

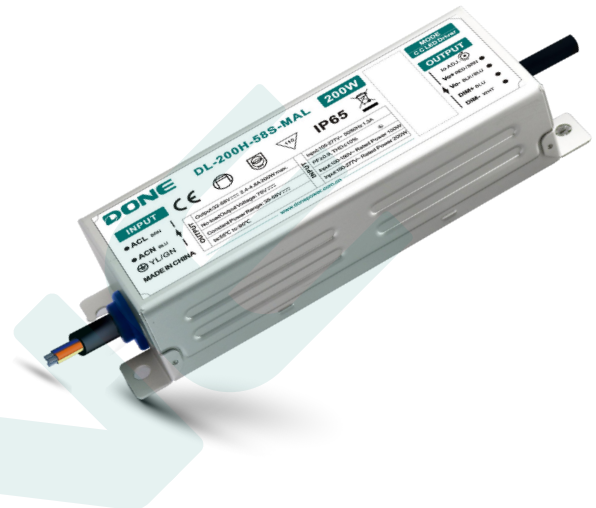
The logo for DONE, featuring the word "DONE" in a bold, teal, sans-serif font. The letter "D" is stylized with a white circular element on its left side. The logo is enclosed in a thin teal rounded rectangular border.

MAL SERIES LED DRIVER

DL-200H-MAL SPEC V1.0

Features

- Class I type for insulation
- Input voltage range:100~277VAC
 Rated voltage:180-277 V ~ 50/60 Hz 200W max.
 Input voltage:100~150V ~ 50/60 Hz 100W max.
- Efficiency :92%(Typ.)
- Constant current output ,with power limitation for control mode
- Metal case, protection grade against water and dust: IP65
- Surge level:
 differential mode :6kV,
 common mode :15kV
- available version :
 A version: Output current is dimmed by external potentiometer
 S version: Output current is dimmed by Isolated 3 in 1 dimmer
- guaranteed Lifetime : 5 years



Applications

street 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-200H-58S-MAL | 180-277V | 200W | 32-58Vdc | 4.2A | ≥92% | ≤10% | ≥0.90 |
| DL-200H-58A-MAL | 50/60Hz | | | | | | |

- Note :**
1. Test conditions: Ta=25℃ , under 230Vac input,after running for 30 minutes with full load .
 2. When the input is less than 165+/-15Vac,the output power gradually decreases to a half.and it recovers full power of 200W when the input is above 180VAC again. Please refer to “THE OUTPUT POWER VS INPUT VOLTAGE” curve chart for details.

Input characteristics

| Parameter | Min | Typ. | Max | remark |
|-----------------------|--------|---------|--------|---|
| Rated input voltage | 180Vac | 230Vac | 277Vac | |
| Input voltage range | 100Vac | | 305Vac | Output power decrease to a half when input below 165+/-15VAC. |
| Rated frequency range | 47Hz | 50/60Hz | 63Hz | |
| Power factor | - | 0.95 | - | @230Vac input ,with full load |
| Power factor | - | 0.9 | - | @200-277Vac input ,with 75%-100% |
| T.H.D. | - | - | 10% | @230Vac input ,with full load |
| T.H.D. | - | - | 20% | @200-277Vac input ,with 75%-100% |
| Input current | - | - | 1.3A | @200Vac input ,with full load |
| Inrush current | - | - | 120A | 230Vac, cold start (25°C) |

Output characteristics

| Parameter | Min | Typ. | Max | remark |
|---|------|--------|--------|---|
| Rated current DL-200H-58A/S-MAL | - | 3.448A | - | With loading 58VDC |
| Output current range DL-200H-58A/S-MAL | 2.4A | - | 4.8A | |
| Output voltage range DL-200H-58A/S-MAL | 32V | - | 58V | Constant power output range:42-58VDC |
| Rated power | - | 200W | - | Under rated input:200-277Vac |
| Available power | - | 100W | - | Under available input:100-150Vac |
| No-load voltage DL-200H-58A/S-MAL | - | - | 75V | |
| Efficiency@200Vac DL-200H-58A/S-MAL | 90% | 91% | - | full load@200Vac |
| Efficiency@230Vac DL-200H-58A/S-MAL | 91% | 92% | - | @230Vac input ,with full load |
| Accuracy of output current | -5% | - | +5% | For constant-power range , with full load |
| Line regulation | -5% | - | +5% | full load |
| Load regulation | -5% | - | +5% | full load |
| Starting time | - | - | 1000ms | Full load@230Vac |

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

2.when input voltage is between 150~180VAC ,the output power is undefined due to the tolerance of threshold.

