Programmable & Dimmable LED Drivers
About ERP

ERP designs and manufactures energy-efficient LED drivers/power supplies for a wide range of lighting applications: from residential to commercial, industrial, outdoor, office buildings, architectural and stage lighting. Small, yet powerful, ERP products deliver an industry-leading combination of compact size, extensive dimmer compatibility, and high efficiency at competitive cost. Headquartered in Moorpark, CA, ERP owns and operates its own ISO 9001 certified manufacturing facility to ensure quality of design, sourcing, production and testing.

- Industry leader in high-efficiency (high-power-saving) & high-density (small footprint) LED drivers/power supplies
- Product offerings include standard and custom solutions for LED Lighting
- U.S.A. Headquarters in Moorpark, California, with sales/marketing, R&D, and technical support to serve the North-American market
- China Operations Center in Zhuhai include document center, QA, R&D, manufacturing, and sales/technical support to serve China and Asia
ERP Manufacturing

ERP products are manufactured in our wholly owned manufacturing facility in Zhuhai, China. The factory is configured with high-speed production lines for LED drivers and high-density power supplies, as well as state of the art burn-in chambers and automated test equipment. Strategic manufacturing partners provide significant upside capabilities. ERP products go through 100% burn-in to eliminate “infant mortality” failures. ISO 9001:2008 certified, with regular audits by safety agencies.

ERP Quality

Quality Management Systems (QMS)

- Design Qualification Assurance
  - Reliability testing
  - 4-stage development process
  - Component qualification (Derating, MTBF, Thermal testing)
  - Production auditing

- Product Qualification Assurance
  - Failure analysis
  - Customer returns

Standard Certifications

ERP products are designed and manufactured to comply with worldwide international IEC standards for lighting applications, and carry certifications by safety agencies such as UL, CSA and Nemko. ERP products also comply with EMC regulations from Europe, and FCC/ICES in North America.
LED Cross-Reference

ERP has developed an extensive cross-reference for 12 different LED manufacturers. This cross-reference can be directly accessed from the ERP website at www.erp-power.com. On the homepage, using the pull-down menus, select the LED manufacturer and then the LED. You may also select your desired drive current. The cross-reference tool will return a list of driver(s) that are the most relevant for your LED selection. You can also access the cross-reference by clicking on LED GUIDE at the top of the homepage. The LED guide lists the 12 LED manufacturers whose LEDs have been cross referenced to some of our LED drivers.

<table>
<thead>
<tr>
<th>LED Manufacturer</th>
<th>Logo</th>
<th>Cross-Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>bridgelux</td>
<td></td>
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<td>CITIZEN</td>
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<td>CREE</td>
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<td>LG Innotek</td>
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<td>SAMSUNG</td>
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<td>SEOUL</td>
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<tr>
<td>Lumenetix</td>
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</tbody>
</table>

ERP Constant Current and Constant Voltage LED Driver Portfolios

Below are two graphs that illustrate our portfolio of constant current and constant voltage LED drivers. ERP LED drivers are targeted at architectural, commercial and industrial applications requiring 10 W to 260 W of power with dimming, programming and connectivity to the Internet of Lights. The color coded drivers are represented in this brochure.
Programmable, Constant Current, Class 2 / Class II LED Drivers
with Tri-Mode Dimming™ (TRIAC, ELV and 0-10 V)

Typical Application Diagram

Features
- Nonlinear 0-10V dimming profile with dim-to-off pre-loaded by default (10 V to 0.9 V = 100%, 1.5 V to 0.7 V = < 1%, < 0.7 V = dim-to-off)
- UL Class P
- Class 2 output / Class II power supply
- Lifetime: 50,000 hours @ Tc = 75°C
- 90°C maximum case hot spot temperature
- 2.5 kV ring wave: ANSI/IEEE c62.41.1-2002 & c62.41.2-2002
- Surge protection:
  - ESD (class A, B, C, D, E)
  - Lightning surge 2.5 kV
- IP20-rated case with silicone-based potting
- Lifetime: 50,000 hours @ Tc = 75°C
- Class 2 output / Class II power supply
- Non-linear 0-10 V dimming profile with dim-to-off pre-loaded by default (10 V to 0.9 V = 100%, 1.5 V to 0.7 V = < 1%, < 0.7 V = dim-to-off)
- UL Class P
- Class 2 output / Class II power supply
- Lifetime: 50,000 hours @ Tc = 75°C
- 90°C maximum case hot spot temperature
- 2.5 kV ring wave: ANSI/IEEE c62.41.1-2002 & c62.41.2-2002

Programming
- Current: 100% to 50% in each voltage range
- Data log read: SKU, S/N, lot code, hours of operation, FW revision, fault events: power failure, thermal
- Fully programmable and selectable 0-10 V dimming profiles: Non-linear with dim-to-off, Logarithmic, Non-Linear without dim-to-off
- Programmable conduction angles with turn-on & turn-off for TRIAC & ELV

Typical Applications
- Commercial lighting
- Architectural lighting
- Residential lighting
- Indoor Lighting

Typical Applications

• Architectural lighting • Indoor Lighting
• Commercial lighting • Residential lighting

Power Factor

Nominal Input Voltage

<table>
<thead>
<tr>
<th>Model</th>
<th>ERP Part Number</th>
<th>Nominal Input Voltage (Vac)</th>
<th>Max. Output Power (Vac)</th>
<th>Efficiency</th>
<th>Max. Case Temperature (°C)</th>
<th>TEC</th>
<th>Power Factor</th>
<th>Dimming Range</th>
<th>Startup Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSB50/30-1050-27-S</td>
<td>PSB50E-1050-27-2</td>
<td>220 TO 240 V</td>
<td>1050</td>
<td>66.8</td>
<td>1.02 x 2.8 x 0.01 ft (L: 0.308 x W: 0.8 x H: 0.009 m)</td>
<td>57</td>
<td>&gt; 0.9</td>
<td>700 to 1400</td>
<td>27</td>
</tr>
<tr>
<td>PSB50/30-0700-34-S</td>
<td>PSB50E-0700-34-2</td>
<td>120 TO 277 V</td>
<td>700</td>
<td>87.6</td>
<td>0.64 x 1.82 x 0.01 ft (L: 0.2 x W: 0.55 x H: 0.009 m)</td>
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<tr>
<td>PSB50/30-0850-56-S</td>
<td>PSB50E-0850-56-2</td>
<td>220 TO 240 V</td>
<td>850</td>
<td>56.3</td>
<td>0.84 x 1.82 x 0.01 ft (L: 0.26 x W: 0.55 x H: 0.009 m)</td>
<td>57</td>
<td>&gt; 0.9</td>
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<td>PSB50/30-0550-35-S</td>
<td>PSB50E-0550-35-2</td>
<td>220 TO 240 V</td>
<td>550</td>
<td>35.9</td>
<td>0.56 x 1.3 x 0.01 ft (L: 0.17 x W: 0.4 x H: 0.009 m)</td>
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Typical Applications

