



480W Constant Voltage + Constant Current LED Driver

**HLG-480H** series



### ■ Features

- Constant Voltage + Constant Current mode output
- Metal housing with class I design
- Built-in active PFC function
- IP67 / IP65 design for indoor or outdoor installations
- Function options: output adjustable via potentiometer; 3 in 1 dimming (dim-to-off, isolated design) ; smart timer dimming; junction box
- Typical lifetime > 62000 hours
- 7 years warranty (Note.9)

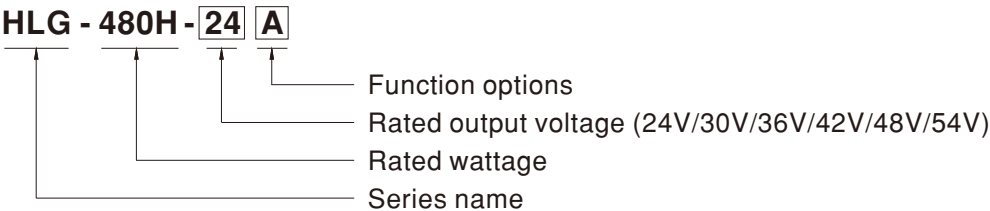
### ■ Applications

- LED Harbour
- LED greenhouse lighting
- LED stadium lighting
- LED mining lighting
- Type “HL” for use in Class I , Division 2 hazardous(Classified) location

### ■ Description

HLG-480H series is a 480W AC/DC LED driver featuring the dual mode constant voltage and constant current output. HLG-480H operates from 90 ~ 305VAC and offers models with different rated voltage ranging between 24V and 54V. Thanks to the high efficiency up to 95.5%, with the fanless design, the entire series is able to operate for -40°C ~ +90°C 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. HLG-480H is equipped with various function options, such as dimming methodologies, so as to provide the optimal design flexibility for LED lighting system.

### ■ Model Encoding



| Type  | IP Level | Function   | Note       |
|-------|----------|--|------------|
| Blank | IP67     | Io and Vo fixed  | In Stock   |
| A     | IP65     | Io and Vo adjustable through built-in potentiometer  | In Stock   |
| B     | 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   |
| Dx    | IP67     | Built-in Smart timer dimming function by user request.   | By request |
| D2    | IP67     | Built-in Smart timer dimming and programmable function.  | In Stock   |

