

# MXG SERIES LED DRIVERS

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DL-75W-MTG SPEC V1.2

## Features

- Class I structure
- Input voltage: 120-277 V ~ 50/60 Hz
- Efficiency :89.5%(Typ.)
- Constant power drive and constant current output control mode
- Metal shell structure, protection grade: IP65
- Lightning protection level: differential mode 6kV, common mode 10kV
- When dimming is off , standby power consumption is less than or equal to 0.5W.(X version only)
- Function selection:

Output current is adjusted by external potentiometer (S/X version)

Isolated 3 in 1 dimming (S/X version)

12V/300mA auxiliary power supply (X version only)

•Lifetime design: 5 years



## Applications

Road lighting、Industrial lighting、Venue lighting

Floodlight lighting、Landscape lighting 、Plant lighting

## Model list

| Model NO.       | Input voltage | Output power | Output voltage | The default current | Eff.   | T.H.D | PF    |
|-----------------|---------------|--------------|----------------|---------------------|--------|-------|-------|
| DL-75W-V48S-MXG | 120-277V      | 75W          | 25-48Vdc       | 2.1A                | ≥89.5% | ≤10%  | ≥0.95 |
| DL-75W-V48X-MXG | 50/60Hz       |              |                |                     |        |       |       |

### Note :

1. Test conditions of the above parameters: Ta=25℃, 230Vac input, full load operation for 30 minutes;
2. When the input is less than 108Vac,the output power gradually decreases.When the input 120-277VAC,rated power 75W.  
Please refer to “THE OUTPUT POWER VS INPUT VOLTAGE” curve chart for details.

## Input characteristics

| Parameter           | Min    | Typ.    | Max    | Note                     |
|---------------------|--------|---------|--------|--------------------------|
| Rated input voltage | 120Vac | 230Vac  | 277Vac |                          |
| Input voltage range | 108Vac |         | 305Vac |                          |
| Rated frequency     | 47Hz   | 50/60Hz | 63Hz   |                          |
| Power factor        | -      | 0.95    | -      | @230Vac full load        |
| Power factor        | 0.88   | -       | -      | @277Vac 65% load         |
| T.H.D.              | -      | -       | 10%    | @230Vac full load        |
| T.H.D.              | -      | -       | 20%    | @277Vac 65% load         |
| Input current       | -      | -       | 0.75A  | @120Vac full load        |
| Inrush current      | -      | -       | 70A    | 230Vac, cold start (25℃) |

## Output characteristic

| Parameter                                 | Min   | Typ.  | Max  | Note                                                           |
|-------------------------------------------|-------|-------|------|----------------------------------------------------------------|
| Rated current<br>DL-75W-V48S/X-MTG        | -     | 1.56A | -    |                                                                |
| Output current range<br>DL-75W-V48S/X-MTG | 1.0A  | -     | 2.1A |                                                                |
| Output voltage range<br>DL-75W-V48S/X-MTG | 25V   | -     | 48V  |                                                                |
| Rated power(90-120Vac)                    | -     | 37.5W | 75W  | The derating begins when the input voltage is less than 108Vac |
| Rated power(120-277Vac)                   | -     | 75W   | -    |                                                                |
| No-load voltage<br>DL-75W-V48S/X-MTG      | -     | -     | 60V  |                                                                |
| Efficiency@120Vac<br>DL-75W-V48S/X-MTG    | 87.5% | 88%   | -    | @120Vac full load                                              |

## Output characteristic

| Parameter                                                                                                                 | Min    | Typ.  | Max    | Note                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------|--------|-------|--------|---------------------------------------------------------------------------------------------------------------------------------|
| Efficiency@230Vac<br>DL-75W-V48S/X-MTG                                                                                    | 88.7%  | 89.5% | -      | full load@230Vac                                                                                                                |
| Ripple coefficient of total output current<br>(I <sub>max</sub> -I <sub>min</sub> )/(I <sub>max</sub> +I <sub>min</sub> ) | N/A    | N/A   | N/A    | no requirement                                                                                                                  |
| Accuracy of output current                                                                                                | -5%    | -     | +5%    | full load<br>constant-power range                                                                                               |
| Line regulation                                                                                                           | -3%    | -     | +3%    | full load                                                                                                                       |
| Load regulation                                                                                                           | -5%    | -     | +5%    | full load                                                                                                                       |
| Starting time                                                                                                             | -      | -     | 500ms  | full load@230Vac                                                                                                                |
| 12v output voltage                                                                                                        | 10.8 V | 12V   | 13.2V  |                                                                                                                                 |
| 12v output current                                                                                                        | 0 mA   | -     | 300 mA | The reference place is Dim-                                                                                                     |
| 12V output line transient peak current @6W                                                                                | -      | -     | 500 mA | In a 5.0ms cycle, the maximum duration of the maximum peak current of 500mA is 2ms, and the average value must not exceed 250mA |

**Note:** 1.The output current range is limited by the input and output voltage, please refer to “I-V WORKING AREA” for details.

