# MW XBG-160 series 160W Constant Power Mode Driver Instruction Manual



Contents



## MW XBG-160 series 160W Constant Power Mode Driver

## PRODUCT OVERVIEW

AC input with fixed cable

AC input with connector

### Features

- Full power output at 70~100% constant power mode operation
- Wide input range 90 305VAC with active PFC function
- Metal housing design with IP67
- Function options: output adjustable via potentiometer 3 in 1 dimming (dim-to-off and Isolation design)
- Typical lifetime>50000 hours and 5 years warranty
- AC input cable with connector for flexible application

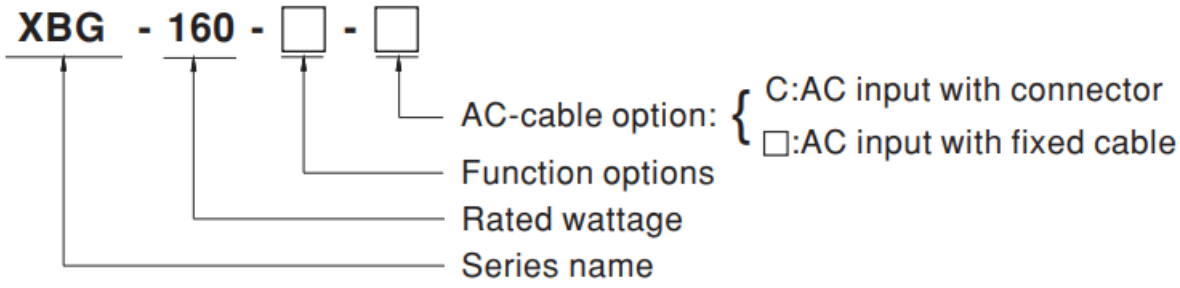
### Applications

- LED bay lighting
- LED stage lighting
- LED spot lighting-proof lighting
- Type HL LED driver for class I division 2

### Description

XBG-160 series is a 160W AC/DC LED driver featuring the constant power mode. XBG-160 operates from 90-305VAC and offers with different rated current ranging between 2850mA and 4100mA. Thanks to the high efficiency up to 93%, with the fanless design, the entire series is able to operate for -40C-+90C case temperature under free air convection. The design of metal housing and P67 ingress protection level allows this series to fit both indoor and outdoor applications. Moreover the innovative environment-adaptive capability allows this series to reliably light on the LEDs for all kinds of application environments in almost any spots that may install LED luminaires in the world. XBG-160 series comply with the latest version of IEC61347/GB7000.1-2015 and UL8750 international safety regulations. The output and dimming circuit are also completely in accordance with the new regulations with isolation to ensure the safety of both users and luminaire system during installation.

### Model Encoding




| Type | P Level | Function | Note |
|---|---|---|---|
| A | P67 | constant power adjustable via built-in potentiometer | n Stock |
| AB | P67 | constant power adjustable via built-in potentiometer +<br>3 in 1 dimming function (0~10Vdc, 10V PWM signal and resistance) | n Stock |

## SPECIFICATION

| **MODEL** | | | **XBG-160- –** |
|---|---|---|---|
| **OUTPUT** | **DEFAULT CURRENT** | | 3300mA |
| | **RATED POWER** | | 159.9W |
| | **CONSTANT CURRENT REGION** | | 34 ~ 56V |
| | **FULL POWER CURRENT RANGE** | | 2850~4100mA |
| | **OPEN CIRCUIT VOLTAGE (max.)** | | 60V |
| | **CURRENT ADJ. RANGE** | | 1425~4100mA |
| | **CURRENT RIPPLE** | | 5.0% max. @rated current |
| | **CURRENT TOLERANCE** | | ±5% |
| | **SET UP TIME** | **Note. 4** | 500ms/230VAC, 2000ms/115VAC |

| | | | |
|---|---|---|---|
| **INPUT** | **VOLTAGE RANGE** | **Note. 2** | 90 ~ 305VAC 127 ~ 431VDC<br>(Please refer to “STATIC CHARACTERISTIC” section) |
| | **FREQUENCY RANGE** | | 47 ~ 63Hz |
| | **POWER FACTOR (Typ.)** | | PF≧0.97 / 115VAC, PF≧0.95 / 230VAC, PF≧0.92 / 277VAC at full load<br>(Please refer to “Power Factor Characteristic” section) |
| | **TOTAL HARMONIC DISTORTION** | | THD< 10% (@ load≧60% at 115VAC/230VAC ,@load≧75% at 277VAC) Please refer to “ TOTAL HARMONIC DISTORTION (THD)” section |
| | **EFFICIENCY (Typ.)** | | 93% |
| | **AC CURRENT ( Typ.)** | | 2.0A / 115VAC 0.8A / 230VAC 0.7A / 277VAC |
| | **INRUSH CURRENT(Typ. )** | | COLD START 50A(twidth=620μs measured at 50% Ipeak) at 230VAC; Per NEMA 410 |
| | **MAX. NO. of PSUs on 16 A CIRCUIT BREAKER** | | 4 unit(circuit breaker of type B) / 7 units(circuit breaker of type C) at 230VAC |
| | **LEAKAGE CURRENT** | | <0.75mA / 277VAC |
| | **NO LOAD / STANDBY POWER CONSUMPTION** | | No load power consumption<0.5W for A-Type Standby power consumption<0.5W for AB-Type |
| **PROTECTION** | **OVER CURRENT** | | 95 ~ 108% |
| | | | Constant current limiting, recovers automatically after fault condition is removed |
| | **SHORT CIRCUIT** | | Hiccup mode, recovers automatically after fault condition is removed |
| | **OVER VOLTAGE** | | 61 ~ 78V |
| | | | Shut down output voltage, re-power on to recovery |
| | **OVER TEMPERATURE** | | Shut down output voltage, re-power on to recovery |
| | **WORKING TEMP.** | | Tcase=-40 ~ +90°C(Please refer to “OUTPUT LOAD vs TEMPERATURE” section) |

