60W Constant Voltage + Constant Current LED Driver

HLG-60Hbe i is

TAIWAN EXCELLENCE 2011

IP65 IP67

■ Features

- Constant current salute mode
- Metal casing with class and/or design
- Built-in PFC function
- Designed for indoor or outdoor installations IP65/IP67
- Function options: Output adjustable by potentiometer
- 3-in-1 dimming timer
- Typical lifetime > 62000
- 7 year warranty

■ Applications

- LED street lighting
- LED fishing lamps
- LED lamps in port
- LED lamps in architectural buildings
- LED lighting for greenhouses
- LED Bay Lighting

■ Description

The HLG-60H-C series is a 70W AC/DC LED driver featuring constant current mode and high voltage output.

The HLG-60H operates from 90 ~ 305VAC and offers models with different rated voltages ranging from 15V to 54V. Thanks to the high efficiency up to 90.5%, with the fanless design, the whole series can work during -40°C~+80°C case temperature under air convection free. The design of the metal casing. and IP67 / IP65 ingress protection level allows this series to suit applications in both indoors as outdoors. The HLG-60H is equipped with various function options, such as dimming methodologies, to provide the optimal design flexibility for the LED lighting system.

■ model nomenclature

HLG-60H-C0 [70] [TO]

- TO: optional features
- 70: Rated output current (350/700mA)
- C0: Rated Power / High Input Voltage 305 VAC
- HLG-60H: series name

Guy	protection level	Function	Grades
TO	IP65	IO adjustable by potentiometer.	In stock
B.	IP67	3 in 1 dimming function (1-10Vdc, 10V PWM signal resistor)	In stock
AB	IP65	Potentiometer adjustable IO & Dimming function 3 in 1 (1-10Vdc, 10V PWM signal resistance)	In stock
D.	IP67	Timer dimming feature, contact media for details (security pending)	By application