• Architectural lighting • Indoor Lighting

Typical Applications

• Architectural lighting • Indoor Lighting

Typical Applications

• Architectural lighting • Indoor Lighting

Typical Applications

• Architectural lighting • Indoor Lighting
**ESS / ESST SERIES**  **6 W - 40 W**

**Constant Current LED Drivers with Tri-Mode Dimming™ (TRIAC, ELV & 0-10 V)**

- **Nominal Input Voltage:** 120 to 277 Vac
- **Max. Output Power:** 40 W
- **Output Voltage:** 0-10 V
- **Output Current:** 21 mA to 3.1 A
- **Efficiency:** > 0.9
- **Max. Case Temperature:** 105°C (measured at the hot spot)
- **Vishay Safe 

**Features**

- **Over-temperature with auto recovery**
- **Trailing-edge) and 0-10 V dimmers**

**Technical Requirements**

**Nominal Input Voltage**

| Nominal Input Voltage (Vac) | Input (mA) | Max. Output Power (W) | Output Voltage Range (V) | Efficiency | Max. Case Temperature
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1050</td>
<td>240</td>
<td>120 to 277</td>
<td>0.35 to 4.5</td>
<td>&gt; 0.9</td>
<td></td>
</tr>
</tbody>
</table>

**Applications**

- Indoor & Outdoor
- Commercial Lighting
- Architectural Lighting
- Recessed lighting (downlights)
- Residential Lighting
- Office Lighting

**Typical Application Diagram**

ESS Plastic Case (L 84 x W 40 x H 25 mm (3.30 x W 1.57 x H 0.99 in.)

ESS Thermally Enhanced Plastic Case (ESST040 ONLY) (L 84 x W 40 x H 27 mm (3.30 x W 1.57 x H 1.06 in.)

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**ESSV SERIES**  **11 W - 40 W**

**Constant Current LED Drivers with Tri-Mode Dimming™ (TRIAC, ELV & 0-10 V)**

- **Nominal Input Voltage:** 120 to 277 Vac
- **Max. Output Power:** 40 W
- **Output Voltage:** 0-10 V
- **Output Current:** 21 mA to 3.1 A
- **Efficiency:** > 0.9
- **Max. Case Temperature:** 105°C (measured at the hot spot)
- **Vishay Safe 

**Features**

- **Same features as ESS/ESST series but with 5 V ±2% reference, UL Class 2 P and a thermally-enhanced plastic case**
- **Compatible with TRAC (forward-phase or leading-edge), ELV (reverse-phase or trailing-edge) and 0-10 V dimmers**
- **UL Class P**
- **90°C maximum case hot spot temperature**
- **Class 2 power supply**
- **Lifetime: 50,000 hours at 70°C case hot spot temperature (some models have higher lifetime, Check lifetime curves in spec sheet)**
- **IP64-rated (IP65 for ESST) case with silicone-based potting**
- **Protection: output open load, over-current and short-circuit (hiccup), and over-temperature with auto recovery**
- **Conducted and radiated EMI: Compliant with FCC CFR Title 47 Part 15 Class B (120 Vac) and Class A (277 Vac), and EN55011 (EMSI 10) at 220, 230, and 240 Vac**
- **Complies with ENERGY STAR®, DLC (DesignLight Consortium®) and CA Title 24 technical requirements**

**Typical Applications**

- Indoor & Outdoor
- Commercial Lighting
- Architectural Lighting
- Recessed lighting (downlights)
- Residential Lighting
- Office Lighting

**Typical Application Diagram**

ESSV Plastic Case (L 84 x W 40 x H 27 mm (3.30 x W 1.57 x H 1.06 in.)

Plastic Case (L 84 x W 40 x H 25 mm (3.30 x W 1.57 x H 0.99 in.)

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EBR SERIES  8 W - 21 W
Constant Current LED Drivers with Deep TRIAC and ELV Dimming
(1 - 100%) and with Fast Start Time

Features
• Compliant with ENERGY STAR®, DLC (DesignLight Consortium®) & CA Title 24
• 100% efficient (90°C max. case temp. and 70°C case hot spot)
• TRIAC and ELV Dimming
• Tri-Mode Dimming™ (TRIAC, ELV & 0-10 V) Drivers with
  
  • Constant Current
  
  • Linear 0-10 V dimming: 10 V = 100%, 1 V = 10%, 0.1 V = 1%
  
  • Non-linear 0-10 V dimming: 10 V = 100%, 1 V = 1%, 0.1 V = 1%, < 0.8 V dim-to-off.
• Two 0-10 V dimming profiles are available:
  
  • Linear 0-10 V dimming: 10 V = 100%, 1 V = 10%, 0.1 V = 1%
  
  • Non-linear 0-10 V dimming: 10 V = 100%, 1 V = 1%, 0.1 V = 1%, < 0.8 V dim-to-off.
• Conducted and radiated EMI: Compliant with FCC CFR Title 47 Class B
• Complies with ENERGY STAR® , DLC (DesignLight Consortium®) & CA Title 24
• 90°C maximum case temperature
• 105°C (measured at the hot spot)
• 1200 to 277 Vac

Typical Applications
• Architectural lighting
• Commercial lighting

ESM SERIES  10 W - 60 W
Constant Current LED Drivers with Tri-Mode Dimming™ (TRIAC, ELV & 0-10 V)

Features
• Compliant with TRIAC (forward-phase or leading-edge), ELV (reverse-phase or trailing-edge) and 0-10 V dimmers
• Only 0-10 V dimming at 277 Vac
• 90°C maximum case temperature
• Class 2 power supply
• Lifetime: 50,000 hours at 70°C case temperature (some models have higher lifetime. Check lifetime curves in spec sheet)
• IP20-rated case with silicone-based potting

Typical Applications
• Indoor & Outdoor
• Commercial lighting
• Architectural lighting

Typical Application Diagrams
### EVM SERIES  60 W - 120 W

**Constant Current LED Drivers with Tri-Mode Dimming™ (TRIAC, ELV & 0-10 V)**

<table>
<thead>
<tr>
<th>Nominal Input Voltage</th>
<th>Max. Output Power (W)</th>
<th>Output Voltage (Vac)</th>
<th>Output Current (mA)</th>
<th>Efficiency</th>
<th>Max. Case Temperature</th>
<th>THD</th>
<th>Power Factor</th>
<th>Dimming Method</th>
<th>Dimming Range</th>
<th>Start-Up Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 to 277 Vac</td>
<td>120 W</td>
<td>21 to 56 Vdc</td>
<td>35.7</td>
<td>33.6</td>
<td>up to 87% typical</td>
<td>120 to 277</td>
<td>90°C (measured at the hot spot)</td>
<td>1-100%</td>
<td>(of input)</td>
<td>400 ms</td>
</tr>
</tbody>
</table>

