HBG-100 series

100W Constant Current Mode LED Driver

User's Manual

(for DA Type only) SELV IP65 IP67 (CCC optional) IS 15885(Part 2/Sec13) R-41027766 (for 36A,48A,60A only) Type HL

Features

- Constant Current mode output
- Circular 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; DALI
- Typical lifetime>50000 hours
- 5 years warranty

Applications

- LED bay lighting
- LED stage lighting
- LED spot lighting
- Type "HL" for use in Class I, Division 2 hazardous (Classified) location.

Description

HBG-100 series is a 100W AC/DC LED driver featuring the circular shape design. It operates from 90~305VAC and offers the constant current output models with different rated voltage between 24V and 60V. Thanks to the high efficiency up to 91.5%,with the fanless design, the entire series is able to operate for -40℃ ~ +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. HBG-100 is equipped with various function options, such as dimming methodologies, so as to provide the optimal design flexibility for LED lighting system.

Model Encoding

HBG - 100 - 36 A

- A — Function mode option
- 36 — Rated output voltage(24/36/48/60V)
- 100 — Rated wattage
- HBG — Series name

Type	IP Level	Function	Note
Blank	IP67	Io fixed.	In Stock
A	IP65	Io adjustable through built-in potentiometer.	In Stock
B	IP67	3 in 1 dimming function (1~10Vdc, 10V PWM signal and resistance)	In Stock
AB	IP65	Io adjustable through built-in potentiometer with 3 in 1 dimming function	In Stock
DA	IP67	DALI control technology.	In Stock

MEAN WELL

100W Constant Current Mode LED Driver HBG-100 series

SPECIFICATION

MODEL		HBG-100-24□	HBG-100-36□	HBG-100-48□	HBG-100-60□
OUTPUT	RATED CURRENT	4A	2.7A	2A	1.6A
	RATED POWER	96W	97.2W	96W	96W
	CONSTANT CURRENT REGION Note.2	14.4 ~ 24V	21.6 ~ 36V	28.8 ~ 48V	36 ~ 60V
	OPEN CIRCUIT VOLTAGE(max.)	25V	37V	49V	62V
	CURRENT ADJ. RANGE	Adjustable for A/AB-Type (via built-in potentiometer)			
		2.4 ~ 4A	1.62 ~ 2.7A	1.2 ~ 2A	1.0 ~ 1.6A
	CURRENT RIPPLE	5.0% max. @rated current			
	CURRENT TOLERANCE	±5.0%			
	SETUP TIME Note.4	2000ms / 115VAC 500ms / 230VAC			
INPUT	VOLTAGE RANGE Note.3	90 ~ 305VAC 127 ~ 431VDC (Please refer to "STATIC CHARACTERISTIC" section)			
	FREQUENCY RANGE	47 ~ 63Hz			
	POWER FACTOR	PF>0.96/115VAC, PF>0.96/230VAC, PF>0.94/277VAC@full load (Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)			
	TOTAL HARMONIC DISTORTION	THD< 20%(@load≧60%/115VC,230VAC; @load≧75%/277VAC) (Please refer to "TOTAL HARMONIC DISTORTION(THD)" section)			
	EFFICIENCY (Typ.) Note.5	90.5%	91%	91%	91.5%
	AC CURRENT (Typ.)	1.1A / 115VAC 0.5A / 230VAC 0.45A / 277VAC			
	INRUSH CURRENT (Typ.)	COLD START 60A(twidth=550μs measured at 50% Ipeak) at 230VAC; Per NEMA 410			
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	4 units (circuit breaker of type B) / 8 units (circuit breaker of type C) at 230VAC			
	LEAKAGE CURRENT	<0.75mA / 277VAC			
	NO LOAD / STANDBY POWER CONSUMPTION	Standby power consumption <0.5W for B/AB/DA-Type Blank/A-Type please refer to Note. 7			
PROTECTION	OVER CURRENT	95 ~ 108%			
		Constant current limiting			
	OVER VOLTAGE	28 ~ 35V	41 ~ 49V	54 ~ 63V	65 ~ 75V
		Shut down o/p voltage re-power on to recovery			
	OVER TEMPERATURE	Shut down o/p voltage re-power on to recovery			
ENVIRONMENT	WORKING TEMP.	Tcase=-40 ~ +85℃ (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)			
	MAX. CASE TEMP.	Tcase=+85℃			
	WORKING HUMIDITY	20 ~ 95% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH			
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)			
	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes			
SAFETY & EMC	SAFETY STANDARDS	UL8750(type"HL"),CSA C22.2 No.250.13-12, ENEC BS EN/EN61347-1,BS EN/EN61347-2-13 independent, BS EN/EN62384; GB19510.1,GB19510.14, BIS IS15885(for 36A,48A,60A only), EAC TP TC 004,IP65 or IP67 approved			
	DALI STANDARDS	Compliance to IEC62386-101, 102, 207 for DA-Type only			
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC			
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH			
	EMC EMISSION Note.7	Compliance to BS EN/EN55015, BS EN/EN61000-3-2 Class C (@load≧60%) ; BS EN/EN61000-3-3, GB17743 and GB17625.1, EAC TP TC 020			
	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN61547,light industry level (surge immunity:Line-Earth:4KV, Line-Line:2KV), EAC TP TC 020			
OTHERS	MTBF	985.6K hrs min. Telcordia SR-332 (Bellcore) ; 300Khrs min. MIL-HDBK-217F (25℃)			
	DIMENSION	φ 130mm *66.5mm (D * H)			
	PACKING	1.18Kg; 12pcs/15.7Kg/1.43CUFT(Blank/A/B Type),1.89CUFT(E Type)			

