


## SPECIFICATION

**Product name: HVE-50H-38/56/72X**

**Release date: 2023/8/11**



	Product Type	LED INTEGRATED SPECIAL DRIVER		
	Product Series	HVE-50H-38/56/72X Series	REV	V2.0

## Features

- Class I type for insulation
- Input voltage range:200-277V ~ 50/60Hz
- Efficiency 89% (Typ.)
- Constant Power, Constant Current Output 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)
- Warranty: 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.
HVS-50H-38X	200-277V 50/60Hz	50W	20-38Vdc	1.3A	≥89%
HVS-50H-56X	(Drop power is used with		32-56Vdc	0.9A	
HVS-50H-72X	input less than 180 Vac)		36-72Vdc	0.7A	

### 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  $165 \pm 15$ Vac, the output power gradually decreases to  $25W \pm 20\%$ , and it recovers full power of 50W 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	0.9	-	-	@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	-	-	0.35A	@200Vac input ,with full load
Inrush current	-	-	70A	230Vac, cold start (25°C)

## Output characteristics

Parameter	Min	Typ.	Max	Remark
Output current range				
HVE-50H-38A/B	0.7A		1.6A	
HVE-50H-56A/B	0.5A		1.2A	-
HVE-50H-72A/B	0.5A		1.05A	
Output voltage range				Constant power output range:
HVE-50H-38A/B	20Vdc	38Vdc	38Vdc	32-38Vdc
HVE-50H-56A/B	32Vdc	56Vdc	56Vdc	42-56Vdc
HVE-50H-72A/B	36Vdc	72Vdc	72Vdc	48-72Vdc
Available power(90-180Vac)	-	25W	-	Decrease to a half once input voltage being less than 180 Vac
Rated power(200-277Vac)	-	50W	-	-
No-load voltage				
HVE-50H-38A/B			55V	
HVE-50H-56A/B			70V	
HVE-50H-72A/B			88V	



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## Output characteristics

Parameter	Min	Typ.	Max	Remark
Efficiency@230Vac	-	89%	-	@230Vac input ,with full load
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
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 (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 (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 (Optional)	Rated external resistance value	10KΩ	-	100KΩ	-
	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.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 $165 \pm 10\%V_{ac}$ , The output power is derated gradually. 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 $90^{\circ}C$ , 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  $25^{\circ}C$ ;
2. Including setting error, linear adjustment rate and load adjustment rate;

## Environmental characteristics

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



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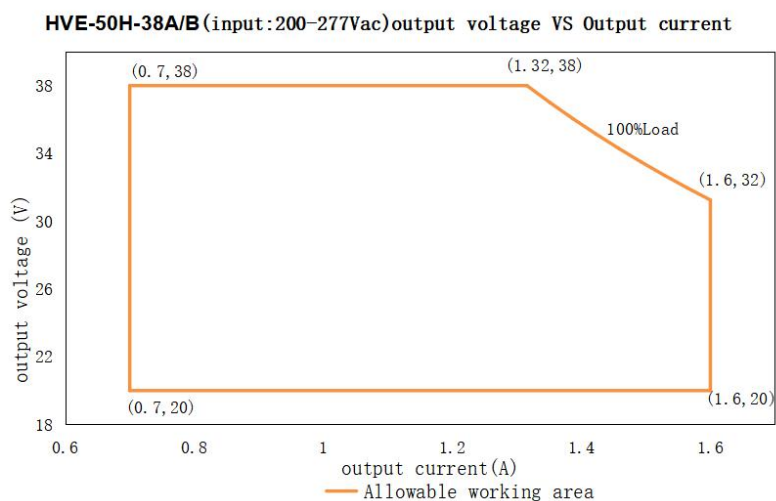
## Safety and EMC

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:

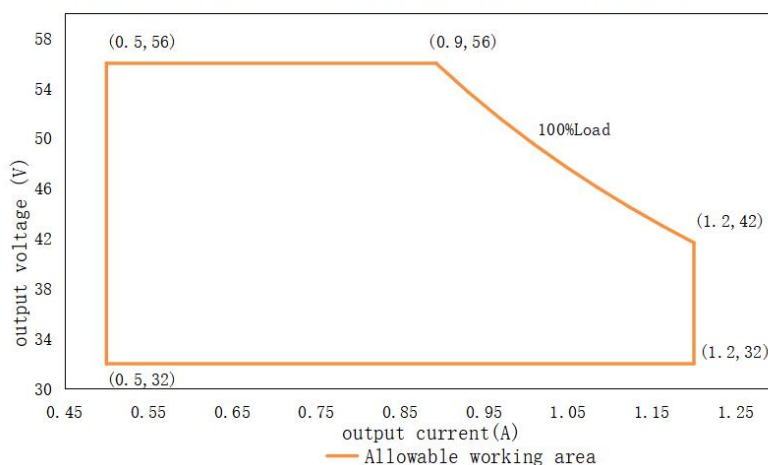
**1.Attention! As a component of the whole, the EMC performance of the final product is not only decided by the driver, even if the driver is well-designed and fulfil all the required compliance. The final equipment manufacturers must re-qualify EMC Directive on the complete product.**

