Programmable & Dimmable LED Drivers

Revision: March 2022
Our Target Markets

- Indoor Residential and Commercial lighting
- Outdoor street and area lighting
- Office lighting
- Warehouses, manufacturing facilities, and Large retail store application
- Parking garages
- Architectural lighting
- Display / Signage
- Stage Lighting (entertainment, concert)
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

Our Presence
ERP Manufacturing

ERP products are manufactured in our wholly owned manufacturing facility in Zuhai, 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 9001:2015 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

- Supplier Quality Assurance / Incoming Quality Control
  - Supplier management
  - Material control

- 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.
Best-In-Class Dimming

Forward-phase (TRIAC or leading-edge) and reverse-phase (ELV or trailing-edge)

Tri-Mode Dimming™
The majority of our LED drivers are compatible with Tri-Mode Dimming™ from 6 W up to 160 W, i.e. they are compatible with forward-phase (TRIAC or leading-edge), reverse-phase (ELV or trailing-edge) and 0–10 V dimmers.

Broad Dimming Compatibility
ERP LED drivers deliver an extensive dimmer compatibility. For each LED driver, a dimming compatibility matrix is available upon request, showing how the LED driver scores against a long list of dimmers according to several criteria such as: flicker, shimmer, smooth dimming, no flash at startup, etc.

Power Density

Highest Power Density in the industry
The new patent-pending power electronics design delivers more than double the density of the previous generation ERP platform, while delivering 5 times the power density of current industry competitors.
LED Cross-Reference

ERP has developed an extensive cross-reference for 10 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 10 LED manufacturers whose LEDs have been cross-referenced to some of our LED drivers.

<table>
<thead>
<tr>
<th>BridgeLux</th>
<th>Citizen</th>
<th>Cree</th>
</tr>
</thead>
<tbody>
<tr>
<td>LG Innotek</td>
<td>Samsung</td>
<td>Luminus</td>
</tr>
<tr>
<td>Nichia</td>
<td>Lumileds</td>
<td>Xicato</td>
</tr>
<tr>
<td>Seoul</td>
<td></td>
<td></td>
</tr>
</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.
**PSB SERIES** 30 W – 50 W

Programmable, Constant Current, Class 2 / Class II LED Drivers with Tri-Mode Dimming™ (TRIAC, ELV and 0–10 V)

**Features**
- Non-linear 0–10 V dimming profile with dim-to-off pre-loaded by default (10 V to 9.0 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
- IP20-rated case with silicone-based potting
- No TRIAC/ELV dimming for PSBXXE models, only 0–10 V dimming
- 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

**Typical Application Diagram**

**Nominal Input Voltage**

<table>
<thead>
<tr>
<th>Nominal Input Voltage</th>
<th>Max. Output Power</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>Startup Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277 Vac, 220–240 Vac</td>
<td>50 W</td>
<td>up to 90% typical</td>
<td>90 °C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.9</td>
<td>Forward-Phase, Reverse-Phase, &amp; Programmable 0–10 V</td>
<td>1–100% (% of Iout)</td>
<td>300 ms typical</td>
</tr>
</tbody>
</table>

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

**ERP Part Number**

<table>
<thead>
<tr>
<th>ERP Part Number</th>
<th>Nominal Input Voltage (Vac)</th>
<th>Max. Output Power (W)</th>
<th>Iout (mA)</th>
<th>Vout Min. (Vdc)</th>
<th>Vout Nom. (Vdc)</th>
<th>Vout Max. (Vdc)</th>
<th>Open Loop (No Load) Voltage (Vdc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSB30W-0700-42</td>
<td>120 &amp; 277 29.4 350 to 700</td>
<td>28 37.8 42 50</td>
<td>120 &amp; 277 28.4 525 to 1050</td>
<td>18 24.3 27 35</td>
<td>120 &amp; 277 23.8 350 to 700</td>
<td>23 30.6 34 44.2</td>
<td>300 ms typical</td>
</tr>
<tr>
<td>PSB30E-0700-42</td>
<td>220–240 29.4 350 to 700</td>
<td>28 37.8 42 50</td>
<td>220–240 28.4 525 to 1050</td>
<td>18 24.3 27 35</td>
<td>220–240 23.8 350 to 700</td>
<td>23 30.6 34 44.2</td>
<td>300 ms typical</td>
</tr>
<tr>
<td>PSB50W-0550-85</td>
<td>120 &amp; 277 46.8 275 to 550</td>
<td>57 76.5 85 100</td>
<td>120 &amp; 277 47.6 425 to 850</td>
<td>38 50.4 56 60</td>
<td>120 &amp; 277 46.8 275 to 550</td>
<td>57 76.5 85 100</td>
<td>300 ms typical</td>
</tr>
<tr>
<td>PSB50E-0550-85</td>
<td>220–240 46.8 275 to 550</td>
<td>57 76.5 85 100</td>
<td>220–240 47.6 425 to 850</td>
<td>38 50.4 56 60</td>
<td>220–240 46.8 275 to 550</td>
<td>57 76.5 85 100</td>
<td>300 ms typical</td>
</tr>
<tr>
<td>PSB30E-0700-42-T</td>
<td>120 &amp; 277 29.4 350 to 700</td>
<td>28 37.8 42 50</td>
<td>120 &amp; 277 28.4 525 to 1050</td>
<td>18 24.3 27 35</td>
<td>120 &amp; 277 23.8 350 to 700</td>
<td>23 30.6 34 44.2</td>
<td>300 ms typical</td>
</tr>
<tr>
<td>PSB50E-0550-85-T</td>
<td>120 &amp; 277 46.8 275 to 550</td>
<td>57 76.5 85 100</td>
<td>120 &amp; 277 47.6 425 to 850</td>
<td>38 50.4 56 60</td>
<td>120 &amp; 277 46.8 275 to 550</td>
<td>57 76.5 85 100</td>
<td>300 ms typical</td>
</tr>
<tr>
<td>PSB30E-1050-27-T</td>
<td>120 &amp; 277 28.4 525 to 1050</td>
<td>23 30.6 34 44.2</td>
<td>220–240 28.4 525 to 1050</td>
<td>18 24.3 27 35</td>
<td>220–240 23.8 350 to 700</td>
<td>23 30.6 34 44.2</td>
<td>300 ms typical</td>
</tr>
<tr>
<td>PSB50E-1200-42-T</td>
<td>120 &amp; 277 50.4 600 to 1200</td>
<td>28 37.8 42 50</td>
<td>120 &amp; 277 50.4 600 to 1200</td>
<td>28 37.8 42 50</td>
<td>120 &amp; 277 50.4 600 to 1200</td>
<td>28 37.8 42 50</td>
<td>300 ms typical</td>
</tr>
<tr>
<td>PSB50E-1400-34-T</td>
<td>120 &amp; 277 47.6 700 to 1400</td>
<td>23 30.6 34 44.2</td>
<td>120 &amp; 277 47.6 700 to 1400</td>
<td>23 30.6 34 44.2</td>
<td>120 &amp; 277 50.4 600 to 1200</td>
<td>28 37.8 42 50</td>
<td>300 ms typical</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
**High Performance, Programmable, Constant Current, Class 2 / Class II LED Drivers with Tri-Mode Dimming™ (TRIAC, ELV and 0–10 V)**

**Features**

- Ripple < 10% @ 20% & 100% load for TRIAC, ELV, and 0–10 V
- Turn-on at 1% Iout for TRIAC, ELV, and 0–10 V dimming
- Programmable conduction angles with turn-on & turn-off for TRIAC & ELV
- Programmable 0–10 V dimming profile
- Non-linear 0–10 V dimming profile with dim-to-off pre-loaded by default (10 V to 9.0 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
- 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 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

**Typical Applications**

- Commercial lighting
- Architectural lighting
- Residential lighting
- Indoor Lighting