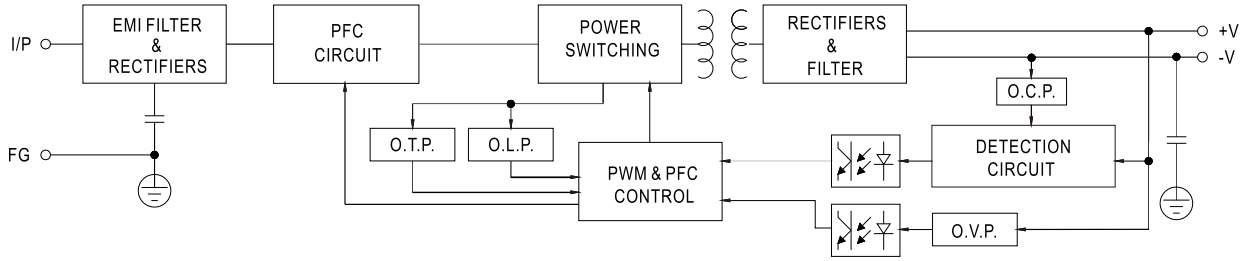
NOTE

1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25℃ of ambient temperature.
2. Please refer to "DRIVING METHODS OF LED MODULE".
3. De-rating may be needed under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details.
4. 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.
5. The DA type power supply is less efficient than the typical efficiency in specification by 1%.
6. 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.
7. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED driver can only be used behind a switch without permanently connected to the mains.
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

※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

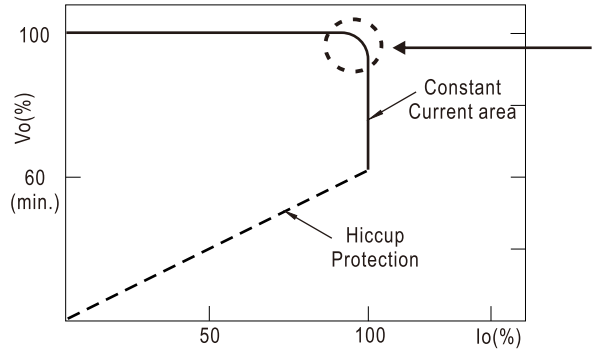
■ BLOCK DIAGRAM

fosc : 100KHz



■ DRIVING METHODS OF LED MODULE

※ This series works in constant current mode to directly drive the LEDs.