| | | | | |
|---|---|---|---|---|
| **ENVIRONMENT** | **MAX. CASE TEMP.** | Tcase=+90℃ | | |
| | **WORKING HUMIDITY** | 20 ~ 95% RH non-condensing | | |
| | **STORAGE TEMP., HUMIDITY** | -40 ~ +80℃, 10 ~ 95% RH non-condensing | | |
| | **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** | UL8750(type"HL"), CSA C22.2 No. 250.13-12; ENEC BS EN/EN61347-1, BS EN/EN61347-2-13 independent, BS EN/EN62384;<br>IS15885(Part2/Sec13);GB19510.1,GB19510.14;IP67;EAC TP TC 004 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** | **Parameter** | **Standard** | **Test Level/Note** |
| | | Conducted | BS EN/EN55015(CISPR15) | —— |
| | | Radiated | BS EN/EN55015(CISPR15) | —— |
| | | Harmonic Current | BS EN/EN61000-3-2 | Class C @load≥50% |
| | | Voltage Flicker | BS EN/EN61000-3-3 | —— |
| | **EMC IMMUNITY** | BS EN/EN55024 , BS EN/EN61204-3, BS EN/EN61000-6-2 | | |
| | | **Parameter** | **Standard** | **Test Level/Note** |
| | | ESD | BS EN/EN61000-4-2 | Level 3, 8KV air ; Level 2, 4KV contact |
| | | Radiated | BS EN/EN61000-4-3 | Level 3 |
| | | EFT/Burst | BS EN/EN61000-4-4 | Level 3 |
| | | Surge | BS EN/EN61000-4-5 | 4KV/Line-Line 6KV/Line-Earth |
| | | Conducted | BS EN/EN61000-4-6 | Level 3 |
| | | Magnetic Field | BS EN/EN61000-4-8 | Level 4 |

| | | | | | |
|---|---|---|---|---|---|
| | | Voltage Dips and Interruptions | BS EN/EN61000-4-11 | | >95% dip 0.5 periods, 30% dip 25 periods,<br>>95% interruptions 250 periods |
| **OTHERS** | **MTBF** | 1100K hrs min. Telcordia SR-332(Bellcore) ; 280K hrs min. | MIL-HDBK-217F (25℃) | | |
| | **LIFETIME** | **Note. 5** | 50000 hrs min. | | |
| | **DIMENSION** | φ151.5mm *60mm(D*H) | | | |
| | **PACKING** | 1.25Kg; 8pcs/11.5Kg/0.93CUFT | | | |

**NOTE**

1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25℃ of ambient temperature.

2. De-rating may be needed under low input voltages. Please refer to “STAT C CHARACTER ST C” sections for details.

3. 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.

4. 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.

5. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly tc point (or TMP, per DLC), is about 70℃ or less.

6. To fulfill requirements of the latest ErP regulation for lighting fixture, this LED drive can only be used behind a switch without permanently connected to the mains.

7. Please refer to the warranty statement on MEAN WELL’s website at **http://www.meanwell.com**

8. 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).

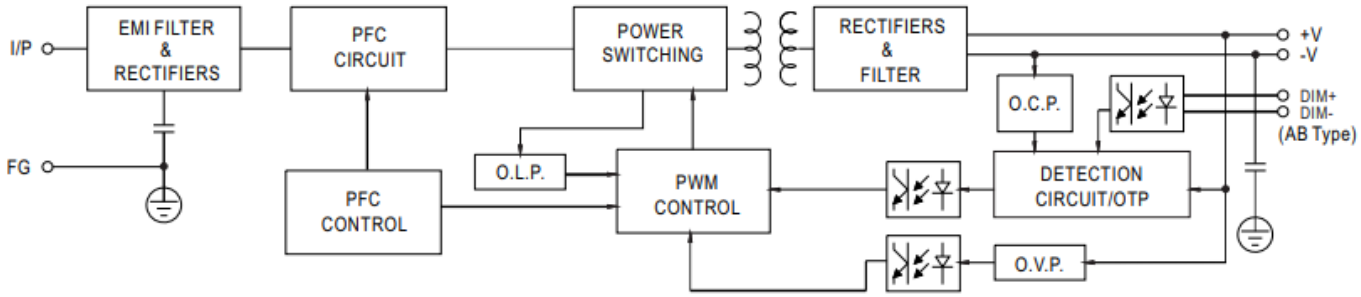
9. Products sourced from the Americas regions may not have the PSE/CCC/BS/KC logo. Please contact your MEAN WELL sales for more information.