---

**Typical Application Diagram**

**Nominal Input Voltage | Max. Output Power | Efficiency | Max. Case Temperature | THD | Power Factor | Dimming Method | Dimming Range | Startup Time**

| 120 & 277 Vac | 50 W | 90% typical (measured at the hot spot) | < 20% | > 0.9 | Programmable Forward-Phase, Reverse-Phase, & 0–10 V | 1–100% (% of Iout) | 300 ms typical |

**ERP Part Number | Nominal Input Voltage (Vac) | Max. Output Power (W) | Iout (mA) | Vout Min. (Vdc) | Vout Nom. (Vdc) | Vout Max. (Vdc) | Open Loop (No Load) Voltage (Vdc)**

| PHB30W-0500-42 | 21.0 | 250 to 500 | 28 | 37.8 | 42 | 50 |
| PHB30W-0700-42 | 29.4 | 350 to 700 | 28 | 37.8 | 42 | 50 |
| PHB30W-0500-42-S | 21.0 | 250 to 500 | 28 | 37.8 | 42 | 50 |
| PHB30W-0700-42-S | 29.4 | 350 to 700 | 28 | 37.8 | 42 | 50 |
| PHB50W-0850-56 | 47.6 | 425 to 850 | 38 | 50.4 | 56 | 60 |
| PHB50W-1200-42 | 50.4 | 600 to 1200 | 28 | 37.8 | 42 | 50 |
| PHB50W-0850-56-S | 47.6 | 425 to 850 | 38 | 50.4 | 56 | 60 |
| PHB50W-1200-42-S | 50.4 | 600 to 1200 | 28 | 37.8 | 42 | 50 |

For additional options of output current and output voltage, contact your sales representative or send an email to: SaveEnergy@ERP-Power.com
PTB SERIES  10 W – 30 W
Programmable, Constant Current, Class 2
LED Drivers with Enhanced Tri-Mode Dimming™ (TRIAC, ELV & 0–10 V)

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

**ERP Part Number**

<table>
<thead>
<tr>
<th>Input Voltage (Vac)</th>
<th>Max. Output Power (W)</th>
<th>Efficiency</th>
<th>Max. Case Temperature (°C)</th>
<th>THD</th>
<th>Power Factor</th>
<th>Dimming Method</th>
<th>Dimming Range</th>
<th>Startup Time (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>120–277</td>
<td>30</td>
<td>up to 90% typical</td>
<td>90°C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.9</td>
<td>Programmable Forward-Phase, Reverse-Phase, &amp; 0–10 V</td>
<td>1–100% (% of Iout)</td>
<td>300 ms typical</td>
</tr>
</tbody>
</table>

**Features**
- UL Class 2 power supply
- Lifetime: 50,000 hours @ Tc = 75°C
- 90°C maximum case hot 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 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
- Meets IEEE 1789-2015 “no impact” recommended practices for flicker
- Mounting clips for multiple mounting methods

**Typical Application Diagram**

**Programming**
- Audio jack programming
- Current: 100% to 60% in each voltage range
- 0–10 V dimming profiles: linear, non-linear, logarithmic
- 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., power cycles

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

**Notes:**
- Models with the “-Z1” and “ZN” suffix feature dim-to-off and exhibit a default non-linear 0–10 V dimming profile: 10 V to 8.2 V = 100%, 1.5 V to 0.7 V = 1%, dim-to-off < 0.7. Dim-to-off is only available on “-Z1” and “-ZN” model numbers.
- By default, each PTB series driver is shipped with 2 metal mounting clips. Additional mounting clips can be ordered separately using the part number PTB-CLIPS-100 or PTB-CLIPS-1K.

For additional options of output current and output voltage, contact your sales representative or send an email to: SaveEnergy@ERP-Power.com
Programmable, Constant Current, Class 2 LED Drivers with Enhanced Tri-Mode Dimming™ (TRIAC, ELV & 0–10 V)

**PSS30 SERIES  30 W**

**Features**
- UL Class 2 power supply
- Lifetime: 50,000 hours @ Tc = 75°C
- 90°C maximum case hot 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 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

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

**Programming**
- Audio jack programming
- Current: 100% to 60% in each voltage range
- 0–10 V dimming profiles: linear, non-linear, logarithmic
- 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., power cycles
Features

- Universal input voltage range
- Ripple < 10% @ 20% & 100% load
- Turn-on: @ 1% Iout
- EMI: Compliant with FCC CFR Title 47 Part 15 Class B at 120 V ac & Class A at 277 Vac and with CE EN55015 (CISPR 15) at 220, 230, and 240 Vac
- Safety, Compliance
  - UL: Class 2 output, Class P
  - CB, CE
  - FCC, ENEC
  - DALI2, Device Type 6 (Parts 101, 102, 207)
- IP20-rated case with silicone-based potting
- Lifetime: 50,000 hours min. at 75 °C case temperature
- Class II power supply
- 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 rev., power cycles
CNB SERIES 30 W – 50 W
Programmable, Constant Current, Class 2
LED Drivers with Bluetooth® Wireless Dimming

Typical Applications
• Commercial lighting
• Architectural 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 rev., power cycles

Features
• UL Class P
• Class 2 power supply
• Lifetime: 50,000 hours @ Tc ≤ 75 °C
• 90 °C maximum case hot spot temperature
• IP20-rated case with silicone-based potting
• Surge protection:
  • IEC81000-4-5: 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

Typical Application Diagram

<table>
<thead>
<tr>
<th>ERP Part Number</th>
<th>Nominal Input Voltage (Vac)</th>
<th>Max. Output Power (W)</th>
<th>Iout (mA)</th>
<th>Min. Vout (Vdc)</th>
<th>Max. Vout (Vdc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNB30W-21-30-SIL</td>
<td>120 &amp; 277</td>
<td>21.5</td>
<td>500</td>
<td>22</td>
<td>30</td>
</tr>
<tr>
<td>CNB30W-30-60-SIL</td>
<td>120 &amp; 277</td>
<td>30.0</td>
<td>600</td>
<td>28</td>
<td>42</td>
</tr>
</tbody>
</table>

“-SIL” suffix: Rigado BMD-300/1 Bluetooth Mesh module with Silvair Bluetooth firmware, with wire whip antenna, Side Leads case

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

<table>
<thead>
<tr>
<th>Nominal Input Voltage (Vac)</th>
<th>Max. Output Power (W)</th>
<th>Output Current</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>Startup Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277</td>
<td>50 W</td>
<td>300 mA to 1200 mA</td>
<td>up to 90% typical</td>
<td>90 °C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.9</td>
<td>Bluetooth</td>
<td>1–100%</td>
<td>300 ms typical</td>
</tr>
</tbody>
</table>

ERP Part Number | Nominal Input Voltage (Vac) | Max. Output Power (W) | Iout (mA) | Vout Min. (Vdc) | Vout Max. (Vdc) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CNB30W-21-30-SIL</td>
<td>120 &amp; 277</td>
<td>21.5</td>
<td>500</td>
<td>22</td>
<td>30</td>
</tr>
<tr>
<td>CNB30W-30-60-SIL</td>
<td>120 &amp; 277</td>
<td>30.0</td>
<td>600</td>
<td>28</td>
<td>42</td>
</tr>
</tbody>
</table>

“-SIL” suffix: Rigado BMD-300/1 Bluetooth Mesh module with Silvair Bluetooth firmware, with wire whip antenna, Side Leads case

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

Nominal Input Voltage | Max. Output Power | Output Current | Efficiency | Max. Case Temperature | THD | Power Factor | Dimming Method | Dimming Range | Startup Time |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277</td>
<td>50 W</td>
<td>300 mA to 1200 mA</td>
<td>up to 90% typical</td>
<td>90 °C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.9</td>
<td>Bluetooth</td>
<td>1–100%</td>
<td>300 ms typical</td>
</tr>
</tbody>
</table>
CNB SERIES 30 W – 50 W
Programmable, Constant Current, Class 2 LED Drivers with Integrated Bluetooth® Mesh