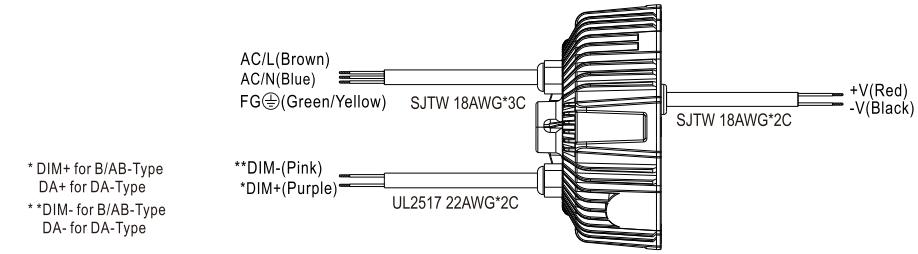


Typical output current normalized by rated current (%)

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.

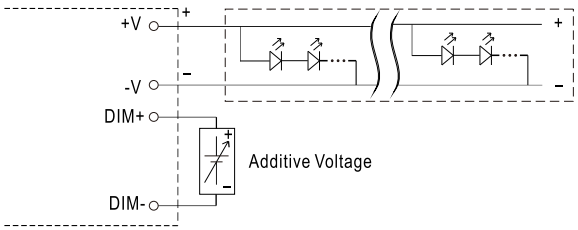
■ DIMMING OPERATION



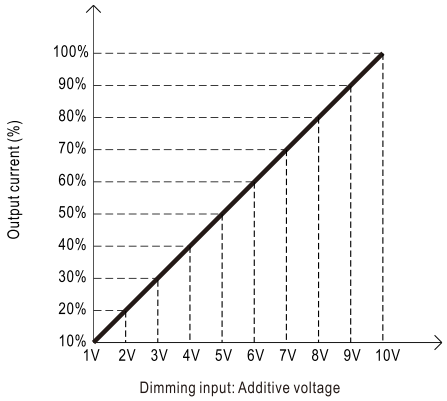
※ 3 in 1 dimming function (for B/AB-Type)

- Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-: 1 ~ 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.)

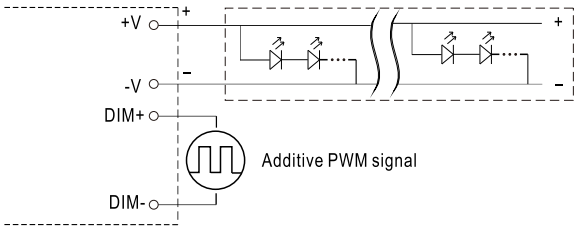
◎ Applying additive 1 ~ 10VDC



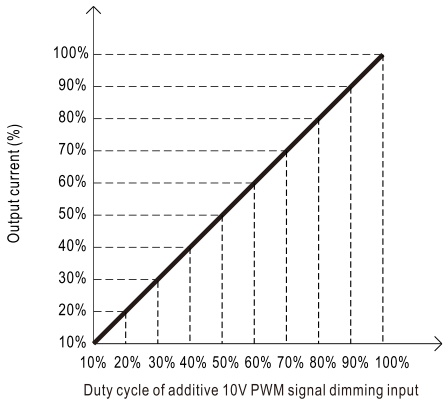
"DO NOT connect "DIM- to -V"



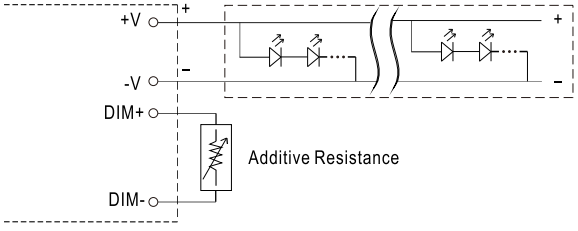
◎ Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):



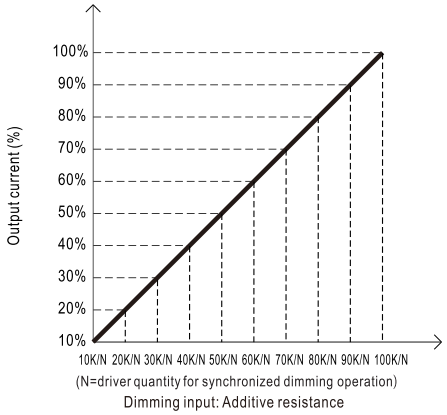
"DO NOT connect "DIM- to -V"



