

# **MEAN WELL HLG-600H Series Constant Voltage Constant Current LED Driver User Guide**

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MEAN WELL HLG-600H Series Constant Voltage Constant Current LED Driver



# **FAQs**

- Q: What is the difference between IP65 and IP67 ratings?
  - **A:** The IP65 rating protects against dust and low-pressure water jets, while the IP67 rating offers protection against immersion in water up to 1 meter depth for a limited time.
- Q: Can the HLG-600H driver be used with AB-type LEDs?
  - A: The HLG-600H driver is compatible with all LED types except for AB-type LEDs. For AB-type LEDs, a
    different driver is recommended.

### **FEATURE**

- Constant Voltage + Constant Current mode output
- Metal housing with class 1 design
- Standby power consumption <0.5W at remote off
- 1P67 / IP65 rating for indoor or outdoor installations
- Function options: output adjustable via potentiometer; 3 in 1 dimming (dim-to-off)
- Typical lifetime > 62000 hours
- 7 years warranty

### **Applications**

- · 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.

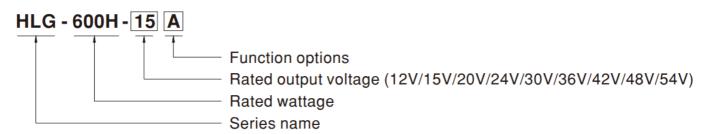
### **GTIN CODE**

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

# **Description**

- HLG-600H series is a 600W AC/DC LED driver featuring the dual mode constant voltage and constant current output.
- HLG-600H operates from 90 ~ 305VAC and offers models with different rated voltages ranging between 12V and 54V.
- Thanks to the high efficiency of up to 96%, with the fanless design, the entire series can operate for -40°C ~ +90°C case temperature under free air convection.
- The design of metal housing and IP67/1P65 ingress protection level allows this series to fit both indoor and outdoor applications.
- HLG-600H is equipped with various function options, such as dimming methodologies, to provide the optimal design flexibility for LED lighting systems.

### **MODEL ENCODING**



Type	IP Level	Function	Note
Α	IP65	Io and Vo adjustable through built-in potentiometer	In Stock
В	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
Blank	IP67	Io and Vo fixed	In Stock