<table>
<thead>
<tr>
<th>Nominal Input Voltage</th>
<th>Max. Output Power</th>
<th>Output Current</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>Startup Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277 Vac</td>
<td>50 W</td>
<td>300 mA to 1200 mA</td>
<td>up to 90% typical</td>
<td>90 °C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.9</td>
<td>Bluetooth</td>
<td>1–100%</td>
<td>300 ms typical</td>
</tr>
</tbody>
</table>

Typical Application Diagram

CNB-CAS Series
+ LEDs
- LEDs
Bluetooth Module
Casambi App

NFC Programming
- Current: 100% to 50% in each voltage range
- Data log read: SKU, S/N, lot code, hours of operation, FW rev., power cycles

Casambi Bluetooth Mesh Solution
- Wireless lighting controls with simple set-up that anyone can use
- Pre-integrated Bluetooth mesh module enables brands to create multi-way controls and switching without additional wiring; no central gateway required
- Secure, reliable mobile app & software
- Dimming, grouping, many users, schedules, timers
- Virtually unlimited range with mesh
- Download for free; additional services available

Features
- UL Class P
- Class 2 power supply
- Lifetime: 50,000 hours @ Tc ≤ 75 °C
- 90 °C maximum case hot 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 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

Typical Applications
- Commercial lighting
- Indoor lighting
- Architectural lighting

Typical Application Diagram

 ERP Part Number | Nominal Input Voltage (Vac) | Max. Output Power (W) | Iout (mA) | Vout Min. (Vdc) | Vout Max. (Vdc) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CNB30W-3000-42-CAS</td>
<td>120 &amp; 277</td>
<td>300</td>
<td>28</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>CNB50W-1200-42-CAS</td>
<td>120 &amp; 277</td>
<td>1200</td>
<td>28</td>
<td>42</td>
<td></td>
</tr>
</tbody>
</table>

*“-CAS” Suffix: With Casambi Bluetooth firmware, wire whip antenna, Side Leads case
For additional options of output current and output voltage, contact your sales representative or send an email to: SaveEnergy@ERP-Power.com
PKB SERIES  30 W – 65 W
Programmable, Constant Current Class 2
LED Drivers with 0–10 V Dimming

<table>
<thead>
<tr>
<th>Input Voltage</th>
<th>Max. Output Power</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>Startup Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>120–277 V·a·c</td>
<td>65 W</td>
<td>86% typical</td>
<td>90 °C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.9</td>
<td>Programmable 0–10 V</td>
<td>1–100% (% of Iout)</td>
<td>300 ms typical</td>
</tr>
</tbody>
</table>

Typical Application Diagram

Features
- UL Class P
- Class 2 output
- Lifetime: 5 years @ Tc ≤ 75 °C
- 20% maximum ripple current
- 90°C maximum case hot spot temperature
- 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

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

Terminal Blocks, Aluminum Case
L 257 x W 29.4 x H 25.1 mm
(L 10.12 x W 1.16 x H 0.99 in.)

Programming
- Audio jack programming
- 0–10 V dimming profiles: linear, non-linear, logarithmic
- Data log read: SKU, S/N, lot code, hours of operation, FW rev., power cycles

ERP Part Number | Input Voltage (Vac) | Max. Output Power (W) | Iout (mA) | Vout Min. (Vdc) | Vout Nom. (Vdc) | Vout Max. (Vdc) | Open Loop (No Load) Voltage (Vdc) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PKB30W</td>
<td>120–277</td>
<td>30</td>
<td>275 to 1050</td>
<td>10</td>
<td>49.5</td>
<td>55</td>
<td>60</td>
</tr>
<tr>
<td>PKB50W</td>
<td>120–277</td>
<td>50</td>
<td>455 to 1400</td>
<td>10</td>
<td>49.5</td>
<td>55</td>
<td>60</td>
</tr>
<tr>
<td>PKB65W</td>
<td>120–277</td>
<td>65</td>
<td>591 to 1800</td>
<td>10</td>
<td>49.5</td>
<td>55</td>
<td>60</td>
</tr>
</tbody>
</table>

Suffix for the different options:
1. ^-TD": Terminal Blocks, 0–10 V circuit isolation from DC output and AC input
2. ^-TN": Terminal Blocks, 0–10 V circuit isolation from AC input

For additional options of output current and output voltage, contact your sales representative or send an email to: SaveEnergy@ERP-Power.com
Programmable, Constant Current Class 2
LED Drivers with 0–10 V Dimming

PKM SERIES  30 W – 50 W

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

**Features**
- UL Class P
- Class 2 output
- Lifetime: 5 years @ Tc ≤ 75 °C
- External NTC (negative temperature coefficient) functionality
- 90°C maximum case hot spot temperature
- 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

**Typical Application Diagram**

**Programming**
- Audio jack programming
- NTC derating profile
- 0–10 V dimming profiles: linear, non-linear, logarithmic
- Data log read: SKU, S/N, lot code, hours of operation, FW rev., power cycles

**Typical Applications**
- Commercial lighting
- Architectural lighting
- Residential lighting
- Indoor lighting
**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
- 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 (IP66 for ESST) case with silicone-based potting
- 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 (120 Vac) and Class A (277 Vac), and EN55015 (CISPR 15) at 220, 230, and 240 Vac
- Complies with ENERGY STAR®, DLC (DesignLight Consortium®) and CA Title 24 technical requirements

### ERP Part Number

<table>
<thead>
<tr>
<th>Nominal Input Voltage (Vac)</th>
<th>外壳温度 (0 °C)</th>
<th>Power Factor</th>
<th>THD</th>
<th>Efficiency</th>
<th>Max. Output Power (W)</th>
<th>Output Voltage Range (Vac)</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277</td>
<td>180 °C</td>
<td>&gt; 0.9</td>
<td>&lt; 20%</td>
<td>1–100% (%) of load</td>
<td>180 mA to 2.1 A</td>
<td>up to 87% typical</td>
</tr>
</tbody>
</table>

**Typical Applications**

- Indoor & Outdoor
- Commercial lighting
- Architectural lighting
- Recessed lighting (downlights)
- Residential lighting
- Office Lighting
**ESSV SERIES  11 W – 40 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</th>
<th>Output Voltage</th>
<th>Output Current</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>Startup Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277 Vac</td>
<td>40 W</td>
<td>20 to 42 Vdc</td>
<td>250 mA to 1.4 A</td>
<td>up to 87% typical</td>
<td>90 °C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.9</td>
<td>Forward-Phase, Reverse-Phase, &amp; 0–10 V</td>
<td>1–100% (% of Iout)</td>
<td>400 ms</td>
</tr>
</tbody>
</table>

**ESSV015W:** 11–15 W

- ESSV015W-0300-42
  - 120 & 277 300 12.6 24 42

- ESSV015W-0700-42
  - 120 & 277 700 29.4 24 42

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

**ESSV SERIES**

- **Dimmer-**
  - Triac
  - ELV
  - 0–10 V

**Features**

- Same features as ESS/ESST series but with 5 VA flammability, UL Class P and a thermally-enhanced plastic case
- Compatible with TRIAC (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)
- IP66-rated thermally-enhanced case with silicone-based potting
- 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 (120 Vac) and Class A (277 Vac)
- Complies with ENERGY STAR®, DLC (DesignLight Consortium®) & CA Title 24 technical requirements

**Typical Applications**

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

**Typical Application Diagram**

- ESSV Series
- 0–10 V DIMMER

**Plastic Case**

L 84 x W 40 x H 27 mm

(L 3.30 x W 1.57 x H 1.06 in.)
**Features**

- Compatible with industry standard phase-cut dimmers: TRIAC (forward-phase or leading-edge) and ELV (reverse-phase or trailing-edge)
- Lifetime: 50,000 hours at 70 °C case hot spot temperature (some models have higher lifetime. Check lifetime curves in spec sheet)
- 90 °C maximum case hot spot temperature
- Low acoustic noise of 20 dBA
- Class 2 power supply
- 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 at 120 Vac and EN55015 (CISPR 15) at 220, 230 and 240 Vac
- Complies with ENERGY STAR®, DLC (DesignLight Consortium®) and CA Title 24 technical requirements
- IP20-rated case with silicon-based potting

