

handmade in Italy



IP65

HINT SMALL

RECESSED Pathmarkers / BETALY
Surface finish : BETALY

MODEL:

Code	1304A-392-30172
Product family	RECESSED LAMPS
Type	Pathmarkers

MATERIAL:

BETALY®

INSTALLATION:

Isolation Class:	II
IP:	IP65
Installation:	Recessed
Weight:	3 Kg

LIGHT SOURCE:

Light source	LED
Power :	4W
Tension:	24Vdc
Lumen:	400lm
Color temperature :	3000K
CRI:	80
Power supply :	Remote Power Supply (see pages 2 to 7)

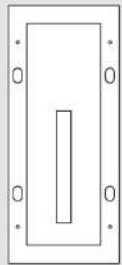
FINISH OPTIONS:



On request available in white dyeable color

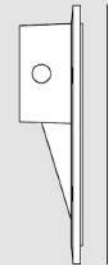
ACCESSORIES:

- 101. Non-dimmable
- 102. 0-10V dimmable
- 103. Triac dimmable
- 104. Other dimming types on request



20 mm
(0.78")

150 mm
(5.90")



90 mm
(3.34")

350 mm
(13.77")



150 mm
(5.90")



■ Features

- Constant Voltage PWM style output with frequency 1.47kHz
- Plastic housing with class II design
- Built-in active PFC function
- Class 2 power unit
- No load power consumption <0.5W
- Fully encapsulated with IP67 level
- Function: 3 in 1 dimming (dim-to-off)
- Typical lifetime >50000 hours

■ Applications

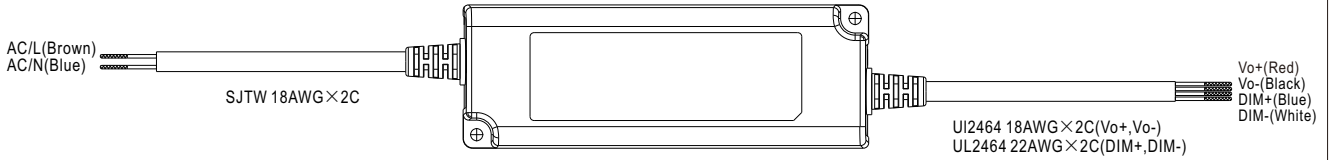
- LED strip lighting
- Indoor LED lighting
- LED decorative lighting
- LED architecture lighting
- Type "HL" for use in Class I, Division 2 hazardous (Classified) location.