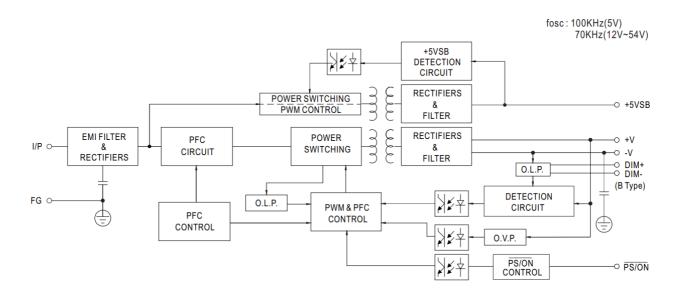
### **SPECIFICATION**

MODEL		HLG-600H-12	HLG-600H-15	HLG-600H-20	HLG-600H-24	HLG-600H-30	HLG-600H-36	HLG-600H-42	HLG-600H-48	HLG-600H-54	
OUTPUT	DC VOLTAGE		12V	15V	20V	24V	30V	36V	42V	48V	54V
	CONSTANT CURRENT REGION Note.4		6~12V	7.5 ~ 15V	10 ~ 20V	12 ~ 24V	15 ~ 30V	18 ~ 36V	21 ~ 42V	24 ~ 48V	27 ~ 54V
	RATED CURRENT		40A	36A	28A	25A	20A	16.7A	14.3A	12.5A	11.2A
	RATED POWER		480W	540W	560W	600W	600W	601.2W	600.6W	600W	604.8W
	RIPPLE & NOISE (	max.) Note.2	150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p	250mVp-p	250mVp-p	250mVp-p	350mVp-p
	VOLTAGE ADJ. RANGE		Adjustable for A-Type only (via built-in potentiometer)								
			10.2 ~ 12.6V	12.7 ~ 15.8V	17 ~ 21V	20.4 ~ 25.2V	25.5 ~ 31.5V	30.6 ~ 37.8V	35.7 ~ 44.1V	40.8 ~ 50.4V	45.9 ~ 56.7V
	CURRENT ADJ. RANGE		Adjustable for A-Type only (via built-in potentiometer)								
			20 ~ 40A	18 ~ 36A	14 ~ 28A	12.5 ~ 25A	10 ~ 20A	8.3 ~ 16.7A	7.1 ~ 14.3A	6.2 ~ 12.5A	5.6 ~ 11.2A
	VOLTAGE TOLERANCE Note.3		±3.0%	±2.0%	±1.5%	±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	NC	±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/ 115VAC, 230VAC								
	HOLD UP TIME (Typ.)		15ms / 115VAC, 230VAC								
	VOLTAGE RANGE Note.5		90 ~ 305VAC 127 ~ 431VDC								
			(Please refer to "STATIC CHARACTERISTIC" section)								
	FREQUENCY RANGE		47 ~ 63Hz								
	POWER FACTOR (Typ.)		PF≥0.98/115VAC, PF≥0.95/230VAC, PF≥0.93/277VAC @ full load								
			(Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)								
	TOTAL HARMONIC DISTORTION		THD< 20% (@ load ≥ 50% /115VAC, 230VAC; @ load ≥ 75%/277VAC)								
			(Please refer to "TOTAL HARMONIC DISTORTION (THD)" section)								
INPUT	EFFICIENCY	230VAC	92%	93.5%	94.5%	95%	95%	95.5%	96%	96%	96%
	(Typ.)	277VAC	92.5%	93.5%	94.5%	95%	95%	95.5%	96%	96%	96%
	AC CURRENT (Typ.)		7A / 115VAC 3.3A / 230VAC 2.9A / 277VAC								
	INRUSH CURRENT(Typ.)		COLD START 70A(twidth=1000µs measured at 50% lpeak) at 230VAC; Per NEMA 410								
	MAX. No. of PSUs on 16A CIRCUIT BREAKER		1 unit (circuit breaker of type B) / 2 units (circuit breaker of type C) at 230VAC								
	LEAKAGE CURRENT		<0.75mA / 277VAC								
	STANDBY POWER CONSUMPTION		<0.5W at remote off								
PROTECTION :	OVER CURRENT Note.4		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		13 ~ 16V	16.5 ~ 20.5V	22 ~ 26V	26 ~ 30V	32.5 ~ 36.5V	39.5 ~ 43.5V	46 ~ 50V	52.5 ~ 56.5V	59 ~ 63V
			Shut down o/p voltage, re-power on to recover								
	OVER TEMPERATURE		Shut down o/p voltage, re-power on to recover								
FUNCTION	N		Power on: "High" >2 ~ 5V or Open circuit Power off: "Low" <0 ~ 0.5V or Short circuit								
PUNCTION	5V STANDBY		5VsB:5V@0.5A; tolerance ±5%, ripple:100mVp-p(max.)								

ENVIRONMENT :	WORKING TEMP.	Tcase= -40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)							
	MAX. CASE TEMP.	Tcase= +90°C							
	WORKING HUMIDITY	20 ~ 95% RH non-condensing							
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH non-condensing							
	TEMP. COEFFICIENT	±0.03%/°C (0~55°C)							
	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes							
		UL60950-1, UL8750(type"HL"), CSA C22.2 No. 250.13-12, ENEC BS EN/EN61347-1, BS EN/EN61347-2-13 independent,							
	SAFETY STANDARDS Note.7	BS EN/EN62384, IP65 or IP67, J61347-1, J61347-2-13, GB19510.1, GB19510.14, EAC TP TC 004,							
		AS/NZS 60950.1(by CB)(AB type except ),KC61347-1, KC61347-2-13(except for AB type) approved							
SAFETY &	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC							
EMC (Note 10)	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C/70% RH							
	EMC EMISSION Note.7	Compliance to BS EN/EN55015, BS EN/EN61000-3-2 Class C (@ load≥50%) ; BS EN/EN61000-3-3, EAC TP TC 020; GB/T 17743,GB17625.1, KS C 9815, KS C 9547							
	FMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN61547, BS EN/EN55024, light industry level (surge immunity							
	EMC IMMUNITY	Line-Earth 4KV, Line-Line 2KV), EAC TP TC 020; KS C 9815, KS C 9547							
	MTBF	913.4K hrs min. Telcordia SR-332 (Bellcore) ; 76.9K hrs min. MIL-HDBK-217F (25°C)							
OTHERS	DIMENSION	280*144*48.5mm (L*W*H)							
	PACKING	3.9Kg; 4pcs/16.6Kg/0.9CUFT							
NOTE		ly mentioned are measured at 230VAC input, rated current and 25°C of ambient temperature.							
		ed at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.							
	Tolerance : includes set up tolerance, line regulation and load regulation.      Please refer to "DRIVING METHODS OF LED MODULE".								
		nder 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 driver may lead to increase of the set up time. 7. The model certified for CCC(GB19510.14, GB19510.1, GB17743 and GB17625.1) is an optional model . Please contact MEAN WELL for details. 8. This series meets the typical life expectancy of >62,000 hours of operation when Tcase, particularly (to point (or TMP, per DLC), is about 75°C or less.								
	9. Please refer to the warranty statement on MEAN WELL's website at http://www.meanwell.com  10. The driver is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 360mm*360mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies."  (as available on https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf)  11. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).  12. 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								