**Typical Applications**

- Recessed lighting (downlights)
- Architectural lighting
- Commercial lighting
- Residential lighting

---

### Nominal Input Voltage and Max. Output Power

<table>
<thead>
<tr>
<th>ERP Part Number</th>
<th>Nominal Input Voltage (Vac)</th>
<th>Iout (mA)</th>
<th>Max. Output Power (W)</th>
<th>Output Voltage Range (Vdc)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>120 VAC NOMINAL INPUT VOLTAGE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EBR010U-0200-42</td>
<td>120, 220–240</td>
<td>200</td>
<td>8.4</td>
<td>30 to 42</td>
</tr>
<tr>
<td>EBR010U-0250-42</td>
<td>120, 220–240</td>
<td>250</td>
<td>10.5</td>
<td>30 to 42</td>
</tr>
<tr>
<td>EBR010U-0440-24</td>
<td>120, 220–240</td>
<td>440</td>
<td>16.6</td>
<td>16 to 24</td>
</tr>
<tr>
<td><strong>EBR015U: 11–15 W</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EBR015U-0300-42</td>
<td>120, 220–240</td>
<td>300</td>
<td>12.6</td>
<td>30 to 42</td>
</tr>
<tr>
<td>EBR015U-0350-42</td>
<td>120, 220–240</td>
<td>350</td>
<td>14.7</td>
<td>30 to 42</td>
</tr>
<tr>
<td>EBR015U-0440-36</td>
<td>120, 220–240</td>
<td>440</td>
<td>15.8</td>
<td>24 to 36</td>
</tr>
<tr>
<td><strong>EBR020U: 16–21 W</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EBR020U-0400-42</td>
<td>120, 220–240</td>
<td>400</td>
<td>16.8</td>
<td>30 to 42</td>
</tr>
<tr>
<td>EBR020U-0500-32</td>
<td>120, 220–240</td>
<td>500</td>
<td>16.0</td>
<td>21 to 32</td>
</tr>
<tr>
<td>EBR020U-0500-37</td>
<td>120, 220–240</td>
<td>500</td>
<td>18.5</td>
<td>25 to 37</td>
</tr>
<tr>
<td>EBR020U-0500-42</td>
<td>120, 220–240</td>
<td>500</td>
<td>21.0</td>
<td>30 to 42</td>
</tr>
<tr>
<td>EBR020U-0700-30</td>
<td>120, 220–240</td>
<td>700</td>
<td>21.0</td>
<td>20 to 30</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
ESM SERIES  10 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</th>
<th>Output Voltage</th>
<th>Output Current</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>Startup Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277 Vac</td>
<td>60 W</td>
<td>8 to 56 Vdc</td>
<td>280 mA to 1.4 A Constant Current</td>
<td>up to 87%</td>
<td>90 °C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.9</td>
<td>Forward-Phase, Reverse-Phase, &amp; 0–10 V</td>
<td>1–100% (% of Iout)</td>
<td>400 ms</td>
</tr>
</tbody>
</table>

Typical Application Diagram

Features

- Compatible with TRIAC (forward-phase or leading-edge), ELV (reverse-phase or trailing-edge) and 0–10 V dimmers
- TRIAC and ELV dimming only at 120 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
- 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 (120 Vac) and Class A (277 Vac)
- Complies with ENERGY STAR®, DLC (DesignLight Consortium®) & CA Title 24 technical requirements
- Worldwide safety approvals

Typical Applications

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

For additional options of output current and output voltage, contact your sales representative or send an email to: SaveEnergy@ERP-Power.com
EVM SERIES  60 W – 100 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</th>
<th>Output Voltage</th>
<th>Output Current</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>Startup Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277 Vac</td>
<td>100 W</td>
<td>30 to 84 Vdc</td>
<td>1.4 to 2.35 A Constant Current</td>
<td>up to 87% typical</td>
<td>90 °C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.9</td>
<td>Forward-Phase, Reverse-Phase, &amp; 0–10 V</td>
<td>1–100% (% of Iout)</td>
<td>400 ms</td>
</tr>
</tbody>
</table>

Typical Application Diagram

Features
- Compatible with TRIAC (forward-phase or leading-edge), ELV (reverse-phase or trailing-edge) and 0–10 V dimmers
- TRIAC and ELV dimming only at 120 Vac
- Outdoor surge protection: 3 kV line to line / 6 kV line to earth
- Linear 0–10 V dimming transfer function: 10 V = 100%, 1 V = 10%, 0.1 V = 1%
- Optional non-linear 0–10 V dimming profile with dim-to-off
- Lifetime: 50,000 hours at 70 °C case temperature
- 90 °C maximum case hot spot temperature
- Class 2 power supply (only some models)
- IP20-rated Bottom Leads with Studs metal case with silicone-based potting. Optional IP64 metal case with side leads
- 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 (120 Vac) and Class A (277 Vac)
- Complies with ENERGY STAR® luminaire specification and DLC (DesignLight Consortium®) technical requirements
- Worldwide safety approvals

Typical Applications
- High Bay Lights
- Tunnels & Street lighting
- Outdoor LED Lighting
- Industrial LED Lighting
- Metal Halide replacements
- Wide-area downlights
- Suitable for driving high current COB LEDs such as Cree’s CXA3050/3070/3590 and Bridgelux’s Vero series, and modules such as Cree’s LMH2 6000/8000

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

- **NOT RECOMMENDED FOR NEW DESIGNS. FOR NEW DESIGNS, USE THE ESPT SERIES.**
- Compatible with TRIAC (forward-phase or leading-edge), ELV (reverse-phase or trailing-edge) and 0–10 V dimmers
- ESPxxxx: only 0–10 V dimming at 277 Vac
- ESPxxxxE models: only ELV dimming
- 90 °C maximum case hot spot temperature (some models have higher lifetime. Check lifetime curves in spec sheet)
- Class 2 power supply
- Lifetime: 50,000 hours at 70 °C case hot spot temperature
- IP66-rated case with silicone-based potting
- 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 (120 Vac) and Class A (277 Vac), and EN55015 (CISPR 15) 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**
- **Residential lighting**
- **Office Lighting**

---

### Typical Application Diagram

![Diagram of ESP Series LED driver with TRIAC/ELV dimmer and 0-10 V dimmer connections.]

---

### Product Specifications

<table>
<thead>
<tr>
<th>Nominal Input Voltage</th>
<th>Max. Output Power</th>
<th>Output Voltage</th>
<th>Output Current</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>Startup Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277 Vac, 220–240 Vac</td>
<td>60 W</td>
<td>21 to 56 Vdc</td>
<td>700 mA to 1.4 A</td>
<td>up to 87% typical</td>
<td>90 °C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.9</td>
<td>Forward-Phase, Reverse-Phase, &amp; 0–10 V</td>
<td>1–100% (% of Iout)</td>
<td>400 ms</td>
</tr>
</tbody>
</table>

**Additional Notes:**

1. The ESP040W-0940-33-SS-F1 is specifically intended to drive the Cree LMH2 3000 sunset module and exhibits a customized 0–10 V dimming transfer function. It will not work with any other LED or LED string.

2. The ESP driver case can also be mounted by using two metal clips, one on each short side. The ordering part number for the two metal clips is ESP-CLIPS. By default, the ESP driver is shipped without metal clips. When metal clips are required, add ESP-CLIPS to your order.