SPECIFICATION

MODEL		026.303
OUTPUT	DC VOLTAGE	24V
	RATED CURRENT	1.67A
	RATED POWER	40.08W
	DIMMING RANGE	0 ~ 100%
	PWM FREQUENCY (Typ.)	1.47kHz
	SETUP, RISE TIME Note.2	500ms, 80ms 115VAC / 230VAC
	HOLD UP TIME (Typ.)	16ms/115VAC or 230VAC
INPUT	VOLTAGE RANGE Note.3	90 ~ 305VAC 127 ~ 431VDC (Please refer to "STATIC CHARACTERISTIC" section)
	FREQUENCY RANGE	47 ~ 63Hz
	POWER FACTOR (Typ.)	PF>0.97/115VAC, PF>0.95/230VAC, PF>0.92/277VAC @ full load (Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)
	TOTAL HARMONIC DISTORTION	THD< 20% (@load≥60%/115VAC, 230VAC; @load≥75%/277VAC) (Please refer to "TOTAL HARMONIC DISTORTION" section)
	EFFICIENCY (Typ.)	89%
	AC CURRENT (Typ.)	0.6A / 115VAC 0.3A / 230VAC 0.25A / 277VAC
	INRUSH CURRENT (Typ.)	COLD START 50A(twidth=270μs measured at 50% Ipeak) at 230VAC; Per NEMA 410
	MAX. NO. of PSUs on 16A CIRCUIT BREAKER	9 units (circuit breaker of type B) / 16 units (circuit breaker of type C) at 230VAC
	LEAKAGE CURRENT	<0.25mA / 277VAC
	NO LOAD POWER CONSUMPTION	<0.5W
PROTECTION	OVERLOAD	108 ~ 130% rated output power Hiccup mode, recovers automatically after fault condition is removed
	SHORT CIRCUIT	Shut down o/p voltage, re-power on to recover
	OVER VOLTAGE	28 ~ 34V Shut down o/p voltage, re-power on to recover
	OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover
ENVIRONMENT	WORKING TEMP.	Tcase=-40 ~ +85°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)
	MAX. CASE TEMP.	Tcase=+85°C
	WORKING HUMIDITY	20 ~ 95% RH non-condensing
	STORAGE TEMP., HUMIDITY	-40 ~ +80°C, 10 ~ 95% RH
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)
	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes
SAFETY & EMC	SAFETY STANDARDS Note.5	UL8750(type "HL"), UL879(for 12V,24V only), CSA C22.2 No. 250.13-12; ENEC EN61347-1, EN61347-2-13 independent, EN62384, IP67, BIS IS15885(for 12V,24V only), EAC TP TC 004, GB19510.1, GB19510.14 approved; Design refer to EN60335-1
	WITHSTAND VOLTAGE	I/P-O/P: 3.75KVAC
	ISOLATION RESISTANCE	I/P-O/P: 100M Ohms / 500VDC / 25°C / 70% RH
	EMC EMISSION Note.6	Compliance to EN55015, EN61000-3-2 Class C (@load≥60%); EN61000-3-3, GB17743 and GB17625.1, EAC TP TC 020
	EMC IMMUNITY	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11; EN61547, light industry level (surge immunity Line-Line 2KV), EAC TP TC 020
OTHERS	MTBF	995.5K hrs min. Telcordia SR-332 (Bellcore); 270.02K hrs min. MIL-HDBK-217F (25°C)
	DIMENSION	150*53*35mm (L*W*H)
	PACKING	0.49Kg; 30pcs/15.7Kg/1.0CUFT
NOTE	<ol style="list-style-type: none"> All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25°C of ambient temperature. De-rating may be needed under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details. Length of set up time is measured at first cold start. Turning ON/OFF the driver may lead to increase of the set up time. The driver is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly (C) point (or Tmp, per DLC), is about 75°C or less. Please refer to the warranty statement on MEAN WELL's website at http://www.meanwell.com The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft). For any application note and IP water proof function installation caution, please refer our user manual before using. fdp.NE_DEL/FDP/daolpJ/moc.llewnaem.www//:sptth <p>※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx</p>	

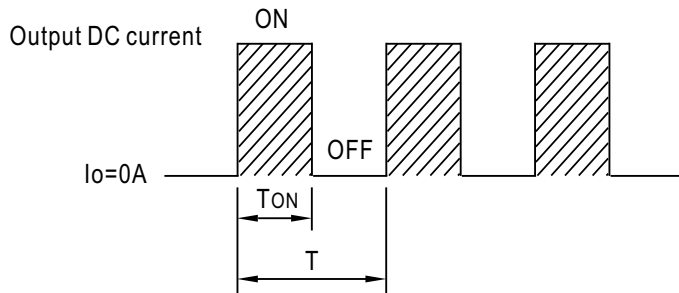


■ DIMMING OPERATION



※ Dimming principle for PWM style output

- Dimming is achieved by varying the duty cycle of the output current.



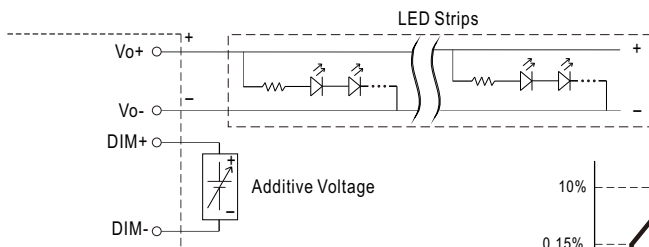
$$\text{Duty cycle (\%)} = \frac{T_{ON}}{T} \times 100\%$$

Output PWM frequency : 1.47kHz fixed (Typ.)

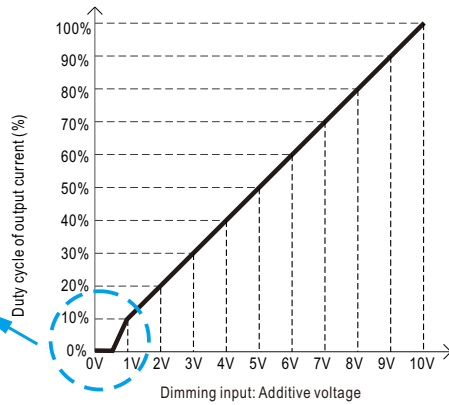
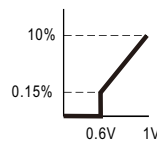
※ 3 in 1 dimming function (for Blank-Type)

- Apply one of the three methodologies between DIM+ and DIM-: 0 ~ 10VDC, or 10V PWM signal or resistance.
- Dimming source current from power supply: 100 μ A (typ.)