**SPECIFICATION**

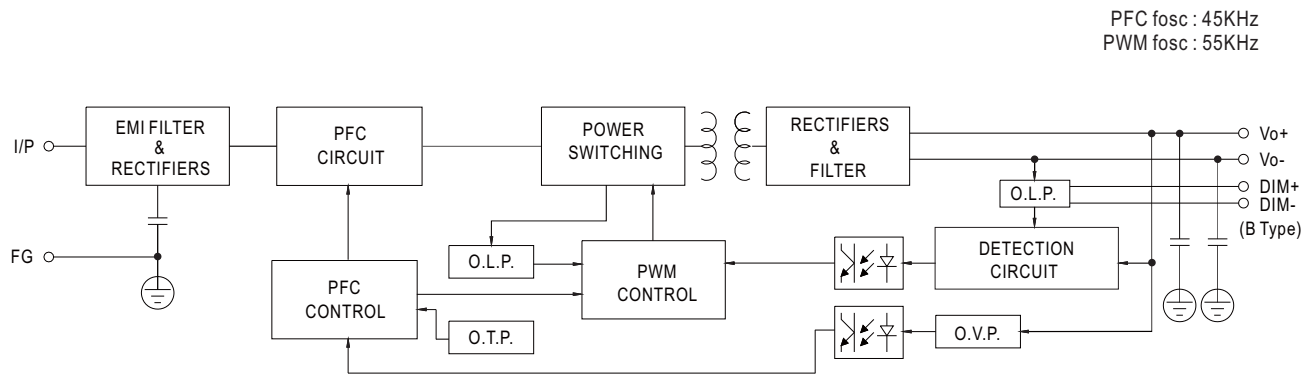
| MODEL        |   | HLG-480H-24□  | HLG-480H-30□ | HLG-480H-36□ | HLG-480H-42□ | HLG-480H-48□ | HLG-480H-54□ |
|--------------|---|---|--------------|--------------|--------------|--------------|--------------|
| OUTPUT       | DC VOLTAGE                              | 24V   | 30V          | 36V          | 42V          | 48V          | 54V          |
|              | CONSTANT CURRENT REGION Note.4          | 12 ~ 24V  | 15 ~ 30V     | 18 ~ 36V     | 21 ~ 42V     | 24 ~ 48V     | 27 ~ 54V     |
|              | RATED CURRENT                           | 20A   | 16A          | 13.3A        | 11.4A        | 10A          | 8.9A         |
|              | RATED POWER                             | 480W  | 480W         | 478.8W       | 478.8W       | 480W         | 480.6W       |
|              | RIPPLE & NOISE (max.) Note.2            | 200mVp-p  | 200mVp-p     | 250mVp-p     | 250mVp-p     | 250mVp-p     | 350mVp-p     |
|              | VOLTAGE ADJ. RANGE                      | Adjustable for A/AB-Type only (via built-in potentiometer)  |              |              |              |              |              |
|              |   | 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/AB-Type only (via built-in potentiometer)  |              |              |              |              |              |
|              |   | 10 ~ 20A  | 8 ~ 16A      | 6.6 ~ 13.3A  | 5.7 ~ 11.4A  | 5 ~ 10A      | 4.4 ~ 8.9A   |
|              | VOLTAGE TOLERANCE Note.3                | ± 1.0%  | ± 1.0%       | ± 1.0%       | ± 1.0%       | ± 1.0%       | ± 1.0%       |
| INPUT        | LINE REGULATION                         | ± 0.5%  | ± 0.5%       | ± 0.5%       | ± 0.5%       | ± 0.5%       | ± 0.5%       |
|              | LOAD REGULATION                         | ± 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.)                     | 16ms 115VAC/230VAC  |              |              |              |              |              |
|              | VOLTAGE RANGE Note.5                    | 90 ~ 305VAC 127 ~ 431VDC<br>(Please refer to "STATIC CHARACTERISTIC" section)   |              |              |              |              |              |
|              | FREQUENCY RANGE                         | 47 ~ 63Hz   |              |              |              |              |              |
|              | POWER FACTOR (Typ.)                     | PF ≥ 0.98/115VAC, PF ≥ 0.97/230VAC, PF ≥ 0.95/277VAC @ full load<br>(Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)  |              |              |              |              |              |
|              | TOTAL HARMONIC DISTORTION               | THD < 20% (@ load ≥ 40% / 115VAC, 230VAC, 277VAC)<br>(Please refer to "TOTAL HARMONIC DISTORTION (THD)" section)  |              |              |              |              |              |
|              | EFFICIENCY (Typ.)                       | 230VAC  | 94.5%        | 94.5%        | 95%          | 95%          | 95%          |
|              |   | 277VAC  | 94.5%        | 95%          | 95.5%        | 95.5%        | 95%          |
| PROTECTION   | AC CURRENT (Typ.)                       | 5A / 115VAC 2.45A / 230VAC 2A / 277VAC  |              |              |              |              |              |
|              | INRUSH CURRENT(Typ.)                    | COLD START 35A(t <sub>width</sub> =1800μs measured at 50% I <sub>peak</sub> ) at 230VAC; Per NEMA 410   |              |              |              |              |              |
|              | LEAKAGE CURRENT                         | <0.75mA / 277VAC  |              |              |              |              |              |
|              | MAX. NO. of PSUs on 16A CIRCUIT BREAKER | 2unit(circuit breaker of type B) / 3units(circuit breaker of type C) at 230VAC  |              |              |              |              |              |
|              | OVER CURRENT                            | 95 ~ 108%<br>Constant current limiting, recovers automatically after fault condition is removed   |              |              |              |              |              |
| ENVIRONMENT  | SHORT CIRCUIT                           | Constant current limiting, recovers automatically after fault condition is removed  |              |              |              |              |              |
|              | OVER VOLTAGE                            | 27 ~ 33V  | 33 ~ 40V     | 40 ~ 50V     | 46 ~ 55V     | 53 ~ 63V     | 60 ~ 70V     |
|              |   | Shut down output voltage, re-power on to recovery   |              |              |              |              |              |
|              | OVER TEMPERATURE                        | Shut down output voltage, re-power on to recovery   |              |              |              |              |              |
|              | WORKING TEMP.                           | T <sub>case</sub> = -40 ~ +90°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)  |              |              |              |              |              |
| SAFETY & EMC | MAX. CASE TEMP.                         | T <sub>case</sub> = +90°C   |              |              |              |              |              |
|              | WORKING HUMIDITY                        | 20 ~ 95% RH non-condensing  |              |              |              |              |              |
|              | STORAGE TEMP., HUMIDITY                 | -40 ~ +80°C, 10 ~ 95% RH non-condensing   |              |              |              |              |              |
|              | TEMP. COEFFICIENT                       | ± 0.02%/°C (0 ~ 60°C)   |              |              |              |              |              |
|              | VIBRATION                               | 10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes   |              |              |              |              |              |
| OTHERS       | 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; GB19510.14, GB19510.1; IP65 or IP67, EAC TP TC 004, AS/NZS IEC 61347.2.13:2013, AS/NZS 61347.1:2016; KC61347-1, KC61347-2-13(except for AB, Dx, D2-type), J61347-1(H29), J61347-2-13(H29)(for Blank/A-type) 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°C / 70% RH   |              |              |              |              |              |
|              | EMC EMISSION                            | Compliance to BS EN/EN55015, BS EN/EN61000-3-2 Class C (@ load ≥ 50%) ; BS EN/EN61000-3-3; GB17743, GB17625.1, EAC TP TC 020; KC KN15, KN61547(except for AB, Dx, D2-type), J55015(H29)(for Blank/A-type)   |              |              |              |              |              |
|              | 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; KC KN15, KN61547(except for AB, Dx, D2-type), J55015(H29)(for Blank/A-type)  |              |              |              |              |              |
| NOTE         | MTBF                                    | 345.5K hrs min. Telcordia SR-332(Bellcore) ; 95.3K hrs min. MIL-HDBK-217F (25°C)  |              |              |              |              |              |
|              | DIMENSION                               | 262*125*43.8mm (L*W*H)  |              |              |              |              |              |
|              | PACKING                                 | 2.8Kg; 4pcs/12.2Kg/0.55CUFT   |              |              |              |              |              |
| NOTE         |   | <ol style="list-style-type: none"> <li>All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25°C of ambient temperature.</li> <li>Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uF &amp; 47uF parallel capacitor.</li> <li>Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>Please refer to "DRIVING METHODS OF LED MODULE".</li> <li>De-rating may be needed under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>This series meets the typical life expectancy of &gt;62,000 hours of operation when T<sub>case</sub>, particularly (t<sub>90</sub>) point (or T<sub>MP</sub>, per DLC), is about 75°C or less.</li> <li>Please refer to the warranty statement on MEAN WELL's website at <a href="http://www.meanwell.com">http://www.meanwell.com</a></li> <li>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).</li> <li>For any application note and IP water proof function installation caution, please refer our user manual before using.<br/><a href="https://www.meanwell.com/Upload/PDF/LED_EN.pdf">https://www.meanwell.com/Upload/PDF/LED_EN.pdf</a></li> </ol> |              |              |              |              |              |



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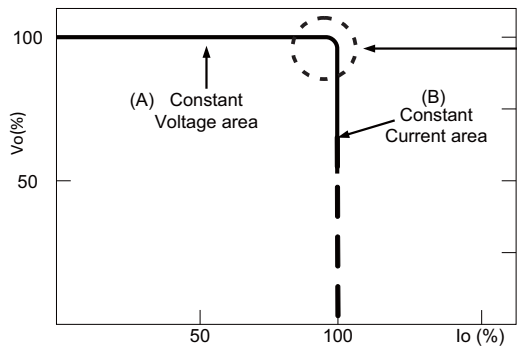
**HLG-480H series**

### ■ BLOCK DIAGRAM



### ■ DRIVING METHODS OF LED MODULE

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

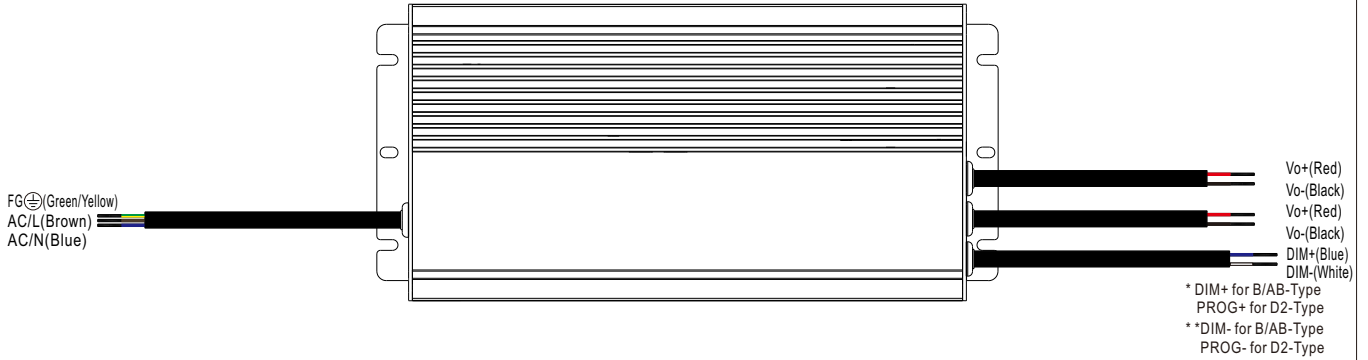


Typical output current normalized by rated current (%)

