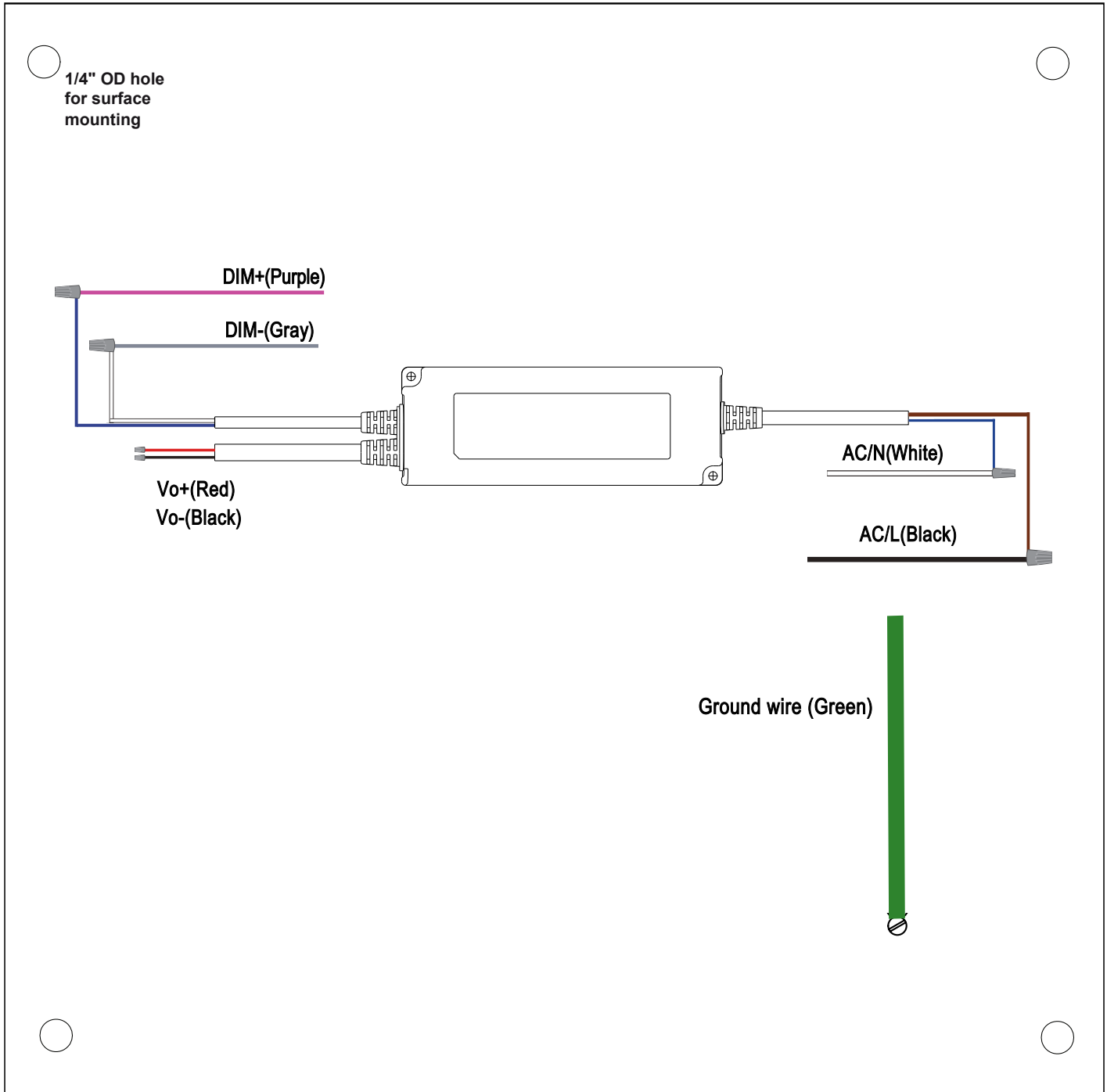


Wiring Diagram for DELI- drivers

DELI901241CPWM wiring diagram

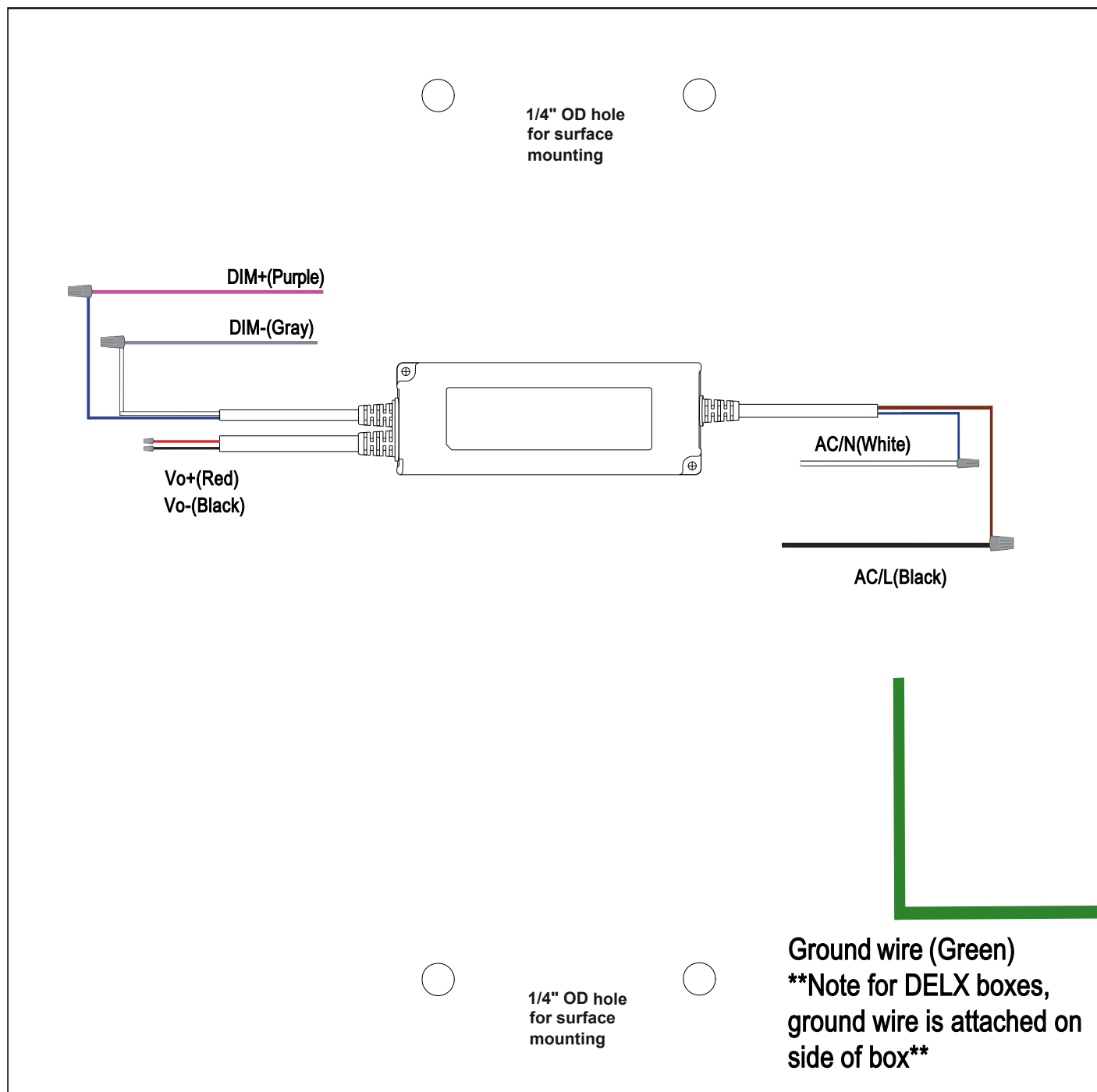


Enclosure type: NEMA 1
Dimension: 10" L x 10" W x 4" H
Knockouts on all around the sides of the box

****WARNING: LINE VOLTAGE MUST
BE CONNECTED WITH UL APPROVE
CABLE (300V RATED CABLE)****

Wiring Diagram for DELX- drivers

DELX901241CPWM wiring diagram



Enclosure type: NEMA 3R
 Dimension: 10" L x 10" W x 4" H
 Knockouts on the bottom of box only

****WARNING: LINE VOLTAGE MUST BE CONNECTED WITH UL APPROVE CABLE (300V RATED CABLE)****

Box Specifications for DELI- Driver Box

Hoffman

TYPE 1 BOXES AND ENCLOSURES SCREW-COVER TYPE 1 PULL BOXES

SCREW-COVER, TYPE 1



INDUSTRY STANDARDS

UL 50, 50E Listed; Type 1; File No. E27525
cUL Listed per CSA C22.2 No 40; Type 1; File No. E27525

NEMA/EEMAC Type 1
IEC 60529, IP30

APPLICATION

Use this enclosure in commercial and general industrial applications that require a junction or pull box. For flush installations, order flush covers and door frames separately.

FEATURES

- Unique keyhole screw slots in the cover
- Available with or without knockouts. Various sizes of easy-to-remove concentric knockouts on all four sides of standard boxes with knockouts.
- Optional flush-mounted door frame available
- Optional flush covers
- Flat, removable covers fastened with plated steel screws
- Provision for grounding
- Mounting holes on back of box

SPECIFICATIONS

- 16, 14 or 12 gauge steel or plated steel

FINISH

ANSI 61 gray polyester powder paint finish inside and out. Unless otherwise specified, all custom pull boxes are finished with ANSI 61 gray polyester powder paint.

