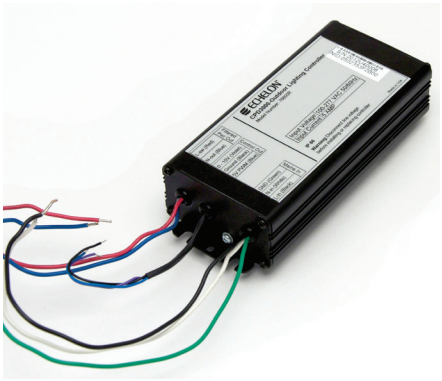
LUMEWAVE
By ECHELON

CPD 3000
Outdoor Lighting Controller

Reduce Energy Use up to 30%



CPD 3000 Key Features

- Provides ISO/IEC 14908-1 and -3 compliant, power line-based, two-way communications between lamps and segment controllers.
- Provides vital data to the segment controller that reduces energy use and operating costs.
- Optimizes communications with integrated power line meshing
- Enables remote command and control at every lamp.
- Reduces installation and deployment costs.
- Future proofs lighting systems at lower cost with remote firmware update abilities.
- Eliminates failure-prone photocells at the luminaires by leveraging the segment controller's time and astronomical-based scheduling
- An integral component of Echelon's smart street lighting solution, the CPD 3000 Outdoor Lighting Controller (OLC) uses ISO compliant, power line communications technology to manage outdoor lighting luminaires in street, parking, industrial complex, and other outdoor area lighting systems. When used with the Echelon SmartServer Segment Controller, cities can implement smart outdoor lighting systems that reduce energy use by 30% or more beyond gains from efficient lamp technologies and cut operating costs by 20%. Together, the segment controller and CPD 3000 OLC increase safety and beautify cities through remote monitoring and control of individual lights and segments of lights.

Proven, high reliability, two-way communications with each lighting fixture without new wiring.

Over 500 cities have lighting systems based on Echelon's smart street lighting solution and the technology used in the OLC. The OLC uses existing power lines to communicate with the outdoor lighting network Segment Controller (an Echelon SmartServer 2.0 Controller). The Segment

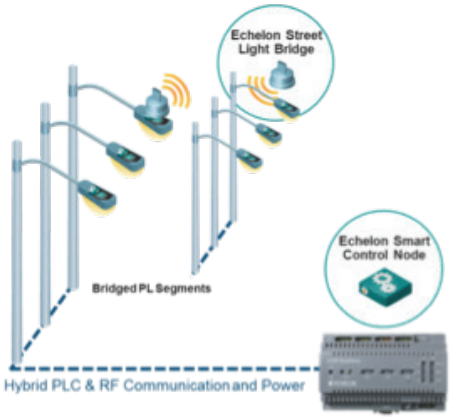


Figure 1. CPD 3000 System Architecture

Controller consolidates data from the CPD 3000 devices within the outdoor lighting network to allow operators to remotely monitor and control the entire network. One Segment Controller can manage and control up to 200 devices — OLC-controlled luminaires along with optional Echelon CRD 3000 PL/RF Bridge modules, as shown in **Figure 1.** The system architecture of Segment Controllers, PL/RF bridges, and OLCs allows single lighting networks to scale to tens of thousands of individually controlled and monitored lights.

Enables the use of multiple lighting technologies and power supplies to suit end-user needs and technology evolution.

The CPD 3000 can be embedded in a lighting fixture in minutes, regardless of lighting technology, to control various types of lighting power supplies including:

- Induction Lighting — Electronic Ballast/Generator
- High-Pressure Sodium (HPS) Lighting — Ballast
- Light Emitting Diode (LED) Lighting — Driver

The CPD 3000 can use control signals such as 0-10 V lighting control (for example, the ESTA E1.3, Entertainment Technology — Lighting Control System - 0 to 10V Analog Control Protocol), and pulse-width modulation (PWM), compliant with IEC60929 standard..