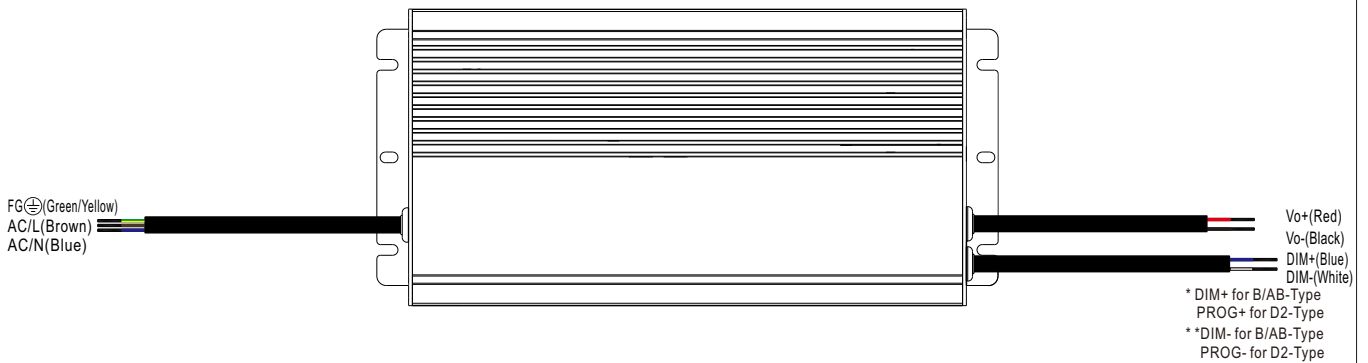
In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.  
Should there be any compatibility issues, please contact MEAN WELL.

## DIMMING OPERATION

For 24V,30V,36V,42V



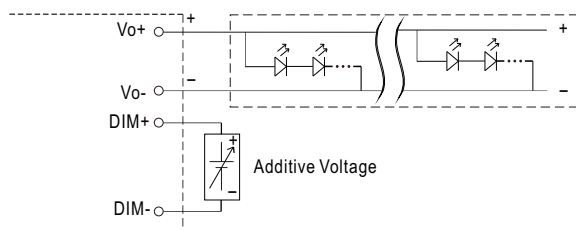
For 48V,54V



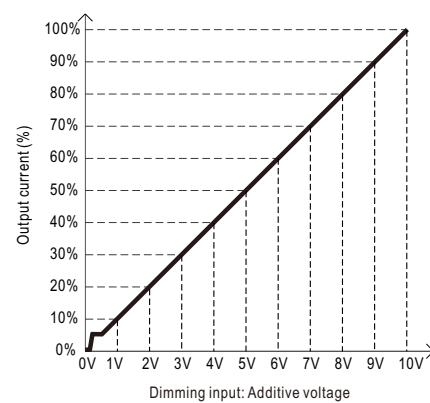
### ※ 3 in 1 dimming function (for B/AB-Type)

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



"DO NOT connect "DIM- to Vo-"

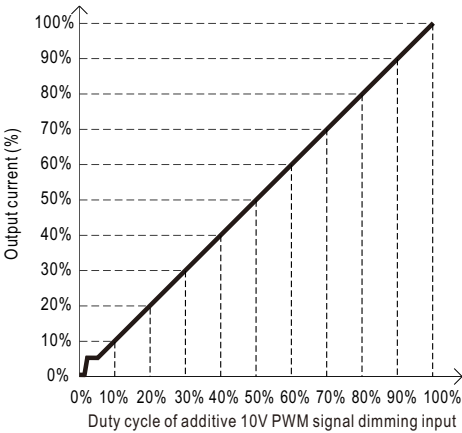
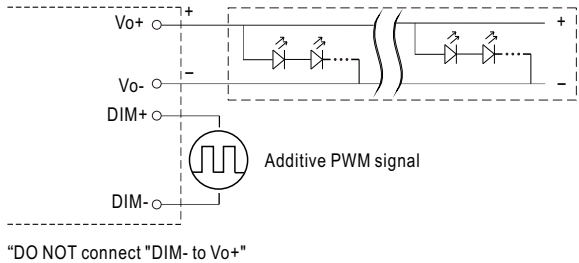




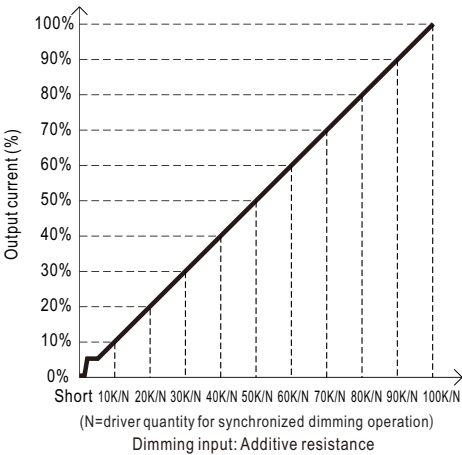
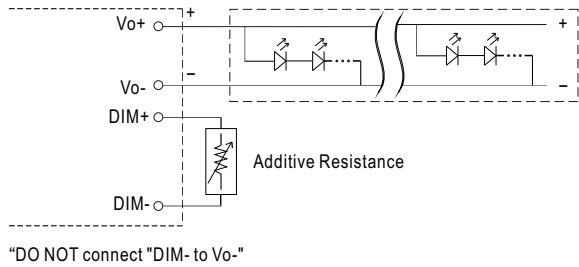
480W Constant Voltage + Constant Current LED Driver

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



◎ Applying additive resistance:

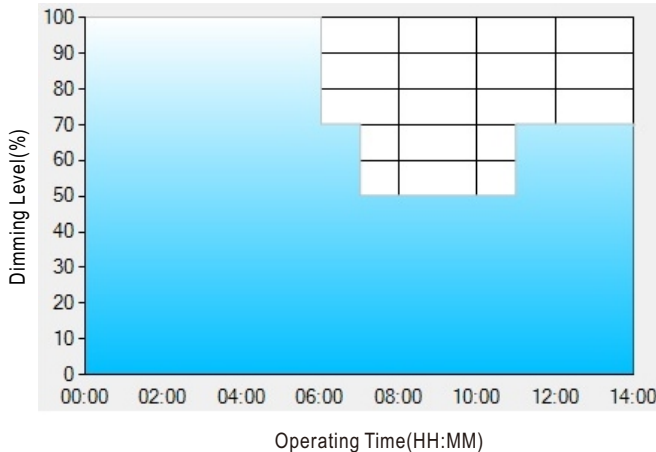


- Note : 1. Min. dimming level is about 6% and the output current is not defined when  $0\% < I_{out} < 6\%$ .  
 2. The output current could drop down to 0% when dimming input is about  $0k\Omega$  or 0Vdc, or 10V PWM signal with 0% duty cycle.

