

# HVE SERIES LED DRIVER

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HVE-30H-38/56 SPEC V1.0



|                                                                                  |                |                               |     |      |
|----------------------------------------------------------------------------------|----------------|-------------------------------|-----|------|
|  | Product Type   | LED INTEGRATED SPECIAL DRIVER |     |      |
|                                                                                  | Product Series | HVE-30H-38/56 Series          | REV | V1.0 |

## Features

- Class I type for insulation
- Input voltage range:200-277V ~ 50/60Hz
- Efficiency 89% (Typ.)
- Constant current output ,with power limitation for control mode
- Metal material case, protection grade against water and dust: IP67
- Surge level:
  - differential mode : 4kV
  - common mode :6kV
- Function available:
  - Output current is dimmed by external potentiometer (Only Type A)
  - Output current is dimmed by Isolated 3 in 1 dimmer (Only Type B)
- guaranteed Lifetime : 5 years



## Applications

Street lighting、Industrial lighting、Stadium lighting  
Floodlight lighting、Landscape lighting 、Plant lighting

## Model list

| Model NO.                  | Rated Input voltage | Max Output power | Output voltage                   | The default current | Eff. |
|----------------------------|---------------------|------------------|----------------------------------|---------------------|------|
| HVE-30H-38A<br>HVE-30H-38B | 200-277V 50/60Hz    | 30W              | 20-38Vdc<br>Rated Power (32-38V) | 0.9A                | ≥89% |
| HVE-30H-56A<br>HVE-30H-56B | 200-277V 50/60Hz    | 30W              | 32-56Vdc<br>Rated Power (42-56V) | 0.6A                | ≥89% |

### Note:

1. Test conditions: Ta=25°C, 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 15W±20%, and it recoveries full power of 30W when the input is above 165VAC again. Please refer to “THE OUTPUT POWER VS INPUT VOLTAGE” curve chart for details.

|                                                                                  |                |                               |     |      |
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## Input characteristics

| Parameter             | Min    | Typ.    | Max    | Remark                           |
|-----------------------|--------|---------|--------|----------------------------------|
| Rated input voltage   | 200Vac | 230Vac  | 277Vac | -                                |
| Input voltage range   | 180Vac | -       | 305Vac | -                                |
| Rated frequency range | 47Hz   | 50/60Hz | 63Hz   | -                                |
| Power factor          | 0.95   | -       | -      | @230Vac input ,with full load    |
| Power factor          | 0.90   | -       | -      | @200-277Vac input ,with 70%-100% |
| T.H.D.                | -      | -       | 12%    | @230Vac input ,with full load    |
| T.H.D.                | -      | -       | 20%    | @200-277Vac input ,with 70%-100% |
| Input current         | -      | -       | 0.25A  | @200Vac input ,with full load    |
| Inrush current        | -      | -       | 70A    | 230Vac, cold start (25°C)        |

## Output characteristics

| Parameter                  | Min  | Typ.  | Max   | Remark                                                        |
|----------------------------|------|-------|-------|---------------------------------------------------------------|
| Rated current              |      |       |       |                                                               |
| HVE-30H-38A/B              | -    | 0.79A | -     | Rated Load :38VDC                                             |
| HVE-30H-56A/B              | -    | 0.54A | -     | Rated Load: 56VDC                                             |
| Output current range       |      |       |       |                                                               |
| HVE-30H-38A/B              | 0.3A | -     | 1.0A  | -                                                             |
| HVE-30H-56A/B              | 0.2A | -     | 0.75A | -                                                             |
| Output voltage range       |      |       |       |                                                               |
| HVE-30H-38A/B              | 20V  | -     | 38V   | Constant power output range:32-38VDC                          |
| HVE-30H-56A/B              | 32V  | -     | 56V   | Constant power output range:42-56VDC                          |
| Available power(90-180Vac) | -    | 15W   | -     | Decrease to a half once input voltage being less than 180 Vac |
| Rated power(200-277Vac)    | -    | 30W   | -     | -                                                             |
| No-load voltage            |      |       |       |                                                               |
| HVE-30H-38A/B              | -    | -     | 55V   | -                                                             |
| HVE-30H-56A/B              | -    | -     | 70V   | -                                                             |

|                                                                                  |                |                               |     |      |
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## Output characteristics

| Parameter                                           | Min | Typ. | Max   | Remark                                       |
|-----------------------------------------------------|-----|------|-------|----------------------------------------------|
| Efficiency@230Vac<br>HVE-30H-38A/B<br>HVE-30H-56A/B | -   | 89%  | -     | @230Vac input ,with full load                |
| Accuracy of output current                          | -5% | -    | +5%   | For constant-power range ,<br>with full load |
| Line regulation                                     | -3% | -    | +3%   | full load                                    |
| Load regulation                                     | -3% | -    | +3%   | full load                                    |
| Starting time                                       | -   | -    | 500ms | 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;

