# 45W PWM Output LED Driver

# ODLV-45 series

User's Manual

SELV IP67 (for enclosure design only) IS 15885(Part 2/Sec13) R-41027766 ( for ODLV-45-12,24,48 only) (optional) Type HL

## Features

- Constant Voltage PWM style output with frequency 1KHz
- Plastic housing with class II design
- Built-in active PFC function
- No load power consumption<0.5W(Blank-Type)
- IP67 rating for indoor or outdoor installations
- Function options: 2 in 1 dimming (dim-to-off); Auxiliary DC output
- 3 years warranty

## Applications

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

## GTIN CODE

MW Search: https://www.meanwell.com/serviceGTIN.aspx

## Description

ODLV-45 series is a 45W AC/DC LED driver featuring the constant voltage mode PWM style output design. ODLV-45 operates from 90~295VAC and offers models with different rated voltage ranging between 12V and 60V. Thanks to the high efficiency up to 90%, with the fanless design, the entire series is able to operate for -20℃~+85℃ case temperature under free air convection. The design of plastic housing and IP67 ingress protection level allows this series to fit indoor wet applications. ODLV-45 is equipped with various function options, such as dimming methodologies, so as to provide the design flexibility for LED lighting system.

## Model Encoding

**ODLV - 45 A - 12**

- 12 — Rated output voltage(12/24/36/48/60V)
- A — Function options
- 45 — Rated wattage
- ODLV — Series name

| Type | Function | Note |
|---|---|---|
| Blank | 2 in 1 dimming (0~10VDC and 10V PWM) | In Stock |
| A | 2 in 1 dimming and Auxiliary DC output | In Stock |

