# 100W Single Output Switching Power Supply — HBG-100 series

## Features :

- Universal AC input / Full range (up to 305VAC)
- Built-in active PFC function
- High efficiency up to 91.5%
- Protections: Short circuit / Over current / Over voltage / Over temperature
- OCP point adjustable through internal potentiometer
- IP67 / IP65 design for indoor or outdoor installations
- Suitable for dry / damp / wet locations
- 5 years warranty, Tc70℃ 40000hrs

SELV IP65 IP67

HBG-100-60 [A] Blank : IP67 rated. Cable for I/O connection.
A : IP65 rated. Output constant current level can be adjusted through internal potentiometer.
B : IP67 rated. output constant current lever can be adjusted through output cable with 1-10V,PWM signal and Resistance
E(option) : IP67 rated. Can be fixed by steel support.

## SPECIFICATION

| MODEL | | HBG-100-24 ☐ | HBG-100-36 ☐ | HBG-100-48 ☐ | HBG-100-60 ☐ |
|---|---|---|---|---|---|
| OUTPUT | DC VOLTAGE | 24V | 36V | 48V | 60V |
| | CONSTANT CURRENT REGION Note.4 | 14.4 ~ 24V | 21.6 ~ 36V | 28.8 ~ 48V | 36 ~ 60V |
| | RATED CURRENT | 4A | 2.7A | 2A | 1.6A |
| | RATED POWER | 96W | 97.2W | 96W | 96W |
| | RIPPLE & NOISE (max.) Note.2 | 200mVp-p | 300mVp-p | 300mVp-p | 300mVp-p |
| | CURRENT ADJ. RANGE Note.4 | Can be adjusted by internal potentiometer A type only | | | |
| | | 2.4 ~ 4A | 1.62 ~ 2.7A | 1.2 ~ 2A | 1.0 ~ 1.6A |
| | VOLTAGE TOLERANCE Note.3 | ±2.0% | | | |
| | LINE REGULATION | ±0.5% | | | |
| | LOAD REGULATION | ±1.0% | | | |
| | SETUP, RISE TIME Note.6 | 2000ms, 80ms / 115VAC at full load 500ms, 80ms / 230VAC at full load | | | |
| | HOLD UP TIME (Typ.) | 12ms at full load 115VAC/230VAC | | | |
| INPUT | VOLTAGE RANGE Note.5 | 90 ~ 305VAC 127 ~ 431VDC | | | |
| | FREQUENCY RANGE | 47 ~ 63Hz | | | |
| | POWER FACTOR (Typ.) | PF>0.96/115VAC, PF>0.96/230VAC, PF>0.94/277VAC at full load (Please refer to "Power Factor Characteristic" curve) | | | |
| | EFFICIENCY (Typ.) | 90.5% | 91% | 91% | 91.5% |
| | AC CURRENT (Typ.) | 1.1A / 115VAC 0.5A / 230VAC 0.45A / 277VAC | | | |
| | MAX.LED DRIVE NUMBER ON MCB C TYPE 16A | 21units@230VAC | | | |
| | INRUSH CURRENT (Typ.) | COLD START 60A(twidth=415μs measured at 50% Ipeak) at 230VAC | | | |
| | LEAKAGE CURRENT | <0.75mA / 277VAC | | | |
| PROTECTION | OVER CURRENT Note.4 | 95 ~ 108% | | | |
| | | Protection type : Constant current limiting | | | |
| | OVER VOLTAGE | 28 ~ 35V | 41 ~ 49V | 54 ~ 63V | 65 ~ 75V |
| | | Protection type : 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. | -40 ~ +60℃ (Refer to "Derating Curve") | | | |
| | 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,CSA C22.2 No.250.13-12,EN61347-1,EN61347-2-13,EN62384 approved | | | |
| | WITHSTAND VOLTAGE | I/P-O/P:3.75KVAC I/P-FG:2.0KVAC 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 | Compliance to EN55015, EN61000-3-2 Class C (≧60% load) ; EN61000-3-3 | | | |
| | EMC IMMUNITY | Compliance to EN61000-4-2,3,4,5,6,8,11, EN61547, light industry level (surge 4KV), criteria A | | | |
| OTHERS | MTBF | 300Khrs min. MIL-HDBK-217F (25℃) | | | |
| | DIMENSION | Refer to mechanical specification | | | |
| | PACKING | 1.18Kg; 12pcs/15.7Kg/1.43CUFT | | | |

