150W Constant Voltage + Constant Current LED Driver HVG-150 series

TAIWAN EXCELLENCE 2014

IP65 IP67

Features

- Wide input range 180 ~ 528VAC
- Constant Voltage + Constant Current mode output
- Metal housing with Class I design
- Built-in active PFC function
- IP67 / IP65 rating for indoor or outdoor installations
- Function options: output adjustable via potentiometer; 3 in 1 dimming (dim-to-off) ; Timer dimming
- Typical lifetime>50000 hours
- 5 years warranty

Applications

- LED street lighting
- LED high-bay lighting
- Parking space lighting
- LED fishing lamp
- LED greenhouse lighting
- Type “HL” for use in Class I , Division 2 hazardous (Classified) location.

Description

HVG-150 series is a 150W AC/DC LED power supply featuring the dual mode constant voltage and constant current output. HVG-150 operates from 180~528VAC and offers models with different rated voltage ranging between 12V and 54V. Thanks to the high efficiency up to 91.5%, with the fanless design, the series is able to operate from -40℃ through as high as +85℃ case temperature under free air convection. The design of metal housing and IP67/IP65 ingress protection level allows this series to fit both indoor and outdoor applications. HVG-150 is equipped with various function options, such as dimming methodologies, so as to provide the optimal design flexibility for LED lighting system.

Model Encoding

HVG - 150 - 36 A

- A — Function options
- 36 — Rated output voltage(12V/15V/20V/24V/30V/36V/42V/48V/54V)
- 150 — Rated wattage
- HVG — Series name

Type	IP Level	Function	Note
A	IP65	Io and Vo adjustable through built-in potentiometer.	In Stock
B	IP67	3 in 1 dimming function (0~10Vdc, 10V PWM signal and resistance)	In Stock
AB	IP65	Io and Vo adjustable through built-in potentiometer & 3 in 1 dimming function (0~10Vdc, 10V PWM signal and resistance)	In Stock
D	IP67	Timer dimming function, contact MEAN WELL for details(safety pending).	By request

