular Power Accessories.

**Electronic Program Rapid Start**

- (1) or (2) 120/277V T5 High Ambient HT5 T5HO Systems

**Distribution**

- N=Narrow Beam (Standard)
- M=Medium Beam
- W=Wide Beam

**Quick Ship Made To Order**

- HBI454HCTS-MP-UPL-L5

**Orders received after noon are entered on the following day.**

**For Quick Ship, lamping option only available with 54W lamp type.**

**NOTE:**

- Requires use of Modular Power Accessories. Specify voltage for plugs. 2. Voltage must be specified when ordered with plugs or emergency ballasts. 3. When ordering MS option, specify voltage as UNV (for 120 or 277 Volt), 347 or 480 Volt. 4. Requires use of Modular Power Accessories.
Photometrics

Coefficients of Utilization

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<tr>
<th>EFL</th>
<th>80%</th>
<th>60%</th>
<th>50%</th>
<th>40%</th>
<th>30%</th>
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<tr>
<td>40</td>
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<td>16.6</td>
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<td>50</td>
<td>27.0</td>
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<td>18.9</td>
<td>15.4</td>
<td>12.1</td>
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<tr>
<td>60</td>
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<td>90</td>
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<td>48.9</td>
<td>42.9</td>
<td>36.4</td>
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Effective floor cavity reflectance

FC = 0.9

System Performance Table

<table>
<thead>
<tr>
<th>System</th>
<th>No. of Lamps</th>
<th>Lamp Lumens</th>
<th>Lumen Maintenance</th>
<th>Fixtures Efficiency</th>
<th>Ballast Factor</th>
<th>Design System Lumens</th>
<th>S/P Ratio</th>
<th>Brightness Perception</th>
<th>S/P Adjusted Lumens</th>
<th>Cost of Lamps</th>
<th>Cost of Installation</th>
<th>LER</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBI-454TS-N-UNV-EHT1-U</td>
<td>4</td>
<td>5000</td>
<td>94%</td>
<td>92%</td>
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<td>17258</td>
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<td>1.38</td>
<td>23789</td>
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<td>93%</td>
<td>93%</td>
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<td>1.38</td>
<td>35919</td>
<td>360</td>
<td>$3.43</td>
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Comparison System

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<thead>
<tr>
<th>System</th>
<th>No. of Lamps</th>
<th>Lamp Lumens</th>
<th>Lumen Maintenance</th>
<th>Fixtures Efficiency</th>
<th>Ballast Factor</th>
<th>Design System Lumens</th>
<th>S/P Ratio</th>
<th>Brightness Perception</th>
<th>S/P Adjusted Lumens</th>
<th>Cost of Lamps</th>
<th>Cost of Installation</th>
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<tbody>
<tr>
<td>200W Metal Halide High Bay</td>
<td>1</td>
<td>23000</td>
<td>75%</td>
<td>78%</td>
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<td>15000</td>
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<tr>
<td>250W High Pressure Sodium High Bay</td>
<td>1</td>
<td>30000</td>
<td>61%</td>
<td>78%</td>
<td>1.00</td>
<td>18978</td>
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<td>1.22</td>
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<td>1</td>
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<td>61%</td>
<td>78%</td>
<td>1.00</td>
<td>31631</td>
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<td>0.79</td>
<td>24906</td>
<td>464</td>
<td>$7.63</td>
<td>42</td>
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</table>

FOOTNOTES:
- Lumen maintenance is based on lamp manufacturer’s stated data combined with estimated dirt depreciation.
- Design System Lumens is the fixture lumens at 40% of rated lamp life and is calculated as Quantity of Lamps x Lamp Lumens x Lumen Maintenance x Fixture Efficiency x Ballast Factor x S/P Ratio.
- S/P Adjusted Lumens calculates the brightness perception scotopic/photopic ratio as Design System Lumens x (S/P)0.5 based on 500K lamps. LER (Luminaire Efficiency Ratio) is an accepted method of comparing fixture performance.
Cooper Lighting’s F-Bay Modular Power Supply allows external fixture access for safe and easy servicing. There is no need to remove lamps or reflectors to disconnect fixture power with F-Bay Modular Power Supply. Access to the individual fixture’s power supply allows servicing without turning off all the fixtures disrupting occupants. F-Bay Modular Power Supply is a time saver in installation – simply plug & power.

Electrostatically applied baked white enamel finish is preceded by a multistage cleaning cycle, iron phosphate coating with rust inhibitor.

Optional uplight apertures (approximately 7% uplight)  

Thermally optimized F-Bay is suitable for environments up to 149°F (66°C) when used with high temperature environment ballasts. T5 or T8 systems are warranted for ambient environments up to 149°F (65°C) for three years and 131°F (55°C) for five years in open uplight configurations.

Cooper Lighting’s modular power receptacle meets UL2459 and NEC 410.73 and is UL/cUL rated for make and break under load from outside the luminaire to speed maintenance.

Factory installed code compliant disconnect for safe and convenient means of disconnecting power.

Includes V Hangers for rapid installation!

Standard side rails and stiffening brackets provide increased structural rigidity.

Cooper Lighting's F-Bay Modular Power Supply Receptacle supplied mounted into fixture Access Plate

1. Modular Power Supply Receptacle supplied mounted into fixture Access Plate
2. Modular Power Cord & Plugs in 120, 277, 347, & 480V configurations for easy plug & power into existing supply

No internal fixture access required for installation or disconnecting power

Modular Motion Sensor Option supplied with Mounting Box and Modular Power Supply Receptacle

Code Compliance
- UL/cUL Certified for Make/Break under load (UL2549)
- Meets NEC requirements for ballast disconnect (NEC 410.73G)
- Allows for addition of Occupancy Sensor without hard connections
- Receptacles complete with insulating/dust cap
Shielding Options

Prismatic or clear acrylic lens and door frame. Wireguard w/acrylic lens and door frame. Heavy duty and stock wireguard (ideal for gymnasium applications).

Mounting Accessories

HB-SPM—Single Monopoint Hanger w/Hub (Galvanized)  FH-1—Fixture Hook 2-1/2" (must be used with HBL-SPM)  FL-1—Fixture Loop 2-1/2" (must be used with HBL-SPM)  RH-H-1—Retrofit Hanger (must be used with HBL-SPM)  HBYC—Standard V-Hook Hanger included (ideal for gymnasium applications)  Y=Mounting Toggle and 10' or 25' cable

Thermal Optimization

To optimize luminaire performance, HBE series offers a variety of lamp and shielding options. Use the Thermal Optimization chart to determine the options that are appropriate for the ambient environments in which they will be installed.

System Performance

HBE

<table>
<thead>
<tr>
<th>Mounting Height</th>
<th>40'</th>
<th>30'</th>
<th>20'</th>
<th>10'</th>
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<tr>
<td>250W MH</td>
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<td></td>
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<td>250W HPS</td>
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<td>400W MH</td>
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<tr>
<td>400W HPS</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Energy Savings</th>
<th>50%</th>
<th>51%</th>
<th>54%</th>
<th>52%</th>
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</thead>
<tbody>
<tr>
<td>% Light Gain/Loss</td>
<td>15%</td>
<td>15%</td>
<td>19%</td>
<td>34%</td>
</tr>
</tbody>
</table>

Part Number

HBE432UPL or HBE432PSUPL  HBE454TSUPL or HBE454PSUPL  HBE632UPL or HBE632PSUPL  HBE654UPL

T8  T5

Operating at approximately 90% or above of rated output.

% light gain/light loss utilize S/P adjusted lumens.
HBE T8 HIGH-BAY EFFICIENCY LUMINAIRE

Ordering Information Sample Number: HBE-632-N-UNV-L8850-EB82/PLUS-U

Includes V Hangers for rapid installation

Quick Ship Ordering Information Sample Number: HBE632-UPL-L5

Quick Ship orders ship in 5 days in order quantities not to exceed 200 pieces.

NOTE: Orders received after noon are entered on the following day.

Packaging

U=Unit Pack
PALC=Job Pack
In Carton
PAL=Job Pack
Out of Carton

Series
HBE=High Bay Efficiency

No. of Lamps
4-4 Lamps
6-6 Lamps
8-8 Lamps
10-10 Lamps

Lamp Type
32-32W T8 Lamps (48")

Distribution
N=Narrow Beam (Standard)
M=Medium Beam
W=Wide Beam

Shielding
Blank=None
A=Prismatic Acrylic Lens & Doorframe
WG=Wideguard & Doorframe
CL=Clear Acrylic Lens & Doorframe

Voltage
UNV=Universal
UNC=Universal 347/480

Lamps Installed
L8830=T8 Lamp, 80CRI 3000K
L8835=T8 Lamp, 80CRI 3500K
L8841=T8 Lamp, 80CRI 4100K
L8950=T8 Lamp, 80CRI 5000K
HL=Add HL at end of lamp for high lumen lamps

Options
Lamps Installed
No. of Lamps
1, 2 or 3

Ballast Type
EB8=T8 Electronic Instant Start. Total Harmonic Distortion < 10%
EB=PLUS=T8 Electronic Instant Start. Total Ballast Factor >1.15
ER8=T8 Program Start

Options
Program Rapid Start 1.15 BF
Blank=Sidewall Ballasts
W=Wideguard & Doorframe

NOTE:
Voltage must be specified when ordered with plugs, motion sensor or emergency ballasts.

(3) Requires use of Modular Cord & Plug Accessories.
(2) Requires use of MC Cord Hangers, 36+" Chain Sets w/3-Hooks
(7) Recommended when utilizing motion sensor options.
(4) Requires use of Modular Cord and plug accessories.
(6) When ordering MS option, specify as UNV (for 120 or 277V), 347 or 480V.

Total Harmonic Distortion < 10%
High Ballast Factor >1.15

Dimensions

HBE T8 Lamp Configurations

Lamp Qty
4-4 Lamps
6-6 Lamps

Lamp Type
32-32W T8 Lamps (48")

Distribution
Blank-Narrow Beam
W-Wide Beam

Ballast Type
Blank=Program Start

Power Receptacle
Blank=Standard Wiring to Power Receptacle

Options
MP=Modular Power Receptacle

Lamping
Blank-No Lamps
L4=Lamps Installed 80+CRI 4100K
L5=Lamps Installed 80+CRI 5000K
L3HL=Lamps Installed 85+CRI 5000, High Lumen

Uplight
Blank-No Uplight

NOTE:
High lumen (3100 initial) lamps supplied for 4100K T8 systems. Recommended when utilizing motion sensor options. Requires use of Modular cord and plug accessories.

Quick Ship Made To Order

Family
HBE-2' x 4'

HBE T8

HBE T8 HIGH-BAY EFFICIENCY LUMINAIRE

Includes V Hangers for rapid installation

Dimensions for Top View

4/6-Lamp

48-7/16" [123mm]

20-1/4" [512mm]
Lumen maintenance is based on lamp manufacturer’s stated data combined with estimated dirt depreciation.

Electronic Ballasts

400W High Pressure Sodium High Bay

400W Metal Halide High Bay

System Performance Table

FOOTNOTES: *Lumen maintenance is based on lamp manufacturer’s stated data combined with estimated dirt depreciation. **Design System Lumen is the fixture lumens at 40% of rated lamp life and is calculated as Quantity of Lamps x Lamp Lumens x Lumen Maintenance x Fixture Efficiency x Ballast Factor. *S/P Ratio is the lamp manufacturers stated Scotopic/Photopic Ratio; accepted by some lighting designers to adjust for the relative strengths of scotopic and photopic vision, not yet adopted by IESNA. *S/P Adjusted Lumens calculates the brightness perception scotopic/photopic ratio as Design System lumens x (S/P)^.0.5 based on 5000K lamps.

**Lumen Maintenance Efficiency Ratio** is an accepted method of comparing fixture performance.
HBE T5 HIGH-BAY EFFICIENCY LUMINAIRE

Ordering Information  
Sample Number: HBE-654T5-N-UNV-L5850-EBT2-U  

Includes V Hangers for rapid installation

Quick Ship Ordering Information  
Sample Number: HBE654T5-UPL-LS  

Quick Ship orders ship in 5 days in order quantities not to exceed 200 pieces.  

Includes V Hangers for rapid installation

Quick Ship

Made To Order

Family  
HBE

Lamp Qty  
4-6 Lamps  
8-10 Lamps

Distribution  
N= Narrow Beam  
M= Medium Beam  
W= Wide Beam

Lamp Type  
49T5=54W T5HO Lamps (48”)  
51T5=51W T5HO Lamps (48”)  
54T5=54W T5HO Lamps (48”)

Voltage

UNV=Universal  
120/277 Volts  
UNC=Universal  
347/480 Volts

Ballast Type  
EBT=T5HO Linear Electronic Program Start  
HT5=T5HO Linear Electronic Program Start

Options  
Lamps Installed  
L5830=T5 Lamp, 80CRI 3000K  
L5835=T5 Lamp, 80CRI 3500K  
L5841=T5 Lamp, 80CRI 4100K  
L5850=T5 Lamp, 80CRI 5000K

Power Receptacle  
Blank=Standard Wiring to Access Plate  
MP=Modular Power Receptacle  
UPL=Uplight

Lamping  
Blank=No Lamps  
L4= Lamps Installed 80+CRI 4100K  
LS=Lamps Installed 80+CRI 5000K

Dimensions  
4/Lamp  
2-15/32” [63mm]  
20-1/4” [512mm]

6/Lamp  
2-15/32” [63mm]  
20-1/4” [512mm]

8/Lamp  
2-15/32” [63mm]  
20-1/4” [512mm]

10/Lamp  
2-15/32” [63mm]  
20-1/4” [512mm]

8/10-Lamp  
2-15/32” [63mm]  
25-11/32” [644mm]

4/6-Lamp  
48-7/16” [1233mm]

Accessories  
(order separately)  
HBL-SPM=Single Monopoint Hanger w/Hub  
RH-1=Retrofit Hanger  
FH-1=Fixture Hook  
FL-1=Fixture Loop  
Y-TOGGLE=Y Mounting Toggle, #2 Cable (Specify 10” or 30”, requires 2 per fixture)  
HBAYC-CHAIN/SET/U=2 V-Hook Hangers, 36” Chain Sets w/S-Hooks  
MC3=3 Modular Power Cord  
MPC6=6 Modular Power Cord  
MC3=3 Modular Power Cord & Plug (Specify Voltage)  
L5850=5000K  
L5835=3500K  
L5841=4100K  
L5830=3000K

NOTES:  
(1)Voltage must be specified when ordered with plugs or emergency ballasts.  
(2)When ordering MS option, specify as UNV (for 120 or 277V), 347 or 480V, requires use of MC or MPC cord accessories, specify voltage for plugs.  
(3)Can be used in high abuse applications such as gymsnasiums.  
(4)EHT/HT5/HCT5 ballast systems suitable for ambient environments not to exceed 149°F (65°C) in open uplight configurations and less lens option.  
(5)High Ambient Electronic Ballast recommended when using lens option on 8 or 10 lamp configurations.  
(6)Includes V Hangers for rapid installation

NOTE: Orders received after noon are entered on the following day.