## SPECIFICATION

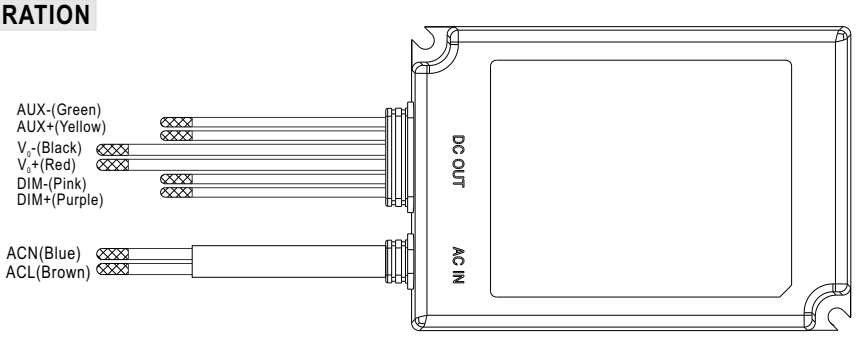
| MODEL | | ODLV-45□-12 | ODLV-45□-24 | ODLV-45□-36 | ODLV-45□-48 | ODLV-45□-60 |
|---|---|---|---|---|---|---|
| OUTPUT | DC VOLTAGE | 12V | 24V | 36V | 48V | 60V |
| | RATED CURRENT | 3.0A | 1.88A | 1.25A | 0.94A | 0.75A |
| | RATED POWER | 36W | 45.12W | 45W | 45.12W | 45W |
| | DIMMING RANGE | 0~100% | | | | |
| | VOLTAGE TOLERANCE | ±10% | | | | |
| | PWM FREQUENCY (Typ.) | 1KHz(±20%) | | | | |
| | SETUP TIME Note.3 | 500ms / 230VAC 1200ms/115VAC | | | | |
| | AUXILIARY DC OUTPUT Note.4 | Nominal 12V(deviation 11.4~12.6)@50mA for A-Type only | | | | |
| INPUT | VOLTAGE RANGE Note.2 | 90 ~ 295VAC<br>(Please refer to "STATIC CHARACTERISTIC" section) | | | | |
| | FREQUENCY RANGE | 47 ~ 63Hz | | | | |
| | POWER FACTOR (Typ.) | PF>0.95/115VAC, PF>0.92/230VAC, PF>0.9/277VAC@full load<br>(Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section) | | | | |
| | TOTAL HARMONIC DISTORTION | THD< 20%(@load≧60%/115VAC,230VAC; @load≧75%/277VAC)<br>(Please refer to "TOTAL HARMONIC DISTORTION" section) | | | | |
| | EFFICIENCY (Typ.) | 84% | 86% | 88% | 88% | 90% |
| | AC CURRENT (Typ.) | 0.6A / 115VAC 0.4A / 230VAC 0.3A / 277VAC | | | | |
| | INRUSH CURRENT(Typ.) | COLD START 30A(twidth=150μs measured at 50% Ipeak) at 230VAC; Per NEMA 410 | | | | |
| | MAX. No. of PSUs on 16A CIRCUIT BREAKER | 32 units (circuit breaker of type B) / 32 units (circuit breaker of type C) at 230VAC | | | | |
| | LEAKAGE CURRENT | <0.75mA / 277VAC | | | | |
| | NO LOAD POWER CONSUMPTION | <0.5W for Blank-Type, <1.2W for A-Type | | | | |
| PROTECTION | SHORT CIRCUIT | Shut down O/P voltage, re-power on to recovery | | | | |
| | OVER CURRENT | 105 ~ 115% | | | | |
| | | Protection type : Hiccup mode, recovers automatically after fault condition is removed | | | | |
| ENVIRONMENT | WORKING TEMP. | Tcase=-20 ~ +85℃ (Please refer to " OUTPUT LOAD vs TEMPERATURE" section) | | | | |
| | MAX. CASE TEMP. | Tcase=+85℃ | | | | |
| | WORKING HUMIDITY | 20 ~ 90% RH non-condensing | | | | |
| | STORAGE TEMP., HUMIDITY | -40 ~ +80℃, 10 ~ 95% RH | | | | |
| | TEMP. COEFFICIENT | ±0.03%/℃ (0 ~ 50℃) | | | | |
| | VIBRATION | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes | | | | |
| SAFETY & EMC | SAFETY STANDARDS | UL8750(type"HL"),CSA C22.2 NO.250.13-12;ENEC BS EN/EN61347-1 & BS EN/EN61347-2-13 independent, BS EN/EN62384; BIS IS15885( for ODLV-45-12,24,48 only), EAC TP TC 004,IP67 approved | | | | |
| | WITHSTAND VOLTAGE | I/P-O/P:3.75KVAC | | | | |
| | ISOLATION RESISTANCE | I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH | | | | |
| | EMC EMISSION | Compliance to BS EN/EN55015, BS EN/EN61000-3-2 Class C (@load≧60%) ; BS EN/EN61000-3-3, 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:1KV),EAC TP TC 020 | | | | |
| OTHERS | MTBF | 4229.8K hrs min. Telcordia SR-332 (Bellcore) 434.9K hrs min. MIL-HDBK-217F (25℃) | | | | |
| | DIMENSION | 111*77*28.5mm (L*W*H) | | | | |
| | PACKING | 0.42Kg;24pcs/11Kg/ 0.72CUFT | | | | |

**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 cold first start. Turning ON/OFF the driver may lead to increase of the set up time.
4. Aux. 12V will be damaged with short circuit; It will not be available with dimming off or output no load condition.
5. 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.
6. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).
7. 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
8. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED power supply can only be used behind a switch without permanently connected to the mains.

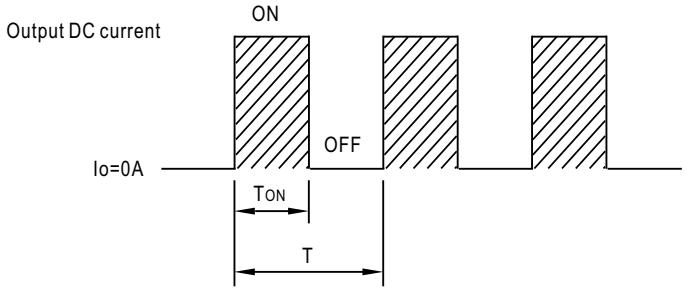
※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