**等特点**
- 兼容于TRIAC（前向相位或调光相位）和ELV（反向相位或调光相位）
- 适用于LED驱动器
- 只有0-10 V输入电压在277 Vac
- 室外遮阳保护：3.3V线到线 / 6V线到地
- 线性0-10 V调光转矩函数：10 V = 100%，1 V = 10%，0.1 V = 1%
- 非线性0-10 V调光转矩函数
- 终生寿命：50,000小时
- 90°C最高环境温度
- 耐热设计
- 防护等级：IP66
- 具备ENERGY STAR®、DLC（DesignLight Consortium®）技术要求

### Typical Application Diagram

**Features**
- 高亮灯光
- 转向及街道照明
- 户外LED照明
- 具备高亮度的LED灯（如Cree的CA2100或CA3000）和BridgeLux的Ver系列，以及模块如Cree的LMH2系列

**典型应用**
- 室外照明
- 室内照明
- 架空照明

### ESP SERIES  40 W - 60 W

**Constant Current LED Drivers with Tri-Mode Dimming™ (TRIAC, ELV & 0-10 V)**

<table>
<thead>
<tr>
<th>Nominal Input Voltage</th>
<th>Max. Output Power (W)</th>
<th>Output Voltage (Vac)</th>
<th>Output Current (mA)</th>
<th>Efficiency</th>
<th>Max. Case Temperature</th>
<th>THD</th>
<th>Power Factor</th>
<th>Dimming Method</th>
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<td>90°C (measured at the hot spot)</td>
<td>1-100%</td>
<td>(of input)</td>
<td>400 ms</td>
</tr>
</tbody>
</table>

**等特点**
- 兼容于TRIAC（前向相位或调光相位）、ELV（反向相位或调光相位）和0-10 V
- ESP040W: 51到60 W
- ESP050W: 41到50 W
- ESP060W: 51到60 W
- ESP050E: 51到60 W

**典型应用**
- 室内及室外照明
- 架空照明

**Features**
- 不推荐用于新设计
- 适用于新设计

### Typical Application Diagram

**Features**
- 高亮灯光
- 转向及街道照明
- 户外LED照明
- 具备高亮度的LED灯（如Cree的CA2100或CA3000）和BridgeLux的Ver系列，以及模块如Cree的LMH2系列

**典型应用**
- 室内及室外照明
- 架空照明

### EVM SERIES  40 W - 60 W

**Constant Current LED Drivers with Tri-Mode Dimming™ (TRIAC, ELV & 0-10 V)**

<table>
<thead>
<tr>
<th>ERP Part Number</th>
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<tbody>
<tr>
<td>EVM090W-1800-106</td>
<td>EVM120W-2100-45</td>
<td>EVM120W-1750-42</td>
<td>EVM120W-2350-42</td>
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<td>EVM100W-1900-42</td>
<td>EVM110W-2700-42</td>
<td>EVM100W-2100-45</td>
<td>EVM120W-2350-42</td>
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<td>EVM110W-2700-42</td>
<td>EVM100W-2100-45</td>
<td>EVM120W-2350-42</td>
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<td>EVM110W-2700-42</td>
<td>EVM100W-2100-45</td>
<td>EVM120W-2350-42</td>
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<td>EVM100W-2100-45</td>
<td>EVM120W-2350-42</td>
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**Features**
- 兼容于TRIAC（前向相位或调光相位）和ELV（反向相位或调光相位）
- 调光器：0-10 V调光
- 适用于高光效的LED灯（如Cree的CA2100或CA3000）和BridgeLux的Ver系列，以及模块如Cree的LMH2系列

**典型应用**
- 室内照明
- 户外照明
- 架空照明
**ESPT SERIES** 50 W - 60 W

Constant Current LED Drivers with Tri-Mode Dimming™ (TRIAC, ELV & 0-10 V)

**Nominal Input Voltage**
- 120 to 277 Vac

**Max. Output Power**
- 60 W

**Output Voltage**
- 24 to 30 Volts

**Output Current**
- 750 mA to 1.4 A (Constant Current)

**Max. Case Temperature**
- up to 85°C (Constant Current)

**Efficiency**
- 90% (measured at the hot spot)

**THD**
- < 20%

**Dimming Method**
- Forward-Phase, Reverse-Phase, 0-10 V

**Dimming Range**
- 1-100%

**Startup Time**
- 400 ms

### Features
- Same features as the ESPT series but with a thermally-enhanced plastic case
- Compatible with TRIAC (forward-phase or leading-edge), ELV (reverse-phase or trailing-edge) and 0-10 V dimmers
- Only 0-10 V dimming at 277 Vac
- 80°C maximum case hot spot temperature
- Class 2 power supply
- Lifetime: 50,000 hours @ 70°C case hot spot temperature (some models have higher lifetime. Check lifetime curves in spec sheet)
- IP66-rated case with silicone-based potting
- Two 0-10 V dimming profiles are available:
  - Linear 0-10 V dimming: 10 V = 100%, 1 V = 10%, 0.1 V = 1%
  - Non-linear 0-10 V dimming: 10 V to 0.1 V = 100%, 1 V to 0.01 V = 10%, 0.1 V to 0 V = 1%
- Protections: output open load, over-current and short-circuit (hiccup), and over-temperature with auto recovery
- Conducted and radiated EMI: Compliant with FCC CFR Title 47 Part 15 Class B
- Complies with ENERGY STAR®, DLC (DesignLight Consortium®) and CA Title 24 technical requirements

### Typical Applications
- Indoor & Outdoor
- Commercial lighting
- Architectural lighting
- Recessed lighting (downlights)
- Residential lighting
- Office Lighting

**Typical Application Diagram**

---

**SLM SERIES** 90 W - 160 W

Tri-Mode Dimming™ (TRIAC, ELV & 0-10 V) High Power, Constant Current LED Drivers with 1-100% Dimming Range and with 12 V / 100 mA Auxiliary Output

**Nominal Input Voltage**
- 120 to 277 Vac

**Max. Output Power**
- 160 W

**Output Voltage**
- 24 to 160 Volts

**Output Current**
- 1.8 to 4.4 A (Constant Current)

**Max. Case Temperature**
- up to 90°C (measured at the hot spot)

**THD**
- < 20%

**Dimming Method**
- Forward-Phase, Reverse-Phase, 0-10 V

**Dimming Range**
- 1-100% (Constant Current)

**Startup Time**
- 0.75 sec

### Features
- Compatible with TRIAC (forward-phase or leading-edge) / ELV (reverse-phase or trailing-edge) and 0-10 V dimmers
- Only 0-10 V dimming at 277 Vac
- 12 V / 100 mA auxiliary output
- IP66-rated case with silicone-based potting
- 80°C maximum case hot spot temperature
- Protections: output open load, short-circuit (latch-off), and over-temperature with auto recovery
- Conducted and radiated EMI: Compliant with FCC CFR Title 47 Part 15 Class A at 120 Vac & 277 Vac
- Complies with ENERGY STAR®, Furniture Specification and DLC (DesignLight Consortium®) technical requirements