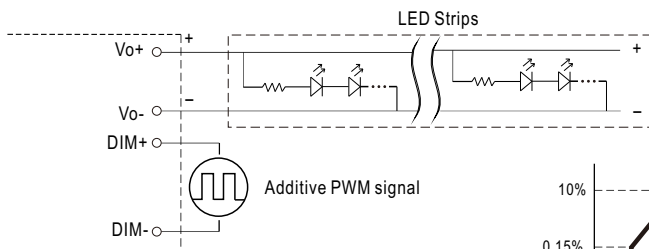
◎ Applying additive 0 ~ 10VDC



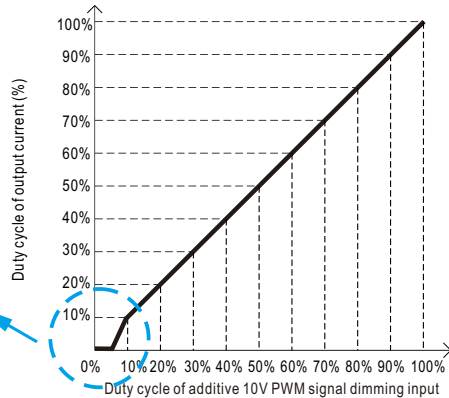
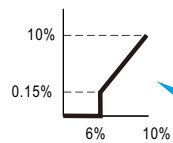
"DO NOT connect "DIM- to Vo-"



◎ Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):

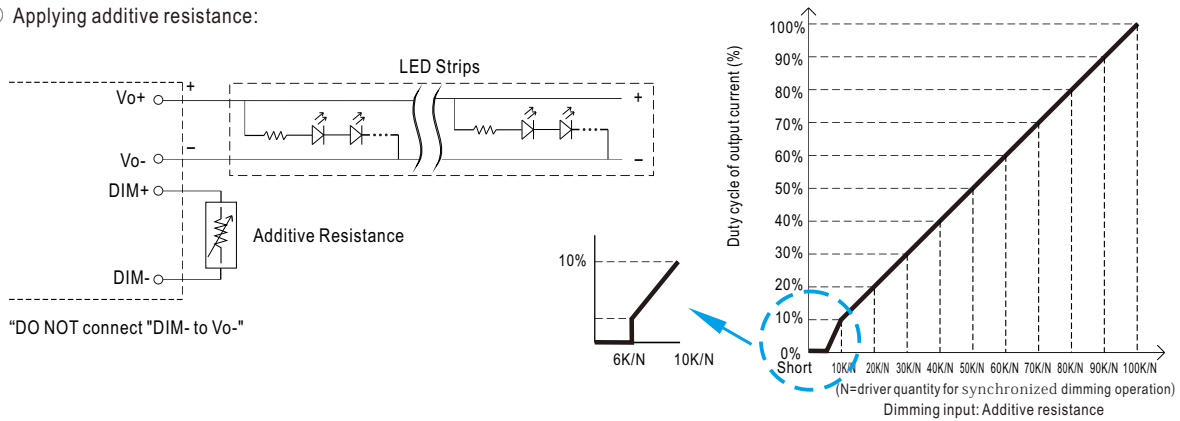


"DO NOT connect "DIM- to Vo-"