10. For any application note and P 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** *File Name:XBG-160-SPEC 2021-12-06*

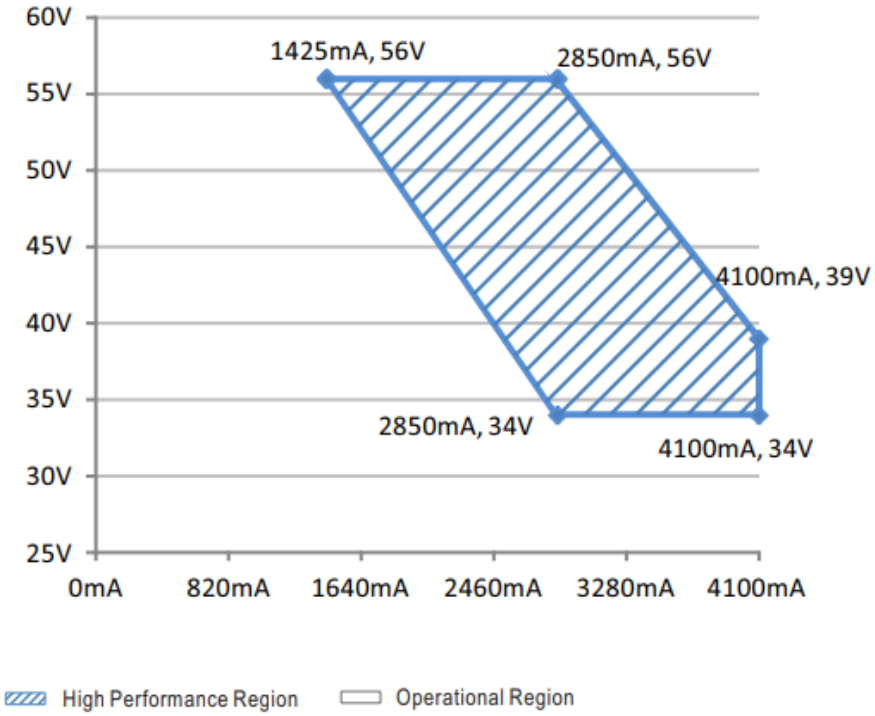
## BLOCK DIAGRAM

PFC fosc : 45~50KHz
PWM fosc : 60~130KHz

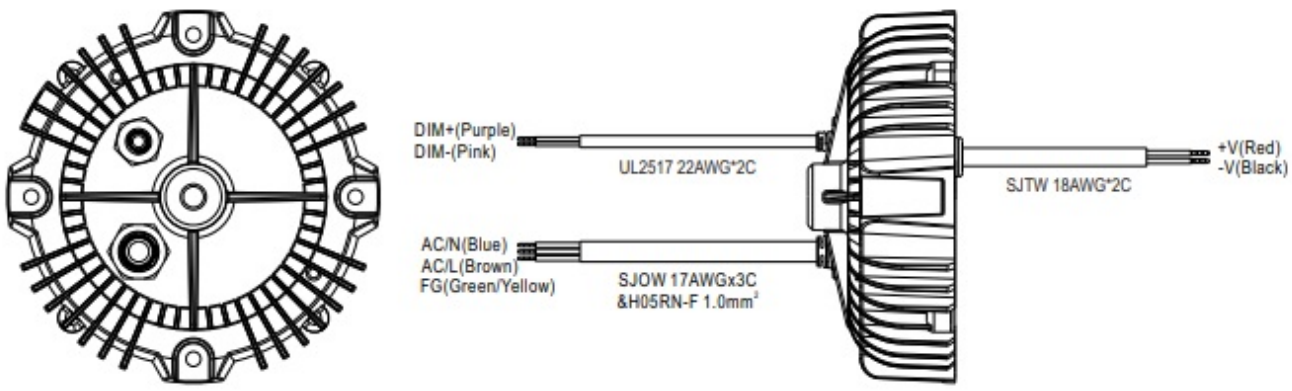



## DRIVING METHODS OF LED MODULE

### I-V Operating Area
### XBG-160




## DIMMING OPERATION



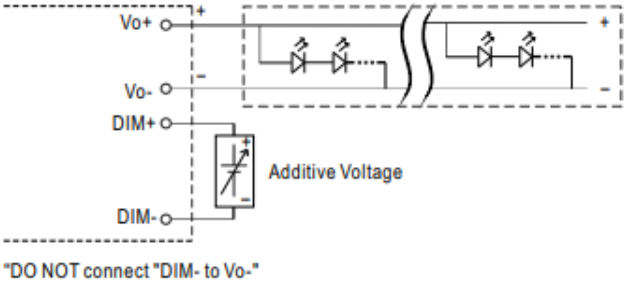

### 3 in 1 dimming function (for AB-Type)

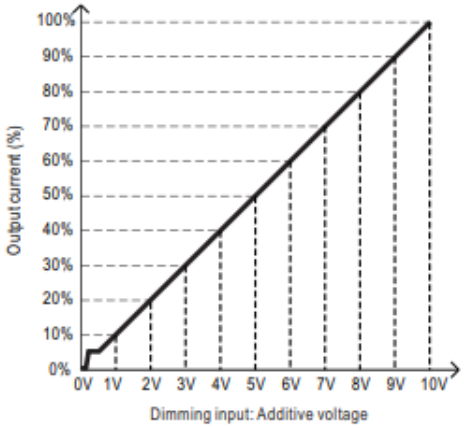
- Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and

