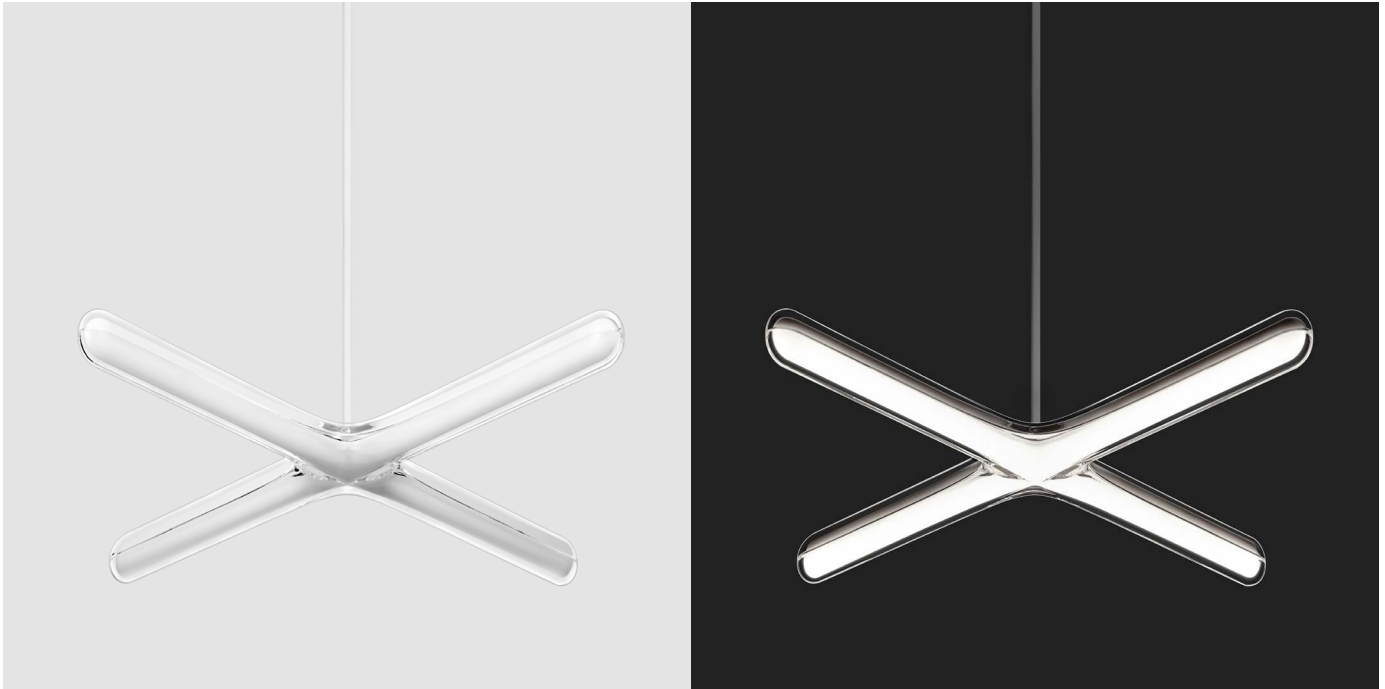


TWO PARTS



Lithium

By Christo Logan

Description

Indoor Pendant Fixture - Downlight

Fixture

Material: Acrylic + Polycarbonate

Color: Clear + White

Dims: 14.6" x 1.7 in / Span: 20.4 in

Dims: 372² x 43 mm / Span: 518 mm

Cord

Color: White

Length: 20 ft / 6 m

Driver

Fits in most Junction Boxes

Dimming: Triac, ELV, 0-10V

Input Voltage: 100-305V AC

LED

Input: 13W

Output: 800 lm

User replaceable: No

Life Expectancy: 50,000 hours

Color Accuracy: CRI 95+, R9 90+

Input: 12V Constant Voltage

Warranty

Fixture: 5 years

Driver: 3 years

Certification

ETL Listed (UL + CSA Standards)