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

---

### Typical Applications

- **In situ & Outdoor**
- **Recessed lighting (downlights)**
- **Residential lighting**
- **Office Lighting**

---

### Technical Specifications

- **Nominal Input Voltage:**
  - 120 & 277 Vac, 220–240 Vac

- **Max. Output Power:**
  - 60 W

- **Output Voltage Range:**
  - 21 to 56 Vdc

- **Output Current Range:**
  - 700 mA to 1.4 A

- **Efficiency:**
  - up to 87% typical

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

- **THD:**
  - < 20%

- **Power Factor:**
  - > 0.9

- **Dimming Method:**
  - Forward-Phase, Reverse-Phase, & 0–10 V

- **Dimming Range:**
  - 1–100% (% of Iout)

- **Startup Time:**
  - 400 ms
ESPT SERIES  40 W – 60 W
Constant Current LED Drivers with Tri-Mode Dimming™ (TRIAC, ELV & 0–10 V)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277 Vac</td>
<td>60 W</td>
<td>24 to 56 Vdc</td>
<td>700 mA to 1.4 A</td>
<td>up to 87% typical</td>
<td>90 °C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.9</td>
<td>Forward-Phase, Reverse-Phase, &amp; 0–10 V</td>
<td>1–100% (% of Iout)</td>
</tr>
</tbody>
</table>

Typical Application Diagram

### Features
- Same features as the ESP 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
- 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)
- 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 8.1 V = 100%, 1 V to 0.8 V = 1%, < 0.8 V dim-to-off.
- 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 (120 Vac) and Class A (277 Vac)
- Complies with ENERGY STAR®, DLC (DesignLight Consortium®) & CA Title 24 technical requirements

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

---

1. ESPT models with the "-Z1" suffix exhibit a non-linear 0–10 V dimming profile with dim-to-off: 10 V to 8.1 V = 100%, 1 V to 0.8 V = 1%, < 0.8 V dim-to-off.

2. The ESPT driver case must be mounted by using a minimum of two metal clips. By default, the ESPT driver is shipped with 2 metal clips. Additional metal clips can be ordered with the following part numbers:
   - ESPT-CLIPS-100: bag of 100 clips
   - ESPT-CLIPS-1k: bag of 1000 clips

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

### 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.)

#### 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
- 90 °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® luminaire specification and DLC (DesignLight Consortium®) technical requirements

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

#### Typical Application Diagram

![Typical Application Diagram](image-url)

#### Table: ERP Part Numbers

<table>
<thead>
<tr>
<th>ERP Part Number</th>
<th>Nominal Input Voltage (Vac)</th>
<th>Max. Output Power (W)</th>
<th>Iout (A)</th>
<th>Vout Min. (Vdc)</th>
<th>Vout Max. (Vdc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLM90W: up to 90 W</td>
<td>120 &amp; 277</td>
<td>88.2</td>
<td>2.1</td>
<td>30</td>
<td>42</td>
</tr>
<tr>
<td>SLM090W-2.1-42-TG</td>
<td>120 &amp; 277</td>
<td>95.2</td>
<td>1.7</td>
<td>40</td>
<td>56</td>
</tr>
<tr>
<td>SLM100W-1.7-56-TA</td>
<td>120 &amp; 277</td>
<td>111–120 W</td>
<td>0.75 sec</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Forced air cooling or heatsink base plate (aluminum baseplate: 210 mm x 200 mm x 2 mm) is required for total continuous power exceeding 120 W.

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

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

### Typical Application Diagram

- **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 Part 15 Class A at 120 Vac & 277 Vac
  - IP66-rated case with silicone-based potting
  - 90 °C maximum case hot spot temperature
  - Complies with ENERGY STAR® luminaire specification and DLC (DesignLight Consortium®) technical requirements

---

### Typical Applications

- Stage, Theatrical lighting
- Studio Lighting

---

### Nominal Input Voltage | Max. Output Power | Output Voltage | Output Current | Efficiency | Max. Case Temperature | THD | Power Factor | Dimming Method | Dimming Range
---|---|---|---|---|---|---|---|---|---
120 & 277 Vac | 90 W | 30 to 42 Vdc | 2.1 A Constant Current | up to 90% typical | 90 °C (measured at the hot spot) | < 20% | > 0.9 | Forward-Phase, Reverse-Phase, & 0–10 V | 0.01–100% (% of Iout)

### ERP Part Number

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Nominal Input Voltage (Vac)</th>
<th>Iout (A)</th>
<th>Max. Output Power (W)</th>
<th>Vout Min. (Vdc)</th>
<th>Vout Max. (Vdc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLM90W: 81–90 W</td>
<td>120 &amp; 277</td>
<td>2.1</td>
<td>88.2</td>
<td>30</td>
<td>42</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
### Typical Application Diagram

**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.)

### Features
- Non-linear 0–10 V dimming profile with dim-to-off (10 V to 0.1 V = 100%, 1.5 V to 0.6 V = 1%, < 0.6 V = dim-to-off)
- Auxiliary output 12 V / 100 mA
- Dual output voltage range
- UL Class P
- IP66-rated case with silicone-based potting
- 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

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

### Typical Applications
- Street lights, Area lights
- Industrial high-bay lights
- Horticulture grow lights
CDB SERIES  260 W
Programmable, Constant Current LED Drivers with 0–10 V Dimming & Integrated Bluetooth® Mesh

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277 Vac</td>
<td>260 W</td>
<td>114 to 400 Vdc</td>
<td>325 mA to 1700 mA</td>
<td>Constant Current</td>
<td>up to 93% typical</td>
<td>90 °C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.9</td>
<td>0–10 V</td>
</tr>
</tbody>
</table>

**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 P
- Outdoor Surge protection:
  - IEC61000-4-5: 4 kV line to line / 4 kV line to earth
  - 2.5 kV ring wave: ANSI/IEEE c62.41.1-2002 & c62.41.2-2002 category A
- Conducted and radiated EMI: Compliant with FCC CFR Title 47 Part 15 Class A at 120 Vac & 277 Vac
- Lifetime: 50,000 hours @ Tc = 70 °C
- 90 °C maximum case hot spot temperature
- Complies with ENERGY STAR® luminaire specification and DLC (DesignLight Consortium®) technical requirements

**Typical Applications**
- Outdoor & Indoor
- Horticulture grow lights
- Street lights, Area lights
- Industrial high-bay lights

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

**Communication**
- Bi-directional (dimming up and down and data log read)
- Bluetooth Mesh with wire whip antenna and external removable antenna

**Avi-on Bluetooth Mesh Solution**
- Wireless lighting controls with simple set-up that anyone can use
- Pre-integrated Bluetooth Smart + CSRmesh module enables brands to create multi-way controls and switching without additional wiring; no central gateway required
- Utility grade, secure, reliable mobile app & software
- Dimming, grouping, many users, schedules, timers
- Virtually unlimited range with mesh
- Download for free, additional services available
- Compatible with large ecosystem of products from major brands
- Avi-on battery-powered movable dimming switches available to complete the turnkey solution

**Typical Applications**
- Outdoor & Indoor
- Horticulture grow lights
- Street lights, Area lights
- Industrial high-bay lights

For additional options of output current and output voltage, contact your sales representative or send an email to: SaveEnergy@ERP-Power.com
Efficient, Compact, Non-Dimmable
Constant Voltage Class 2 / Class II LED Drivers

VLM60/40 SERIES
40 W – 60 W

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277 Vac, 220–240 Vac</td>
<td>60 W</td>
<td>12, 24, 48 Vdc</td>
<td>5, 2.5, 1.25 A</td>
<td>up to 90% typical</td>
<td>90 °C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.9</td>
</tr>
</tbody>
</table>

Typical Applications
• Strip lights
• Pendant lights
• Linear lighting
• Cove Lights

Typical Application Diagram

Models with Flying Leads, Aluminum Case (VLMXXW Models)
L 130 x W 19.65 x H 19.8 mm
(L 5.12 x W 0.77 x H 0.78 in.)

Models with “-S” Suffix
Bottom Leads with Studs, Aluminum Case
L 130 x W 19.65 x H 23.85 mm
(L 5.12 x W 0.77 x H 0.94 in.)

Models with “-T” Suffix (Terminal Blocks)
Aluminum case
L 183.2 x W 19.9 x H 19.85 mm
(L 7.12 x W 0.78 x H 0.78 in.)