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SPECIFICATION

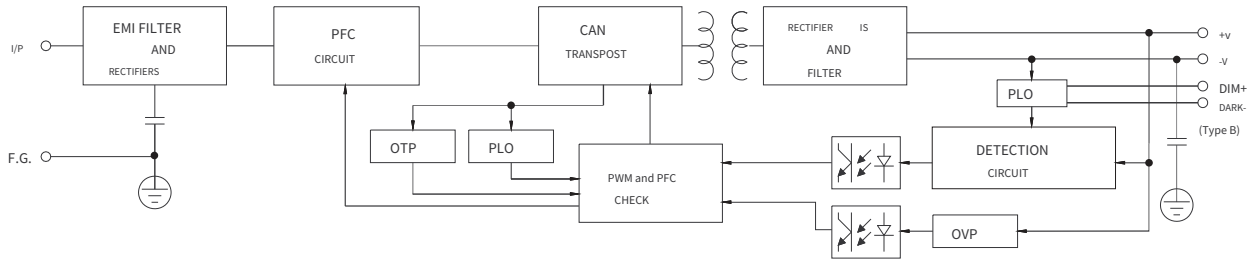
MODEL		HLG-60H-15	HLG-60H-20	HLG-60H-24	HLG-60H-30	HLG-60H-36	HLG-60H-42	HLG-60H-48	HLG-60H-54
EXIT	DC VOLTAGE	15V	20V	24V	30V	36V	42V	48V	54V
	CONSTANT CURRENT REGION Note 4	9 ~ 15 V	12~20V	14.4~24V	18~30V	21.6~36V	25.2~42V	28.8~48V	32.4~54V
	RATED CURRENT	4A	3A	2.5A	2A	1.7A	1.45A	1.3A	1.15A
	RATED POWER	60W	60W	60W	60W	61.2W	60.9W	62.4W	62.1W
	NOISE AND NOISE (max) Note 2	150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p	300mVp-p	300mVp-p	300mVp-p
	AJ. VOLTAGE RANGE	Adjustable only for type A / AB (via built-in potentiometer)							
		13.5~17V	17~22V	22~27V	27~33V	33~40V	40~46V	44~53V	49~58V
	CURRENT ADJ. RANGE	Adjustable only for type A / AB (via built-in potentiometer)							
		2.4~4A	1.8~3A	1.5~2.5A	1.2~2A	1~1.7A	0.87~1.45A	0.78~1.3A	0.69~1.15A
	VOLTAGE TOLERANCE Note 3	±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%
	LOAD REGULATION	±1.5%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME Note.6	500ms, 80ms / 115VAC 500ms, 80ms / 230VAC							
	RETENTION TIME (Typ.)	16ms / 115VAC, 230VAC							
ENTRANCE	VOLTAGE RANGE Note.5	(See section "STATIC CHARACTERISTICS") 90 ~ 305 VAC 127 ~ 431 VDC							
	FREQUENCY RANGE	47~63Hz							
	POWER FACTOR (Typ.)	PF ≧ 0.98 / 115VAC, PF ≧ 0.95 / 230VAC, PF ≧ 0.92 / 277VAC at full load (see section "POWER FACTOR (PF) CHARACTERISTICS")							
	TOTAL HARMONIC DISTORTION	THD <20% (@ load≧60% / 115VAC, 230VAC; @ burden≧75% / 277VAC) (see"DISTORTION TOTAL HARMONIC (THD)"section)							
	EFFICIENCY (Typ.)	87.5%	89%	89.5%	90%	90%	90%	90.5%	90.5%
	AC CURRENT (Typ.)	0.64A / 115VAC	0.32A / 230VAC	0.3A / 277VAC					
	INRUSH CURRENT (Typ.)	COLD START 55A (t width = 265 μs measured at 50% I peak) at 230VAC; According to NEMA 410							
	MAX. No. of PSU on SWITCH OF CIRCUIT 16A	9 units (type B breaker) / 16 units (type C breaker) at 230VAC							
	LEAKAGE CURRENT	<0.75mA / 277VAC							
PROTECTION	OVER CURRENT note 4	95 ~ 108%							
		Constant current limiting, recovers automatically after clearing the fault condition Hypo mode, it is							
	SHORT CIRCUIT	automatically recovers after fault condition is removed 18~24V							
	OVERVOLTAGE		23~30V	28~35V	35~43V	41~49V	48~58V	54~65V	59~68V
		Turn off o/p voltage, turn on again to recover Turn off							
	EXCESS TEMPERATURE	the o/p voltage, power on again to recover							
ATMOSPHERE	WORK TEMPERATURE.	Tcase =-40 ~ +80°C (Please refer to the section "OUTPUT LOAD vs TEMPERATURE")							
	MAX. TEMP. CASE	Tcase =+80°C							
	WORKING HUMIDITY	20 ~ 95% RH non-condensing							
	STORAGE TEMPERATURE, HU mAGE	-40 ~ +80 °C, 10 ~ 95% relative humidity							
	TEMPERATURE. COEFFICIENT	±0.03%/°C (0~60°C)							
	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period 72min. each along the X, Y, Z axes							
SAFETY & EMC	SAFETY STANDARDS Note.8	G. UL8750 (type ” HL”), CSA C22.2 No. 250.0-08,EN/AS/NZS 61347-1, EN/AS/NZS 61347-2-13Standalone, B19510.1, GB19510.14, EAC TP TC 004, KC61347-1, KC61347-2-13 (except for type AB), IP65 or IP67 approved; J61347-1, J61347-2-13 (except for type B, AB and D); design refers to EN60335-1 (on request)							
	WITHSTAND VOLTAGE	I/PO/P: 3.75KVAC I/P-FG: 2KVAC O/P-FG: 1.5KVAC							
	INSULATION RESISTANCE	I/PO/P, I/P-FG, O/P-FG: 100M ohm/500V DC/25°C/70%RH							
	EMC EMISSION Note.8	C. compliance with EN55015, EN61000-3-2 Class C (@ burden≧ 60%); EN61000-3-3, GB17743 and GB17625.1, EAC TP TC 020							
	EMC IMMUNITY	Compliance with EN61000-4-2,3,4,5,6,8,11; EN61547, light industry level (4KV Line-Earth surge immunity, 2KV Line-Line), EAC TP TC 020							
OTHERS	MTBF	1132K hours min. Telcordia SR-332 (Bellcore); 338Khr min. MIL-HDBK-217F (25°C)							
	DIMENSION	171 * 61.5 * 36.8mm (length * width * height)							
	PACKAGING	0.73kg; 20 pieces / 15.6Kg / 0.9CUFT							

