Wireless Control Module

ENCELIUM® Energy Management System – Hardware

Key Features & Benefits

- Control module for all of the following:
  - 0-10V dimmable luminaires
  - DALI ballasts
  - Occupancy sensors
  - ENCELIUM GreenBus II® connection available for GreenBus II devices
- Connects 0-10V dimmable luminaires to network for:
  - Customizing lighting scenes for tailored experiences/tasks
  - Adjusting light levels to respond to variable lighting requirements

The Wireless Control Module (WCM) is a key component of the ENCELIUM Energy Management System (EMS). This device allows luminaires and occupancy sensors to communicate via a mesh network based on ZigBee® standards. Individually addressable, the WCM enables each ballast or LED driver to be independently controlled and configured to best meet the needs of the facility.

The WCM switches a fixture ON or OFF via a relay contained in the module as well as delivers a low voltage dimming signal to any 0-10V dimming ballast/driver. A WCM can be connected to LED drivers without isolation between the dimming section and the electrical output for added flexibility in LED driver options.

OSRAM offers a special Damp-Rated (DR) WCM for installations subject to moderate degrees of moisture.

The WCM is compatible to ENCELIUM hardwired products via the GreenBus II port on the device. This enhances the flexibility of the system to include phase-cut dimming, area lighting control and relay panel control.

System Architecture

This illustration shows how each component is easily integrated into the ENCELIUM Wireless Energy Management System (EMS). The ENCELIUM Wireless system communicates via a mesh network based on ZigBee standards. The WCM is powered by incoming line voltage. Each WCM, sensor, and wallstation uses a wireless mesh network to relay data back to the Wireless Manager (WM). WMs typically control individual floors and are linked via an Ethernet Network back to the SSU. Internet or LAN connection allow floor plan based control software via Polaris 3D® to be operated anywhere on the network. For reference, the component shown on this data sheet is highlighted.
Ordering Information

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Ordering Description</th>
<th>Communication Network</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>45572</td>
<td>EN-WCM-ZB-DR</td>
<td>ZigBee® Wireless</td>
<td>- Damp-Rated -DR</td>
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<tr>
<td>45583</td>
<td>EN-WCM-ZB</td>
<td>ZigBee Wireless</td>
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</tbody>
</table>

Specifications

- 3.17” x 1.64” x 1.27”
  (80.42mm x 41.6mm x 32.31mm)
- Operating temperature range: -40°C (-40°F) to 60°C (140°F)
- Suitable for luminaire or junction box mounting in standard 1/2” knockout (7/8” dia.)
- Absolute Maximum Ratings 300W (all rated voltages have a tolerance of +/-10%).
  - 4.5A 120-347 V ac Ballast/LED Driver
  - 5.8A 120-347 V ac Tungsten
  - 9.0A 120-347 V ac General Purpose
- Single 0-10V dimming output (IEC 60929 Annex E). Capable of sinking 10mA (this is equivalent to 10 typical dimming ballasts/drivers)
- Standard units are for indoor use only or for mounting inside waterproof enclosure
- Damp-rated units may be used in damp locations
- Radio Properties - 2.4 GHz
- Wireless Range: 100’ line of sight, 50’ through standard walls when WCM is mounted exterior to the luminaire
  - Range decreases by 50% when mounted inside the luminaire
- Safety approvals:
  - Energy Management Equipment (UL 916)
  - Emergency Lighting Equipment (UL 924 cULus Listed)
  - Heat and Smoke Release for Air-Handling Spaces (UL 2043)
- 0-10V or DALI connectivity
- ENCELUM GreenBus II connection port for GreenBus II devices
- Complies with the following electromagnetic requirements:
  - EN 61000-4-2
  - EN 61000-4-4
  - EN 61000-4-5
- FCC Part 15/ICES-003

Dimensions

The mechanical construction allows for simple installation of the WCM to an available 1/2 inch knock-out on the side or on top of a fixture (as shown below). All necessary wiring for the electronic dimming ballast or LED driver is available on the inside.

Installation Diagram

For some installations, a junction box may be required. It is recommended to securely mount the WCM to the junction box (as shown below) using an available 1/2 inch knock-out and a retainer nut.
Wire Table

<table>
<thead>
<tr>
<th>Wire Color</th>
<th>Wiring to Luminaires</th>
<th>Wiring to Low Voltage Sensor</th>
<th>Wiring Using GreenBus II Port Only</th>
<th>Wire Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLACK</td>
<td>Line In - Relay Contact</td>
<td>Line In - Relay Contact</td>
<td>Line In</td>
<td>9.84&quot; (250mm)</td>
</tr>
<tr>
<td>RED</td>
<td>Line Out - Relay Contact</td>
<td>Not Used</td>
<td>Not Used</td>
<td>9.84&quot; (250mm)</td>
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<tr>
<td>WHITE</td>
<td>Neutral</td>
<td>Neutral (WCM Input Only)</td>
<td>Not Used</td>
<td>9.84&quot; (250mm)</td>
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<tr>
<td>VIOLET</td>
<td>Class 2, Low Voltage, 0-10Vdc, 10mA max.</td>
<td>Power</td>
<td>Not Used</td>
<td>23.62&quot; (600mm)</td>
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<tr>
<td>GREY</td>
<td>Class 2, Low Voltage Return/Common</td>
<td>Common</td>
<td>Not Used</td>
<td>23.62&quot; (600mm)</td>
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<tr>
<td>BLUE</td>
<td>Not Used</td>
<td>Signal</td>
<td>Not Used</td>
<td>7.09&quot; (180mm)</td>
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</tbody>
</table>

Note: GreenBus II port can also be used when wiring to a luminaire.