Damp Location

CE, RoHS

Download CAD, Revit, IES

<http://two.parts/lithium>

Light Temp

□ LIT-CW-27 : 2700K

□ LIT-CW-30 : 3000K

□ LIT-CW-35 : 3500K

Cluster Size : Driver

□ 1 : Two Parts 25W Driver

□ 2 : Two Parts 40W Driver

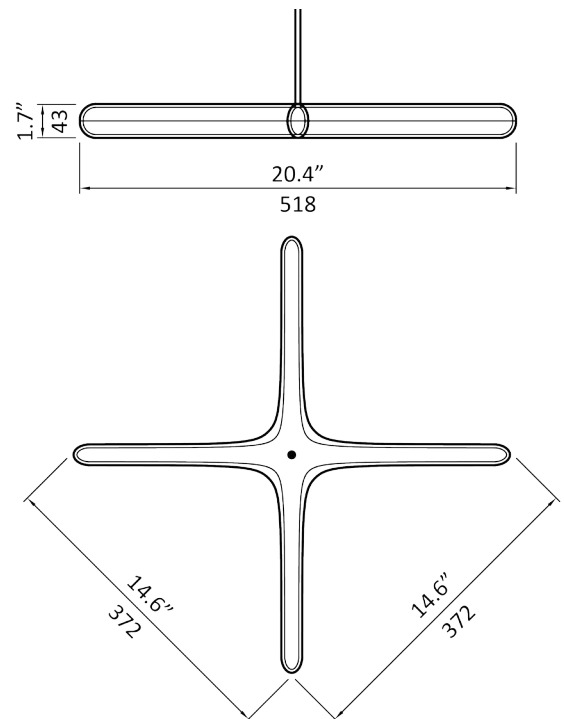
□ 3 : Two Parts 40W Driver

□ 4 : PWM-90-12 Driver

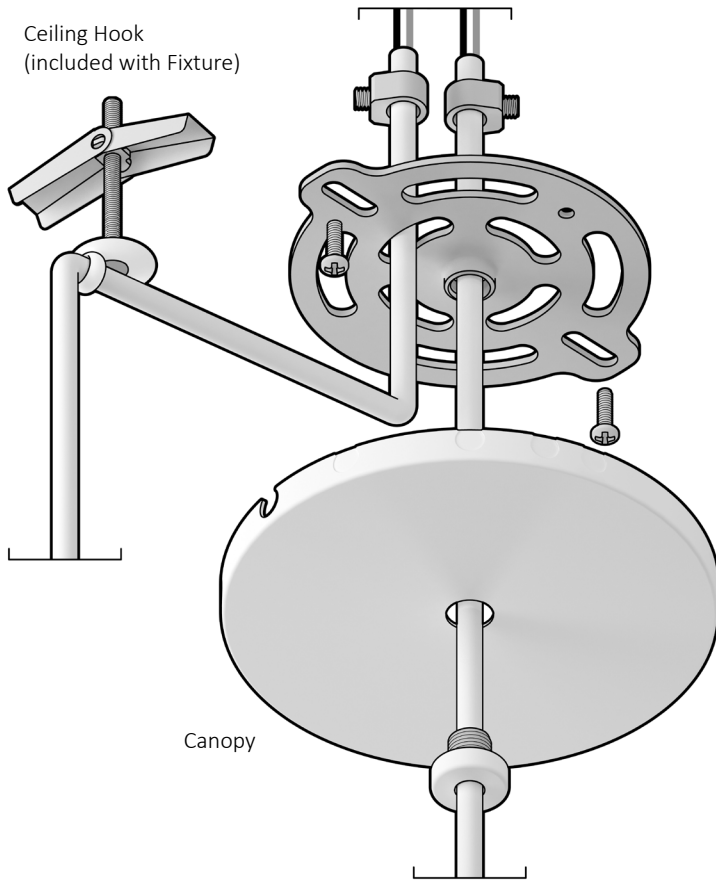
□ 5 : PWM-90-12 Driver

□ 6 : PWM-90-12 Driver

□ 7 : Any 95W+ 12V CV Driver

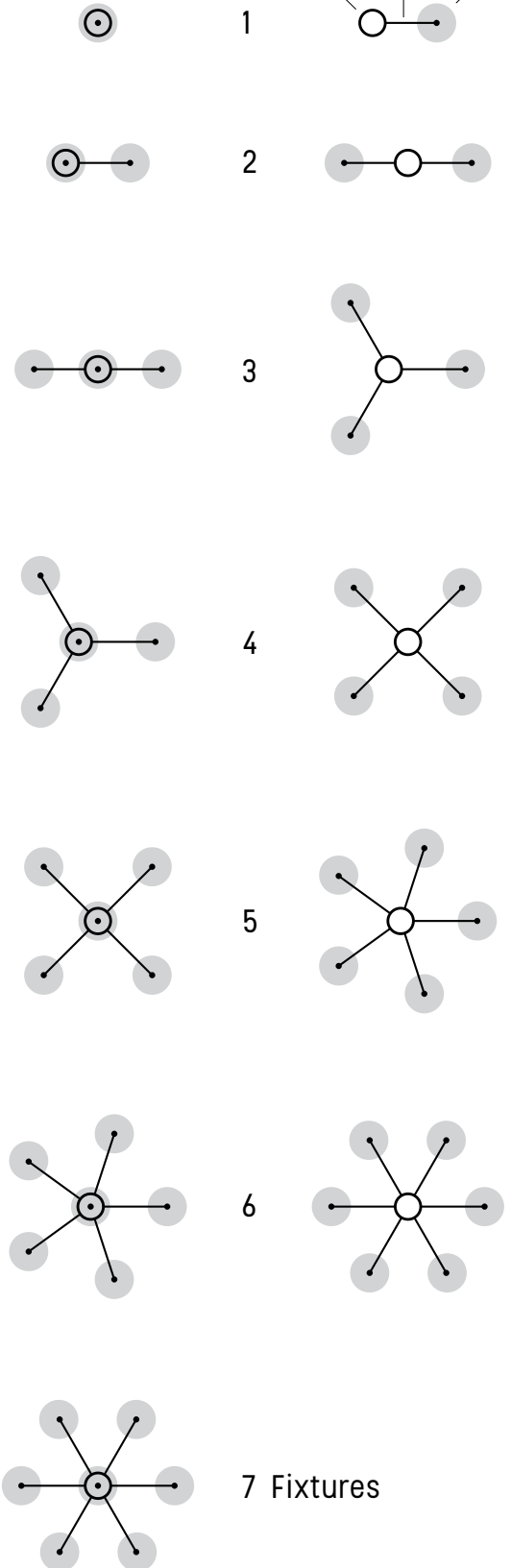


TWO PARTS



Center & Side Mounted

Side Mounted Only



Canopy01

By Christo Logan

Part No

C01-W-7P

Canopy

Fixtures Supported: 1- 7

Material: Steel

Color: White

Dims: $\varnothing 4 \frac{1}{2} \times H3/8$ in

Dims: $\varnothing 115 \times H9$ mm

Features

Low Profile

No exposed screws

Side port knockouts

Center port cap

Ceiling Hook

Included with Fixture

Screw size: #8 or M4 flathead

Material: Steel

Color: White

Dims: $\varnothing 0.8 \times H0.4$ in

Dims: $\varnothing 20 \times H11$ mm

Certification

ETL Listed (UL & CSA Standards)

Damp Location

CE, RoHS

Download CAD, Revit, IES

<http://two.parts/canopy01>

TWO PARTS

Circuit Connector
(customer provided)
Must be UL/CSA/CE approved (US/Canada/
Europe) for applicable wire gauge

LED Driver
To be housed in accessible location
as near as possible to Fixture.

Circuit Connector
(customer provided)
Must be UL/CSA/CE approved
(US/Canada/Europe) for
applicable wire gauge

Anchor
Hole \varnothing : 9/16" or 15mm

Ceiling Hook
Use #8 or M4 flathead
screw located 1/2" or
13mm shy of fixture
location

Cord
Side Mounted

Side Port Knockout

Building Wires
(customer provided)

Internal Wires
Black+ White-
Multiple Fixtures to be wired
in parallel to a single Driver

Cord Grip
Tighten screw to
ensure cord cannot
move

Ground Screw
Tighten around
Ground Wire

Screw
(customer provided)

Canopy

Center Port

Canopy Screw

Cord
Center Mounted

INSTALL GUIDE

All components are included
unless otherwise noted.