### Typical Applications
- Outdoor & Indoor
- Horticulure grow lights
- Street lights, Area lights
- Industrial high-bay lights

**Typical Application Diagram**

---

For additional options of output current and output voltage, contact your sales representative or send an email to: SaveEnergy@ERP-Power.com
TLM SERIES 90 W - 160 W

Tri-Mode Dimming™ (TRIAC, ELV & 0-10 V)
High Power, Constant Current LED Drivers
with 0.01-100% Dimming Range and 12 V / 100 mA Auxiliary Output

Electronic Contents
- Features
  - Dimming range: 0.01-100% with ETC, Leprecon and Elation stage lighting AC phase dimmers
  - 12 V / 100 mA auxiliary output to power external fan, motion or ambient light sensor, or wireless module
  - Only 0-10 V dimming at 277 Vac
  - Conducted and radiated EMI: Compliant with FCC CFR Title 47 Class A
  - Surge protection:
    - Combination wave IEC61000-4-5: 4 kV line to line / 4 kV line to earth (higher surge is available upon request)
    - 2.5 kV ring wave: ANSI/IEEE c62.41.1-2002 & c62.41.2-2002 category A
  - 90°C maximum case hot spot temperature
  - Complies with ENERGY STAR® luminaire specification and DLC (DesignLight Consortium) technical requirements

- Nominal Input Voltage
  - 120 to 277 Vac
  - 100 W to 250 W

- Max. Output Power
  - 90 W to 160 W

- Output Current
  - 1.0 A to 2.1 A (Constant Current)

- Efficiency
  - up to 80% typical

- Max. Case Temperature
  - 50°C (measured at the hot spot)
  - 0.81-100% (at 50°C)

- Power Factor
  - > 0.9

- Dimming Method
  - Forth-Phase, Reverse-Phase, & 0-10 V

- Dimming Range
  - 0-10 V

- Typical Applications
  - • Stage, Theatrical lighting
  - • Studio Lighting

- Typical Application Diagram

- ERP Part Number

<table>
<thead>
<tr>
<th>ERP Part Number</th>
<th>Nominal Input Voltage (Vac)</th>
<th>Ins1 (A)</th>
<th>Max. Output Power (W)</th>
<th>Vout 1 (Vdc)</th>
<th>Iout 1 (mA)</th>
<th>Vout 2 (Vdc)</th>
<th>Iout 2 (mA)</th>
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<tbody>
<tr>
<td>TLM90W-0.9-42</td>
<td>120 to 277</td>
<td>0.9</td>
<td>42</td>
<td>29.8</td>
<td>350</td>
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<td>TLM90W-1.8-42</td>
<td>120 to 277</td>
<td>1.8</td>
<td>42</td>
<td>35.5</td>
<td>340</td>
<td>30.0</td>
<td>310</td>
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</table>

- ERP Part Number

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<th>Max. Output Power (W)</th>
<th>Ins1 (A)</th>
<th>Vout 1 (Vdc)</th>
<th>Iout 1 (mA)</th>
<th>Vout 2 (Vdc)</th>
<th>Iout 2 (mA)</th>
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<tbody>
<tr>
<td>PDB260W-0860-400</td>
<td>120 &amp; 277</td>
<td>260.0</td>
<td>860</td>
<td>430</td>
<td>325</td>
<td>300</td>
<td>234</td>
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<tr>
<td>PDB260W-1300-280</td>
<td>120 &amp; 277</td>
<td>260.0</td>
<td>1300</td>
<td>650</td>
<td>312</td>
<td>300</td>
<td>218</td>
</tr>
<tr>
<td>PDB260W-1700-210</td>
<td>120 &amp; 277</td>
<td>260.0</td>
<td>1700</td>
<td>850</td>
<td>312</td>
<td>300</td>
<td>218</td>
</tr>
</tbody>
</table>

For additional options of output current and output voltage, contact your sales representative or send an email to: SaveEnergy@ERP-Power.com

PDB260 SERIES 260 W

Programmable, Constant Current LED Drivers
with 0-10 V Dimming

Electronic Contents
- Features
  - Non-linear 0-10 V dimming profile with dim-to-off (10 V to 9.1 V = 100%, 1.5 V to 0.6 V = 1%, < 0.6 V = dim-to-off)
  - 12 V / 100 mA auxiliary output
  - Dual output voltage range
  - UL Class P
  - IP68-rated case with silicone-based potting

- Nominal Input Voltage
  - 120 & 277 Vac
  - 260 W

- Max. Output Power
  - 260 W

- Output Current
  - 325 mA to 1700 mA

- Efficiency
  - up to 83% typical

- Max. Case Temperature
  - 50°C (measured at the hot spot)
  - < 20%

- Power Factor
  - > 0.9

- Dimming Method
  - 0-10 V

- Dimming Range
  - 0-100% (% of Iout)

- Typical Applications
  - • Street lights, Area lights
  - • Horticulture grow lights
  - • Industrial high-bay lights

- Typical Application Diagram

- ERP Part Number

<table>
<thead>
<tr>
<th>ERP Part Number</th>
<th>Nominal Input Voltage (Vac)</th>
<th>Max. Output Power (W)</th>
<th>Ins1 (mA)</th>
<th>Vout 1 (Vdc)</th>
<th>Iout 1 (mA)</th>
<th>Vout 2 (Vdc)</th>
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<tr>
<td>PDB260W-0860-400</td>
<td>120 &amp; 277</td>
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<td>850</td>
<td>312</td>
<td>300</td>
<td>218</td>
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For additional options of output current and output voltage, contact your sales representative or send an email to: SaveEnergy@ERP-Power.com

Typical Application Diagram

Aluminum Case
L 101.6 x W 50.8 x H 38.5 mm
(L 4 x W 2 x H 1.52 in.)
CDB260 SERIES 260 W
Programmable, Constant Current LED Drivers with 0-10 Dimming & Integrated Bluetooth® Mesh

--- | --- | --- | --- | --- | --- | --- | ---
120 & 277 Vac | 80 W | 120 & 277 Vac | 5, 2.5, 1.25 A | up to 90% typical | > 0.9°C (measured at the hot spot) | < 20% | > 0.9

