The family of Blanco LED light engines from Legrand enables fixtures to deliver the highest quality tunable lighting available while offering multiple intuitive control options. This guide provides detailed information for fixture manufacturers regarding specifications, wiring, test requirements, nomenclature, and several other topics.

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DESCRIPTION AND KEY FEATURES

The family of Blanco logic modules from Wattstopper enables fixtures to deliver the highest quality tunable lighting available while offering multiple intuitive control options.

- **Blanco 3** mixes three channels of LEDs to precisely trace the blackbody curve while delivering a wide range of color temperatures.
- **Blanco 2** mixes two channels of LEDs to closely approximate the blackbody curve for tunable white applications.

Each logic module allows intensity control from 100% lumen output down to 0.1%. The entire family can be controlled by Wattstopper’s Digital Lighting Management system (DLM).

When paired with the Wattstopper DLM control interface, each logic module allows automatic fixture commissioning building on the industry leading Wattstopper Plug n’ Go™ architecture.

### Blanco 2 Logic Module

The Blanco 2 Logic Module connects to any Blanco 2 LED array, which are available in multiple Zhaga-compliant linear form factors. The Blanco 2 delivers tunable white light at 90+ Color Rendering Index (CRI) with excellent color consistency across its entire color temperature range (3000K–5000K). On-board closed loop thermal feedback compensates arrays for thermally induced variations in light output due to dimming or changes in ambient temperatures. Delivered light can be dimmed from 100–0.1% at any color temperature in its range.

- Tunable white range: 3000K–5000K
- 90+ Color Rendering Index (CRI) across the entire CCT range
- Near field mixing within two inches of the array for perfectly consistent light across the fixture
- On board thermal feedback and characterization ensures color consistency
- Patented manufacturing process captures and compensates for the unique performance characteristics for each Zhaga-compliant LED array, resulting in unparalleled consistency across all arrays and fixtures
- Precision architectural dimming solution from 100–0.1% at a constant color temperature
- Control platform compatibility with Wattstopper DLM
- Additional 48VDC power supply required to power Blanco Logic Module

### Blanco 3 Logic Module

The Blanco 3 Logic Module connects to any Blanco 3 LED array, which are available in multiple Zhaga-compliant linear form factors. The Blanco 3 delivers tunable white light at 90+ CRI with color consistency of less than 2 MacAdam ellipse across its entire color temperature range (2700K–6500K). On-board closed loop thermal feedback compensates arrays for thermally induced variations in light output due to dimming or changes in ambient temperatures. Delivered light can be dimmed from 100–0.1% at any color temperature in its range.

- Tunable white range: 2700K–6500K
- 90+ Color Rendering Index (CRI) across the entire CCT range
- Near field mixing within two inches of the array for perfectly consistent light across the fixture
- On board thermal feedback and characterization ensures color consistency of less than 2 MacAdam ellipses from the blackbody locus
- Patented manufacturing process captures and compensates for the unique performance characteristics for each Zhaga-compliant LED array, resulting in unparalleled consistency across all arrays and fixtures
- Precision architectural dimming solution from 100–0.1% at a constant color temperature
- Control platform compatibility with Wattstopper DLM
- Additional 48VDC power supply required to power Blanco Logic Module

### ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Catalog #</th>
<th>Description</th>
<th>Wattstopper Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blanco 2</td>
<td>Sample Kit w/ (1) 22in. array</td>
<td>BLM2-2-SAM</td>
</tr>
<tr>
<td>3000K-5000K</td>
<td>Sample Kit w/ (2) 22in. arrays</td>
<td>BLM2-4-SAM</td>
</tr>
<tr>
<td></td>
<td>Logic Module with DLM Control</td>
<td>BLM2-DLM</td>
</tr>
<tr>
<td>Blanco 3</td>
<td>Sample Kit w/ (1) 22in. array</td>
<td>BLM3-2-SAM</td>
</tr>
<tr>
<td>2700K-6500K</td>
<td>Sample Kit w/ (2) 22in. arrays</td>
<td>BLM3-4-SAM</td>
</tr>
<tr>
<td></td>
<td>Logic Module with DLM Control</td>
<td>BLM3-DLM</td>
</tr>
</tbody>
</table>
ELECTRICAL SPECIFICATIONS

Logic Module Electrical Specifications

- **Input Voltage**: 48VDC (Constant Voltage)
- **Nominal Input Power**: 40W, 60W, and 75W
- **Nominal Input Current**: 0.83A (40W), 1.25A (60W), 1.56A (75W)
- **Power Supply Classification**: Class 2
- **Power Connector**: Molex 5023520200
- **0-10V Control Connector**: Molex 874380743
- **Control Options**: Wattstopper DLM
- **LED Array Output Connector**: JST S10B-PHDSS (2X)