150W Constant Voltage + Constant Current LED Driver HVG-150 series

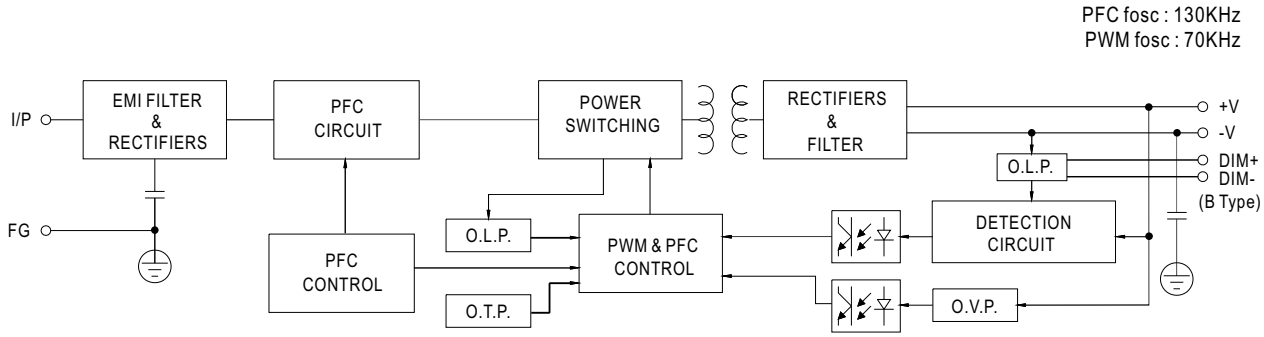
SPECIFICATION

MODEL			HVG-150-12□	HVG-150-15□	HVG-150-20□	HVG-150-24□	HVG-150-30□	HVG-150-36□	HVG-150-42□	HVG-150-48□	HVG-150-54□
OUTPUT	DC VOLTAGE		12V	15V	20V	24V	30V	36V	42V	48V	54V
	CONSTANT CURRENT REGION Note.4		7.2~12V	8.25~15V	11~20V	13.2~24V	16.5~30V	19.8~36V	23.1~42V	26.4~48V	29.7~54V
	RATED CURRENT		10A	10A	7.5A	6.25A	5A	4.17A	3.58A	3.13A	2.78A
	RATED POWER		120W	150W	150W	150W	150W	150.12W	150.36W	150.24W	150.12W
	RIPPLE & NOISE (max.) Note.2		150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p	200mVp-p	200mVp-p	200mVp-p
	VOLTAGE ADJ. RANGE		Adjustable for A/AB-Type only (via the built-in potentiometer)								
			10.8 ~ 13.5V	13.5 ~ 17V	17 ~ 22V	22 ~ 27V	27 ~ 33V	33 ~ 40V	38 ~ 46V	43 ~ 53V	49 ~ 58V
	CURRENT ADJ. RANGE		Adjustable for A/AB-Type only (via the built-in potentiometer)								
			6 ~ 10A	5.5 ~ 10A	4.13 ~ 7.5A	3.44 ~ 6.25A	2.75 ~ 5A	2.29 ~ 4.17A	1.97 ~ 3.58A	1.72 ~ 3.13A	1.53 ~ 2.78A
	VOLTAGE TOLERANCE Note.3		±2.5%	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION		±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION		±2.0%	±1.5%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME Note.6		500ms, 80ms /230VAC, 347VAC, 480VAC								
	HOLD UP TIME (Typ.)		18ms/347VAC, 480VAC								
INPUT	VOLTAGE RANGE Note.5		180 ~ 528VAC 254VDC ~ 747VDC (Please refer to "STATIC CHARACTERISTIC" section)								
	FREQUENCY RANGE		47 ~ 63Hz								
	POWER FACTOR (Typ.)		PF≧0.98/230VAC, PF≧0.97/277VAC, PF≧0.95/347VAC, PF≧0.93/480VAC @full load (Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)								
	TOTAL HARMONIC DISTORTION		THD< 20%(@ load≧50%/230VAC, 277VAC, 347VAC [@ load≧60% only for 12V model]; @ load≧75%/480VAC) (Please refer to "TOTAL HARMONIC DISTORTION (THD)" section)								
	EFFICIENCY (Typ.)		87%	89%	90.5%	91%	91%	91%	91%	91.5%	91.5%
	AC CURRENT (Typ.)	347VAC	0.45A	0.5A							
		480VAC	0.35A	0.38A							
	INRUSH CURRENT (Typ.)		COLD START 35A(t_{width}=790μs measured at 50% I_{peak}) at 480VAC; Per NEMA 410								
	MAX. No. of PSUs on 16A CIRCUIT BREAKER		4 units (circuit breaker of type B) / 6 units (circuit breaker of type C) at 480VAC								
	LEAKAGE CURRENT		<0.75mA / 480VAC								
PROTECTION	OVER CURRENT		95 ~ 108%								
			Constant current limiting, recovers automatically after fault condition is removed								
	SHORT CIRCUIT		Constant current limiting, recovers automatically after fault condition is removed								
	OVER VOLTAGE		14.4 ~ 16.8V	18 ~ 21V	23 ~ 27V	28 ~ 34V	34 ~ 38V	41 ~ 46V	47 ~ 53V	54 ~ 60V	59 ~ 65V
			Shut down o/p voltage with auto-recovery or re-power on to recovery								
	OVER TEMPERATURE		Shut down o/p voltage, recovers automatically after temperature goes down								
ENVIRONMENT	WORKING TEMP.		Tcase=-40 ~ +85℃(-40 ~ +75℃ for 12V model, -40 ~ +80℃ for 15V model)(Please refer to "OUTPUT LOAD vs TEMPERATURE" section)								
	MAX. CASE TEMP.		Tcase=+85℃(+75℃ for 12V model, +80℃ for 15V model)								
	WORKING HUMIDITY		20 ~ 95% RH non-condensing								
	STORAGE TEMP., HUMIDITY		-40 ~ +80℃, 10 ~ 95% RH								
	TEMP. COEFFICIENT		±0.03%/℃ (0 ~ 60℃)								
	VIBRATION		10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes								
SAFETY & EMC	SAFETY STANDARDS Note.7		UL8750(type"HL"), CSA C22.2 No. 250.0-08, EAC TP TC 004, IP65 or IP67 approved								
	WITHSTAND VOLTAGE		I/P-O/P:3.75KVAC I/P-FG:2KVAC O/P-FG:1.5KVAC								
	ISOLATION RESISTANCE		I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH								
	EMC EMISSION		Compliance to EN55015, EN61000-3-2 Class C (@ load≧55% load,@ load≧60% only for 12V model) ; EN61000-3-3, FCC Part 15 Subpart,EAC TP TC 020								
	EMC IMMUNITY		Compliance to EN61000-4-2,3,4,5,6,8,11, EN61547, light industry level (surge immunity Line-Earth 4KV, Line-Line 2KV), EAC TP TC 020								
OTHERS	MTBF		158.6K hrs min. MIL-HDBK-217F (25℃)								
	DIMENSION		245*68*38.8mm (L*W*H)								
	PACKING		1.24Kg; 12pcs/15.9Kg/0.78CUFT								