### ※ Smart timer dimming function (for Dxx-Type by User definition)

MEAN WELL Smart timer dimming primarily provides the adaptive proportion dimming profile for the output constant current level to perform up to 14 consecutive hours. 3 dimming profiles hereunder are defined accounting for the most frequently seen applications. If other options may be needed, please contact MEAN WELL for details.

Ex : ☉ D01-Type: the profile recommended for residential lighting



Set up for D01-Type in Smart timer dimming software program:

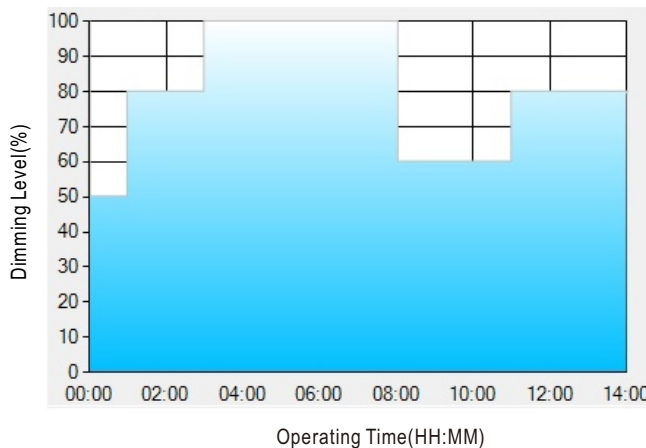
|         | T1    | T2    | T3    | T4  |
|---------|-------|-------|-------|-----|
| TIME**  | 06:00 | 07:00 | 11:00 | --- |
| LEVEL** | 100%  | 70%   | 50%   | 70% |

\*\* : TIME matches Operating Time in the diagram whereas LEVEL matches Dimming Level.

Example: If a residential lighting application adopts D01-Type, when turning on the power supply at 6:00pm, for instance:

- [1] The power supply will switch to the constant current level at 100% starting from 6:00pm.
  - [2] The power supply will switch to the constant current level at 70% in turn, starting from 0:00am, which is 06:00 after the power supply turns on.
  - [3] The power supply will switch to the constant current level at 50% in turn, starting from 1:00am, which is 07:00 after the power supply turns on.
  - [4] The power supply will switch to the constant current level at 70% in turn, starting from 5:00am, which is 11:00 after the power supply turns on.
- The constant current level remains till 8:00am, which is 14:00 after the power supply turns on.

Ex : ☉ D02-Type: the profile recommended for street lighting



Set up for D02-Type in Smart timer dimming software program:

|         | T1    | T2    | T3    | T4    | T5  |
|---------|-------|-------|-------|-------|-----|
| TIME**  | 01:00 | 03:00 | 08:00 | 11:00 | --- |
| LEVEL** | 50%   | 80%   | 100%  | 60%   | 80% |

\*\* : TIME matches Operating Time in the diagram whereas LEVEL matches Dimming Level.

Example: If a street lighting application adopts D02-Type, when turning on the power supply at 5:00pm, for instance:

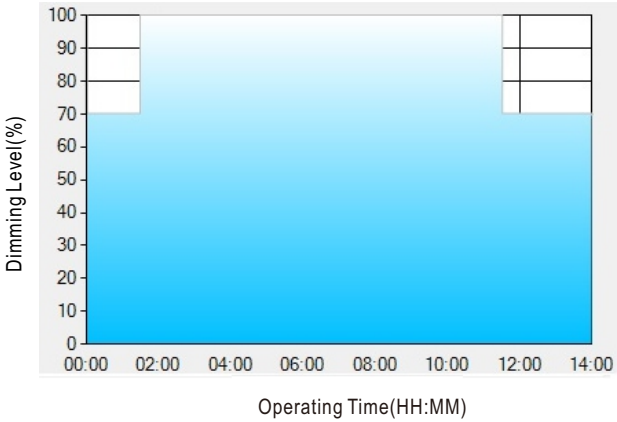
- [1] The power supply will switch to the constant current level at 50% starting from 5:00pm.
- [2] The power supply will switch to the constant current level at 80% in turn, starting from 6:00pm, which is 01:00 after the power supply turns on.
- [3] The power supply will switch to the constant current level at 100% in turn, starting from 8:00pm, which is 03:00 after the power supply turns on.
- [4] The power supply will switch to the constant current level at 60% in turn, starting from 1:00am, which is 08:00 after the power supply turns on.
- [5] The power supply will switch to the constant current level at 80% in turn, starting from 4:00am, which is 11:00 after the power supply turns on. The constant current level remains till 6:30am, which is 14:00 after the power supply turns on.



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Ex: ☉ D03-Type: the profile recommended for tunnel lighting



Set up for D03-Type in Smart timer dimming software program:

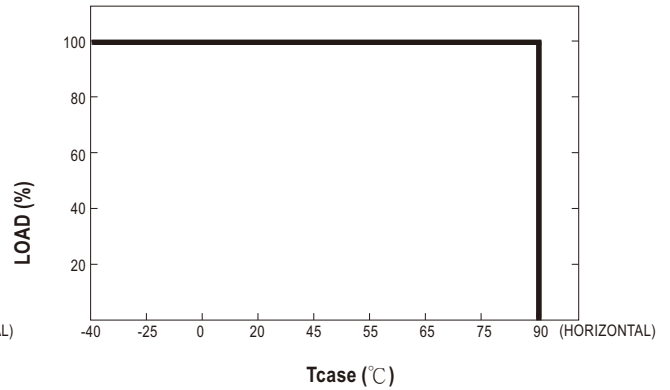
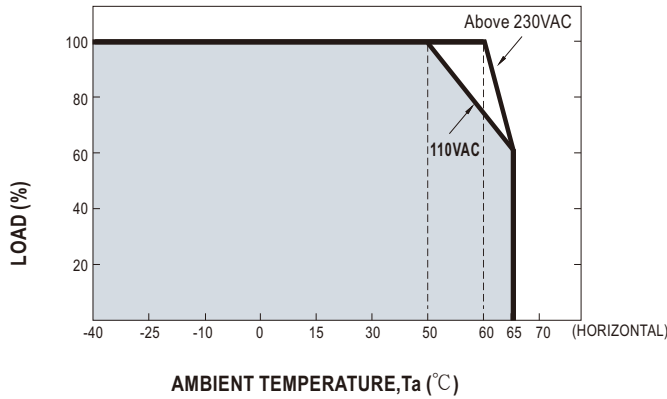
|         | T1    | T2    | T3  |
|---------|-------|-------|-----|
| TIME**  | 01:30 | 11:00 | --- |
| LEVEL** | 70%   | 100%  | 70% |

\*\* : TIME matches Operating Time in the diagram whereas LEVEL matches Dimming Level.