## Dimming characteristic

| Dimming function                 |                             | Min          | Typ. | Max           | Instructions                                                    |
|----------------------------------|-----------------------------|--------------|------|---------------|-----------------------------------------------------------------|
| 1-10V Dimming<br>( Optional )    | Safe applied voltage range  | 0V           | -    | 12V           | When the external voltage is $\geq 12V$ , the dimming will fail |
|                                  | Dimming output range        | 10%          | -    | 100%          | -                                                               |
|                                  | Rated dimming voltage range | 1V           | -    | 10V           | -                                                               |
| PWM Dimming<br>( Optional )      | PWM high level              | 9.5V         | -    | 10.5V         | -                                                               |
|                                  | PWM low level               | 0V           | -    | 0.3V          | -                                                               |
|                                  | PWM frequency band          | 300Hz        | -    | 2000Hz        | -                                                               |
|                                  | PWM duty cycle              | 10%          | -    | 99%           | Output full power at 99% duty cycle                             |
| Resistor Dimming<br>( Optional ) | External resistance value   | 10K $\Omega$ | -    | 100K $\Omega$ | -                                                               |
|                                  | Dimming output range        | 10%          | -    | 100%          | -                                                               |

### Note:

1. Output current of dimming port: 100uA (typical value);
2. The maximum operation voltage for the dimming port is 12V. Wrong voltage beyond the range or a reverse connection may lead to a critical failure of the driver;
3. dimming default setting is three in one positive logic dimming;
4. When the function is set as positive logic dimming, 0V dimming can be realized for applications within the range of constant power load voltage, but 1-10V dimming is recommended for customers.

## Protection

| Function                        | Function instructions                                                                                                                                       |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input under-voltage protection  | When the input voltage is less than 108Vac, the output power gradually decreases.                                                                           |
| Output overload protection      | Protection mode:hiccup mode,recovers automatically after fault condition is removed.                                                                        |
| Output short circuit protection | Hiccup mode:recovers automatically after fault condition is removed                                                                                         |
| Over temperature protection     | Self-recovery type: when the housing temperature is greater than 90℃, the output power decreases gradually.                                                 |
| Output over-voltage protection  | Protection mode: Hiccup mode or clamped in output highest voltage , the product is not damaged, LED driver works normally after fault condition is removed. |

**Note:**

1. Unless otherwise specified, all specifications and parameters shall be measured at the conditions of 230Vac (50Hz), rated load and 25°C of ambient temperature;
2. Including setting error, line regulation and load regulation.

## Environmental

| Environmental categories     | Parameter                                                                         |
|------------------------------|-----------------------------------------------------------------------------------|
| Working temperature          | -40 ~ +55°C @200-277Vac, -40 ~ +45°C @120-200Vac (refer to "Life Curve ")         |
| Working humidity             | 20 ~ 95% RH, non condensing                                                       |
| Storage temperature、humidity | -40~+80°C, 10 ~ 95% RH                                                            |
| Resistant to vibration       | 10 ~ 500Hz, 5G 12 min/cycle, X, Y, Z axis 72 min each                             |
| MTBF                         | 230Khrs min. MIL-HDBK-217F (Ta=25°C)                                              |
| The life time                | 75000 hours, 230Vac, 80% load, shell temperature 75°C, see life curve for details |

