


SPECIFICATION

Product name : HAE-60W

Release date : 2024/01/12

| | | | | |
|--|----------------|-------------------------------|-----|------|
|  | Product Type | LED INTEGRATED SPECIAL DRIVER | | |
| | Product Series | HAE-60W-XX Series | REV | V1.0 |

Features

- Class I type for insulation
- Input voltage range:120-277V ~ 50/60Hz
- Efficiency 88% (Typ.)
- Constant current output ,with power limitation for control mode
- Metal material case, protection grade against water and dust: IP65
- Surge level:
 - differential mode : 4kV
 - common mode :6kV
- Function available:
 - Output current is dimmed by external potentiometer (Only Type A)
- guaranteed Lifetime : 5 years
- It is recommended that this product be installed inside a lamp with waterproof function



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 | Default current | Eff. |
|-------------|--|------------------|--------------------------------|-----------------|------|
| HAE-60W-38A | 120-277V 50/60Hz (Power reduction when input is less than 120Vac) | 60W | 19V-38Vdc Rated Power (32-38V) | 1. 5A | ≥88% |
| HAE-60W-56A | | | 28V-56Vdc Rated Power (42-56V) | 1. 2A | ≥89% |
| HAE-60W-86A | | | 43V-86Vdc Rated Power (57-86V) | 0. 9A | |
| HAE-60W-86V | | | 43V-86Vdc | 0. 7A | ≥90% |
| HAE-60W-66V | | | 33V-66Vdc | 0. 9A | ≥90% |
| HAE-60W-58V | | | 29V-58Vdc | 1. 05A | ≥89% |
| HAE-60W-48V | | | 24V-48Vdc | 1. 2A | ≥89% |
| HAE-60W-42V | | | 21V-42Vdc | 1. 4A | ≥89% |
| HAE-60W-33V | | | 17V-33Vdc | 1. 8A | ≥88% |


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 90Vac± 15Vac, the output power gradually decreases to 30W± 20%, and it recovers full power of 60W when the input is above 90VAC again. Please refer to “THE OUTPUT POWER VS INPUT VOLTAGE” curve chart for details.

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|---------------|----------------|-------------------------------|-----|------|
| SUNCOM | Product Type | LED INTEGRATED SPECIAL DRIVER | | |
| | Product Series | HAE-60W-XX Series | REV | V1.0 |

Input characteristics


| Parameter | Min | Typ. | Max | Remark |
|-----------------------|--------|---------|--------|----------------------------------|
| Rated input voltage | 120Vac | 230Vac | 277Vac | - |
| Input voltage range | 100Vac | - | 305Vac | - |
| Rated frequency range | 47Hz | 50/60Hz | 63Hz | - |
| Power factor | 0.95 | - | - | @230Vac input ,with full load |
| Power factor | 0.9 | - | - | @200-277Vac input ,with 70%-100% |
| T.H.D. | - | - | 10% | @230Vac input ,with full load |
| T.H.D. | - | - | 20% | @120-277Vac input ,with 70%-100% |
| Input current | - | - | 0.61A | @120Vac input ,with full load |
| Inrush current | - | - | 70A | 230Vac, cold start (25°C) |

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Output characteristics

| Parameter | Min | Typ. | Max | Remark |
|----------------------------|-------|-------|-------|--|
| Rated current | - | - | - | Rated Load :38VDC |
| HAE-60W-38A | - | 1.58A | - | Rated Load: 56VDC |
| HAE-60W-56A | - | 1.08A | - | Rated Load: 86VDC |
| HAE-60W-86A | - | 0.7A | - | |
| Output current range | - | - | - | - |
| HAE-60W-38A | 1.05A | - | 1.9A | - |
| HAE-60W-56A | 0.75A | - | 1.43A | - |
| HAE-60W-86A | 0.5A | - | 1.05A | - |
| Output voltage range | - | - | - | Constant power output range:32-38VDC |
| HAE-60W-38A | 19V | - | 38V | Constant power output range:42-56VDC |
| HAE-60W-56A | 25V | - | 56V | Constant power output range:57-86VDC |
| HAE-60W-86A | 43V | - | 86V | |
| Available power(60-90Vac) | - | 30W | - | Decrease to a half once input voltage being less than 90 Vac |
| Rated power(100-277Vac) | - | 60W | - | - |
| No-load voltage | - | - | - | - |
| HAE-60W-33V/38A | - | - | 50V | - |
| HAE-60W-42V | - | - | 55V | - |
| HAE-60W-48V/56A/58V | - | - | 70V | - |
| HAE-60W-66V | - | - | 80V | - |
| HAE-60W-86A/86V | - | - | 100V | - |
| Efficiency@230Vac | - | - | - | @230Vac input ,with full load |
| HAE-60W-33V/38A | - | 88% | - | |
| HAE-60W-42V/48V/56A/58V | - | 89% | - | |
| HAE-60W-66V/86A/86V | - | 90% | - | |
| Accuracy of output current | -5% | - | +5% | For constant-power range , with full load |
| Line regulation | -3% | - | +3% | full load |
| Load regulation | -3% | - | +3% | full load Note: 60W-86A ±5% |
| 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;