Features
• Very high power density of 20 W/in³
• Class 2 power supply
• Class II power supply per IEC 61347
• UL Class P
• IP20-rated case with silicone-based potting
• 90 °C maximum case hot spot temperature
• Lifetime: 50,000 hours min. at 70 °C case temperature
• Complies with ENERGY STAR®, DLC (DesignLight Consortium®) and CA Title 24 technical requirements
• Worldwide safety approvals
• Additional safety approvals when using the optional strain reliefs for models with “-T” suffix

1. Strain reliefs for “-T” models can be ordered using part number SR1. Order quantity for SR1 is per strain relief, and 2 strain reliefs are needed for each driver.

Suffix for the different mounting options:
a) NO suffix: side leads
b) “-T”: Terminal blocks
c) “-S”: Bottom lead exit with studs

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

Typical Applications

ERP Part Number  Nominal Input Voltage (Vac)  Pout Max (W)  Vout Nom (Vdc)  Iout Max (A)

<table>
<thead>
<tr>
<th>120 &amp; 277 VAC NOMINAL INPUT VOLTAGE</th>
<th>VLM40W</th>
</tr>
</thead>
<tbody>
<tr>
<td>VLM40W-12</td>
<td>120 &amp; 277</td>
</tr>
<tr>
<td>VLM40W-24</td>
<td>120 &amp; 277</td>
</tr>
<tr>
<td>VLM40W-48</td>
<td>120 &amp; 277</td>
</tr>
<tr>
<td>VLM40W-12-S</td>
<td>120 &amp; 277</td>
</tr>
<tr>
<td>VLM40W-24-S</td>
<td>120 &amp; 277</td>
</tr>
<tr>
<td>VLM40W-48-S</td>
<td>120 &amp; 277</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>220–240 VAC NOMINAL INPUT VOLTAGE</th>
<th>VLM60E</th>
</tr>
</thead>
<tbody>
<tr>
<td>VLM60E-12-T</td>
<td>220–240</td>
</tr>
<tr>
<td>VLM60E-24-T</td>
<td>220–240</td>
</tr>
<tr>
<td>VLM60E-48-T</td>
<td>220–240</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
Features

- Very high power density of 24 W/in^3
- Class 2 power supply
- Class II power supply per IEC 61347
- IP20-rated case with silicone-based potting
- Complies with ENERGY STAR®, DLC (DesignLight Consortium®) and CA Title 24 technical requirements
- 90 °C maximum case hot spot temperature
- Lifetime: 50,000 hours min. at 70 °C case temperature
- UL Class P
- Worldwide safety approvals
- Additional safety approvals when using the optional strain reliefs for models with "-T" suffix

Efficient, Compact, Non-Dimmable

Constant Voltage Class 2 / Class II LED Drivers

VLM100 SERIES 96 W

Typical Application Diagram

Models with Flying Leads, Aluminum Case (VLM100W Models)
L 137 x W 26 x H 19.8 mm
(L 5.39 x W 1.02 x H 0.77 in.)

Models with "-S" Suffix
Bottom Leads with Studs, Aluminum Case
L 137 x W 26.0 x H 23.85 mm
(L 5.39 x W 1.02 x H 0.94 in.)

Models with "-T" Suffix (Terminal Blocks)
Aluminum case
L 193.2 x W 26.2 x H 19.85 mm
(L 7.60 x W 1.03 x H 0.78 in.)

Typical Applications

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

Typical Application Diagram

ERP Part Number  | Nominal Input Voltage (Vac) | Pout Max (W) | Vout Nom (Vdc) | Iout Max (A) |
-----------------|-----------------------------|-------------|----------------|-------------|
VLM100W-12      | 120 & 277                   | 96.0        | 12             | 8           |
VLM100W-24      | 120 & 277                   | 96.0        | 24             | 4           |
VLM100W-36      | 120 & 277                   | 96.0        | 36             | 2.7         |
VLM100W-48      | 120 & 277                   | 96.0        | 48             | 2           |
VLM100W-12-S    | 120 & 277                   | 96.0        | 12             | 8           |
VLM100W-24-S    | 120 & 277                   | 96.0        | 24             | 4           |
VLM100W-48-S    | 120 & 277                   | 96.0        | 48             | 2           |

1. VLM100W-12 is not Class 2 because the over-current protection of this model exceeds the 5A UL Class 2 limit.
2. Strain reliefs for "-T" models can be ordered using part number SR2. Order quantity for SR2 is per strain relief, and 2 strain reliefs are needed for each driver.

Suffix for the different mounting options:
- a) NO suffix: side leads
- b) "-T": Terminal blocks
- c) "-S": Bottom lead exit with studs

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

Typical Applications

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

Typical Application Diagram
# JVLM SERIES  60 W – 96 W

Efficient, Compact, Constant Voltage
Class 2 LED Drivers in a Junction Box

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277 Vac</td>
<td>96 W</td>
<td>12, 24, 48 Vdc</td>
<td>5, 4, 2 A</td>
<td>up to 92% typical</td>
<td>90 °C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.9</td>
</tr>
</tbody>
</table>

## Features

- Low profile, rugged steel enclosure designed for use with our Constant Voltage VLM series
- JVLM is Plenum-rated, so it can go in air handling spaces. (In building construction, the plenum is the space that is used for air circulation in heating and air conditioning systems, typically between the structural ceiling and the suspended ceiling or under a raised floor).
- Designed for contractor installation:
  - UL listed
  - Separation of low-voltage wiring and high-voltage wiring
  - 4 mounting holes for surface mounting
  - 4 knockout holes for low-voltage wiring and 4 knockout holes for high-voltage wiring enable maximum wiring flexibility
- Same electrical features as the VLM series
- IP20-rated case
- Patent protected

### Typical Application Diagram

![Typical Application Diagram](image)

### Dimensions

L 207.2 x W 75.4 x H 33 mm
(L 8.16 x W 2.97 x H 1.30 in.)

### Typical Applications

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

### ERP Part Number

<table>
<thead>
<tr>
<th>ERP Part Number</th>
<th>Nominal Input Voltage (Vac)</th>
<th>Pout Max (W)</th>
<th>Vout Nom (Vdc)</th>
<th>Iout Max (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JVLM60W-12</td>
<td>120 &amp; 277</td>
<td>60.0</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>JVLM60W-24</td>
<td>120 &amp; 277</td>
<td>60.0</td>
<td>24</td>
<td>2.5</td>
</tr>
<tr>
<td>JVLM60W-48</td>
<td>120 &amp; 277</td>
<td>60.0</td>
<td>48</td>
<td>1.3</td>
</tr>
<tr>
<td>JVLM100W-24</td>
<td>120 &amp; 277</td>
<td>96.0</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>JVLM100W-48</td>
<td>120 &amp; 277</td>
<td>96.0</td>
<td>48</td>
<td>2</td>
</tr>
</tbody>
</table>

Models contain the VLM LED Driver in the aluminum case with flying leads.

For additional options of output current and output voltage, contact your sales representative or send an email to: [SaveEnergy@ERP-Power.com](mailto:SaveEnergy@ERP-Power.com)
**Features**

- Class 2 power supply
- 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

LED Drivers with 0–10 V Dimming

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277 Vac</td>
<td>90 W</td>
<td>24, 48 Vdc</td>
<td>3.75, 1.9 A</td>
<td>up to 90% typical</td>
<td>90 °C (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.9</td>
<td>Programmable 0–10 V</td>
<td>1–100%</td>
<td>300 ms typical</td>
</tr>
</tbody>
</table>

**NFC Programming**

- Programmable output voltage for optimal dimming range
- Fully programmable 0–10 V dimming profile with dim-to-off

---

**Models with Flying Leads, Aluminum Case**

**VZM100**

L 150.2 x W 38.8 x H 24.9 mm  
(L 5.91 x W 1.53 x H 0.98 in.)

**VZM060**

L 148.7 x W 31.8 x H 22.4 mm  
(L 5.85 x W 1.25 x H 0.88 in.)

