

IDLV-45 Series

45W PWM Output LED Power Supply



Case: 8914EJ
120 x 75 x 25 mm

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)
- Function options: 2 in 1 dimming (dim-to-off); Auxiliary DC output
- High Efficiency up to 89%
- 3 years warranty

TYPE	FUNCTION
Blank	2 in 1 dimming (0~10Vdc, 10V PWM)
A	2 in 1 dimming and Auxiliary DC output

IDLV	- 45	A	- 5
Series name	Rated wattage	Function options	Rated output voltage (12/24/36/48/60V)



Specification

INPUT	Voltage Range	90 ~ 295VAC 127 ~ 417VDC (Please refer to 'Static Characteristic' section)				
	Frequency	47 ~ 63 Hz				
	Power Factor	PF \geq 0.95/115VAC, PF \geq 0.92/230VAC, PF \geq 0.9/277VAC at full load (Please refer to 'Power Factor Characteristic' section)				
	Total Harmonic Distortion	THD <20% (at \geq 60% at 115VAC,230VAC, at load \geq 75% at 277VAC)				
	AC Current	0.6A/115VAC 0.4A/230VAC 0.3A/277VAC				
	Inrush Current (Typ.)	Cold start 30A (twidth=150 μ s measured at 50% Ipeak) at 230VAC; Per NEMA 410				
	Max. No. of PSUs on a 16A Circuit Breaker	32 units (circuit breaker of type B)/32 units (circuit breaker of type C) at 230VAC				
		Leakage Current	<0.75mA/240VAC			
	No Load Power Consumption <0.5W for Blank-Type, <1.2W for A-Type					
OUTPUT	MODEL No.	IDLV-45□-12	IDLV-45□-24	IDLV-45□-36	IDLV-45□-48	IDLV-45□-60
	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%	0 ~ 100%	0 ~ 100%	0 ~ 100%	0 ~ 100%
	Voltage Tolerance	\pm 10%				
	Efficiency	84%	86%	88%	88%	90%
	PWM Frequency	1KHz (\pm 20%)				
	Setup Time	500ms/230VAC 1200ms/115VAC				
		Auxiliary DC Output	Nominal 12V (deviation 11.4 ~ 12.6) @50mA for A-Type only			
PROTECTION	Short Circuit	Shut down O/P voltage, re-power on to recover				
	Over Current	105 ~ 115% Protection type : Hiccup mode, recovers automatically after fault condition is removed				
ENVIRONMENT	Working Temperature	Tcase=-20 ~ +85°C (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)				
	Max. Case Temperature	Tcase=+85°C				
	Working Humidity	20 ~ 90% RH non-condensing				
	Storage Temperature	-40 ~ +80°C, 10 ~ 95% RH non-condensing				
	Temp Coefficient	\pm 0.03%/°C (0 ~ 40°C)				
	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; EN/AS/NZS 61347-1 & EN/AS/NZS 61347-2-13 independent, EN62384, GB19510.1, GB19510.14, BIS IS15885(for IDLV-45-12,24,48 only), EAC TP TC 004 approved				
	Withstand Voltage	I/P-O/P:3.75KVAC				
	Isolation Resistance	I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH				
	EMC Emission	Compliance to EN55015, EN61000-3-2 Class C (@load at 60%); EN61000-3-3, GB17743,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:1KV), EAC TP TC 020				
OTHERS	M.T.B.F.	386.59K hrs min. MIL-HDBK-217F (25°C)				
	Packing	0.22Kg; 54pcs/13Kg/0.93CUFT				

1. All parameters NOT specifically mentioned are measured at 230VAC input, rated load 25°C of ambient temperature.
2. Derating maybe needed under low input voltages. Please check the derating curve for more details.
3. 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.
4. Length of set up time is measured at first cold start. Turning ON/OFF the power supply may lead to increase of the set up time.
5. Aux. 12V will be damaged with short circuit; it will not be available with dimming off or output no load condition.