WARNING

Electric shock risk. Use caution
when installing. Turn off
electrical power at breaker
before installation. Installation
should be performed by a
qualified electrician only.

The installer must ensure that
the ceiling can support fixture's
weight and reinforce ceiling
structure by adequate means if
necessary.

MAINTENANCE

Wipe exposed surfaces with
dry cloth as needed.

INSTRUCTIONS

1A Center Mount Remove cap
from Canopy Screw.

1B Side Mount Install Ceiling
Hook(s) with loop facing away
from canopy. Knock out side
port(s) according to cluster
configuration.

2 Cut each Cord to desired
length, leaving 3" (70mm) of
exposed Internal Wires.

3A Center Mount Thread
Cord through Canopy Screw,
Canopy, Crossbar and Cord
Grip.

3B Side Mount Thread Cord
through Ceiling Hook, Crossbar
and Cord Grip.

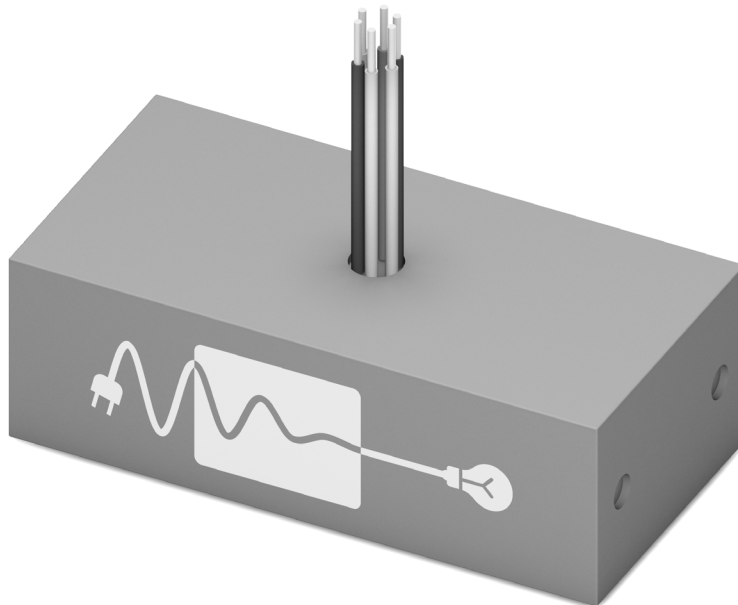
4 Secure Cord Grip onto each
Cord with 1/2" (10mm) of Cord
left above.

5 Using Circuit Connectors
appropriate to local building
code, connect Internal Wires
to Driver and connect Driver to
Building Wires.

6 Screw Crossbar to ceiling or
outlet box.

7 Affix Canopy Screw to
Crossbar with Canopy in
between.

TWO PARTS



Driver 25W

By LTF LLC

Part No

D25W12V-UI-UD

Description

Dimmable Low Voltage LED Driver

Manufacturer Part

LTF DS25W12VBF1UD

Features

Fits in most Junction Boxes
Auto-reset, Short Circuit, Overload
and Thermal Protection

Warranty

3 year limited warranty

Input

Voltage: 100-305V AC
Frequency: 50/60Hz

Output

Type: Constant Voltage
Power: 25W
Voltage: 12V DC
Current: 2083mA

Specs

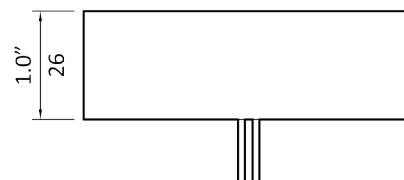
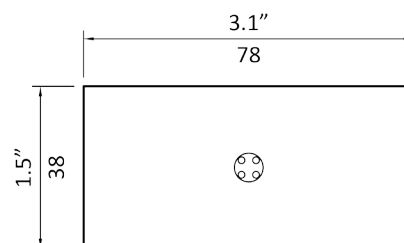
Dimming: Triac, ELV, 0-10V
Class: Class 2 Power Supply
IP Rating: IP67
Humidity: 95% RH Max

Certification

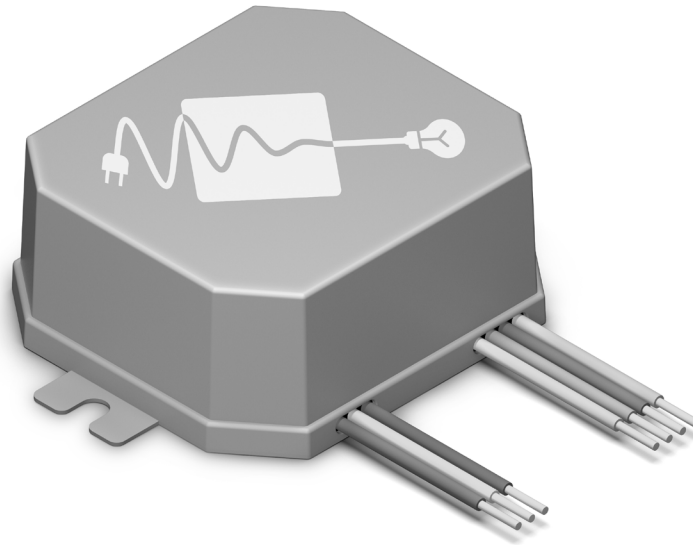
UL8750, UL1310
CE, RoHS
FCC Part 15 Class B Compliant

Dimensions

3.1 x 1.5 x 1.0 in
78 x 38 x 26 mm



TWO PARTS



Driver 40W

By LTF LLC

Part No

D40W12V-UI-UD

Description

Dimmable Low Voltage LED Driver

Manufacturer Part

LTF DS40W12VOCUD

Features

Fits in most Junction Boxes
Auto-reset, Short Circuit, Overload
and Thermal Protection