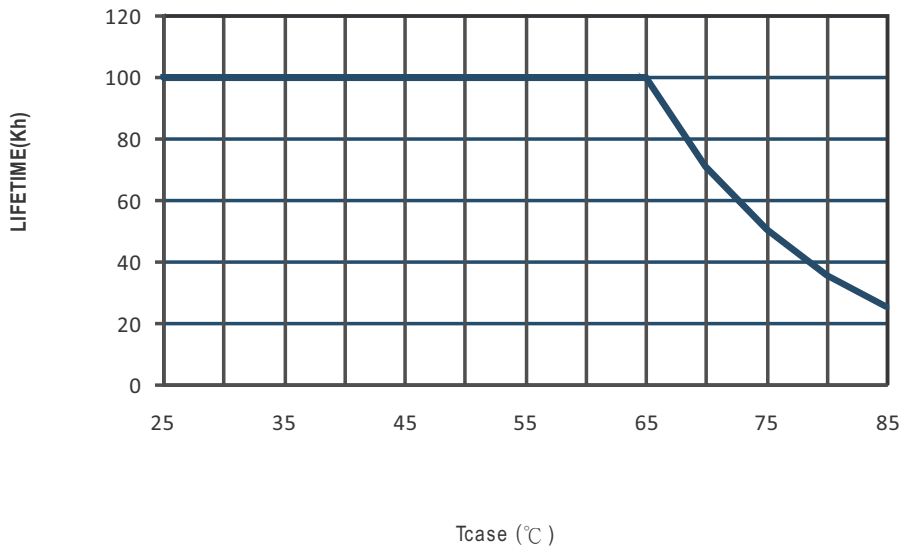


© Applying additive resistance:



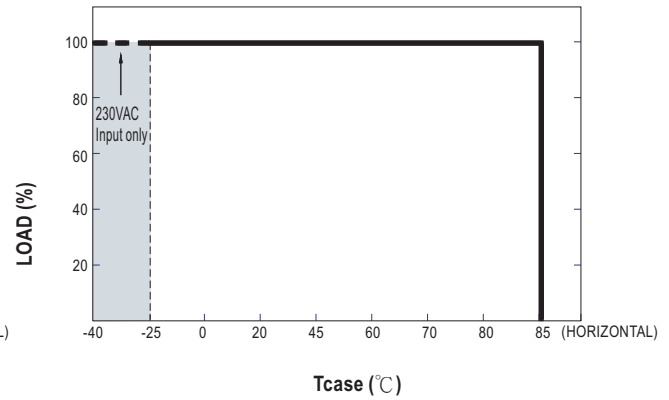
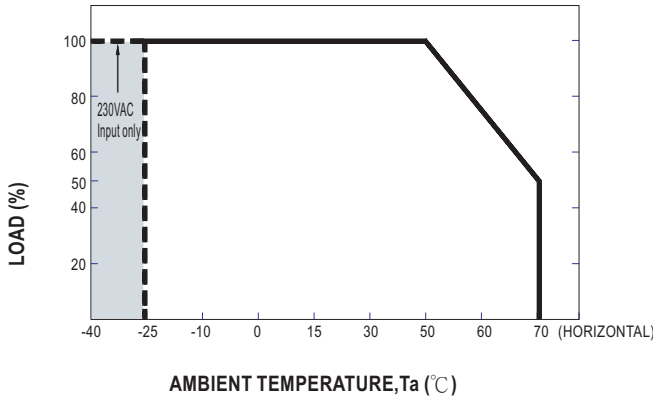
- Note : 1. Min. duty cycle of output current is about 6% and the output current is not defined when $0% < I_{out} < 6%$.
 2. The duty cycle of output current could drop down to 0% when dimming input is about $0k\Omega$ or 0Vdc, or 10V PWM signal with 0% duty cycle.

LIFE TIME

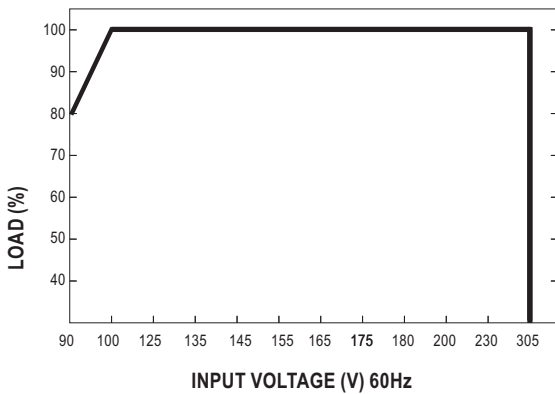




OUTPUT LOAD vs TEMPERATURE



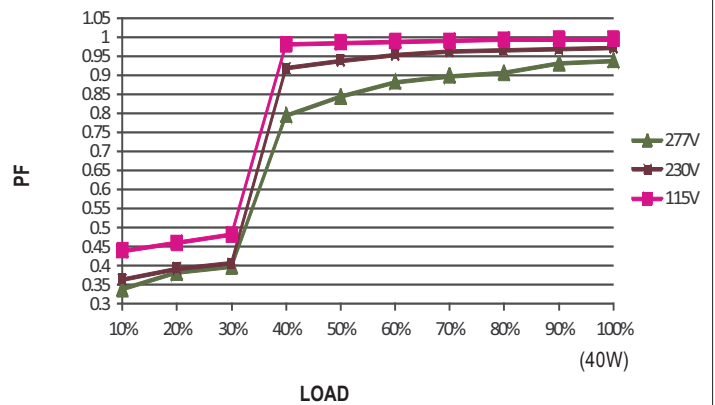
STATIC CHARACTERISTIC



※ De-rating is needed under low input voltage.