NOTE

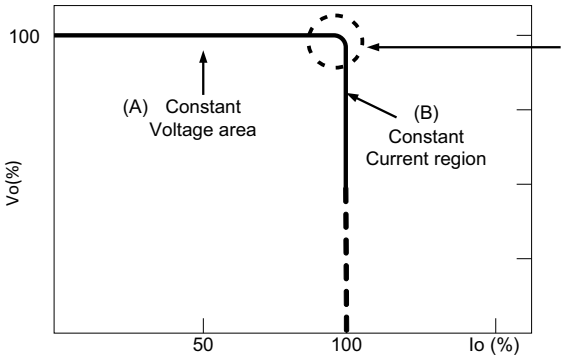
1. All parameters NOT specially mentioned are measured at 347VAC input, rated load and 25℃ of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. Please refer to "DRIVING METHODS OF LED MODULE".
5. De-rating may be needed under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details.
6. 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.
7. 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.
8. 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.
9. Please refer to the warranty statement on MEAN WELL's website at http://www.meanwell.com.
10. 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).
11. 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

■ Block Diagram



■ DRIVING METHODS OF LED MODULE

※ This series is able to work in either Constant Current mode (a direct drive way) or Constant Voltage mode (usually through additional DC/DC driver) 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.

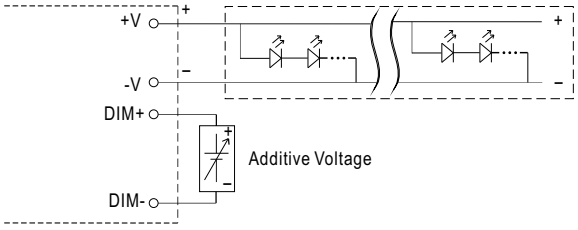
Should there be any compatibility issues, please contact MEAN WELL.

■ DIMMING OPERATION

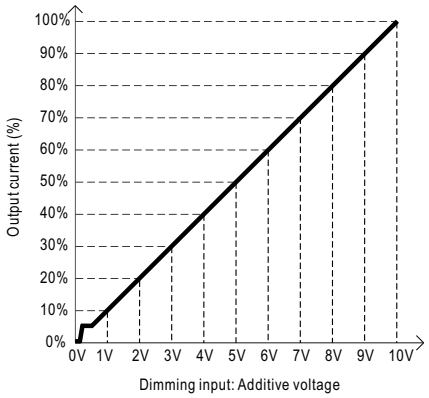
※ 3 in 1 dimming function (for B/AB-Type)

- Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-: 0 ~ 10VDC, or 10V PWM signal or resistance.
- Direct connecting to LEDs is suggested. It is not suitable to be used with additional drivers.
- Dimming source current from power supply: 100μA (typ.)

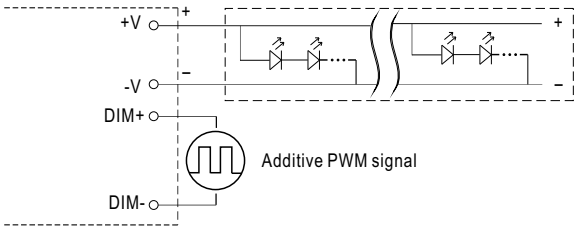
◎ Applying additive 0 ~ 10VDC



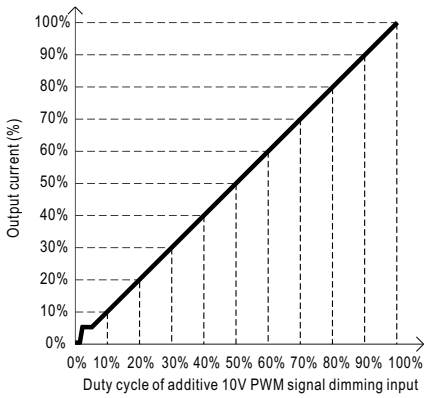
"DO NOT connect "DIM- to -V"



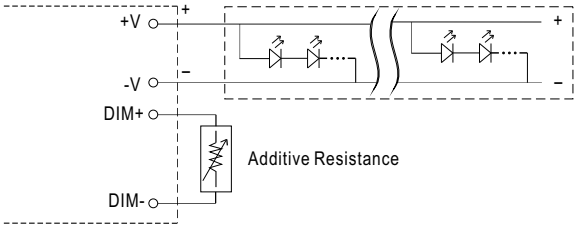
◎ Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):



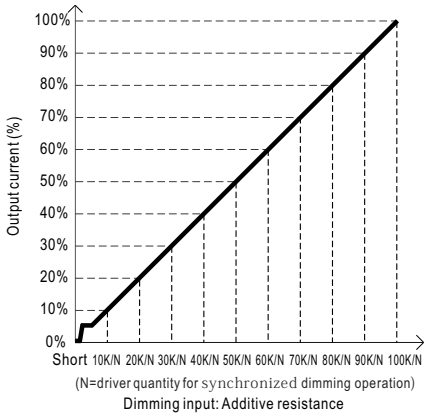
"DO NOT connect "DIM- to -V"