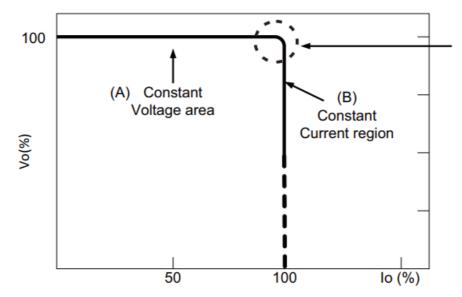
# https://www.meanwell.com/Upload/PDF/LED\_EN.pdf.

# **BLOCK DIAGRAM**



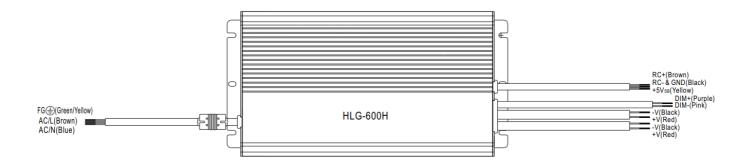
# **DRIVING METHODS OF LED MODULE**

• This series is able to work in either Constant Current mode (a direct driveway) or Constant Voltage mode (usually through an additional DC/DC driver) to drive the LEDs.



- 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.
- Typical output current normalized by rated current (%)

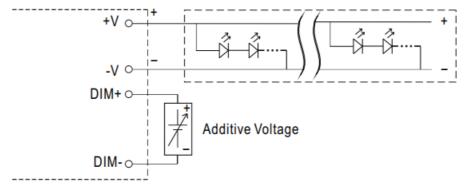
### **DIMMING OPERATION**



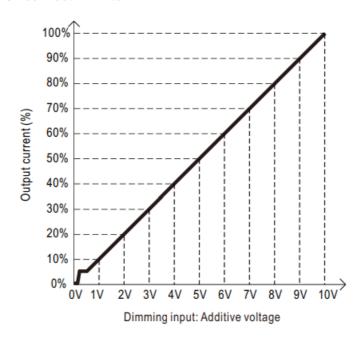
### 3 in 1 dimming function (for B/AB-Type)

- Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-:
- ~ 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: 100uA (typ.)

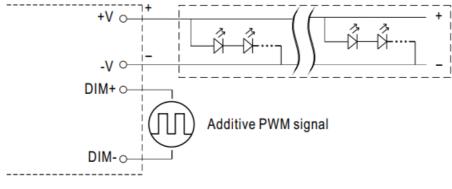
### Applying additive 0 ~ 10VDC



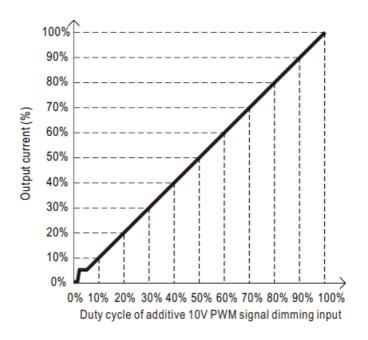
"DO NOT connect "DIM- to -V"



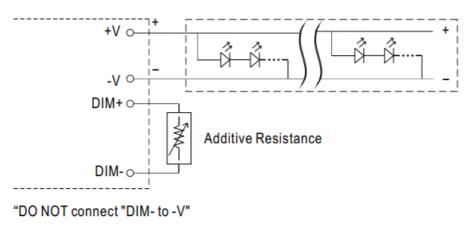
# Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):

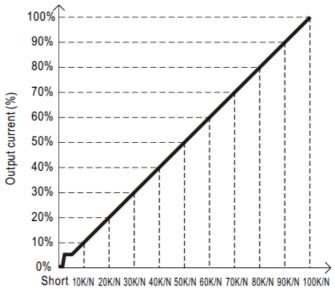


"DO NOT connect "DIM- to -V"



