

LED CoveWash[®]

Operation and Wiring Instructions



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LED CoveWash



LED CoveWash is a customizable, low-profile linear LED lighting designed specifically for small cove and indirect lighting applications in the commercial and high-end residential building markets. Part of the Emerge LED Lighting product family, the LED CoveWash features a unique optical design that utilizes a linear parabolic reflector and thin-film diffusers to create various beam angles. Combined with DDP's advanced, high-performance LED driver technology, the LED CoveWash is an energy-efficient solution that provides seamless light with low power consumption at only 4 watts per foot. It is UL dry location certified and is well-suited for a variety of indoor lighting effects with various beam options and color temperatures.

The LED CoveWash is a highly-customizable system available in a range of color temperatures from 2700K to 6300K with multiple user-specifiable viewing angles. The LED CoveWash comes in 1ft and 2ft lengths with flexible end-to-end molded connectors. Enclosed in a durable UV resistant 1.00" diameter housing this powerful, compact lighting fixture includes a variable angle mounting bracket allowing up to 180 degree

rotation. The clear bracket features angle indicator marks for accurate installation of fixtures. The LED placement, optics and diffused end caps provide seamless light between linear sections. Advanced LED drive circuitry and thermal management ensure a long operating life upwards of 50,000 hours.

The LED CoveWash's reliable performance and creative design makes it a perfect indoor LED lighting solution for both commercial and residential use. It can be powered by any UL Listed 24VDC Class 2 power supply.

The Generic Part Numbers (P/N) have the following format:

CWi-XX-XX-XXX

- CWi - LED CoveWash Product Line.
- XX - 12 or 24 feet long units
- XX - Beam Angles 100x120, 80x120, 60x100, and 50x120, Custom Angle (consult factory).
- XX - LED Color Temperature 2700, 3000, 3500, 4200, 5300 and 6300 Degrees K.
("XX" are first 2 digits of the Color Temperature, e.g. "27" for 2700K)

WARNING: For eye safety, do not stare into the light beam of any LED at close range. This may cause permanent vision damage.

WARNING: The LED CoveWash was designed for indoor dry location only. Please do not attempt to install the fixture in wet/ damp or outdoor locations.

“Class 2” Power Supply Requirements

DDP LED CoveWash Total Length	Min. 24VDC Power Supply Wattage
1 Foot	5 Watts
2 Feet	10 Watts
3 Feet	15 Watts
4 Feet	20 Watts
5 Feet	25 Watts
6 Feet	30 Watts
7 Feet	35 Watts
8 Feet	40 Watts
9 Feet	45 Watts
10 Feet	50 Watts
11 Feet	55 Watts
12 Feet	60 Watts
13 Feet	65 Watts
14 Feet	70 Watts
15 Feet	75Watts
16 Feet	80 Watts
17 Feet	85 Watts
18 Feet	90 Watts
19 Feet	95 Watts
20 Feet	100 Watts

Table 1 LED CoveWash
24 Volts DC Power Supply
Requirement

LED CoveWash Product Line complies with the Underwriters Laboratories Inc. (UL) standards for Low Voltage Lighting System (UL 2108). The use of a UL approved Class 2 Power Supply unit is required for safe operation of the fixture.

LED CoveWash requires 24 Volts DC power source. Total power supply wattage requirement per foot is summarized on Table 1.

Please contact DDP for a list of recommended Class 2 power supplies or for assistance in purchasing power supply units for your application.

The maximum Class 2 Power Supply Wattage is 100W per unit or per Channel in a “Multiple Output Channel” device. Multi-Output Channel Power Supplies with UL Class 2 rating may be used with the LED CoveWash fixture.

Wet dry enclosure is required for power supply units that will be installed outdoors.

WARNING: The use of non-Class 2 Power Supplies is not recommended. This will void LED CoveWash's product warranty. DDP will not be held liable for any damages or injuries due to improper installation or operation of fixture.

Operating LED CoveWash Units in Cascade Mode



Fig. 1 Example of LED CoveWash units in Cascade Mode powered by a 100-Watts 24 VDC Class 2 Power Supply with Dimming Connections

LED CoveWash units can be operated in Cascade Mode. Figure 1 on left shows a 1-foot unit and a 2-foot unit connected together in Cascade Mode.

To calculate power supply requirements, get the total number of feet of cascaded fixtures and refer to Table 1 on page 2 to get the required power supply wattage. The total allowable cascade length is 20 feet.

Jumper cables are needed to connect LED CoveWash fixtures together. The jumper cables are available in 4 different sizes 1", 4", 8" and 12" (504435-XX). The letters XX corresponds to the length of the jumpers.