Efficiency=High Bay  
HBE=Series  
10= Lamps  
W=Wide Beam  
M=Medium Beam  
N=Narrow Beam (Standard)  
CL/WG=Clear Lens, Wireguard & Doorframe  
A/WG=Acrylic Lens, Wireguard & Doorframe  
CL=Clear Acrylic Lens & Doorframe  
WG=Wireguard & Doorframe  
A=Blank  
EHT=High Ambient Electronic  
HT5=High Ambient T5HO  
MC=Modular Cord  
WPL=Wireguard with Plug  
UPL=Uplight  
UPL=Uplight Aperture on Reflector  
CLWS=Clear Lens with Wireguard & Doorframe  
BAYC-CHAIN/SET/U=2 V-Hook Hangers, 36” Chain Sets w/S-Hooks  
MPC6=6 Modular Power Cord  
MC3=3 Modular Power Cord & Plug (Specify Voltage)  
L5850=5000K  
L5835=3500K  
L5841=4100K  
L5830=3000K

NOTES:  
(1)When ordering MS option, specify as UNV (for 120 or 277V), 347 or 480V, requires use of MC or MPC, cord accessories, specify voltage for plugs.  
(2)Can be used in high abuse applications such as gymnasiums.  
(3)HBT System suitable for ambient environments not to exceed 149°F (65°C) in open uplight configurations and less lens option.  
(4)High Ambient Ballast recommended when using lens option on 8 or 10 lamp configurations.

NOTES:  
(7)Requires use of Modular cord and plug accessories.  
(8)For Quick Ship, lamping option only available w/54W lamp type.

NOTE: Orders received after noon are entered on the following day.

Efficiency=High Bay  
HBE=Series  
10= Lamps  
W=Wide Beam  
M=Medium Beam  
N=Narrow Beam (Standard)  
CL/WG=Clear Lens, Wireguard & Doorframe  
A/WG=Acrylic Lens, Wireguard & Doorframe  
CL=Clear Acrylic Lens & Doorframe  
WG=Wireguard & Doorframe  
A=Blank  
EHT=High Ambient Electronic  
HT5=High Ambient T5HO  
MC=Modular Cord  
WPL=Wireguard with Plug  
UPL=Uplight  
UPL=Uplight Aperture on Reflector  
CLWS=Clear Lens with Wireguard & Doorframe  
BAYC-CHAIN/SET/U=2 V-Hook Hangers, 36” Chain Sets w/S-Hooks  
MPC6=6 Modular Power Cord  
MC3=3 Modular Power Cord & Plug (Specify Voltage)  
L5850=5000K  
L5835=3500K  
L5841=4100K  
L5830=3000K

NOTES:  
(1)Voltage must be specified when ordered with plugs or emergency ballasts.  
(2)When ordering MS option, specify as UNV (for 120 or 277V), 347 or 480V, requires use of MC or MPC cord accessories, specify voltage for plugs.  
(3)Can be used in high abuse applications such as gymnasiums.  
(4)EHT/HT5/HCT5 ballast systems suitable for ambient environments not to exceed 149°F (65°C) in open uplight configurations and less lens option.  
(5)High Ambient Electronic Ballast recommended when using lens option on 8 or 10 lamp configurations.  
(6)Includes V Hangers for rapid installation

NOTE: Orders received after noon are entered on the following day.
Calculated as Quantity of Lamps x Lamp Lumens x Lumen Maintenance x Fixture Efficiency x Ballast Factor.

Designers to adjust for the relative strengths of scotopic and photopic vision, not yet adopted by IESNA.

**System Performance Table**

<table>
<thead>
<tr>
<th>System Comparison</th>
<th>No. of Lamps</th>
<th>Lamp Lumens</th>
<th>Lumen Maintenance</th>
<th>Fixture Efficiency</th>
<th>Ballast Factor</th>
<th>Design System Lumen</th>
<th>S/P Ratio</th>
<th>Brightness Perception</th>
<th>S/P Adjusted Lumen</th>
<th>Wattage</th>
<th>Cost of 1000 Lumen Adjusted System @ 50 Cent</th>
<th>LER</th>
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<td>4</td>
<td>5000</td>
<td>93%</td>
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<tr>
<td>HBE-454T-N-UNV-EBT2-UPL-U</td>
<td>6</td>
<td>5000</td>
<td>93%</td>
<td>95%</td>
<td>1.00</td>
<td>23440</td>
<td>360</td>
<td>53.35</td>
<td>101</td>
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</table>

**Comparison System**

- **250W Metal Halide High Bay**
  - 1, 23000
  - 25%
  - 78%
  - 1.00
  - 15000
  - 27.5
  - 6.59
  - 49

- **250W High Pressure Sodium High Bay**
  - 1, 30000
  - 81%
  - 78%
  - 1.00
  - 18978
  - 28.0
  - 6.13
  - 49

- **400W Metal Halide High Bay**
  - 1, 36000
  - 78%
  - 78%
  - 1.00
  - 21087
  - 28.0
  - 5.22
  - 44

- **400W High Pressure Sodium High Bay**
  - 1, 50000
  - 81%
  - 78%
  - 1.00
  - 31631
  - 28.0
  - 5.62
  - 42

**Footnotes:**
- Lumen maintenance is based on lamp manufacturer’s stated data combined with estimated dirt depreciation.
- Design System Lumen is the fixture lumens at 40% of rated lamp life and is calculated as Quantity of Lamps x Lamp Lumens x Lumen Maintenance x Fixture Efficiency x Ballast Factor. +/P Ratio is the lamp manufacturers stated scotopic/photopic ratio, accepted by some lighting designers to adjust for the relative strengths of scotopic and photopic vision, not yet adopted by IESNA. +/P Adjusted Lumen calculates the brightness perception scotopic/photopic ratio as Design System Lumen x (+/P) based on 500K lamps. +LER (Luminaire Efficiency Ratio) is an accepted method of comparing fixture performance.
**HIGH-BAY INDUSTRIAL LUMINAIRE**

- Specification grade full body housing, end plates and socket tracks are die formed 20 gauge cold rolled steel in 4’ or 8’ lengths.
- Surface or suspension mounting (cable, chain, pendant mount or top connector box).
- Optional uplight apertures (approximately 8% uplight).
- Latched retention of optics (safety leader restraints) allows for easy access.

**Linear Disconnect**

Thermally optimized F-Bay is suitable for environments up to 149°F (65°C) when used with high temperature environment ballasts. T5 systems are warranted for ambient environments up to 149°F (65°C) for three years and 131°F (55°C) for five years in open uplight configurations. T8 systems are warranted for environments up to 122°F (50°C) for five years.

- Optical modules are fully enclosed inside housing to protect against damage.
- Die formed reflectors are faceted for 2, 3, 4, 6 and 8 lamp tandem configurations with two optical distributions – medium and wide. Medium beam optical modules utilize 95% specular aluminum while the wide distribution utilizes a high performance 92% reflective polyester powder coated finish.

**Narrow 11” wide housing allows mounting within 12” horizontally from the nearest edge of the sprinkler detector.**

**Modular F-Bay Power Supply**

Cooper Lighting’s F-Bay Modular Power Supply allows external fixture access for safe and easy servicing. There is no need to remove lamps or reflectors to disconnect fixture power with F-Bay Modular Power Supply. Access to the individual fixture’s power supply allows servicing without turning off all the fixtures disrupting occupants. F-Bay Modular Power Supply is a time saver in installation – simply plug & power.

- Modular power receptacle meets UL2459 and NEC 410.73 and is UL/cUL rated for make and break under load from outside the luminaire to speed maintenance.
- Integral occupancy sensor available and provides from 600 sq. ft. up to 1250 sq. ft. (MSO) of coverage at a maximum mounting height of 40’.

**Modular Motion Sensor Option supplied with Mounting Box and Modular Power Supply Receptacle**

**Code Compliance**

- UL/cUL Certified for Make/Break under load (UL2549)
- Meets NEC requirements for ballast disconnect (NEC 410.73G)
- Allows for addition of Occupancy Sensor without hard connections
- Receptacles complete with insulating/dust cap

1. Modular Power Supply Receptacle supplied mounted into fixture Access Plate
2. Modular Power Cord & Plugs in 120, 277, 347, & 480V configurations for easy plug & power into existing supply

No internal fixture access required for installation or disconnecting power

High Ambient Application Warranty 5/55
Shielding Options

- Frosted acrylic or clear lens & frame (use with general distribution reflector, I5 only)
- Heavy duty wireguard finished in white. Can be used alone or in combination with other shielding
- Thin blade white baffle w/23° longitudinal
- Asymmetric directional louver can be oriented in either direction for flexibility

Mounting Accessories

- I5/I8 TCB=Top Connector Box (I5/I8 only)
- FH-1=Fixture Hook 2-1/2" (must be used with TCB)
- FL-1=Fixture Loop 2-1/2" (must be used with TCB)
- RH-1=Retrofit Hanger (must be used with TCB)
- AYC=Mounting Chain Set
- LOOP=Loop Hanger, #2 Cable
- TOGGLE=Single Toggle, #2 Cable

Row Mount

End plates provided with the “Quick-Tab” joining system for ease of row mounting. Blank end plates provided for row ends.

Dimensions

I5/I8 Lamp Configurations

- 2-Lamp: 4-1/16" [126mm] X=2-3/4" [70mm] 11" [280mm]
- 3-Lamp: 4-11/16" [126mm] X=2-11/32" [60mm] 11" [280mm]
- 4-Lamp: 4-11/16" [126mm] X=2-11/32" [60mm] 11" [280mm]

Dimensions for Top View

- 11/16" [18mm] K.O. for Cable or Pendant Mounting
- Access Plate 11/16" [18mm] K.O. for Cable or Pendant Mounting

System Performance

- I5: 250W MH, 250W HPS
- 8TI5: 400W MH, 400W HPS
- I8: 250W MH, 250W HPS
- 8TI8: 1000W MH, 1000W HPS

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Energy Savings</th>
<th>% Light Gain/Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>I5355</td>
<td>38%</td>
<td>16% -4%</td>
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<tr>
<td>I5455</td>
<td>39%</td>
<td>17%</td>
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<tr>
<td>8TI5-354T5-EBT2</td>
<td>50%</td>
<td>15% -1%</td>
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<tr>
<td>8TI5-454T5-EBT3</td>
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<td>25%</td>
</tr>
<tr>
<td>I8-332-EB81/PLUS</td>
<td>58%</td>
<td>26%</td>
</tr>
<tr>
<td>8TI8-432-EB83/PLUS</td>
<td>58%</td>
<td>26%</td>
</tr>
</tbody>
</table>

% light gain/light loss utilize S/P adjusted lumens.
**Ordering Information**

Sample Number: 8T15-254T5-TB1200-EB1-UPL-U

**System Performance Tables**

| IS System Comparison | No. of Lamps | Lamp Lummens | Lumen Maintenance | Fixture Efficiency | Ballast Factor | Design System Lumens | S/P Ratio | Brightness Perception | S/P Adjusted Lumens | Wattage | Cost of 
| | | | | | | | | (installed) | | | 100's/1000's | of 1000's | of 1000's |
| I5S35 | 3 | 5000 | 93% | 94% | 1.00 | 13113 | 1.90 | 1.38 | 18075 | 3.96 | 99 |
| I5S45 | 4 | 5000 | 93% | 93% | 1.00 | 17298 | 1.90 | 1.38 | 23844 | 4.03 | 99 |
| IT5S35 | 6 | 5000 | 93% | 94% | 1.00 | 26282 | 1.90 | 1.38 | 36227 | 4.03 | 99 |

**Comparison System**

| 250W Metal Halide High Bay | 1 | 23000 | 75% | 78% | 1.00 | 15000 | 1.50 | 1.22 | 18371 | 259 | 5.69 | 49 |
| 250W High Pressure Sodium High Bay | 1 | 30000 | 81% | 78% | 1.00 | 18978 | 0.62 | 0.79 | 14944 | 300 | 8.23 | 39 |
| 400W Metal Halide High Bay | 1 | 36000 | 75% | 78% | 1.00 | 21087 | 1.50 | 1.22 | 25826 | 455 | 7.22 | 44 |
| 400W High Pressure Sodium High Bay | 1 | 50000 | 81% | 78% | 1.00 | 31631 | 0.62 | 0.79 | 24906 | 464 | 7.63 | 42 |

**ET5S Comparison System**

| ET-5S-EBB/PLUS | 8 | 5000 | 93% | 94% | 1.00 | 35042 | 1.90 | 1.38 | 48303 | 480 | 3.22 | 101 |

**1000W Metal Halide High Bay**

| 1000W Metal Halide High Bay | 1 | 110000 | 45% | 70% | 1.00 | 36083 | 1.50 | 1.22 | 44192 | 1085 | 5.70 | 56 |

**II System Comparison**

| II-332-EBB/PLUS | 3 | 3100 | 94% | 94% | 1.15 | 9450 | 1.95 | 1.40 | 13196 | 101 | 2.27 | 131 |
| II-432-EBB/PLUS | 4 | 3100 | 94% | 94% | 1.15 | 12600 | 1.95 | 1.40 | 17595 | 147 | 2.47 | 120 |

**Comparison System**

| 250W Metal Halide High Bay | 1 | 23000 | 75% | 78% | 1.00 | 15000 | 1.50 | 1.22 | 18371 | 259 | 6.59 | 49 |
| 250W High Pressure Sodium High Bay | 1 | 30000 | 81% | 78% | 1.00 | 18978 | 0.62 | 0.79 | 14944 | 300 | 8.23 | 39 |
| 400W Metal Halide High Bay | 1 | 36000 | 75% | 78% | 1.00 | 21087 | 1.50 | 1.22 | 25826 | 455 | 7.22 | 44 |
| 400W High Pressure Sodium High Bay | 1 | 50000 | 81% | 78% | 1.00 | 31631 | 0.62 | 0.79 | 24906 | 464 | 7.63 | 42 |

**ET8 System Comparison**

| ET-8-432-EBB/PLUS | 8 | 3100 | 94% | 94% | 1.15 | 25200 | 1.95 | 1.40 | 35190 | 302 | 2.54 | 117 |

**Comparison System**

| 1000W Metal Halide High Bay | 1 | 110000 | 45% | 70% | 1.00 | 36083 | 1.50 | 1.22 | 44192 | 1085 | 5.70 | 56 |

**Notes:**
1. Lumen maintenance is based on lamp manufacturer’s stated data combined with estimated dirt depreciation.
2. Design System Lumens is the fixture lumens at 40% of rated lamp life and is calculated as Quantity of Lamps x Lamp Lummens x Lumen Maintenance x Fixture Efficiency x Ballast Factor. S/P Ratio is the lamp manufacturer’s stated Scotopic/Photopic Ratio; accepted by some lighting designers to adjust for the relative strengths of scotopic and photopic vision, not yet adopted by ESNA. S/P Adjusted Lumens calculates the brightness perception scotopic/photopic ratio as Design System Lumens x (S/P)^2. LER (Luminaire Efficiency Ratio) is an accepted method of comparing fixture performance.
Zonal Cavity Method and associated algorithms. Results are calculated from manufacturer photometric files.

Choose the spacing and mounting height to determine the average footcandle and watts per square foot values. All the calculations are based on the published IESNA Illuminance Estimator.