Warranty

3 year limited warranty

Input

Voltage: 100-305V AC
Frequency: 50/60Hz

Output

Type: Constant Voltage
Power: 40W
Voltage: 12V DC
Current: 3333mA

Specs

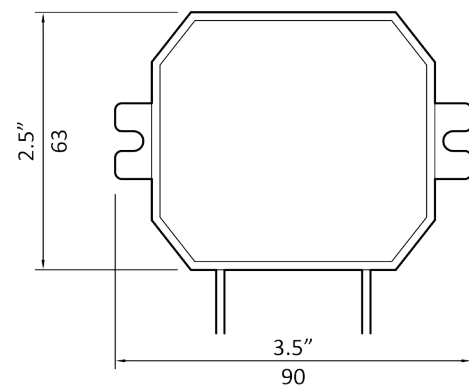
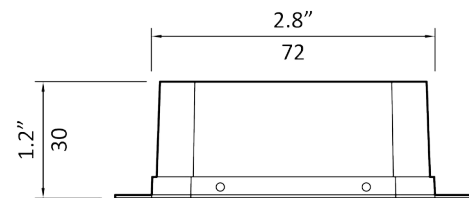
Dimming: Triac, ELV, 0-10V
Class: Class 2 Power Supply
IP Rating: IP67
Humidity: 95% RH Max

Certification

UL8750, UL1310
CE, RoHS
FCC Part 15 Class B Compliant

Dimensions

3.5 x 2.5 x 1.2 in
90 x 63 x 30 mm



LTF Drivers Dimmer Compatibility List

Dimmer brand: Lutron, Crestron, Leviton

1	Lutron DIVA CL	DVCL-153P-WH
2	Lutron DIVA ELV	DVELV-303P
3	Lutron Home Works	HQRD-6A
4	Lutron Home Works	HQRD-6NA
5	Leviton	Model 6615
6	Leviton	Model 6672
7	Leviton	Model 6674/IPL06
8	Leviton	Model IPE04
9	Leviton	Model IPI06
10	Leviton	Model VP106
11	Leviton	Model VPE04
12	Leviton	VPM06
13	Leviton	VRE04
14	Leviton	Model VRM10
15	Lutron MAESTRO	MRF2-6ELV-120-WH
16	Lutron NOVA T	NTELV-600-WH
17	Lutron NOVA	NVELV-600-WH
18	Lutron SKYLARK	SELV-600-WH
19	Lutron	MRF2-6ELV-120-WH
20	Lutron Vierti	VTELV-600-XXX
21	Lutron NOVA T	NTELV-300
22	Lutron MAESTRO	MAELV-600
23	Lutron MAESTRO	MSCELV-600M
24	Lutron MAESTRO IR	MIRELV-600
25	Lutron MAESTRO WIRELESS	MRF2-6ELV-120

26	Lutron CASETA WIRELESS	PD-6WCL
27	Lutron MAESTRO RF	RRA-6D
28	Lutron MAESTRO RF	RRA-6NA
29	Lutron MAESTRO RF	RRA-6ND
30	Skylark Contour	CTELV-303P
31	CRESTON	SELV-300P
32	CRESTON	CLS-C6
33	CRESTON	CLS-C6M
34	CRESTON	CLS-C6EX
35	CRESTON	CLS-C6MEX
36	CRESTON	CLS-C6MRF
37	CRESTON	CLS-C6RF
38	CRESTON	CLS-EXP-DIM
39	CRESTON	CLS-EXP-DIMU
40	CRESTON	CLX-1DIM4
41	CRESTON	CLX-1DIM8
42	CRESTON	CLX-2DIM2
43	CRESTON	CLX-2DIM8
44	CRESTON	CLX-1DELV4
45	CRESTON	DIN-1DIM4
46	CRESTON	DIN-1DIMU4
47	CRESTON	CLW-DIMEX-E
48	CRESTON	CLW-DIMEX-P
49	CRESTON	CLW-DIMSWEX-E
50	CRESTON	CLW-DIMSWEX-P

51	CRESTON	P-DIMEX
52	CRESTON	GLX-DIM6
53	CRESTON	GLXX-2DIM8
54	CRESTON	CLW-DELVEX-E
55	CRESTON	CLW-DELVEX-P
56	Lutron Diva	0-10V DVSTV
57	Lutron Diva	0-10V DVTV
58	Leviton	IP710
59	Leviton	DS710
60	Leviton	DD710
61	Crestron	CLX-2DIMFLV8
62	Crestron	DIN-4DIMFLV4
63	Crestron	CLS-EXP-DIMFLV
64	Crestron	GLX-DIMFLV8

* These are a few examples of dimmers tested for compatability.
There are many other dimmers that are compatable on the market.



■ Features

- Constant Voltage PWM style output
- Emergency lighting application is available according to IEC61347-2-13
- Built-in active PFC function and class II design
- Class 2 power unit(except PWM-90-12)
- No load power consumption <0.5W
- Fully encapsulated with IP67 level
- Function: 3 in 1 dimming (dim-to-off); DALI/DALI-2
- Minimum dimming level 0.2% for DALI type
- Typical lifetime>50000 hours and 5 years warranty

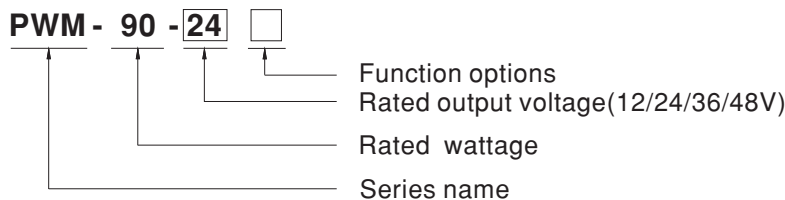
■ Applications

- LED strip lighting
- Indoor LED lighting
- LED decorative lighting
- LED architecture lighting
- Industrial lighting

■ Description

PWM-90 series is a 90W LED AC/DC LED driver featuring the constant voltage mode with PWM style output, which is able to maintain the brightness homogeneity when driving all kinds of LED strips. PWM-90 operates from 90~305VAC and offers models with different rated voltage ranging between 12V and 48V. Thanks to the high efficiency up to 90.5%, with the fanless design, the entire series is able to operate for -40°C ~ +85°C case temperature under free air convection. The entire series is rated with IP67 ingress protection level and is suitable to work for dry, damp or wet locations. PWM-90 is equipped with dimming function that varies the duty cycle of the output, providing great flexibility for LED strips applications.