Power cable assemblies with lengths 6 feet or 10 feet max are required to hook-up units to a power supply. Consult factory for custom jumper and power cable lengths.



Fig. 2 Example of an LED CoveWash unit with a Jumper Cable

The total combination length of Power and Jumper Cables should be less than 20 feet to avoid excessive noise and voltage drop on the cables. The LED CoveWash's connectors are symmetrical and bi-directional which allows the user to connect extension and power cable assemblies on either side of the unit.

Mounting Clip

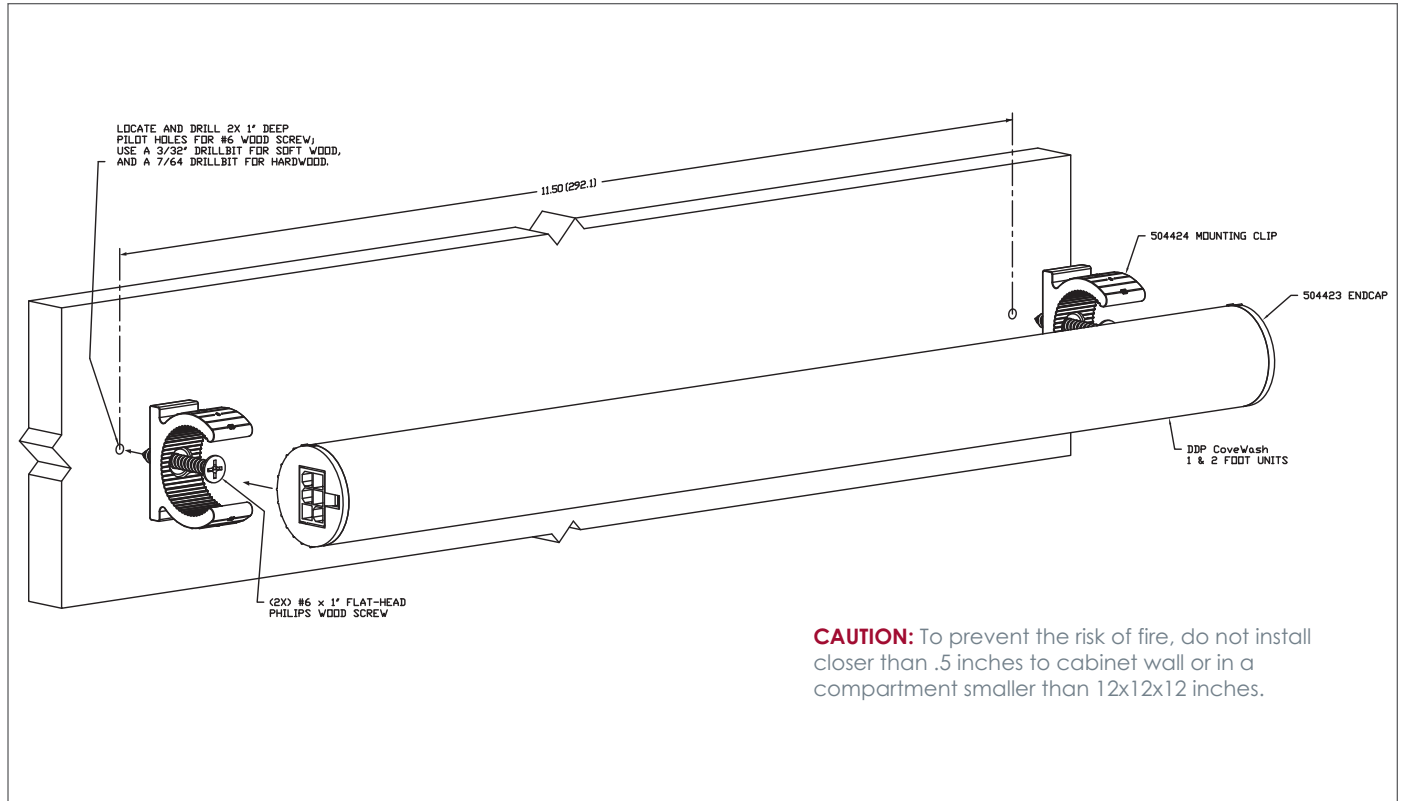


Fig. 3 LED CoveWash Clip

Each LED CoveWash includes a variable angle mounting clip allowing up to 180 degree rotation. The clear bracket also features an angle indicator mark for accurate installation of fixtures on jobsite. Marks come in 5 degree increments.

WARNING: The use of unqualified brackets is dangerous and will void LED CoveWash's product warranty. DDP will not be held liable for any damages or injuries due to improper installation and operation of fixtures.