**Photometrics**

**Test Report: I8-332-UNV-EB81-UPL.IES**
- Efficiency 94.1%
- Spacing criterion: (II) 1.2 x mounting height, (L) 0.8 x mounting height
- (4) F54T5/HO/830K lamps 4400 lumens
- (2) Electronic Ballasts

**Test Report: I5-454T5-TBW-UNV-EBT2-UPL.IES**
- Efficiency 81.2%
- Spacing criterion: (II) 1.1 x mounting height

**Test Report: I5-354T5-UNV-EBT2-UPL.IES**
- Efficiency 98.2%
- Spacing criterion: (II) 1.2 x mounting height, (L) 0.7 x mounting height

**Test Report: I5-454T5-UNV-EBT2-UPL.IES**
- Efficiency 94.2%
- Spacing criterion: (II) 1.0 x mounting height

**Test Report: I5-454T5-UNV-EBT2-UPL.IES**
- Efficiency 92.8%
- Spacing criterion: (II) 1.3 x mounting height

**Mounting on Center Qty**

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**Coefficients of Utilization**

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**Coefficients of Utilization**

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**Illuminance Estimator**

**I8432GULP**

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**IS454**

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Choose the spacing and mounting height to determine the average footcandle and watts per square foot values. All the calculations are based on the published IESNA Zonal Cavity Method and associated algorithms. Results are calculated from manufacturer photometric files.
Cooper Lighting’s F-Bay Modular Power Supply allows external fixture access for safe and easy servicing. There is no need to remove lamps or reflectors to disconnect fixture power with F-Bay Modular Power Supply. Access to the individual fixture’s power supply allows servicing without turning off all the fixtures disrupting occupants. F-Bay Modular Power Supply is a time saver in installation – simply plug & power.

**Code Compliance**
- UL/cUL Certified for Make/Break under load (UL2549)
- Meets NEC requirements for ballast disconnect (NEC 410.73G)
- Allows for addition of Occupancy Sensor without hard connections
- Receptacles complete with insulating/dust cap

**Modular F-Bay Power Supply**

1. Modular Power Supply Receptacle supplied mounted into fixture Access Plate
2. Modular Power Cord & Plugs in 120, 277, 347, & 480V configurations for easy plug & power into existing supply

Optional uplight apertures (approximately 7% uplight).

Die formed reflectors are faceted for 4, 6, 8 and 10 lamp configurations with three optical distributions – narrow, medium and wide.

Stiffening brackets add additional strength and rigidity to channel and reflector.

Electrostatically applied baked white enamel finish is preceded by a multi-stage cleaning cycle, iron phosphate coating with rust inhibitor.

Integral occupancy sensor available and provides from 600 sq. ft. up to 1250 sq. ft. of coverage in a maximum mounting height of 40’.

Thermally optimized F-Bay is suitable for environments up to 149°F (65°C) when used with high temperature environment ballasts. T5 or T8 systems are warranted for ambient environments up to 149°F (65°C) for three years and 131°F (55°C) for five years in open uplight and downlight configurations.

Cooper Lighting’s modular power receptacle meets UL2459 and NEC 410.73 and is UL/cUL rated for make and break under load from outside the luminaire to speed maintenance.

Factory installed code compliant disconnect for safe and convenient means of disconnecting power.

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Cooper Lighting’s modular power receptacle meets UL2459 and NEC 410.73 and is UL/cUL rated for make and break under load from outside the luminaire to speed maintenance.

Factory installed code compliant disconnect for safe and convenient means of disconnecting power.
**Mounting Accessories**

- **HBL-SPM** – Single Monopoint Hanger w/Hub (Galvanized)
- **FH-1** – Fixture Hook 2-1/2” (must be used with HBL-SPM)
- **FL-1** – Fixture Loop 2-1/2” (must be used with HBL-SPM)
- **RH-1** – Retrofit Hanger (must be used with HBL-SPM)
- **HBLVC** – New Mounting Chain Set w/Hook Hangers (ideal for gymnasium applications)
- **Y** – Mounting Toggle and ‘10’ or ‘25’ cable

**Shielding Options**

- Heavy duty stock wireguard (ideal for gymnasium applications)
- Wireguard swings open for easy lamp maintenance

**Thermal Optimization**

To optimize luminaire performance, HBL series offers a variety of lamp and shielding options. Use the Thermal Optimization chart to determine the options that are appropriate for the ambient environments in which they will be installed.

**System Performance**

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<th>Mounting Height</th>
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<th>HBL-T5</th>
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- **Energy Savings**
  - 50% 51% 51% 52% 72% 73%
- **% Light Gain/Loss**
  - 15% 15% 24% 6% -18% 4%

- **Part Number**
  - HBL-432-N-UPL
  - HBL-632-N-UPL
  - HBL-832-N-UPL

- **Part Number**
  - HBL-454T5-N-UPL
  - HBL-654T5-N-UPL
  - HBL-854T5-N-UPL

% light gain/light loss utilize S/P adjusted lumens.
## Dimensions

### HBL Lamp Configurations

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<th>Lamp Type</th>
<th>4-Lamp</th>
<th>8-Lamp</th>
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### Dimensions for Top View

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<th>8/10 Lamp</th>
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## Ordering Information

**Sample Number:** HBL-632-N-UNV-EB82-UPL-U

**Includes V Hangers for rapid installation**

### HBL—Linear High Bay

**No. of Lamps**
- 4-6 Lamps
- 8-8 Lamps
- 10-10 Lamps

**Lamp Type**
- 32-120T8 Lamp (48" Long)

**Distribution**
- N—Narrow Beam (Standard)
- M—Medium Beam
- W—Wide Beam

**Ballast Type**
- **T8 Systems**
  - T8 Electronic Instant Start
  - Total Harmonic Distortion < 10%
  - No. of Ballast 1, 2 or 3
  - **EB8**
  - **EB8-PLUS**
  - T8 Electronic Instant Start
  - Total Harmonic Distortion < 10%
  - No. of Ballast 1, 2 or 3

**Power Receptacle**
- PS—Program Start Electronic (1.15 BF)
- T8 Systems (4)

**Voltage**
- **UNV**—Universal 120/277 Voltage
- **UNC**—Universal 347/480 Voltage

**Lamps Installed**
- L8835—T8 Lamp, 85CRI 3500K
- L8850—T8 Lamp, 85CRI 4100K

**Options**
- GL—Single Element Fuse
- GM—Double Element Fuse
- EL—Emergency Installed

**NOTE:** Voltage must be specified when ordered with plugs or emergency ballasts. For MS option, indicate UNV (for 120V or 277V), 347V or 480V. Cannot be combined with Modular Power Receptacle (MP). For MS with MP, choose MP in fixture logic and then choose MSS ballast systems suitable for operation in ambient environments up to 131°F (55°C) in uplight configuration. Recommended when using motion sensor options. Can be used in high abuse applications such as gymnasiums.

**Quick Ship Ordering Information**

**Sample Number:** HBL432-MP-UPL-L5

**Includes V Hangers for rapid installation**

**Quick Ship orders ship in 5 days in order quantities not to exceed 200 pieces.**

**NOTE:** Orders received after noon are entered on the following day.
Photometrics

Calculated as Quantity of Lamps x Lamp Lumens x Lumen Maintenance x Fixture Efficiency x Ballast Factor.

Designers to adjust for the relative strengths of scotopic and photopic vision, not yet adopted by IESNA.

Lumens x (S/P)^.0.5

System Performance Table

HBL-632-N-UPL Narrow Distribution
(2) Electronic Plus Ballasts
(e) F32T8 32W lamps 3100 lumens
Spacing criterion: (ii) 1.3 x mounting height, (i) 1.0 x mounting height
Efficiency 95.9%
Test Report: HBL632NULPS

HBL-832-N-UPL Narrow Distribution
(2) Electronic Ballasts
(b) F32T8 32W lamps 3100 lumens
Spacing criterion: (i) 1.3 x mounting height, (ii) 1.0 x mounting height
Efficiency 95.0%
Test Report: HBL832NULPIES

Illuminance Estimator

Illuminance Levels (FC) & Watts Per Sq. Ft. (LPD)
Based on 100 ft. x 100 ft. Open Room

Choose the spacing and mounting height to determine the average footcandle and watts per square foot values. All the calculations are based on the published IESNA Zone Cavity Method and associated algorithms. Results are calculated from manufacturer photometric files.

System Performance Table

HBL-T8 System Comparison

Comparison System
250W Metal Halide High Bay
1 23000 75% 78% 1.00 15000 1.50 1.22 18371 295 $6.59 49
250W High Pressure Sodium High Bay
1 30000 81% 76% 1.00 18978 0.67 0.73 13887 300 $8.85 36
400W Metal Halide High Bay
1 36000 75% 78% 1.00 21087 1.50 1.22 25826 455 $7.22 44
400W High Pressure Sodium High Bay
1 50000 81% 78% 1.00 31631 0.62 0.79 24906 464 $5.73 42
1000W Metal Halide High Bay
1 110000 45% 70% 1.00 36083 1.50 1.22 44192 1085 $5.70 56
1000W High Pressure Sodium High Bay
1 130000 45% 70% 1.00 40950 0.62 0.79 32244 1100 $1560.00 21

FOOTNOTES: *Lumen maintenance is based on lamp manufacturer’s stated data combined with estimated dirt depreciation. *Design System Lumens is the fixture lumens at 40% of rated lamp life and is calculated as Quantity of Lamps x Lamp Lumens x Lumen Maintenance x Fixture Efficiency x Ballast Factor. *S/P Ratio is the lamp manufacturers stated (Scotopic/Photopic) Ratio accepted by some lighting designers to adjust for the relative strengths of scotopic and photopic vision, not yet adopted by IESNA. *5/P Adjusted Lumens calculates the brightness perception scotopic/photopic ratio as Design System Lumens x (S/P)^0.5. *LER (Luminaire Efficiency Ratio) is an accepted method of comparing fixture performance.
### Ordering Information

**Sample Number:** HBL-654TS-N-UNV-EBT2-UPL-U

- **Includes V Hangers for rapid installation (7)**

**Width**
- Blank—20" wide
- 4 & 6 Lamp (nominal)
- 26" wide 8 & 10 Lamp (nominal)

**Series**
- HBL—Linear High Bay

**No. of Lamps**
- 4-4 Lamps
- 6-6 Lamps
- 8-8 Lamps
- 10-10 Lamps

**Lamp Type**
- 49TS—54W T5HO (4') Lamps
- 51TS—51W T5HO (4') Lamps
- 54TS—54W T5HO Lamp (48" Long)

**Distribution**
- N—Narrow Beam (Standard)
- M—Medium Beam
- W—Wide Beam

**Voltage**
- UNV—Universal 120/277 Voltage
- UNC—Universal 347/480 Voltage
- 120V—120 volt
- 277V—277 volt
- 347V—347 volt

**Options**
- L8535—T5HO Lamp, 85CRI 3500K
- L8541—T5 Lamp, 85CRI 4100K
- L8550—T5HO Lamp, 85CRI 5000K
- GL—Single Element Fuse
- GM—Double Element Fuse
- EL—Emergency Installed

**Ballast Type**
- **TSO Systems**
  - HTS—(2) 120/277V 4/2 Lamp T5 High Ambient Electronic Program Rapid Start
  - HTS—(2) 120/277V 4/2 Lamp T5 High Ambient Electronic Program Rapid Start

**Power Receptacle**
- MP—Modular Power Receptacle

**Uplight**
- UPL—Uplight

**Lamping**
- Blank—No Lamps
- L4—Lamps installed 85-CRI 4100K
- L5—Lamps installed 85-CRI 5000K
- L4S—Lamps installed 85-CRI 4100K (2)
- L5S—Lamps installed 85-CRI 5000K (2)
- LSES—Energy Savings Lamps Installed 85-CRI 500K

**Dimensions**

#### HBL Lamp Configurations

<table>
<thead>
<tr>
<th>No. of Lamps</th>
<th>Dimensions</th>
<th>4-Lamp</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-15/32&quot; (63mm)</td>
<td>19-17/32&quot; (496mm)</td>
<td>8-Lamp</td>
</tr>
<tr>
<td>2-15/32&quot; (63mm)</td>
<td>19-17/32&quot; (496mm)</td>
<td>10-Lamp</td>
</tr>
<tr>
<td>2-15/32&quot; (63mm)</td>
<td>19-17/32&quot; (496mm)</td>
<td>8 &amp; 10 Lamp</td>
</tr>
</tbody>
</table>

#### Dimensions for Top View

| 4 & 6 Lamp | 48-1/16" (1230mm) |
| 19-17/32" (496mm) | 25-1/4" (641mm) |

**Notes:**
- T5 ballast systems suitable for operation in ambient environments up to 104°F (40°C) in uplight configurations.
- EHT/HTS/HCT5 ballast systems are suitable for ambient environments not to exceed 149°F (65°C) in uplight configurations.
- Requires use of MC or MPC cord accessories, specify voltage for plugs.
- Cannot be combined with Modular Power Receptacle (MP). For MP, choose MP in fixture logic and then combine with Modular Power Receptacle (MP).
- Requires use of MC or MPC cord accessories, specify voltage for plugs.
- Recommended when using motion sensor options or accessories.
- Can be used in high altitude applications such as gymnasiums.

---

**Quick Ship Ordering Information**

Sample Number: HBL454T5-MP-UPL-L5

- **Quick Ship orders ship in 5 days in order quantities not to exceed 200 pieces.**

**Family**
- HBL

**No. of Lamps**
- 4-4 Lamps
- 6-6 Lamps
- 8-8 Lamps
- 10-10 Lamps

**Ballast Type**
- T5 Systems
  - EBT—T5 Linear Electronic Program
  - Total Harmonic Distortion < 10%
  - High Ambient

**Power Receptacle**
- MP—Modular Power Receptacle

**Uplight**
- Blank—No Uplight
- UPL—Uplight

**Lamping**
- Blank—No Lamps
- L4—Lamps installed 85-CRI 4100K
- L5—Lamps installed 85-CRI 5000K
- L4S—Lamps installed 85-CRI 4100K (2)
- L5S—Lamps installed 85-CRI 500K (2)
- LSES—Energy Savings Lamps Installed 85-CRI 500K

**Power**
- 85CRI 5000K
- 85CRI 4100K
- 85CRI 3500K

**Options**
- UPL—Uplight Apertures on Reflector
- MP—Modular Power Receptacle (Used for all Cord or Cord and Plug options)

**Accessories**
- HBL-SPM—Single Monopoint Hanger w/Hub
- RH—Retrofit Hanger
- FK—Fixure Hook
- FL—Fixture Loop
- Y-TOGUE—Y Mounting Toggle, #2 Cable (Specify 10' or 30')

**Dimensions for Top View**

| 4 & 6 Lamp | 48-1/16" (1230mm) |
| 20-11/32" (517mm) | 24-19/32" (625mm) |
| 25-1/4" (641mm) | 19-17/32" (496mm) |
**Photometrics**

HBL-654T5-N-UPL Narrow Distribution

- (2) Electronic Ballasts
- (6) F54T5 54W lamps 4400 lumens
- Spacing criterion: (6) 1.3 x mounting height
- (1) 0.9 x mounting height
- Efficiency 97.0%
- Test Report: HBL654NUPL.IES

**Coefficients of Utilization**

<table>
<thead>
<tr>
<th>RCR</th>
<th>80%</th>
<th>60%</th>
<th>50%</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.30</td>
<td>0.27</td>
<td>0.25</td>
<td>0.23</td>
</tr>
<tr>
<td>0.40</td>
<td>0.31</td>
<td>0.28</td>
<td>0.26</td>
<td>0.24</td>
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<tr>
<td>0.60</td>
<td>0.32</td>
<td>0.29</td>
<td>0.27</td>
<td>0.25</td>
</tr>
<tr>
<td>0.80</td>
<td>0.33</td>
<td>0.30</td>
<td>0.28</td>
<td>0.26</td>
</tr>
</tbody>
</table>