DIM-: 0 ~ 10VDC, or 10V PWM signal or resistance.

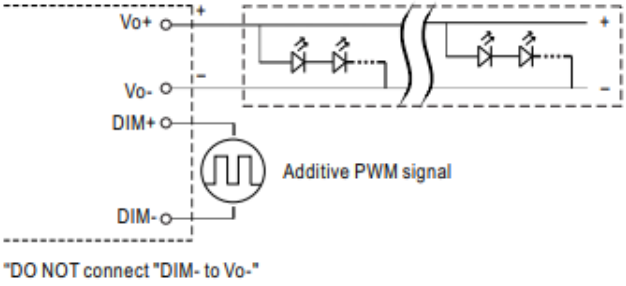
- Direct connecting to LEDs is suggested. It is not suitable to be used with additional drivers.
- Dimming source current from power supply: 100μA (typ.)

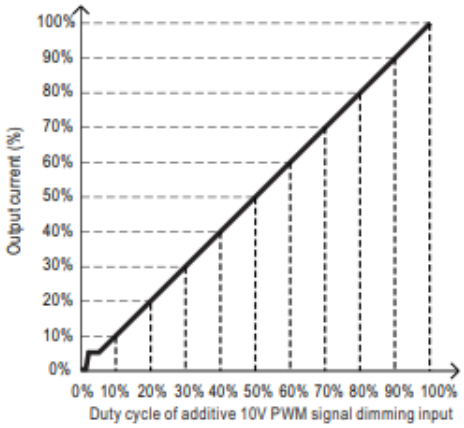
◎ Applying additive 0 ~ 10VDC



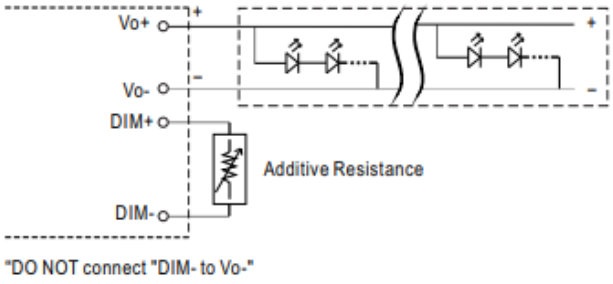



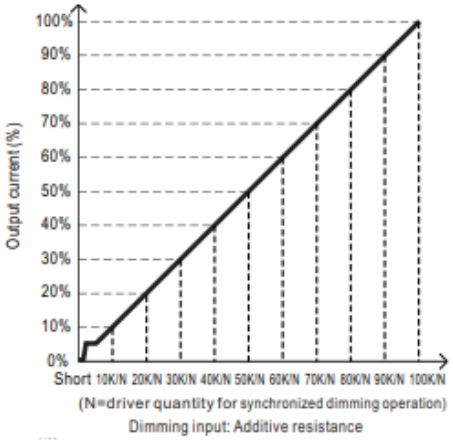

◎ Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):




◎ Applying additive resistance:

