MEAN WELL

45W PWM Output LED Driver

IDPV-45 series

User's Manual

SELV (optional)

Features

- Constant Voltage PWM style output with frequency 1KHz
- PCB type design
- Built-in active PFC function
- No load power consumption<0.5W(Blank-Type)
- 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

GTIN CODE

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

Description

IDPV-45 series is a 45W PCB type AC/DC LED driver featuring the constant voltage mode PWM style output design. IDPV-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 entireseries is able to operate for -20℃~+40℃ ambient temperature under free air convection. IDPV-45 is equipped with various function options, such as dimming methodologies, so as to provide the design flexibility for LED lighting system.

Model Encoding

IDPV - 45 A - 12

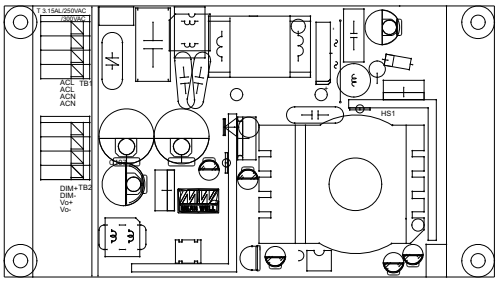
- 12 — Rated output voltage(12/24/36/48/60V)
- A — Function options
- 45 — Rated wattage
- IDPV — Series name

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

SPECIFICATION

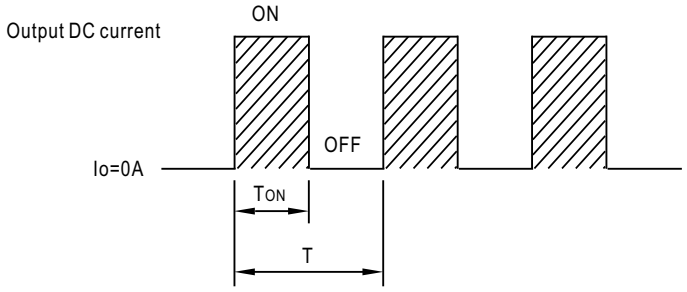
MODEL		IDPV-45□-12	IDPV-45□-24	IDPV-45□-36	IDPV-45□-48	IDPV-45□-60
OUTPUT	DC VOLTAGE	12V	24V	36V	48V	60V
	RATED CURRENT	3.0A	1.88A	1.25A	0.94A	0.75A
	RATED POWER	36W	45.12W	45W	45.12W	45W
	DIMMING RANGE	0~100%				
	VOLTAGE TOLERANCE	±10%				
	PWM FREQUENCY (Typ.)	1KHz(±20%)				
	SETUP TIME Note.3	500ms / 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 127 ~ 417VDC (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 (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.)	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.	Ta=-20 ~ +40℃ (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)				
	WORKING HUMIDITY	20 ~ 90% RH non-condensing				
	STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH				
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 40℃)				
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes				
SAFETY & EMC	SAFETY STANDARDS	UL8750,CSA C22.2 NO.250.13-12;ENEC BS EN/EN61347-1 & BS EN/EN61347-2-13 independent, BS EN/EN62384 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				
	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)				
OTHERS	MTBF	4022.6K hrs min. Telcordia SR-332 (Bellcore) ; 425.1K hrs min. MIL-HDBK-217F (25℃)				
	DIMENSION	120*66.5*22mm (L*W*H)				
	PACKING	0.14Kg;81pcs/12.5Kg/ 1.32CUFT				
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. 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.