**Zonal Lumen Summary**

<table>
<thead>
<tr>
<th>Zone</th>
<th>Luminaires</th>
<th>%Lamp</th>
<th>%Fixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>77.0</td>
<td>92.5</td>
<td>94.0</td>
</tr>
<tr>
<td>0.40</td>
<td>77.0</td>
<td>92.5</td>
<td>94.0</td>
</tr>
<tr>
<td>0.60</td>
<td>77.0</td>
<td>92.5</td>
<td>94.0</td>
</tr>
<tr>
<td>0.80</td>
<td>77.0</td>
<td>92.5</td>
<td>94.0</td>
</tr>
</tbody>
</table>

**Illuminance Estimator**

**Zonal Lumen Summary**

<table>
<thead>
<tr>
<th>Zone</th>
<th>Luminaires</th>
<th>%Lamp</th>
<th>%Fixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>70.0</td>
<td>86.0</td>
<td>90.0</td>
</tr>
<tr>
<td>0.40</td>
<td>70.0</td>
<td>86.0</td>
<td>90.0</td>
</tr>
<tr>
<td>0.60</td>
<td>70.0</td>
<td>86.0</td>
<td>90.0</td>
</tr>
<tr>
<td>0.80</td>
<td>70.0</td>
<td>86.0</td>
<td>90.0</td>
</tr>
</tbody>
</table>

**System Performance Table**

| HBL T8 System Comparison | No. of Lamps | Lamp Lumens | Lumen Maintenance | S/P Ratio | Brightness Perception | S/P Adj Lumens | Wattage | Cost of 1000 Lamps Including 10% GST Add-on | LER
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>HBL-454T5-N-UPL</td>
<td>6</td>
<td>5000</td>
<td>93%</td>
<td>95%</td>
<td>1.00</td>
<td>37063</td>
<td>360</td>
<td>$3.06</td>
<td>96</td>
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<tr>
<td>HBL-654T5-N-UPL</td>
<td>8</td>
<td>5000</td>
<td>93%</td>
<td>94%</td>
<td>1.00</td>
<td>37063</td>
<td>360</td>
<td>$3.06</td>
<td>103</td>
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<tr>
<td>HBL-854T5-N-UPL</td>
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<td>5000</td>
<td>93%</td>
<td>94%</td>
<td>1.00</td>
<td>37063</td>
<td>360</td>
<td>$3.06</td>
<td>103</td>
</tr>
</tbody>
</table>

**Comparison System**

- 250W Metal Halide High Bay
- 250W High Pressure Sodium High Bay
- 400W Metal Halide High Bay
- 400W High Pressure Sodium High Bay
- 1000W Metal Halide High Bay
- 1000W High Pressure Sodium High Bay

Choose the spacing and mounting height to determine the average footcandle and watts per square foot values. All the calculations are based on the published IESNA Zonal Cavity Method and associated algorithms. Results are calculated from manufacturer photometric files.

**Footnotes:**
- Lumen maintenance is based on lamp manufacturer’s stated data combined with estimated dirt depreciation.
- S/P Ratio is the lamp manufacturers stated Scotopic/Photopic Ratio; accepted by some lighting designers to adjust for the relative strengths of scotopic and photopic vision, not yet adopted by IESNA.
- S/P Adjusted Lumens calculates the brightness perception scotopic/photopic ratio as Design System Lumens x (S/P) x LER (Luminaire Efficiency Ratio) is an accepted method of comparing future performance.
Specular reflectors for precise light control minimum 95% total reflectivity. Three optical distribution patterns are available:

- **Focus** - SC < .5
- **Task** - .5 < SC ≤ .9
- **Normal** - .9 < SC ≤ 1.2

Optional pre-wired factory installed multiple circuit plug-in connectors.

Factory installed code compliant disconnect for safe and convenient means of disconnecting power.

### MBF Ordering Information

**Sample Number** (T5): MBF-154T5-FB-UNV-EBT1-U  
(T8): MBF-132-NB-UNV-EB81-U

#### MBF Ordering Information

- **Ballast Type**
  - **T5 Systems**
    - **EBT** - T5 Linear Electronic Program Rapid Start, Total Harmonic Distortion < 10%
      - No. of Ballast
        - 1 or 2
  - **EHT** - T5 Linear Electronic Program Rapid Start High Ambient, Total Harmonic Distortion < 10%
    - No. of Ballast
      - 1 or 2
  - **EBR** - T8 Electronic Instant Start
    - No. of Ballast
      - 1 or 2
  - **EBR PLUS** - T8 Electronic Instant Start
    - No. of Ballast
      - 1 or 2
  - **EBR PLUS** - T8 Electronic Program Rapid Start
    - No. of Ballast
      - 1 or 2

### T5 Lamp Configurations

**Focus Beam, 1 T5 Lamp**

- **Dimensions**
  - **Kd** (3)
    - 7/8" (22mm)
  - **Ko** (3)
    - 3-1/4" (83mm)
  - **Depth**
    - 48" (1220mm)

**Plug-In Connectors**

- 3" (80mm)

**Optional accessories**

- **Aisle Coverage Motion Sensors**
  - **MB-SENSOR-KIT-CTR/MT-U**
  - **MB-SENSOR-KIT-END/MT-U**
  - **MB-SENSOR-KIT-CTR/480V-U**
  - **MB-SENSOR-KIT-END/480V-U**

**Continuous Channel Installation**

- **SSF-EXT-LONG-CONN-KIT-U**

**Dimensions**

- **Focus Beam, 1 T5 Lamp**
  - **Ko** (3)
    - 3-1/4" (83mm)
  - **Depth**
    - 48" (1220mm)

**Normal Beam, 1 T5 Lamp**

- **Dimensions**
  - **Ko** (3)
    - 3-1/4" (83mm)
  - **Depth**
    - 48" (1220mm)

**Normal Beam, 2 T5 Lamps**

- **Dimensions**
  - **Ko** (3)
    - 3-1/4" (83mm)
  - **Depth**
    - 48" (1220mm)

**Focus Beam, 2 T5 Lamps**

- **Dimensions**
  - **Ko** (3)
    - 3-1/4" (83mm)
  - **Depth**
    - 48" (1220mm)

**Normal Beam, 2 T8 Lamps**

- **Dimensions**
  - **Ko** (3)
    - 3-1/4" (83mm)
  - **Depth**
    - 48" (1220mm)

**Focus Beam, 2 T8 Lamps**

- **Dimensions**
  - **Ko** (3)
    - 3-1/4" (83mm)
  - **Depth**
    - 48" (1220mm)

**Normal Beam, 2 T8 Lamps**

- **Dimensions**
  - **Ko** (3)
    - 3-1/4" (83mm)
  - **Depth**
    - 48" (1220mm)

**Options**

- **PC/CP-Plus-In(1, 2 or 3) See pg. 52**
- **C3-3** - Power Cord
- **C6-6** - Power Cord & Plug (Specify Voltage)
- **PC6-C6** - Unit Pack
- **PC8-C8** - Unit Pack
- **PC6-C8** - Unit Pack
- **PC8-C8** - Unit Pack

**Packaging**

- U-Unit Pack
- U-Unit Pack

**Accessories (order separately)**

- **Aisle Coverage Motion Sensors**
  - **MB-SENSOR-KIT-CTR/MT-U**
  - **MB-SENSOR-KIT-END/MT-U**
  - **MB-SENSOR-KIT-CTR/480V-U**
  - **MB-SENSOR-KIT-END/480V-U**

**Continuous Channel Installation**

- **SSF-EXT-LONG-CONN-KIT-U**

**Notes:**

- **Products also available in non-US voltages and frequencies for international markets.**
- **Powerage to be specified with emergency ballast option.**
- **Voltage must be specified when ordered with plug, motion sensor or emergency ballasts.**
- **Rigid exterior connector must be ordered separately.**
- **Rigid exterior connector must be ordered separately.**
- **Rigid exterior connector must be ordered separately.**
- **Rigid exterior connector must be ordered separately.**
Photometrics

System Performance Table

<table>
<thead>
<tr>
<th>MBF System Comparison</th>
<th>No. of Lamps</th>
<th>Lamp Lumens</th>
<th>Lumen Maintenance</th>
<th>Fixture Efficiency</th>
<th>Ballast Factor</th>
<th>Design System Lumens</th>
<th>S/P Ratio</th>
<th>Brightness Perception</th>
<th>Adj Lmns (%)</th>
<th>Cost of Cash Flow Adjusted Lmns (4000 Hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBF-323FB-EB81</td>
<td>2</td>
<td>3100</td>
<td>94%</td>
<td>99%</td>
<td>1.00</td>
<td>5780</td>
<td>1.95</td>
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<td>3100</td>
<td>94%</td>
<td>99%</td>
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<td>1.22</td>
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<td>MBF-323FB-EB81</td>
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<td>9600</td>
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<td>96%</td>
<td>1.00</td>
<td>3964</td>
<td>1.50</td>
<td>1.22</td>
<td>4855</td>
<td>$12.07 27</td>
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</tbody>
</table>

FOOTNOTES: 1 Lumen maintenance is based on lamp manufacturer's stated data combined with estimated dirt depreciation. 2 Design System Lumens is the fixture lumens at 40% of rated lamp life and is calculated as Quantity x Lamp Lumens x Lumen Maintenance x Fixture Efficiency x Ballast Factor x S/P Ratio is the lamp manufacturers stated Scotopic/Photopic Ratio accepted by some lighting designers to adjust for the relative strengths of scotopic and photopic vision, not yet adopted by IESNA. 3 S/P Adjusted Lumens calculates the brightness perception scotopic/photopic ratio as Design System Lumens x (S/P) x 0.5 x LER (Luminance Efficiency Ratio) is an accepted method of comparing fixture performance.
**2HBG RECESSED HIGH-BAY INDUSTRIAL LUMINAIRE**

**Nominal 6-5/8” deep, para-contoured housing, die formed 20 gauge cold rolled steel.**

**End plates have integral Grid-Lock feature for safety and convenience. Housing features enable fixture to be converted from Grid to T-Option or vice-versa in the field.**

**Pressure lock lampholders.**

**Die formed reflectors are faceted for 4 and 6 lamp configurations with two optical distributions – medium and wide. Medium beam optical modules utilize 95% specular aluminum substrate while the wide distribution utilizes a high performance 92% reflective polyester powder coated finish.**

**Heavy gauge end plates, securely attached with interlocking tabs and screws.**

**Recessed mount for in standard grid/lay-in, concealed T, and slot grid ceilings. Flange trim with supporting swing gates conceal the edges of the ceiling opening.**

**Prismatic and clear lens with door frame option.**

Factory installed code compliant disconnect for safe and convenient means of disconnecting power.

**Ordering Information** Sample Number: 2HBG-654T5-A-UNV-EBT2-U

<table>
<thead>
<tr>
<th>Width</th>
<th>2-24”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series</td>
<td>HB-High Bay</td>
</tr>
<tr>
<td>Trim Type</td>
<td>G=Grid/Lay-in (Standard)</td>
</tr>
<tr>
<td>No. of Lamps</td>
<td>4-6 Lamps</td>
</tr>
<tr>
<td>Lamp Type</td>
<td>32-32W T8 Lamps (48”)</td>
</tr>
<tr>
<td>Options</td>
<td>Lamps Installed</td>
</tr>
<tr>
<td>Shielding</td>
<td>Blank=Open</td>
</tr>
</tbody>
</table>

**Ballast Type (1)**

**Ballast Type**

**Voltage:**

- **UNV=Universal 120/277 Volt**
- **UNG=Universal 347/480 Volt (T5 linear only)**
- **120V=120 Volt**
- **277V=277 Volt**
- **347V=347 Volt**

**Options Installed**

- **L8830-T8 Lamp, 85CRI 3000K**
- **L8835-T8 Lamp, 85CRI 3500K**
- **L8841-T8 Lamp, 85CRI 4100K**
- **L8850-T8 Lamp, 85CRI 5000K**
- **L8530-T5 Lamp, 85CRI 3000K**
- **L8535-T5 Lamp, 85CRI 3500K**
- **L8541-T5 Lamp, 85CRI 4100K**
- **L8550-T5 Lamp, 85CRI 5000K**
- **GL-Single Element Fuse**
- **EM-Emergency Installed**

**Ceiling Compatibility**

- **G Grid/Lay-in Standard**
- **F Aluminum Flange Trim With Supporting Swing Gates**

**NOTES:**

1. **Voltage must be specified when ordered with emergency ballasts.**
2. **EB8 and EB8 ballast systems suitable for operation in ambient environments up to 122°F (50°C) without lens option.**

**Packaging**

- **U=Unit Pack**
- **PAL=Job Pack; out of carton**
- **PALC=Job Pack, in carton**

**Accessories (order separately)**

- **MWS=Modular Wiring System, (Refer to MWS Catalog Online)**

**Ceiling Type**

- **Exposed Grid**
- **Concealed T**
- **Slot Grid**
- **Flange**

**Trim Type**

- **G**
- **O**
- **G or T**
- **F**

**Pre Sales Technical Support.**
System Performance

2HBG

### Photometrics

**Effective floor cavity reflectance**

<table>
<thead>
<tr>
<th>RCR (%)</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>17.4</td>
<td>27.4</td>
<td>27.4</td>
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<tr>
<td>3</td>
<td>150.1</td>
<td>150.1</td>
<td>150.1</td>
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**Zonal Lumen Summary**

<table>
<thead>
<tr>
<th>Zone Lumens</th>
<th>%Lamp</th>
<th>%Fixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-30</td>
<td>91</td>
<td>76</td>
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<tr>
<td>0-40</td>
<td>80</td>
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<td>0-60</td>
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<td>66</td>
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<td>0-90</td>
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<td>61</td>
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<tr>
<td>0-180</td>
<td>65</td>
<td>57</td>
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**Coefficients of Utilization**

<table>
<thead>
<tr>
<th>Effective floor cavity reflectance</th>
<th>RCR (%)</th>
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</thead>
<tbody>
<tr>
<td>20%</td>
<td>80%</td>
</tr>
<tr>
<td>30%</td>
<td>60%</td>
</tr>
</tbody>
</table>

**Dimensions**

<table>
<thead>
<tr>
<th>Dimensions for Top View</th>
</tr>
</thead>
<tbody>
<tr>
<td>23-3/4&quot; (603mm)</td>
</tr>
<tr>
<td>7-7/8&quot; (201mm)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensions of Four Lamp</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-5/8&quot; (117mm)</td>
</tr>
</tbody>
</table>

**Footnotes**

1. Lumen maintenance is based on lamp manufacturer’s stated data combined with estimated dirt depreciation.
2. Design System Lumens is the fixture lumens at 40% of rated lamp life and is calculated as Quantity of Lamps x Lamp Lumens x Lumen Maintenance x Fixture Efficiency x Ballast Factor. S/P Ratio is the lamp manufacturers stated Scotopic/Photopic Ratio; accepted by some lighting designers to adjust for the relative strengths of scotopic and photopic vision, not yet adopted by IESNA. S/P Adjusted Lumens calculates the brightness perception scotopic/photopic ratio as Design System Lumens x (S/P)^0.5 based on 4100K lamps.
3. LER (Luminaire Efficiency Ratio) is an accepted method of comparing fixture performance.