NOTE

1. All parameters NOT specially mentioned are measured at 230VAC input, nominal current and 25°C ambient temperature.
2. Please refer to "LED module driving methods"
3. It may be necessary to derate at low input voltages. See the "static features" sections for more details.
4. The duration of the warm-up time is measured at the first cold start. Turning the controller on/off may increase setup time
5. The conductor is considered as a component that will be operated in combination with the final equipment. Since EMC performance will be affected by full install, end equipment manufacturers need to re-qualify EMC policy on full install again.
6. To meet ErP requirements for luminaires, this LED driver can only be used behind a switch without being permanently connected to the network.
7. This series meets typical life expectancy of >62,000 operating hours when Tcase, Benchmark (or TMP, for DLC), is approximately 75°C or less.
8. See the warranty statement on the Mean Well website at http://www.meanwell.com
9. Ambient temperature derating of 3.5°C / 1000M with fanless models and 5°C / 1000M with fan models for operating altitude above 2000m (6500ft).
10. For any application notes and installation precautions of IP waterproof function, please refer to our user manual before using.

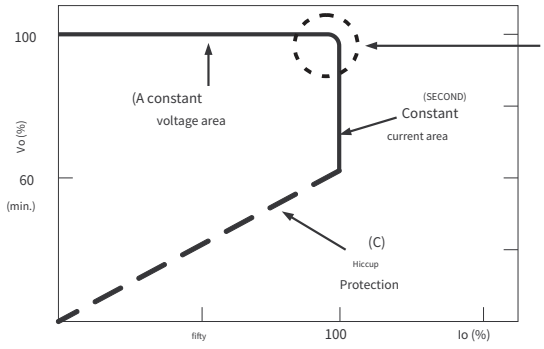
BLOCKS DIAGRAM

Fosc: 100 kHz



LED MODULE DRIVING METHODS

※ This series can work in constant current mode (a form of direct drive) or
Constant voltage mode (usually via an additional DC/DC driver) to drive the LEDs.

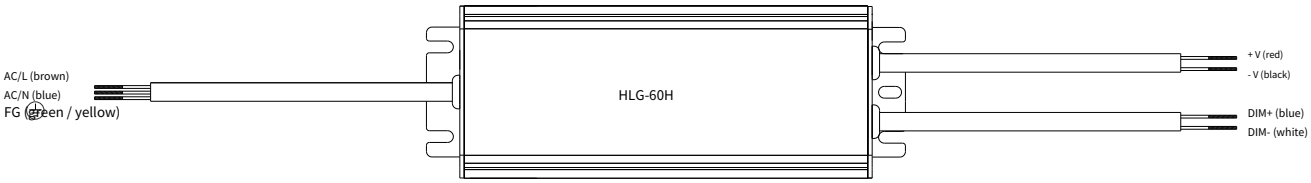


In the constant current region, the highest voltage at the controller output depends on the End system configuration.

If there are any compatibility issues, please contact MEAN WELL.

Typical output current normalized by rated current (%)

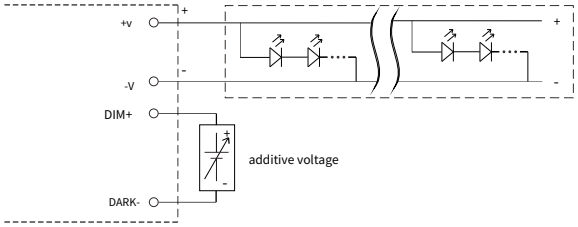
DIMMING OPERATION



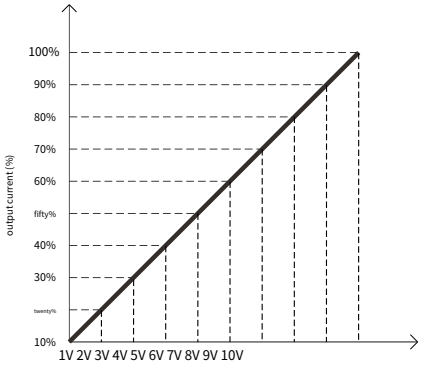
※3 in 1 dimming function (for type B / AB)

- The output constant current level can be adjusted by applying one of three methodologies between DIM + and DIM-:
  1~10VDC or 10V PWM signal or resistor.
- Direct connection to LED is suggested. It is not suitable for use with additional controllers.
- Power supply dimming source current: 100 μ A (typ.)