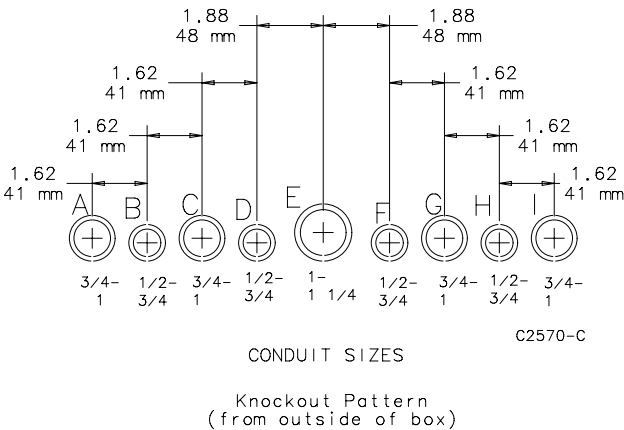
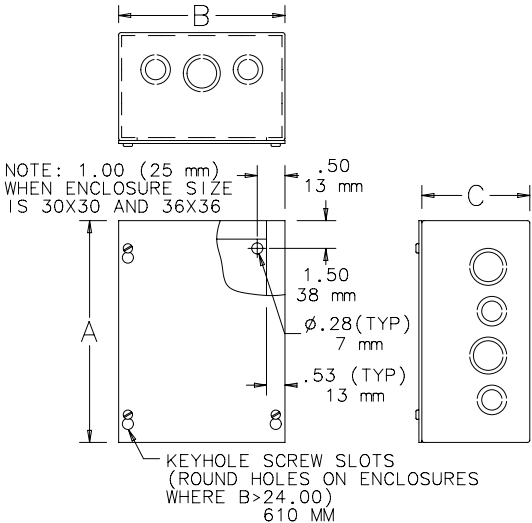
ACCESSORIES

- Flush Covers
- Flush-Mount Door Frames
- Grounding Device
- Type 1 Locking Window Pull Box Accessory
- Touch-Up Paint

BULLETIN: A90P1

Standard Product Screw-Cover Type 1 Pull Boxes with Knockouts

Catalog Number	AxBxC in.	AxBxC mm	Style	Body Thickness (ga.)	Cover Thickness (ga.)	Number of Cover Screws	Knockout Pattern Along "A" Sides	Knockout Pattern Along "B" Sides
ASE10X10X4	10.00 x 10.00 x 4.00	254 x 254 x 102	Painted	16	16	4	F-G-H-I	C-D-E-F-G
ASG10X10X4	10.00 x 10.00 x 4.00	254 x 254 x 102	Galvanized	16	16	4	F-G-H-I	C-D-E-F-G
ASE12X12X4	12.00 x 12.00 x 4.00	305 x 305 x 102	Painted	16	16	4	C-D-E-F-G	C-D-E-F-G
ASG12X12X4	12.00 x 12.00 x 4.00	305 x 305 x 102	Galvanized	16	16	4	C-D-E-F-G	C-D-E-F-G



Box Specifications for DELX- Driver Box



TYPE 3R SCREW-COVER TYPE 3R BOXES

SCREW-COVER, TYPE 3R



NEMA/EEMAC Type 3R

IEC 60529, IP32

INDUSTRY STANDARDS

UL 50, 50E Listed; Type 3R; File No. E27525
cUL Listed per CSA C22.2 No 94; Type 3R; File No. E27525

APPLICATION

Use this enclosure with or without knockouts in outdoor applications as a wiring or junction box.

FEATURES

- Drip shield top and seam-free sides, front and back
- Slip-on removable cover fastened with plated steel screws along bottom edge
- Handles on larger sizes (see table)
- Embossed mounting holes on back of enclosure
- Knockouts in bottom of 16 and 14 gauge enclosures
- Provision for padlocking
- No gasketing

SPECIFICATIONS

- 16, 14 or 12 gauge galvanized steel

FINISH

ANSI 61 gray polyester powder paint finish inside and out over pretreated surfaces.

ACCESSORIES

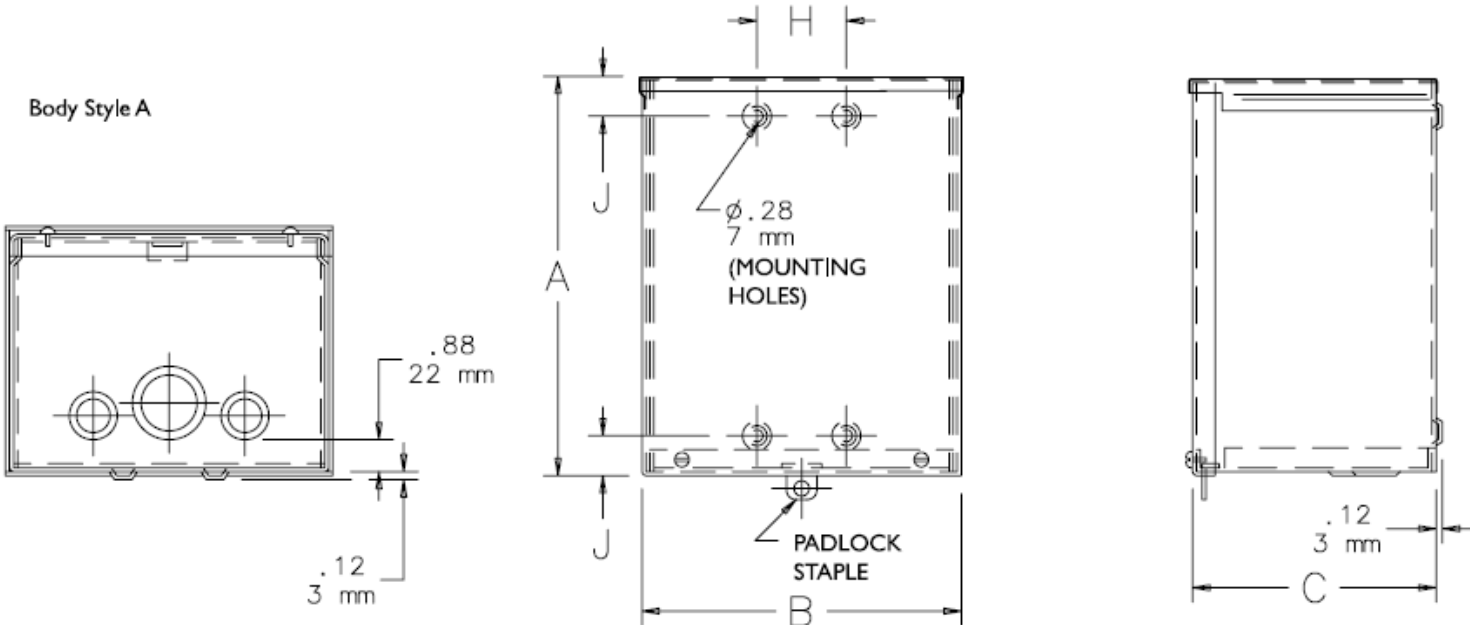
See also Accessories.
Industrial Corrosion Inhibitors
Electric Heater
Grounding Device
Mounting Bracket Kit
Touch-Up Paint