◎ Applying additive resistance:

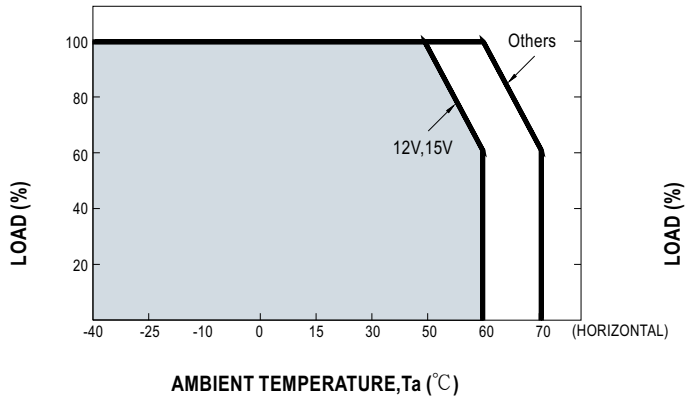


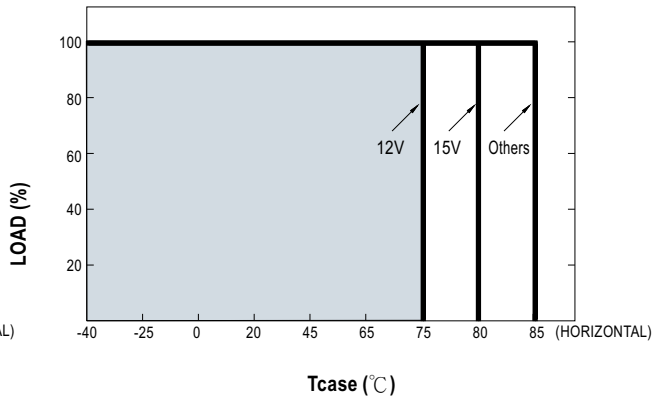
"DO NOT connect "DIM- to -V"



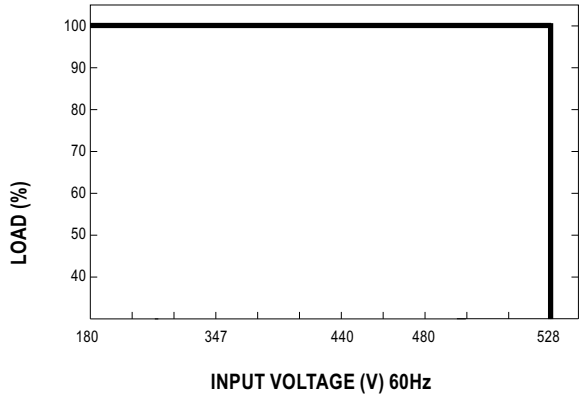
Note : 1. Min. dimming level is about 6% and the output current is not defined when 0%< Iout<6%.
2. The output current could drop down to 0% when dimming input is about 0kΩ or 0Vdc, or 10V PWM signal with 0% duty cycle.

■ OUTPUT LOAD vs TEMPERATURE(Note.9)