## Dimming characteristics

| Dimming function               |                                 | Min   | Typ. | Max    | Instructions                                          |
|--------------------------------|---------------------------------|-------|------|--------|-------------------------------------------------------|
| 1-10V Dimming<br>(Optional)    | Safe operation voltage range    | 1V    | -    | 12V    | Beyond the range may lead to a failure of the driver. |
|                                | Dimming output range            | 10%   | -    | 100%   | -                                                     |
|                                | Rated operation voltage range   | 1V    | -    | 10V    | -                                                     |
| PWM Dimming<br>(Optional)      | PWM high level                  | 9.5V  | -    | 10.5V  | -                                                     |
|                                | PWM low level                   | 0V    | -    | 0.3V   | -                                                     |
|                                | Rated dimming frequency         | 300Hz | -    | 2000Hz | -                                                     |
|                                | PWM duty cycle                  | 10%   | -    | 99%    | full power output at 99% duty cycle                   |
| Resistor Dimming<br>(Optional) | Rated external resistance value | 10KΩ  | -    | 100KΩ  | -                                                     |
|                                | Dimming output range            | 10%   | -    | 100%   | -                                                     |

### Note:

- Output current of dimming port: 100uA (typical value).
- 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.
- This product has 0-10V dimming function, standby power consumption >0.5W when 0V dim -off, 1-10V dimming is recommended at the terminal use.

|                                                                                  |                |                               |     |      |
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## Protections

| Protection                      | description                                                                                                                                                      |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| under-voltage protection        | When the input voltage is less than $165 \pm 15\text{Vac}$ , the output power decreases.Refer to derating curve for details                                      |
| Output overload protection      | Protection mode: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     | Could recover automatically; when the temperature of the case is greater than $90^{\circ}\text{C}$ , the output power decreases to a half.                       |
| Output over-voltage protection  | Protection mode:Hiccup or clamp at a certain output highest voltage state, the product will not be damaged, when the fault is removed, the driver works normally |

### Note:

1. Unless otherwise specified, all parameters should be measured at the condition of 230Vac (30Hz) input ,with rated load ,and ambient temperature of  $25^{\circ}\text{C}$ ;
2. Including setting error, linear adjustment rate and load adjustment rate;

## Environmental characteristics

| Environmental categories     | Parameter                                                                                                                        |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Working temperature          | $-40 \sim +55^{\circ}\text{C}$ @200-277Vac((Refer to "Service Life Curve"))                                                      |
| Safety case temperature      | $-40 \sim 90^{\circ}\text{C}$                                                                                                    |
| Working humidity             | 20 ~ 95% RH,non-condensing                                                                                                       |
| Storage temperature、humidity | $-40 \sim +80^{\circ}\text{C}$ , 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 ( $T_a=25^{\circ}\text{C}$ )                                                                          |
| Lifetime                     | 50000 hours @230Vac,80% load, $T_{\text{case}}=75^{\circ}\text{C}$ .,Refer to” $T_{\text{case}}$ VS Lifetime” curve for details. |

|                                                                                  |                |                               |     |      |
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## 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 $\pm 4\text{KV}(2\Omega)$ , common mode L, N-PE $\pm 6\text{KV}(12\Omega)$ Refer to IEC61000-4-5 2014 |
| 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:100M $\Omega$ / 500VDC; I/P-O/P:100M $\Omega$ / 500VDC / 25°C/ 70% RH                                                |
| Leakage current      | <0.7mA@277Vac                                                                                                               |