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Protections

| Protection | description |
|---------------------------------|--|
| under-voltage protection | When the input voltage is less than $90 \pm 15\text{Vac}$, 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°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 (50Hz) input ,with rated load ,and ambient temperature of 25°C ;
2. Including setting error, linear adjustment rate and load adjustment rate;

Environmental characteristics

| Environmental categories | Parameter |
|------------------------------|--|
| Working temperature | $-40 \sim +55^{\circ}\text{C}$ @120-277Vac((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_{case} VS Lifetime" curve for details. |

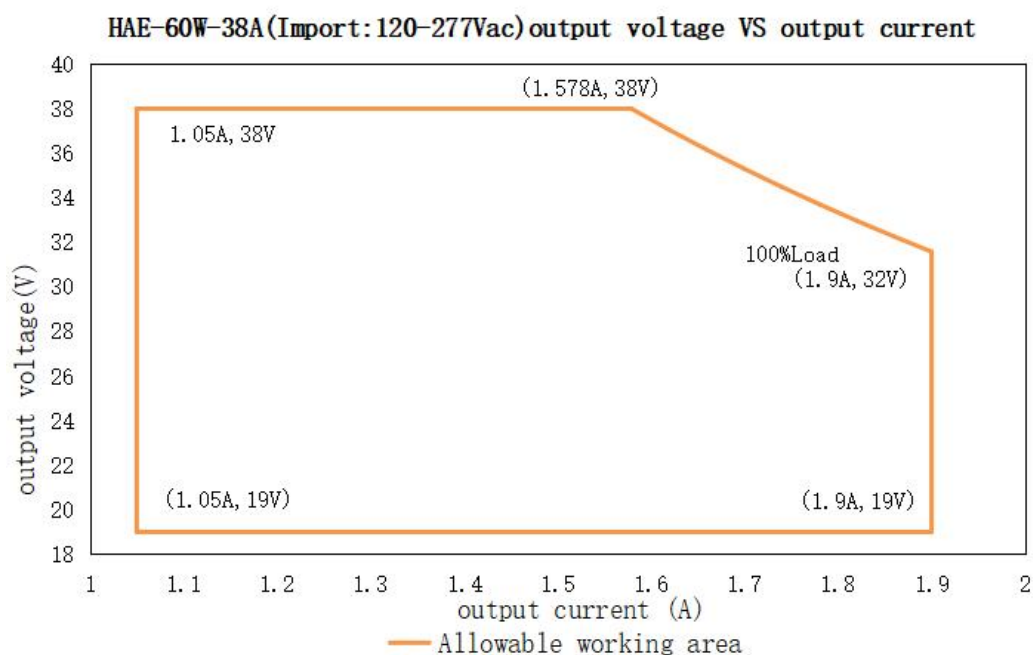
Safety and EMC

| 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 |
| Insulation impedance | I/P-PE: 100M Ω / 500VDC; I/P-O/P: 100M Ω / 500VDC / 25°C / 70% RH |
| Leakage current | <0.7mA@277Vac |

Note:

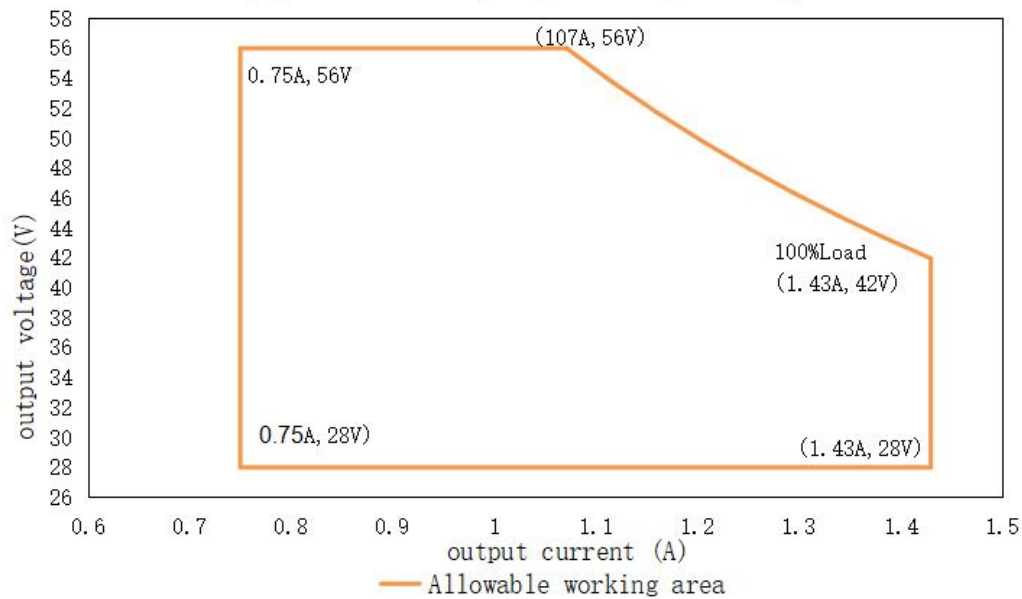
1.Attention! As a component of the whole, the EMC performance of the final product is not only decided by the driver, even if the driver is well-designed and fulfil all the required compliance. The final equipment manufacturers must re-qualify EMC Directive on the complete product.

I-V Working area



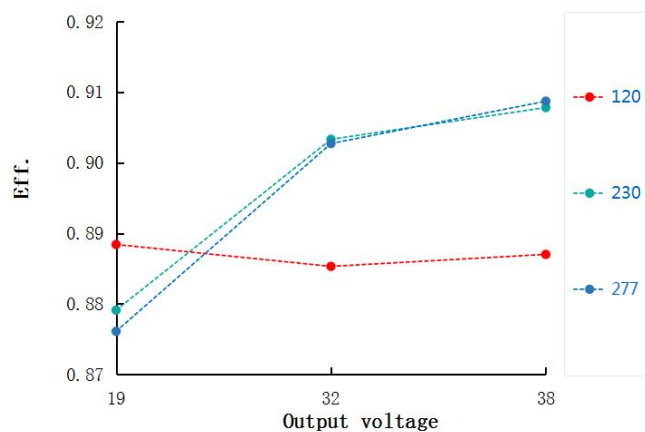
| Load | Output | | | | | | | | |
|----------------------|--------|------|------|------|------|-------|-------|-------|-------|
| Load working Voltage | 19V | 22V | 25V | 28V | 30V | 32V | 34V | 36V | 38V |
| Io_MAX | 1.9A | 1.9A | 1.9A | 1.9A | 1.9A | 1.88A | 1.77A | 1.67A | 1.58A |
| Po_MAX | 36W | 41W | 47W | 53W | 57W | 60W | 60W | 60W | 60W |