RECOMMENDED POWER SUPPLIES

<table>
<thead>
<tr>
<th>Wattage</th>
<th>Max Length of Array</th>
<th>Manufacturer</th>
<th>Manufacturer’s Part Number</th>
<th>Wattstopper Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>100W</td>
<td>8 feet</td>
<td>Amperor</td>
<td>ANP101-48P1-277-2000L-1</td>
<td>PWR-100-48</td>
</tr>
<tr>
<td>100W</td>
<td>8 feet</td>
<td>ERP Power</td>
<td>VLM100W-48</td>
<td></td>
</tr>
<tr>
<td>75W</td>
<td>8 feet</td>
<td>Amperor</td>
<td>ANP101-48P1-277-1562L-1</td>
<td>PWR-75-48</td>
</tr>
<tr>
<td>60W</td>
<td>6 feet</td>
<td>Amperor</td>
<td>ANP101-48P1-277-1250L-1</td>
<td>PWR-60-48</td>
</tr>
<tr>
<td>60W</td>
<td>6 feet</td>
<td>ERP Power</td>
<td>VLM60W-48</td>
<td></td>
</tr>
<tr>
<td>40W</td>
<td>4 feet</td>
<td>Amperor</td>
<td>ANP101-48P1-277-0833L-1</td>
<td></td>
</tr>
</tbody>
</table>

Notes:

- All logic modules have on-board drive electronics, including dimming. A dimming driver should not be used, using a triac or dimming driver will damage the module and void any warranty.
- Using a constant current power supply will damage the module and void any warranty.
- Using a power supply not on the above list or having not been qualified by Wattstopper will void any warranty.
- The power supply must be evaluated with the module that it will be operated with.

MECHANICAL SPECIFICATIONS

Linear LED Arrays

<table>
<thead>
<tr>
<th>Logic Module Type</th>
<th>CCT Range</th>
<th>Length</th>
<th>Lumileds Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blanco 2, bottom connectors</td>
<td>3000K-5000K</td>
<td>1 FT</td>
<td>L212-0002054RLE022</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 FT</td>
<td>L212-0002108RLE022</td>
</tr>
<tr>
<td>Blanco 2, top connectors</td>
<td>3000K-5000K</td>
<td>1 FT</td>
<td>L212-0002054RLE021</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 FT</td>
<td>L212-0002108RLE021</td>
</tr>
<tr>
<td>Blanco 3, bottom connectors</td>
<td>2700K-6500K</td>
<td>1 FT</td>
<td>L212-0002054RLE032</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 FT</td>
<td>L212-0002108RLE032</td>
</tr>
<tr>
<td>Blanco 3, top connectors</td>
<td>2700K-6500K</td>
<td>1 FT</td>
<td>L212-0002054RLE031</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 FT</td>
<td>L212-0002108RLE031</td>
</tr>
</tbody>
</table>
**Blanco, 1 Foot Array**

**NOTE:** Ensure at least 0.100" clearance around the connectors to any grounded conductive material.

**NOTE:** Thermal measurement locations provided for UL1598 testing requirements. Max temperature 85°C.
NOTE: Ensure at least 0.100” clearance around the connectors to any grounded conductive material.

NOTE: Thermal measurement locations provided for UL1598 testing requirements. Max temperature 85°C.
**Logic Modules**

**Blanco Logic Module with Wattstopper Digital Lighting Management (DLM) Control Interface**

**NOTE:** Thermal measurement locations provided for UL1598 testing requirements. Max temperature 70°C.

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**INTERCONNECTION CABLE ASSEMBLIES**

**DC Power Cable**

<table>
<thead>
<tr>
<th>Misc Harness</th>
<th>Description</th>
<th>Wattstopper Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Power Cable</td>
<td>PWR-CABLE-2</td>
<td></td>
</tr>
</tbody>
</table>

**Power Cable Assembly**

CONNECTOR: MOLEX 5023510200
CRIMP TERMINAL: MOLEX 0503728000
WIRE: STRANDED 24AWG

**Blanco 2, 3 Array Harness Assemblies**

<table>
<thead>
<tr>
<th>Blanco Logic Module-to-Array Harness</th>
<th>Length (inch)</th>
<th>Wattstopper Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (inch)</td>
<td>Wattstopper Part No.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>BLMBH-6</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>BLMBH-12</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>BLMBH-24</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>BLMBH-48</td>
<td></td>
</tr>
</tbody>
</table>
### Blanco Logic Module to Array Harness Assembly