Dimming characteristics

| Dimming function | | Min | Typ. | Max | Instructions |
|----------------------------------|---------------------------------|-------|------|--------|--|
| 1-10V Dimming (Optional) | Safe operation voltage range | 0V | - | 12V | Refer to note 2. |
| | Rated operation voltage range | 1V | - | 10V | - |
| | Dimming output range | 10% | - | 100% | - |
| PWM Dimming (Optional) | PWM high level | 9.5V | - | 10.5V | - |
| | PWM low level | 0V | - | 0.3V | - |
| | Rated dimming frequency | 300Hz | - | 2000Hz | - |
| | PWM duty cycle | 10% | - | 99% | Output full power at 99% duty cycle |
| Resistor Dimming (Optional) | Rated external resistance value | 10KΩ | - | 100KΩ | Bigger resistor won't increase the output. |
| | Dimming output range | 10% | - | 100% | |

Note:

1. Output current of dimming port: 100uA (typical value)
2. dimmer default 1-10V. it can be dim-off according to customer's requirements, but can't meet the requirement of 0.5W standby power consumption.
3. The maximum voltage applied to the dimming port is suggested below 12V, but it also is protected against wrong voltage up to 230VAC or 300VDC. Please don't keep the wrong voltage apply to the port for a long time. Otherwise, it is possible to be damaged.
4. The floating voltage at the dimming port may be up to 13.5V, please notice it.

Protection

| Protection | description |
|---------------------------------|---|
| under-voltage protection | When the input voltage is less than 165+/-15Vac, the output power decreases. |
| Output over-voltage protection | hiccup mode, and recovers automatically when the fault condition is removed. |
| Output short circuit protection | Hiccup mode, and recovery automatically when the fault condition is removed. |
| Over temperature protection | when the temperature of the case is greater than 95+/-5°C, the output power decreases to a half. |
| Output over-power protection | The maximum output power is limited to about 1.1 time of the rating automatically. Only for P version |

Note:

1. Unless otherwise specified, all parameters should be measured at the condition of 230Vac (50Hz) input ,with rated load ,and ambient temperature of 25°C;

Environmental characteristics

| Environmental categories | Parameter |
|-------------------------------|---|
| Working temperature | -40 ~ +55℃ |
| Working humidity | 20 ~ 95% RH |
| Storage temperature、 humidity | -40~+80℃, 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℃) |
| Lifetime | 50000 hours @Tcase=75℃,refer to" Tcase VS Lifetime " curve |