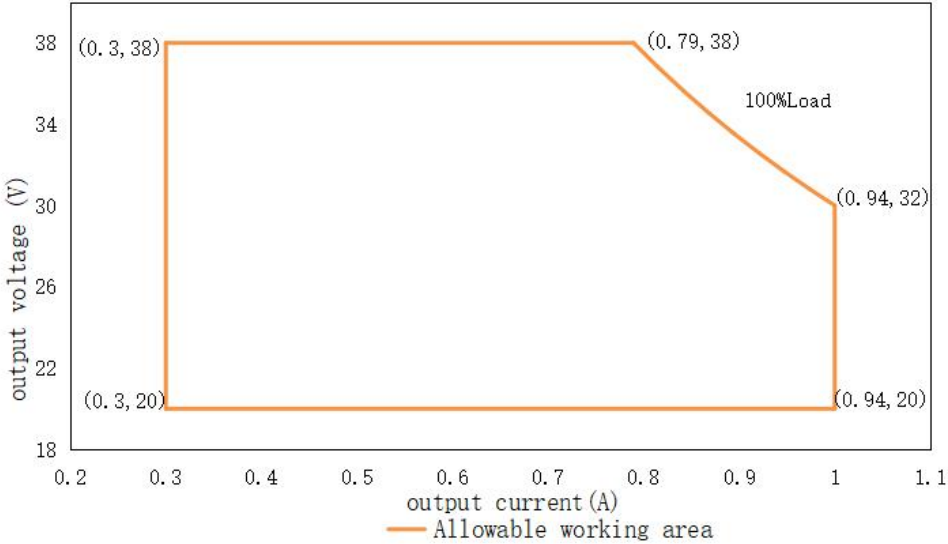
### Note:

**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.**

|                                                                                  |                |                               |     |      |
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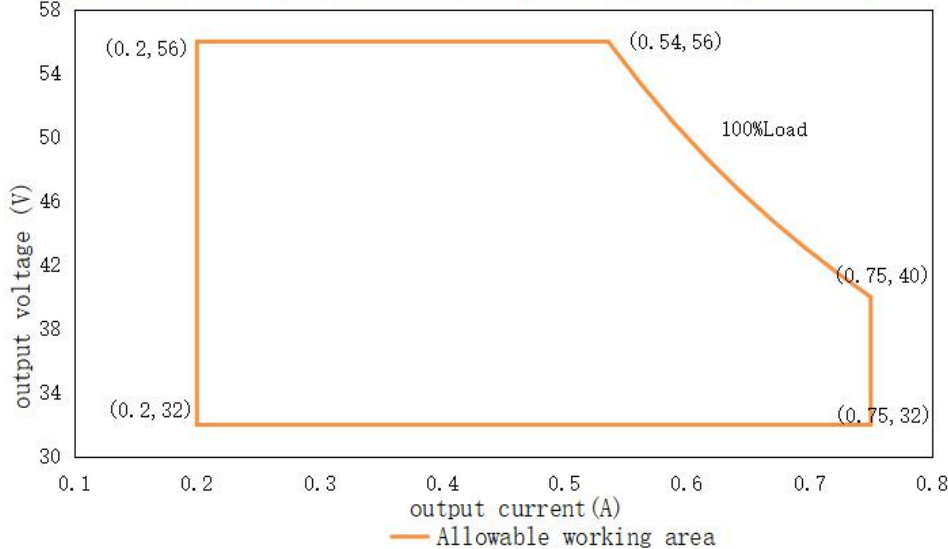
I-V Working area

HVE-50H-38A/B (input:200-277Vac)output voltage VS Output current



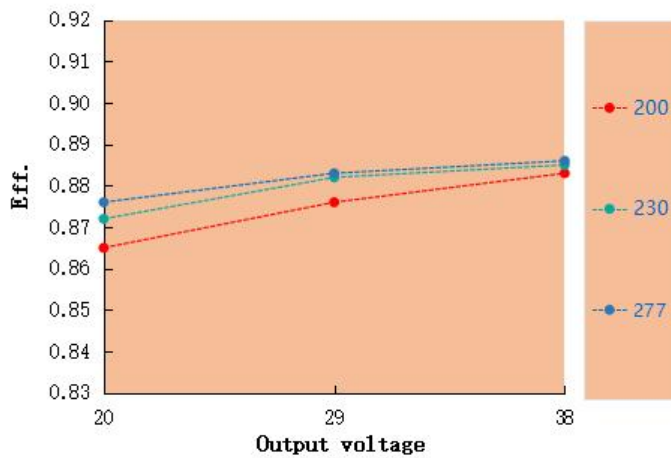
| Load                 | Output |        |       |        |       |       |       |       |       |
|----------------------|--------|--------|-------|--------|-------|-------|-------|-------|-------|
| Load working Voltage | 20V    | 23V    | 25V   | 28V    | 30V   | 32V   | 34V   | 36V   | 38V   |
| Io_MAX               | 0.94A  | 0.94A  | 0.94A | 0.94A  | 0.94A | 0.94A | 0.88A | 0.83A | 0.79A |
| Po_MAX               | 18.8W  | 21.62W | 23.5W | 26.32W | 28.2W | 30W   | 30W   | 30W   | 30W   |

