specifications:
**Metrolight SmartHID™ Electronic Ballast**
100/150/250-400 Watt - HPS
175/200/250/320/400/450 Watt - MH

**Operating Specifications**
Metrolight SmartHID™ Electronic Ballasts’ superior lumen maintenance enables the use of lower wattage lamps without sacrificing maintained light levels. Fully programmable, the ballasts incorporate unique control abilities including SmartDIM auto profile dimming, 0-10V analog dimming and full MADLI digital control with real time feedback.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency</strong></td>
<td>50/60Hz</td>
</tr>
<tr>
<td><strong>Inrush current</strong></td>
<td>&lt;25A</td>
</tr>
<tr>
<td><strong>Harmonics (at nominal conditions)</strong></td>
<td>Fully complies with EN61000-3-2</td>
</tr>
<tr>
<td><strong>Total Harmonic Distortion</strong></td>
<td>&lt;10% at 120V, &lt;10% at 208V, &lt;15% at 277V.</td>
</tr>
<tr>
<td><strong>Input current protection</strong></td>
<td>Fuse (Internal)</td>
</tr>
<tr>
<td><strong>Continuous full range dimming</strong></td>
<td>Minimum dimming level can be programmed anywhere from 35% - 100% depending on lamp type, or can be programmed for reverse dimming by special configuration</td>
</tr>
<tr>
<td><strong>Dimming options</strong></td>
<td>0-10V Analog dimming by relay, ambient sensor, daylight sensor or any other compatible sensor</td>
</tr>
<tr>
<td><strong>Lumen maintenance</strong></td>
<td>&gt;90% over lamp life (depending on lamp type)</td>
</tr>
<tr>
<td><strong>Open circuit voltage</strong></td>
<td>300V</td>
</tr>
<tr>
<td><strong>Ignition voltage</strong></td>
<td>&lt;4kV</td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>106KHz</td>
</tr>
<tr>
<td><strong>Output regulation</strong></td>
<td>+/- 1% of nominal lamp wattage with +/- 10% variance in input voltage. Regulates output +/- 1% for changes in lamp voltage</td>
</tr>
<tr>
<td><strong>Dimensions (LxWxH)</strong></td>
<td>8.46” x 3.43” x 2.16” / 215 x 87 x 55mm (includes mounting feet)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>3.08lb / 1.4kg</td>
</tr>
<tr>
<td><strong>Operating temperature range</strong></td>
<td>-30°C to +65°C / -22°F to 149°F</td>
</tr>
<tr>
<td><strong>Maximum case temperature (Tc)</strong></td>
<td>85°C / 185°F at test point</td>
</tr>
<tr>
<td><strong>Operating humidity</strong></td>
<td>0 to 95% RH non-condensing</td>
</tr>
<tr>
<td><strong>Remote mounting distance</strong></td>
<td>Up to 10 meters/33 feet. Longer mounting distance configurations available upon special request</td>
</tr>
</tbody>
</table>
### General Specifications Continued

**EMC**

FCC Title 47 Part 18 C (non-consumer): EN55015:2006
(If the Smart Ballast is installed within a lighting fixture, an external dedicated Metrolight Line Adapter may be required (EU only). Contact Metrolight customer support for more information.)
EN61547; EN61000-3-2; EN61000-3-3

**Regulatory Approvals**

UL1029 & UL 935, Outdoor Type 1, suitable for recessed use.
EN61347-2-12
UL Listed | C | CE | DE | Nr. 40026719

**Surge Protection**

IEEE C62.41 Category C Low
Between phase and neutral 6KV / 3KA
Between line and ground 10KV / 1KA

### Protections

**Self-protection mechanisms**

In the event of a short circuit, or open circuit; If the lamp fails to light; At the end of the lamp’s life; Input current protection by internal fuse; Advanced surge protection between phase and neutral and between line and ground; Advanced output protection against arcing or shorting to ground