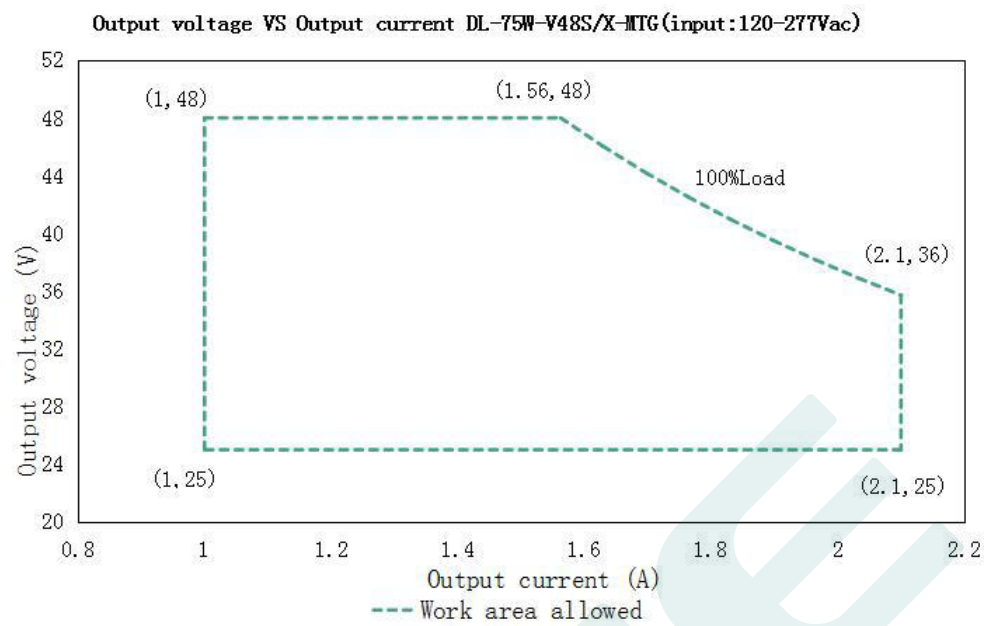
## Safety and EMC

| Safety categories    | Standard                                                                                                            |
|----------------------|---------------------------------------------------------------------------------------------------------------------|
| Safety               | EN61347-1、EN61347-2-13、IEC61347-1、IEC61347-2-13、AS/NZS61347.1、AS61347.2.13、EN 62384、UL8750、FCC Part 15 Subpart B    |
| EMC                  | EN 55015、EN 61000-3-2 、 EN 61000-3-3                                                                                |
| Surge protection     | Differential mode L-N ±6KV ( 2 ohm ) ,common mode L, N-PE± 10 KV ( 12 ohm ); Refer to IEC61000-4-5 2014 Criterion B |
| High-pot test        | I/P-O/P:3.75KVac I/P-PE :1.5KVac O/P-PE : 0.5KVac I/P-DIM:3.75KVac O/P-DIM:1.5KVac                                  |
| Insulation impedance | I/P-PE:100MΩ / 500VDC; I/P-O/P:100MΩ / 500VDC / 25°C/ 70% RH                                                        |
| Leakage current      | <0.7mA@277Vac                                                                                                       |

**Note:**

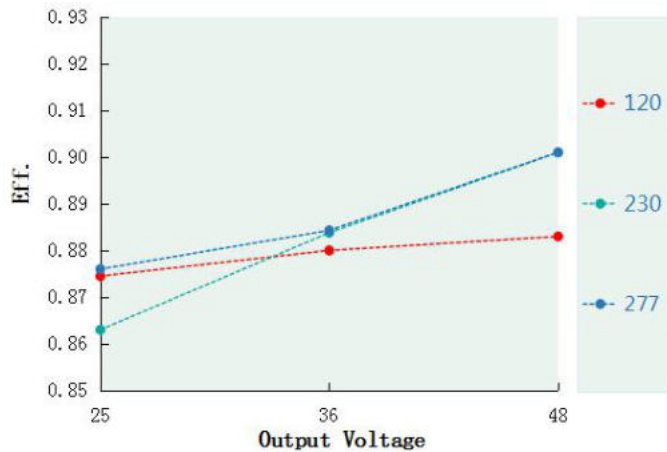
1. The driver is considered as a component that will be operated in combination with the final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.