■ Model Encoding



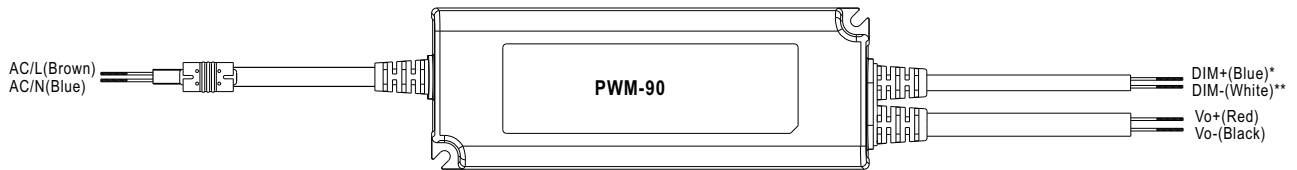
Type	IP Level	Function	Note
Blank	IP67	3 in 1 dimming function (0~10Vdc, 10V PWM signal and resistance)	In Stock
DA	IP67	DALI control technology(for 12V/24V with DA type only)	In Stock
DA2	IP67	DALI-2 control technology(for 12V/24V/48V with DA2 type only)	In Stock

File Name:PWM-90-SPEC 2021-08-02

SPECIFICATION

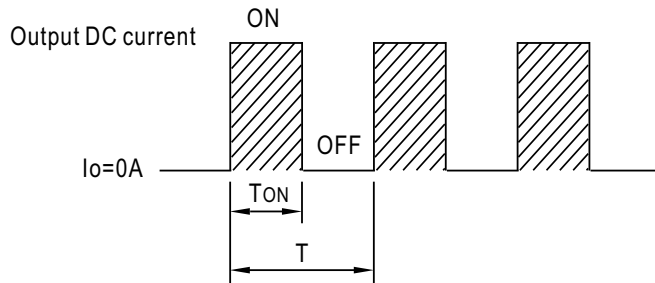
MODEL	PWM-90-12□	PWM-90-24□	PWM-90-36□	PWM-90-48□	
OUTPUT	DC VOLTAGE	12V	24V	36V	48V
	RATED CURRENT	7.5A	3.75A	2.5A	1.88A
	RATED POWER	90W	90W	90W	90.24W
	DIMMING RANGE	0 ~ 100%			
	PWM FREQUENCY (Typ.)	1.47kHz for Blank/DA-Type, 2.5kHz for DA2-Type			
	SETUP, RISE TIME ^{Note.2} _{Note.9}	500ms, 80ms/ 115VAC or 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>0.98/115VAC, PF>0.96/230VAC, 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.)	88%	90.5%	90.5%	90.5%
	AC CURRENT (Typ.)	0.95A / 115VAC 0.5A / 230VAC 0.4A / 277VAC			
	INRUSH CURRENT (Typ.)	COLD START 60A(twidth=550 μs measured at 50% Ipeak) at 230VAC; Per NEMA 410			
	MAX. NO. of PSUs on 16A CIRCUIT BREAKER	3 units (circuit breaker of type B) / 6 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(except for DA2-type) Hiccup mode,recovers automatically after fault condition is removed (only for DA2-type)			
	OVER VOLTAGE	15 ~ 17V	28 ~ 34V	41 ~ 46V	54 ~ 60V
	OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover			
	WORKING TEMP.	Tcase=-40 ~ +85°C (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)			
ENVIRONMENT	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(except for DA-Type), CSA C22.2 No. 250.13-12; ENEC BS EN/EN61347-1, BS EN/EN61347-2-13 independent, BS EN/EN62384, IP67, BIS IS15885(for 12,24,48 Blank Type only), EAC TP TC 004,GB19510.1, GB19510.14 approved; Design refer to BS EN/EN60335-1;According to BS EN/EN61347 - 2- 13 appendix J suitable for emergency installations		
DALI STANDARDS		IEC62386-101, 102, 207,251 for DA/DA2-Type only,Device type 6(DT6)			
WITHSTAND VOLTAGE		I/P-O/P:3.75KVAC; I/P-DA:1.5KVAC; O/P-DA:1.5KVAC			
ISOLATION RESISTANCE		I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH			
EMC EMISSION ^{Note.6}		Compliance to BS EN/EN55015, BS EN/EN61000-3-2 Class C (@load ≥ 60%) ; BS EN/EN61000-3-3,GB17743 and GB17625.1,EAC TP TC 020			
EMC IMMUNITY		Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11; BS EN/EN61547, light industry level (surge immunity Line-Line 2KV), EAC TP TC 020			
OTHERS	MTBF	902.4K hrs min. Telcordia SR-332 (Bellcore) ; 224.2K hrs min. MIL-HDBK-217F (25°C)			
	DIMENSION	171*63*37.5mm (L*W*H)			
	PACKING	0.77Kg; 18pcs/14.9Kg/0.97CUFT			
NOTE	<p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25°C of ambient temperature.</p> <p>2. De-rating may be needed under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details.</p> <p>3. 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.</p> <p>4. 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.</p> <p>5. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly (Ⓢ) point (or TMP, per DLC), is about 75°C or less.</p> <p>6. Please refer to the warranty statement on MEAN WELL's website at http://www.meanwell.com</p> <p>7. 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).</p> <p>8. For any application note and IP water proof function installation caution, please refer our user manual before using. https://www.meanwell.com/Upload/PDF/LED_EN.pdf</p> <p>9. Based on IEC 62386-101/102 DALI power on timing and interruption regulations, the set up time needs to test with a DALI controller which can support for DALI power on function, otherwise the set up time will be higher than 0.5 second for DA type.</p> <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.