HVE-50H-56A/B (input:200-277Vac)output voltage VS Output current

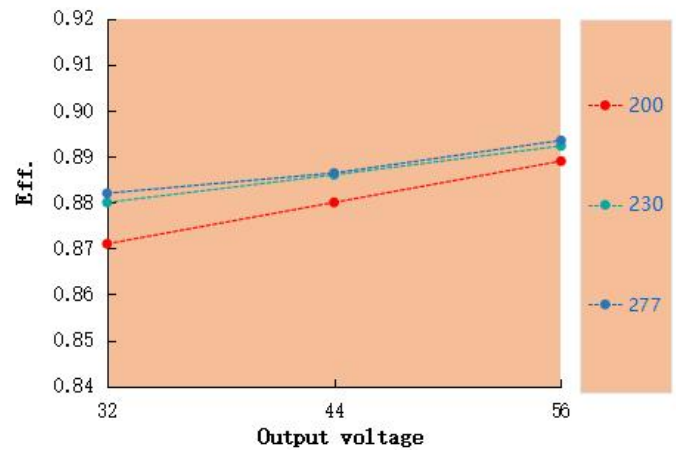


| Load                 | Output |       |       |       |       |      |       |       |       |
|----------------------|--------|-------|-------|-------|-------|------|-------|-------|-------|
| Load working Voltage | 38V    | 40V   | 44V   | 46V   | 48V   | 50V  | 52V   | 54V   | 56V   |
| Io_MAX               | 0.72A  | 0.72A | 0.68A | 0.65A | 0.63A | 0.6A | 0.58A | 0.56A | 0.54A |
| Po_MAX               | 27.36W | 28.8W | 30W   | 30W   | 30W   | 30W  | 30W   | 30W   | 30W   |