# I-V Working area

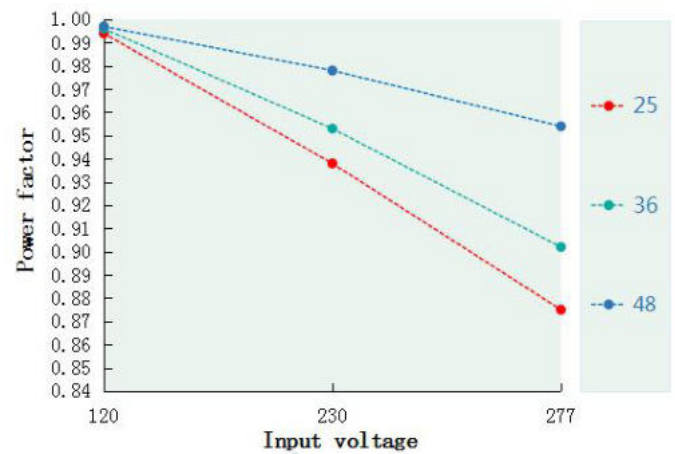


| Load                 | Output |       |      |       |      |       |       |       |       |
|----------------------|--------|-------|------|-------|------|-------|-------|-------|-------|
| Load working Voltage | 25V    | 27V   | 30V  | 33V   | 36V  | 39V   | 42V   | 45V   | 48V   |
| Io_MAX               | 2.1A   | 2.1A  | 2.1A | 2.1A  | 2.1A | 1.79A | 2.14A | 1.67A | 1.56A |
| Po_MAX               | 52.5W  | 56.7W | 63W  | 69.3W | 75W  | 75W   | 75W   | 75W   | 75W   |

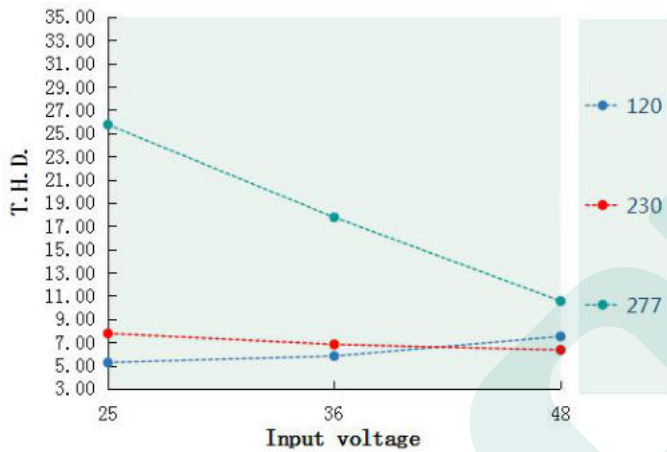
Eff. VS Output voltage(DL-75W-V48S/X-MTG)



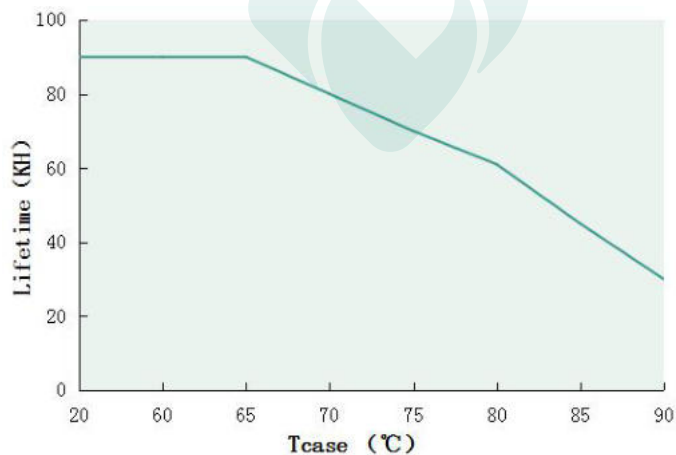
Power factor VS Input voltage(DL-75W-V48S/X-MTG)



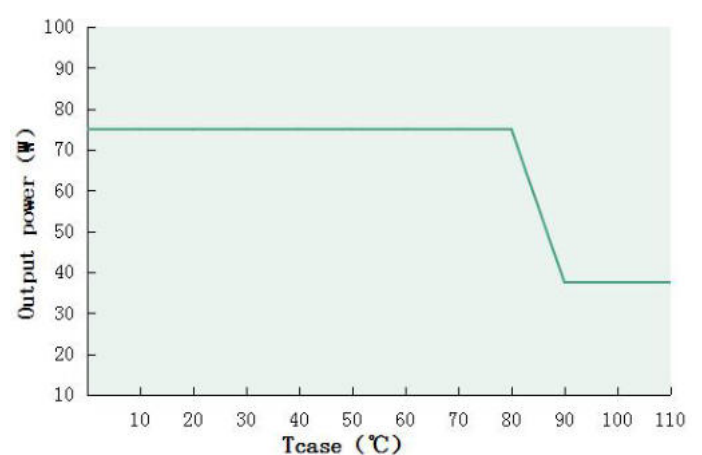
T.H.D. VS Output voltage(DL-75W-V48S/X-MTG)



Output power VS Tcase (DL-75W-V48S/X-MTG)