**Heat Management**

If the Tc rises beyond 90°C / 194°F during use, the SmartHID™ ballast may switch itself off. If the ballast’s Tc temperature reaches beyond 85°C / 185°F during use, the SmartHID™ Ballast will gradually reduce its output power to 50%, allowing the ballast to cool. When the Tc falls below 85°C / 185°F again, the ballast will return to full output power

### Dimming Specifications

**Dimming delay (standard configuration)**

Ballasts will ignore all dimming signals for the first 15 minutes after being switched on in order to allow the lamp to fully warm up & stabilize as per ANSI recommendations. The dimming delay can be disabled by special configuration

**Analog dimming (standard configuration)**

10V or grey/purple wires separated - 100% power;
0V or grey/purple shorted together - 50% power.
Dimming is continuous for dimming signal between >0V & <10V. (Dimming can be reversed or maximum dimming value can be set to any level from 35-99% by special configuration

**Analog dimming fade time (standard configuration)**

Fade time from 50% to 100% power - 15 seconds
Fade time from 100% to 50% power - 15 seconds
(Dimming fade time can be individually modified to anything from 15 seconds to 30 minutes by special configuration)

**Auto profile dimming (standard auto dimming configuration)**

Designed for outdoor applications such as parking lots, ballasts with auto profile dimming will automatically dim to 50% power without any external controls or triggers, starting one hour before the midpoint (based on the average of the previous three days' operating hours) for a period of 6 hours. In outdoor applications where the midpoint is ~ midnight, dimming will automatically take place between ~ 11p.m. - 5a.m. (23:00hr - 05:00hr). (The auto profile dimming times and percentages can be modified by special configuration to include up to 16 different steps per cycle). NOTE: There is no extra charge for this feature, but if you do not request or order a ballast with auto profile dimming, the feature will not be turned on.

**MADLI digital control**

Each ballast will be assigned a random MADLI address between 1 and 1023. By using the digital control feature, each ballast can be individually turned on or off or dimmed. Ballasts can connect to control system by low voltage cabling, wireless or PLC. The ballasts also provide real time feedback on operational status, power consumption, lamp voltage, ballast temperature and other ballast and lamp parameters. A MADLI conversion box is required when using the MADLI control feature (sold separately). Cloud capable control software and hardware provided by Metrolight or 3rd party control providers. Consult factory for details.
### Input Specifications

Input values for power, voltage and current are dependent on the lamp wattage. Other input values apply across all SmartHID™ Ballasts.

**Lamp Power, Voltage and Current Specifications**

#### 450W MH lamp (U.S. only)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Power</td>
<td>478W</td>
</tr>
<tr>
<td>Input Voltage</td>
<td>277VAC (+10% to –15%)</td>
</tr>
<tr>
<td>Input Current</td>
<td>1.75A @ 277V</td>
</tr>
<tr>
<td>Power Factor</td>
<td>&gt;0.97</td>
</tr>
</tbody>
</table>

#### 400W MH or HPS lamp

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Power</td>
<td>426W</td>
</tr>
<tr>
<td>Input Voltage</td>
<td>200 - 277VAC (+10% to –15%)</td>
</tr>
<tr>
<td>Input Current</td>
<td>2.1A @ 208V, 1.98A @ 220V, 1.83A @ 240V, 1.58A @ 277V</td>
</tr>
<tr>
<td>Power Factor</td>
<td>&gt;0.96</td>
</tr>
</tbody>
</table>

#### 350W MH lamp

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Power</td>
<td>375W</td>
</tr>
<tr>
<td>Input Voltage</td>
<td>200 - 277VAC (+10% to –15%)</td>
</tr>
<tr>
<td>Input Current</td>
<td>1.8A @ 208V, 1.74A @ 220V, 1.61A @ 240V, 1.4A @ 277V</td>
</tr>
<tr>
<td>Power Factor</td>
<td>&gt;0.96</td>
</tr>
</tbody>
</table>