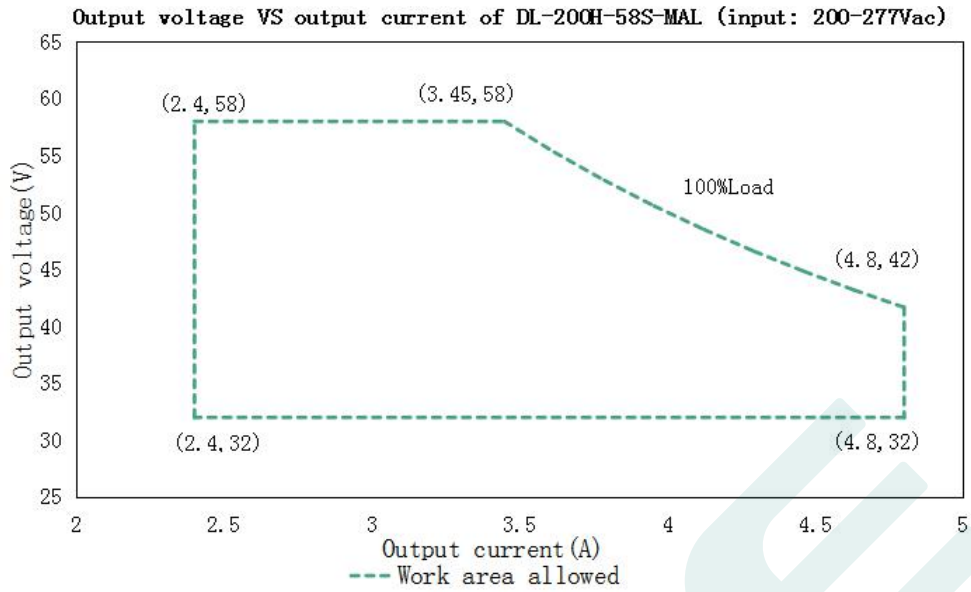
Safety and EMC

| Safety categories | Standard |
|----------------------|--|
| Safety | GB19510.1、GB19510.14、EN61347-1、EN61347-2-13、IEC61347-1、IEC61347-2-13、AS/NZS61347.1、AS61347.2.13、EN 62384; |
| EMC | EN 55015、EN 61547、EN 61000-3-2、GB/T 17743、GB17625.1、EN 61000-3-3 |
| Surge level | Differential mode L-N ±6KV (2 ohm) ,common mode L, N-PE± 15KV (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℃/ 70% RH |
| Leakage current | <0.7mA@277Vac |

Note:

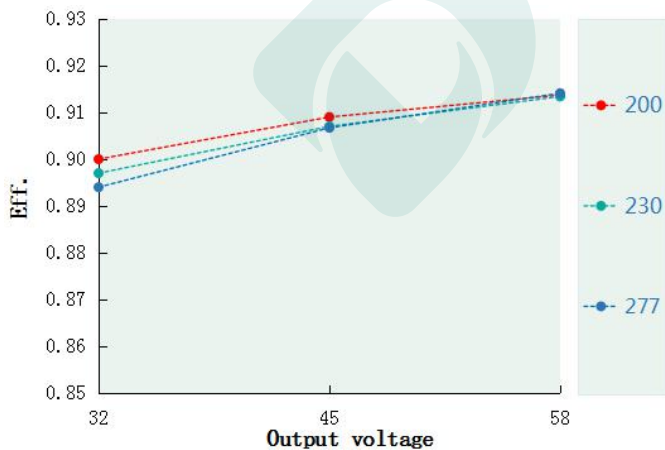
1.Attention! As a component of the whole, the EMC performance of the final product is not only decided by the driver, even if the driver is well-designed and fulfil all the required compliance. The final equipment manufacturers must re-qualify EMC Directive on the complete product.

I-V Working area

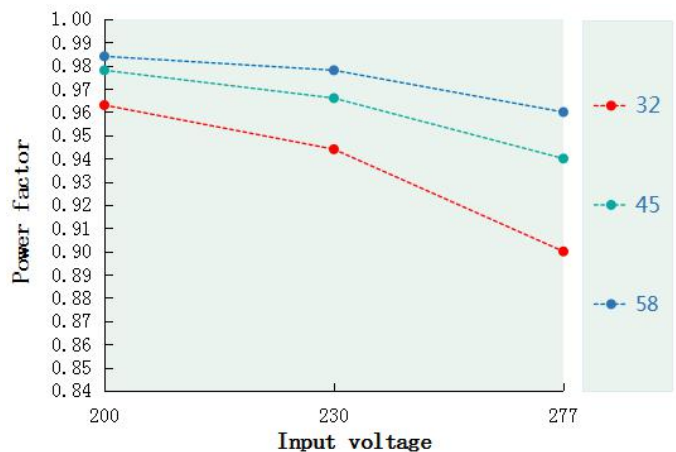


| Load | Output | | | | | | | | |
|----------------------|--------|------|------|------|-------|-------|-------|-------|-------|
| Load working Voltage | 32V | 36V | 39V | 42V | 46V | 49V | 52V | 55V | 58V |
| Io_MAX | 3.6A | 3.6A | 3.6A | 3.6A | 3.26A | 3.06A | 2.88A | 2.72A | 2.59A |
| Po_MAX | 115W | 129W | 140W | 150W | 150W | 150W | 150W | 150W | 150W |