### System Performance Table

<table>
<thead>
<tr>
<th>2HBG System Comparison</th>
<th>No. of Lamps</th>
<th>Lamp Lumens</th>
<th>Lumen Maintenance</th>
<th>Fixture Efficiency</th>
<th>Ballast Factor</th>
<th>Design System Lumens</th>
<th>S/P Ratio</th>
<th>Brightness Perception</th>
<th>S/P Adjusted Lumens</th>
<th>Wattage</th>
<th>Cost of 1000 S/P Adjusted Lumens</th>
<th>LER (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2HBG-432-ER81/PLUS</td>
<td>4</td>
<td>3100</td>
<td>94%</td>
<td>80%</td>
<td>1.15</td>
<td>10724</td>
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<td>1.40</td>
<td>14975</td>
<td>147</td>
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<td>94</td>
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<td>2HBG-632-EB82/PLUS</td>
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<td>3100</td>
<td>94%</td>
<td>80%</td>
<td>1.15</td>
<td>16083</td>
<td>1.95</td>
<td>1.40</td>
<td>22462</td>
<td>221</td>
<td>3.42</td>
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<tr>
<td>2HBG-454T5-EBT1</td>
<td>4</td>
<td>5000</td>
<td>93%</td>
<td>80%</td>
<td>1.00</td>
<td>14880</td>
<td>1.90</td>
<td>1.38</td>
<td>20511</td>
<td>240</td>
<td>4.47</td>
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<tr>
<td>2HBG-654T5-EBT2</td>
<td>6</td>
<td>5000</td>
<td>93%</td>
<td>80%</td>
<td>1.00</td>
<td>22320</td>
<td>1.90</td>
<td>1.38</td>
<td>30766</td>
<td>360</td>
<td>5.30</td>
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<table>
<thead>
<tr>
<th>Comparison System</th>
<th>No. of Lamps</th>
<th>Lamp Lumens</th>
<th>Lumen Maintenance</th>
<th>Fixture Efficiency</th>
<th>Ballast Factor</th>
<th>Design System Lumens</th>
<th>S/P Ratio</th>
<th>Brightness Perception</th>
<th>S/P Adjusted Lumens</th>
<th>Wattage</th>
<th>Cost of 1000 S/P Adjusted Lumens</th>
<th>LER (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>250W Metal Halide High Bay</td>
<td>1</td>
<td>23000</td>
<td>75%</td>
<td>78%</td>
<td>1.00</td>
<td>15000</td>
<td>1.50</td>
<td>1.22</td>
<td>18371</td>
<td>295</td>
<td>6.59</td>
<td>49</td>
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<tr>
<td>250W High Pressure Sodium High Bay</td>
<td>1</td>
<td>30000</td>
<td>81%</td>
<td>78%</td>
<td>1.00</td>
<td>18978</td>
<td>0.62</td>
<td>0.79</td>
<td>14944</td>
<td>300</td>
<td>8.23</td>
<td>49</td>
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<tr>
<td>400W Metal Halide High Bay</td>
<td>1</td>
<td>36000</td>
<td>75%</td>
<td>78%</td>
<td>1.00</td>
<td>21087</td>
<td>1.50</td>
<td>1.22</td>
<td>25226</td>
<td>450</td>
<td>7.22</td>
<td>44</td>
</tr>
<tr>
<td>400W High Pressure Sodium High Bay</td>
<td>1</td>
<td>50000</td>
<td>81%</td>
<td>78%</td>
<td>1.00</td>
<td>31631</td>
<td>0.62</td>
<td>0.79</td>
<td>24906</td>
<td>464</td>
<td>7.63</td>
<td>42</td>
</tr>
</tbody>
</table>
High performance white enamel finish improves efficiency and protects against elements. Optional brushed stainless steel finish for corrosive chemical environments.

White, closed cell, Flexiseal™ gasketing surrounds perimeter of lens to seal lens to door frame and around perimeter of door to seal door to housing. Another layer seals fixture to ceiling system after installation.

Sealed housing is enclosed and gasketed to provide 800 psi hose down protection.

Product can be surface or suspension mounted.

Die formed reflectors are faceted for 4 and 6 lamp configurations with two optical distributions – medium and wide. Medium beam optical modules utilize 95% specular aluminum while the wide distribution utilizes a high performance 95% reflective polyester powder coated finish.

**Ordering Information**

<table>
<thead>
<tr>
<th>Width</th>
<th>2’-24’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series</td>
<td>HBHD=High Bay Hose Down</td>
</tr>
<tr>
<td>No. of Lamps</td>
<td>4-4 Lamps 6-6 Lamps</td>
</tr>
<tr>
<td>Lamp Type</td>
<td></td>
</tr>
<tr>
<td>32=32W T8 Lamps (48&quot;)</td>
<td></td>
</tr>
<tr>
<td>28TS=28W T5 Lamps (48&quot;)</td>
<td></td>
</tr>
<tr>
<td>49TS=49W T5HO (48&quot;)</td>
<td></td>
</tr>
<tr>
<td>51TS=51W T5HO (48&quot;)</td>
<td></td>
</tr>
<tr>
<td>54TS=54W T5HO Lamps (48&quot;)</td>
<td></td>
</tr>
<tr>
<td>Distribution</td>
<td></td>
</tr>
<tr>
<td>Blank=Medium (Specular Aluminum)</td>
<td></td>
</tr>
<tr>
<td>G=Wide (High Reflectance White)</td>
<td></td>
</tr>
<tr>
<td>Shielding</td>
<td></td>
</tr>
<tr>
<td>A=Prismatic Acrylic Lens &amp; Door Frame</td>
<td></td>
</tr>
<tr>
<td>CL=Clear Acrylic Lens &amp; Door Frame</td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td></td>
</tr>
<tr>
<td>UNV=Universal 120/277 Voltage</td>
<td></td>
</tr>
<tr>
<td>UNC=Universal 347/480 Voltage (T5 linear only)9</td>
<td></td>
</tr>
<tr>
<td>120V=120 Volt</td>
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</tr>
<tr>
<td>277V=277 Volt</td>
<td></td>
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<tr>
<td>347V=347 Volt</td>
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</tr>
<tr>
<td>480V=480 Volt</td>
<td></td>
</tr>
<tr>
<td>Ballast Type</td>
<td></td>
</tr>
<tr>
<td>T8 Systems</td>
<td></td>
</tr>
<tr>
<td>E8R =T8 Electronic Instant Start. Total Harmonic Distortion &lt; 10%</td>
<td></td>
</tr>
<tr>
<td>No. of Ballast 1 or 2</td>
<td></td>
</tr>
<tr>
<td>E8R /PLUS =T8 Electronic Instant Start. High Ballast Factor &gt;1.15. Total Harmonic Distortion &lt; 10%</td>
<td></td>
</tr>
<tr>
<td>No. of Ballast 1 or 2</td>
<td></td>
</tr>
<tr>
<td>ERR =T8 Electronic Program Rapid Start. Total Harmonic Distortion &lt; 10%</td>
<td></td>
</tr>
<tr>
<td>No. of Ballast 1 or 2</td>
<td></td>
</tr>
<tr>
<td>E8R /PLUS =T8 Electronic Program Start. High Ballast Factor &gt;1.15. Total Harmonic Distortion &lt; 10%</td>
<td></td>
</tr>
<tr>
<td>No. of Ballast 1 or 2</td>
<td></td>
</tr>
<tr>
<td>Options</td>
<td></td>
</tr>
<tr>
<td>Lamps Installed</td>
<td></td>
</tr>
<tr>
<td>LS830-T8 Lamp, ASCRI 3000K</td>
<td></td>
</tr>
<tr>
<td>LS835-T5 Lamp, ASCRI 3500K</td>
<td></td>
</tr>
<tr>
<td>LS841-T5 Lamp, ASCRI 4100K</td>
<td></td>
</tr>
<tr>
<td>LS850-T5 Lamp, ASCRI 5000K</td>
<td></td>
</tr>
<tr>
<td>LS841-T5 Lamp, ASCRI 4100K</td>
<td></td>
</tr>
<tr>
<td>LS850-T5 Lamp, ASCRI 5000K</td>
<td></td>
</tr>
<tr>
<td>LS841-T5 Lamp, ASCRI 4100K</td>
<td></td>
</tr>
<tr>
<td>LS850-T5 Lamp, ASCRI 5000K</td>
<td></td>
</tr>
<tr>
<td>Notes: (1) Voltage must be specified when ordered with plugs or emergency ballasts. (2) Lamp ballast configurations only in UNC versions.</td>
<td></td>
</tr>
<tr>
<td>Packaging</td>
<td></td>
</tr>
<tr>
<td>U=Unit Pack</td>
<td></td>
</tr>
<tr>
<td>P=4-Pallet Pack</td>
<td></td>
</tr>
<tr>
<td>ALC=Job Pack</td>
<td></td>
</tr>
<tr>
<td>Options</td>
<td></td>
</tr>
<tr>
<td>C=3’ Power Cord</td>
<td></td>
</tr>
<tr>
<td>E=6’ Power Cord</td>
<td></td>
</tr>
<tr>
<td>PC=3’ Power Cord &amp; Plug (Specify Voltage)</td>
<td></td>
</tr>
<tr>
<td>PS6=6’ Power Cord &amp; Plug (Specify Voltage)</td>
<td></td>
</tr>
<tr>
<td>SSN=Stainless Steel Door/Brushed 304 Finish</td>
<td></td>
</tr>
<tr>
<td>SHN=Stainless Steel Housing Brushed 304 Finish</td>
<td></td>
</tr>
</tbody>
</table>

NOTES: (1) Voltage must be specified when ordered with plugs or emergency ballasts. (2) Lamp ballast configurations only in UNC versions.
Photometrics

System Performance Table

<table>
<thead>
<tr>
<th>2HBHD System Comparison</th>
<th>No. of Lamps</th>
<th>Lamp Lumens</th>
<th>Lumen Maintenance</th>
<th>Fixture Efficiency</th>
<th>Ballast Factor</th>
<th>Design System Lumen</th>
<th>S/P Ratio</th>
<th>Brightness Perception</th>
<th>S/P Adjusted Lumens</th>
<th>Wattage</th>
<th>Cost of 1000 lumen 2HBHD</th>
<th>LER</th>
</tr>
</thead>
<tbody>
<tr>
<td>2HBHD-432-CL-EB81/PLUS</td>
<td>4</td>
<td>3100</td>
<td>94%</td>
<td>68%</td>
<td>1.15</td>
<td>9128</td>
<td>1.95</td>
<td>1.40</td>
<td>12747</td>
<td>147</td>
<td>$4.71</td>
<td>68</td>
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<tr>
<td>2HBHD-432-CL-EB82/PLUS</td>
<td>6</td>
<td>3100</td>
<td>94%</td>
<td>68%</td>
<td>1.15</td>
<td>13693</td>
<td>1.95</td>
<td>1.40</td>
<td>19121</td>
<td>221</td>
<td>$4.72</td>
<td>68</td>
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<td>2HBHD-454-CL-EBT1</td>
<td>4</td>
<td>5000</td>
<td>93%</td>
<td>53%</td>
<td>1.00</td>
<td>9839</td>
<td>1.90</td>
<td>1.38</td>
<td>13563</td>
<td>240</td>
<td>$10.21</td>
<td>56</td>
</tr>
<tr>
<td>2HBHD-654S-CL-EBT2</td>
<td>6</td>
<td>5000</td>
<td>93%</td>
<td>53%</td>
<td>1.00</td>
<td>14759</td>
<td>1.90</td>
<td>1.38</td>
<td>20344</td>
<td>360</td>
<td>$10.29</td>
<td>56</td>
</tr>
</tbody>
</table>

Comparison System

| 250W Metal Halide Encl. & Gasketed High Bay | 1 | 20800 | 58% | 68% | 1.00 | 8179 | 1.50 | 1.22 | 10018 | 295 | $13.90 | 23  |
| 250W High Pressure Sodium Encl. & Gasketed High Bay | 1 | 30000 | 81% | 68% | 1.00 | 16475 | 0.62 | 0.79 | 12973 | 300 | $10.91 | 29  |
| 400W Metal Halide Encl. & Gasketed High Bay | 1 | 36000 | 58% | 68% | 1.00 | 14157 | 1.50 | 1.22 | 17338 | 458 | $12.39 | 26  |
| 400W High Pressure Sodium Encl. & Gasketed High Bay | 1 | 50000 | 81% | 68% | 1.00 | 27459 | 0.62 | 0.79 | 21621 | 464 | $10.13 | 32  |

Dimensions

HBHD Lamp Configurations

Dimensions for Top View

Footnotes:
* Lumen maintenance is based on lamp manufacturer’s stated data combined with estimated dirt depreciation. Design System Lumen is the fixture lumens at 40% of rated lamp life and is calculated as Quantity of Lamps x Lamp Lumens x Lumen Maintenance x Fixture Efficiency x Ballast Factor * S/P Ratio is the lamp manufacturers stated scotopic/photopic ratio; accepted by some lighting designers to adjust for the relative strengths of scotopic and photopic vision, not yet adopted by IESNA. * 5/P Adjusted Lumen calculates the brightness perception scotopic/photopic ratio as Design System Lumen x (S/P) 0.5 based on 5000K lamps. * LER (Luminaire Efficiency Ratio) is an accepted method of comparing fixture performance.
High performance white enamel finish improves efficiency and protects against elements. Optional brushed stainless steel finish for corrosive chemical environments.

Sealed housing is enclosed and gasketed to provide 800 psi hose down protection and IP65 rating.

UL/cUL and CSA listed for wet locations. IP65 certified.

One piece, heavy gauge extruded lens in prismatic clear acrylic.

Factory installed code compliant disconnect for safe and convenient means of disconnecting power.

Options
PM—Pendant Mount Stem(6)
C3—3’ Power Cord(6)
C6—6’ Power Cord(6)
PC3—3’ Power Cord & Plug (Specify Voltage) (7)(8)
PC6—6’ Power Cord & Plug (Specify Voltage) (7)(8)
SSN—Brushed Stainless Steel Door Finish
SHN—Brushed Stainless Steel Housing Finish

Packaging
U—Unit Pack
PAL—Pallet Pack
PALC—Job Pack In Carton

Accessories (order separately)
Y-Hook—(2) Snap Hooks, #2 Cable (Specify 10’ or 30’), order 2 per fixture
HBHT-Chain/Set—(2) 6ft. Stainless Steel Chains, (4) Large S-Hooks

Options
Lamps Installed
LB80—T8 Lamp, 85CRI 3000K
LB83—T8 Lamp, 85CRI 3500K
LB841—T8 Lamp, 85CRI 4100K
LB850—T8 Lamp, 85CRI 5000K
LS83—T5 Lamp, 85CRI 3000K
LS841—T5 Lamp, 85CRI 4100K
LS850—T5 Lamp, 85CRI 5000K
HL—Add HL at end of lamp for high lumen lamps, T8 only
GL—Single Element Fuse
GM—Double Element Fuse
EL—Emergency Installed(7)(8)

NOTES: (1)Voltage must be specified when ordered with plugs, motion sensors or emergency ballasts. (2)2 lamp ballast configurations only in UNC versions. (3)L3/L4 stem only, supplied by others. Power supply fed through stem during installation. (5)Always supplied with a 6 ft. 3-wire cord as standard through pendant stem hub. (6)Available for chain or cable mount options only.