HAE-60W-56A(Import:120-277Vac)output voltage VS output current

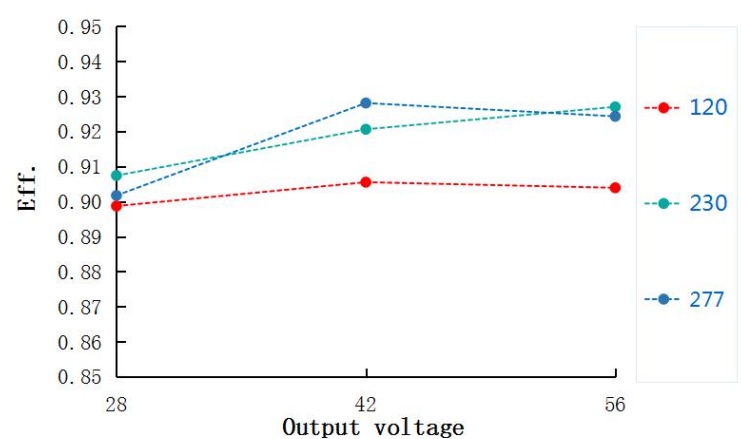


| Load | Output | | | | | | | | |
|----------------------|--------|-------|-------|-------|-------|-------|-------|------|--------|
| Load working Voltage | 28V | 29V | 30V | 35V | 38V | 42V | 46V | 50V | 56V |
| Io_MAX | 1.43A | 1.43A | 1.43A | 1.43A | 1.43A | 1.43A | 1.31A | 1.2A | 1.071A |
| Po_MAX | 40W | 41W | 43W | 50W | 54W | 60W | 60W | 60W | 60W |

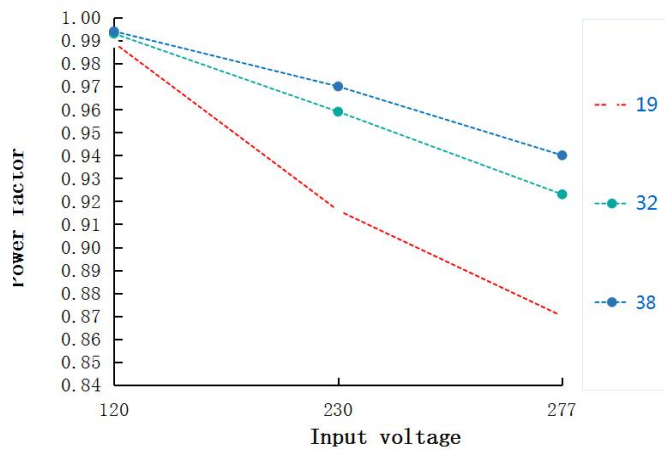
Eff. VS Output voltage HAE-60W-38A



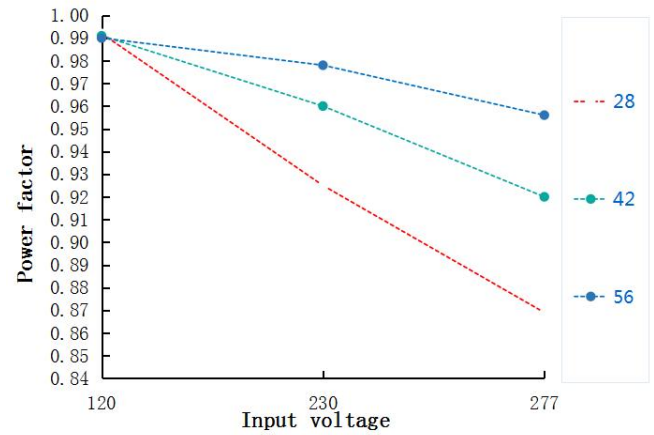
Eff. VS Output voltage HAE-60W-56A



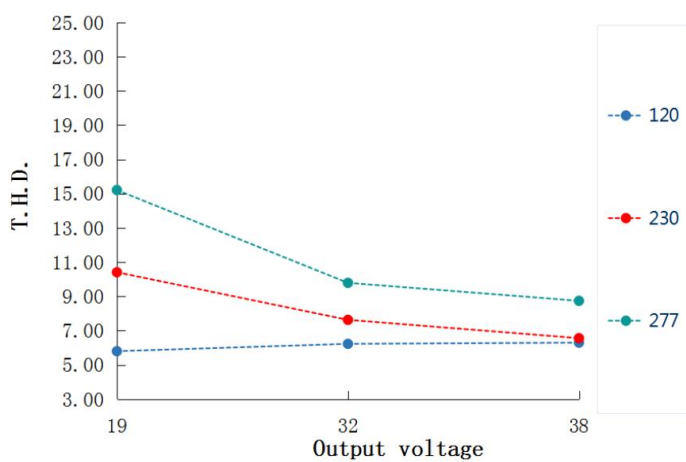
Power factor VS Input voltage HAE-60W-38A