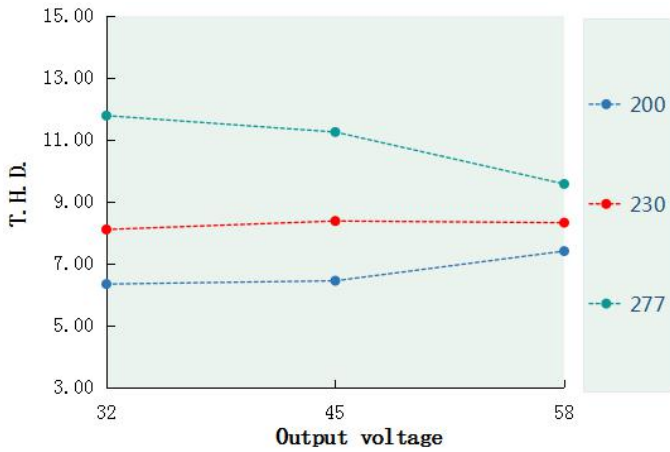
Eff. VS Output voltage(DL-200H-MAL)



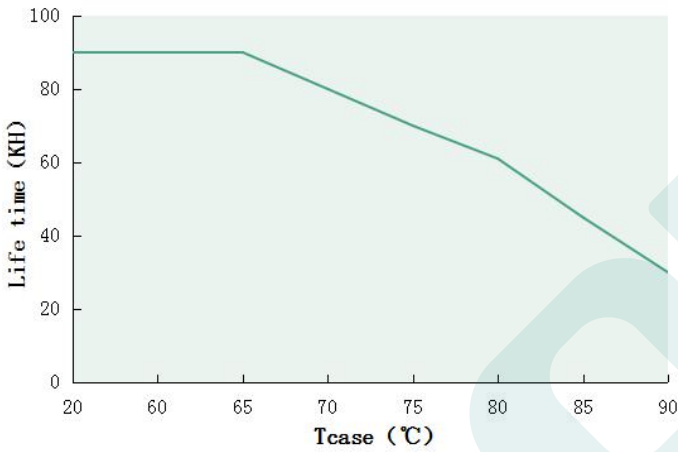
Power factor VS Input voltage(DL-200H-MAL)



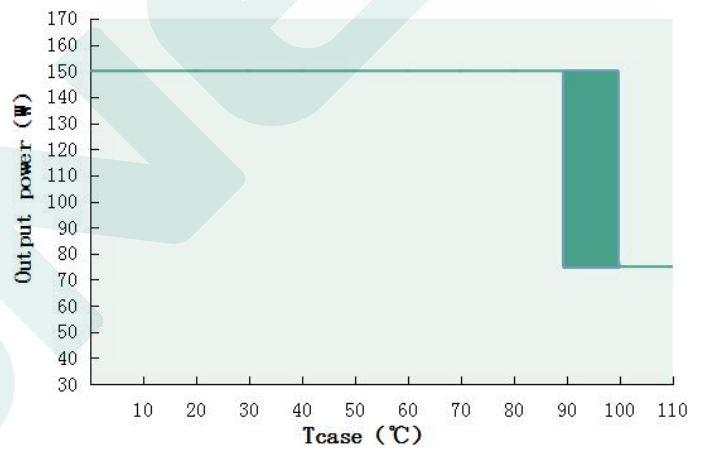
T.H.D. VS Output voltage(DL-200H-MAL)



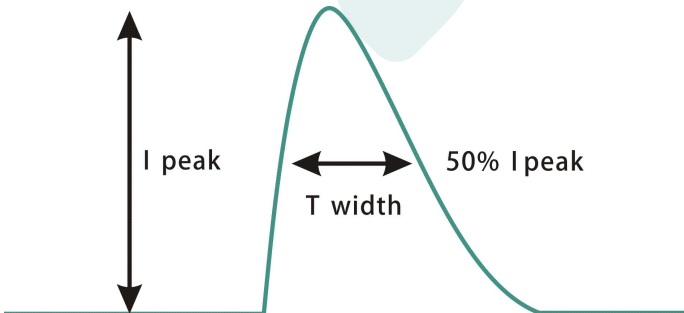
Tcase VS Lifetime(DL-200H-MAL)