Ordering Information

Sample Number: 2HBHT-654T5-A-UNV-EBT2

<table>
<thead>
<tr>
<th>Width</th>
<th>2–24”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series</td>
<td>HBHT—High Bay Hose Down W/Tented Top</td>
</tr>
<tr>
<td>No. of Lamps</td>
<td>4–4 Lamps 6–6 Lamps</td>
</tr>
<tr>
<td>Lamp Type</td>
<td>28T5—28W T5 Lamps (48”) 32–32W T8 Lamps (48”) 49T5—49W TSHO Lamps (48”) 51T5—51W TSHO Lamps (48”) 54T5—54W TSHO Lamps (48”)</td>
</tr>
<tr>
<td>Distribution</td>
<td>Blank—Medium (Specular Aluminum) G—Wide (High Reflectance White)</td>
</tr>
<tr>
<td>Shielding</td>
<td>A—Prismatic Acrylic Lens &amp; Steel Door Frame CL—Clear Acrylic Lens &amp; Steel Door Frame</td>
</tr>
<tr>
<td>No. of Ballast</td>
<td>1 or 2</td>
</tr>
<tr>
<td>Voltage</td>
<td>UNV—Universal 120/277 Voltage UNC—Universal 347/480 Voltage (T5 linear only)</td>
</tr>
<tr>
<td>Ballast Type</td>
<td>E8—T8 Electronic Instant Start. Total Harmonic Distortion &lt; 10%</td>
</tr>
<tr>
<td>Ballast Type</td>
<td>E8PLUS—T8 Electronic Instant Start. High Ballast Factor &gt;1.15. Total Harmonic Distortion &lt; 10%</td>
</tr>
<tr>
<td>Ballast Type</td>
<td>ER8—T8 Electronic Program Rapid Start. Total Harmonic Distortion &lt; 10%</td>
</tr>
<tr>
<td>Ballast Type</td>
<td>ER8PLUS—T8 Electronic Program Start. High Ballast Factor &gt;1.15. Total Harmonic Distortion &lt; 10%</td>
</tr>
<tr>
<td>Ballast Type</td>
<td>TS Systems 28—T8 Linear Electronic Start High Ambient.</td>
</tr>
<tr>
<td>Ballast Type</td>
<td>Total Harmonic Distortion &lt; 10%</td>
</tr>
<tr>
<td>Ballast Type</td>
<td>No. of Ballast 1, 2 or 3</td>
</tr>
</tbody>
</table>

Die formed reflectors are faceted for 4 and 6 lamp configurations with two optical distributions – medium and wide. Medium beam optical modules utilize 95% specular aluminum while the wide distribution utilizes a high performance 95% reflective polyester powder coated finish.

Sloped top allows for water runoff during cleaning of fixture. This feature enables this suspension mounted fixture to be installed in cleanroom, food processing and recreational facilities.

Captive, flush mounted stainless steel fasteners secure one piece door to housing.
Photometrics

System Performance

2HBHT

Dimensions

HBHT Lamp Configurations

Zonal Lumen Summary

Zonal Lumen Summary

System Performance Table

2HBHD System Comparison

Comparison System

Footnotes: 1 Lumen maintenance is based on lamp manufacturer's stated data combined with estimated dirt depreciation. 2 Design System Lumens is the fixture lumens at 40% of rated lamp life and is calculated as Quantity of Lamps x Lamp Lumens x Lumen Maintenance x Fixture Efficiency x Ballast Factor. 3 S/P Ratio is the lamp manufacturer's stated Scotopic/Photopic Ratio, accepted by some lighting designers to adjust for the relative strengths of scotopic and photopic vision, not yet adopted by IESNA. 4 S/P Adjusted Lumens calculates the brightness perception scotopic/photopic ratio as Design System Lumens x (S/P)^0.5 based on 5000K lamps. 5 LER (Luminaire Efficiency Ratio) is an accepted method of comparing fixture performance.
Enclosed, full bodied housing utilizes captive fasteners to protect optical assembly and assure structural integrity of housing while retaining heat for optimal system performance. Thermally optimized Arctic Bay is suitable for environments down to -20°F (-29°C).

Housing is “post” painted with a high performance polyester powder coat finish to protect against contaminants and oxidation.

Sealed and gasketed door frame provides a thermal environment for optimal lamp operation. Optional clear or prismatic shielding available.

Factory installed code compliant disconnect for safe and convenient means of disconnecting power.

**Thermal Optimization**

The Arctic Bay provides over 70% of its rated light output in ambient environments down to -15°F (-26°C). Recommended for use in -20°F (-29°C) to 32°F (0°C) environments.

---

**Ordering Information**

Sample Number: ABI-654T5-UNV-EBT2

- **Series**: ABI—Arctic Bay
- **No. of Lamps**: 4 or 6 Lamps
- **Lamp Type**: 49T5=49W T5HO Lamps (48”)
  - 51T5=51W T5HO Lamps (48”)
  - 54T5=54W T5HO Lamps (48”)
- **Distribution**: N=Narrow Beam (Standard)
  - M=MEDIUM Beam
  - W=Wide Beam
- **Shielding**: Blank=Prismatic Acrylic Lens w/Gasketed Door Frame
  - CL= Clear Acrylic Lens w/Gasketed Door Frame
- **Voltage**: UNV=Universal 120/277 Voltage
  - UNC=Universal 347/480 Voltage
- **Ballast Type**: EBTL=75 Linear Electronic Program Rapid Start
  - Total Harmonic Distortion < 10%
- **Options**: C3=3’ White Cord Fixture Attached
  - C6=6’ White Cord Fixture Attached
  - MS/IB=360° or 180° Motion Sensor Installed, Outside Lamps Constant On
  - PC3-Voltage=3’ Cord/Plug Fixture Attached
  - PC6-Voltage=6’ Cord/Plug Fixture Attached
- **Packaging**: U=Unit Pack
  - PAL=Palletized Out of Carton
  - PALC=Job Pack In Carton
- **Lamps Installed**: LS830=TS Lamp, E39 3000K
  - LS835=TS Lamp, E39 3500K
  - LS841=TS Lamp, E39 4100K
  - LS850=TS Lamp, E39 5000K
  - GL=Single Element Fuse
  - GM=Double Element Fuse
  - EL=Emergency installed (see table on pg. 48)

**Notes**:

- Requires use of voltage specific modular cord assembly. See accessories.
- Voltage must be specified when ordered with plugs, motion sensors or emergency ballasts.
- Specify voltage of ballast as UNV (120V or 277V), 347V or 480V. Can be used in high abuse applications such as gymnasiums.
Calculated as Quantity of Lamps x Lamp Lumens x Lumen Maintenance x Fixture Efficiency x Ballast Factor.

Designers to adjust for the relative strengths of scotopic and photopic vision, not yet adopted by IESNA.

Footnotes: 1 Lumen maintenance is based on lamp manufacturer’s stated data combined with estimated dirt depreciation. 2 Design System Lumen is the fixture lumens at 40% of rated lamp life and is calculated as Quantity of Lamps x Lamp Lumens x Lumen Maintenance x Fixture Efficiency x Ballast Factor. 3 S/P Ratio is the lamp manufacturers stated Scotopic/Photopic Ratio; accepted by some lighting designers to adjust for the relative strengths of scotopic and photopic vision, not yet adopted by IESNA. 4 Adj Lmns - Cost of Adj Lmns + Adj Lmns 100% x LER. 5 LER (Luminaire Efficiency Ratio) is an accepted method of comparing fixture performance.
Fiberglass housing is reinforced polyester and self-extinguishing (ASTM-D635-74) plastic of a permanent pearl gray color.

Polyurethane gasketing is formed in the housing providing a continuous seamless seal for the diffuser.

High impact acrylic or 100% polycarbonate, clear, UV stabilized diffuser.

UL Listed for wet locations (standard) UL/cUL Listed, NEMA 4X, NSF Listed, IP65 and IP67 Certified.

Optional high performance 95% Specular aluminum reflector.

ORDERING INFORMATION

Sample Number: VT4-432-M-DR-UNV-EB81-WL-U

Series
VT4-Vaportite
4/6 Lamp

Number of Lamps
4–4 Lamps (Not Included)
6–6 Lamps (Not Included)

Wattage (Length)
32–32W T8 (48")
49T5–49W T5HO Lamps (48")
51T5–51W T5HO Lamps (48")
54T5–54W T5HO (48")
84VHO–84W T8VHO (48")

GL–Single Element Fuse
GM–Double Element Fuse
EL–Emergency Installed

Voltage
120V–120 Volt
277V–277 Volt
347V–347 Volt
UNV–Universal Voltage

Voltage must be specified when ordered with plugs, motion or emergency ballasts.

For ambitions greater than 40°C (104°F), for 64TS configuration, EL3T is recommended. Maximum 4 lamps when using T8VHO option.

Distribution
M–Medium Beam
W–Wide Beam (White)

Notes:
1. Products also available in non-US voltages and frequencies for international markets.
2. Not available when specifying emergencies, voltage must be specific. Exception: EL4-EL with UNV.
3. Emergency ballast not available for T8VHO lamps.
4. Voltage must be specified when ordered with plugs, motion or emergency ballasts.
System Performance

### VT4 System Comparison

<table>
<thead>
<tr>
<th>No. of Lamps</th>
<th>Lamp Lumens</th>
<th>Lumen Maintenance</th>
<th>Fixture Efficiency</th>
<th>Ballast Factor</th>
<th>Design System Lumens</th>
<th>S/P Ratio</th>
<th>Brightness Perception</th>
<th>S/P Adjusted Lumens</th>
<th>Wattage</th>
<th>Cost of 1000 S/P Adj. Lumens</th>
<th>LER</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT4-632-M</td>
<td>6</td>
<td>3100</td>
<td>94%</td>
<td>69%</td>
<td>1.20</td>
<td>14477</td>
<td>1.95</td>
<td>1.40</td>
<td>20267</td>
<td>$5.06</td>
<td>91</td>
</tr>
<tr>
<td>VT4-654-M</td>
<td>6</td>
<td>5000</td>
<td>93%</td>
<td>85%</td>
<td>1.00</td>
<td>23715</td>
<td>1.90</td>
<td>1.38</td>
<td>32889</td>
<td>$3.98</td>
<td>94</td>
</tr>
</tbody>
</table>

### Comparison System

- **400W Metal Halide High Bay**: 1 lamp, 36000 lumens, 75% lumen maintenance, 78% light gain/loss, 1.00 S/P ratio, 31631 brightness perception, 24906 S/P adjusted lumens, 495 watts, $7.22 cost of 1000 S/P adjusted lumens, 44 LER.
- **400W High Pressure Sodium High Bay**: 1 lamp, 50000 lumens, 81% lumen maintenance, 78% light gain/loss, 1.00 S/P ratio, 31631 brightness perception, 24906 S/P adjusted lumens, 495 watts, $7.63 cost of 1000 S/P adjusted lumens, 42 LER.

### System Performance Table

<table>
<thead>
<tr>
<th>VT4 System Comparison</th>
<th>No. of Lamps</th>
<th>Lamp Lumens</th>
<th>Lumen Maintenance</th>
<th>Fixture Efficiency</th>
<th>Ballast Factor</th>
<th>Design System Lumens</th>
<th>S/P Ratio</th>
<th>Brightness Perception</th>
<th>S/P Adjusted Lumens</th>
<th>Wattage</th>
<th>Cost of 1000 S/P Adj. Lumens</th>
<th>LER</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT4-632-M</td>
<td>6</td>
<td>3100</td>
<td>94%</td>
<td>69%</td>
<td>1.20</td>
<td>14477</td>
<td>1.95</td>
<td>1.40</td>
<td>20267</td>
<td>221</td>
<td>$5.06</td>
<td>91</td>
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<tr>
<td>VT4-654-M</td>
<td>6</td>
<td>5000</td>
<td>93%</td>
<td>85%</td>
<td>1.00</td>
<td>23715</td>
<td>1.90</td>
<td>1.38</td>
<td>32889</td>
<td>346</td>
<td>$3.98</td>
<td>94</td>
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</tbody>
</table>

### Footnotes
- Lumen maintenance is based on lamp manufacturer’s stated data combined with estimated dirt depreciation. Design System Lumens is the fixture lumens at 40% of rated lamp life and is calculated as Quantity of Lamps x Lamp Lumens x Lumen Maintenance x Fixture Efficiency x Ballast Factor. S/P Ratio is the lamp manufacturer’s stated scotopic/photopic ratio, accepted by some lighting designers to adjust for the relative strengths of scotopic and photopic vision, not yet adopted by IESNA. S/P Adjusted Lumens calculates the brightness perception scotopic/photopic ratio as Design System Lumens x (S/P)^0.5 based on 5000K lamps. LER (Luminaire Efficiency Ratio) is an accepted method of comparing fixture performance.

---

**VT4-654T5-M-DR-UNV-EHT2-WL-U**

(2) Electronic Ballast

(6) 54W T5HO Lamps 4400 Lumens

Spacing criterion: (II) 1.3 x mounting height, (⊥) 1.2 x mounting height

Efficiency 84.7%

Test Report: VT4654T5M.IES

### Photometrics

#### Coefficients of Utilization

- Effective floor cavity reflectance
- 20% Transmission

<table>
<thead>
<tr>
<th>Part Number</th>
<th>VT4-632-M</th>
<th>VT4-654-M</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT4-632-M</td>
<td>51%</td>
<td>24%</td>
</tr>
<tr>
<td>VT4-654-M</td>
<td>52%</td>
<td>25%</td>
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#### Zonal Lumen Summary

<table>
<thead>
<tr>
<th>Zone</th>
<th>Lumens</th>
<th>%Lamp</th>
<th>%Fixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>99</td>
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<td>4</td>
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<td>5</td>
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<tr>
<td>6</td>
<td>92</td>
<td>92</td>
<td>92</td>
</tr>
<tr>
<td>7</td>
<td>90</td>
<td>90</td>
<td>90</td>
</tr>
</tbody>
</table>

### Dimensions for Top View

Dimensions for VT4-654-M

- X: 51-15/16” [1320mm]
- Y: 14-1/16” [373mm]

---

**VT4-654T5-W-DR-UNV-EHT2-WL-U**

(2) Electronic Ballast

(6) 54W T5 Lamps 4400 Lumens

Spacing criterion: (II) 1.2 x mounting height, (⊥) 1.5 x mounting height

Efficiency 84.7%

Test Report: VT4654T5W.IES

### Photometrics

#### Coefficients of Utilization

- Effective floor cavity reflectance
- 20% Transmission

#### Zonal Lumen Summary

<table>
<thead>
<tr>
<th>Zone</th>
<th>Lumens</th>
<th>%Lamp</th>
<th>%Fixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>99</td>
<td>99</td>
<td>100</td>
</tr>
<tr>
<td>1</td>
<td>90</td>
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<tr>
<td>2</td>
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</tr>
<tr>
<td>7</td>
<td>90</td>
<td>90</td>
<td>90</td>
</tr>
</tbody>
</table>

### Footnotes
- % light gain/light loss utilize S/P adjusted lumens.
VT3 VAPORTITE INDUSTRIAL

Sealed and gasketed enclosure utilizes internal heat for optimal performance in ambient environments down to -20°F (-29°C).

Durable fiberglass housing is reinforced polyester and self-extinguishing (ASTM-D635-74) plastic of a permanent pearl gray color.

Polyurethane gasketing is formed in the housing providing a continuous seamless seal for the diffuser.

High impact lens options to withstand the most demanding environments.