◎ Application of additive 1 ~ 10VDC

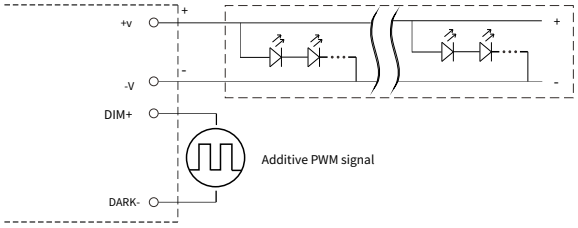


" DO NOT connect "DIM-to-V"

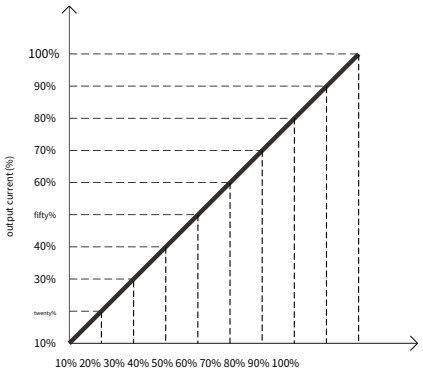


Dimming Input: Additive Voltage

◎ Additive 10V PWM signal application (frequency range 100Hz ~ 3kHz):

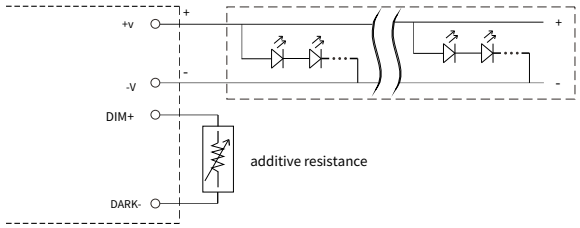


" DO NOT connect "DIM-to-V"

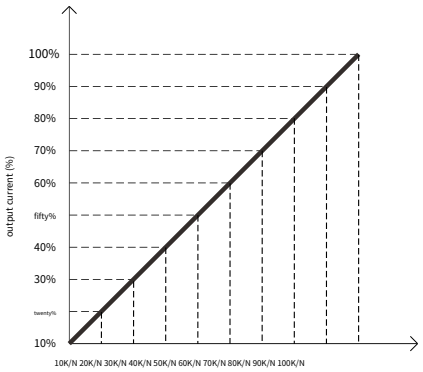


Additive 10V PWM Signal Dimming Input Duty Cycle

◎ Applying additive resistance:



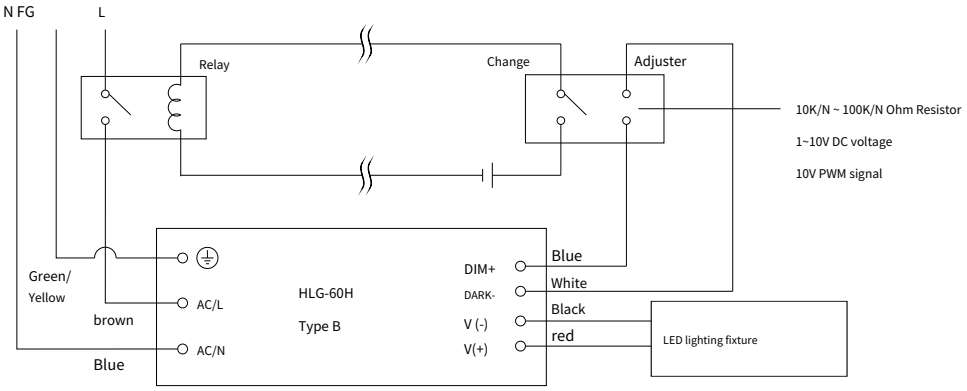
" DO NOT connect "DIM-to-V"



(N = number of controller for synchronized dimming operation)