Output power VS Tcase (DL-200H-MAL)

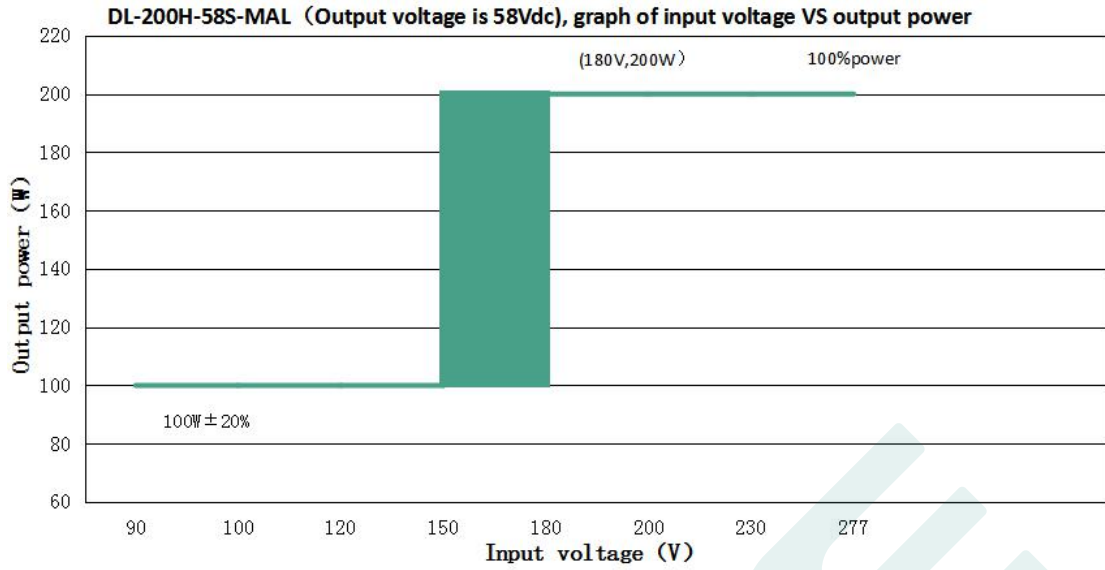


Inrush Current(DL-200H-MAL)



| Input voltage | Peak current | T(@50% Peak current) |
|---------------|--------------|----------------------|
| 200Vac | 92.7A | 1.185us |
| 230Vac | 94A | 1.170us |
| 277Vac | 98.3A | 1.200us |

Output power VS Input voltage



DL-200H-58A/S-MAL (For output 58Vdc, the rated output current & power under different input voltage)

| Input Voltage | 100Vac | 120Vac | 150Vac | 180Vac | 200Vac | 230Vac | 277Vac |
|---------------|--------|--------|--------|--------|--------|--------|--------|
| Iout | 1.725A | 1.725A | 1.725A | 3.449A | 3.449A | 3.449A | 3.449A |
| Pout | 100W | 100W | 100W | 200W | 200W | 200W | 200W |

Note: 1. When the input voltage is below 165±15Vac, the output power decreases to 100W±20%.

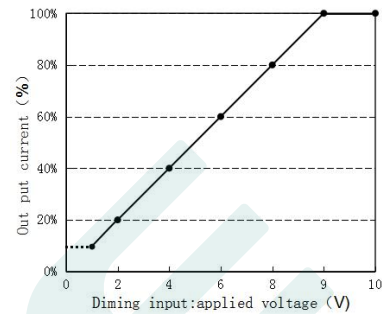
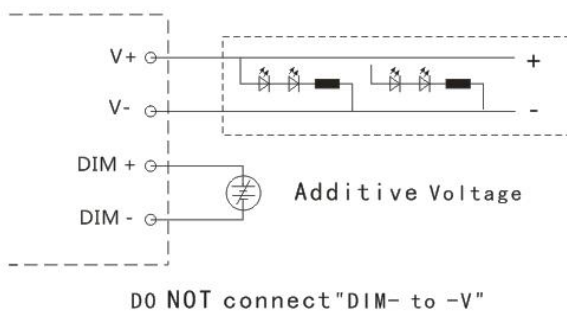
Dimming function