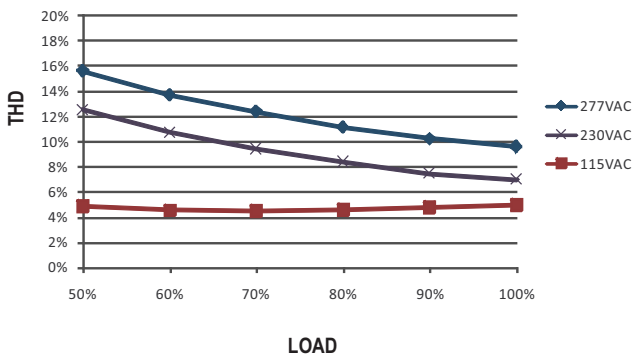
POWER FACTOR (PF) CHARACTERISTIC

※ 24V Model, T_{case} at 75°C



TOTAL HARMONIC DISTORTION (THD)

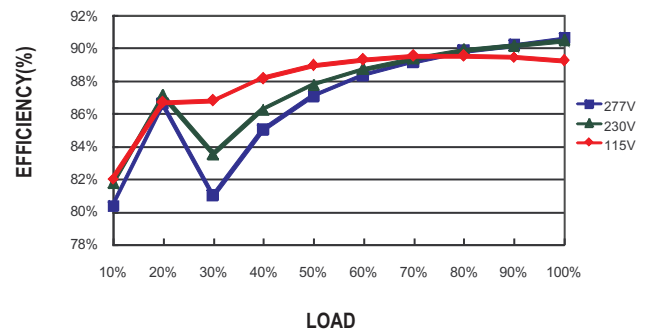
※ 48V Model, T_{case} at 75°C



EFFICIENCY vs LOAD

026.303 series possess superior working efficiency that up to 90% can be reached in field applications.

※ 48V Model, T_{case} at 75°C



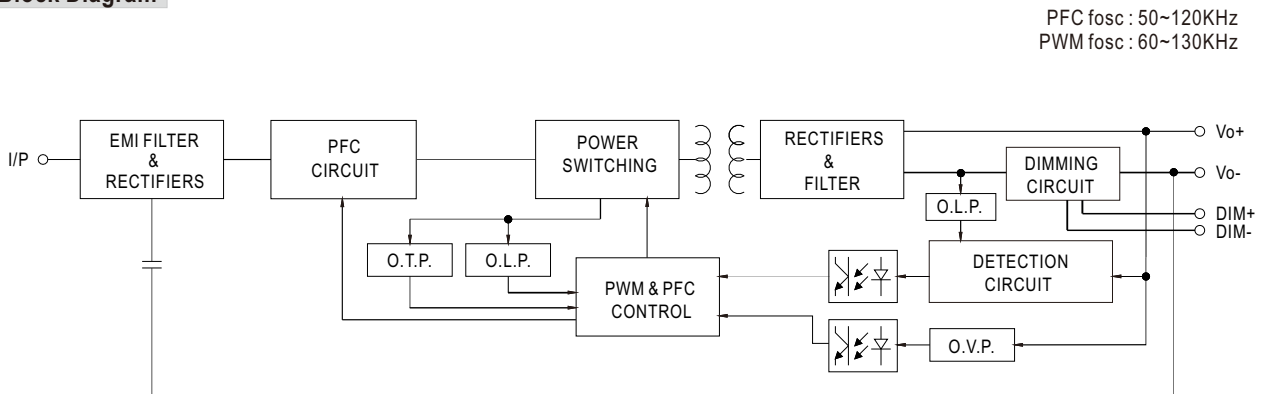
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 www.bullardbollards.com
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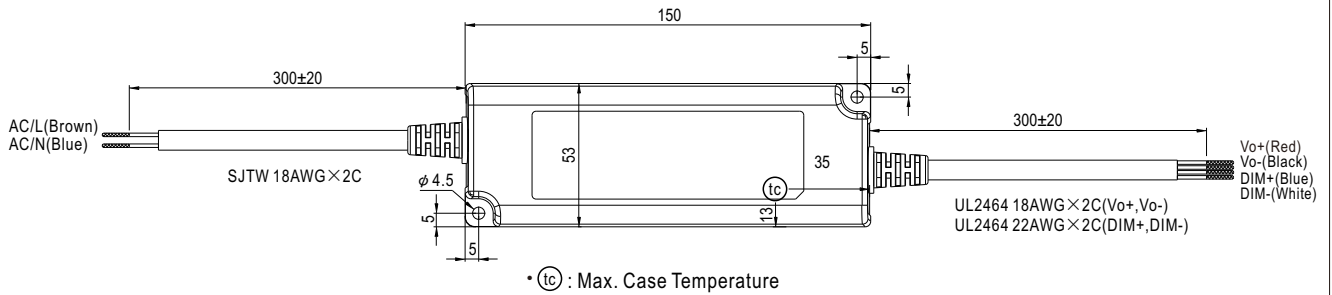