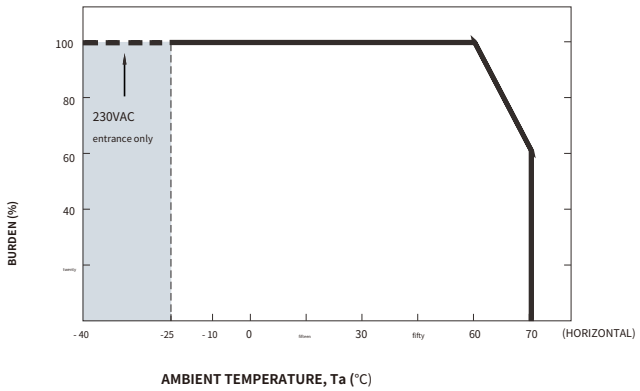
Dimming Input: Additive Resistance

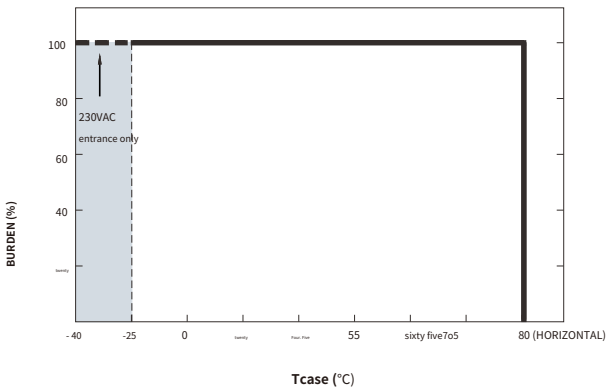
Note: In the case of reducing the lighting to 0% brightness, please refer to the setting as below, or contact MEAN WELL for other options.



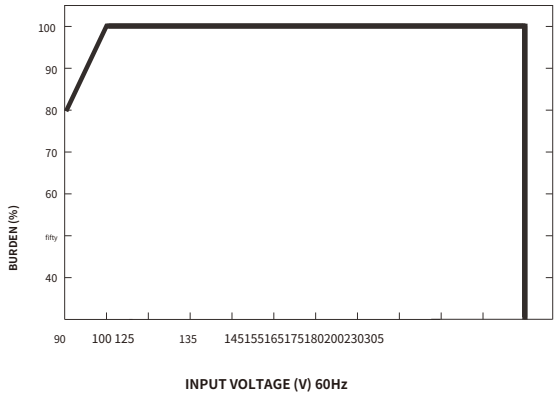
Using a switch and relay can turn the lamp ON/OFF.

OUTPUT LOAD vs TEMPERATURE (Note 10)



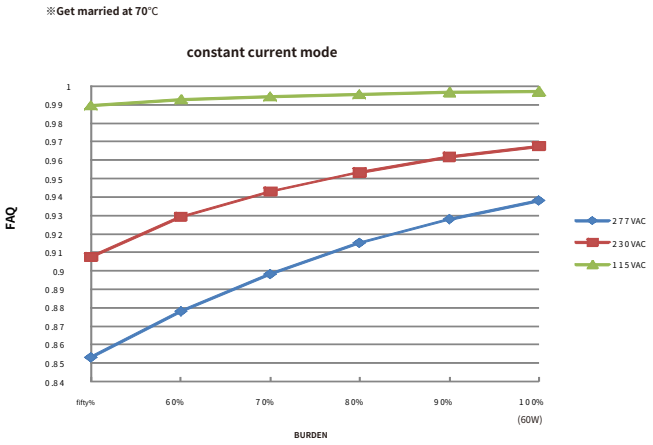


STATIC CHARACTERISTICS



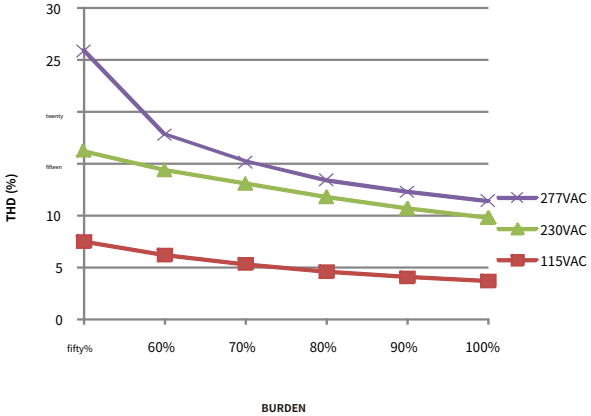
※ Derating is needed under low input voltage.

POWER FACTOR (PF) CHARACTERISTIC



TOTAL HARMONIC DISTORTION (THD)