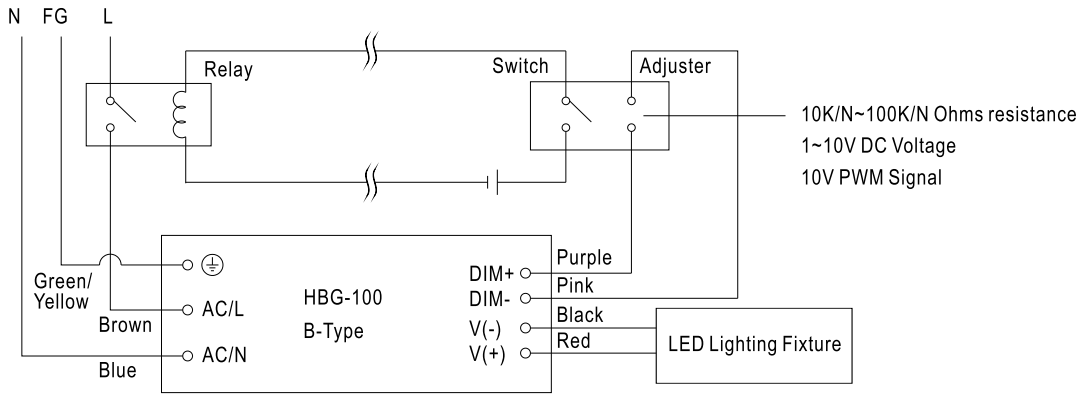
◎ Applying additive resistance:



"DO NOT connect "DIM- to -V"



Note: In the case of turning the lighting fixture down to 0% brightness, please refer to the configuration as follow, or please contact MEAN WELL for other options.

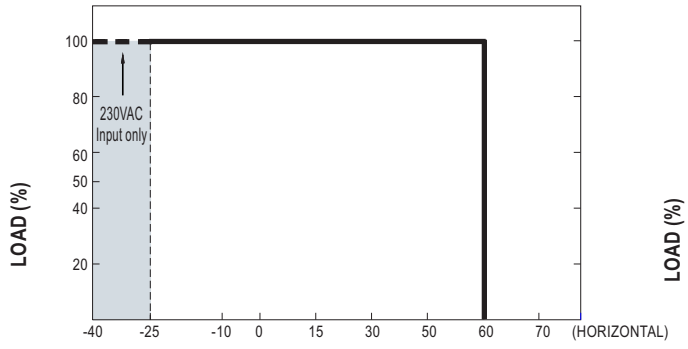


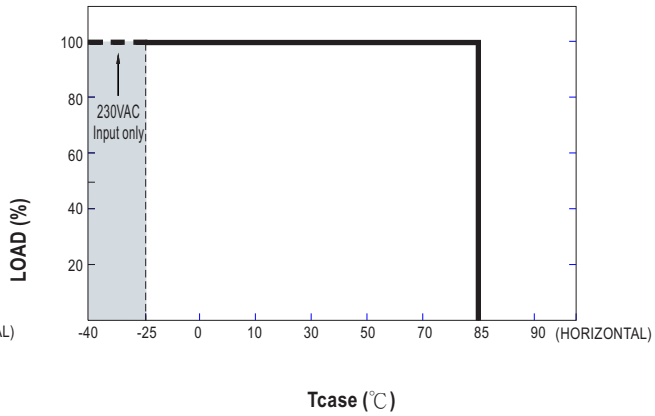
Using a switch and relay can turn ON/OFF the lighting fixture.

※ **DALI Interface (primary side; for DA-Type)**

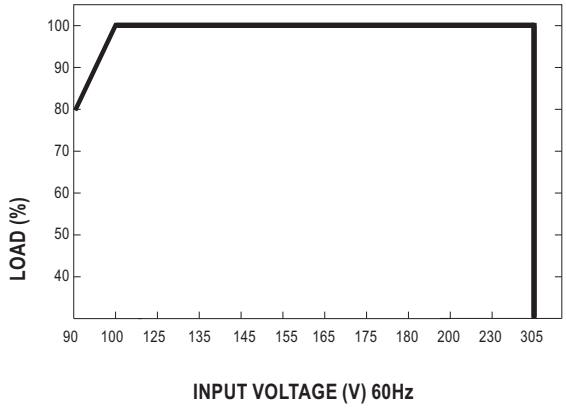
- Apply DALI signal between DA+ and DA-.
- DALI protocol comprises 16 groups and 64 addresses.
- First step is fixed at 8% of output.