## ■ DIMMING OPERATION




※ **Dimming principle for PWM style output**

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

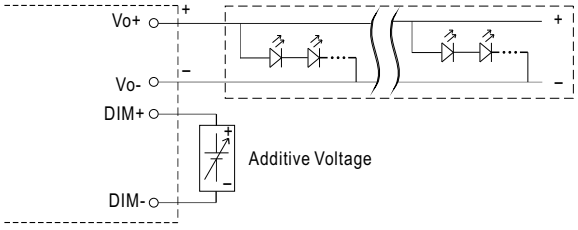



$$\text{Duty cycle}(\%) = \frac{TON}{T} \times 100\%$$

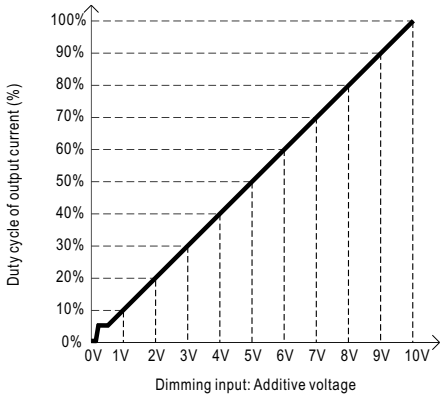
Output PWM frequency : 1KHz(±20%)

※ **2 in 1 dimming function**

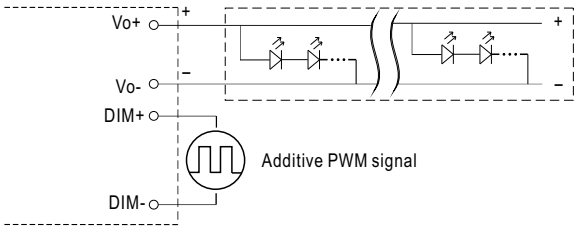
◎ Applying additive 0 ~ 10VDC



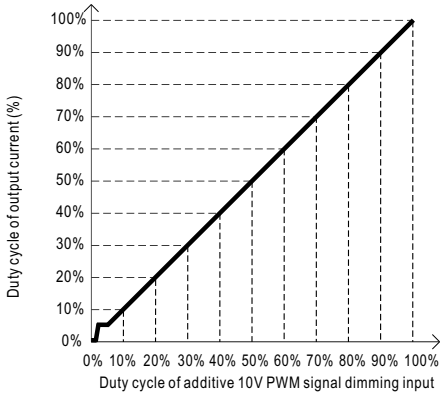

"DO NOT connect "DIM- to Vo-"




◎ Applying additive 10V PWM signal (frequency range 300~3000Hz):

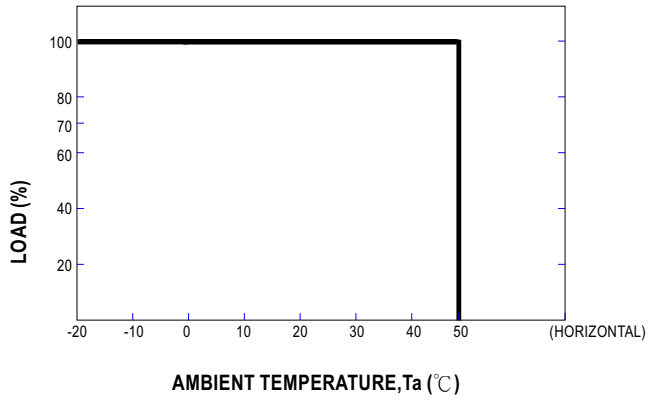


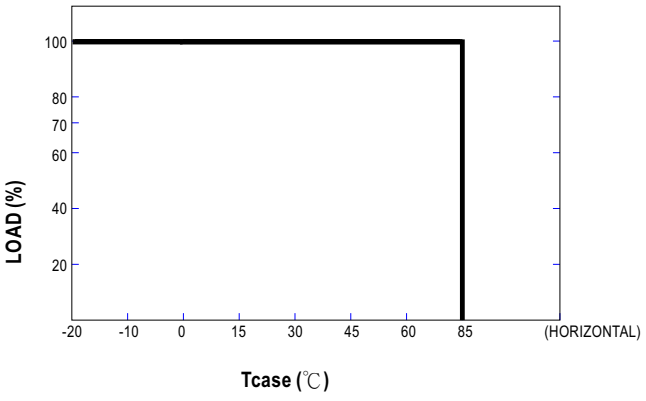

"DO NOT connect "DIM- to Vo-"