---

**Suffix for the different options:**

1. NO suffix: Side leads, 0–10 V circuit isolation from DC output and AC input
2. “-FN”: Side leads, 0–10 V circuit isolation from AC input

---

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

- Horticulture
- Industrial lights
- Outdoor and indoor

**ERP Part Number**

<table>
<thead>
<tr>
<th>ERP Part Number</th>
<th>Nominal Input Voltage (Vac)</th>
<th>Pout Max (W)</th>
<th>Vout Nom (Vdc)</th>
<th>Iout Max (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VLB260W-24</td>
<td>120 &amp; 277</td>
<td>260.0</td>
<td>24</td>
<td>10.83</td>
</tr>
<tr>
<td>VLB260W-48</td>
<td>120 &amp; 277</td>
<td>260.0</td>
<td>48</td>
<td>5.42</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

**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 ºC 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 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


<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>120 &amp; 277 Vac</td>
<td>90 W</td>
<td>12, 24 Vdc</td>
<td>5, 3.75 A</td>
<td>up to 85% typical</td>
<td>90 ºC (measured at the hot spot)</td>
<td>&lt; 20%</td>
<td>&gt; 0.9</td>
</tr>
</tbody>
</table>

### Typical Application Diagram

- **Nominal Input Voltage:**
  - 120 & 277 Vac

- **Max. Output Power:**
  - 90 W

- **Nominal Output Voltage:**
  - 12, 24 Vdc

- **Max. Output Current:**
  - 5, 3.75 A

- **Efficiency:**
  - up to 85% typical

- **Max. Case Temperature:**
  - 90 ºC (measured at the hot spot)

- **THD:**
  - < 20%

- **Power Factor:**
  - > 0.9

### ERP Part Number Nominal Input Voltage (Vac) Pout Max (W) Vout Nom (Vdc) lout Max (A)

<table>
<thead>
<tr>
<th>ERP Part Number</th>
<th>Nominal Input Voltage (Vac)</th>
<th>Pout Max (W)</th>
<th>Vout Nom (Vdc)</th>
<th>lout Max (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VGM060W</td>
<td>120 &amp; 277</td>
<td>60.0</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>VGM100W</td>
<td>120 &amp; 277</td>
<td>90.0</td>
<td>24</td>
<td>3.75</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

### Typical Application Diagram

- **ERP Part Number:**
  - VGM060W
  - VGM100W

- **Nominal Input Voltage (Vac):**
  - 120 & 277

- **Pout Max (W):**
  - 60.0

- **Vout Nom (Vdc):**
  - 12

- **lout Max (A):**
  - 5

- **ERP Part Number:**
  - VGM100W-24

- **Nominal Input Voltage (Vac):**
  - 120 & 277

- **Pout Max (W):**
  - 90.0

- **Vout Nom (Vdc):**
  - 24

- **lout Max (A):**
  - 3.75

### Typical Applications

- **Signage**
- **Strip lights**

### Aluminum Case

- **L 172.5 x W 43.9 x H 27.1 mm**
- **L 6.79 x W 1.73 x H 1.07 in.**

### ERP Part Number Nominal Input Voltage (Vac) Pout Max (W) Vout Nom (Vdc) lout Max (A)

<table>
<thead>
<tr>
<th>ERP Part Number</th>
<th>Nominal Input Voltage (Vac)</th>
<th>Pout Max (W)</th>
<th>Vout Nom (Vdc)</th>
<th>lout Max (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VGM060W</td>
<td>120 &amp; 277</td>
<td>60.0</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>VGM100W</td>
<td>120 &amp; 277</td>
<td>90.0</td>
<td>24</td>
<td>3.75</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
VIM SERIES  60 W – 90 W
Efficient, Class 2
Constant Voltage LED Drivers

Features
• 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.

Typical Applications
• Signage  • Strip lights

---|---|---|---|---|---|---|---
120 & 277 Vac | 90 W | 12, 24 Vdc | 5, 3.75 A | up to 90% typical | 90 °C (measured at the hot spot) | < 20% | > 0.9

ERP Part Number | Nominal Input Voltage (Vac) | Pout Max (W) | Vout Nom (Vdc) | Iout Max (A)
---|---|---|---|---
VIM6W0 | VIM06W-12 | 120 & 277 | 60.0 | 12 | 5
VIM100W | VIM100W-24 | 120 & 277 | 90.0 | 24 | 3.75

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 172.5 x W 33.3 x H 24.1 mm
(L 6.79 x W 1.31 x H 0.95 in.)
xDrive™  40 W – 100 W

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

<table>
<thead>
<tr>
<th>Nominal Input Voltage</th>
<th>Max. Output Power</th>
<th>Output Voltage</th>
<th>Output Current Max</th>
<th>Efficiency</th>
<th>Max. Ambient Temperature</th>
<th>THD</th>
<th>Power Factor</th>
<th>Dimming Range</th>
<th>Startup Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 Vac</td>
<td>100 W</td>
<td>12, 24 V</td>
<td>4.2 A</td>
<td>up to 91% typical</td>
<td>40 °C &lt; 20%</td>
<td>&gt; 0.9</td>
<td>1–100% of light output</td>
<td>500 ms typical</td>
<td></td>
</tr>
</tbody>
</table>

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

Typical Applications

• Track lights
• Downlights
• Tape/Strip lights
• Under-cabinet lights

For additional options of output current and output voltage, contact your sales representative or send an email to: SaveEnergy@ERP-Power.com
Araya® Universal AC Input Tunable White LED Modules (TWM) by ERP offer a wide CCT range from 1800 K to 6500 K, with dimming capability to 1%*. The non-linear tuning capability of TWM2 delivers its color quality (90+ CRI) with < 3 step MacAdam ellipse (SDCM) across its tuning range.

Two Warm Dim lamp profiles—MR16 halogen (3050–1800 K) and incandescent (2700–1800 K)—as well as twelve (12) ANSI CCT color points are pre-programmed into each engine.

The output of TWM can be controlled with a TRIAC or a 0–10 V dimmer, while its color can be dynamically and independently controlled with a second 0–10 V controller.

Araya TWM is a small yet powerful solution to all tunable white lighting applications.

### COMMISSION AND CONTROL EFFORTLESSLY

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Dimming</th>
<th>CCT</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–10 V (CCT)</td>
<td>-</td>
<td>1800–6500 K</td>
<td>Operational CCT range can be adjusted/customized via the Araya Tunable White Bluetooth app.</td>
</tr>
<tr>
<td>0–10 V (DIM)</td>
<td>100–1%</td>
<td>-</td>
<td>1. Option to set Dim-Trim using the BLE app or the TWM Programming Tool. 2. Option to set Dim-Trim and/or to enable Dim-to-Off using the BLE app or the TWM Programming Tool*.</td>
</tr>
<tr>
<td>TRIAC</td>
<td>100–2%</td>
<td>-</td>
<td>1. Adjust maximum output level (set Dim-Trim). 2. Enable Dim-to-Off. 3. Customize the CCT range for Tunable White mode. 4. <em>Set and forget</em> the CCT for Selectable White Mode. 5. Select between Halogen and Incandescent profiles in Warm Dim Mode. 6. BLE option can be disabled via the TWM Programming Tool.</td>
</tr>
<tr>
<td>BLUETOOTH LE (Araya Tunable White 1.0)</td>
<td>100–1%</td>
<td>1800–6500 K</td>
<td>Use for commissioning, not for control. 1. Adjust maximum output level (set Dim-Trim). 2. Enable Dim-to-Off. 3. Customize the CCT range for Tunable White mode. 4. <em>Set and forget</em> the CCT for Selectable White Mode. 5. Select between Halogen and Incandescent profiles in Warm Dim Mode. 6. BLE option can be disabled via the TWM Programming Tool.</td>
</tr>
<tr>
<td>TWM Programming Tool</td>
<td>-</td>
<td>-</td>
<td>1. Adjust the maximum output level (set Dim-Trim) - FULL, 80%, 60%, 40%. 2. Enable Dim-To-Off. 3. Set to one of 12 selectable CCT points. 4. Select between Halogen and Incandescent Warm Dim profiles. 5. Disable Bluetooth capability on &quot;-BT&quot; devices.</td>
</tr>
<tr>
<td>TWM Selectable CCT Plugs</td>
<td>-</td>
<td>-</td>
<td>Select a plug to fix the CCT.</td>
</tr>
</tbody>
</table>

*Dim-to-Off is only available with 0–10 V operation.