Embeds intelligence into street lighting systems to reduce operating costs and energy use, improve reliability, and increase comfort.

The CPD 3000 provides vital data for each lamp and serves as a monitoring and fault detection device. Data includes:

- Lamp Run Hours
- Voltage
- Current
- Lamp Status
- Present Power Consumption
- Diagnostic Alarms
- Power Factor

Specifications

Input Voltage

Model #: 76600R – UL Certification

100 VAC to 277 VAC (2 Wire + Earth)

Model #: 76610R – CB Certification

100 VAC to 250 VAC (2 Wire + Earth)

Frequency: 47 to 63 Hz

Current: Max 5 Amp

Power Line Communications

Dual frequency 115 kbps and 132 kbps. Two-way communications on the LonWorks PL channel based on the ISO/IEC 14908-3 standard.

Power Line Repeating: The CPD 3000 can repeat messages within the outdoor lighting network, as requested by the Segment Controller. If PL communications fail between the Segment Controller and a particular CPD 3000 module, the Segment Controller can dynamically specify another CPD 3000 to act as a repeater to maintain overall network communications. If the network includes CRD 3000 PL/RF Bridge modules, the Segment Controller can route messages throughout the network using either Power Line or Radio Frequency communications, as needed.

Metering capability with 2% accuracy

Dimming capability using PWM and 0-10V

Power

Filtered auxiliary power output for lighting

Maximum 500 Watt luminaires

Switched internal relay for turning lights on/off

Greater than 48 dB attenuation for lighting noise sources (built-in filter)

Environmental

Operating temperature range: -40 °C to +70 °C

Fully potted electronics

Moisture & Humidity: 5% to 95% RH, non-condensing

Storage Temperature: -40 °C to +85 °C

Vibration: 5 Hz - 7.5 Hz @ 0.5" D.A., 5.5 Hz-200 Hz @ 1.5G

Shock: 30 g @ 11 ms; 100 g @ 3 ms (half sine)

IP Rating: IP66 for outdoor applications

EMC

FCC Part 15 Class B

Agency Listings: This product meets CB Certification.

UL 60950, UL 60950-1

CE — Europe, EN 60950-1, EN 55022, EN 55024

C -Tick — Australia, AS/NZS CISPR 22 Class 22

FCC — US, FCC Part 15 Subpart B

VCCI — Japan, CISPR 22 Class B

cUL — Canada, cUL C22.2 No. 60950-00

PSE — Japan

RoHs Compliant

The CPD 3000 module is compliant with the European Directive 2002/95/EC on the restriction of the use of certain hazardous substances (RoHS) in electrical and electronic equipment.

Physical,Weight: 800 grams

Size: Length 167 mm, Width 74 mm, Height 37.5 mm

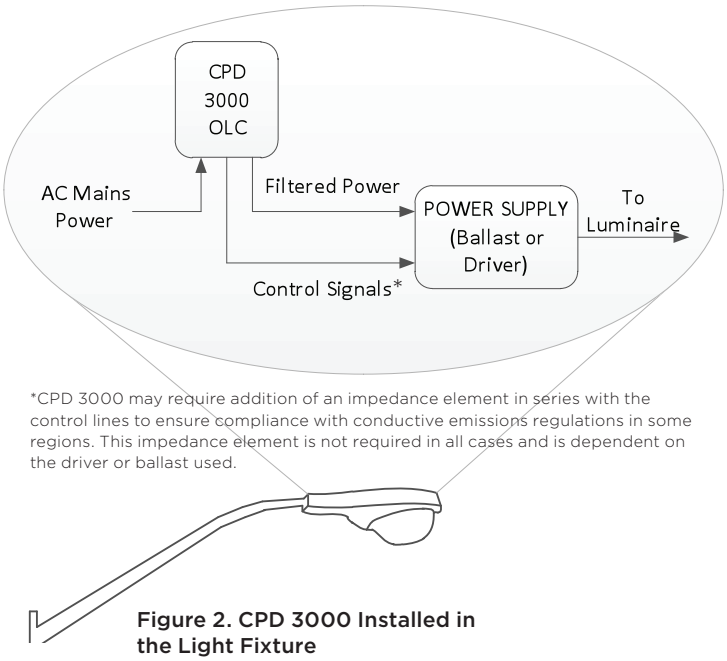
Warranty

5-year limited warranty*

*Subject to terms and conditions found at http://echelon.com/lp/warranty_five_year