Block Diagram



Mechanical Specification

Case No. NPF-60A Unit:mm



Recommend Mounting Direction



sales@gordonbullard.com
www.bullardbollards.com
1-877-964-4646

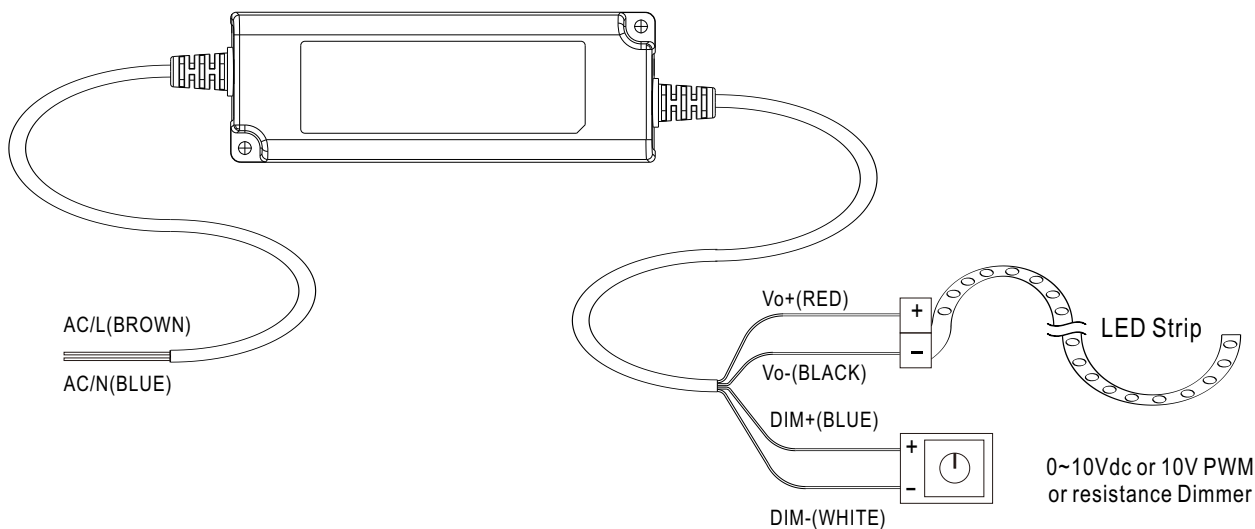


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■ Installation Manual

◎ Connection for Blank-type



◎ Cautions

- Before commencing any installation or maintenance work, please disconnect the power supply from the utility. Ensure that it cannot be re-connected inadvertently!
- Keep proper ventilation around the unit and do not stack any object on it. Also a 10-15 cm clearance must be kept when the adjacent device is a heat source.
- Mounting orientations other than standard orientation or operate under high ambient temperature may increase the internal component temperature and will require a de-rating in output current.
- Current rating of an approved primary /secondary cable should be greater than or equal to that of the unit. Please refer to its specification.
- For LED drivers with waterproof connectors, verify that the linkage between the unit and the lighting fixture is tight so that water cannot intrude into the system.
- For dimmable LED drivers, make sure that your dimming controller is capable of driving these units. PWM series require 0.15mA each unit.
- Tc max. is identified on the product label. Please make sure that temperature of Tc point will not exceed limit.
- DO NOT connect "DIM- to Vo-".
- Suitable for indoor use or outdoor use without direct sunlight exposure. Please avoid immerse in the water over 30 minutes.
- The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.