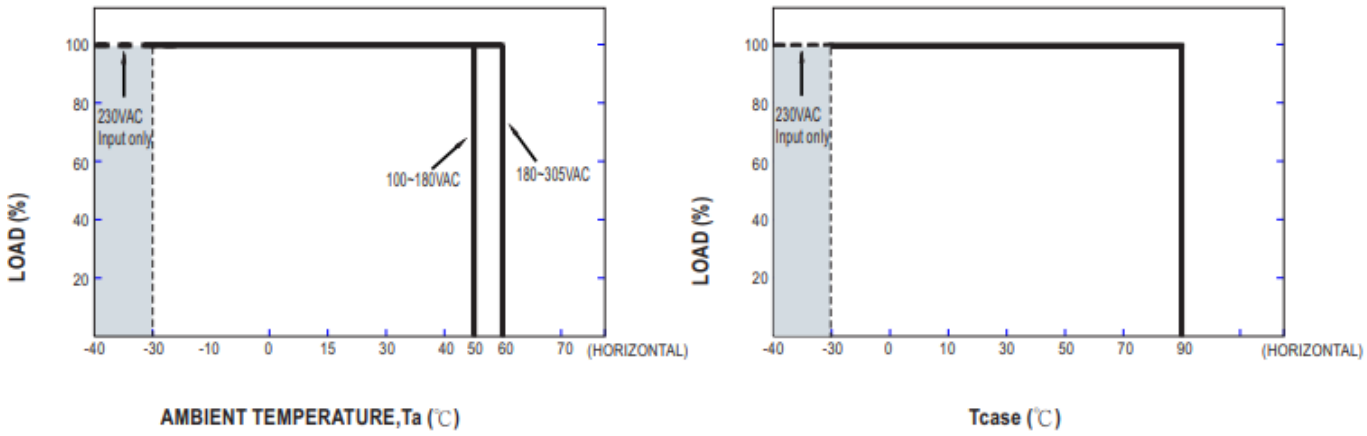


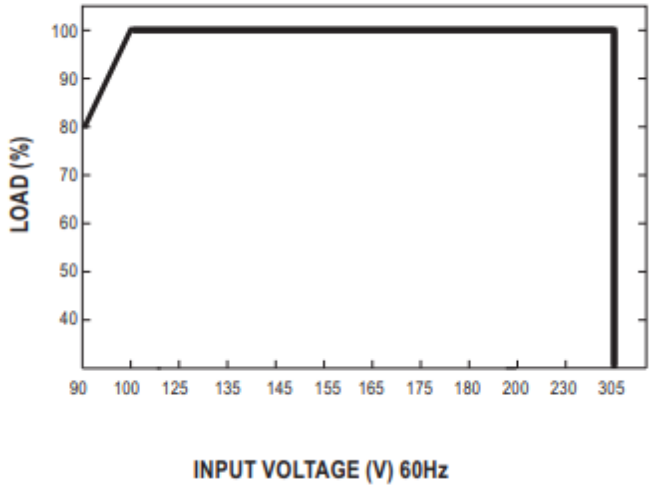

**Note :**

1. Min. dimming level is about 8% and the output current is not defined when 0%< Iout<8%.
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.