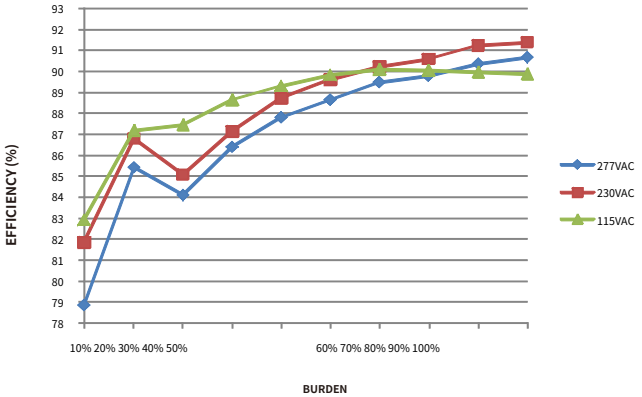
※ 48V model, Tcase at 70°C



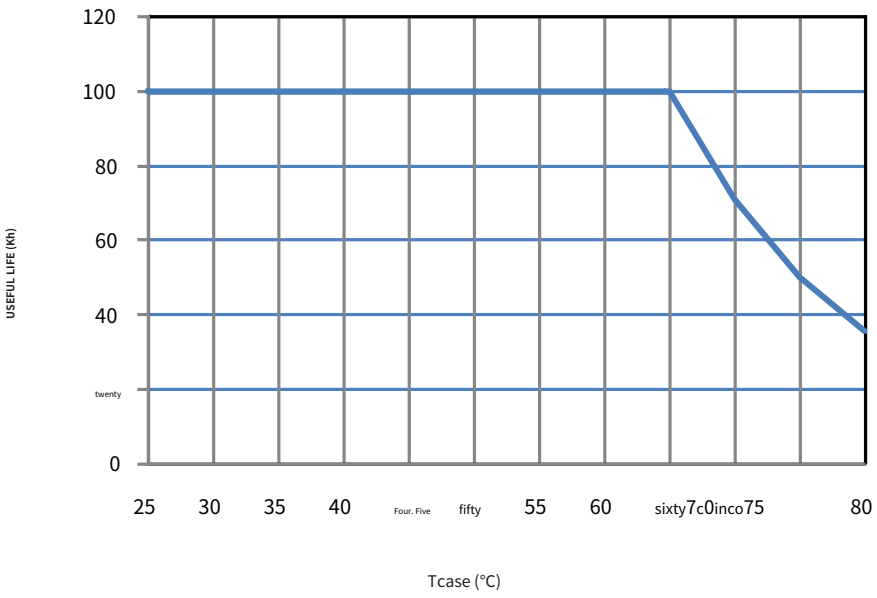
EFFICIENCY vs LOAD

HLG-60H series owns superior working efficiency which can be reached up to 90.5% in field applications.

※ 48V model, Tcase at 70°C



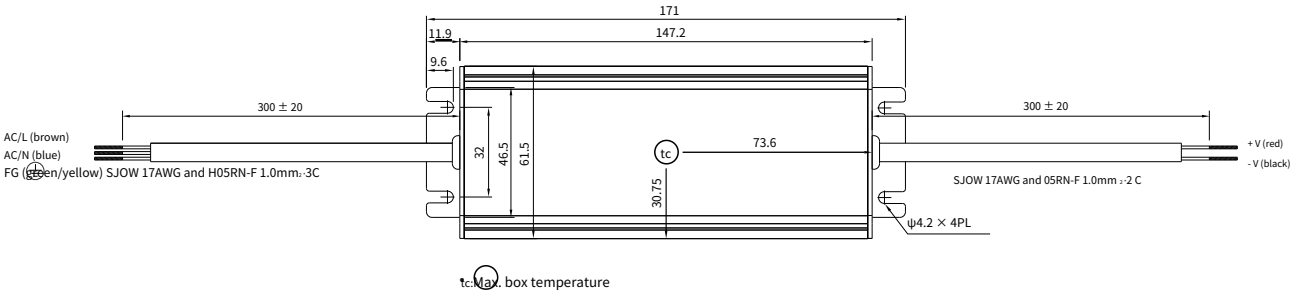
LIFETIME


120
100
80
60
40
twenty
0
USEFUL LIFE (Kh)
25
30
35
40
Four. Five
fifty
55
60
sixty7c0inco75
80
Tcase (°C)