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

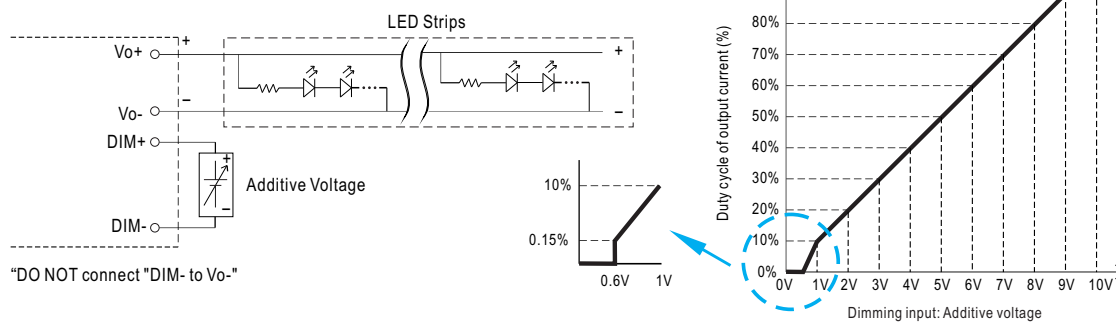
Output PWM frequency : 1.47kHz for Blank/DA-Type
2.5kHz for DA2-Type

* DIM+ for Blank-Type
DA+ for DA/DA2-type
** DIM- for Blank-Type
DA- for DA/DA2-type
NOTE: DA/DA2-Type is no distinction between "+" and "-" poles

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

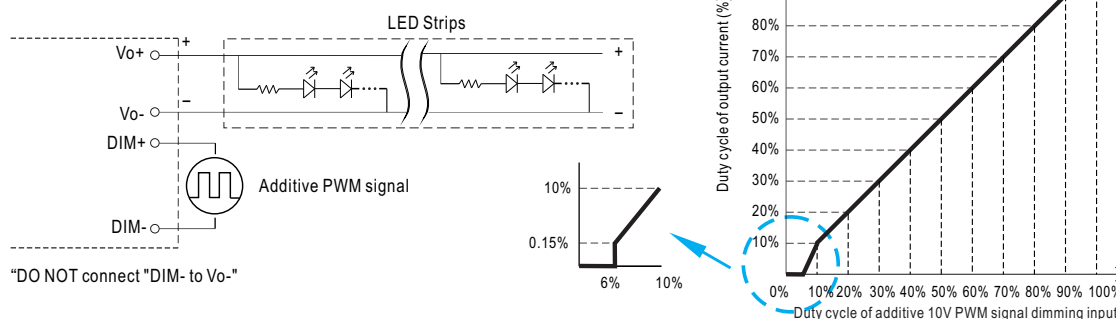
- Apply one of the three methodologies between DIM+ and DIM-: 0 ~ 10VDC, or 10V PWM signal or resistance.
- Dimming source current from power supply: 100μA (typ.)

◎ Applying additive 0 ~ 10VDC



"DO NOT connect "DIM- to Vo-"

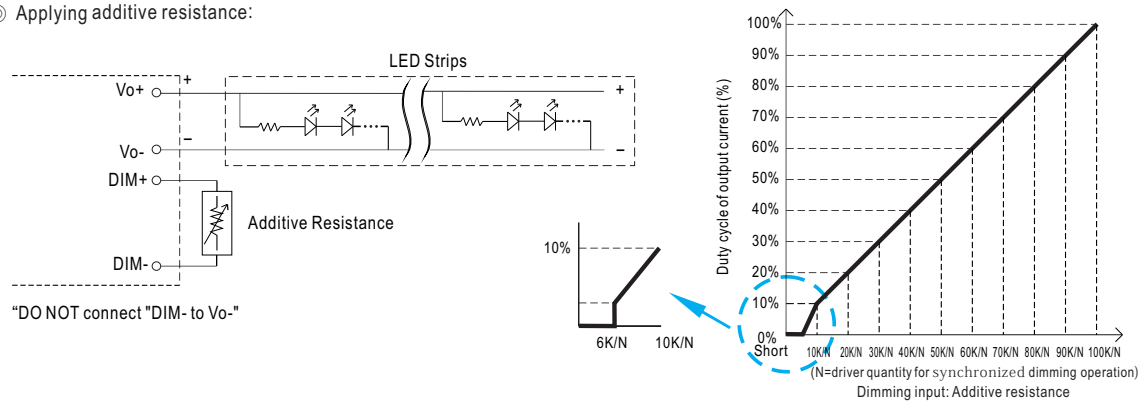
◎ Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):



"DO NOT connect "DIM- to Vo-"

File Name: PWM-90-SPEC 2021-08-02

⊙ Applying additive resistance:

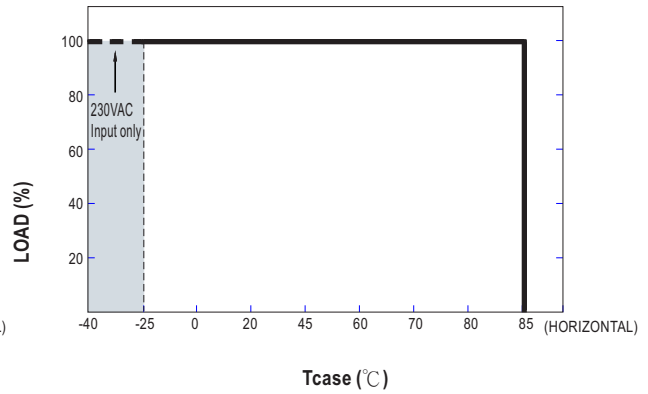
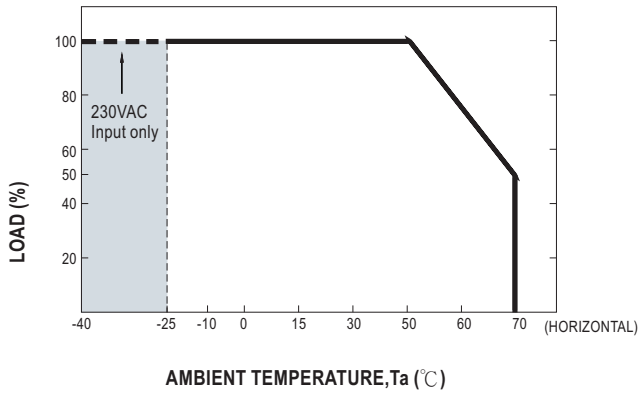


Note : 1. Min. duty cycle of output current is about 0.15%, and the dimming input is about 6KΩ or 0.6VDC, or 10V PWM signal with 6% duty cycle.
 2. The duty cycle of output current could drop down to 0% when dimming input is less than 6KΩ or less than 0.6VDC, or 10V PWM signal with duty cycle less than 6%.