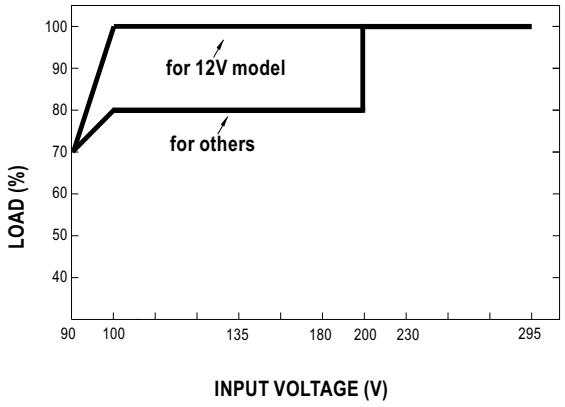

Note : 1. Min. duty cycle of output current is about 8% and the output current is not defined when 0%< Iout<8%.
2. The duty cycle of output current could drop down to 0% when dimming input is about 0Vdc or 10V PWM signal with 0% duty cycle.

## ■ OUTPUT LOAD vs TEMPERATURE



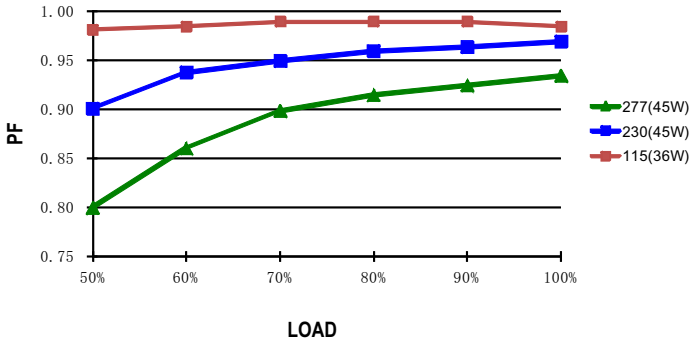

## ■ STATIC CHARACTERISTIC




※De-rating is needed under low input voltage.