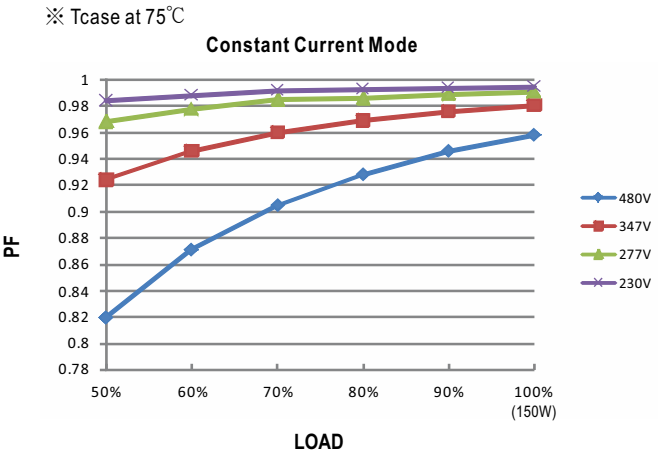




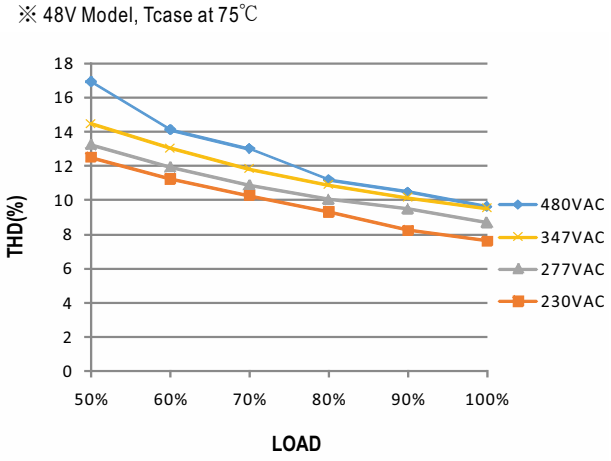
■ STATIC CHARACTERISTIC



■ POWER FACTOR (PF) CHARACTERISTIC

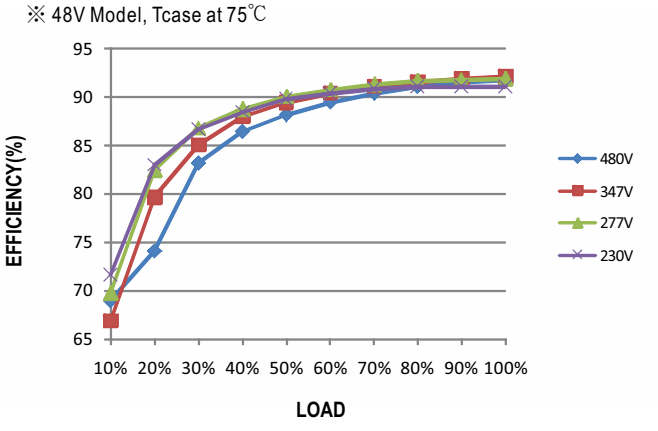


■ TOTAL HARMONIC DISTORTION (THD)



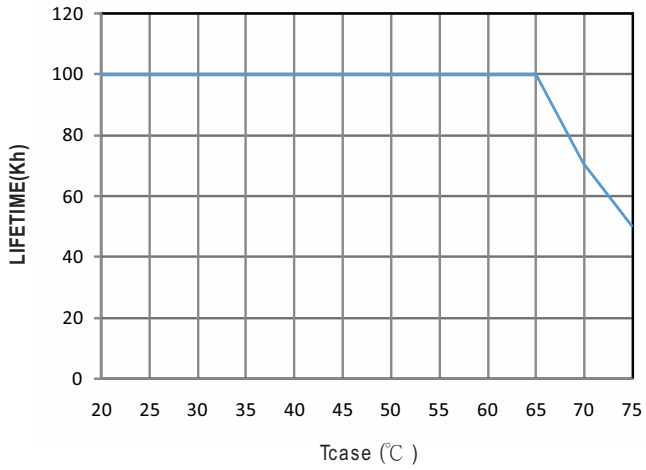
■ EFFICIENCY vs LOAD

HVG-150 series possess superior working efficiency that up to 91.5% can be reached in field applications.