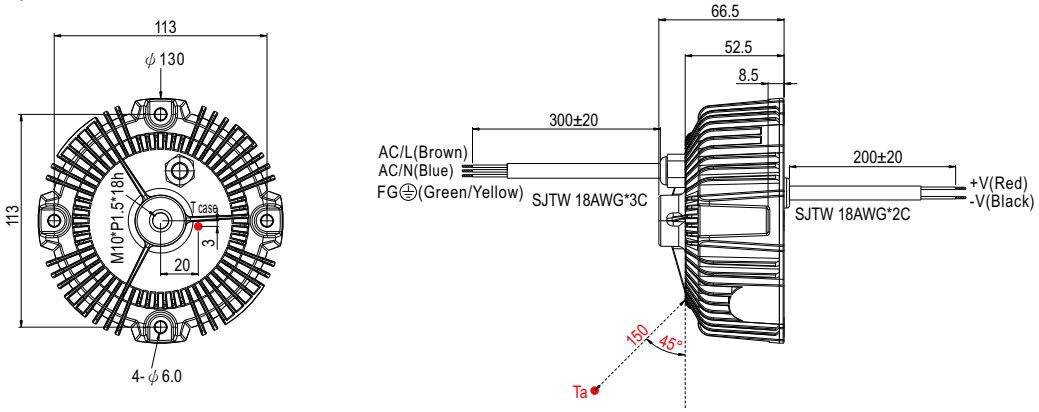
**NOTE**

1. All parameters NOT specially mentioned are measured at 230VAC 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. Constant current operation region is within 60% ~100% rated output voltage, and the output power must be more than 60% rated output power. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.
5. Derating may be needed under low input voltages. Please check the static characteristics for more details.
6. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.
7. 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.
8. Direct connecting to LEDs is suggested, but is not suitable for using additional drivers.
9. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED power supply can only be used behind a switch without permanently connected to the mains.

## ■ Mechanical Specification

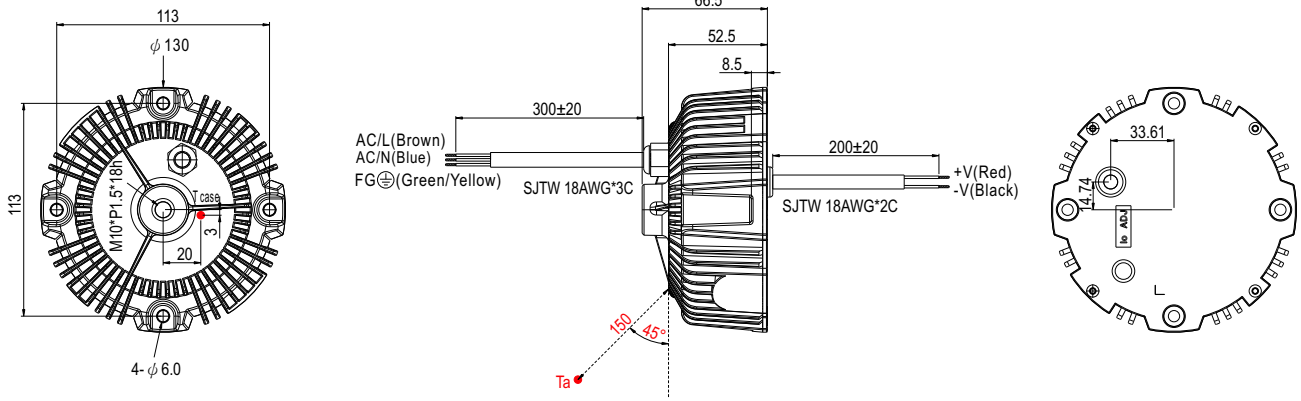
CASE NO.:217 Unit:mm

**Blank:(HBG-100)**



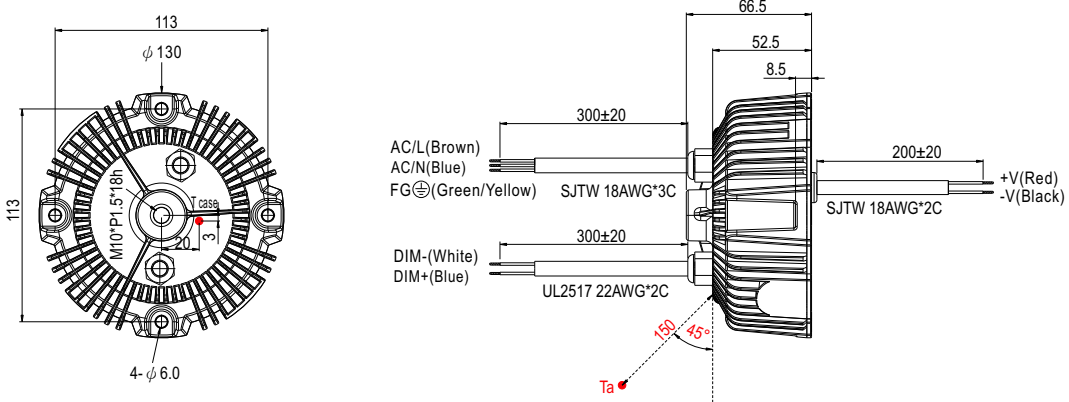

※ T case: Max. Case Temperature.(case temperature measured point)
※ Ta: Ambient Temperature measured point
※ IP67 rated. Cable for I/O connection.