IDLV-45 Series

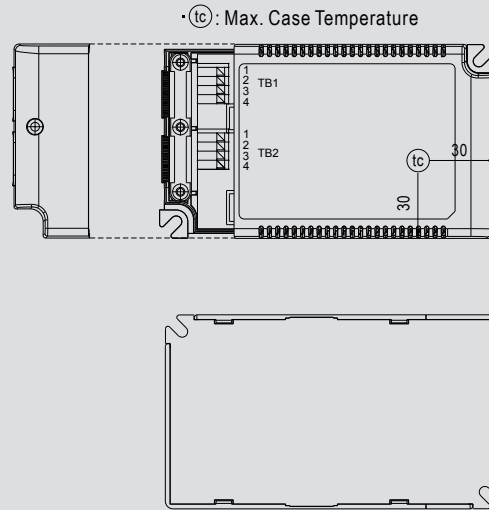
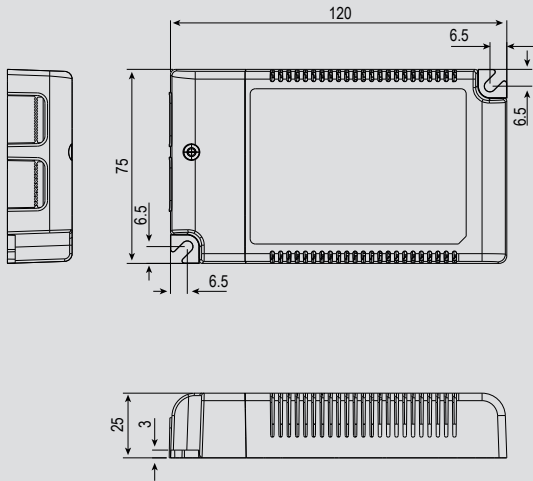
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Mechanical Diagrams

Blank-Type

Unit:mm



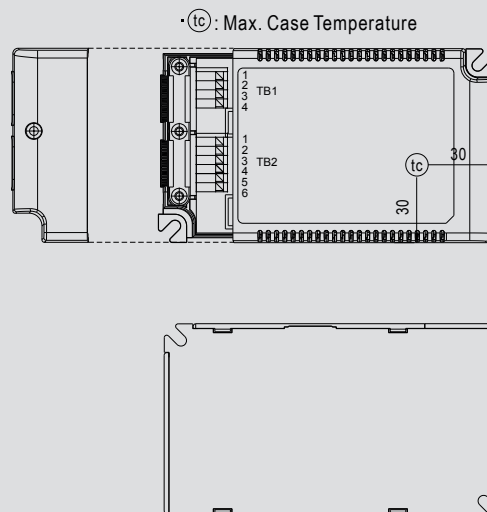
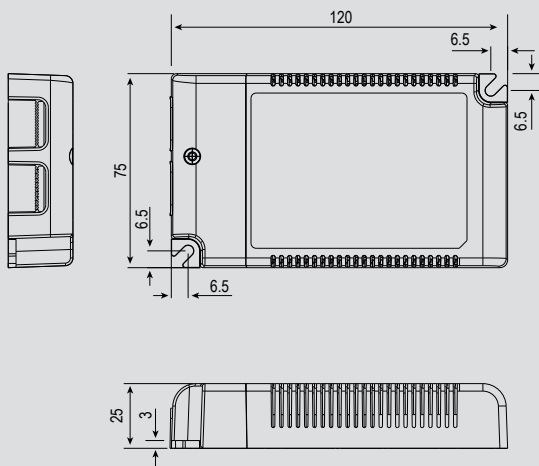
Terminal Pin No. Assignment(TB1)

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



NOTE: 2Please use wires with a cross section of 0.75~1.5mm for TB1 2 and wires with a cross section of 0.5~1.5mm for TB2.

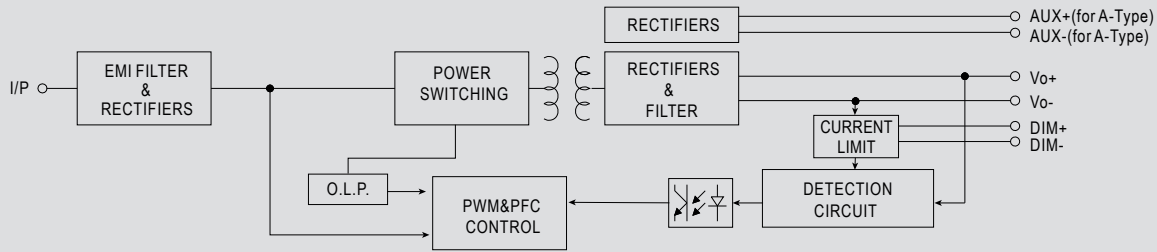
Terminal Pin No. Assignment(TB1)