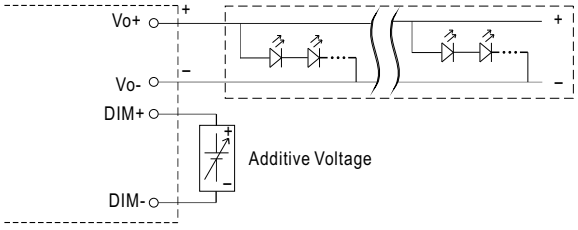


$$\text{Duty cycle}(\%) = \frac{TON}{T} \times 100\%$$

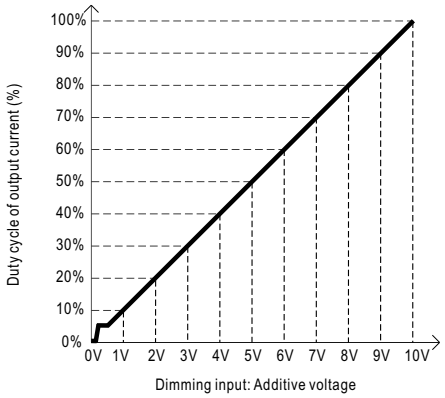
Output PWM frequency : 1KHz(±20%)

※ **2 in 1 dimming function**

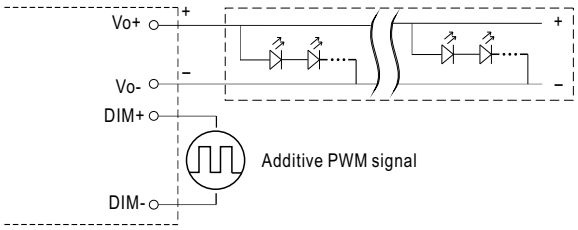
◎ Applying additive 0 ~ 10VDC



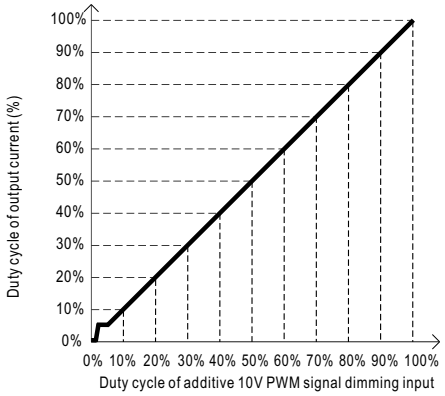
"DO NOT connect "DIM- to Vo-"



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



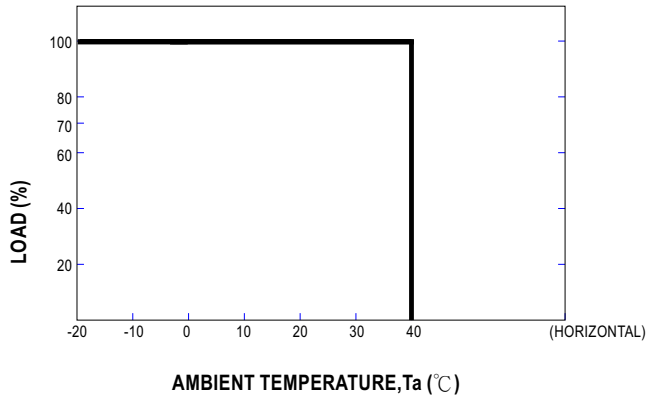
"DO NOT connect "DIM- to Vo-"



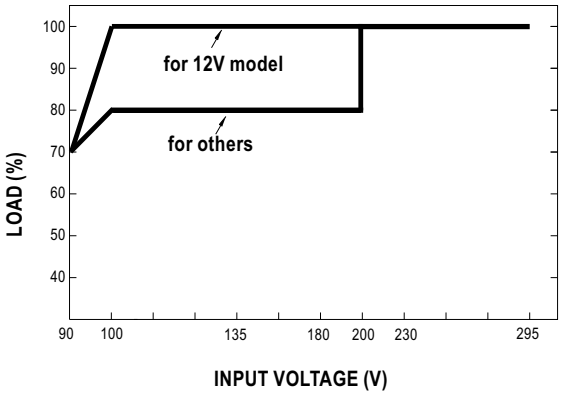
Note : 1. Min. duty cycle of output current is about 8% and the output current is not defined when 0%< Iout<8%.

