Universal Lighting Technologies (“Universal”) offers a wide array of ballasts for High Intensity Discharge (HID) lamps. Applications include Metal Halide (MH), Pulse Start Metal Halide (PSMH), and High Pressure Sodium (HPS) lamps ranging from 35 to 1500 watts.

We’re the technology leader in every category of HID ballasts. Our Universal Precise™ line is the latest innovation in magnetic core & coil technology in years.
Product Overview

Core & Coil
Core & coil ballasts are used in over 90% of all HID fixtures. Universal’s core & coil models are available for all HID lamp types, including single-, dual-, tri-, quad- and multi-volt designs. For added versatility and reduced inventory costs, Universal has also introduced the industry’s first Multi-5™ ballast (120, 208, 240, 277, or 480 volt), featuring a 480-volt tap on a conventional quad-tap ballast.

Our core & coil models are ideal for a wide variety of lighting applications, including factories, warehouses, gymnasiums and retail stores. All these ballasts feature precision-wound coils, ensuring even heat dissipation and the highest electrical integrity.

Universal’s Universal Precise™ is the next generation in core & coil technology, featuring a smaller, light-weight design and improved temperature performance. Universal Precise™ fits virtually all applications, and has no exposed live metal parts. There are no plastic extrusions, which prevents breakage during shipping. Color-coded leads make installation easy.

50 Hertz
Universal offers 50 Hz core & coil ballasts to meet the rapid growth in demand in international markets. Our ballasts are available for 220, 230, and 240 volt electrical systems.

F-Can
These ballasts are used primarily for indoor downlighting applications where quiet operation is essential. All the components of these ballasts are enclosed in a fluorescent-style ballast can and are thermally protected.
Bracket Reference Chart

**Core & Coil Welded Brackets**

All welded brackets are .093" thick.

- Ref. Drawing B1
- Ref. Drawing B1-A
- Ref. Drawing B1-B
- Ref. Drawing B2
- Ref. Drawing B3
- Ref. Drawing B4

**Core & Coil Adjustable Mounting Brackets**

Routinely supplied with replacement kits.

- Ref. Drawing ADJ1
- Ref. Drawing ADJ2
- Ref. Drawing MB1
- Ref. Drawing MB2

For use with:
- 50 to 175 watt Mercury, High Pressure Sodium and Metal Halide and some 250 watt Metal Halide
- 250 to 1500 watt Metal Halide
- 250 to 1000 watt High Pressure Sodium and Mercury Vapor

FOR MORE INFORMATION CALL 1-800-BALLAST (225-5278)
Application And Operating Information

Underwriters’ Laboratories, Inc. Acceptance
All F-Can and Weatherproof ballasts listed in this catalog are Underwriters’ Laboratories, Inc. white card listed, except those for 347 volt operation. All Core & Coil and Potted Core & Coil ballasts listed in this catalog are Underwriters’ Laboratories, Inc. yellow card listed (component recognized).

Ballast Replacement
Ballast replacement presents the possibility of exposure to potentially hazardous voltages and should be performed only by qualified personnel. All installation, inspection and maintenance should be performed only with the entire circuit power to fixture or equipment turned off. Installation shall be in accordance with National Electric Code.

Heat
A ballast, like any other electrical device, generates heat during normal operation. Planning for maximum heat dissipation with proper fixture design, installation planning and ballast selection will minimize the possibility of a heat-related problem arising. Excessive temperature will have an adverse effect on ballast life.

Normal temperature limits:
- F-Can Ballasts
  - Maximum case temperature: 90°C
- Potted Core & Coil Ballasts and Core & Coil Ballasts
  - Insulation: Class 180°C
  - Maximum coil temperature: 165°C
  - (measured by change of resistance method)

All F-Can ballasts listed in this catalog are equipped with built-in automatic resetting internal thermal protection as a standard feature.

Whenever a ballast with thermal protection is used, it is imperative that the fixture/ballast/lamp combination be heat tested under actual or simulated installation conditions to assure that the ballast will not cycle. The resetting thermal protector functions as a thermostat which will open and temporarily deactivate the ballast when it exceeds the permissible temperature. The ballast will continue to cycle until the cause of overheating is eliminated. If the ballast is defective, it must be replaced. If the cause is external, the ballast will resume normal operation after abnormal conditions are eliminated.

To attain normal ballast life, the maximum coil temperature of the ballast should not exceed the rating of the insulation system. A temperature increase of 10°C results in a 50% reduction of ballast life.

Low Ambient Temperature (cold)
As temperatures drop, less and less vaporized gas is available within the arc tube of a high intensity discharge lamp, thereby causing an increase in the open circuit voltage required to initiate an arc in the lamp, until a point is reached where the lamp cannot be started. The minimum temperature at which any ballast listed in this catalog will provide reliable starting is listed with the electrical characteristics.

Ballasts should be protected from weather, moisture, or other abnormal atmospheric conditions, unless specifically designed for use under adverse conditions.

Fusing
The purpose of fusing an HID ballast is to remove the ballast from the power line in the event of a ballast system failure. A fuse does not protect the ballast from failing.