BULLETIN: A90S3

Standard Product

Catalog Number	AxBxC in./mm	Body Style	Body Thickness (ga.)	Cover Thickness (ga.)	D in./mm	Mounting H in./mm	Mounting J in./mm	Knockout Pattern
A10R104	10.00 x 10.00 x 4.00	A	16	16	-	2.25	1.06	C-DE-FG
	254 x 254 x 102					57	27	
A12R124	12.00 x 12.00 x 4.00	A	16	16	-	2.25	1.06	C-DE-FG
	305 x 305 x 102					57	27	

Body Style A

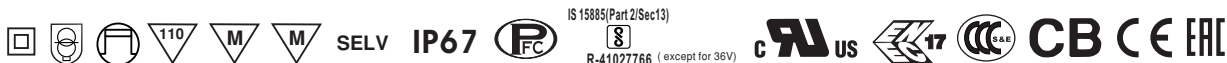


Driver Specifications for DEL90



90W PWM Output LED Driver

PWM-90 series



■ 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(except PWM-90-12)
- No load power consumption <0.5W
- Fully encapsulated with IP67 level
- Function: 3 in 1 dimming (dim-to-off); DALI
- Typical lifetime>50000 hours
- 5 years warranty

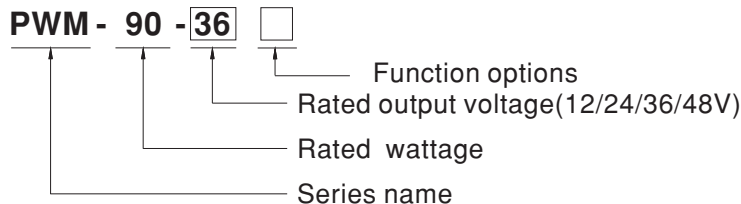
■ Applications

- LED strip lighting
- Indoor LED lighting
- LED decorative lighting
- LED architecture 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 color temperature and 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℃ ~ +85℃ 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