Example: If a tunnel lighting application adopts D03-Type, when turning on the power supply at 4:30pm, for instance:

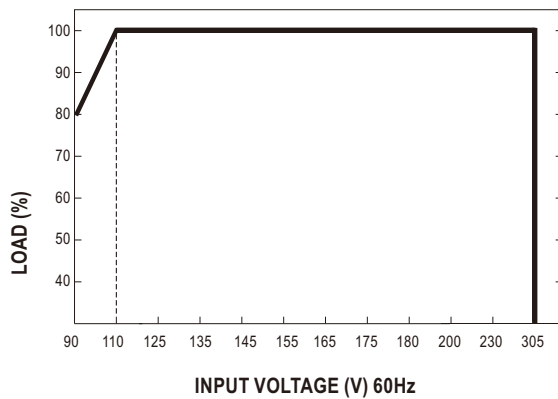
- [1] The power supply will switch to the constant current level at 70% starting from 4:30pm.
  - [2] The power supply will switch to the constant current level at 100% in turn, starting from 6:00pm, which is 01:30 after the power supply turns on.
  - [3] The power supply will switch to the constant current level at 70% in turn, starting from 5:00am, which is 11:00 after the power supply turns on.
- The constant current level remains till 6:30am, which is 14:00 after the power supply turns on.

### ■ OUTPUT LOAD vs TEMPERATURE(Notes.10)



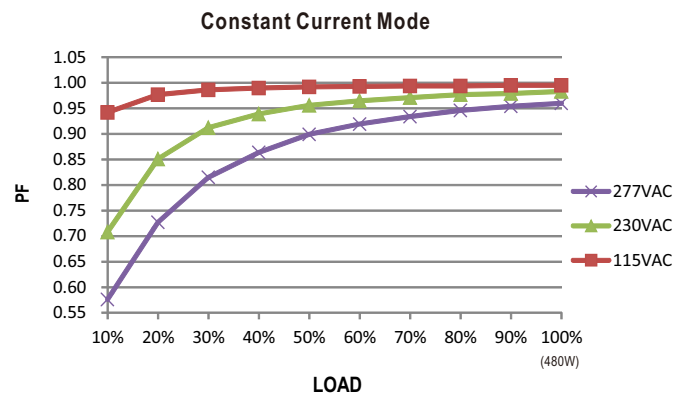
◎ If HLG-480H operates in constant current mode with the rated current, the maximum workable  $T_a$  is 60°C. (Typ. 230VAC)

### ■ STATIC CHARACTERISTICS



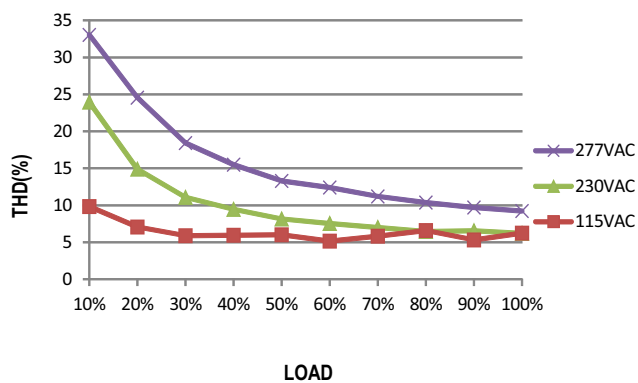
### ■ POWER FACTOR(PF) CHARACTERISTIC

※  $T_{case}$  at 75°C



### ■ TOTAL HARMONIC DISTORTION (THD)

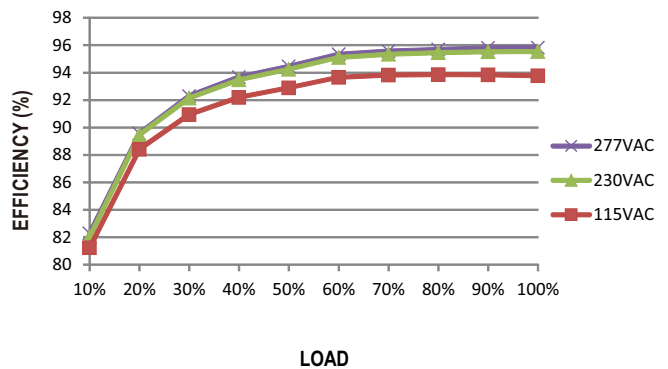
※ 42V Model,  $T_{case}$  at 75°C



### ■ EFFICIENCY vs LOAD

HLG-480H series possess superior working efficiency that up to 95.5% can be reached in field applications.