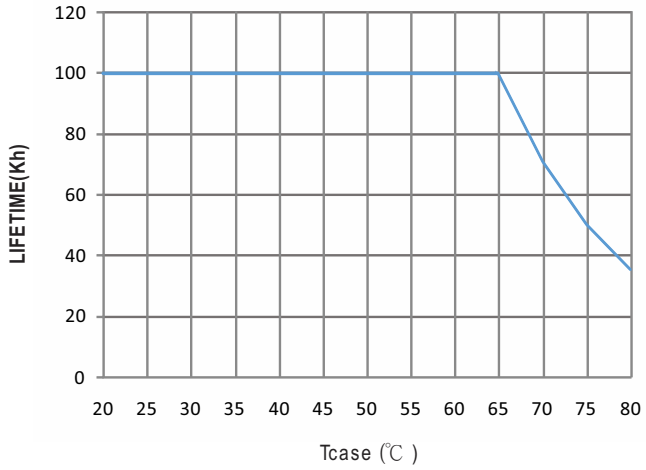


■ LIFE TIME

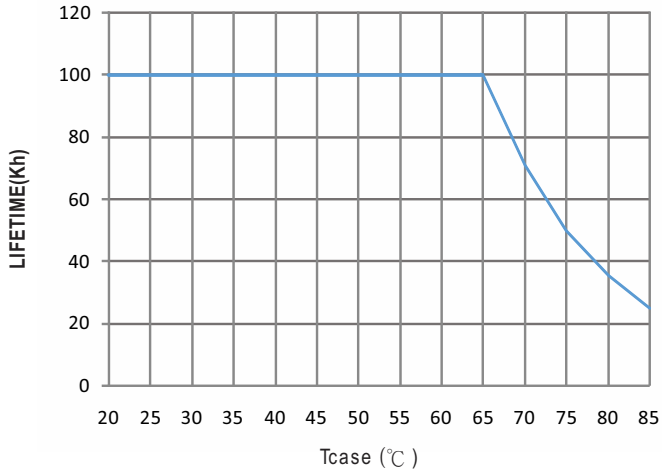
※ For HVG-150-12



※ For HVG-150-15



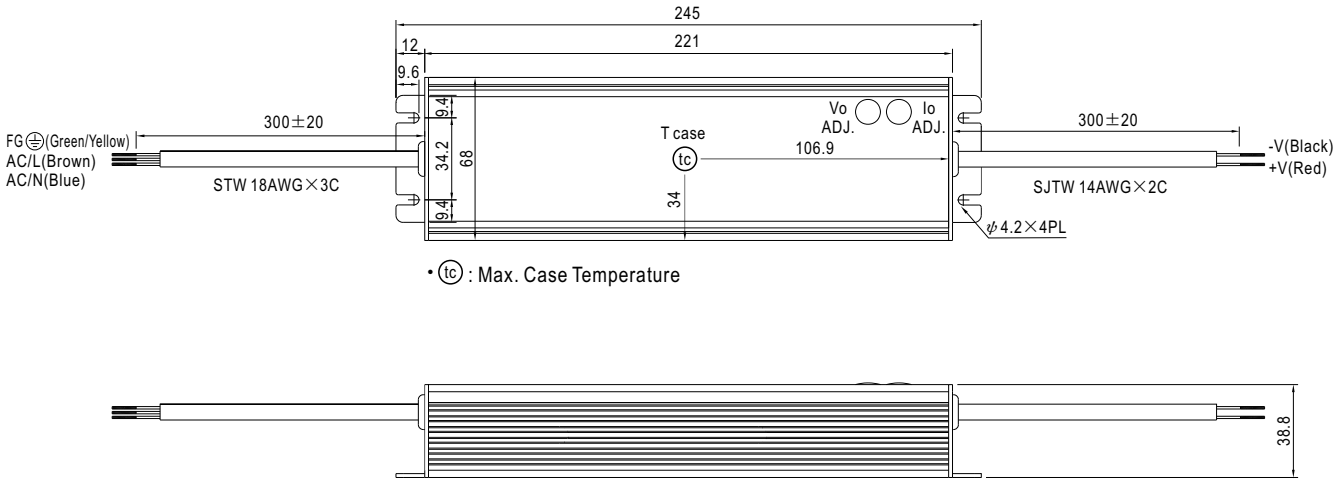
※ For others



■ MECHANICAL SPECIFICATION

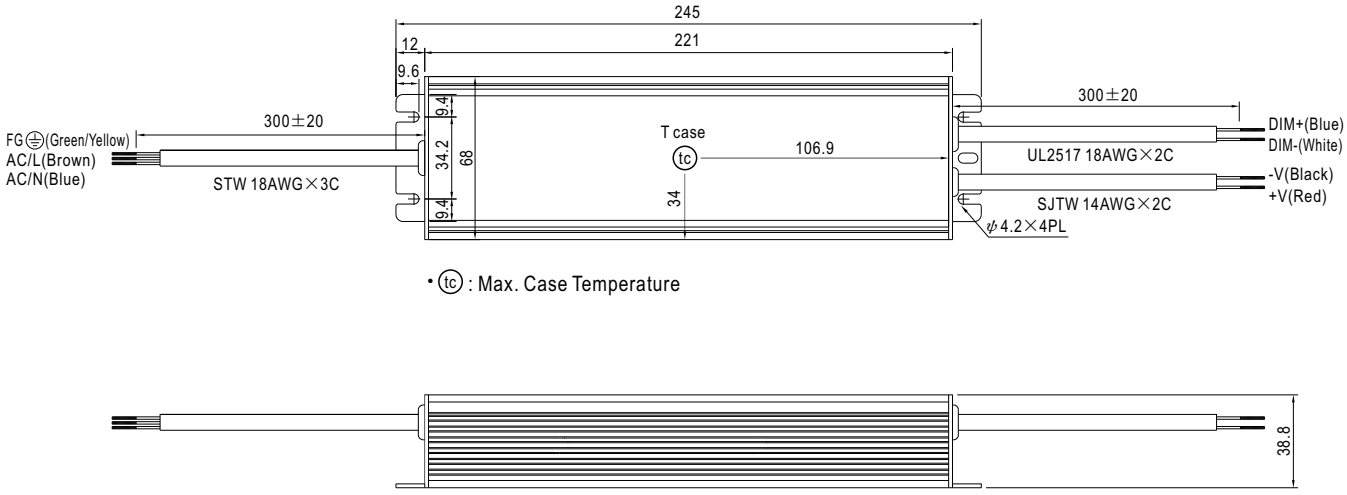
Case No. 994 Unit:mm

※ **A-Type**



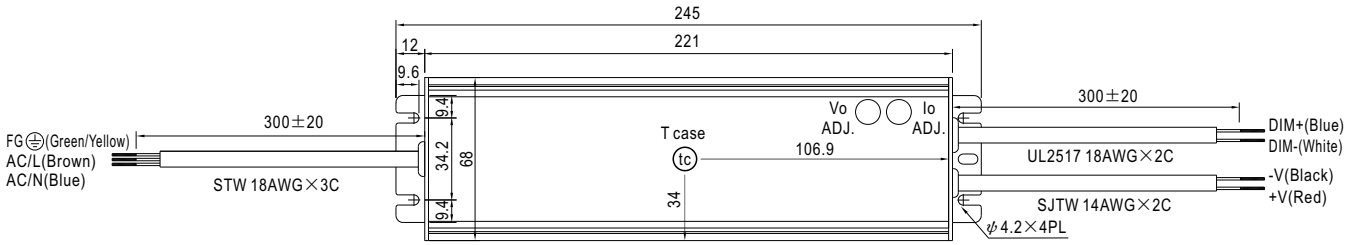
• tc : Max. Case Temperature

※ **B-Type**



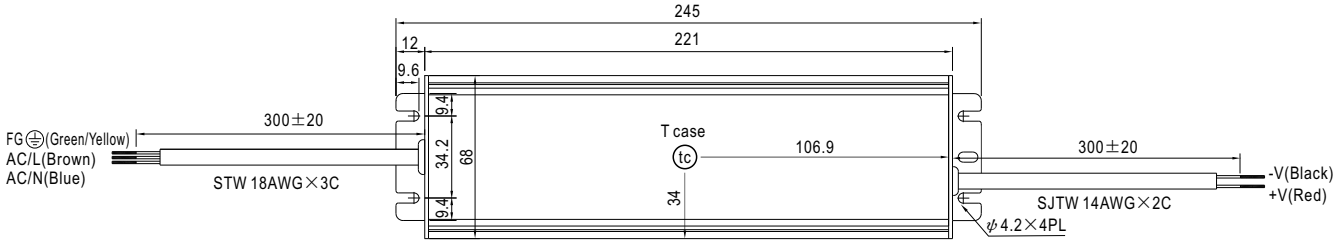
• tc : Max. Case Temperature

※ **AB-Type**