Because the temperature in the ballast compartment is high, typically 90°C, fuse ratings are specified at 25°C, and that this rating declines as the temperature increases, HID fuse recommendations are made between 2 and 3 times the maximum current the ballast will draw during all normal conditions.

Fast-blow fuses should not be used due to the possibility of high inrush currents. These currents are due to the fact that the power can be applied at any point in the AC voltage waveform. Standard and slow-blow are acceptable.

When using the 120V tap for auxiliary lighting, a slow-blow fuse should be used to protect the ballast from damage from a fault in the auxiliary lighting circuit.

REMOTE MOUNTING DISTANCE
Maximum Length in Feet for Remote Mounting of HID Ballasts to Lamp

<table>
<thead>
<tr>
<th>ANSI</th>
<th>Lamp Type</th>
<th>Watts</th>
<th>12 GA</th>
<th>14 GA</th>
<th>16 GA</th>
<th>18 GA</th>
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<tbody>
<tr>
<td>M57</td>
<td>Metal Halide</td>
<td>175</td>
<td>272</td>
<td>171</td>
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<tr>
<td>M58</td>
<td>Metal Halide</td>
<td>250</td>
<td>194</td>
<td>122</td>
<td>77</td>
<td>48</td>
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<tr>
<td>M59</td>
<td>Metal Halide</td>
<td>400</td>
<td>132</td>
<td>83</td>
<td>52</td>
<td>33</td>
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<tr>
<td>M47</td>
<td>Metal Halide</td>
<td>1000</td>
<td>196</td>
<td>123</td>
<td>77</td>
<td>48</td>
</tr>
<tr>
<td>M48</td>
<td>Metal Halide</td>
<td>1500</td>
<td>146</td>
<td>92</td>
<td>58</td>
<td>36</td>
</tr>
</tbody>
</table>

For proper installation, insure that remote ballasts are properly vented and mounted to a heat-dissipating surface.
### 150 WATT S55 HIGH PRESSURE SODIUM LAMP

<table>
<thead>
<tr>
<th>Input Volts</th>
<th>Catalog Number</th>
<th>Circuit Type</th>
<th>Watts Input</th>
<th>Max Input Current</th>
<th>Nom Open Circuit Voltage</th>
<th>Fuse Rating</th>
<th>Min Watt</th>
<th>Dry Film</th>
<th>Oil Filled</th>
<th>Total Weight</th>
<th>Ignitor</th>
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<tr>
<td>120 or 277</td>
<td>S1502TRILC3M</td>
<td>HX-HPS 188</td>
<td>3.00</td>
<td>3.00</td>
<td>120</td>
<td>5</td>
<td>9</td>
<td>PC1</td>
<td>2.38</td>
<td>1.6</td>
<td>HPS150-3A</td>
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<tr>
<td>120 or 277</td>
<td>S1502TRILC3M</td>
<td>HX-HPS 188</td>
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<td>3.00</td>
<td>120</td>
<td>5</td>
<td>9</td>
<td>PC1</td>
<td>2.38</td>
<td>1.6</td>
<td>HPS150-3A</td>
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<tr>
<td>120 or 277</td>
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<td>3.00</td>
<td>120</td>
<td>5</td>
<td>9</td>
<td>PC1</td>
<td>2.38</td>
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<td>PC1</td>
<td>2.38</td>
<td>1.6</td>
<td>HPS150-3A</td>
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### 200 WATT S66 HIGH PRESSURE SODIUM LAMP

### 250 WATT S80 HIGH PRESSURE SODIUM LAMP

* Ballast has built-in starter.
* Also can be used on a 277 volt line in conjunction with the step-down transformers described on page 5-53.
* Capacitors are available as an option for high power factor operation.

See pages 4-31 and 4-32 for Reference Drawings and Wiring Diagrams.
### Description and Suffixes

<table>
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<th>Description</th>
<th>Suffix *</th>
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</tr>
<tr>
<td>For Bracket Only (see pg. 5-7)</td>
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</tr>
<tr>
<td>For Capacitor Only (see pg. 5-5, 5-6)</td>
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</tr>
<tr>
<td>For Distributor Replacement Kit (see pg. 5-13 thru 5-15)</td>
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<td>For Dry-Capacitor &amp; Ballast (see pg. 5-6)</td>
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<tr>
<td>For Bracket &amp; Capacitor (see pg. 5-5, 5-7)</td>
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<td>For Bracket &amp; Dry-Capacitor (see pg. 5-6, 5-7)</td>
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### Notes
- Nominal dimensions provided above.
- Contact Universal for drawings and/or tolerances.

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**REFERENCE DRAWING 1**

**REFERENCE DRAWING 5**

**REFERENCE DRAWING PC1**

**REFERENCE DRAWING PC2**

**REFERENCE DRAWING PC3**

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### Reference Dwg. | L  | W  | M  | S  |
<table>
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<td>PC2, PC3</td>
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See pg. 5-7 for adjustable mounting brackets and detailed bracket drawings.