- **CONNECTOR:** MOLEX 874391000
- **CONNECTOR:** JST PHDR-10VS
- **WIRE:** STRANDED 26 AWG
- **CRIMP TERMINAL:** MOLEX 874210000
- **CRIMP TERMINAL:** JST SPHD-001T-0.5

### Blanco Array-to-Array Harness

<table>
<thead>
<tr>
<th>Length (inch)</th>
<th>Wattstopper Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>BLMAH-3</td>
</tr>
<tr>
<td>6</td>
<td>BLMAH-6</td>
</tr>
<tr>
<td>8</td>
<td>BLMAH-8</td>
</tr>
<tr>
<td>12</td>
<td>BLMAH-12</td>
</tr>
<tr>
<td>18</td>
<td>BLMAH-18</td>
</tr>
<tr>
<td>End of string array Terminator</td>
<td>BLM-TERM</td>
</tr>
</tbody>
</table>

### Blanco Array to Array Harness Assembly

- **CONNECTOR:** MOLEX 874391000
- **WIRE:** STRANDED 26 AWG
- **CRIMP TERMINAL:** MOLEX 874210000
Blanco Terminator Harness Assembly

CONNECTOR: MOLEX 874391000
CRIMP TERMINAL: MOLEX 874210000
WIRE: STRANDED 26 AWG

WIRING DIAGRAMS

Blanco Logic Module with Wattstopper Digital Lighting Management (DLM) Control Interface

24-48 VDC, 2mA
Max. ambient temp. 131ºF (55ºC)
LMLM-101
www.legrand.us/wattstopper
LoadConfig

BLU LED (Under Case)
LOAD
RED LED (Under Case)
CONFIG
GREEN LED (Under Case)

DLM Local Network – COM (BLUE)
DLM Local Network – GND (BLACK)
DLM Local Network – 24V (RED)

DLM Connection using LMFC-RJ-50-24 or LMFC-2RJ
NOTE: Length of low voltage cable within the fixture must not exceed 24”

The LMFC-RJ-50-24 requires a hole in the fixture for a standard 1/2” nipple.

LMFC-2RJ snaps into hole in fixture
2 LMRJ cables connected for daisy chaining

Placing Mac Address Labels
Each Blanco logic module ships with two adhesive labels containing the Mac address of the individual logic module. To make it easy to identify specific fixture controllers once they are installed in a room, Wattstopper recommends placing one label on the fixture, next to the LMFC-RJ-50-24 or LMFC-2RJ, as shown below. Then, place the second label in a plastic bag and tape it to the fixture. During installation, the contractor should affix the second label to the on-site plan documentation, indicating the location of that specific controller.

Adhesive label
Label in bag taped to fixture
Label placed on fixture
Or
Blanco Wiring Examples

Blanco arrays are wired in series and require a terminator at the end of each linear run in order to create the electrical circuit. Up to 4 feet of linear array can be connected to each output connector. For example, (4) 1 foot arrays, (2) 2 foot arrays or (1) 4 foot array can be connected to each output connector on the logic module. If custom boards are being used please follow the manufacturer requirement regarding maximum possible length wired to each output connector. Each logic module is capable of powering up to 8 linear feet (4 feet per connector).

Observe the silkscreen.

- When placing arrays ensure arrows align to maintain correct polarity and CCT sequence.
- LED arrays must be wired with power being supplied from the logic module or adjacent array to the “IN” end of the array and leaving the “OUT” end of the array.

In order to maintain balanced luminance and maximize efficacy, please following the wiring scenarios listed in the following table:

<table>
<thead>
<tr>
<th>Total Length</th>
<th>Length Combination on Output 1</th>
<th>Length Combination on Output 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Ft.</td>
<td>1 Ft.</td>
<td>N/A</td>
</tr>
<tr>
<td>2 Ft.</td>
<td>2 Ft.</td>
<td>N/A</td>
</tr>
<tr>
<td>3 Ft.</td>
<td>2 Ft.</td>
<td>1 Ft.</td>
</tr>
<tr>
<td>4 Ft.</td>
<td>4 Ft.</td>
<td>N/A</td>
</tr>
<tr>
<td>5 Ft.</td>
<td>3 Ft.</td>
<td>2 Ft.</td>
</tr>
<tr>
<td>6 Ft.</td>
<td>4 Ft.</td>
<td>2 Ft.</td>
</tr>
<tr>
<td>7 Ft.</td>
<td>4 Ft.</td>
<td>3 Ft.</td>
</tr>
<tr>
<td>8 Ft.</td>
<td>4 Ft.</td>
<td>4 Ft.</td>
</tr>
</tbody>
</table>

Blanco, 2 Feet

- Power Cable
- Blanco Logic Module
- Blanco Logic Module to Array Harness (Varying lengths)
- 2’ Array
- Blanco Array to Array Harness (6, 8, or 12”)
- OR
- 1’ Array
- Blanco Terminator Harness

Observe the silkscreen. LED arrays must be wired with power being supplied from the logic module or adjacent array to the ”IN” end of the array and leaving the ”OUT” end of the array.