• tc : Max. Case Temperature

※ **D-Type**

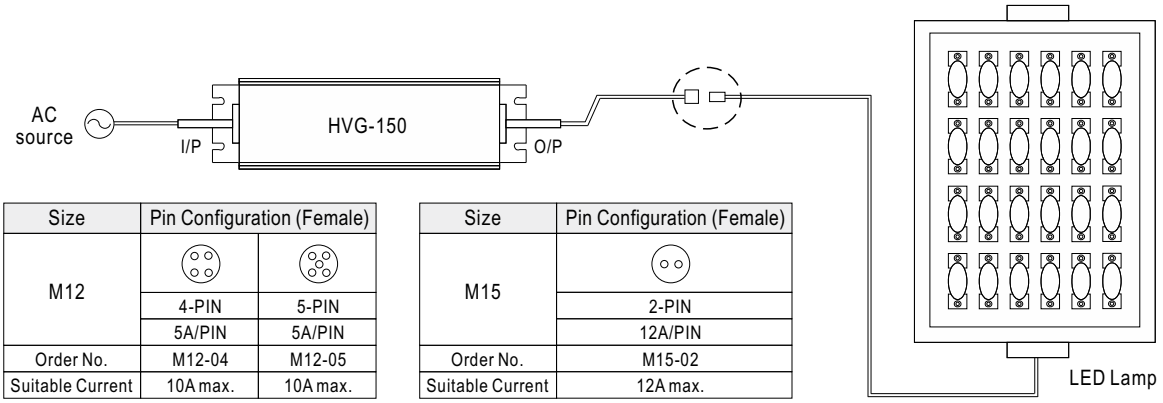


• tc : Max. Case Temperature

■ WATERPROOF CONNECTION

※ **Waterproof connector**

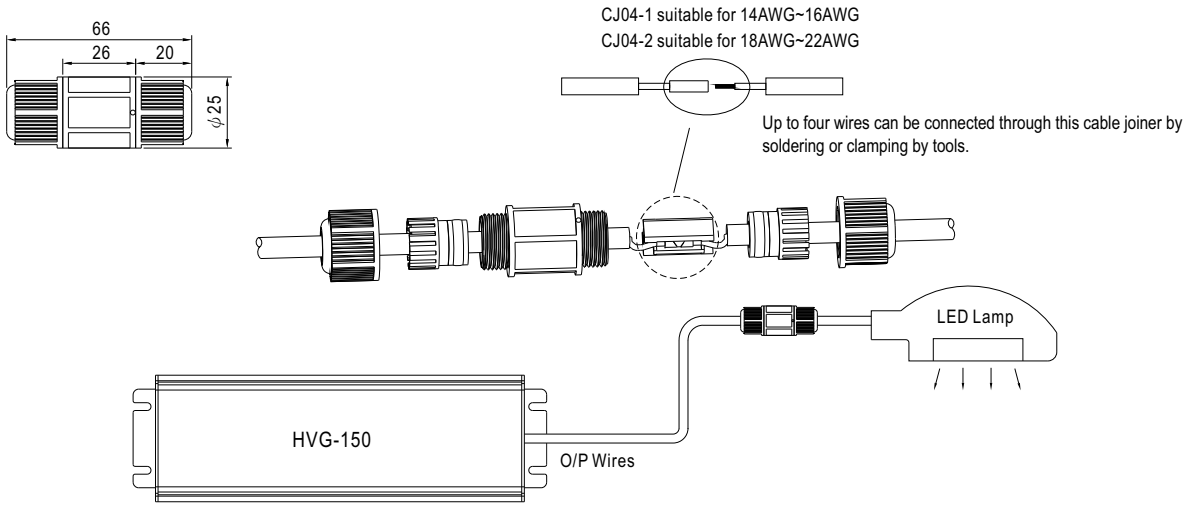
Waterproof connector can be assembled on the output cable of HVG-150 to operate in dry/wet/damp or outdoor environment.



Size	Pin Configuration (Female)	
M12		
	4-PIN	5-PIN
	5A/PIN	5A/PIN
Order No.	M12-04	M12-05
Suitable Current	10A max.	10A max.