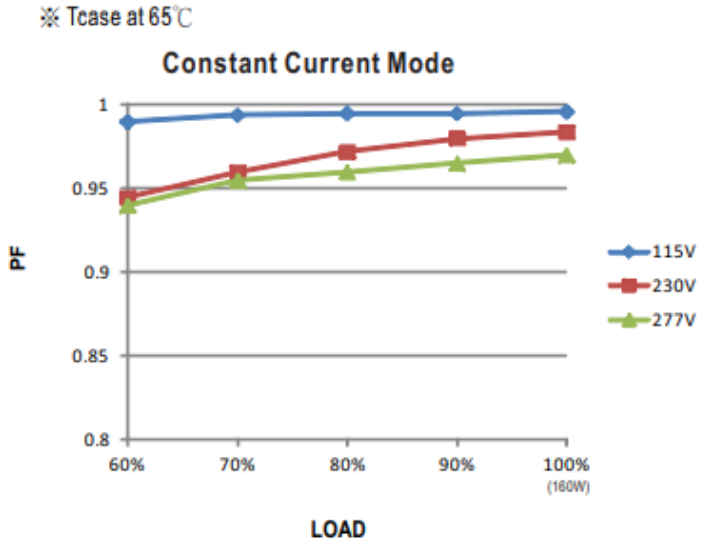
**OUTPUT LOAD vs TEMPERATURE**



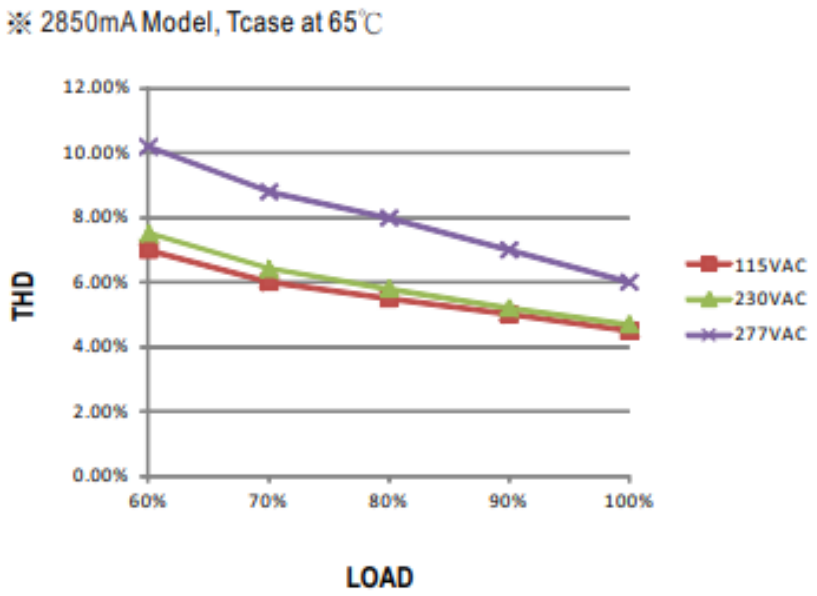

## STATIC CHARACTERISTIC




## POWER FACTOR (PF) CHARACTERISTIC



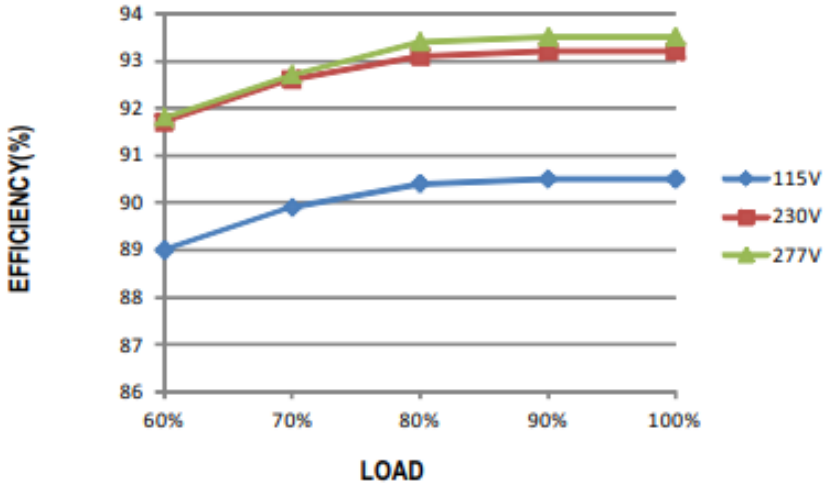

## TOTAL HARMONIC DISTORTION (THD)



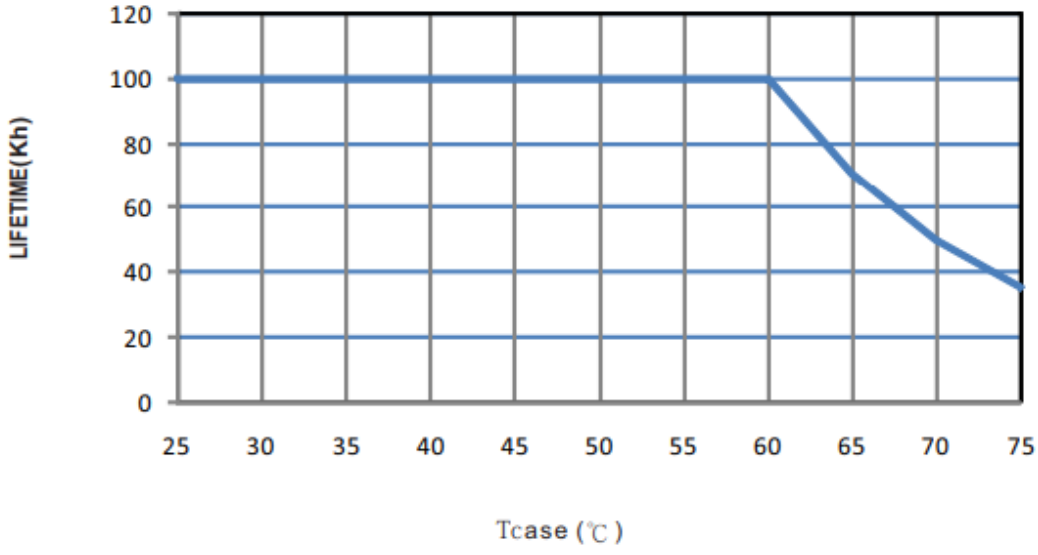

**EFFICIENCY vs LOAD**

XBG-160 series possess superior working efficiency that up to 93% can be reached in field applications.