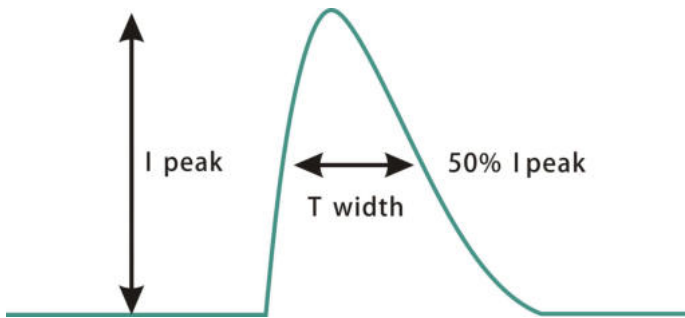


Tcase VS Lifetime(DL-75W-V48S/X-MTG)



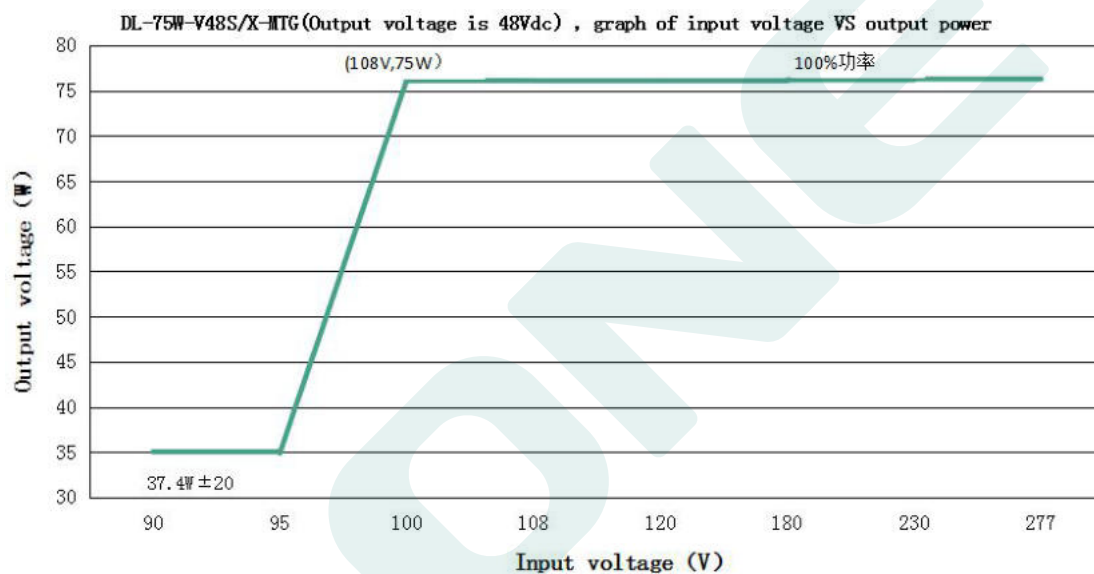


### Inrush Current(DL-75W-V48S/X-MTG)



| Input voltage | Peak current | T(@50% Peak current) |
|---------------|--------------|----------------------|
| 120Vac        | 20.5A        | 20us                 |
| 230Vac        | 39.2A        | 20us                 |
| 277Vac        | 47.2A        | 20us                 |

### Output power VS Input voltage



DL-75W-V48S/X-MTG (When the output voltage is 48Vdc, the rated output current value and output power corresponding to different input voltage)

| Input Voltage    | 90Vac  | 95Vac  | 100Vac | 108Vac | 120Vac | 180Vac | 230Vac | 277Vac |
|------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| I <sub>out</sub> | 0.73A  | 0.73A  | 1.58A  | 1.58A  | 1.58A  | 1.58A  | 1.59A  | 1.59A  |
| P <sub>out</sub> | 36.96W | 36.98W | 76.1W  | 76.52W | 76.2W  | 76.3W  | 76.3W  | 76.3W  |