#### 320W MH lamp

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Power</td>
<td>344W</td>
</tr>
<tr>
<td>Input Voltage</td>
<td>200 - 277VAC (+10% to –15%)</td>
</tr>
<tr>
<td>Input Current</td>
<td>1.7A @ 208V, 1.6A @ 220V, 1.48A @ 240V, 1.2A @ 277V</td>
</tr>
<tr>
<td>Power Factor</td>
<td>&gt;0.96</td>
</tr>
<tr>
<td></td>
<td>250W MH or HPS lamp</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Input Power</td>
<td>269W</td>
</tr>
<tr>
<td>Input Voltage</td>
<td>120 - 277VAC (+10% to −15%)</td>
</tr>
<tr>
<td>Input Current</td>
<td>2.3A @ 120V, 1.26A @ 220V, 1.16A @ 240V, 1.0A @ 277V</td>
</tr>
<tr>
<td>Power Factor (at nominal conditions and full power)</td>
<td>&gt;0.95</td>
</tr>
</tbody>
</table>
The SmartHID™ Electronic Ballasts 100W-450W have been designed to comply with the following ANSI standards:

<table>
<thead>
<tr>
<th>Ballast</th>
<th>ANSI Lamp Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>100W</td>
<td>HPS (100V) &amp; S54 (55V)</td>
</tr>
<tr>
<td>150W</td>
<td>HPS S56 (100V) &amp; S55 (%%V)</td>
</tr>
<tr>
<td>175W</td>
<td>MH M152</td>
</tr>
<tr>
<td>200W</td>
<td>MH M136, HPS S66</td>
</tr>
<tr>
<td>250W</td>
<td>MH M153, M80, HPS S50</td>
</tr>
<tr>
<td>320W</td>
<td>MH M132, M 154</td>
</tr>
<tr>
<td>350W</td>
<td>MH M131, HPS S129</td>
</tr>
<tr>
<td>400W</td>
<td>MH M135, M155, HPSS51</td>
</tr>
<tr>
<td>450W</td>
<td>MH M144</td>
</tr>
</tbody>
</table>

Please consult factory for lamps not listed above.

<table>
<thead>
<tr>
<th>Type</th>
<th>MH/HPS</th>
<th>Power</th>
<th>Description*</th>
<th>Standard Configuration Part Number</th>
<th>Standard Auto Profile Dimming Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>SmartHID™</td>
<td>MH</td>
<td>175W</td>
<td>M175MH-US-DD</td>
<td>8890008</td>
<td>8890071</td>
</tr>
<tr>
<td></td>
<td></td>
<td>200W</td>
<td>M200MH-US-DD</td>
<td>8890020</td>
<td>8890077</td>
</tr>
<tr>
<td></td>
<td></td>
<td>250W</td>
<td>M250MH-US-DD</td>
<td>8890002</td>
<td>8890070</td>
</tr>
<tr>
<td></td>
<td></td>
<td>320W</td>
<td>M320MH-US-DD</td>
<td>8890004</td>
<td>8890072</td>
</tr>
<tr>
<td></td>
<td></td>
<td>350W</td>
<td>M350MH-US-DD</td>
<td>8890003</td>
<td>8890043</td>
</tr>
<tr>
<td></td>
<td></td>
<td>400W</td>
<td>M400MH-US-DD</td>
<td>8890001</td>
<td>8890073</td>
</tr>
<tr>
<td></td>
<td></td>
<td>450W</td>
<td>M450MH-US-DD</td>
<td>8890021</td>
<td>8890078</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100W 55v</td>
<td>M100S-US-DD-55V</td>
<td>8890015</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>150W 55v</td>
<td>M150S-US-DD-55V</td>
<td>8890040</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>150W 100v</td>
<td>M150S-US-DD-100V</td>
<td>8890025</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>250W</td>
<td>M250S-US-DD</td>
<td>8890005</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>400W</td>
<td>M400S-US-DD</td>
<td>8890006</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Please Note: These part numbers refer to standard configurations (0 -10V set to dim to 50% when V=0) and other standard parameters as noted in these specifications. Special configurations are available upon request.
SmartHID™ Electronic Ballast 100W - 450W
Mechanical Dimensions

SmartHID™ Electronic Ballast 100W - 450W
Wiring Diagram