**A type:(HBG-100-_A)**



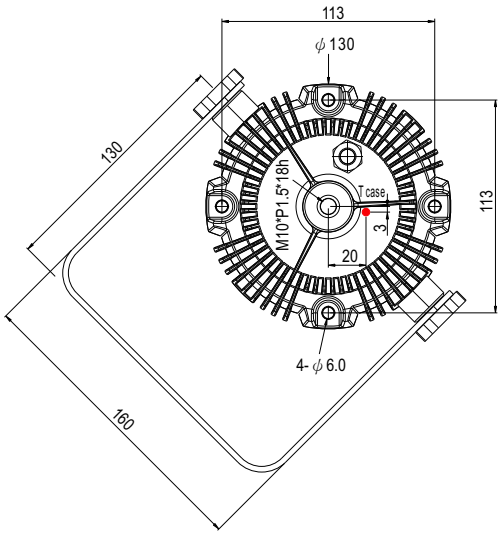

※ T case: Max. Case Temperature.(case temperature measured point)
※ Ta: Ambient Temperature measured point
※ IP65 rated. Output constant current level can be adjusted through internal potentiometer.

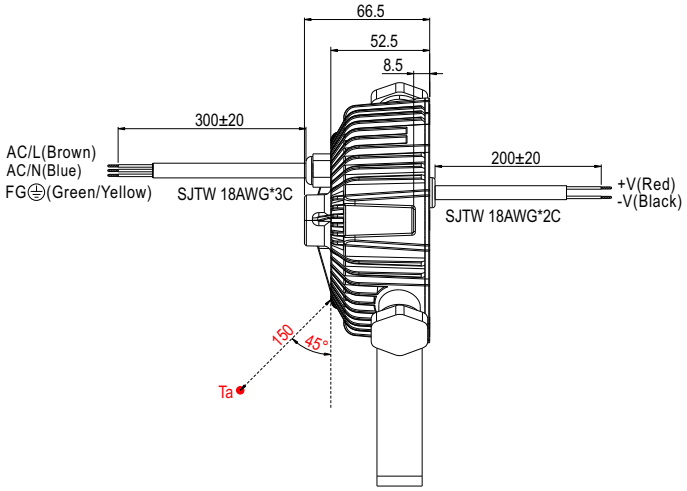
**B type:(HBG-100-_B)**




※ T case: Max. Case Temperature.(case temperature measured point)
※ Ta: Ambient Temperature measured point
※ IP67 rated. output constant current lever can be adjusted through output cable with 1-10V,PWM signal and Resistance