Installation Instructions



Power Cable Assemblies



Fig. 4 Example of an LED CoveWash 6 Feet Power Cable 504488-06

Power cable assemblies can be ordered in standard 6 feet or 10 feet length (504488-XX). The 2 digits "XX" represents the cable length in foot. Contact factory for other custom lengths.

The other end of the Power Cable has 5 wires. The Power Cable uses 2 wires for the 24 VDC power supply, and 3 wires for the Dimming Function.

POWER SUPPLY LINES ON THE POWER CABLE

+24 VDC: Red wire soldered together to an un-insulated terminal.

Ground: Black wire soldered to an un-insulated Terminal.

Connect the +24 VDC and Ground (0 V) outputs of the 24 VDC Class 2 Power Supply to the +24 VDC and Ground terminals.

Dimming Control

Each LED CoveWash unit has a built-in Dimming Control function.

DIMMING CONTROL LINES ON THE POWER CABLE:

10 VDC Source: Brown wire, soldered to an un-insulated Terminal.
Dimming Control: White wire, soldered to an un-insulated Terminal.
Ground: Green wire, soldered to an un-insulated Terminal.

Note: The above “10 VDC Source” is a 10 VDC power output from the LED CoveWash. It eliminates the need for the users to find an external 10 VDC source when using the Manual Dimming Control or Fixed Dimming Control. The maximum current output capacity for the “10 VDC Source” Brown wire is limited to 10 mA. The “Ground” Green wire is connected to the “Ground” +24VDC Power.

These 3 wires are soldered to 3 Terminals and insulated with black Heat Shrink Tubes. If no Dimming Function is required, just leave these 3 wires alone. The LED CoveWash will still operate in maximum brightness.

0 – 10 VDC Dimming Control:

If you have a standard 0 –10 VDC output controller, you can remove the black Heat Shrink Tubes on the White wire and Green wire, and connect the 0 – 10 VDC Controller output to the White wire and connect the system ground to the Green wire (Ground). A typical 0 – 10 VDC Controller can be used as a simple Digital to Analog (D2A) Controller Card plugged into a Desktop Computer. The user can write a simple program to control the LED CoveWash Dimming Function.

Manual Variable Dimming Control:



If manual Variable Dimming Function is desired, please remove the black Heat Shrink Tubes on the Brown, White and Green wires.

To manually control the Dimming Function, you can connect a 10K OHM Potentiometer to these 3 wires: the 2 “End Terminals” of the Potentiometer are connected to the Brown wire and Green wire.

The “10 VDC Source” Brown wire will output 1 mA to the 10K OHM Potentiometer. The “Center Terminal” of the Potentiometer is connected to the White wire. You can reverse the Brown and Green wires to reverse the manual control direction when turning the Potentiometer Knob.

Fig. 5 Manual Dimming Control wired with a 6-Position Terminal Block, a 10K Ohm Potentiometer , and a Knob Left Cable is the output of the 24 VDC Class 2 Power Supply Right Cable is DDP Power Cable 504488-06

Dimming Control

Fixed Dimming Control:

If fixed Dimming is desired, you can connect 2 resistors to these 3 Dimming wires.

Use two ¼ Watt leaded resistor R1 and R2, connect R1 to Brown and White wires and connect R2 to White and Green wires. Use the following formula to calculate the values of the R1 and R2 resistors.

$R1 + R2 = 10 \text{ K OHM}$ approximately.

Dimming percentage % = $R2 / (R1 + R2)$

For example, if 70% Dimming is desired, we can select $R1 = 3\text{K OHM}$, $R2 = 7\text{K OHM}$.

Terminal Block for Dimming:

These 3 Dimming wires are factory soldered with Terminals. Users can use 2-rows 6-Positions per row "Terminal Block" for wiring to avoid cut wires and soldering work.