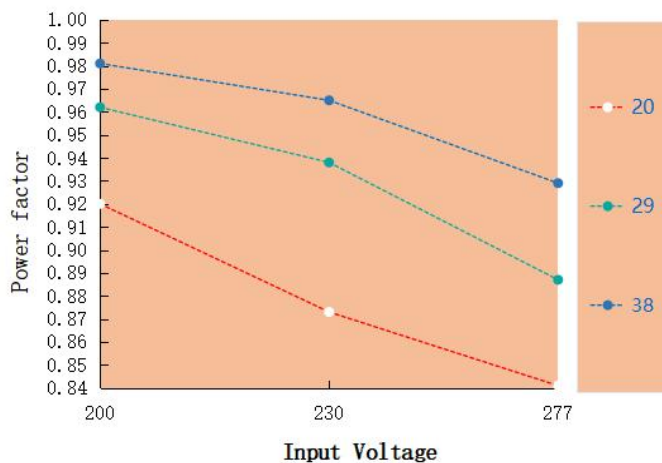
Eff. VS Output voltage HVE-30H-38A/B



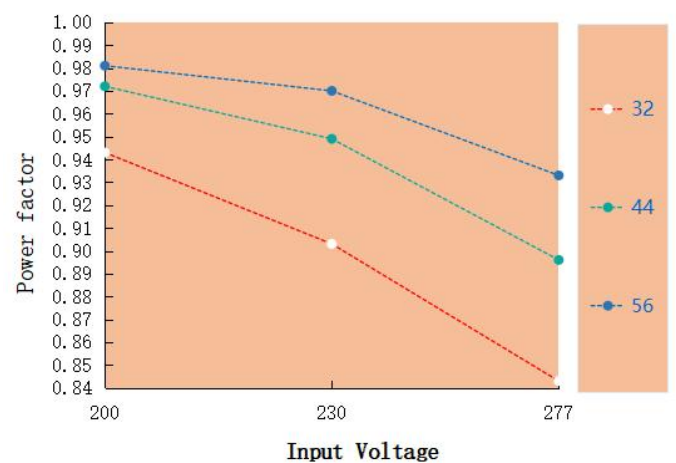
Eff. VS Output voltage HVE-30H-56A/B



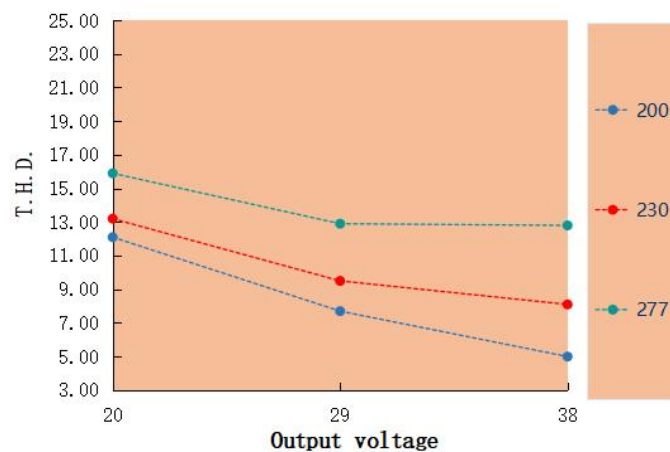
Power factor VS Input voltage HVE-30H-38A/B



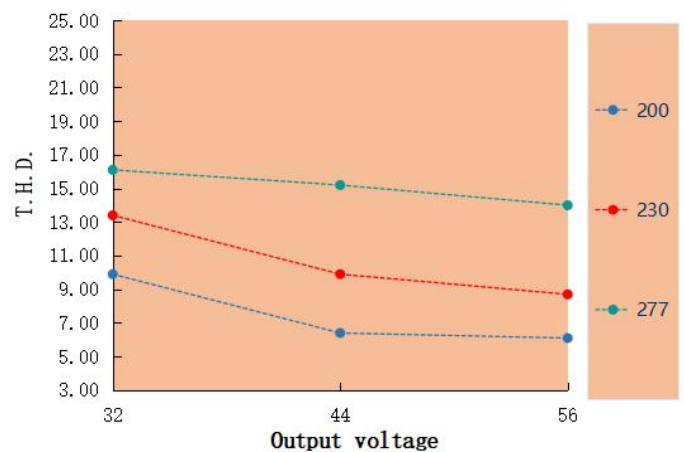
Power factor VS Input voltage HVE-30H-56A/B



T.H.D. VS Output voltage HVE-30H-38A/B

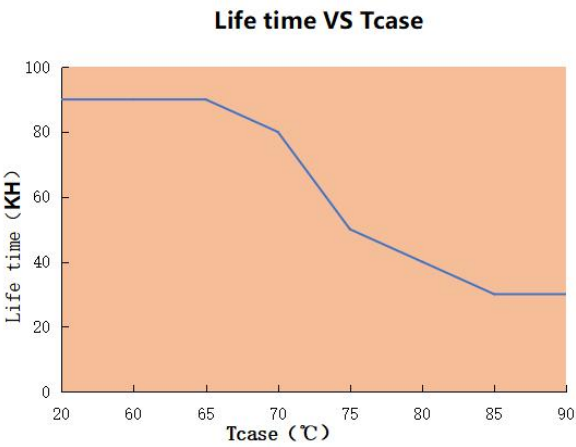


T.H.D. VS Output voltage HVE-30H-56A/B

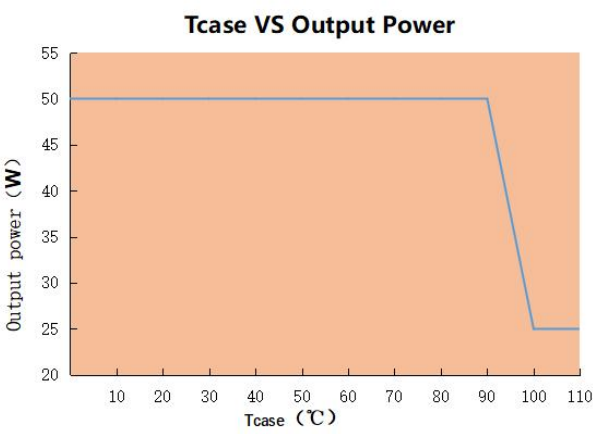


|                           |                |                               |     |      |
|---------------------------|----------------|-------------------------------|-----|------|
| <b>SUNCOM<sup>®</sup></b> | Product Type   | LED INTEGRATED SPECIAL DRIVER |     |      |
|                           | Product Series | HVE-30H-38/56 Series          | REV | V1.0 |