■ OUTPUT LOAD vs TEMPERATURE(Note.9)





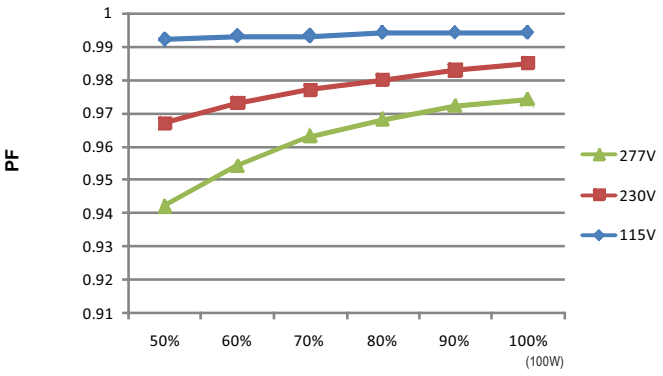
■ STATIC CHARACTERISTIC



※ De-rating is needed under low input voltage.

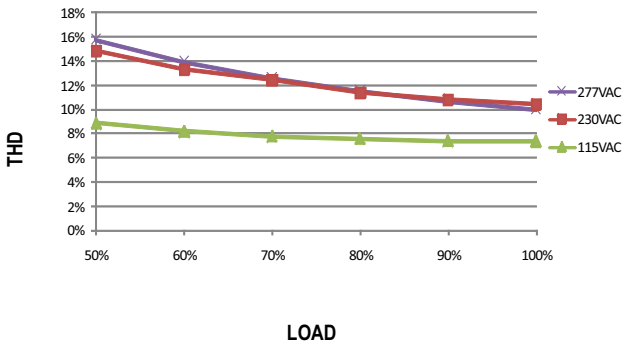
■ POWER FACTOR (PF) CHARACTERISTIC

※ Tcase at 75℃



■ TOTAL HARMONIC DISTORTION (THD)

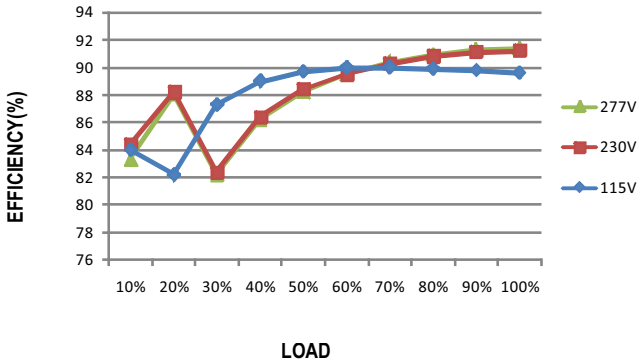
※ 48V Model, Tcase at 75℃



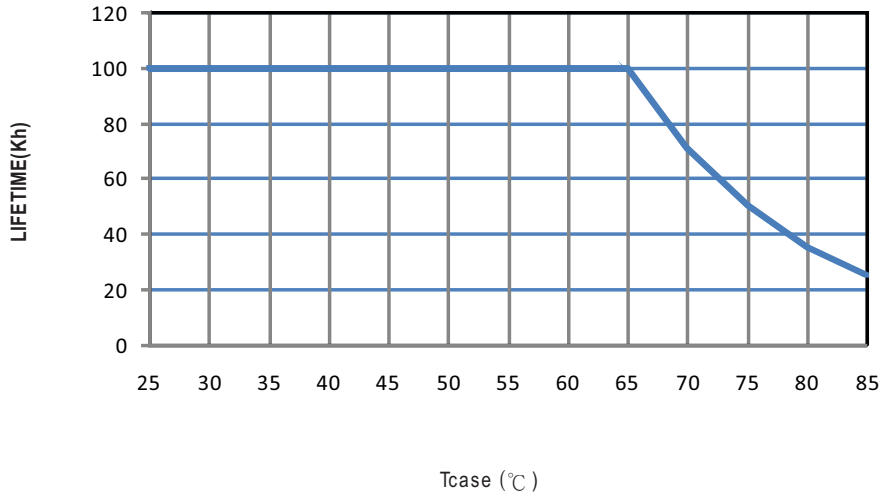
■ EFFICIENCY vs LOAD

HBG-100 series possess superior working efficiency that up to 91% can be reached in field applications.