# Applying additive resistance:



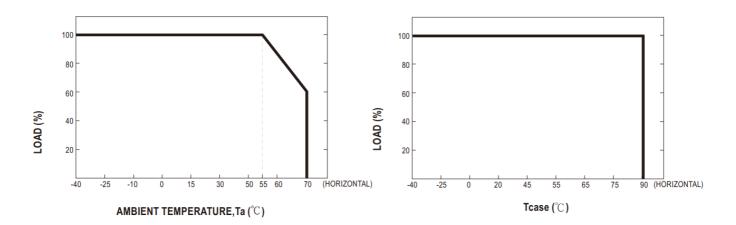


- (N=driver quantity for synchronized dimming operation)
- Dimming input: Additive resistance

### Note:

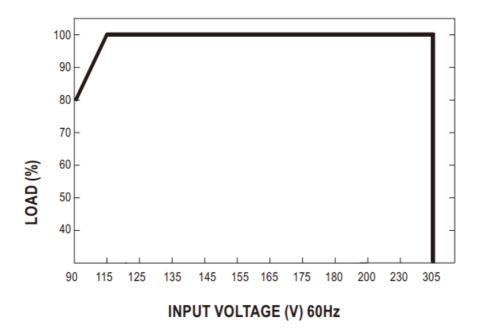
- 1. Min. dimming level is about 6% and the output current is not defined when 0% < lout<6%.
- 2. The output current could drop down to 0% when dimming input is about 0k2 or 0Vdc, or 10V PWM signal with 0% duty cycle.

### **OUTPUT LOAD vs TEMPERATURE**



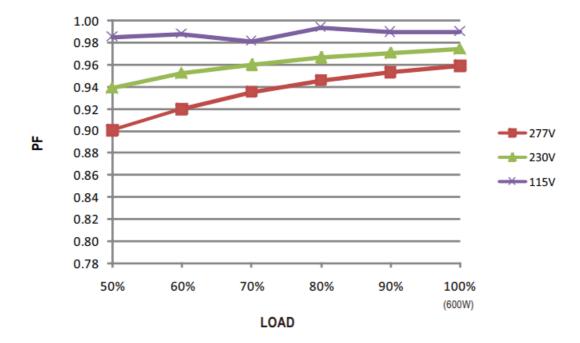
If HLG-600H operates in constant current mode with the rated current, the maximum workable Ta is 55°C.

### STATIC CHARACTERISTICS

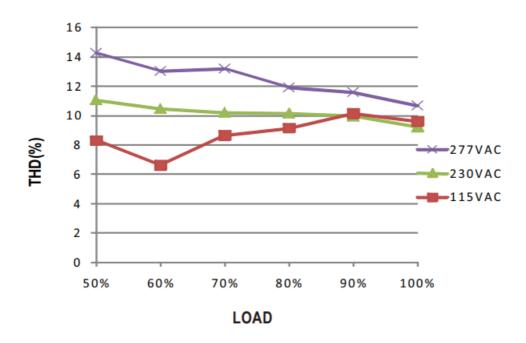


• De-rating is needed under low input voltage.