Tcase VS Life time (HVE-30H-38X/56X)

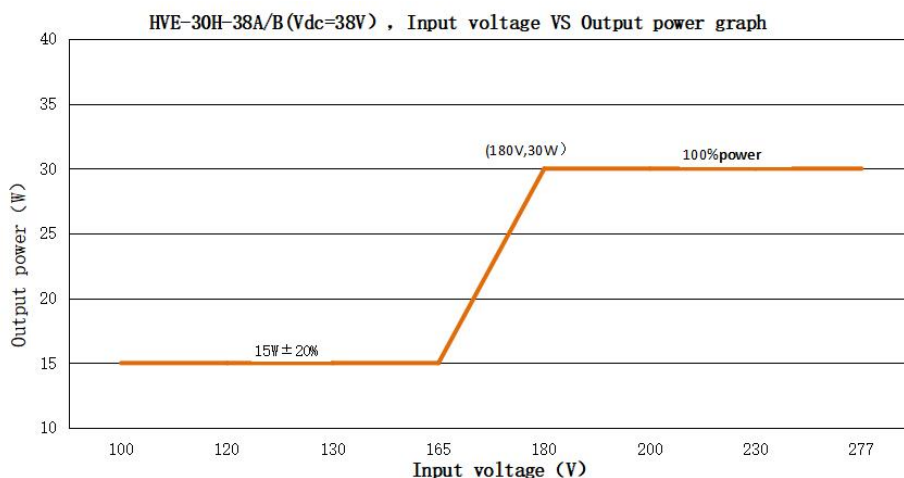


Output power VS Tcase(HVE-30H-38X/56X)



|                                                                                  |                |                               |     |      |
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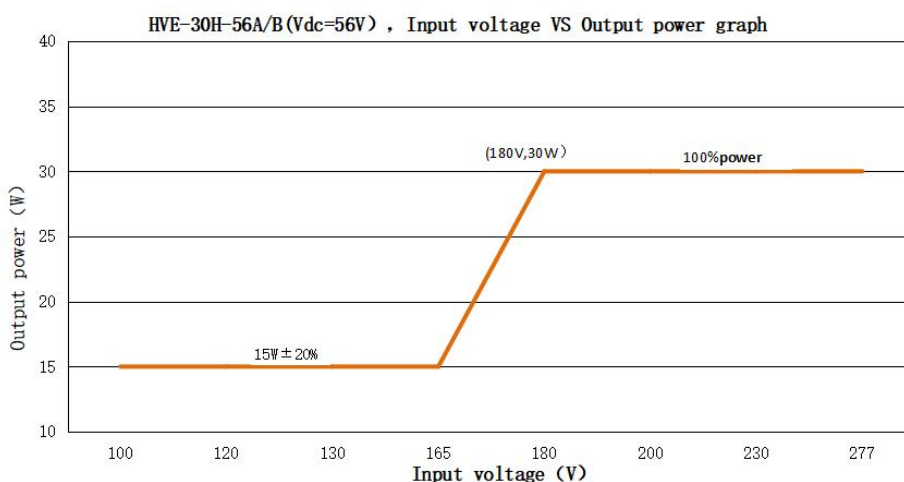
## Output power VS Input voltage



HVE-30H-38A/B (For output 38Vdc, the rated output current & power under different input voltage)

| Input Voltage | 100Vac | 120Vac | 130Vac | 165Vac | 180Vac | 240Vac | 230Vac | 277Vac |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Io            | 0.39A  | 0.39A  | 0.39A  | 0.39A  | 0.79A  | 0.79A  | 0.79A  | 0.79A  |
| Po            | 15W    | 15W    | 15W    | 15W    | 30W    | 30W    | 30W    | 30W    |

## Output power VS Input voltage



HVE-30H-56A/B(For output 58Vdc, the rated output current & power under different input voltage)

| Input Voltage | 100Vac | 110Vac | 130Vac | 165Vac | 180Vac | 240Vac | 230Vac | 277Vac |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Io            | 0.27A  | 0.27A  | 0.27A  | 0.27A  | 0.54A  | 0.54A  | 0.54A  | 0.54A  |
| Po            | 15W    | 15W    | 15W    | 15W    | 30W    | 30W    | 30W    | 30W    |