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

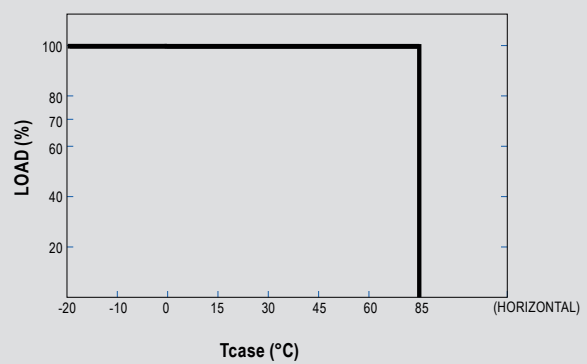
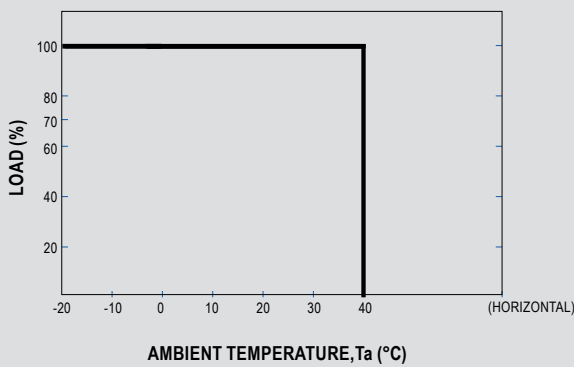
Terminal Pin No. Assignment(TB2)

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

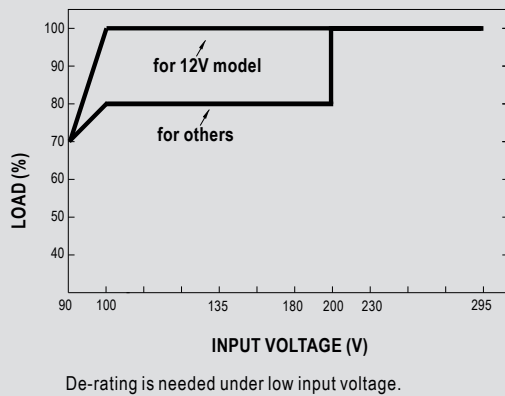
Block Diagram



Output Load vs Temperature

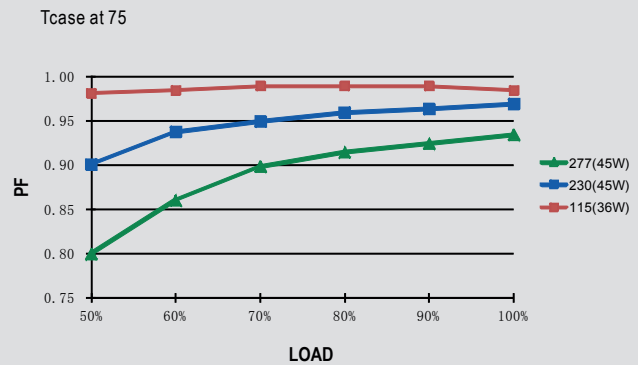


Static Characteristic



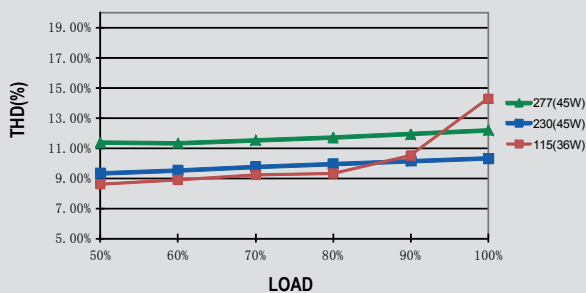
De-rating is needed under low input voltage.