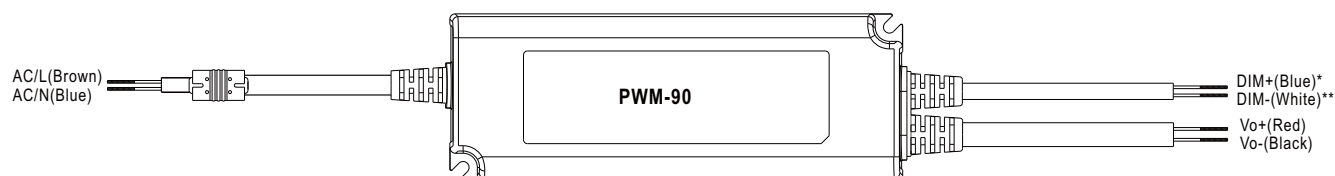
Driver Specifications for DEL90

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			
	SETUP, RISE TIME Note.2	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>0.94/277VAC @ 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=550μs 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 ~ 120% 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	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℃ (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)			
ENVIRONMENT	MAX. CASE TEMP.	Tcase=+85℃			
	WORKING HUMIDITY	20 ~ 95% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH			
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)			
	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes			
	SAFETY & EMC	SAFETY STANDARDS Note.5	UL8750, CSA C22.2 No. 250.13-12; ENEC EN61347-1, EN61347-2-13 independent,EN62384, IP67,BIS IS15885(except for 36V), EAC TP TC 004 approved; Design refer to EN60335-1		
DALI STANDARDS		Comply with IEC62386-101, 102, 207 for DA-Type only			
WITHSTAND VOLTAGE		I/P-O/P:3.75KVAC			
ISOLATION RESISTANCE		I/P-O/P:100M Ohms / 500VDC / 25℃ / 70% RH			
EMC EMISSION Note.6		Compliance to EN55015, EN61000-3-2 Class C (@load≥60%) ; EN61000-3-3,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	902.4K hrs min. Telcordia SR-332 (Bellcore) ; 224.2K hrs min. MIL-HDBK-217F (25℃)			
	DIMENSION	171*63*37.5mm (L*W*H)			
	PACKING	0.77Kg; 18pcs/14.9Kg/0.97CUFT			
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25℃ of ambient temperature. 2. De-rating may be needed under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details. 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. 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. 5. The model certified for CCC(GB19510.14, GB19510.1, GB17743 and GB17625.1) is an optional model . Please contact MEAN WELL for details. 6. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly (Tc) point (or TMP, per DLC), is about 75℃ or less. 7. Please refer to the warranty statement on MEAN WELL's website at http://www.meanwell.com				

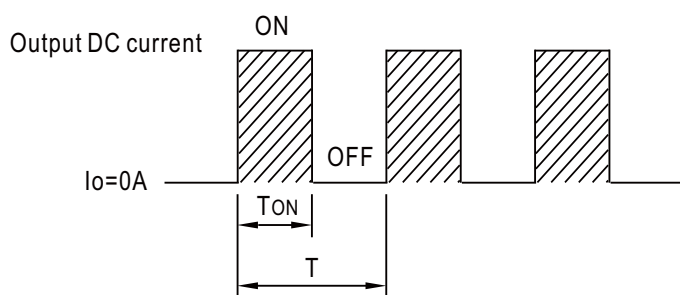
Driver Specifications for DEL90

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.)

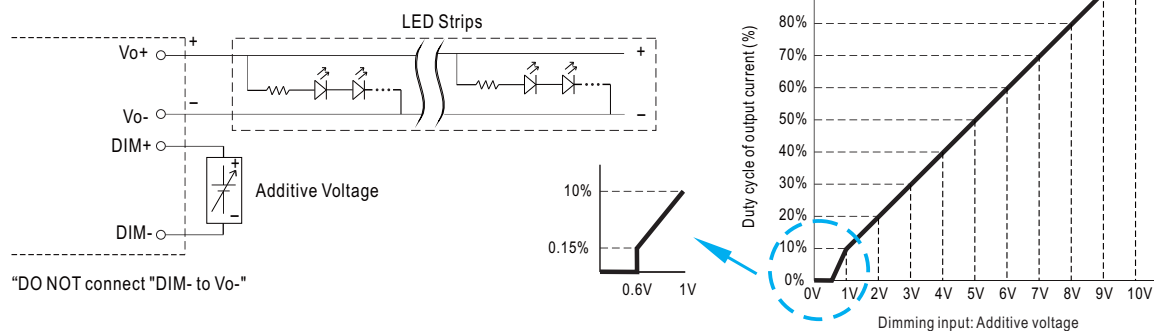
* DIM+ for Blank-Type
DA+ for DA-type

** DIM- for Blank-Type
DA- for DA-type

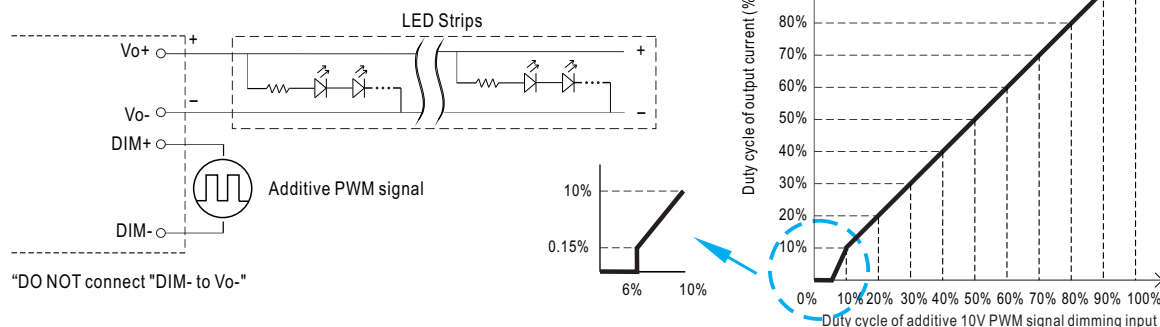
※ 3 in 1 dimming function (for Blank-Type)

- 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 μA (typ.)