※ 42V Model,  $T_{case}$  at 75°C



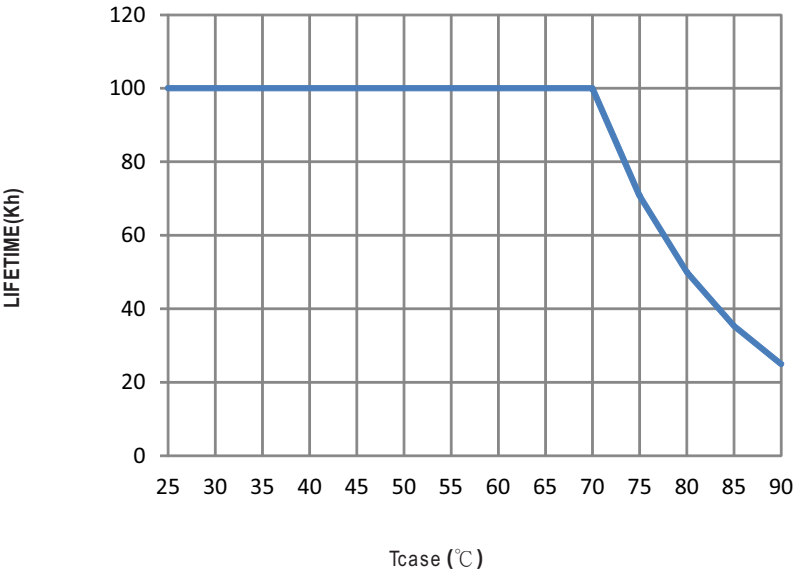




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■ LIFE TIME



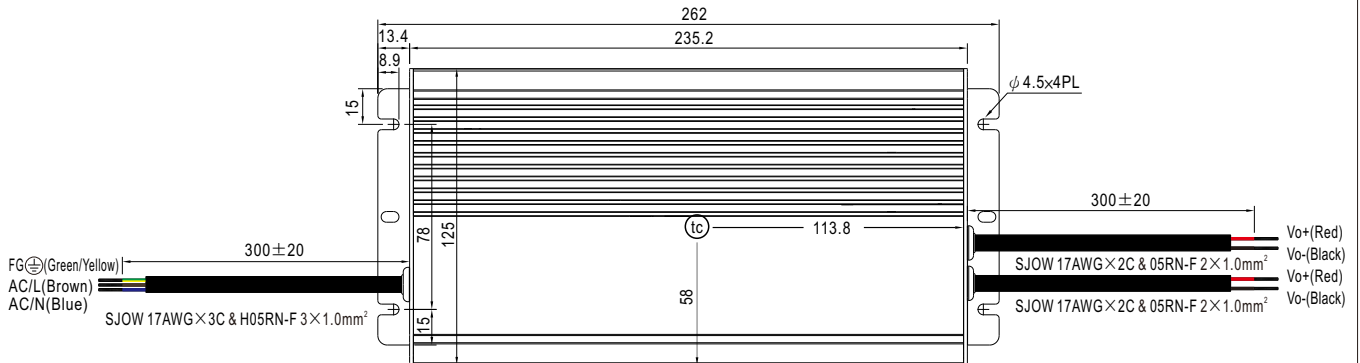
## MECHANICAL SPECIFICATION

Case No. 251

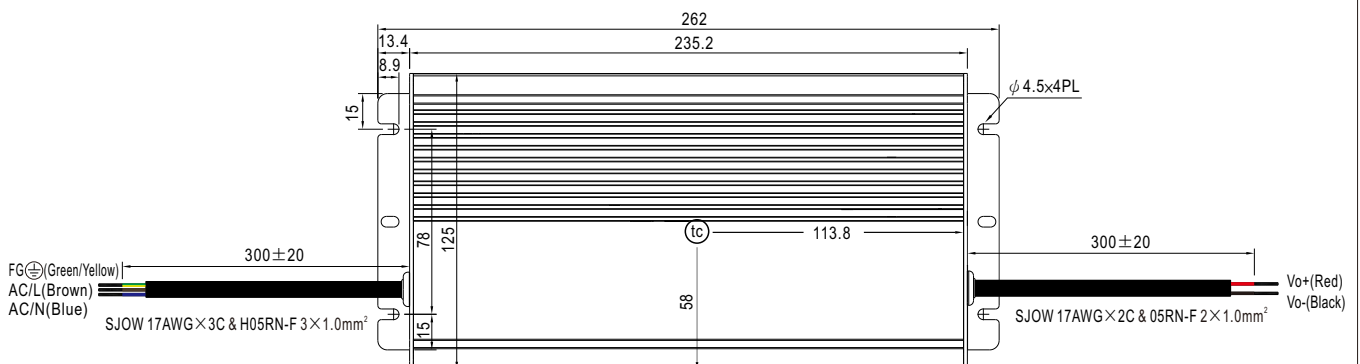
Unit:mm

### ※Blank-Type

For 24V,30V,36V,42V



For 48V,54V



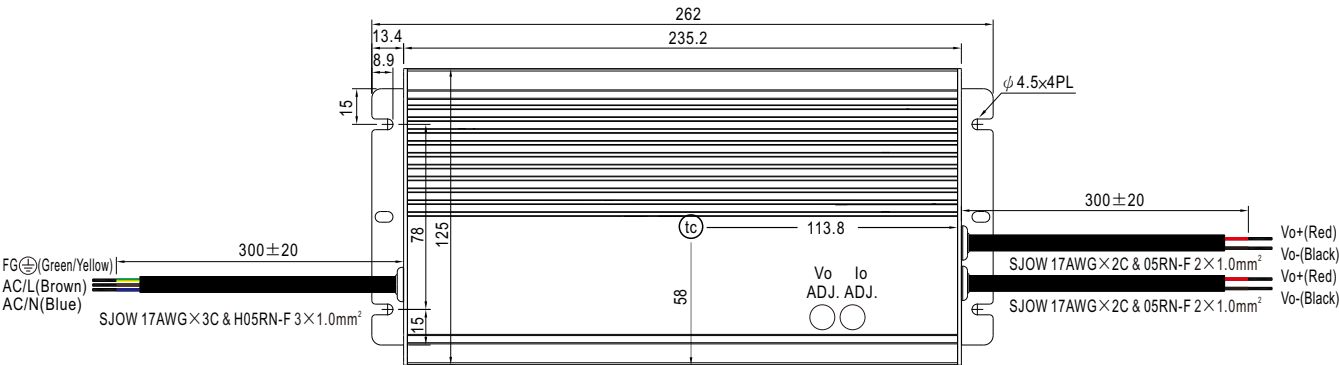