MECHANICAL SPECIFICATION

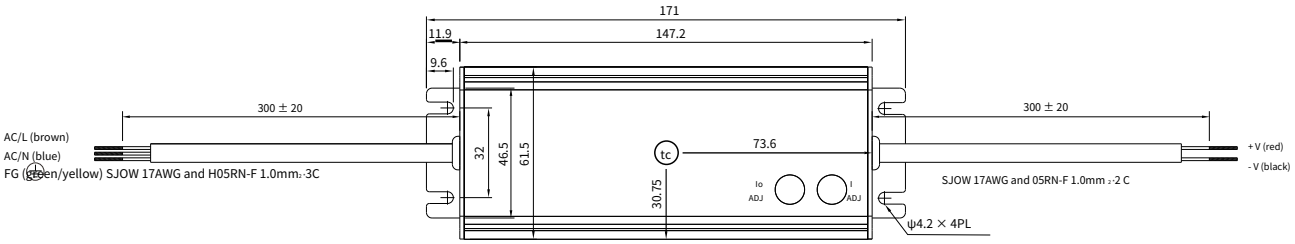
Case No 957B Unit: mm

※**Blank / type D**

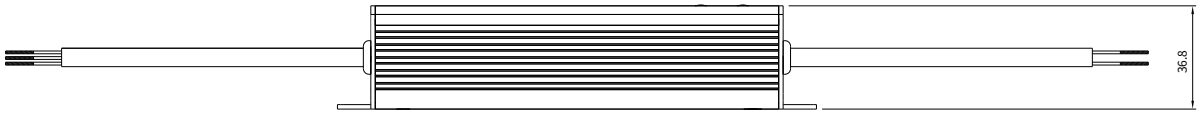


tc:Max. box temperature

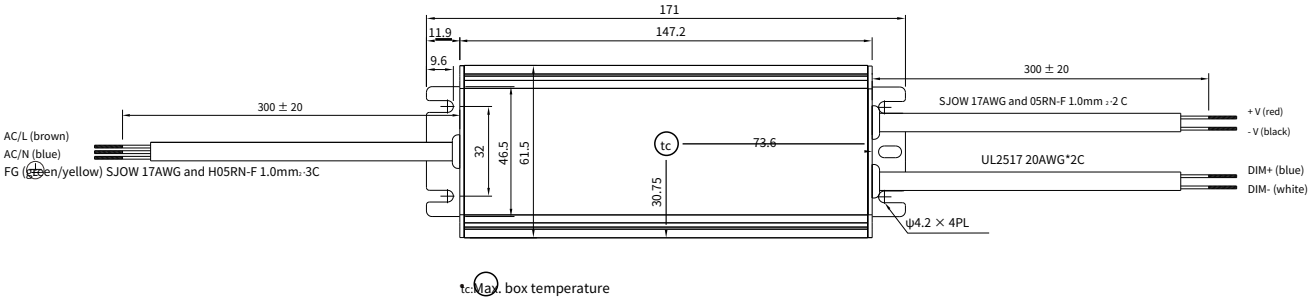
※**One type**



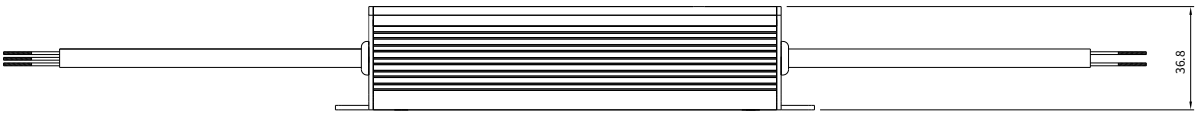
tc:Max. box temperature



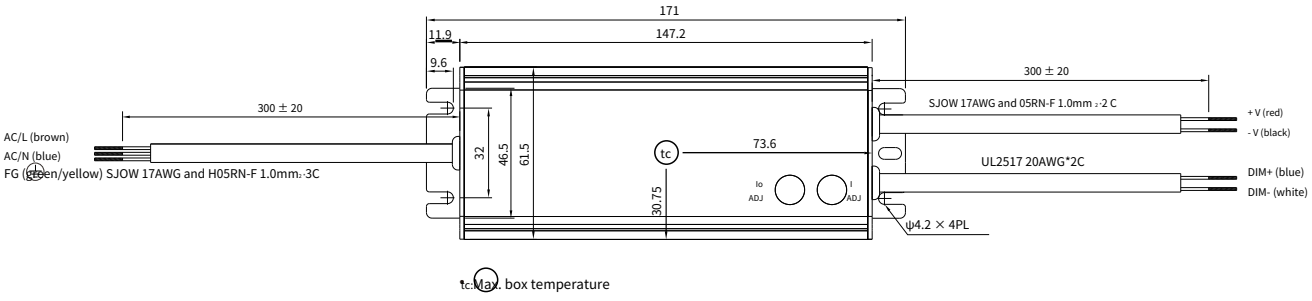
※**Type B**



tc: Max. box temperature



※**Type AB**

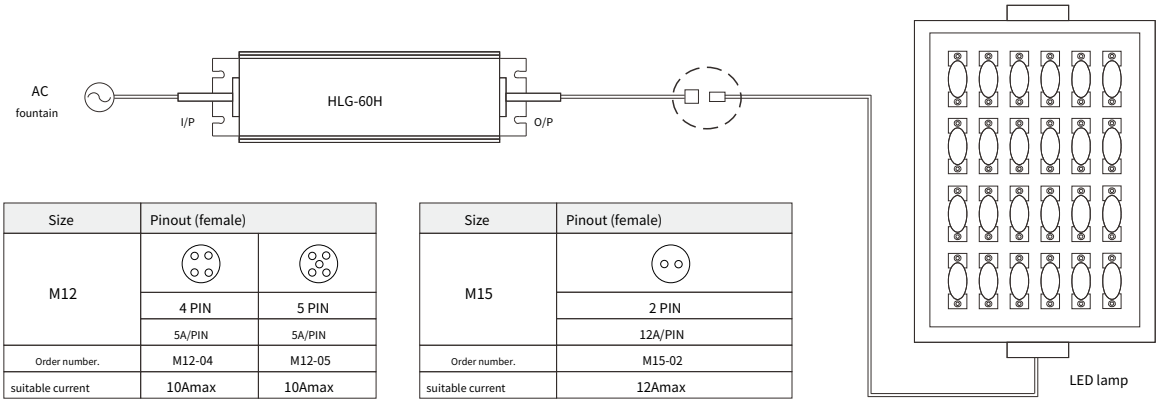


tc: Max. box temperature

WATERPROOF CONNECTION

※ Waterproof connector

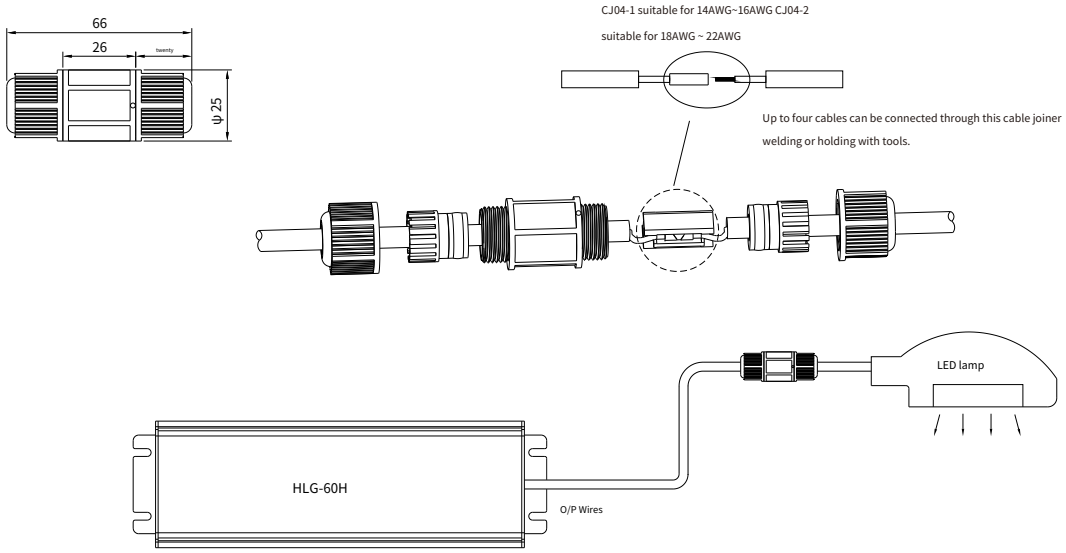
The waterproof connector can be mounted on the output cable of the HLG-60H to operate dry /wet/humid environment or outdoors.



Size	Pinout (female)	
M12		
	4 PIN	5 PIN
	5A/PIN	5A/PIN
Order number.	M12-04	M12-05
suitable current	10Amax	10Amax

Size	Pinout (female)
M15	
	2 PIN
	12A/PIN
Order number.	M15-02
suitable current	12Amax

※**cable assembler**



◎The CJ04 Cable Joiner can be purchased separately for user assembly.

MEANS OK Order No.: CJ04-1, CJ04-2.

INSTALLATION MANUAL

See: http://www.meanwell.com/manual.html