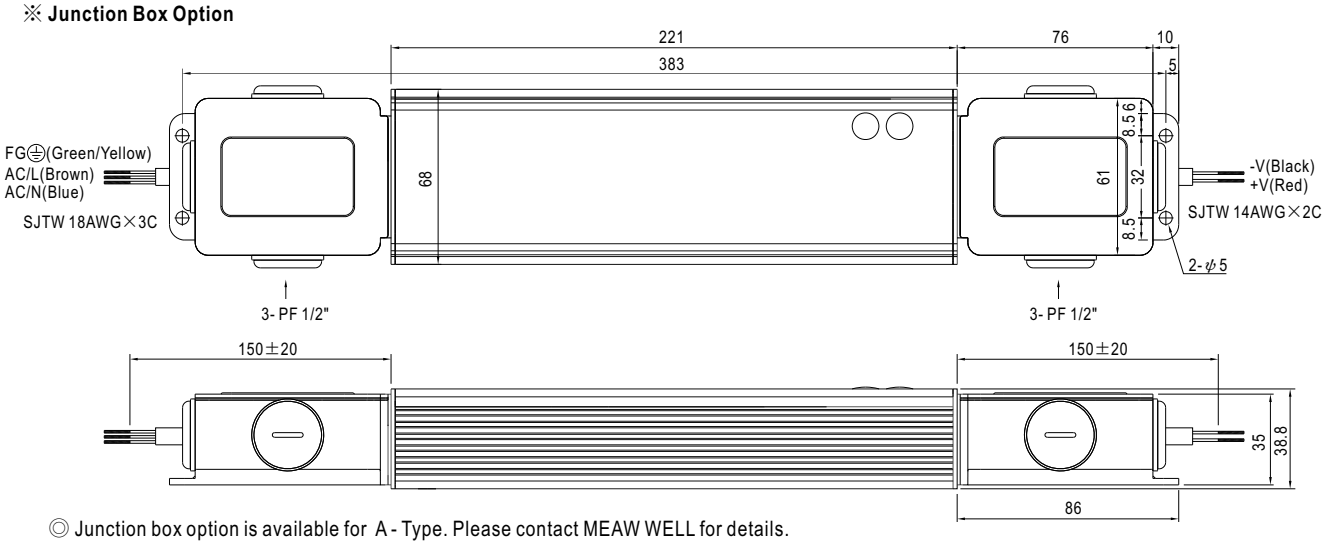
Size	Pin Configuration (Female)
M15	
	2-PIN
	12A/PIN
Order No.	M15-02
Suitable Current	12A max.

※ **Cable Joiner**



◎ CJ04 cable joiner can be purchased independently for user's own assembly.
MEAN WELL order No. : CJ04-1, CJ04-2.

※ **Junction Box Option**



◎ Junction box option is available for A - Type. Please contact MEAW WELL for details.

■ INSTALLATION MANUAL

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