◎ Applying additive 0 ~ 10VDC

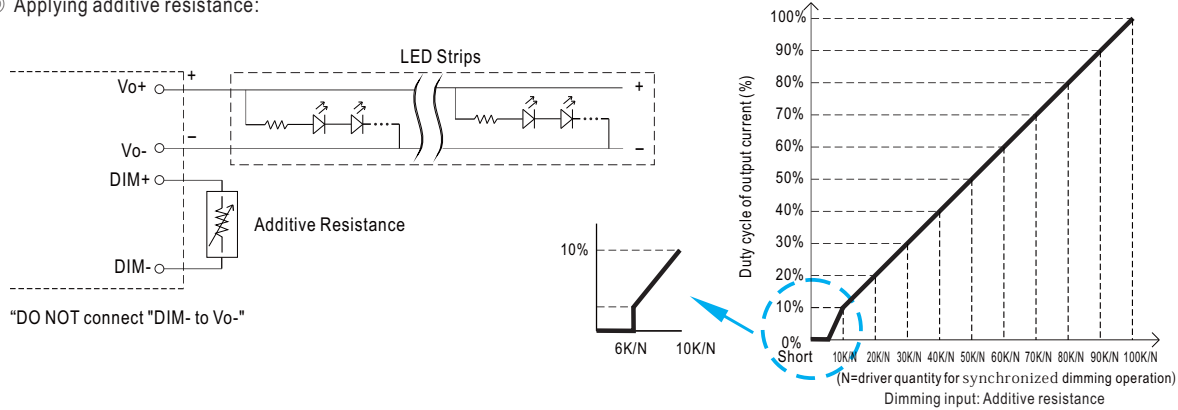


◎ Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):



Driver Specifications for DEL90

© Applying additive resistance:



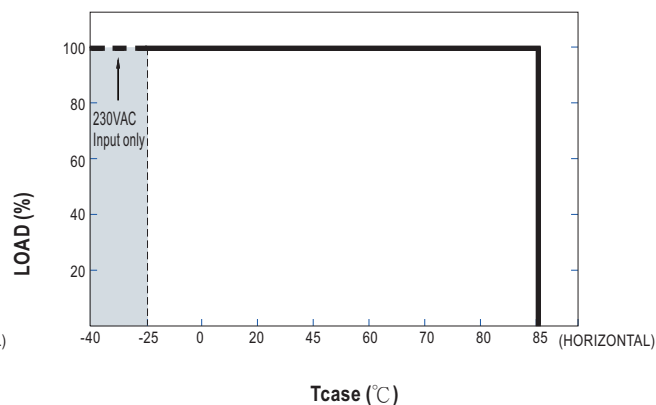
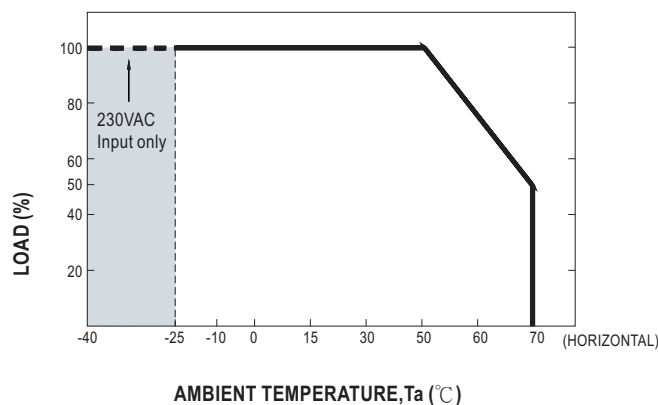
Note : 1. Min. duty cycle of output current is about 0.15%, and the dimming input is about $6K\Omega$ or 0.6VDC, or 10V PWM signal with 6% duty cycle.
 2. The duty cycle of output current could drop down to 0% when dimming input is less than $6K\Omega$ or less than 0.6VDC, or 10V PWM signal with duty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

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

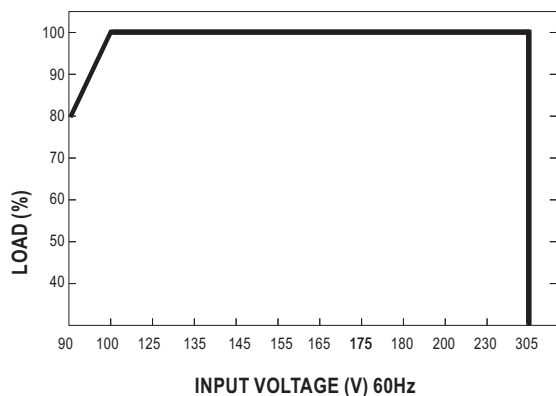
- Apply DALI signal between DA+ and DA-.
- DALI protocol comprises 16 groups and 64 addresses.
- First step is fixed at 6% of output