**E type(option):(HBG-100-_E)**

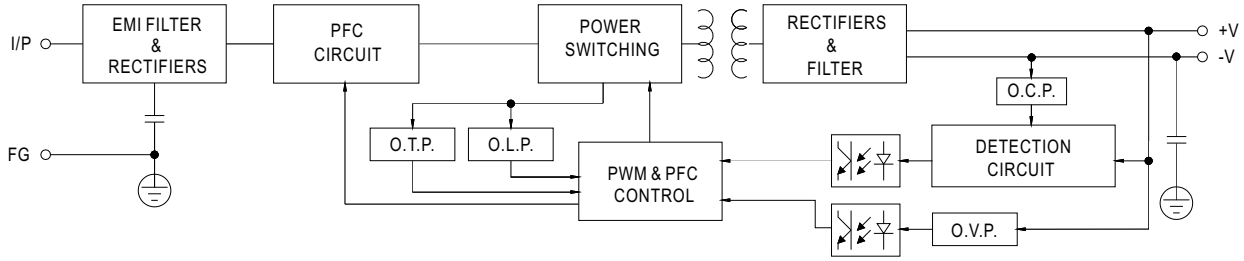


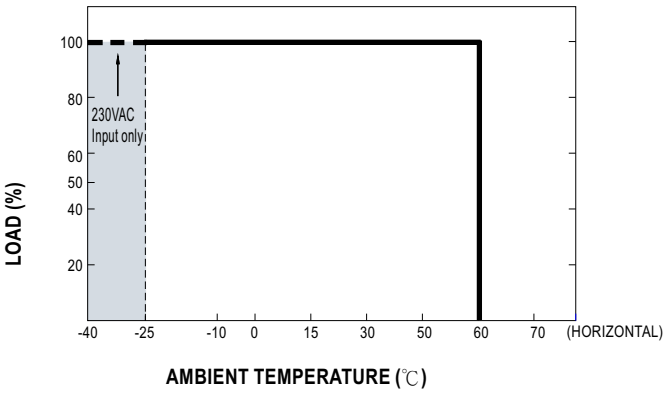

※ T case: Max. Case Temperature.(case temperature measured point)
※ Ta: Ambient Temperature measured point
※ IP67 rated. output constant current lever can be adjusted through output cable with 1-10V,PWM signal and Resistance

## ■ Block Diagram

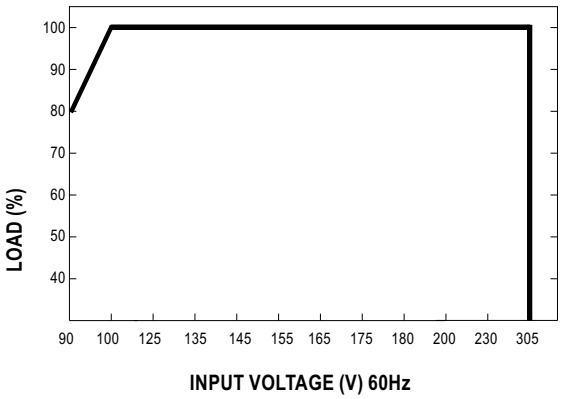
fosc : 100KHz



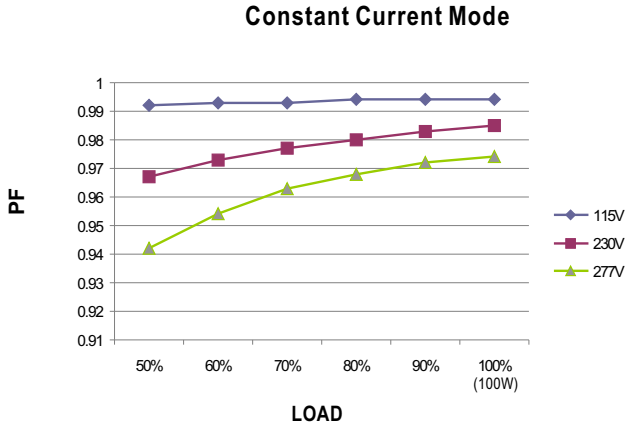

## ■ Derating Curve




## ■ Static Characteristics

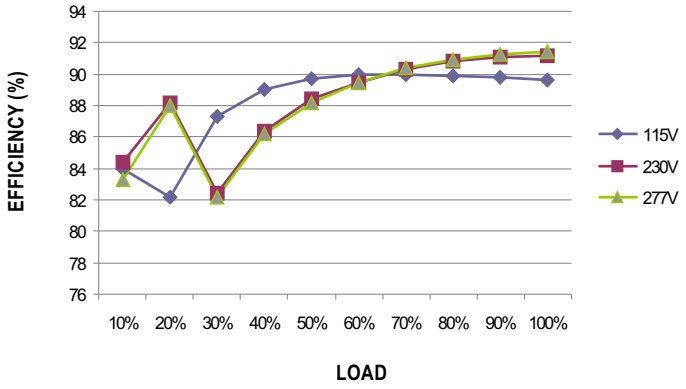


## ■ Power Factor Characteristic



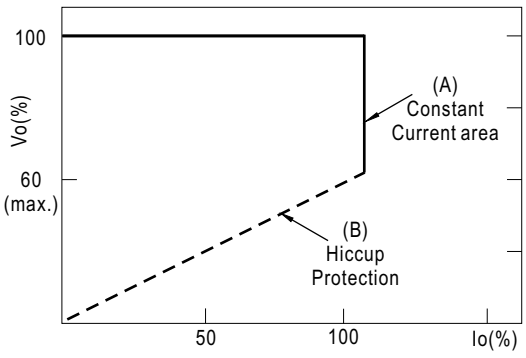

## ■ EFFICIENCY vs LOAD (48V Model)

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



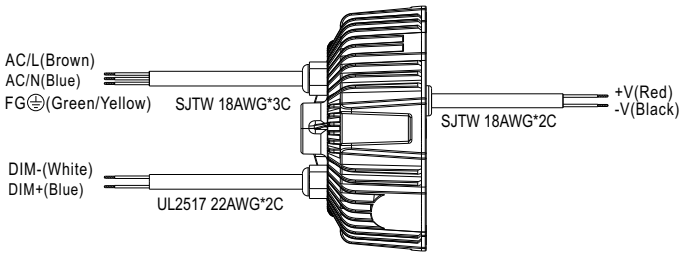

## ■ DRIVING METHODS OF LED MODULE

This LED power supply is suggested to work in constant current mode area (CC) to drive the LEDs.