Applications include holding freezers, refrigerated storage, walk-in freezers, food processing and outdoor locations.

Ordering Information Sample Number: 8TVT3-254TSR-UNV-EB82-M4-U

Series
VT3-Vaportite (Gasketed Enclosure)

Number of Lamps
1=1 Lamp
2=2 Lamps
3=3 Lamps (Lamps not included)

Lamp Type
32=32W T8 Lamp
28TS=28W T5 Lamp
54T5=54W T5HO Lamp

Options
GL=Single Element Fuse
GM=Double Element Fuse
EL=Emergency Installed

Lenses
DR=Internal Prismatic Lens/15% DR High Impact Additive (Standard)
DR-50=50% High Impact Additive
DR-100%=100% High Impact Additive (Extreme)

Voltage
120V–120 Volt
237V–277 Volt
347V–347 Volt
480V–480 Volt
UNI=Universal Voltage
120/277V
347/480V

Ballast Type
T8 Systems
EBR = T8 Electronic Instant Start
EBR-PLUS = T8 Electronic Program Start

T5 Systems
EBT = T5 Linear Electronic Program Start

Options
BL=8 Latches (IP67 Rating)
WL=Wet Location

Ballast Type
T8 Systems
EBR = T8 Electronic Instant Start
EBR-PLUS = T8 Electronic Program Start

T5 Systems
EBT = T5 Linear Electronic Program Start

Options
BL=8 Latches (IP67 Rating)
WL=Wet Location

Packaging
U=Unit Pack
PALC=Job Pack in Carton

Table of Specifications:

<table>
<thead>
<tr>
<th>Note</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ballast type used only if ballast &amp; voltage is chosen.</td>
</tr>
<tr>
<td>2</td>
<td>Not available when specifying emergency ballasts; voltage must be specific.</td>
</tr>
<tr>
<td>3</td>
<td>Emergency option in 3 lamp version must use remote mount test switch.</td>
</tr>
<tr>
<td>4</td>
<td>Top Hub required when stem mounting.</td>
</tr>
<tr>
<td>5</td>
<td>Factory installed code compliant disconnect for safe and convenient means of disconnecting power.</td>
</tr>
<tr>
<td>6</td>
<td>2/3 lamp ballast configurations in E88/PLUS only for T8 UNC version.</td>
</tr>
<tr>
<td>7</td>
<td>Use EHT1 ballast in ambient temperatures below 0°F (-18°C) on 3 Lamp 54W T5HO configurations.</td>
</tr>
</tbody>
</table>
### Photometrics

#### Coefficients of Utilization

<table>
<thead>
<tr>
<th>rc</th>
<th>80%</th>
<th>50%</th>
<th>30%</th>
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<tr>
<td>0</td>
<td>80</td>
<td>70</td>
<td>60</td>
</tr>
<tr>
<td>1</td>
<td>75</td>
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<td>70</td>
<td>60</td>
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<td>8</td>
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<td>9</td>
<td>35</td>
<td>25</td>
<td>15</td>
</tr>
<tr>
<td>10</td>
<td>30</td>
<td>20</td>
<td>10</td>
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</table>

#### Zonal Lumen Summary

<table>
<thead>
<tr>
<th>Zone</th>
<th>Lumens</th>
<th>%Lamp</th>
<th>%Fixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-30</td>
<td>1711</td>
<td>15.4</td>
<td>27.8</td>
</tr>
<tr>
<td>0-40</td>
<td>2091</td>
<td>20.6</td>
<td>42.5</td>
</tr>
<tr>
<td>0-60</td>
<td>4131</td>
<td>51.5</td>
<td>71.5</td>
</tr>
<tr>
<td>0-90</td>
<td>6093</td>
<td>67.2</td>
<td>101.0</td>
</tr>
</tbody>
</table>

### Dimensions

#### VT3 Lamp Configurations

1-Lamp Configuration
- VT3-254T5-UNV-EBT1-M4
- VT3-232-EB81-M4
- VT3-332DR-UNV-EB81-M4

2-Lamp Configuration
- VT3-254T5-UNV-EBT2-M4
- VT3-232-EB81/PLUS-M4
- VT3-332DR-UNV-EBT2-M4

3-Lamp Configuration
- VT3-254T5DR-UNV-EB81-WL-M4-U
- VT3-332DR-UNV-EB81-WL-M4-U

### System Performance

#### VT3

<table>
<thead>
<tr>
<th>Lamp Type</th>
<th>175 MH</th>
<th>150W HPS</th>
</tr>
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<tbody>
<tr>
<td>Energy Savings</td>
<td>54%</td>
<td>45%</td>
</tr>
<tr>
<td>% Light Gain/Loss</td>
<td>32%</td>
<td>41%</td>
</tr>
</tbody>
</table>

#### System Performance Table

<table>
<thead>
<tr>
<th>VT4 System Comparison</th>
<th>No. of Lamps</th>
<th>Lamp Lumens</th>
<th>Lumen Maintenance</th>
<th>Fixture Efficiency</th>
<th>Ballast Factor</th>
<th>Design System Lumens</th>
<th>S/P Ratio</th>
<th>Brightness Perception</th>
<th>S/P Adjusted Lumens</th>
<th>Wattage</th>
<th>Cost of Retrofit</th>
<th>LER</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT3-254T5-UNV-EBT2-M4</td>
<td>2</td>
<td>5000</td>
<td>93%</td>
<td>72%</td>
<td>1.00</td>
<td>6294</td>
<td>1.90</td>
<td>1.38</td>
<td>8686</td>
<td>97</td>
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<td>89</td>
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<tr>
<td>VT3-232-EB81/PLUS-M4</td>
<td>2</td>
<td>3100</td>
<td>94%</td>
<td>75%</td>
<td>1.15</td>
<td>5136</td>
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<td>65</td>
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<td>110</td>
</tr>
<tr>
<td>VT3-332DR-UNV-EB81-M4</td>
<td>3</td>
<td>3100</td>
<td>94%</td>
<td>75%</td>
<td>1.15</td>
<td>7350</td>
<td>1.95</td>
<td>1.40</td>
<td>10263</td>
<td>101</td>
<td>$4.20</td>
<td>101</td>
</tr>
</tbody>
</table>

#### Comparison System

| 175W Metal Halide Garage Light | 1            | 13600       | 58%              | 70%               | 1.00          | 5474                | 1.50      | 1.22                 | 6705              | 213     | $14.52          | 22  |
| 150W High Pressure Sodium Garage Light | 1          | 12900       | 81%              | 70%               | 1.00          | 7335                | 0.62      | 0.79                 | 5776              | 188     | $14.88          | 22  |
Two stainless steel brackets and chain mount ball included. Adjustable along length of fixture for variable mounting centers. No holes required. Chain or cable provided by others.

A watertite hub for 1/2" conduit entry is provided at each end of housing (standard) for continuous feed.

Factory installed code compliant disconnect for safe and convenient means of disconnecting power.

Sturdy cam latches clamp diffuser tightly for a positive seal between housing, gasketing and diffuser.

Unit has full metal gear tray secured by internal fasteners and tethers providing maximum protection and rigidity.

UL Listed for wet locations (standard). UL/cUL Listed. NSF listed, IP65 certified.

Ordering Information  
Sample Number: VT1-154T5-PCR-UNV-EB81-WL-U

Tandem Blank= 4' Length

Series 
VT1=Vaportite

Number of Lamps
1=1 Lamp (Not included)

Wattage (Length)
32=32W T8 (48")
28T5=28W T5 (48")
54T5=54W T5HO (48")

Lens 
PCR=Lineal Ribs Polycarbonate (Standard)

Voltage
120V=120 Volt
277V=277 Volt
347V=347 Volt
UNV=Universal Voltage 120V/277V
UNC=Universal Voltage 3474/480V

GL=Single Element Fuse
GM=Double Element Fuse
EL=Emergency Installed

Ballast Type

T8 Systems
EBB=78 Electronic Instant Start.
EBB=78 Electronic Instant Start.
EBB=78 Electronic Program Rapid Start.
EBB=78 Electronic Program Rapid Start.

Total Harmonic Distortion < 10%
High Ballast Factor >1.13. Total Harmonic Distortion < 10%
High Ballast Factor >1.15. Total Harmonic Distortion < 10%
High Ballast Factor >1.15. Total Harmonic Distortion < 10%

No. of Ballast
1
1
1
1

T5 Systems
EBT=78 or T5HO Linear Electronic Program
EBT=78 or T5HO Linear Electronic Program
EBT=78 or T5HO Linear Electronic Start High Ambient.
EBT=78 or T5HO Linear Electronic Start High Ambient.

Rapid Start, Total Harmonic Distortion < 10%
Total Harmonic Distortion < 10%
Total Harmonic Distortion < 10%, less than 0°F starting temperature.
Total Harmonic Distortion < 10%, less than 0°F starting temperature.

No. of Ballast
1
1
1
1

NOTES: (1) Products also available in non-US voltages and frequencies for international markets.
(2) Not available when specifying emergencies, voltage must be specific. Exception: EL4 ok with UNV. Voltage must be specified when ordered with plugs or emergency ballasts.

VT2=Chain/Set-U=Chain Hanging Set
Includes 6 ft. of chain, 4 large S-Hooks and 4 small S-Hooks
Order One (1) Kit for each 4' Fixture

Accessories (order separately)
VT2-Chain/Set-U=Chain Hanging Set
Includes 6 ft. of chain, 4 large S-Hooks and 4 small S-Hooks
Order One (1) Kit for each 4' Fixture
### Photometrics

**VT1-154T5-PCR-UNV-EBT1-WL-U**  
Electronic Ballast  
(1) 54W T5HO Lamp 4400 Lumens  
Spacing criterion: (II) 1.3 x mounting height, (⊥) 1.5 x mounting height  
Efficiency 77.6%  
Test Report: VT154T5PCR.IES

**VT1-132-PCR-UNV-EB81-WL-U**  
Electronic Ballast  
(1) 32W T8 Lamp 2850 Lumens  
Spacing criterion: (II) 1.3 x mounting height, (⊥) 1.5 x mounting height  
Efficiency 74.4%  
Test Report: VT132PCR.IES

### Zonal Lumen Summary

<table>
<thead>
<tr>
<th>Zone</th>
<th>Lumens %Lamp</th>
<th>%Fixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-30</td>
<td>87</td>
<td>60</td>
</tr>
<tr>
<td>0-40</td>
<td>87</td>
<td>72</td>
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<td>0-60</td>
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<td>0-90</td>
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<td>13</td>
</tr>
<tr>
<td>0-180</td>
<td>87</td>
<td>60</td>
</tr>
</tbody>
</table>

### System Performance Table

<table>
<thead>
<tr>
<th>VT1 System Comparison</th>
<th>No. of Lamps</th>
<th>Lamp Lumens</th>
<th>Lumen Maintenance</th>
<th>Fixture Efficiency</th>
<th>Ballast Factor</th>
<th>Design System Lumens</th>
<th>S/P Ratio</th>
<th>Brightness Perception</th>
<th>S/P Adjusted Lumens</th>
<th>Wattage</th>
<th>Cost of S/P Adjusted Lumens</th>
<th>LER*</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT1-132</td>
<td>1</td>
<td>3100</td>
<td>94%</td>
<td>74%</td>
<td>1.15</td>
<td>2840</td>
<td>1.95</td>
<td>1.40</td>
<td>3463</td>
<td>36</td>
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<td>96</td>
</tr>
<tr>
<td>VT1-154</td>
<td>1</td>
<td>5000</td>
<td>93%</td>
<td>77%</td>
<td>1.00</td>
<td>3581</td>
<td>1.90</td>
<td>1.38</td>
<td>4935</td>
<td>54</td>
<td>$4.55</td>
<td>91</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Comparison System</th>
<th>Lamp Type</th>
<th>% Light Gain/Loss</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>70W Metal Halide Canopy</td>
<td>70 MH</td>
<td>60%</td>
<td>VT1-132</td>
</tr>
<tr>
<td>100W Metal Halide Canopy</td>
<td>100W MH</td>
<td>72%</td>
<td>VT1-154</td>
</tr>
</tbody>
</table>

**FOOTNOTES:**  
1. Lumen maintenance is based on lamp manufacturer’s stated data combined with estimated dirt depreciation.  
2. S/P Ratio is the lamp manufacturers stated Scotopic/Photopic Ratio; accepted by some lighting designers to adjust for the relative strengths of scotopic and photopic vision, not yet adopted by IESNA.  
3. S/P Adjusted Lumens calculates the brightness perception scotopic/photopic ratio as Design System Lumens x (S/P)^0.5 based on 5000K lamps.  
4. LER (Luminaire Efficiency Ratio) is an accepted method of comparing fixture performance.

### System Performance

#### VT1

<table>
<thead>
<tr>
<th>Lamp Type</th>
<th>Energy Savings</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>70W MH</td>
<td>40%</td>
<td>VT1-132</td>
</tr>
<tr>
<td>100W MH</td>
<td>58%</td>
<td>VT1-154</td>
</tr>
</tbody>
</table>

#### Dimensions

- **Lineal Ribbed Lens**
  - 4-3/8" X [112mm]
  - 4-9/64" X [106mm]
- **X=Variable Mounting Location Along Fixture Length**
  - 10-5/64" [256mm]
  - 4" [102mm]
  - 4-3/8" [1 12mm]

#### System Performance Table

<table>
<thead>
<tr>
<th>VT1 System Comparison</th>
<th>No. of Lamps</th>
<th>Lamp Lumens</th>
<th>Lumen Maintenance</th>
<th>Fixture Efficiency</th>
<th>Ballast Factor</th>
<th>Design System Lumens</th>
<th>S/P Ratio</th>
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FOOTNOTES:  
1. Lumen maintenance is based on lamp manufacturer’s stated data combined with estimated dirt depreciation.  
2. Design System Lumens is the fixture lumens at 40% of rated lamp life and is calculated as Quantity of lamps x Lamp Lumens x Lumen Maintenance x Fixture Efficiency x Ballast Factor.  
3. S/P Ratio is the lamp manufacturers stated Scotopic/Photopic Ratio; accepted by some lighting designers to adjust for the relative strengths of scotopic and photopic vision, not yet adopted by IESNA.  
4. S/P Adjusted Lumens calculates the brightness perception scotopic/photopic ratio as Design System Lumens x (S/P)^0.5 based on 5000K lamps.  
5. LER (Luminaire Efficiency Ratio) is an accepted method of comparing fixture performance.
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<td>Bodine</td>
<td>EL-8100 (350-450 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<tr>
<td></td>
<td>EL-890 (500-600 Im)</td>
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<td>X</td>
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<tr>
<td></td>
<td>EL-670A (600-700 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>EL-860 (600-700 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>EL-860U (600-700 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>EL-850 (1100-1400 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td></td>
<td>EL-850U (1100-1400 Im)</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
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<td>X</td>
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<td>X</td>
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<tr>
<td></td>
<td>EL-850ST (1100-1400 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
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<tr>
<td></td>
<td>EL-850RCT (1100-1400 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Iota</td>
<td>EL-132 (up to 550 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<tr>
<td></td>
<td>EL-140 (up to 700 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td></td>
<td>EL-148 (up to 700 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td></td>
<td>EL-320 (1300 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<tr>
<td></td>
<td>EL-880 (2000 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>EL-2232 (2 @ 1400 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>EL-5535 (1300 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>EL-440DL (up to 700 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>EL-480DL (up to 700 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td></td>
<td>EL-480L (1300 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>EL-2232DL (2 @ 1400 Im)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**NOTES:**
- (1) For battery wired to two lamps, specify “/2L” after battery description.
- (2) Approved for wet location listing.
- (3) Continuous row mount only between fixtures.