- 2850mA Model, Tcase at 65°C

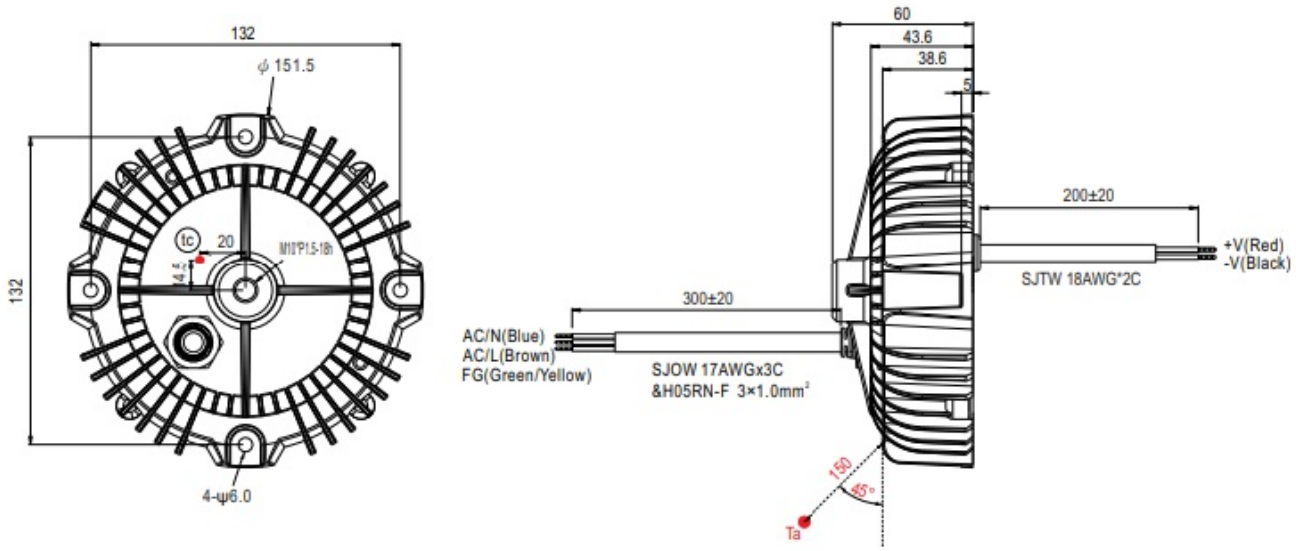



**LIFE TIME**

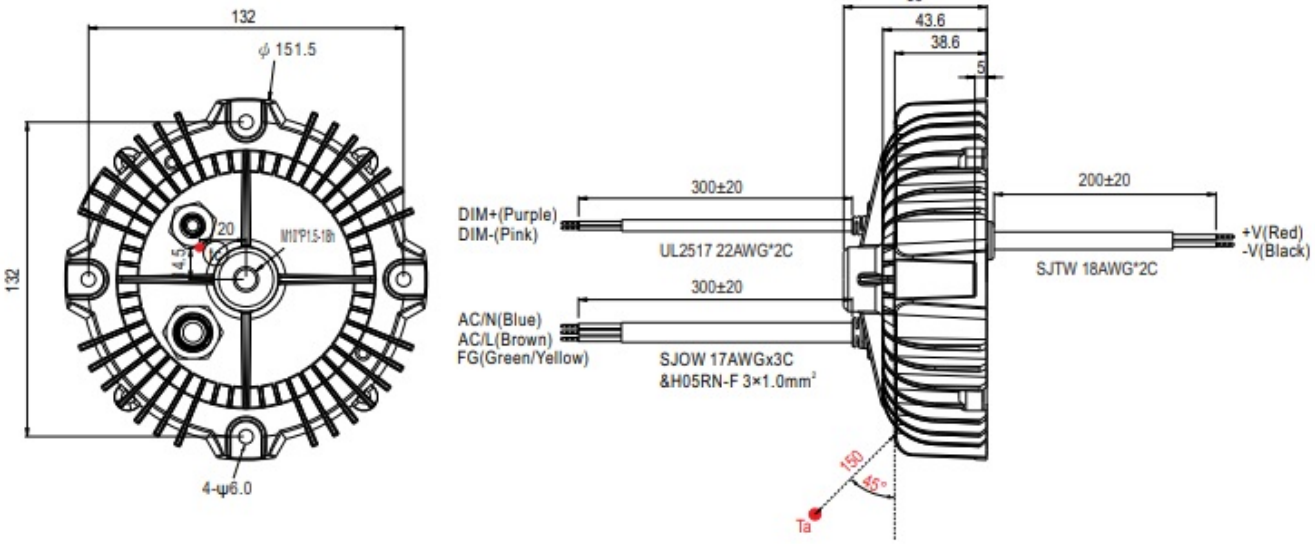



**MECHANICAL SPECIFICATION**

**A-Type(AC input with fixed cable)**

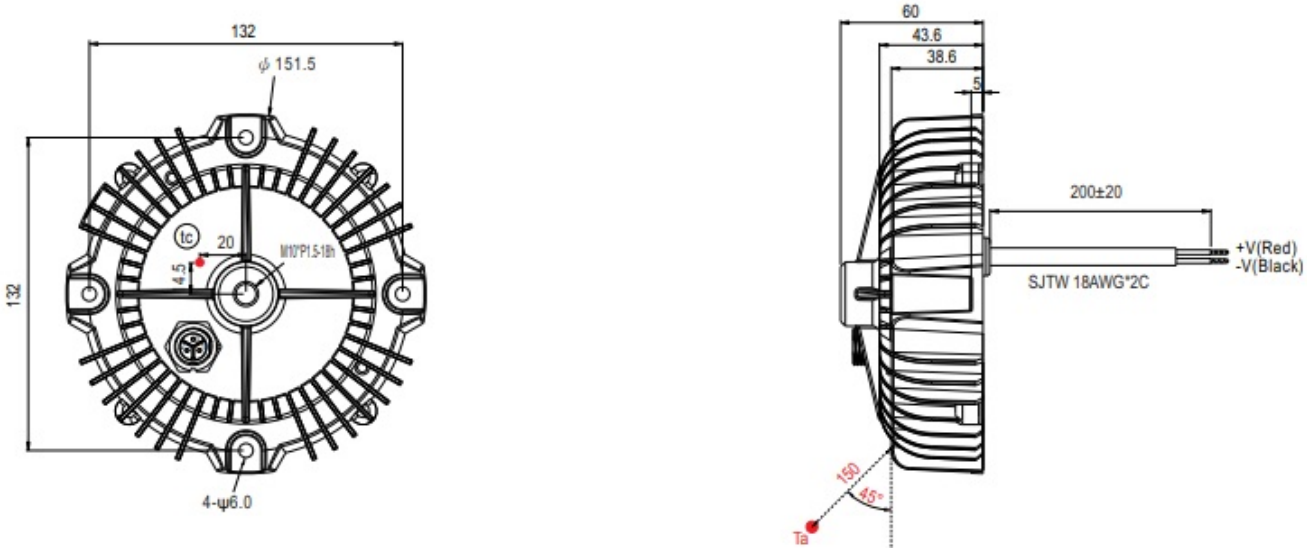



**AB-Type**

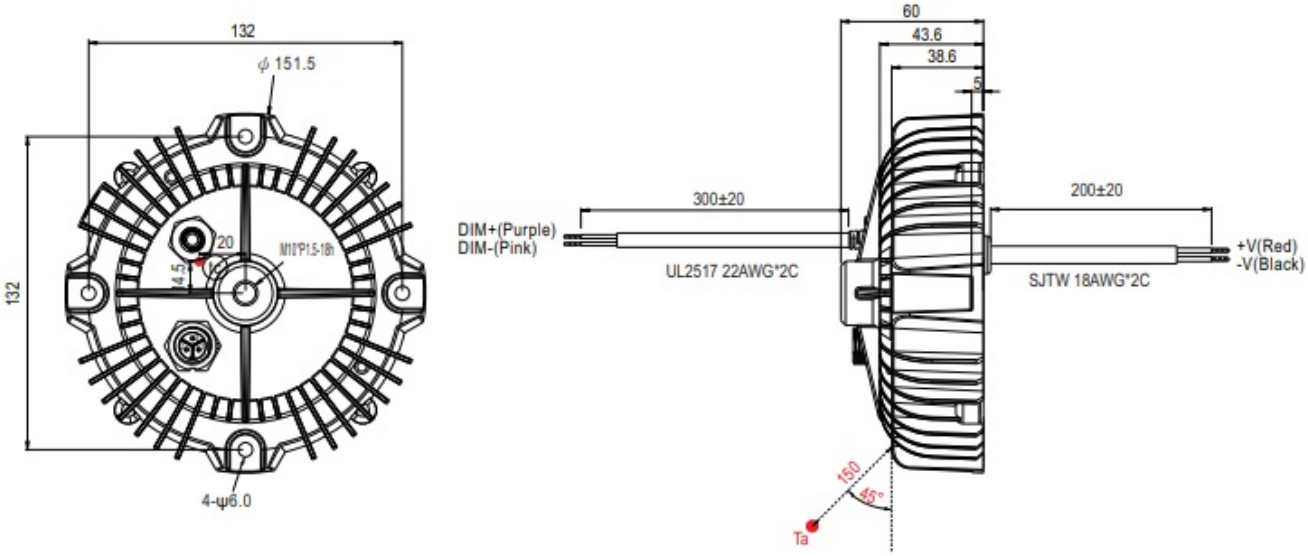



- **tc :** Max. Case Temperature.(case temperature measured point)
- **Ta** : Ambient Temperature measured point

**A-C-Type(AC input with connector)**



**AB-C-Type**



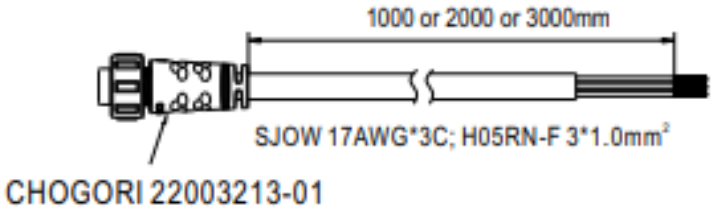

**Terminal Pin No. Assignment(CHOGORI 22003515-01)**

| Pin No. | Assignment | Drawing |
|---|---|---|
| 1 | AC/L |  |
| 2 | AC/N | |
| 3 | FG ⏚ | |

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

AC input cable is optional, needs extra charge

| Item | Order Code | Note |
|---|---|---|
| 100cm | F61-XBG-AC-CABLE-100 | In Stock |
| 200cm | F61-XBG-AC-CABLE-200 | By Request |
| 300cm | F61-XBG-AC-CABLE-300 | By Request |




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

## Documents / Resources

| | |
|---|---|
|  | **MW XBG-160 series 160W Constant Power Mode Driver** [pdf] Instruction Manual<br>XBG-160 series, 160W Constant Power Mode Driver, XBG-160 series 160W Constant Power Mode Driver, Constant Power Mode Driver, Power Mode Driver, Driver |

Manuals+,