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

A. To adjust the output current, applying one of the three methods between DIM+ and DIM- : a resistor of 0-100K, or any voltage of 0-10V , or a PWM signal with amplitude of 10V. .

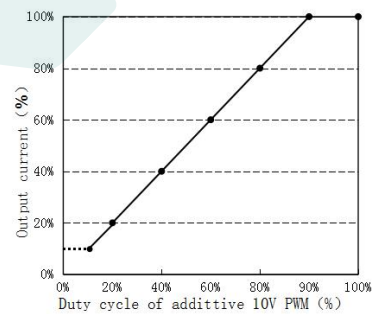
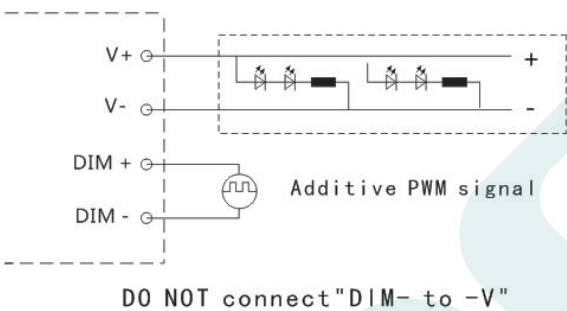
B. output current of dimming port: 100uA (typical value).

◎ With 1-10V dimming voltage(for both logic,negative and positive):



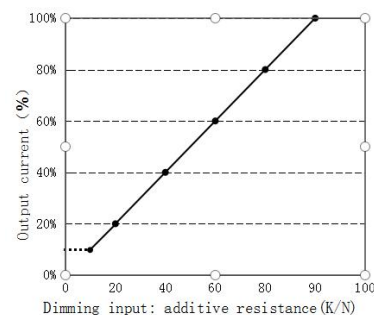
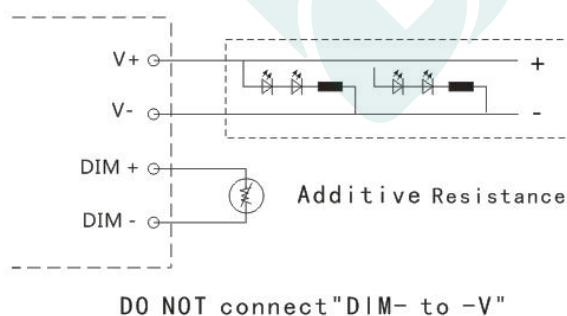
dimming curve

◎ With 10V PWM signal (Frequency range: 300Hz-2K Hz) :



dimming curve

◎ With an additional 0-100K resistor:



dimming curve

Remark:

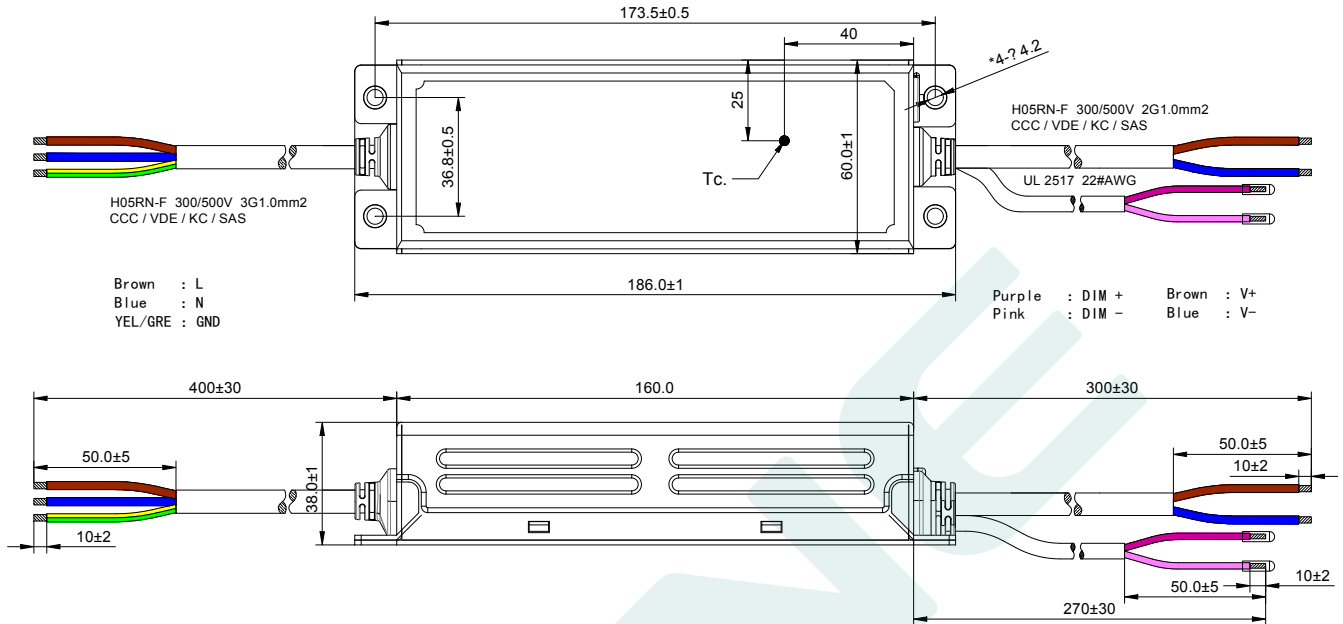
1. It is recommended to use 1-10V and the equivalent 3-in-1 dimmer, and the default state is to dim-off but can't meet the requirement of less than 0.5W standby power. If it is no need to be turned off, please contact the technicians for help.