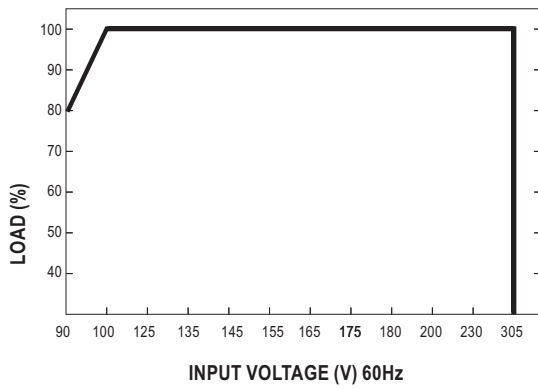
※ DALI Interface (primary side; for DA/DA2-Type)

- Apply DALI signal between DA+ and DA-.
- DALI protocol comprises 16 groups and 64 addresses.
- First step is fixed at 0.2% of output

OUTPUT LOAD vs TEMPERATURE

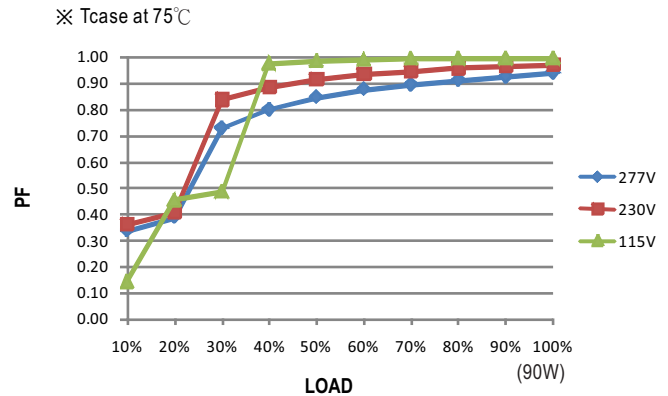


STATIC CHARACTERISTIC



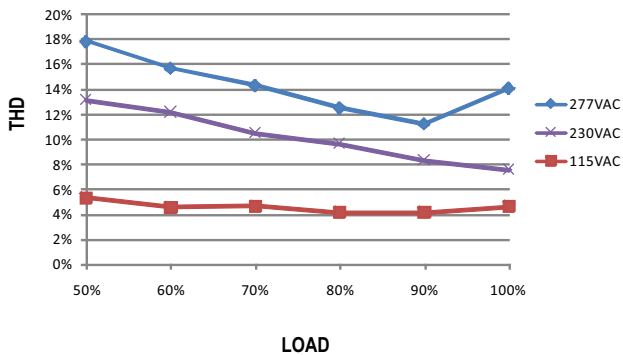
※ De-rating is needed under low input voltage.

POWER FACTOR (PF) CHARACTERISTIC



TOTAL HARMONIC DISTORTION (THD)

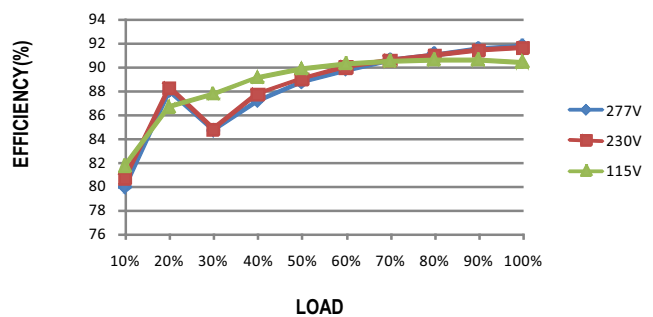
※ 48V Model, Tcase at 75°C



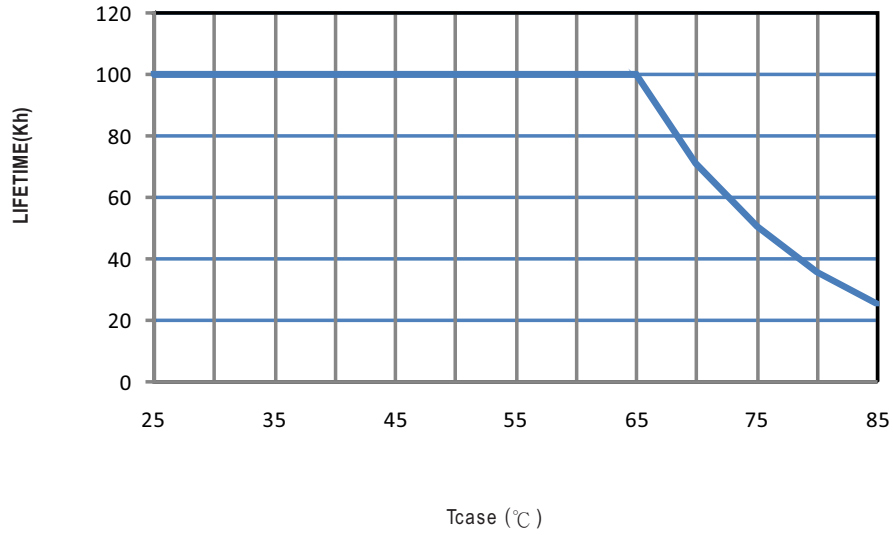
EFFICIENCY vs LOAD

PWM-90 series possess superior working efficiency that up to 90.5% can be reached in field applications.