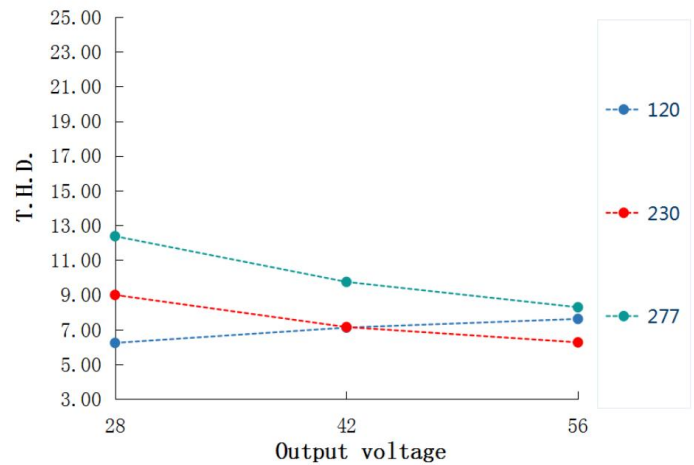
Power factor VS Input voltage HAE-60W-56A



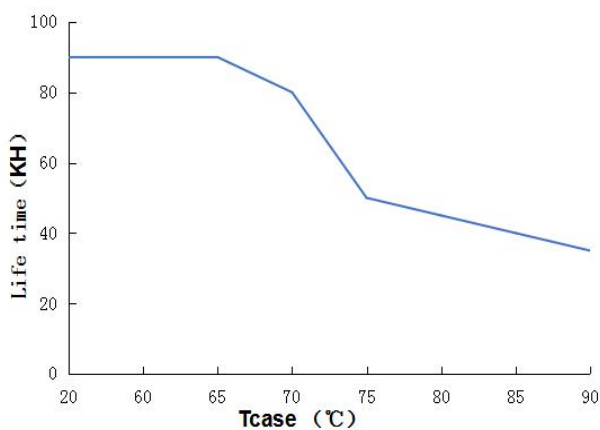
T.H.D. VS Output voltage HAE-60W-38A



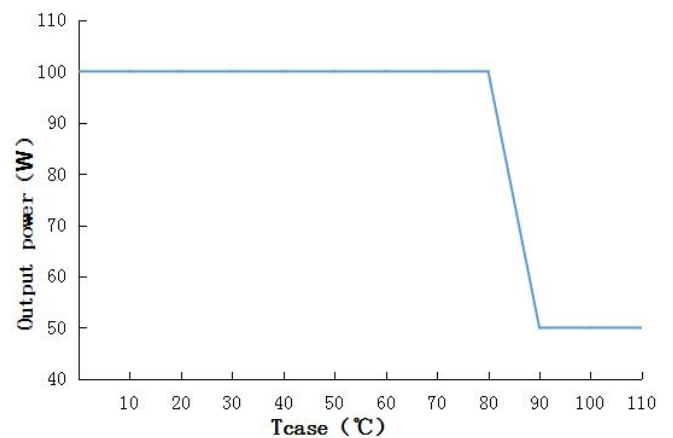
T.H.D. VS Output voltage HAE-60W-56A



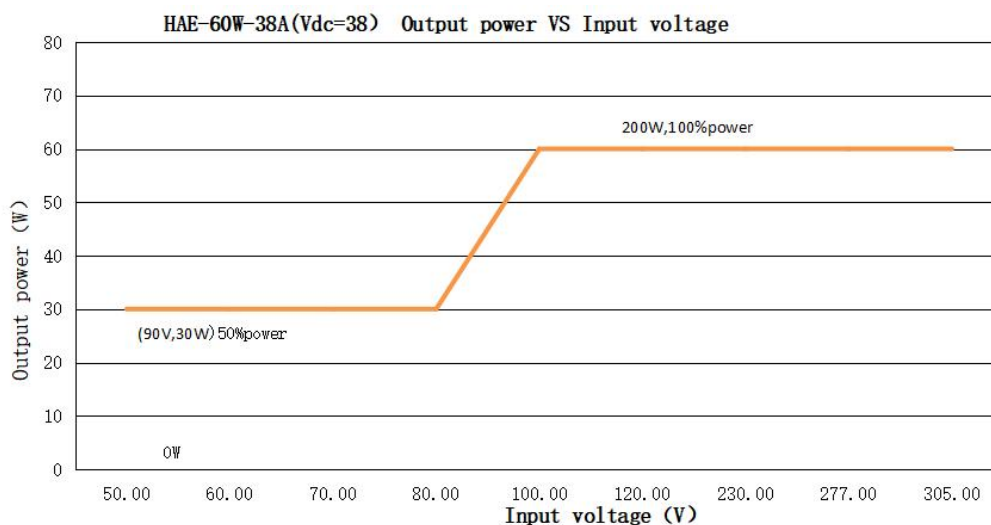
Tcase VS Life time (HAE-60W-38/56A)