Mechanical specification

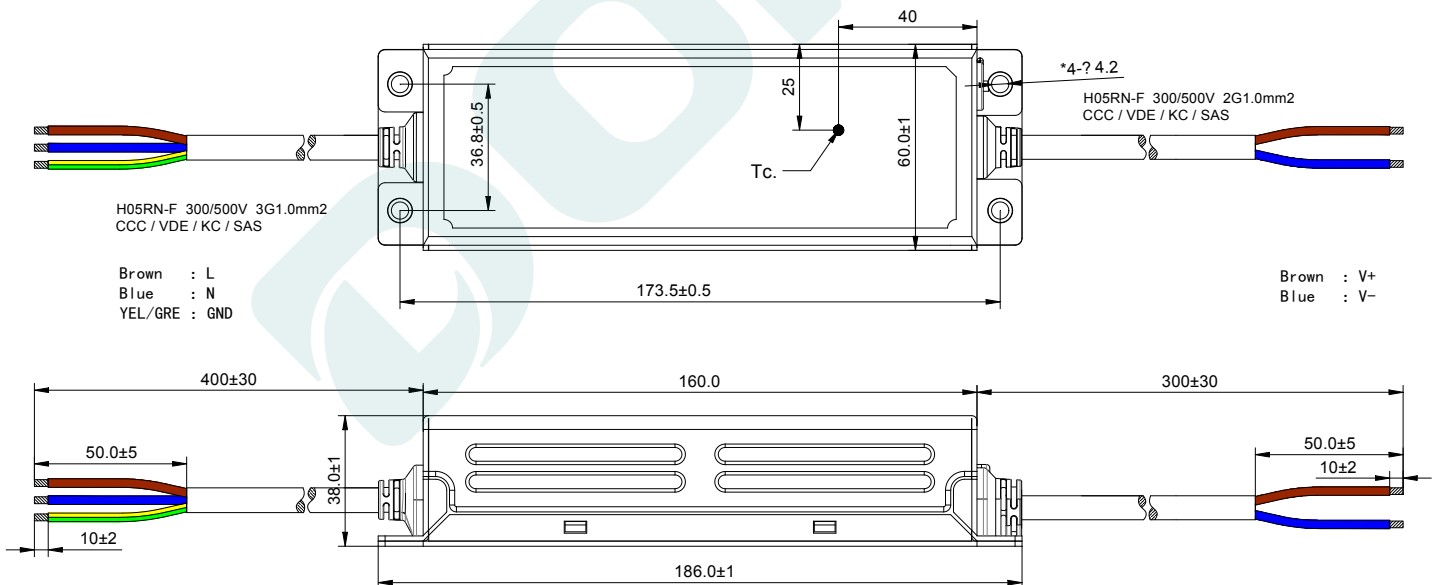
Size (mm) L186mm*W60mm*H38mm

Dimension drawing

DL-200H-58S-MAL



DL-200H-58A-MAL

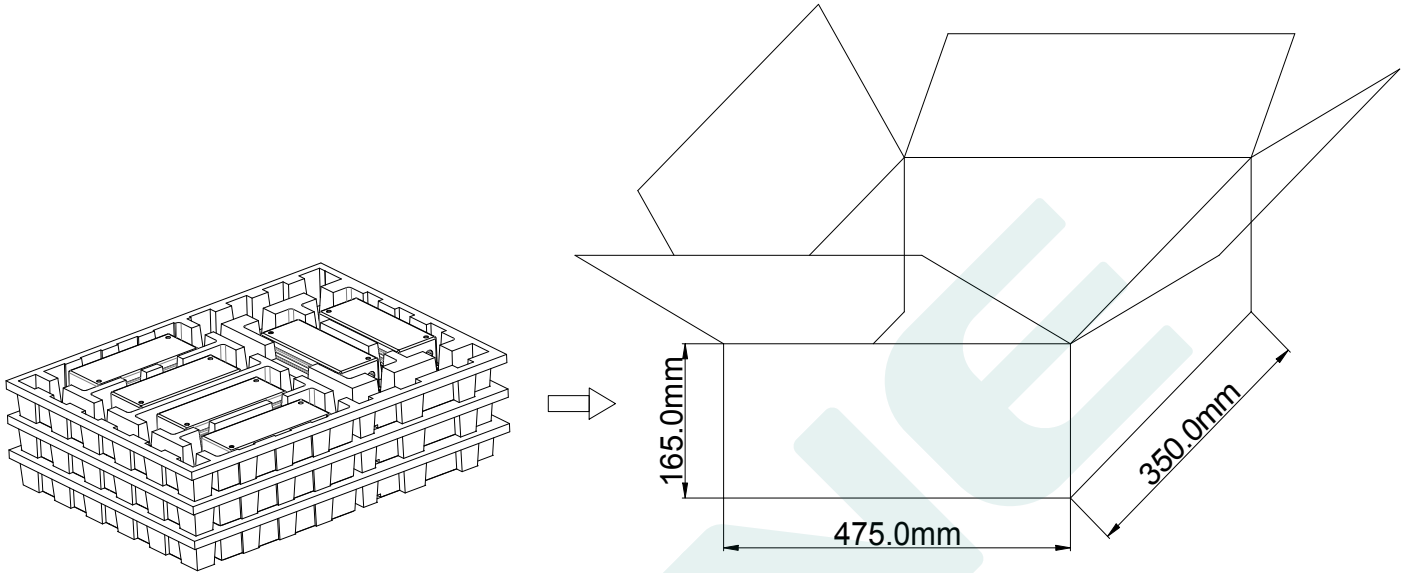


Weight

Weight 795 g

Packaging

Packaging (mm) L475*W350*H160



Note: One Carton 3 layers and 6 pcs each layer, total 18pcs/carton.

Note:

1. According to the qualified certificate of the LED DRIVER, that with English label is for sale in Europe, America and India.
2. That with Chinese label are used for Chinese market.

Version

| DATE | DESCRIPTION | REV. | CHECK |
|-----------|------------------|------|-------|
| 2023.7.28 | Initial version. | V1.0 | |
| | | | |
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MANUFACTURER

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