480W Constant Voltage + Constant Current LED Driver

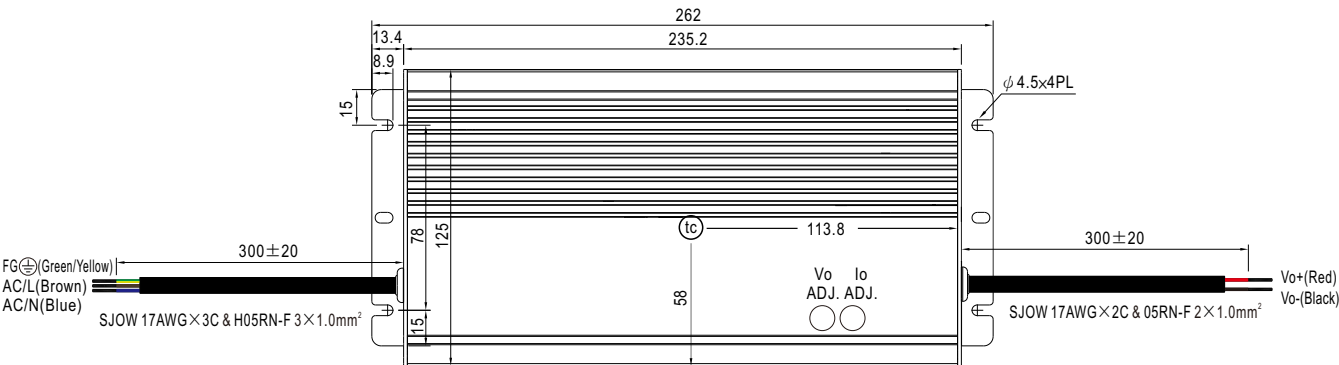
**HLG-480H series**

※A-Type

For 24V,30V,36V,42V

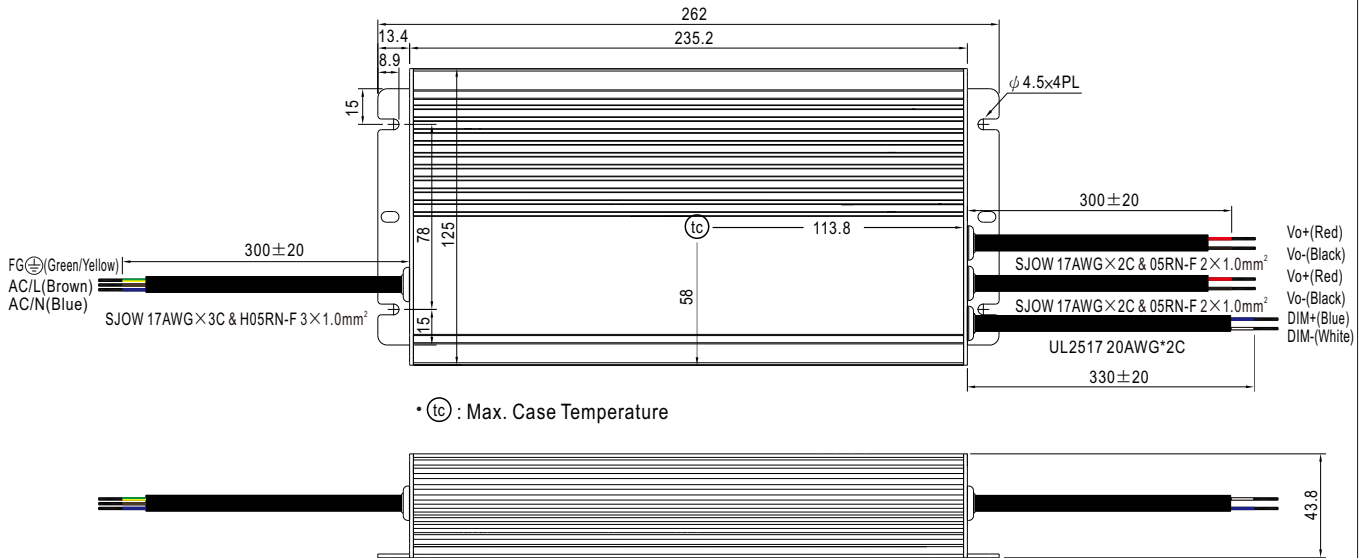


For 48V,54V

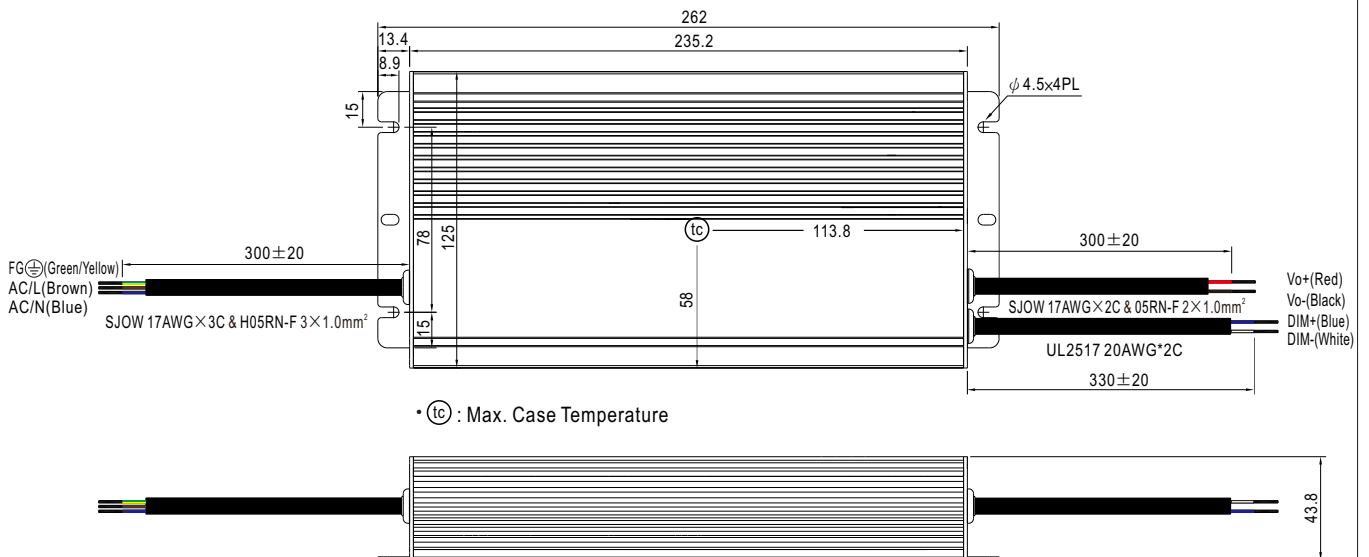


※B/D2-Type

For 24V,30V,36V,42V



For 48V,54V



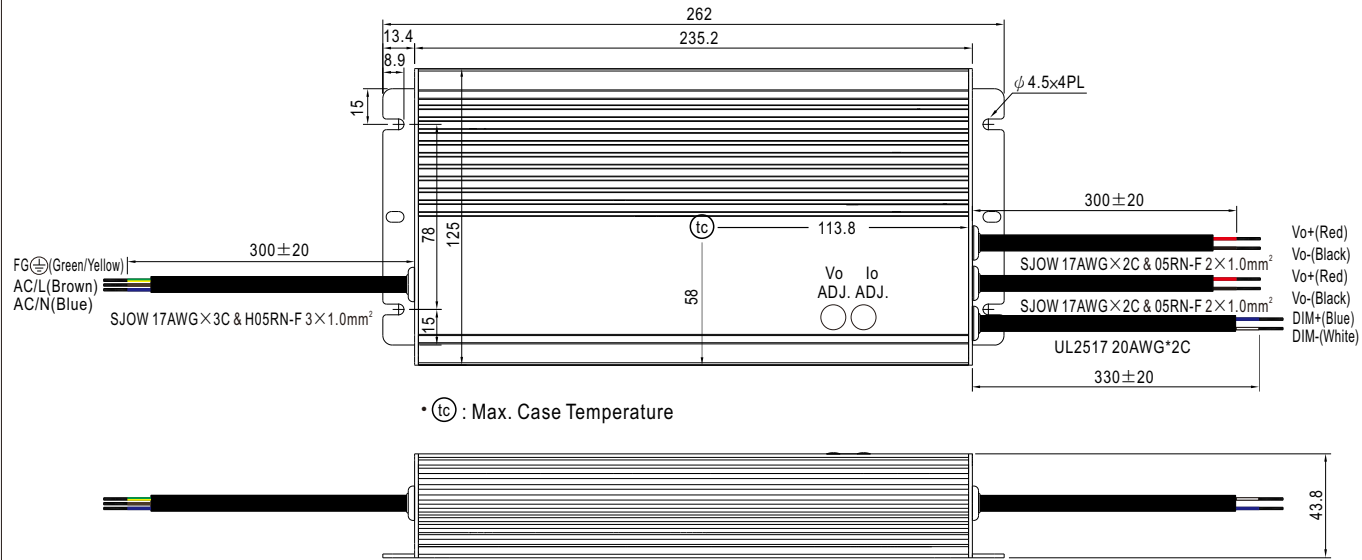