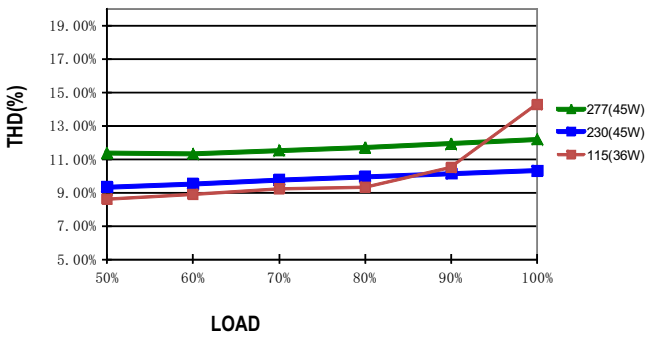
## ■ POWER FACTOR (PF) CHARACTERISTIC

※ Tcase at 75℃




## ■ TOTAL HARMONIC DISTORTION (THD)

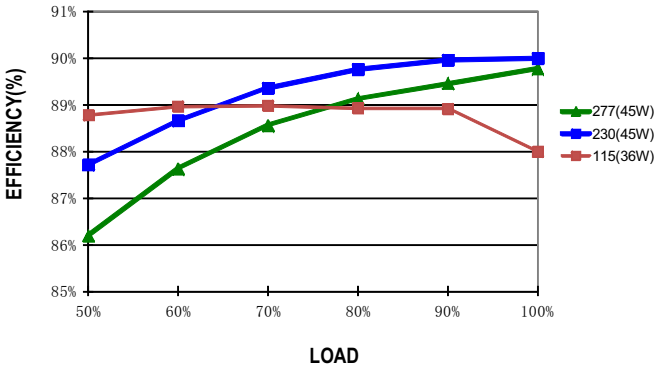
※ 60V Model,Tcase at 75℃




## ■ EFFICIENCY vs LOAD

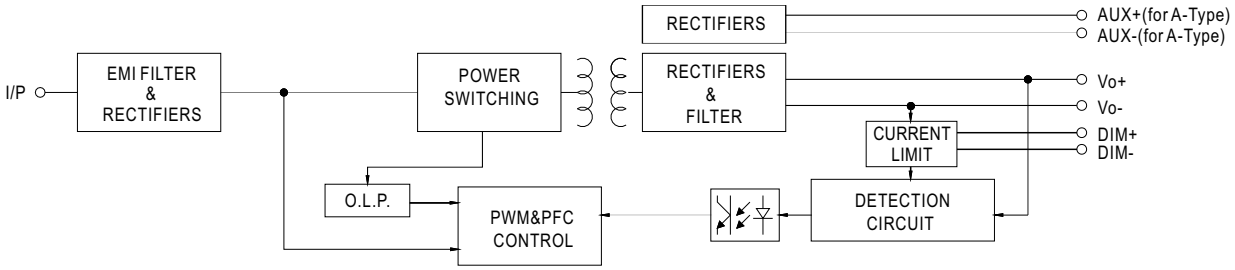
ODLV-45 series possess superior working efficiency that up to 90% can be reached in field applications.

60V Model,Tcase at 75



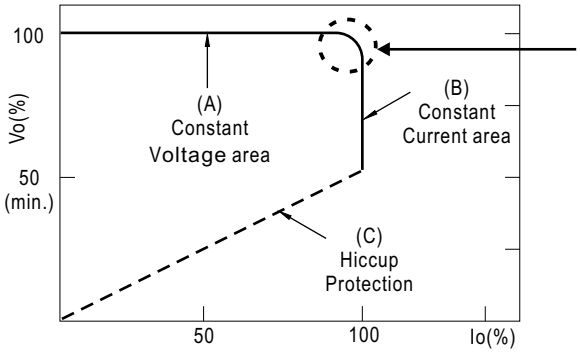
## ■ BLOCK DIAGRAM

fosc : 70~150KHz




## ■ DRIVING METHODS OF LED MODULE

※ This series work in Constant Voltage mode to drive the LEDs.




Typical output current normalized by rated current (%)

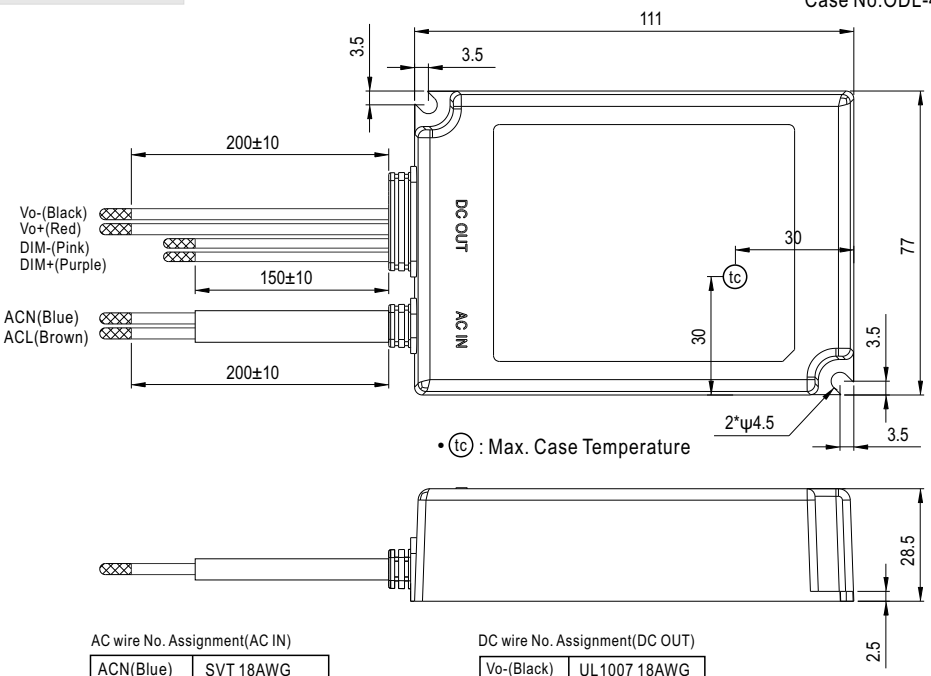
In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.