Output power VS Tcase(HAE-60W-38/56A)



Output power VS Input voltage

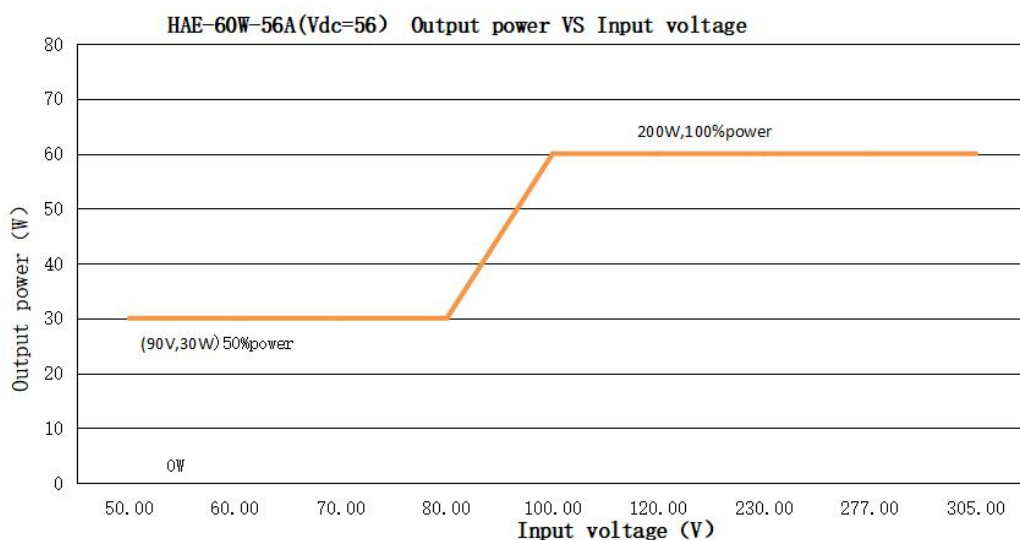


HAE-60W-38A (For output 38Vdc, the rated output current & power under different input voltage)

| Input Voltage | 50Vac | 60Vac | 70Vac | 80Vac | 100Vac | 120Vac | 230Vac | 277Vac |
|---------------|-------|-------|-------|-------|--------|--------|--------|--------|
| Io | 0.95A | 0.95A | 0.95A | 0.95A | 1.9A | 1.9A | 1.9A | 1.9A |
| Po | 30W | 30W | 30W | 30W | 60W | 60W | 60W | 60W |

Note:

- When the input voltage is below $90 \pm 15\text{Vac}$, the output power decreases to $30\text{W} \pm 20\%$.



HAE-60W-56A(For output 56Vdc, the rated output current & power under different input voltage)

| Input Voltage | 50Vac | 60Vac | 70Vac | 80Vac | 100Vac | 120Vac | 230Vac | 277Vac |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Io | 0.715A | 0.715A | 0.715A | 0.715A | 1.43A | 1.43A | 1.43A | 1.43A |
| Po | 30W | 30W | 30W | 30W | 60W | 60W | 60W | 60W |