480W Constant Voltage + Constant Current LED Driver

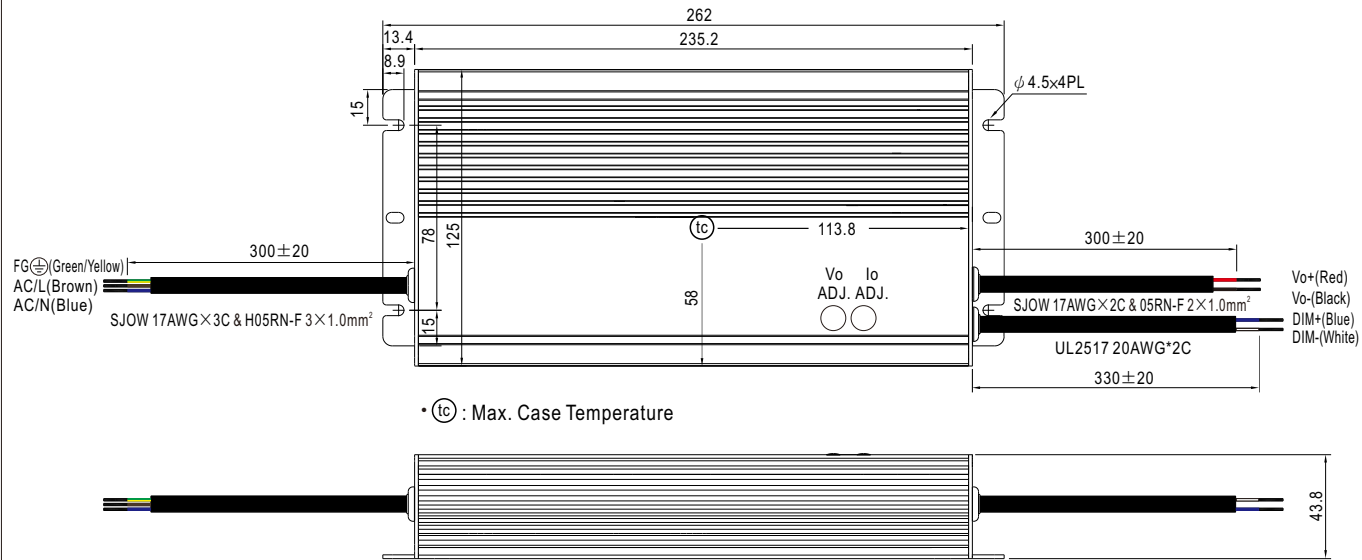
**HLG-480H series**

※AB-Type

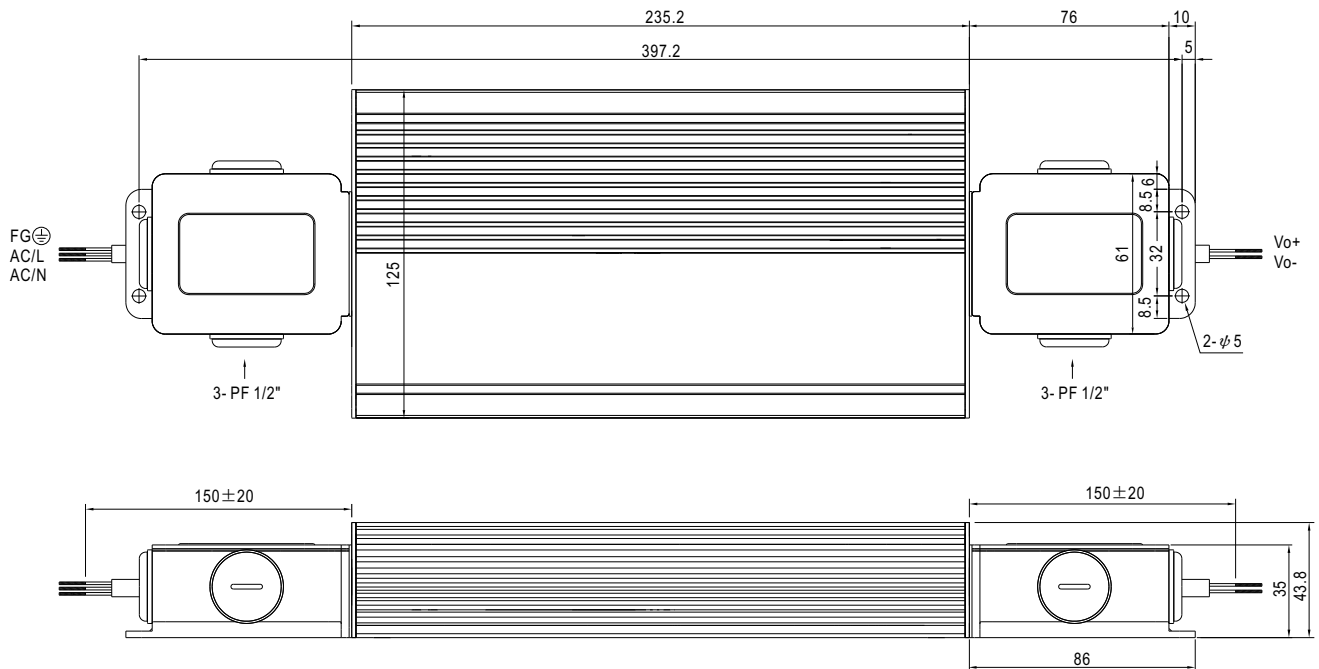
For 24V,30V,36V,42V



For 48V,54V



※ Junction Box Option



© Junction box option is available for all types. Please contact MEAN WELL for details.

## ■ INSTALLATION MANUAL

Please refer to : <http://www.meanwell.com/manual.html>