Power Factor (PF) Characteristic



Total Harmonic Distortion (THD)

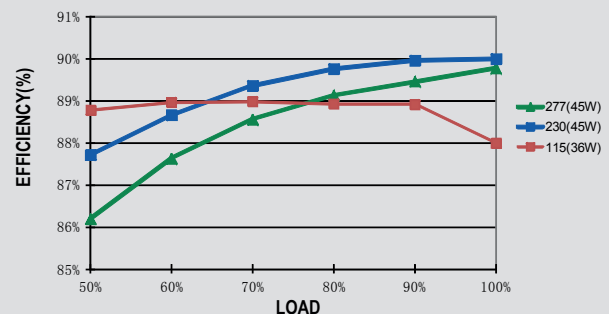
60V Model, Tcase at 75°C



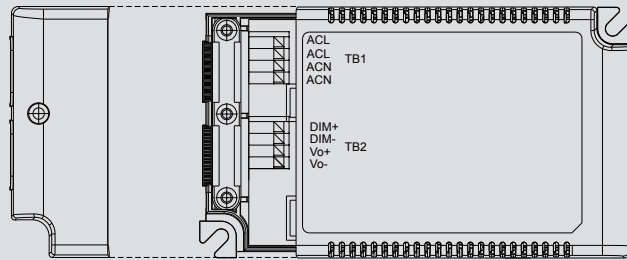
Efficiency vs Load

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

60V Model, Tcase at 75°C

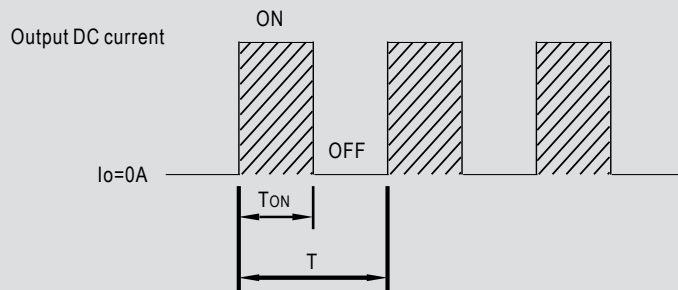


Dimming Operation



Dimming principle for PWM style output

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

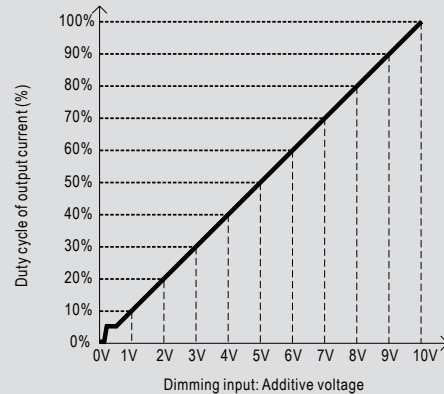
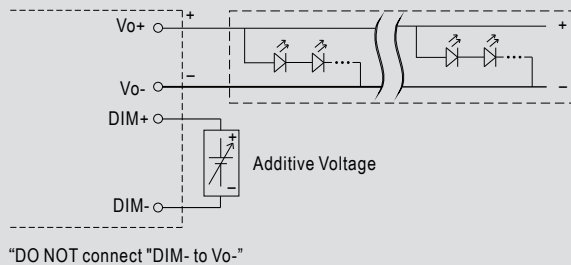


$$\text{Duty cycle (\%)} = \frac{T_{\text{ON}}}{T} \times 100\%$$

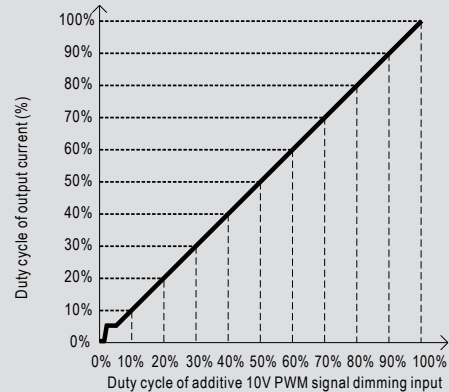
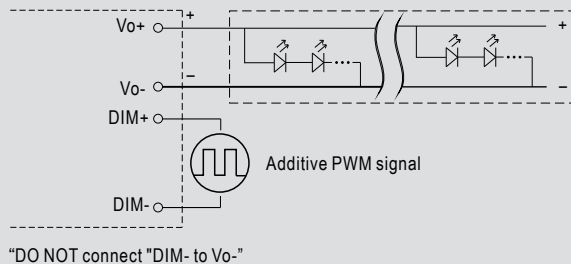
Output PWM frequency : 1KHz(±20%)

2 in 1 dimming function

⊗ Applying additive 0 ~ 10VDC



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



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.