### Note:

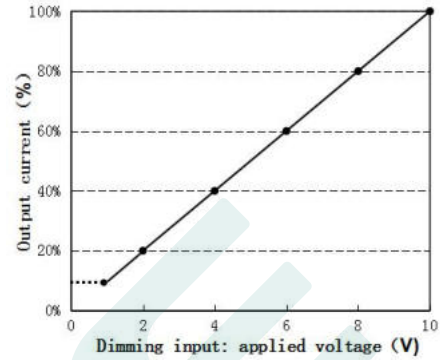
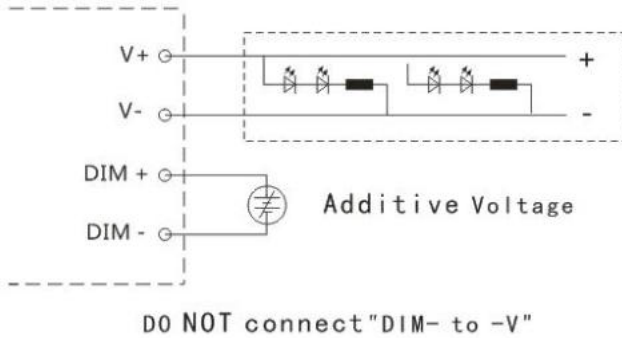
1. Input voltage will fluctuate, resistance error and other factors. At the decrease or increase of power ( $V_{in}=108V$ ), it will move left and right, with the range of 108V.
2. When the input voltage is 90-108Vac, the output power range is 75W±20%.

## Dimming operation

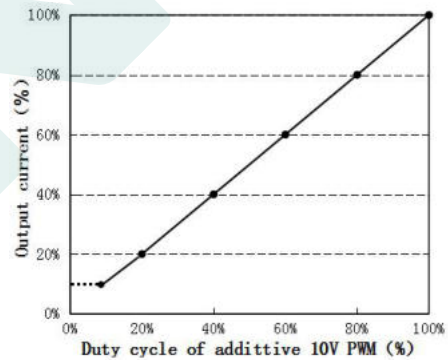
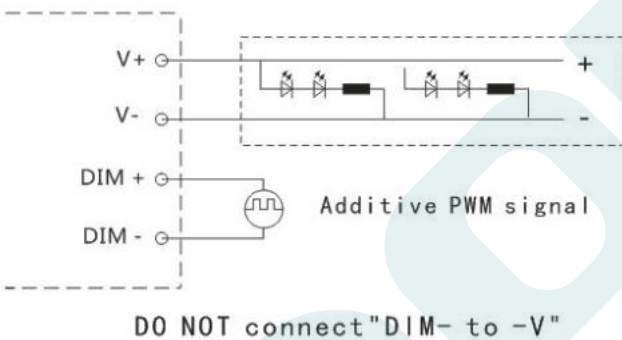
### ※ Three-in-one dimming function (X/S version only)

- A. connect a resistor 10-100K or 1-10V DC voltage or 10V PWM signal between DIM+ and DIM- to adjust the output current.  
B. output current of dimming port: 100uA (typical value).

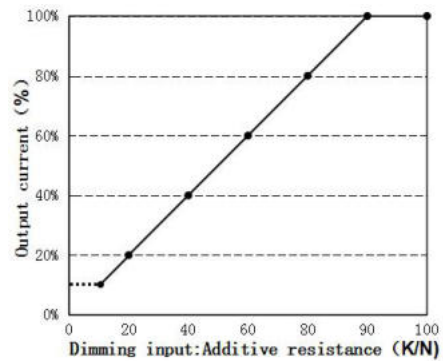
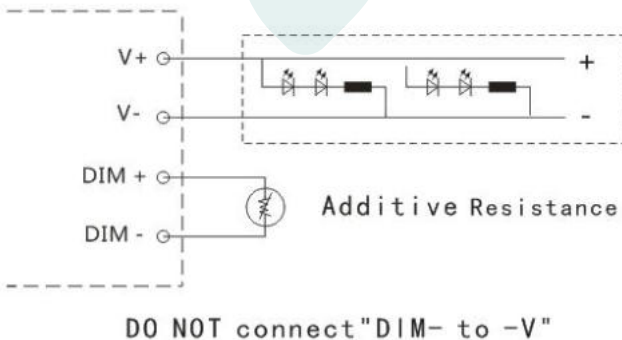
#### ◎ With an applied voltage of 1-10V:



#### ◎ Applying additive 10V PWM signal (Frequency range: 300Hz-2K Hz) :



#### ◎ With an additional 10-100K resistor:



#### Remark:

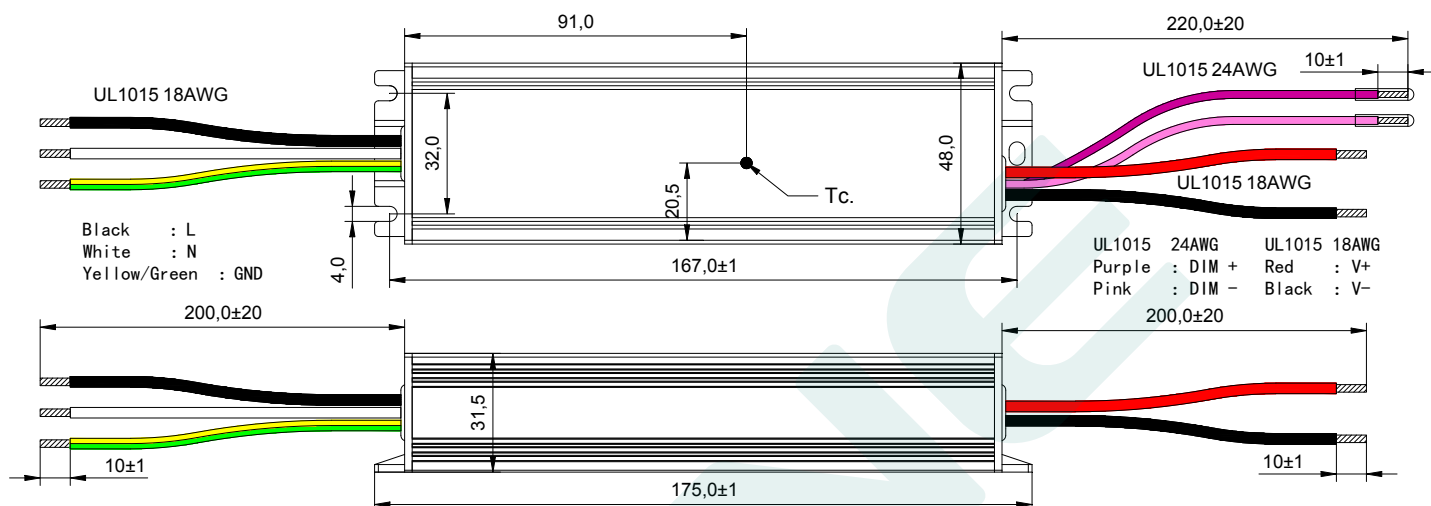
When Dimming input is 0V in the constant-power range, the lamp can be dim-to-off.