Typical LED power supply I-V curve

## ■ DIMMING OPERATION(for B type only)




※ Built-in 3 in 1 dimming function, IP67 rated. Output constant current level can be adjusted through output cable by connecting a resistance or 1 ~ 10Vdc or 10V PWM signal between DIM+ and DIM-.

※ Please DO NOT connect "DIM-" to "-V".

※ Reference resistance value for output current adjustment (Typical)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Resistance value | Single driver | 10KΩ | 20KΩ | 30KΩ | 40KΩ | 50KΩ | 60KΩ | 70KΩ | 80KΩ | 90KΩ | 100KΩ | OPEN |
| | Multiple drivers (N=driver quantity for synchronized dimming operation) | 10KΩ/N | 20KΩ/N | 30KΩ/N | 40KΩ/N | 50KΩ/N | 60KΩ/N | 70KΩ/N | 80KΩ/N | 90KΩ/N | 100KΩ/N | ----- |
| Percentage of rated current | | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 95%~108% |

※ 1 ~ 10V dimming function for output current adjustment (Typical)

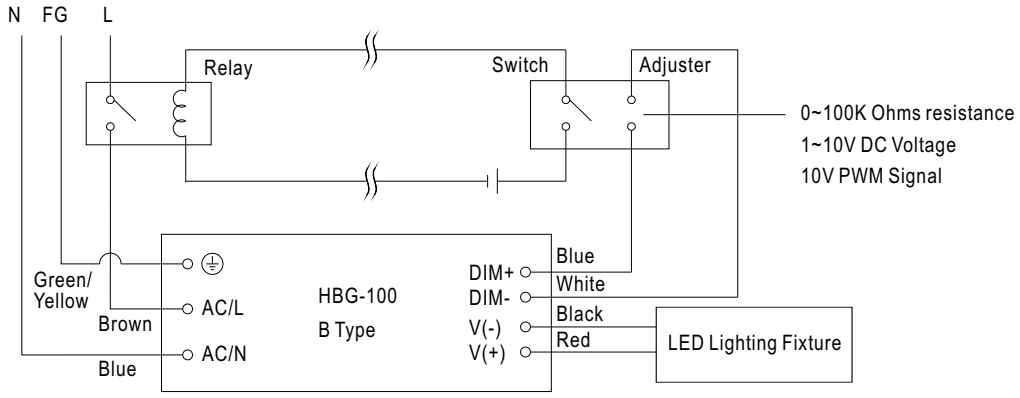
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dimming value | 1V | 2V | 3V | 4V | 5V | 6V | 7V | 8V | 9V | 10V | OPEN |
| Percentage of rated current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 95%~108% |

※ 10V PWM signal for output current adjustment (Typical): Frequency range :100Hz ~ 3KHz

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Duty value | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | OPEN |
| Percentage of rated current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 95%~108% |

※Using the built-in dimming function on B-type model can't turn the lighting fixture totally dark. Please refer to the connection method below to achieve 0% brightness of the lighting fixture connecting to the LED power supply unit.

※Direct connecting to LEDs is suggested, but is not suitable for using additional drivers.

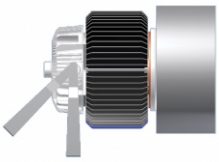



Using a switch and relay can turn ON/OFF the lighting fixture.

1.Output constant current level can be adjusted through output cable by connecting a resistance or 1~10Vdc or 10V PWM signal between DIM+ and DIM-.

2.The LED lighting fixture can be turned ON/OFF by the switch.

## ■ INSTALLATIONS

| | | | | |
|---|---|---|---|---|
|  |  |  |  |  |
| Hanger | Chain | Spot Light | High Bay Light | Stage Light |

### Caution

◎ Please inspect the appearance of the product for completeness if the package is damaged. There should not be any cracks.

◎ Please do not drop or bump the product.

◎ All screws including the suspension screw should be paired with a spring washer and locked tight.

◎ The entire luminaire, including the power supply should be limited to less than 10Kg.

◎ The luminaire should be cautiously protected throughout packaging and transportation to avoid damage due to shock.

◎ Please thoroughly perform the cautionary notes above to prevent the possibility of the luminaire falling and injuring personnel.

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