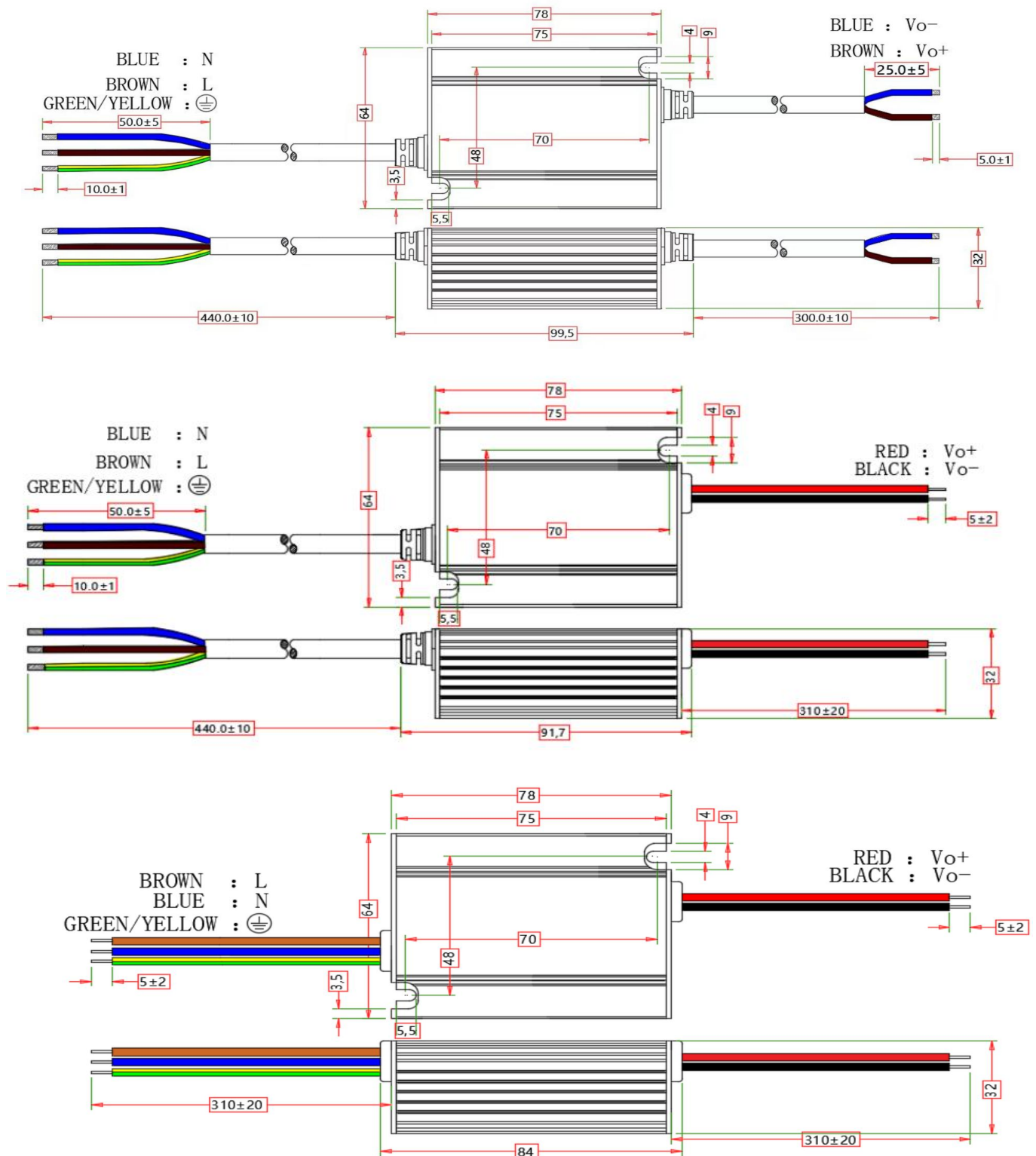
Note:

- When the input voltage is below $90 \pm 15\text{Vac}$, the output power decreases to $30\text{W} \pm 20\%$.


Mechanical specification

| | |
|----------------|-------------------|
| Size (mm) | L78mm*W64mm*H32mm |
| Weight (Kg) | 329g |
| Packaging (mm) | |

HAE-60W-38A/56A/86A/33V/42V/48V/58V/66V/86V



The input electronic line has not yet obtained the certificate yet

| | | | | |
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|  | Product Type | LED INTEGRATED SPECIAL DRIVER | | |
| | Product Series | HAE-60W-XX Series | REV | V1.0 |

Version

| DATE | DESCRIPTION | REV. | CHECK |
|------------|------------------|------|-------|
| 2024.01.12 | Initial version. | V1.0 | |