### F-Bay Mounting Accessories

<table>
<thead>
<tr>
<th>Fixture Series</th>
<th>AY</th>
<th>HAY</th>
<th>TCB/RH-1 RH-1 FL-1</th>
<th>SPM/RH-1 RH-1 FL-1</th>
<th>Single Toggle</th>
<th>&quot;Y&quot; Toggle</th>
<th>Loop Hanger</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBI</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HBE</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HBL</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>I5</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>I8</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>ABI</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>MBF</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>VT1</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>VT4</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</table>

**NOTES:**
- (1)xContinuous row mount only between fixtures.

### Packaging Options

<table>
<thead>
<tr>
<th>Nomenclature</th>
<th>Description</th>
<th>HBI</th>
<th>HBE</th>
<th>IS</th>
<th>I8</th>
<th>MBF</th>
<th>HBL</th>
<th>HBG</th>
<th>HBHD</th>
<th>HBHT</th>
<th>VT4</th>
<th>VT3</th>
<th>VT1</th>
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<tbody>
<tr>
<td>U</td>
<td>Unit Pack</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>PAL</td>
<td>Palletized out of carton on a 25&quot; x 48&quot; pallet, shrink wrapped</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>PALC</td>
<td>Palletized in carton on a 25&quot; x 48&quot; pallet, shrink wrapped</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
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</tbody>
</table>
### Options & Accessories

#### Mounting

<table>
<thead>
<tr>
<th>Mounting Accessories</th>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Top Connector Box</strong> (I5/I8 only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IS/8-TCB-KIT-NO PLATE</td>
<td>Top Connector Box only (no TCBP plate)</td>
<td>Suitable for conduit mounting or for use with fixture hook, loop or safety hook. (Recommended for use with chain or cable set to prevent cantilevering and rotation from a central mounting point). Ideal for Retrofit opportunities that use our I5/I8 luminaires!</td>
</tr>
<tr>
<td>IS/8-TCB-KIT</td>
<td>Top Connector Box Kit w/TCBP</td>
<td></td>
</tr>
</tbody>
</table>

#### Single Point Mount

<table>
<thead>
<tr>
<th>Mounting Accessories</th>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HB-SPM</td>
<td>Galvanized Single Monopoint Hanging Kit w/Hub (HBI only, supplied separately)</td>
<td>Suitable for conduit mounting or for use with fixture hook, loop or safety hook. Use chain or cable set to meet NEC requirements for single point mounting, as well as to prevent cantilevering and rotation of fixture from one central location.</td>
</tr>
<tr>
<td>HBL-SPM</td>
<td>Galvanized Single Monopoint Hanging Kit w/Hub (HBE and HBL only, supplied separately)</td>
<td></td>
</tr>
</tbody>
</table>

#### MOUNTING METHODS

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hook and Safety Hook</strong></td>
<td></td>
</tr>
<tr>
<td>FH-1</td>
<td>Fixture Hook 2-1/2&quot; (must be used with TCB, HB-SPM or HBL-SPM)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Loop</strong></td>
<td></td>
</tr>
<tr>
<td>FL-1</td>
<td>Fixture Loop 2-1/2&quot; (must be used with TCB, HB-SPM or HBL-SPM)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>Retrofit Hanger</strong></td>
<td></td>
</tr>
<tr>
<td>RH-1</td>
<td>Cast Aluminum Hanger w/ Toggle Nut &amp; Carriage Bolt for quick installation (must be used with TCB, HB-SPM or HBL-SPM)</td>
</tr>
</tbody>
</table>
## Mounting

<table>
<thead>
<tr>
<th>MOUNTING METHODS</th>
<th>DESIGNATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AYC Chain Sets</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| ![AYC Chain Sets](image1.png) | AYC-Chain/Set-U  | Mounting hanger and chain set for I5, I8 and MBF
| ![AYC Chain Sets](image2.png) | HBAYC-Chain/Set-U  | Hook style mounting chain set for HBI, HBE, HBL and ABI
| ![AYC Chain Sets](image3.png) |                            | (2) sturdy Wire Hooks and 36” Chain Sets w/S-hooks
| ![AYC Chain Sets](image4.png) |                            | (2) Hook style V-hangers, 36” Chain Sets w/S-hooks
| ![AYC Chain Sets](image5.png) |                            | **NOTE:** Not for use in high abuse areas such as gymnasiums or similar recreational facilities. |

<table>
<thead>
<tr>
<th>MOUNTING METHODS</th>
<th>DESIGNATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>“Y” Toggle</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="image6.png" alt="“Y” Toggle" /></td>
<td>Y-Toggle–10</td>
<td>Mounting Toggle and 10’ Cable</td>
</tr>
<tr>
<td><img src="image7.png" alt="“Y” Toggle" /></td>
<td>Y-Toggle–25</td>
<td>Mounting Toggle and 25’ Cable</td>
</tr>
<tr>
<td><img src="image8.png" alt="“Y” Toggle" /></td>
<td></td>
<td>10’, Y Toggle #2 Cable</td>
</tr>
<tr>
<td><img src="image9.png" alt="“Y” Toggle" /></td>
<td></td>
<td>25’, Y Toggle #2 Cable</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>MOUNTING METHODS</th>
<th>DESIGNATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Loop Hanger/Single Toggle</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="image10.png" alt="Loop Hanger" /></td>
<td>Loop–10</td>
<td>10’ Loop Hanger #2 Cable</td>
</tr>
<tr>
<td><img src="image11.png" alt="Single Toggle" /></td>
<td>Loop–30</td>
<td>30’ Loop Hanger #2 Cable</td>
</tr>
<tr>
<td><img src="image12.png" alt="Single Toggle" /></td>
<td>Toggle–10</td>
<td>10’ Single Toggle #2 Cable</td>
</tr>
<tr>
<td><img src="image13.png" alt="Single Toggle" /></td>
<td>Toggle–30</td>
<td>30’ Single Toggle #2 Cable</td>
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Options & Accessories

Occupancy Sensors

<table>
<thead>
<tr>
<th>OCCUPANCY SENSORS</th>
<th>DESIGNATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aisle &amp; 360° General Coverage (Modular)</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MMS**= Motion Sensor for Modular Power Supply (120-277V)*

Supplied with Mounting Box, Modular Power Supply Receptacle, Motion Sensor w/360° Lens Installed, and (3) Cover Limiting Hoods (Aisle, End of Aisle, and Full Coverage).

NOTES: (1)*One Motion Sensor per fixture required. (2)*When ordering a Modular Motion Sensor, the fixture must have a Modular Receptacle (MP) and a Modular Cord or Cord and plug accessory.

<table>
<thead>
<tr>
<th>OCCUPANCY SENSORS</th>
<th>DESIGNATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aisle &amp; 360° General Coverage (Installed)</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MS**= 360° or 180° Occupancy Sensor (120V-347V or 480V)

Passive Infra-red Sensor with 360° Lens Installed, 180° Lens Included w/Snap-on feature for in-field install.
Power Connections

**Modular Cord & Plug**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>MPC3</td>
<td>3' Modular Power Cord &amp; Plug (specify voltage for plug)</td>
</tr>
<tr>
<td>MPC6</td>
<td>6' Modular Power Cord &amp; Plug (specify voltage for plug)</td>
</tr>
<tr>
<td>MPC9</td>
<td>9' Modular Power Cord &amp; Plug (specify voltage for plug)</td>
</tr>
<tr>
<td>MPC12</td>
<td>12' Modular Power Cord &amp; Plug (specify voltage for plug)</td>
</tr>
<tr>
<td>MPC15</td>
<td>15' Modular Power Cord &amp; Plug (specify voltage for plug)</td>
</tr>
</tbody>
</table>

Connect directly to F-Bay or Modular Motion Sensor with a 3’, 6’, 9’, 12’ or 15’ long modular cord & plug set w/NEMA 15 amp twist lock plug.

**Modular Cord**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC3</td>
<td>3’ Cord</td>
</tr>
<tr>
<td>MC6</td>
<td>6’ Cord</td>
</tr>
<tr>
<td>MC9</td>
<td>9’ Cord</td>
</tr>
<tr>
<td>MC12</td>
<td>12’ Cord</td>
</tr>
<tr>
<td>MC15</td>
<td>15’ Cord</td>
</tr>
</tbody>
</table>

Connect directly to F-Bay or Modular Motion Sensor with a 3’, 6’, 9’, 12’ or 15’ long 3/16” standard Modular Power Cord.

**MWS**

MWS is a simple and cost effective modular wiring system consisting of factory assembled components ready to be snapped together into a complete branch circuit wiring system.

With MWS, branch circuit wiring can be installed in minutes instead of hours reducing labor by 80%.

MDS6 = 6’ Modular Power Cord with MWS 27DS18/2G06MP.

**PI Option Ordering Information**

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Number of Circuits</th>
<th>Circuit Wired To Ballast</th>
<th>Color Coding</th>
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</thead>
<tbody>
<tr>
<td>PI1 BLK</td>
<td>1</td>
<td>Black</td>
<td>BLK=Black Hot</td>
</tr>
<tr>
<td>PI2 BLU</td>
<td>2</td>
<td>Blue</td>
<td>BLU=Blue Hot</td>
</tr>
<tr>
<td>PI2 BLK</td>
<td>2</td>
<td>Black</td>
<td>BLK=Black Hot</td>
</tr>
<tr>
<td>PI3 RED</td>
<td>3</td>
<td>Red</td>
<td>RED=Red</td>
</tr>
<tr>
<td>PI3 BLU</td>
<td>3</td>
<td>Blue</td>
<td>BLU=Blue Hot</td>
</tr>
<tr>
<td>PI3 BLK</td>
<td>3</td>
<td>Black</td>
<td>BLK=Black Hot</td>
</tr>
</tbody>
</table>

**Catalog Numbering System**

The PI System is available in sections up to 8’ in length for continuous row wiring by simply plugging the sections together. Each PI section is factory wired to the ballast leads. Color coding of wires is as follows:

- **PI-1** = One Circuit - 2 Wires: one black, one white
- **PI-2** = Two Circuits - 3 Wires: one black, one blue, one white
- **PI-3** = Three Circuits - 4 wires: one black, one blue, one red, one white

When ordering the PI2/PI3 System it is necessary to specify the number of fixtures required for each circuit. All wiring to external feeds, using cord or cord & plug, are responsibility of installing licensed contractor. Cord and cord & plug sets must be ordered separately if PI option is chosen.

**Leave Blank**

- For single neutral: /WHT=White Neutral /GRY=Gray Neutral
- For two neutrals: 2NEU=Two Neutrals
- For two neutrals with ground: 2NEU=Two Neutrals
- For ground provided by fixture body: WG=W-Ground
- For ground provided by separate ground wire in harness: NG=No Ground
## Options & Accessories

### I5/I8 Lens, Door Frames and Wireguards

#### I5/I8 LENS

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>I5-FRM/LENS = Frosted Acrylic Lens &amp; Frame (use with general distribution reflector, I5 only)</td>
<td>In white door frame w/“Herringbone” patterned end rail</td>
</tr>
<tr>
<td>I8-FRM/LENS = Frosted Acrylic Lens &amp; Frame (use with general distribution reflector, I8 only)</td>
<td></td>
</tr>
<tr>
<td>I5-FRM/CL PK = Clear Acrylic Lens &amp; Frame (use with general distribution reflector, I5 only)</td>
<td></td>
</tr>
<tr>
<td>I8-FRM/CL PK = Clear Acrylic Lens &amp; Frame (use with general distribution reflector, I8 only)</td>
<td></td>
</tr>
</tbody>
</table>

#### I5/I8 WIREGUARD

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WG/I5-4FT-B = 4’ Heavy Duty Wireguard (for I5)</td>
<td>Finished in white. Can be used alone or in combination with other shielding</td>
</tr>
<tr>
<td>WG/I8-4FT-B = 4’ Heavy Duty Wireguard (for I8)</td>
<td></td>
</tr>
</tbody>
</table>

#### I5/I8 BAFFLE

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>90800PPK BAFFLE 4FT I5 W/HDW (WHITE) = 4’ Thin Blade White Baffle (for I5)</td>
<td>Thin Blade White Baffle w/23° longitudinal shielding</td>
</tr>
<tr>
<td>BAFFLE 4FT I8 (WHITE) 11571919 = 4’ Thin Blade White Blade Baffle (for I8)</td>
<td></td>
</tr>
</tbody>
</table>

#### I5/I8 LOUVER

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>90801PPK = Asymmetric Directional Louver (use with general distribution reflector)</td>
<td>Can be oriented in either direction for flexibility</td>
</tr>
</tbody>
</table>
HBI, HBL & HBE Lens, Door Frames and Wireguards

**HBI Lens & Wireguard**

**PRISMATIC & CLEAR ACRYLIC LENS**

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBI-FRM/LENS PK</td>
<td>Prismatic Acrylic Lens &amp; Door Frame for HBI</td>
</tr>
<tr>
<td>HBI-FRM/CL PK</td>
<td>Clear Acrylic Lens &amp; Door Frame for HBI</td>
</tr>
</tbody>
</table>

**WIREGUARD**

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBI-FRM/WG PK</td>
<td>Frame and Wireguard for HBI</td>
</tr>
<tr>
<td>HBI-FRM/LENS/WG PK</td>
<td>Frame and Prismatic Acrylic Lens with Wireguard for HBI</td>
</tr>
<tr>
<td>HBI-FRM/CL/WG PK</td>
<td>Frame and Clear Lens with Wireguard for HBI</td>
</tr>
</tbody>
</table>

**DROP WIREGUARD**

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBI-FRM/DROPWG PK</td>
<td>Frame and Drop Wireguard for HBI</td>
</tr>
<tr>
<td>HBI-FRM/CL/DROPWG PK</td>
<td>Drop Wireguard, Clear Acrylic Lens and Door Frame for HBI</td>
</tr>
</tbody>
</table>

**HEAVY DUTY STOCK WIREGUARD**

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWG/HBI-4FT-B</td>
<td>Heavy Duty Wireguard for field installation</td>
</tr>
</tbody>
</table>

**HBL Wireguard**

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WG-HBL6-4FT-B</td>
<td>Field Installable, Wireguard for HBL 4 and 6 Lamp</td>
</tr>
<tr>
<td>WG-HBL8-4FT-B</td>
<td>Field Installable, Wireguard for HBL 8 Lamp</td>
</tr>
</tbody>
</table>

**HBE Door Frame**

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBE-___-FRM/LENS PK</td>
<td>Prismatic Acrylic Lens &amp; Extruded Aluminum Door Frame</td>
</tr>
<tr>
<td>HBE-___-FRM/CL PK</td>
<td>Clear Acrylic Lens &amp; Extruded Aluminum Door Frame</td>
</tr>
<tr>
<td>HBE-___-FRM/LENS/WG PK</td>
<td>Frame &amp; Prismatic Lens with Wireguard</td>
</tr>
<tr>
<td>HBE-___-FRM/CL/WG PK</td>
<td>Frame &amp; Clear Acrylic Lens with Wireguard</td>
</tr>
</tbody>
</table>

**NOTES:** Specify “4/6LT” or “8/10LT” when ordering HBE Door Frame accessories.