THD Power Factor
48
120 & 277
850 to 1700
60.0
12
120 & 277
19
120 & 277
60 W
40.0
THD
234 to 300
156 to 200
Dimming Method
> 0.9
24
24
120 & 277
220 to 240
48
2.5
Efficiency
60.0
220 to 240
3.3
120 & 277
40.0
40.0
60.0
48
Power Factor
Max. Output Current
3.3
120 & 277
40.0
650 to 1300
1.67
120 & 277
60.0
24
60.0
3.3
120 & 277
5
Max. Output Power
Features
- Non-linear 0-10 V dimming profile with dim-to-off
- Auxiliary output 12 V / 100 mA
- IP66-rated case with silicone-based potting
- UL Class II
- Outdoor Surge protection: 0.5 kV surge to earth / 5.0 kV line-to-line
- CE Marked
- Conducted and radiated EMI: Compliant with FCC CFR Title 47 Part 15 Class A
- SELV Class II
- UL/CSA
- IP20-rated case with silicone-based potting
- Class II power supply per IEC 61347
- Class II power supply
- Very high power density of 20 W/in
- Worldwide safety approvals

Typical Application Diagram

Models with Flying Leads, Aluminum Case (VLMXXX Models)
L = 151 ± 1.5 mm W = 95.5 ± 5 mm H = 23.0 ± 5 mm

Models with “-B” Suffix
Bottom Leads with Studs, Aluminum case
L = 151 ± 1.5 mm W = 95.5 ± 5 mm H = 23.0 ± 5 mm

Models with “-T” Suffix (Terminal Blocks)
Aluminum case
L = 151 ± 1.5 mm W = 95.5 ± 5 mm H = 23.0 ± 5 mm

Typical Applications
- Outdoor & Indoor
- Linear lighting
- Cove lights
- Strip lights
- Pendant lights
- Linear lighting
- Outdoor lighting
- Area lights
- Street lights
- High-bay lights
- Linear lighting
- Outdoor lighting
- Area lights
- Street lights
- High-bay lights

Table of Specifications

<table>
<thead>
<tr>
<th>ERP Part Number</th>
<th>Nominal Input Voltage (Vac)</th>
<th>Max. Output Power (W)</th>
<th>Iout 1 (mA)</th>
<th>Veat 1 (Vdc)</th>
<th>Iout 2 (mA)</th>
<th>Veat 2 (Vdc)</th>
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</thead>
<tbody>
<tr>
<td>CDB260W-080-600</td>
<td>120 &amp; 277</td>
<td>300</td>
<td>420</td>
<td>660 to 690</td>
<td>240</td>
<td>660 to 690</td>
</tr>
<tr>
<td>CDB260W-1300-600</td>
<td>220 to 240</td>
<td>300</td>
<td>600</td>
<td>1300 to 1600</td>
<td>400</td>
<td>600</td>
</tr>
</tbody>
</table>

1. To order the antenna option “Wire whip antenna”, add the suffix “-W”. Examples: CDB260W-080-600-W and CDB260W-1300-600-W.
2. To order the antenna option “Removable external antenna connected to FBMA”, add the suffix “-RF”. Example: CDB260W-080-600-RF.

For additional options of output current and output voltage, contact your sales representative or send an email to: SaveEnergy@ERP-Power.com

Typical Applications
- Linear lighting
- Cove lights
- Strip lights
- Pendant lights
- Outdoor lighting
- Area lights
- Street lights
- High-bay lights

Typical Applications
- Linear lighting
- Cove lights
- Strip lights
- Pendant lights
- Outdoor lighting
- Area lights
- Street lights
- High-bay lights

Typical Applications
- Linear lighting
- Cove lights
- Strip lights
- Pendant lights
- Outdoor lighting
- Area lights
- Street lights
- High-bay lights
**Nominal Input Voltage** | **Max. Output Power** | **Nominal Output Voltage** | **Max. Output Current** | **Efficiency** | **Max. Case Temperature** | **THD** | **Power Factor**
--- | --- | --- | --- | --- | --- | --- | ---
120 & 277 Vac | 90 W | 12, 24, 48 Vdc | 8, 4, 2 A | up to 90% typical | 85°C (measured at the hot spot) | < 20% | > 0.9

**Typical Application Diagram**

- Additional safety approvals when using the optional strain reliefs for models with the "-T" suffix.
- Worldwide safety approvals.
- UL Class P.
- Lifetime: 50,000 hours min. at 70°C case temperature.
- 90°C maximum case hot spot temperature.
- Complies with ENERGY STAR®, DLC (DesignLight Consortium®) and CA Title 24.
- IP20-rated case with silicone-based potting.
- Class II power supply per IEC 61347.
- Very high power density of 24 W/in.

**Features**

- "-T" suffix
- Extra safety approvals when using the optional strain reliefs for models with the "-T" suffix.
- Worldwide safety approvals.
- UL Class P.
- Lifetime: 50,000 hours min. at 70°C case temperature.
- 90°C maximum case hot spot temperature.
- Complies with ENERGY STAR®, DLC (DesignLight Consortium®) and CA Title 24.
- IP20-rated case with silicone-based potting.
- Class II power supply per IEC 61347.
- Very high power density of 24 W/in.

**Typical Applications**

- Strip lights
- Linear lighting
- Pendant lights
- Cove lights

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- 90°C maximum case hot spot temperature.
- Complies with ENERGY STAR®, DLC (DesignLight Consortium®) and CA Title 24.
- IP20-rated case with silicone-based potting.
- Class II power supply per IEC 61347.
- Very high power density of 24 W/in.

**Typical Applications**

- Strip lights
- Linear lighting
- Pendant lights
- Cove lights
### VLB260 SERIES  260 W

**Efficient, Compact, Constant Voltage LED Drivers**

- **Features**
  - Very high power density of 10.2 W/in³
  - UL Class P
  - IP66-rated case with silicone-based potting
  - 90°C maximum case temperature
  - Complies with ENERGY STAR® luminaire specification and DLC (DesignLight Consortium®) technical requirements

**Typical Application Diagram**

**Specifications**

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277 Vac</td>
<td>260 W</td>
<td>12, 24, 48 Vdc</td>
<td>21.6, 10.8, 5.4 A</td>
<td>up to 90% typical</td>
<td>50°C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.8</td>
</tr>
</tbody>
</table>

**ERP Part Number**

- VLB260W-12: 120 & 277 Vac, 260 W, 12 V, 21.67 A
- VLB260W-24: 120 & 277 Vac, 260 W, 24 V, 10.83 A
- VLB260W-48: 120 & 277 Vac, 260 W, 48 V, 5.42 A

**Typical Applications**

- Horticulture
- Industrial lights
- Outdoor and indoor

**Aluminum Case**

L: 214.4/240 x W: 50.8 x H: 38.5 mm  
(L: 8.44/9.47 x W: 2 x H: 1.52 in.)