### Note:

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

|                                                                                  |                |                               |     |      |
|----------------------------------------------------------------------------------|----------------|-------------------------------|-----|------|
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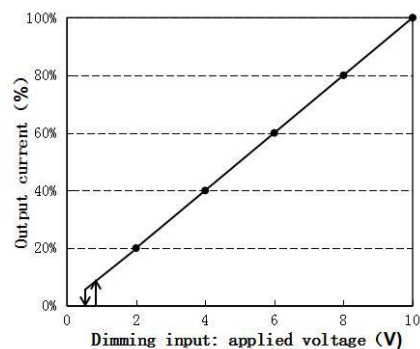
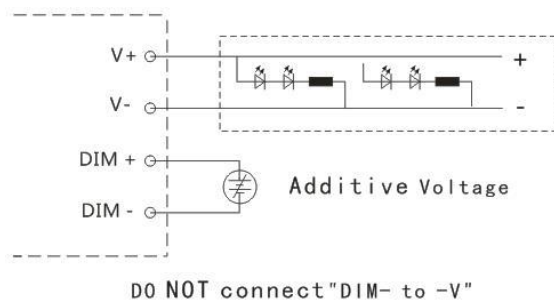
## Dimming function

### ※Three-in-one dimming function (B version only)

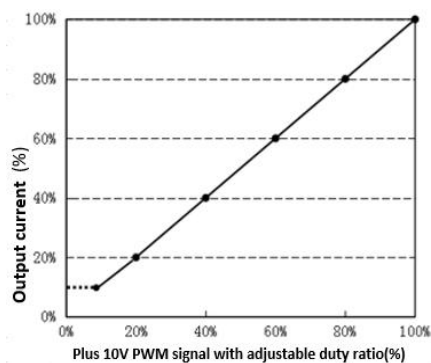
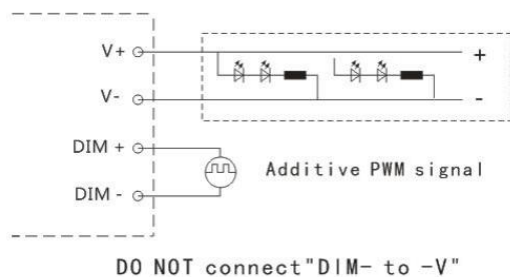
A. To adjust the output current, applying one of the three methods between DIM+ and DIM- : a resistor of 10-100K, or any voltage of 1-10V , or a PWM signal.

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

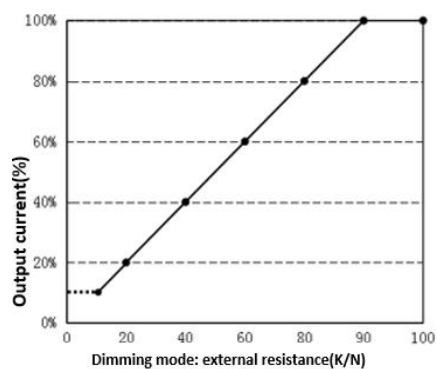
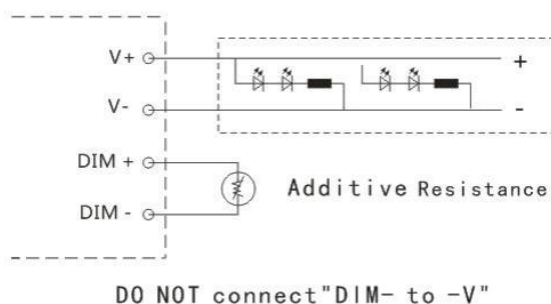
#### ☉ With 1-10V dimming voltage:



#### ☉ With 10V PWM signal (Frequency range: 300Hz-2KHz) :



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



## Mechanical specification

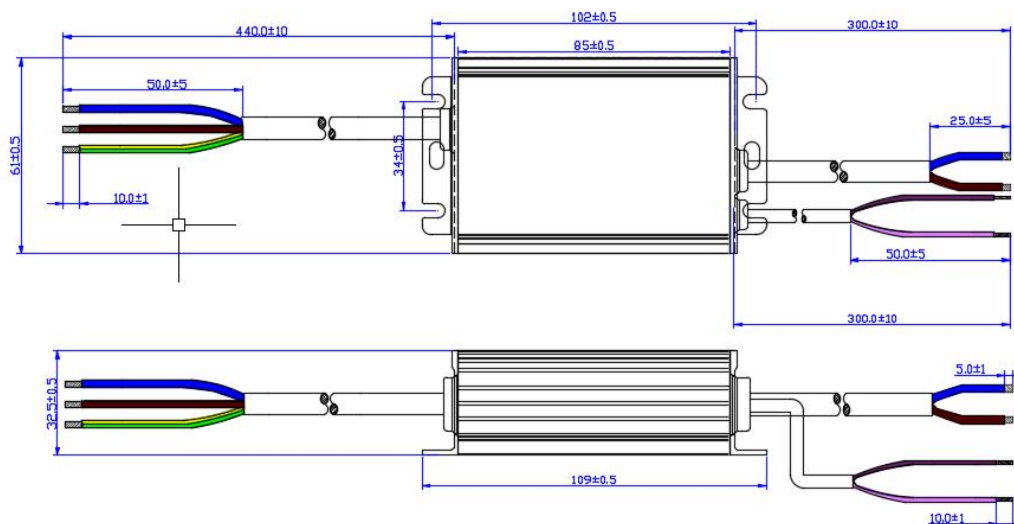
Size (mm)

L102mm\*W61mm\*H32.5mm

### HVE-30H-38B

### HVE-30H-56B

BLUE : N  
BROWN : L  
GREEN/YELLOW :  $\oplus$

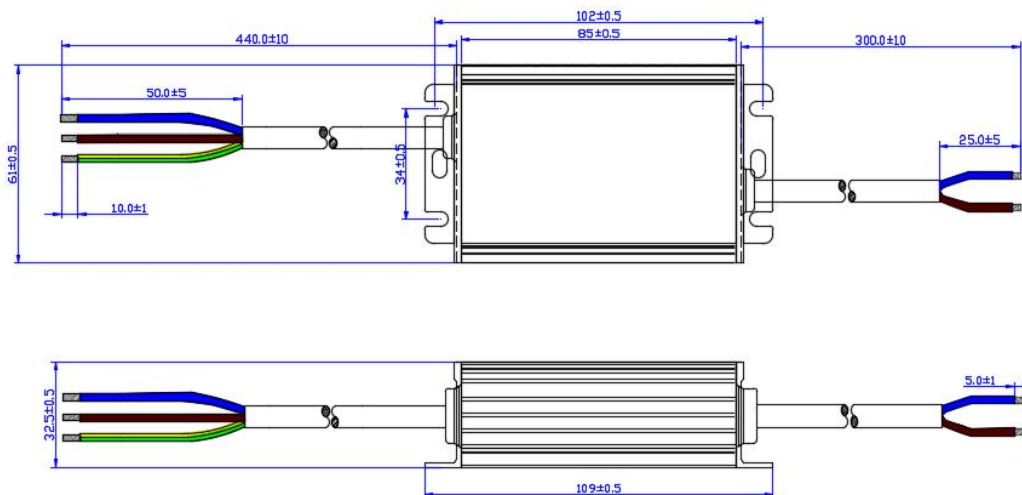


BLUE : Vo-  
BROWN : Vo+  
PURPLE : DIM+  
PINK : DIM-

### HVE-30H-38A

### HVE-30H-58A

BLUE : N  
BROWN : L  
GREEN/YELLOW :  $\oplus$



BLUE : Vo-  
BROWN : Vo+

## Weight

Weight

365 g

|                                                                                  |                |                               |     |      |
|----------------------------------------------------------------------------------|----------------|-------------------------------|-----|------|
|  | Product Type   | LED INTEGRATED SPECIAL DRIVER |     |      |
|                                                                                  | Product Series | HVE-30H-38/56 Series          | REV | V1.0 |

Version

| DATE       | DESCRIPTION      | REV. | CHECK |
|------------|------------------|------|-------|
| 2023.03.08 | Initial version. | V1.0 |       |
|            |                  |      |       |
|            |                  |      |       |
|            |                  |      |       |
|            |                  |      |       |

| MANUFACTRUER |       |         |
|--------------|-------|---------|
| EDIT         | CHECK | APPROVE |
|              |       |         |