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

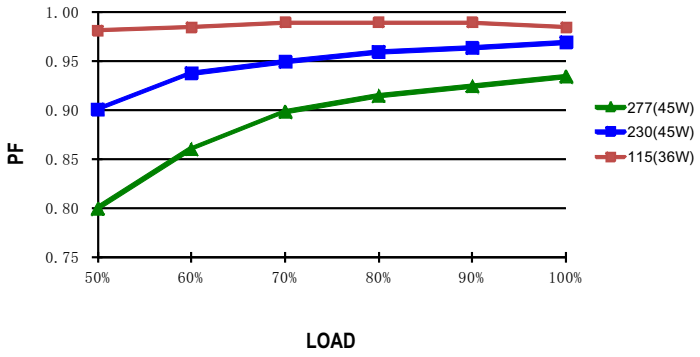


■ STATIC CHARACTERISTIC



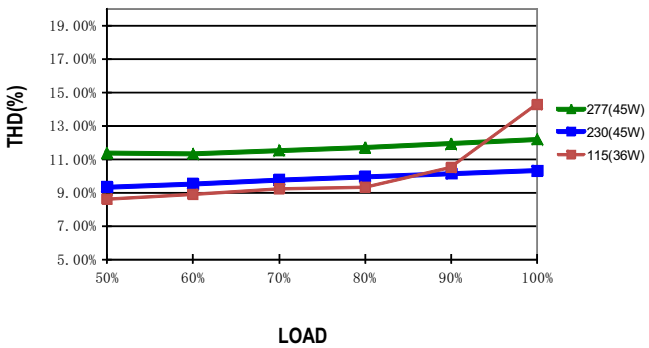
※De-rating is needed under low input voltage.

■ POWER FACTOR (PF) CHARACTERISTIC



■ TOTAL HARMONIC DISTORTION (THD)

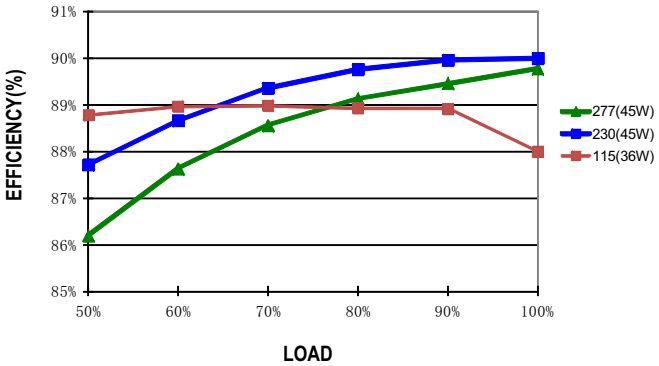
※ 60V Model



■ EFFICIENCY vs LOAD

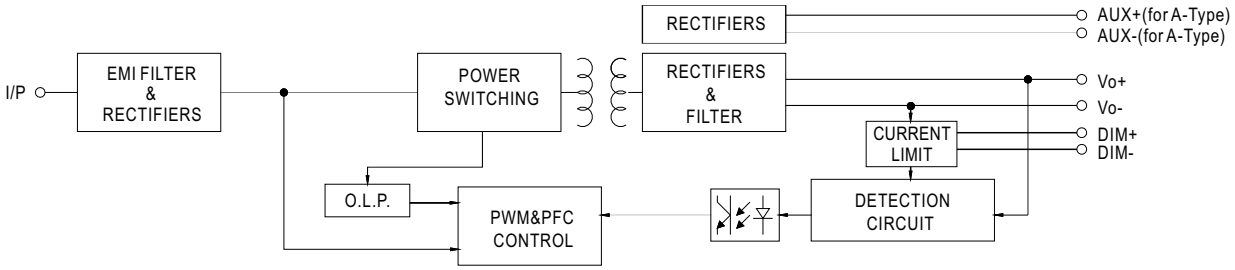
IDPV-45 series possess superior working efficiency that up to 90% can be reached in field applications.