Should there be any compatibility issues, please contact MEAN WELL.

## ■ MECHANICAL SPECIFICATION

Case No.ODL-45A Unit:mm

※**Blank-Type:**



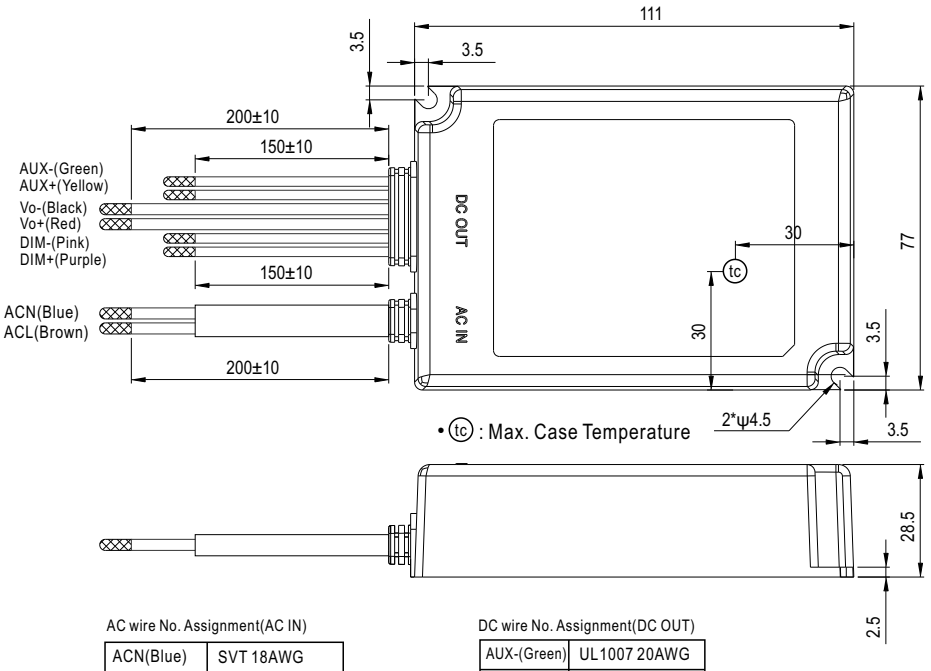

AC wire No. Assignment(AC IN)

| | |
|---|---|
| ACN(Blue) | SVT 18AWG |
| ACL(Brown) | SVT 18AWG |

DC wire No. Assignment(DC OUT)

| | |
|---|---|
| Vo-(Black) | UL1007 18AWG |
| Vo+(Red) | UL1007 18AWG |
| DIM-(Pink) | UL1007 22AWG |
| DIM+(Purple) | UL1007 22AWG |

※**A-Type:**




AC wire No. Assignment(AC IN)

| | |
|---|---|
| ACN(Blue) | SVT 18AWG |
| ACL(Brown) | SVT 18AWG |

DC wire No. Assignment(DC OUT)

| | |
|---|---|
| AUX-(Green) | UL1007 20AWG |
| AUX+(Yellow) | UL1007 20AWG |
| Vo-(Black) | UL1007 18AWG |
| Vo+(Red) | UL1007 18AWG |
| DIM-(Pink) | UL1007 22AWG |
| DIM+(Purple) | UL1007 22AWG |

## ■ INSTALLATION MANUAL

Please refer to : http://www.meanwell.com/manual.html