### VGM SERIES  60 W - 90 W

**Efficient, Class 2 Constant Voltage LED Drivers for Signage Applications**

- **Features**
  - Class 2 power supply
  - IP66-rated case with silicone-based potting
  - Lifetime: 50,000 hours min. at 50°C ambient temperature
  - UL879 SAM (Sign Component Manual) listing
  - Surge protection: IEC61000-4-5: 6 kV line to line / 6 kV line to earth
  - 2.5 kV ringing wave: ANSI/IEEE c62.41.1-2002 & c62.41.2-2002 category A
  - Complies with ENERGY STAR®, DLC (DesignLight Consortium®) and CA Title 24 technical requirements

**Typical Application Diagram**

**Specifications**

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277 Vac</td>
<td>90 W</td>
<td>12, 24 Vac</td>
<td>5.375 A</td>
<td>up to 85% typical</td>
<td>90°C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.8</td>
</tr>
</tbody>
</table>

**ERP Part Number**

- VGM060W-12: 120 & 277 Vac, 60 W, 12 V, 5 A
- VGM100W-24: 120 & 277 Vac, 90 W, 24 V, 3.75 A

For additional options of output current and output voltage, contact your sales representative or send an email to: SaveEnergy@ERP-Power.com
### VIM SERIES 60 W - 90 W

**Efficient, Class 2 Constant Voltage LED Drivers**

- **Class 2 power supply**
- **IP66-rated case with silicone-based potting**
- **Complies with ENERGY STAR®, DLC (DesignLight Consortium®) and CA Title 24 technical requirements**
- **Lifetime: 50,000 hours min.**

#### Nominal Input Voltage | Max. Output Power | Nominal Output Voltage | Max. Output Current | Efficiency | Max. Case Temperature | THD | Power Factor
---|---|---|---|---|---|---|---
120 & 277 Vac | 90 W | 12, 24 V | 5.375 A | up to 90% | < 2% | > 0.9 |

#### Typical Applications
- **Signage**
- **Strip lights**

### xDrive™ 40 W - 100 W

**Constant Voltage LED Drivers with Integrated Dimmer for Single Gang Box Mount**

- **LED Driver + Dimmer in one physical unit**
- **Simplifies LED installation by eliminating compatibility issues between driver and dimmer**
- **Fits in a standard recessed electrical box (gang box)**
- **100% - 1% smooth dimming**
- **Single pole preset dimmer with on/off push switch**
- **Adjustable voltage output dial to address voltage drop**
- **Includes voltage barrier partition to install high and low voltage circuit in same gang box**
- **No derating required when ganging units**
- **Power failure memory: If power is interrupted, xDrive will return to the setting prior to interruption.**
- **The Glossy White color is the default color for the face plate and the trim plate. Other colors (Glossy Light Almond, Glossy Dark Brown, and Glossy Black) are available but sold separately**

#### Typical Application Diagram

- **100 W: Metal Case & Metal Wall Plate**
- **40 W & 60 W: Plastic Case & Metal Wall Plate**

#### Features
- **LED Driver + Dimmer in one physical unit**
- **Simplifies LED installation by eliminating compatibility issues between driver and dimmer**
- **Fits in a standard recessed electrical box (gang box)**
- **100% - 1% smooth dimming**
- **Single pole preset dimmer with on/off push switch**
- **Adjustable voltage output dial to address voltage drop**
- **Includes voltage barrier partition to install high and low voltage circuit in same gang box**
- **No derating required when ganging units**
- **Power failure memory: If power is interrupted, xDrive will return to the setting prior to interruption.**
- **The Glossy White color is the default color for the face plate and the trim plate. Other colors (Glossy Light Almond, Glossy Dark Brown, and Glossy Black) are available but sold separately**
PTB30/15 SERIES 15 W - 30 W
Programmable, Constant Current Class 2 / Class II
LED Drivers with Tri-Mode Dimming™ (TRIAC, ELV & 0-10 V)

Typical Application Diagram

Features
- SELV Class 2
- IP20-rated case with silicone-based potting
- 90°C maximum case hot spot temperature
- Ripple < 10% for each voltage range
- Fully programmable and selectable 0-10V dimming profiles: non-linear with dim-to-off, logarithmic, nonlinear without dim-to-off, linear, etc...
- Programmable conduction angles with turn-on and turn-off for TRIAC and ELV
- Data log read: SKU, S/N, lot code, hours of operation, FW rev., fault events: power failure, transients (short or surge), thermal

Programming
- Current: 100% to 50% in each voltage range
- Fully programmable and selectable 0-10V dimming profiles: non-linear with dim-to-off, logarithmic, nonlinear without dim-to-off, linear, etc...
- Programmable conduction angles with turn-on and turn-off for TRIAC and ELV
- Data log read: SKU, S/N, lot code, hours of operation, FW rev., fault events: power failure, transients (short or surge), thermal

Typical Applications
- Commercial lighting
- Architectural lighting
- Residential lighting
- Indoor lighting

NFC Programming
- Current: 100% to 50% in each voltage range
- Data log read: SKU, S/N, lot code, hours of operation, FW revision, fault events: power failure, transients (short or surge), thermal

DAL SERIES 30 W & 50 W
Constant Current, Class 2 / Class II
LED Drivers with DALI Dimming

Typical Application Diagram

Features
- Universal input voltage range
- Ripple < 10% for each voltage range
- Turn-on: ≤ 1% slew
- EMI: Compliant with FCC CFR Title 47 Part 15 Class B at 277 Vac and with CE EN55015 (CISPR 15) at 220, 230, and 240 Vac
- Safety, Compliance
- SELV Class 2, output, Class P
- CE, ENEC
- FCC, CE
- DALI, Device Type 4
- IP20-rated case with silicone-based potting
- 90°C maximum case hot spot temperature

NFC Programming
- Current: 100% to 50% in each voltage range
- Data log read: SKU, S/N, lot code, hours of operation, FW revision, fault events: power failure, transients (short or surge), thermal

Typical Applications
- Architectural lighting
- Residential lighting
- Indoor lighting

Technical Requirements
- UL Class P and Class 2 power supply
- Lifetime: 50,000 hours @ Tc = 75°C
- 80°C maximum case heat spot temperature
- IP20-rated case with silicone-based potting
- Surge protection:
  - IEC61000:4-5-2 kV line to line / 2 kV line to earth
  - 2.5 kV wrt enclosure: ANSI/IEEE c62.41.1-2002 & c62.41.2-2002 category A
- Standby power ≤ 0.5 W
- Auxiliary output 12 V / 100 mA
- Complies with ENERGY STAR®, DLC (DesignLight Consortium®) and CA Title 24 technical requirements
CNB50/30 SERIES
30 W - 50 W
LED Drivers with Integrated Bluetooth® Mesh