※ 48V Model, Tcase at 75℃



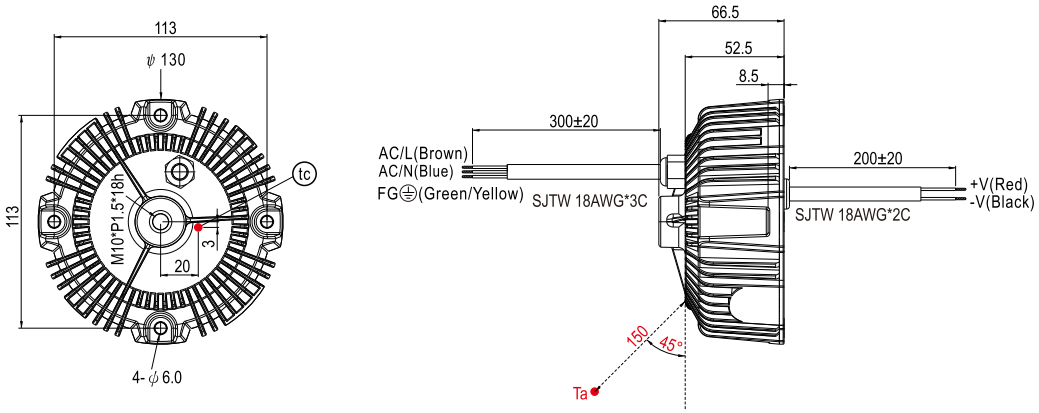
■ LIFE TIME


120
100
80
60
40
20
0
LIFETIME(Kh)
25
30
35
40
45
50
55
60
65
70
75
80
85
Tcase (℃)