Driver Specifications for DEL90

OUTPUT LOAD vs TEMPERATURE

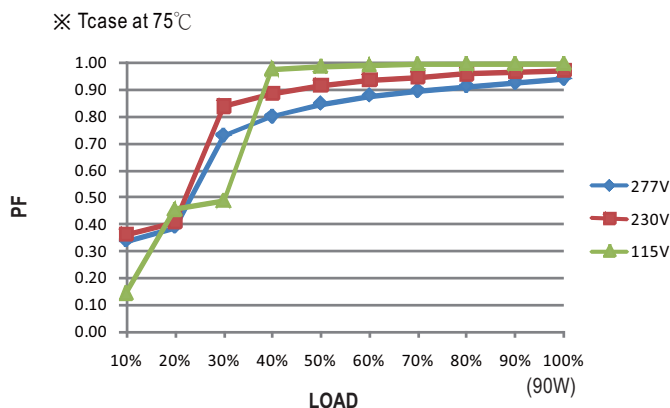


STATIC CHARACTERISTIC



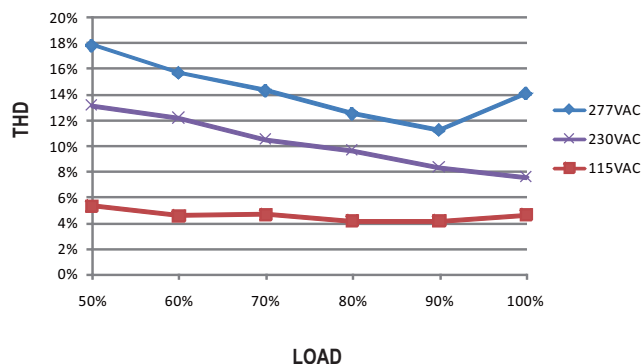
※ De-rating is needed under low input voltage.

POWER FACTOR (PF) CHARACTERISTIC



TOTAL HARMONIC DISTORTION (THD)

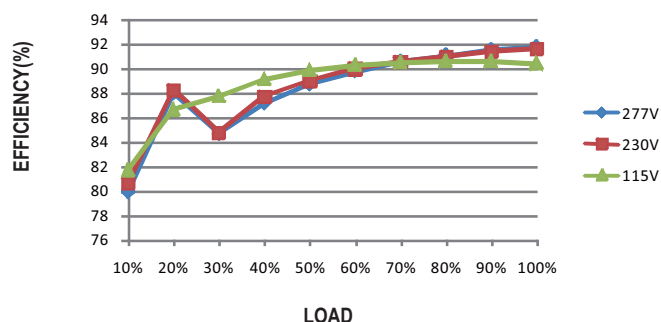
※ 48V Model, T_{case} at 75°C



EFFICIENCY vs LOAD

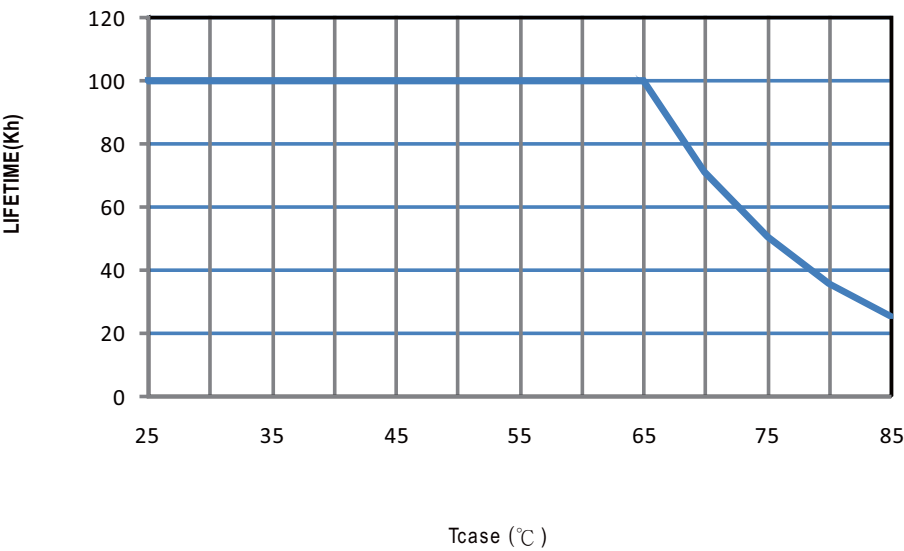
PWM-90 series possess superior working efficiency that up to 90.5% can be reached in field applications.