※ 48V Model, Tcase at 75°C

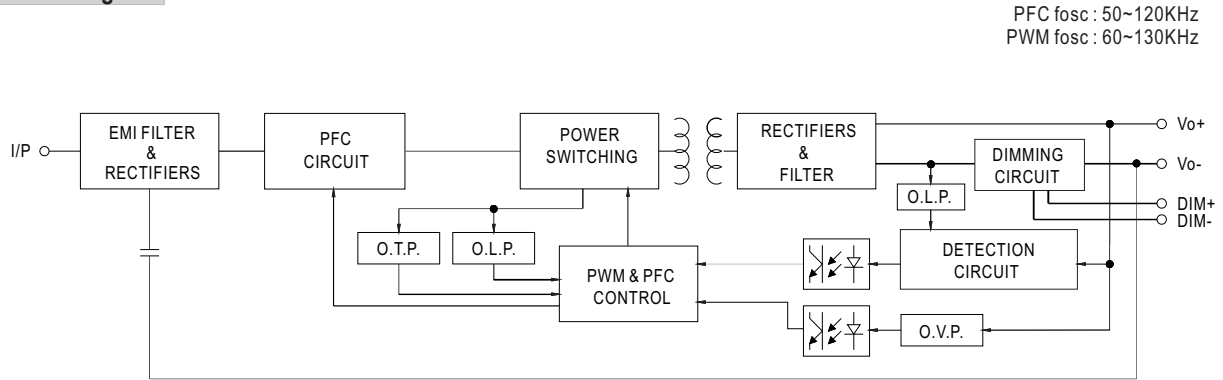


■ LIFE TIME



File Name: PWM-90-SPEC 2021-08-02

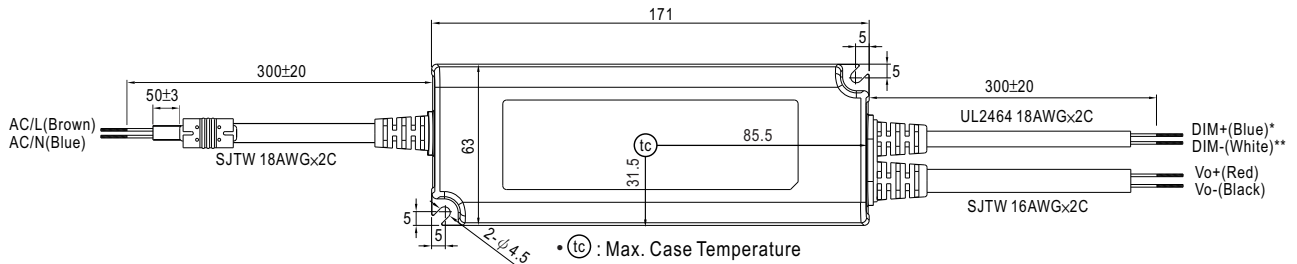
■ Block Diagram



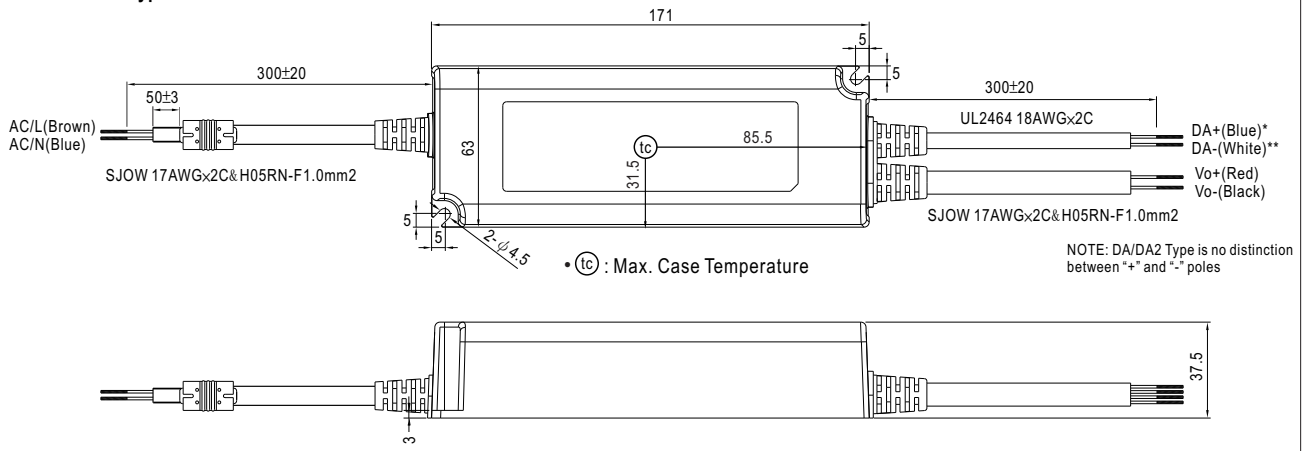
■ Mechanical Specification

Case No. PWM-90P Unit:mm

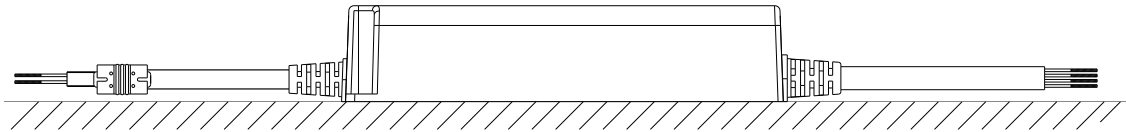
Blank-Type



DA/DA2-Type

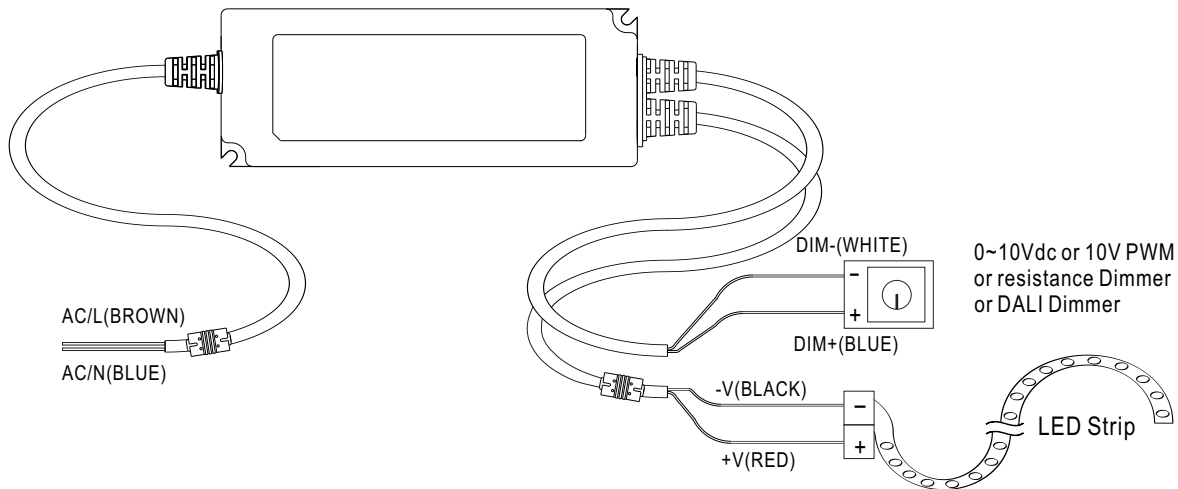


■ Recommend Mounting Direction



■ 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.