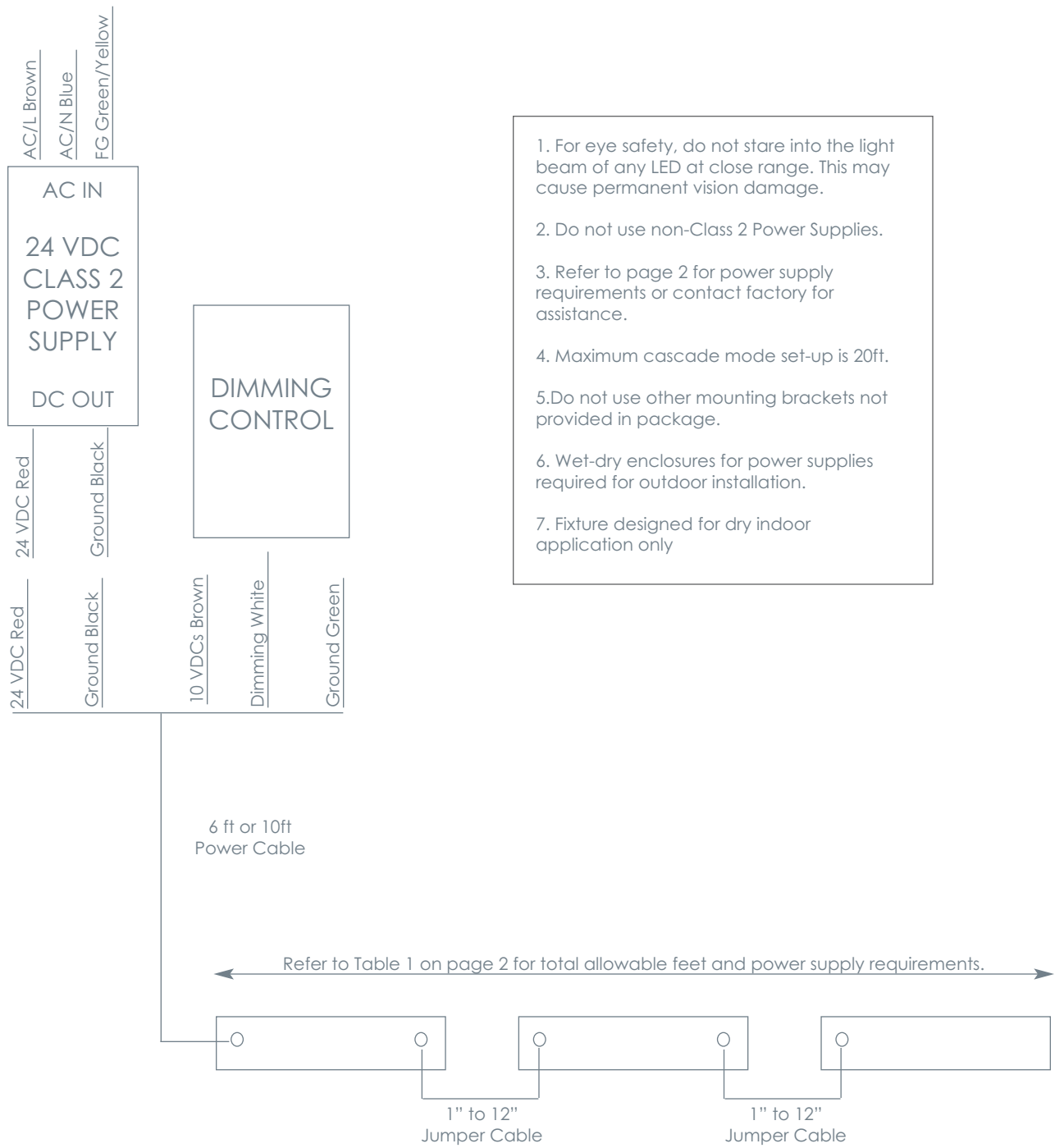
Dimming Control in Cascade Mode Operation:

Only 1 Power Cable and 1 Dimming Control connection is required for up to 10 feet Cascade Mode set-up. The Extension Cables will carry the Dimming signals to all units in cascade. All units will respond to the same Dimming control signal.

Dimming Control Power Requirement:

Dimming control will proportionately cut down total power consumption of the unit. However, Peak Current of the internal Electronics remains the same. As such, there will be no change on power supply requirements. Do not attempt to use lower wattage power supplies as this will result in overloading and eventual failure of fixtures.

WIRING DIAGRAM



1. For eye safety, do not stare into the light beam of any LED at close range. This may cause permanent vision damage.
2. Do not use non-Class 2 Power Supplies.
3. Refer to page 2 for power supply requirements or contact factory for assistance.
4. Maximum cascade mode set-up is 20ft.
5. Do not use other mounting brackets not provided in package.
6. Wet-dry enclosures for power supplies required for outdoor installation.
7. Fixture designed for dry indoor application only

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DDP LED LIGHTING



DDP, a pioneer in the design and manufacture of LED products for OEM applications, has branched out to serve the needs of the rapidly-emerging solid-state illumination market. Designated Emerge DDP LED Lighting, DDP is applying decades of LED industry experience to the design and manufacture of state-of-the-art LED fixtures that meet the demands of the architectural lighting community.

Emerge DDP LED Lighting reserves the right to change specifications without notice due to product improvements.
Patent Pending Emerge10-2008
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