Typical Application Diagram

- **Flexible input voltage:** 120 & 277 Vac, 300 to 600 Vac
- **Max. Output Power:** 50 W
- **Nominal Input Voltage:** 120 & 277 Vac
- **Output Current:** 360 mA to 1.2 A
- **Max. Case Temperature:** 90°C (measured at the hot spot)
- **THD:** 107
- **Power Factor:** > 0.9
- **Dimming Method:** Bluetooth
- **Dimming Range:** 1-100%
- **Nominal Efficiency:** 1-100%
- **THD:** < 20%
- **Max. Case Temperature: up to 90% typical

Features
- **FCC, CE**
- **CB, ENEC**
- **UL: Class 2 output, Class P**
- **FCC, CE**

Programming
- **Current:** 100% to 50% in each voltage range
- **Data log read:** SKU, S/N, lot code, hours of operation, FW revision, fault events: power failure, transients (short or surge), thermal

Typical Application

- **Commercial lighting**
- **Architectural lighting**
- **Residential lighting**
- **Indoor lighting**

PNB100 SERIES
100 W
LED Drivers with 0-10 V Dimming

Typical Application Diagram

- **Input Voltage:** 200 to 230 Vac, 100 to 220 Vac
- **Nominal Input Voltage:** 200 to 230 Vac
- **Max. Output Power:** 100 W
- **Nominal Input Voltage:** 200 to 230 Vac
- **Output Current:** 360 mA to 1.2 A
- **Max. Case Temperature:** 90°C (measured at the hot spot)
- **THD:** > 0.9
- **Programmable 0-10 V**
- **Efficiency:** 36%
- **Dimming Range:** 1-100%
- **Nominal Efficiency:** 1-100%
- **THD:** < 20%

Features
- **Programmable 0-10 V dimming profile**
- **5.5 W standby**
- **Lifetime:** 5 years @ Tc = 30°C
- **50°C maximum case hot spot temperature**
- **Surge protection:**
  - *"F" models: 2 kW / 2 kW
  - *"G" models: 5 kW / 8 kW
  - 0.5 kW surge: ANSI/IEEE C62.41.1-2002 & C62.41.2-2002 category A
- **EMI:**
  - *"F" models: Compliant with FCC CFR Title 47 Part 15 Class B at 120 Vac & Class A at 277 Vac and with CE EN55015 (CISPR 15) at 220, 230, and 240 Vac
  - *"G" models: Compliant with FCC CFR Title 47 Part 15 Class A at 120 Vac & Class A at 277 Vac
- **Safety, Compliance:**
  - UL: Class 2 output, Class P
  - CE, ENEC
  - FCC, CE

Programming
- **Current:** 100% to 50% in each voltage range
- **Data log read:** SKU, S/N, lot code, hours of operation, FW revision, fault events: power failure, transients (short or surge), thermal
- **Fully programmable and selectable 0-10 V dimming profiles: Non-linear with dim-to-off, Logarithmic, Non-Linear without dim-to-off

For additional options of current output and output voltage, contact your sales representative or send an email to: SalesEurope@ERP-Project.com
### Features
- Class 2 power supply
- Class II power supply per IEC61347
- UL Class P
- Ripple ≤ 5% @ 20% & 100% load
- Constant voltage mode with over-current protection
- IP20-rated case with silicone-based potting
- 90°C maximum case hot spot temperature
- Lifetime: 5 years minimum at 70°C case temperature
- EMI: Compliant with FCC CFR Title 47 Part 15 Class B at 120 Vac & Class A at 277 Vac
- Surge protection:  
  - IEC61000-4-5: 2 kV line to line / 2 kV line to earth  
  - 2.5 kV ring wave: ANSI/IEEE c62.41.1-2002 & c62.41.2-2002 category A
- Complies with ENERGY STAR®, DLC (DesignLight Consortium®) and CA Title 24 technical requirements

### VZM SERIES  60 W - 90 W
Efficient, Compact, Constant Voltage, Class 2 / Class II
LED Drivers with 0-10 V Dimming

#### Nominal Input Voltage  
120 to 277 Vac

#### Max. Output Power  
90 W

#### Nominal Output Voltage  
12, 24, 48 Vac/W

#### Min. Output Current  
7.5A, 3.75, 1.9A

#### Efficiency  
up to 99% typical

#### Max. Case Temperature  
95°C (measured at the hot spot)

#### THD  
< 20%

#### Power Factor  
> 0.9

#### Dimming Method  
0-10 V

#### Dimming Range  
0-100%

#### Startup Time  
300 ms typical

#### Nominal Input Voltage (Vac)  
120 to 277

#### Pout Max (W)  
60.0

#### Vout Nom (Vac)  
12

#### lout Max (A)  
5.0

#### ERP Part Number

<table>
<thead>
<tr>
<th>Nominal Input Voltage (Vac)</th>
<th>Pout Max (W)</th>
<th>Vout Nom (Vac)</th>
<th>lout Max (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 to 277</td>
<td>60.0</td>
<td>12</td>
<td>5.0</td>
</tr>
<tr>
<td>120 to 277</td>
<td>60.0</td>
<td>24</td>
<td>2.5</td>
</tr>
<tr>
<td>120 to 277</td>
<td>60.0</td>
<td>48</td>
<td>1.25</td>
</tr>
<tr>
<td>120 to 277</td>
<td>60.0</td>
<td>12</td>
<td>7.5</td>
</tr>
<tr>
<td>120 to 277</td>
<td>60.0</td>
<td>24</td>
<td>3.75</td>
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<tr>
<td>120 to 277</td>
<td>60.0</td>
<td>48</td>
<td>1.87</td>
</tr>
<tr>
<td>120 to 277</td>
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<td>12</td>
<td>5.0</td>
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<td>60.0</td>
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</tr>
<tr>
<td>120 to 277</td>
<td>60.0</td>
<td>48</td>
<td>1.87</td>
</tr>
</tbody>
</table>

1. VZM100W-12 is not Class 2.

For additional options of output current and output voltage, contact your sales representative or visit our website: SaveEnergy@ERP-Power.com

### Models with Flying Leads, Aluminum Case (VZM100W)  
L: 150.2 x W: 38.8 x H: 24.9 mm  
(5.91 x 1.53 x 0.98 in.)
THE LUMENETIX BREAKTHROUGH

The replication and control of the range and beauty of daylight while ensuring color consistency from fixture-to-fixture over life, whether you use Tunable Color, Tunable White, LED Dimming or Halogen Dimming light paths. After all, Color is How You Light It™.

HIGHEST QUALITY TUNABLE WHITE LIGHT: araya® recreates daylight by mixing LED colors of the rainbow – red, amber, mint, cyan and blue – to deliver full spectrum light from 1650K to 8000K at 90+ CRI.

FULL COLOR ACCESS to millions of colors within the gamut area created by the five LEDs in the CIE color space, enabling tailored light from shades of pastels to saturates.

NATURAL DAYLIGHT EMULATION from sunrise through sunset – the light tracks the CIE Blackbody locus from 1650 - 4500K and then smoothly transitions to the Daylight Curve to 8000K.