## Mechanical specification

Size (mm) L175\*W48\*H31.5

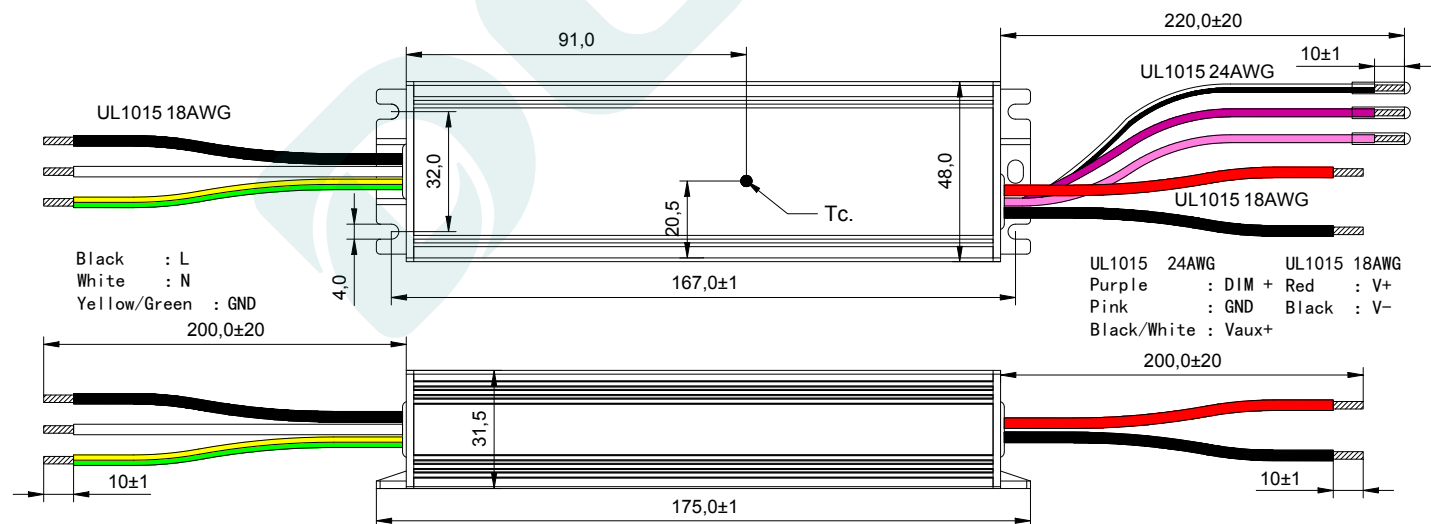
General product dimension drawing

DL-75W-V48S-MTG



General product dimension drawing

DL-75W-V48X-MTG

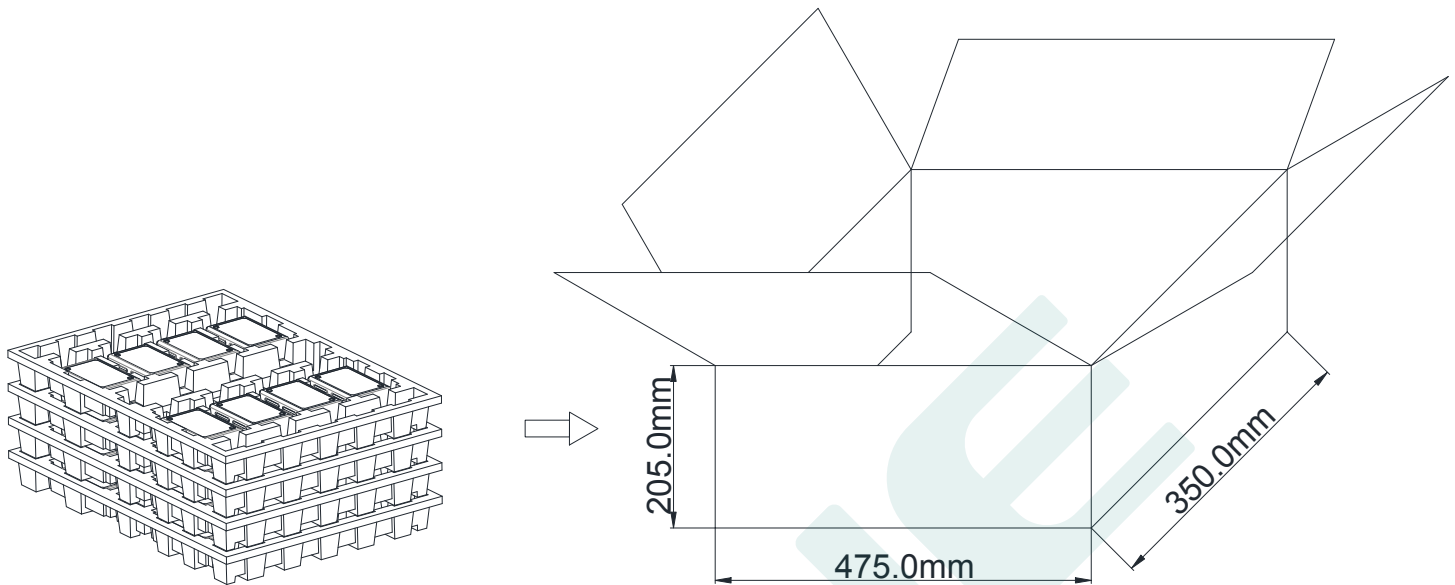


## Weight

Weight 533 g

## Packaging

Packaging (mm) L475\*W350\*H205



Note: One Carton 4 layers and 8 pcs each layer, total 32pcs/carton.

### Note:

1. According to the certificate obtained by the LED DRIVER, the LED DRIVER with the English label is sold in Europe, America and India.
2. The LED DRIVER with Chinese label is only used for China market.

Version

| DATE       | DESCRIPTION                                                                                                                | REV. | CHECK                                                                                                                                                                      |
|------------|----------------------------------------------------------------------------------------------------------------------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2022.4.21  | Initial version.                                                                                                           | V1.0 |                                                                                                                                                                            |
| 2022.06.07 | 1.Modify the model list on page 2, add description of THD. and power factor.<br>2.Modify the dimension drawing on page 11. | V1.1 |                                                                                                                                                                            |
| 202210.25  | 1.Modify the description of dimming 1-10 on page 4                                                                         | V1.2 | <br>2022.10.25<br>15:51:51<br>+08'00'<br>ZHANGTINGWEI<br>2022.10.26<br>08:21:43 +08'00' |
|            |                                                                                                                            |      |                                                                                                                                                                            |
|            |                                                                                                                            |      |                                                                                                                                                                            |

| MANUFACTRUER                                                                                                                    |                                                                                                                          |         |
|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------|
| EDIT                                                                                                                            | CHECK                                                                                                                    | APPROVE |
| <br>LZX<br>2022.10.25<br>14:54:29<br>+08'00' | <br>2022.10.25<br>15:10:58<br>+08'00' |         |