※ 60V Model



■ BLOCK DIAGRAM

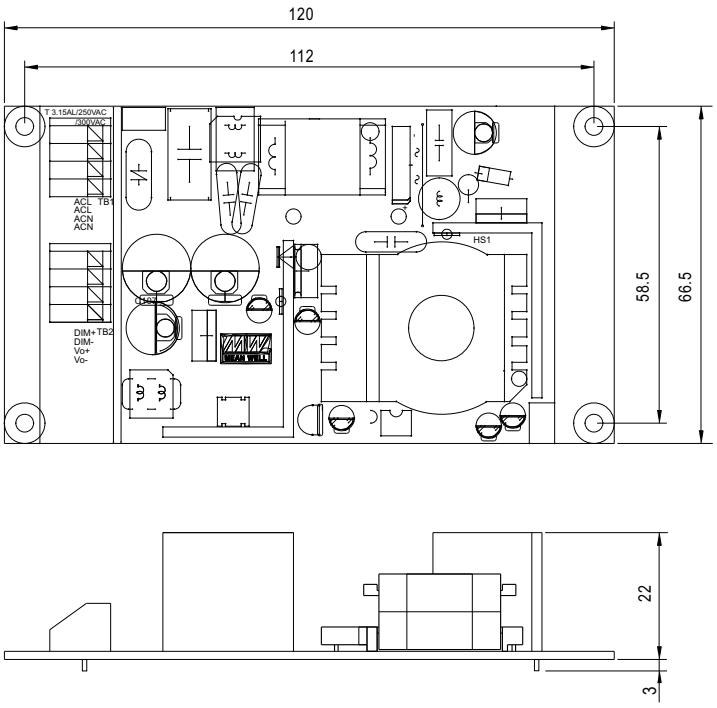
fosc : 70~150KHz



■ MECHANICAL SPECIFICATION

※ **Blank-Type**

Unit:mm



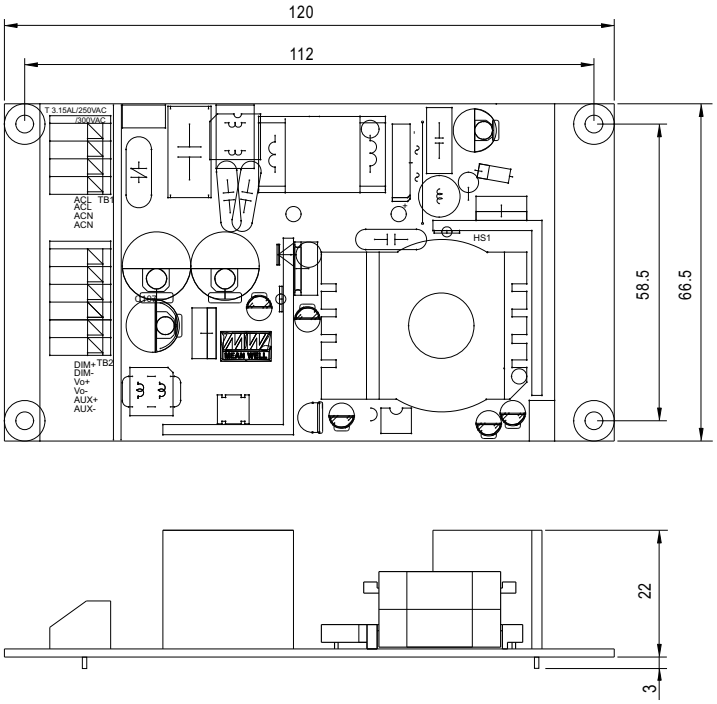
Terminal Pin No. Assignment(TB1)

Pin No.	Assignment
1	ACL
2	ACL
3	ACN
4	ACN

Terminal Pin No. Assignment(TB2)

Pin No.	Assignment
1	DIM+
2	DIM-
3	Vo+
4	Vo-

※ **A-Type**



Terminal Pin No. Assignment(TB1)

Pin No.	Assignment
1	ACL
2	ACL
3	ACN
4	ACN

Terminal Pin No. Assignment(TB2)

Pin No.	Assignment	Pin No.	Assignment
1	DIM+	4	Vo-
2	DIM-	5	AUX+
3	Vo+	6	AUX-

■ INSTALLATION MANUAL

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