Blanco, 6 Feet

- Power Cable
- Blanco Logic Module
- 2 Blanco Logic Module to Array Harnesses (Varying lengths)
- 2’ Array
- Blanco Terminator Harness
- Blanco Array to Array Harness (6, 8, or 12”)
- 1’ Array
- Blanco Terminator Harness

NOTE: Maximum length for one string of arrays is 4 feet. 4’ length can be comprised of two 2’ arrays, four 1’ arrays, or one 2’ and two 1’ arrays.

Observe the silkscreen. LED arrays must be wired with power being supplied from the logic module or adjacent array to the ”IN” end of the array and leaving the ”OUT” end of the array.
FACTORY TEST REQUIREMENTS

Blanco Logic Module with Wattstopper Digital Lighting Management (DLM) Control Interface

Required Devices: Wattstopper LMKT-CCT Test Kit
This kit includes an LMSW-105-CCT, LMSW-105, and LMFC-2RJ, housed in a steel enclosure.

Test Fixture Set-up:
1. Connect one of the RJ45 port on the lighting fixture to one of the RJ45 ports on the DLM test fixture using a category 5e data cable.
2. Energize the Wattstopper test fixture with AC power.
3. Energize the lighting fixture with AC power.

Test Steps:
1. The Config LED (Red) on the DLM enabled logic module will turn solid red for a few seconds. [For reference, the Config LED will then blink once every 3 seconds (System ‘heartbeat’).]
2. Double-click the button top of the LMSW-105 rocker switch. The DUT will turn On with dimming level at 100%, and the Logic Module Load LED (Blue) will turn On while the load is On. The local network communication to the Logic Module is verified.
3. Press LMSW-105-CCT button 2. The DUT will change its CCT level to 75%. The CCT function of Logic Module is verified.
4. Press LMSW-105-CCT button 4. The DUT will change its CCT level to 25%.
5. Press the bottom of the LMSW-105 rocker switch. The DUT will slowly dim to off and the blue LED will turn off.
6. Pressing the Load Button on the Logic Module will toggle the load On/Off.
Testing without an LMKT-CCT:
1. Energize the lighting fixture with AC power.
2. The configuration LED (green) will illuminate on the LMLM-101 DLM control Interface. This signals the control device is successful communicating with the Logic Module.
3. After 5 seconds the fixture will enter emergency power mode. The fixture will go to it’s highest possible CCT and intensity. This signals the control device is successful communicating with the Logic Module.
4. Pressing the Load Button on the Logic Module will toggle the load On/Off.

RECOMMENDED NOMENCLATURE
Common nomenclature will ensure Wattstopper technical support and warranty services are as efficient as possible. Wattstopper recommends incorporating the following nomenclature in your fixture’s catalog number.

<table>
<thead>
<tr>
<th>Product</th>
<th>Wattstopper Recommended Nomenclature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blanco 2 Logic Module with DLM Control Interface</td>
<td>B2LM</td>
</tr>
<tr>
<td>Blanco 3 Logic Module with DLM Control Interface</td>
<td>B3LM</td>
</tr>
</tbody>
</table>

WARRANTY INFORMATION

Wattstopper warranties its products to be free of defects in materials and workmanship for a period of five (5) years. There are no obligations or liabilities on the part of Wattstopper for consequential damages arising out of, or in connection with, the use or performance of this product or other indirect damages with respect to loss of property, revenue or profit, or cost of removal, installation or reinstallation.

INFORMATIONS RELATIVES À LA GARANTIE

Wattstopper garantit que ses produits sont exempts de défauts de matériaux et de fabrication pour une période de cinq (5) ans. Wattstopper ne peut être tenu responsable de tout dommage consécutif causé par ou lié à l’utilisation ou à la performance de ce produit ou tout autre dommage indirect lié à la perte de propriété, de revenus, ou de profits, ou aux coûts d’enlèvement, d’installation ou de réinstallation.

INFORMACIÓN DE LA GARANTÍA

Wattstopper garantiza que sus productos están libres de defectos en materiales y mano de obra por un periodo de cinco (5) años. No existen obligaciones ni responsabilidades por parte de Wattstopper por daños consecuentes que se deriven o estén relacionados con el uso o el rendimiento de este producto u otros daños indirectos con respecto a la pérdida de propiedad, renta o ganancias, o al costo de extracción, instalación o reinstalación.