FLICKER FREE LED DIMMING TO 0.1%* is enabled by a proprietary hybrid technology that maintains color consistency while dimming and operates at a frequency that allows flicker free video capture.

TRADITIONAL DIMMING RECREATED by emulating a halogen lamp from 3050K at full brightness to 1800K at 1%.

COLOR CONSISTENCY OF LESS THAN 2 MACADAM ELLIPSE OVER LIFE from fixture-to-fixture as verified by independent LM-84 testing – a corrective closed loop system and a predictive feedback algorithm resolve thermal droop and lumen depreciation for each LED.

IN THE BEST LIGHT™
araya® recreates and controls light that emulates the spectral quality of daylight. And, araya® accesses a rich gamut of pastels and saturated colors to unveil new design frontiers.

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THE DATA AND CONTROLS TELL THE STORY

TYPICAL SPD CURVE

**TYPICAL TM-30 DATA**

<table>
<thead>
<tr>
<th>CTM 2</th>
<th>TM-30 Data at 4000K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color Vector Graphic</td>
<td>Color Saturation Graphic</td>
</tr>
</tbody>
</table>

RI = 96; RG = 102; CRI Ra = 97

For additional color and performance information on our modules, please refer to [www.lumenetix.com](http://www.lumenetix.com).

**SAME GREAT FEATURES ACROSS ALL PRODUCT FAMILIES**

**COLOR TUNING MODULES & ARRAYS**

**DYNAMIC DIMMING MODULES & ARRAYS**

**ANALOG -** Two 0-10V lines can be used to control Dimming and CCT independently, or program Scenes — in any combination of Dimming, CCT, Saturation and Hue — and recall them with five 0-10V presets or the araya® iOS App.

**DIGITAL -** araya® is compatible with all industry-leading digital control systems.

**COMMISSION AND CONTROL EFFORTLESSLY**

**DIGITAL -** araya® is compatible with all industry-leading digital control systems.

**ANALOG -** Two 0-10V lines can be used to control Dimming and CCT independently, or program Scenes — in any combination of Dimming, CCT, Saturation and Hue — and recall them with five 0-10V presets or the araya® iOS App.

**PROTOCOL**

<table>
<thead>
<tr>
<th>DMX512-A-RDM</th>
<th>0 - 10V</th>
<th>LUTRON ECO SYSTEM</th>
<th>DALI TYPE 8</th>
<th>WATTSTOPPER DLM</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIMMING (100 - 0.1%)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>0 - 10V</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>LUTRON ECO SYSTEM</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>DALI TYPE 8</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>WATTSTOPPER DLM</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**DIMMING (100 - 0.1%)**

- CTM - For CTM (1650 - 8000K)
- CCT - For DDM (3050 - 1800K)

**CCT -**

- For CTM (1650 - 8000K)
- For DDM (3050 - 1800K)

**SATURATION (1 - 100%)**

- For CTM
- For DDM

**HUE (1 - 60°)**

- For CTM
- For DDM

**TYPICAL SPD CURVE**

**TYPICAL TM-30 DATA**

**CTM 2**

<table>
<thead>
<tr>
<th>SPD at 4000K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color Vector Graphic</td>
</tr>
</tbody>
</table>

RI = 96; RG = 102; CRI Ra = 97

**Flicker Free Dimming**

- eFlicker Free to 0.1%
- 0.1% Dimming is available for specific modules/arrays when connected to 0.1% dimming-capable digital controls. 100 - 1% dimming is available with analog 0 - 10V control and for Dynamic Dimming Modules (DDM).

**Two 0-10V lines can be used to control Dimming and CCT independently, or program Scenes — in any combination of Dimming, CCT, Saturation and Hue — and recall them with five 0-10V presets or the araya® iOS App.**

**Bluetooth LE**

- Bluetooth LE is provided on board for commissioning purposes only.
- Bluetooth LE is provided on board for commissioning purposes only.

**DC**

- Used in conjunction with Digital or Analog controls, each module can be wirelessly commissioned and then the radio turns off for enhanced security.

**COLOR TUNING MODULES & ARRAYS**

<table>
<thead>
<tr>
<th>CTM 1</th>
<th>CTM 2</th>
<th>LTM 2</th>
<th>DDM 1</th>
<th>DDM 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEAK DELIVERED LUMENS</td>
<td>550 - 2000</td>
<td>990 - 9000</td>
<td>1000 lumen/ft</td>
<td>480 - 1850</td>
</tr>
<tr>
<td>NOMINAL WATTAGE (W)</td>
<td>12 - 35</td>
<td>20 - 120</td>
<td>10 watts/ft</td>
<td>12 - 35</td>
</tr>
<tr>
<td>CRI</td>
<td>90+</td>
<td>90+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COLOR GAMUT ACCESS</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIMMING THRESHOLD</td>
<td>0.1%*</td>
<td>1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>eFlicker Free Dimming</td>
<td>Yes*</td>
<td>Yes*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COLOR ACCURACY</td>
<td>Less than 2 SDCM</td>
<td>Less than 2 SDCM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOMINAL LES (mm)</td>
<td>9, 12, 19</td>
<td>9, 12, 19, 32, 41</td>
<td>9, 12, 19</td>
<td>9, 12, 19, 32, 41</td>
</tr>
<tr>
<td>DIAMETER (mm)</td>
<td>50</td>
<td>40, 50, 60, 70</td>
<td>50</td>
<td>40, 50, 60, 70</td>
</tr>
<tr>
<td>LINEAR ARRAY LENGTH (in)</td>
<td>11, 22, 24</td>
<td>Top or Bottom</td>
<td>Symmetrical, Asymmetrical</td>
<td></td>
</tr>
<tr>
<td>CONTROL OPTIONS</td>
<td>DMX512-A-RDM</td>
<td>Lutron® Ecosys</td>
<td>DALI Type B WSL</td>
<td>DMX512-A-RDM</td>
</tr>
<tr>
<td>0 - 10V</td>
<td>Lutron® Ecosystem®</td>
<td>DALI Type B WSL</td>
<td>Lutron® Ecosystem®</td>
<td>Lutron® Ecosystem®</td>
</tr>
<tr>
<td>LUTRON ECO SYSTEM</td>
<td>DALI Type B WSL</td>
<td>Lutron® Ecosystem®</td>
<td>DALI Type B WSL</td>
<td>Lutron® Ecosystem®</td>
</tr>
</tbody>
</table>

**DMX512-A-RDM**

- 0 - 10V
- Lutron® Ecosystem®
- DALI Type B WSL
- WATTSTOPPER DLM

**Lutron® Ecosystem®**

- 0 - 10V
- Lutron® Ecosystem®
- DALI Type B WSL
- WATTSTOPPER DLM

**WATTSTOPPER DLM**

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