POWER FACTOR(PF) CHARACTERISTIC Tcase at 80°C Constant Current Mode

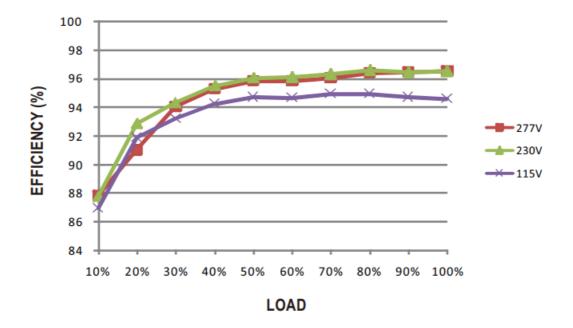


TOTAL HARMONIC DISTORTION (THD) 48V Model, Tcase at 80°C

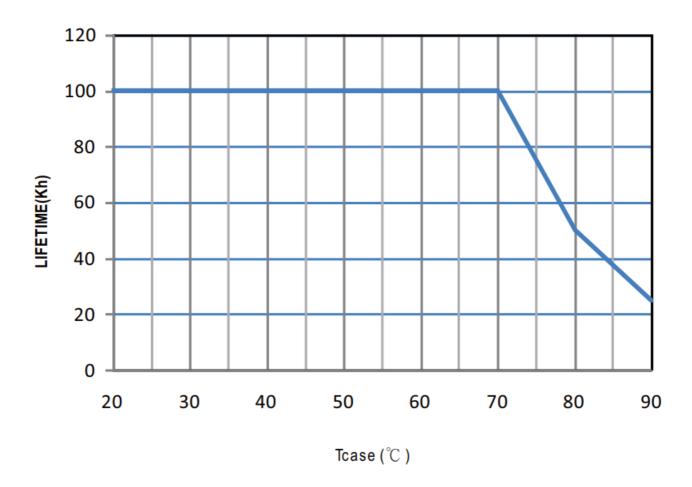


### **EFFICIENCY vs LOAD**

HLG-600H series possess superior working efficiency that up to 96% can be reached in field applications. 48V Model, Tcase at 80°C

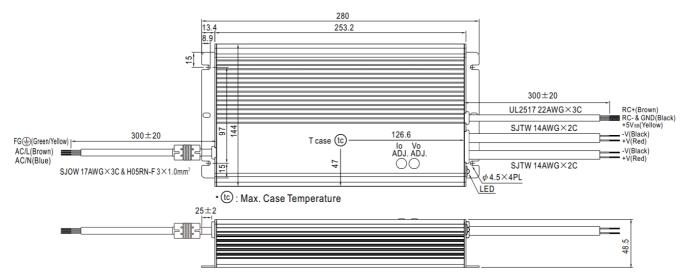


# LIFETIME

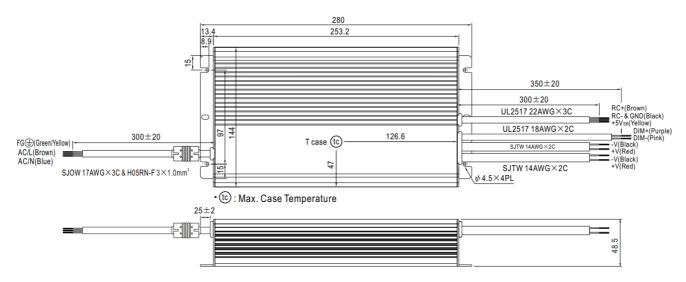


# **MECHANICAL SPECIFICATION**

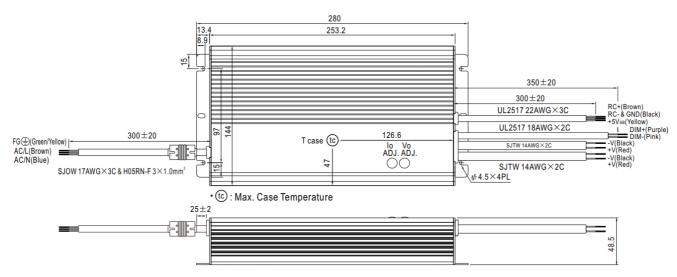
A-Type



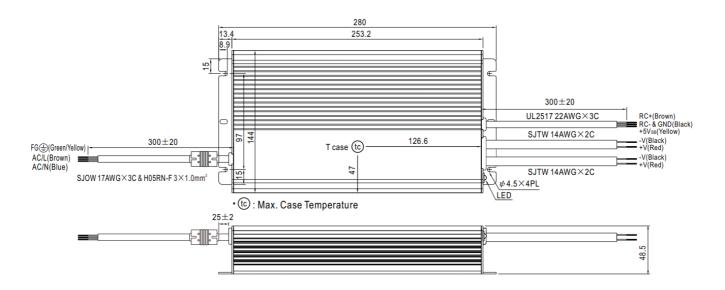
# B-Type



# AB-Type



# • Blank-Type



### **INSTALLATION MANUAL**

- Please refer to: <a href="http://www.meanwell.com/manual.html">http://www.meanwell.com/manual.html</a>.
- Downloaded from Arrow.com.
- File Name: HLG-600H-SPEC 2024-05-20





### **Documents / Resources**



MEAN WELL HLG-600H Series Constant Voltage Constant Current LED Driver [pdf] User G uide

HLG-600H Series Constant Voltage Constant Current LED Driver, HLG-600H Series, Constant Voltage Constant Current LED Driver, Voltage Constant Current LED Driver, Current LED Driver, Driver, Driver, Current LED Driver, LED Driver, Driver

#### References

User Manual

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