Installation

The CPD 3000 Outdoor Lighting Controller can be installed within the lighting fixture, in the access hole of the lighting fixture pole, in the gear tray, or in a separate box. **Figure 2** shows a typical installation within the lighting fixture.



*CPD 3000 may require addition of an impedance element in series with the control lines to ensure compliance with conductive emissions regulations in some regions. This impedance element is not required in all cases and is dependent on the driver or ballast used.

Figure 2. CPD 3000 Installed in the Light Fixture

Installation for the CPD 3000 OLC is simple:

1. Install the CPD 3000 OLC.
2. Connect AC mains power to the CPD 3000 OLC.

Important: Disconnect line voltage before installing or replacing the CPD 3000 OLC.

3. Connect the filtered power output of the CPD 3000 OLC to the luminaire power supply (electronic ballast/ generator, ballast, or driver).
4. Connect the CPD 3000 control signal wires to the luminaire control input.

Model and Ordering Information

CPD 3000 — Outdoor Lighting Controller

76600 R : US Models

76610 R : European Models

Wiring Specification and Diagram (US Models)

Three 16 AWG wires for AC mains input	
Black	Line In
White	Neutral In
Green	Ground
Three AWG 22 wires for control signal output (IEC60929)	
Blue	10V signal for PWM control
Black	Ground
Violet	Signal for 0-10V control

Wiring Specification and Diagram (European Models)

Double insulated 3 x 18 AWG for AC mains input	
Brown	Line In
Blue	Neutral In
Green/Yellow	Ground
Double insulated 3 x 18 AWG for control signal output (IEC60929)	
Blue	10V signal for PWM control
Black	+ Signal for 0-10V control
White	- Signal for 0-10V control

Double insulated 3 x 18 AWG for filtered power output	
Brown	Line Out
Blue	Neutral Out
Green/Yellow	Ground

CPD 3000 Mechanical Dimensions

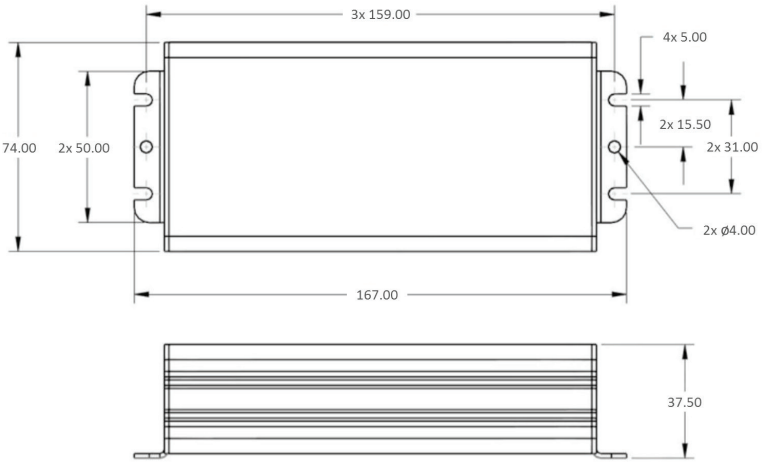


Figure 3. CPD 3000 Housing Profile (dimensions in millimeters)

Note:

1. This product is not suitable for installation above 15,000 ft altitude.
2. This product must be installed in the light fixture, inside a street light pole, or in a street light cabinet.
3. This product is not intended to be installed in an open outdoor environment.

For more information about this product, contact us at +1 408 938 5200 or visit www.echelon.com.

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