■ MECHANICAL SPECIFICATION

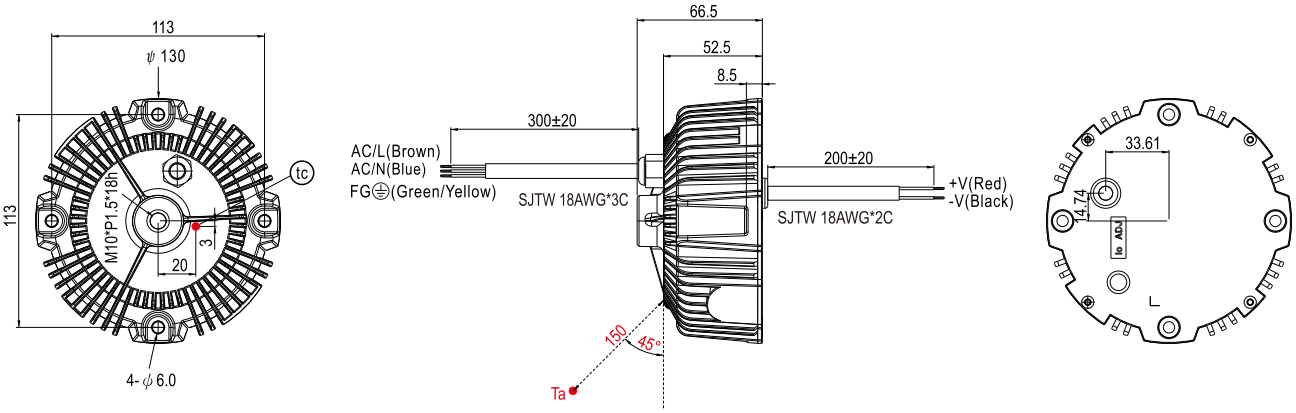
Case No.217 Unit:mm

※ Blank-Type



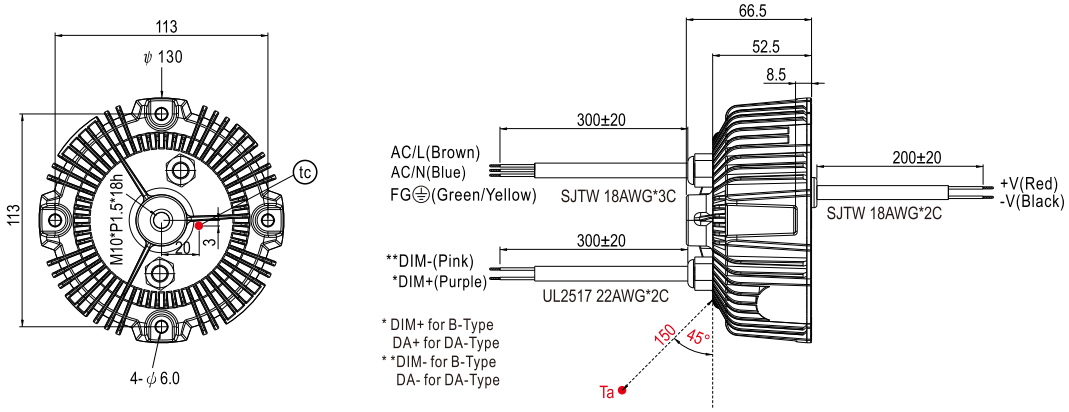
- tc : Max. Case Temperature.(case temperature measured point)
- Ta: Ambient Temperature measured point

※ A-Type



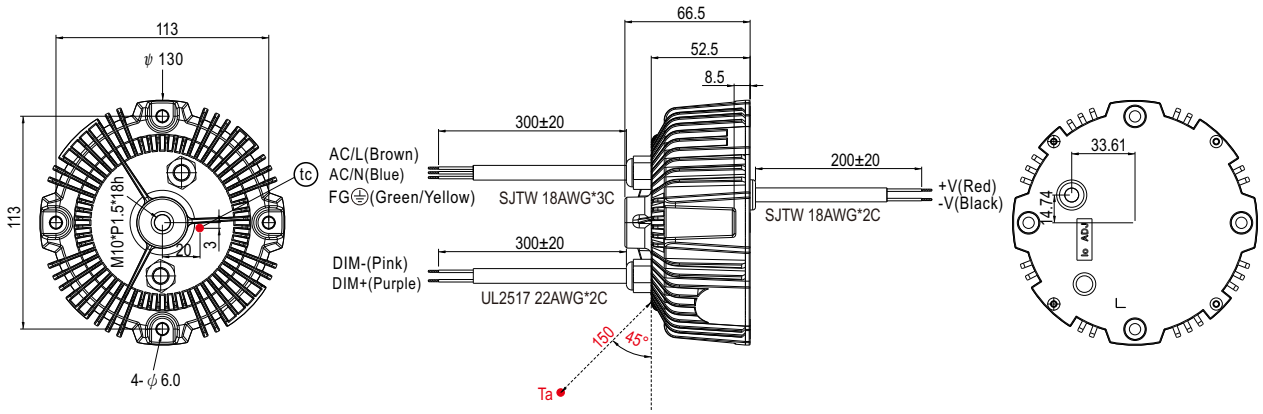
- tc : Max. Case Temperature.(case temperature measured point)
- Ta: Ambient Temperature measured point

※ B/DA-Type



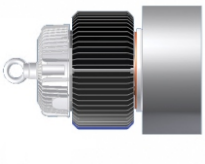
- tc : Max. Case Temperature.(case temperature measured point)
- Ta: Ambient Temperature measured point

※ **AB-Type**



- ⓣⓒ : Max. Case Temperature.(case temperature measured point)
- Ta: Ambient Temperature measured point

■ INSTALLATIONS

				
Hanger	**Chain**	**Spot Light**	**High Bay Light**	**Stage Light**

Caution

- Please inspect the appearance of the driver if the package is damaged. There should not be any cracks.
- Please do not drop or bump the driver.
- All screws including the suspension screw should be paired with a spring washer and locked tight.
- The entire luminaire, including the driver, should be limited to 10Kg or less.
- The luminaire should be cautiously protected from damage due to shock throughout packaging and transportation.
- Please thoroughly follow the preceding cautionary notes to prevent the luminaire from falling, leading to injuries.