Patents Pending.
THE TWM2 DATA TELLS THE STORY

TYPICAL LUMEN PERFORMANCE DATA

Typ. Lumen Output at Various CCT Points

Typ. Efficacy (LPW) at Various CCT Points

TYPICAL COLOR PERFORMANCE DATA

Spectral Power Data (SPD) at Various CCT Settings, with Diffuser Lens ("-DD")

TM-30 Data - 3000 K

COLOR SPACE DATA

CIE 1931 Color Space

12 Selectable CCT Points in the CIE 1931 Color Space

For additional color and performance data, please refer to www.erp-power.com. Specifications may be subject to change without notice.
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.
THE ARAYA 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 (plus green, if an expanded gamut option is desired)—to deliver full spectrum light from 1650 K to 8000 K at 90+ CRI.

NATURAL DAYLIGHT EMULATION

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

FULL COLOR ACCESS

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

E-FLICKER FREE LED DIMMING TO 0.1%*

is enabled by a proprietary hybrid technology that maintains color consistency while dimming.

TRADITIONAL DIMMING RECREATED

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

COLOR CONSISTENCY OF LESS THAN 2 MACADAM ELLIPSE OVER LIFE

from fixture-to-fixture as verified by independent LM-84 testing—with on-board driver electronics and control logic for precise control of current and PWM.
ANALOG - Two 0–10 V 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 0–10 V presets or the Araya iOS App.

DIGITAL - Araya is compatible with all industry-leading digital control systems.

**For Commissioning Only**

<table>
<thead>
<tr>
<th>CONTROL SYSTEM / PROTOCOL</th>
<th>DIMMING (100–0.1%)*</th>
<th>CCT CTM1C - TUNABLE COLOR (1650–8000 K)</th>
<th>CCT CTM1C WI, CTM2, LTM2 - TUNABLE COLOR (1650–8000 K)</th>
<th>CCT DDM1C - WARM-DIM (1800–3050 K)</th>
<th>CCT DDM2 - WARM-DIM (1800–3050 K)</th>
<th>SAT</th>
<th>HUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMX512-A-RDM**</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>0–10 V</td>
<td>~1%</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>LUTRON ECOSYSTEM**</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>AVI-ON WIRELESS BLE MESH</td>
<td>✓</td>
<td>N/A</td>
<td>✓</td>
<td>N/A</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>DALI TYPE 8</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>WATTSTOPPER DLM</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

*100–0.1% eFlcker-Free LED dimming is available for specific light engines when connected to 0.1% dimming-capable digital controls.

100–1% dimming is available with analog 0–10 V control and for Warm/Dynamic Dimming Modules (DDM).

**Refer to the separate DMX Lookup Tables or Lutron EcoSystem Lookup Tables for specific programming values and information.

***Two 0–10 V 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 0–10 V presets or the Araya iOS App.

For additional color and performance information, please refer to www.erp-power.com.
### Color Tuning

#### Light Engines

**Tunable Range**: 1650–8000 K

<table>
<thead>
<tr>
<th>CTM1C</th>
<th>CTM1C WI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Delivered Lumens</td>
<td>750–2000</td>
</tr>
<tr>
<td>Nominal Wattage (W)</td>
<td>12–35</td>
</tr>
<tr>
<td>CRI</td>
<td>90+</td>
</tr>
<tr>
<td>Color Gamut Access</td>
<td>Yes</td>
</tr>
<tr>
<td>Dimming Threshold</td>
<td>0.1%*</td>
</tr>
<tr>
<td>Color Accuracy*</td>
<td>Less than 2 SDCM</td>
</tr>
<tr>
<td>Nominal LES (mm)</td>
<td>9, 12, 19</td>
</tr>
<tr>
<td>Diameter (mm)</td>
<td>50</td>
</tr>
<tr>
<td>Linear Array Length (in)</td>
<td></td>
</tr>
<tr>
<td>Linear Connector Position</td>
<td></td>
</tr>
<tr>
<td>Linear LED Position</td>
<td></td>
</tr>
<tr>
<td>Control Options</td>
<td>DMX512-A-RDM 0–10 V Lutron® EcoSystem® DALI Type 8® Wattstopper® DLM®</td>
</tr>
</tbody>
</table>

**Warm/Dynamic Dimming**

#### Light Engines

**Tunable Range**: 3050–1800 K

<table>
<thead>
<tr>
<th>DDM1C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Delivered Lumens</td>
</tr>
<tr>
<td>Nominal Wattage (W)</td>
</tr>
<tr>
<td>CRI</td>
</tr>
<tr>
<td>Color Gamut Access</td>
</tr>
<tr>
<td>Dimming Threshold</td>
</tr>
<tr>
<td>Color Accuracy*</td>
</tr>
<tr>
<td>Nominal LES (mm)</td>
</tr>
<tr>
<td>Diameter (mm)</td>
</tr>
<tr>
<td>Linear Array Length (in)</td>
</tr>
<tr>
<td>Linear Connector Position</td>
</tr>
<tr>
<td>Linear LED Position</td>
</tr>
<tr>
<td>Control Options</td>
</tr>
</tbody>
</table>

---

*0.1% eFlicker-Free / Hybrid LED dimming available for specific light engines, and only when connected to 0.1% dimming-capable digital controls. Individual specifications may vary; please refer to technical product data sheets.

1. From 2000–6000 K, down to 5% dimming level.
2. Light Emitting Surface.
4. On-board the light engine or via external Digital Control Adapter.
5. Requires external Wattstopper adapter.
6. Requires wireless interface BLE Mesh dongle/harness.
7. Requires optional control card.
### SAME GREAT FEATURES

**ACROSS ALL PRODUCT FAMILIES**

<table>
<thead>
<tr>
<th>Feature</th>
<th>CTM2</th>
<th>LTM2</th>
<th>DDM2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tunable Range</strong></td>
<td>1650–8000 K</td>
<td>3050–1800 K</td>
<td>3050–1800 K</td>
</tr>
<tr>
<td><strong>Peak Delivered Lumens</strong></td>
<td>990–9000</td>
<td>1000 lm/ft</td>
<td>480–1850</td>
</tr>
<tr>
<td><strong>Nominal Wattage (W)</strong></td>
<td>20–120</td>
<td>10 watts/ft</td>
<td>12–35</td>
</tr>
<tr>
<td><strong>CRI</strong></td>
<td>90+</td>
<td>90+</td>
<td>90+</td>
</tr>
<tr>
<td><strong>Color Gamut Access</strong></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Dimming Threshold</strong></td>
<td>0.1%*</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Color Accuracy</strong></td>
<td>Less than 2 SDCM</td>
<td>Less than 2 SDCM</td>
<td>Less than 2 SDCM</td>
</tr>
<tr>
<td><strong>Nominal LES (mm)</strong></td>
<td>9, 12, 19, 32, 41</td>
<td>9, 12, 19</td>
<td>9, 12, 19</td>
</tr>
<tr>
<td><strong>Diameter (mm)</strong></td>
<td>40, 50, 60, 70</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td><strong>Linear Array Length (in)</strong></td>
<td>11, 22, 24</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Linear Array Width (in)</strong></td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Linear Connector Position</strong></td>
<td>Top or Bottom</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Linear LED Position</strong></td>
<td>Symmetrical, Asymmetrical</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*0.1% eFlicker-Free / Hybrid LED dimming available for specific light engines, and only when connected to 0.1% dimming-capable digital controls. Individual specifications may vary; please refer to technical product data sheets.

1. From 2000–6000 K, down to 5% dimming level.
2. Light Emitting Surface.
4. On-board the light engine or via external Digital Control Adapter.
5. Requires external Wattstopper adapter.
6. Requires wireless interface BLE Mesh dongle/harness.
7. Requires optional control card.