※ 48V Model, T_{case} at 75°C



Driver Specifications for DEL90

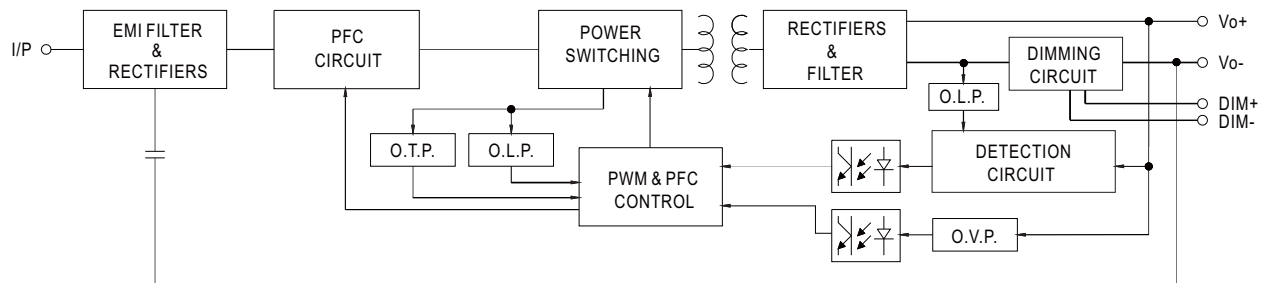
■ LIFE TIME



Driver Specifications for DEL90

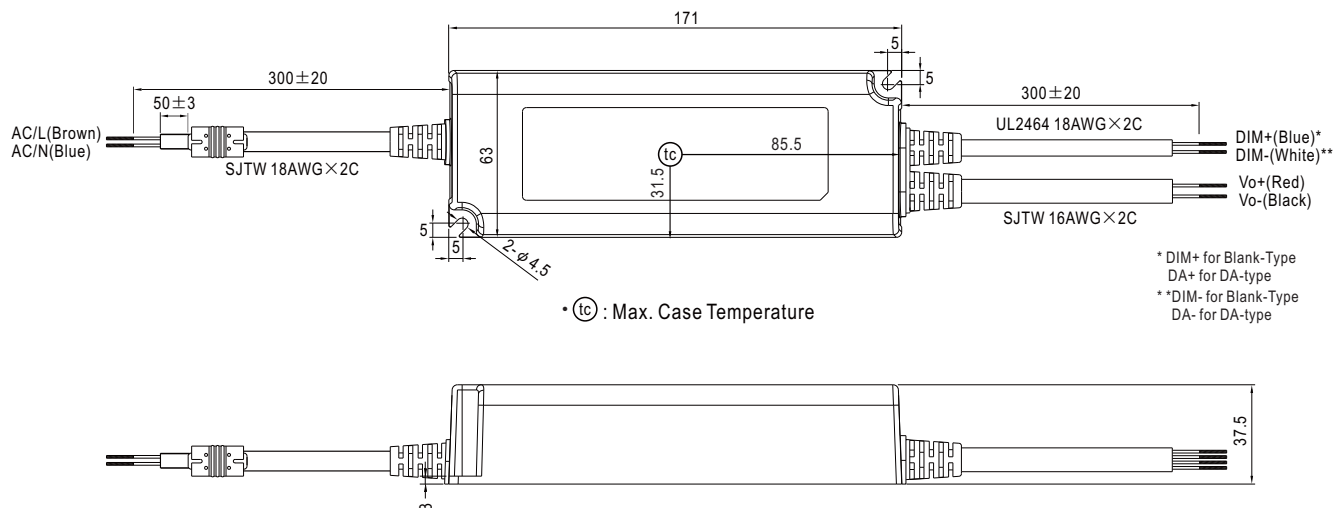
■ Block Diagram

PFC fosc : 50~120KHz
PWM fosc : 60~130KHz

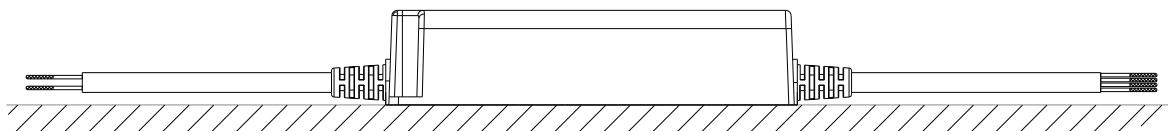


■ Mechanical Specification

Case No. PWM-90P Unit:mm



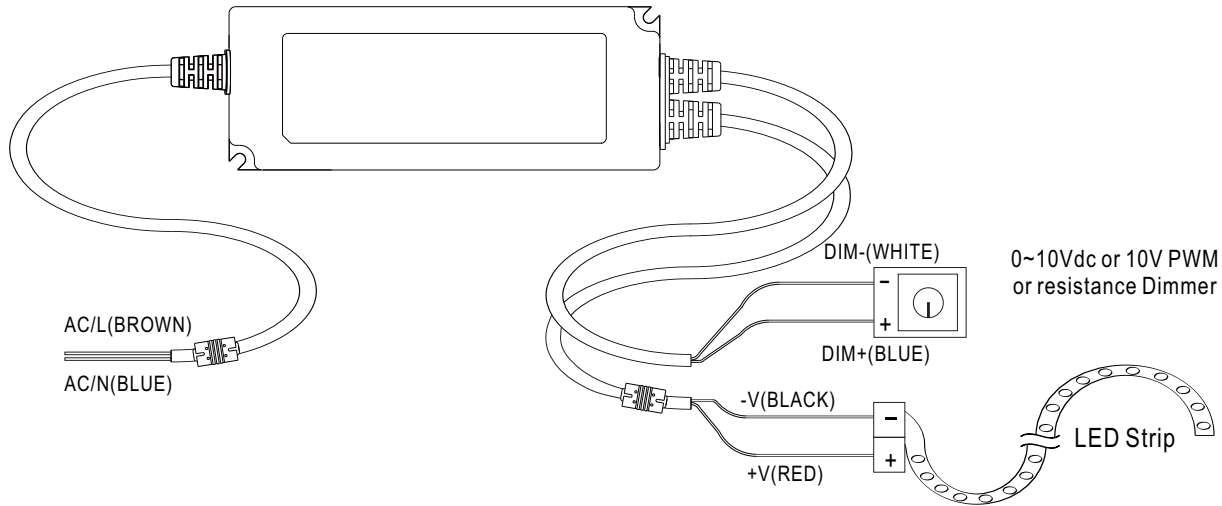
■ Recommend Mounting Direction



Driver Specifications for DEL90

■ 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.
- For more information about installation, please refer to www.meanwell.com/webnet/search/installationsearch.html for details.