## I-V Working area

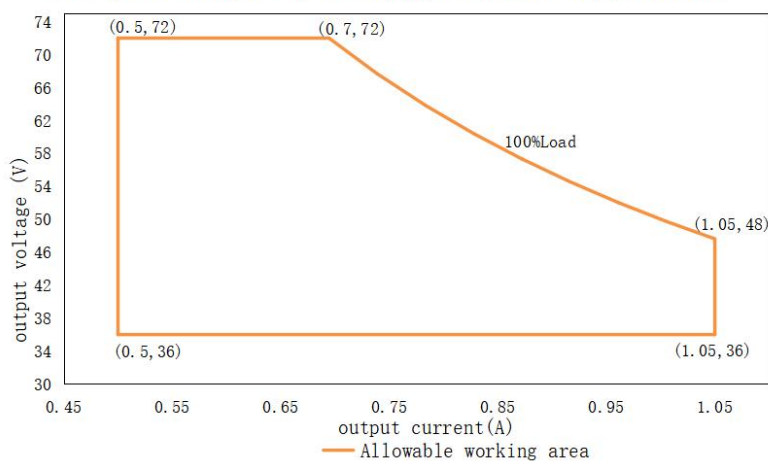


Load	Output								
Load working Voltage	20V	23V	25V	28V	30V	32V	34V	36V	38V
I <sub>o</sub> _MAX	1.6A	1.6A	1.6A	1.6A	1.6A	1.56A	1.47A	1.39A	1.32A
P <sub>o</sub> _MAX	32W	36.8W	40W	44.8W	48W	50W	50W	50W	50W



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


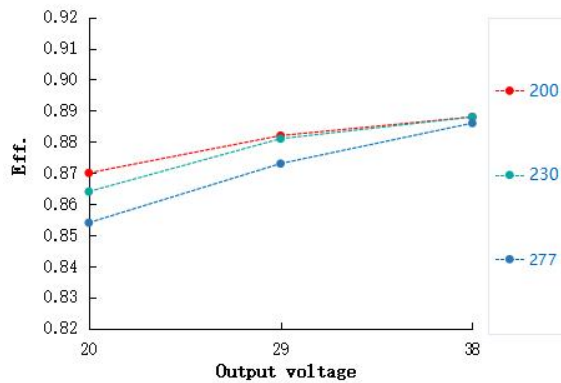
Load	Output								
Load working Voltage	32V	38V	42V	46V	48V	50V	52V	54V	56V
Io_MAX	1.2A	1.2A	1.2A	1.08A	1.04A	1A	0.96A	0.93A	0.9A
Po_MAX	38.2W	45.6W	50W	50W	50W	50W	50W	50W	50W

**HVE-50H-72A/B**(input:200-277Vac)output voltage VS Output current


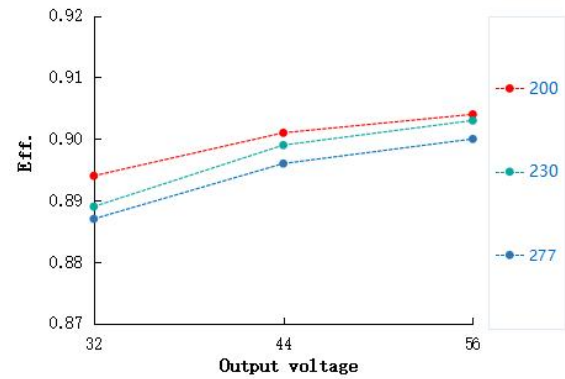
Load	Output								
Load working Voltage	36V	40V	44V	48V	50V	52V	68V	70V	72V
Io_MAX	1.05A	1.05A	1.05A	1.05A	1A	0.961A	0.735A	0.714A	0.7A
Po_MAX	37.8W	42W	46.2W	50W	50W	50W	50W	50W	50W



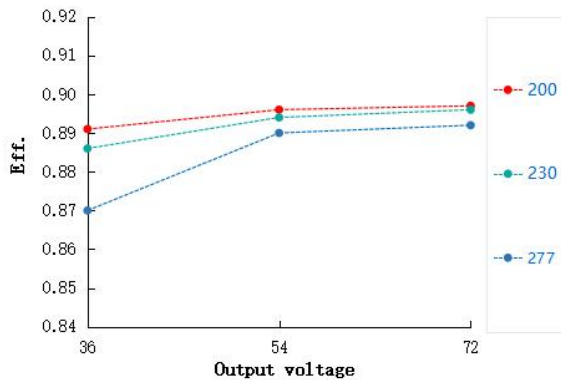
Eff. VS Output voltage HVE-50H-38A/B



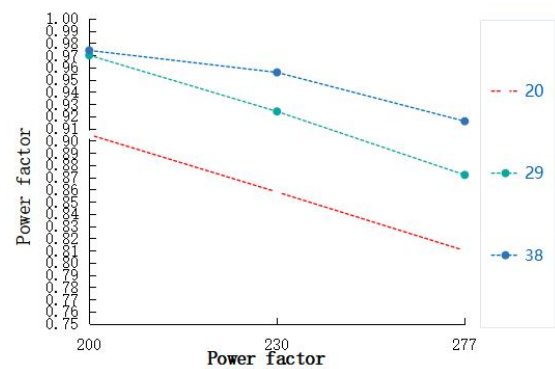
Eff. VS Output voltage HVE-50H-56A/B



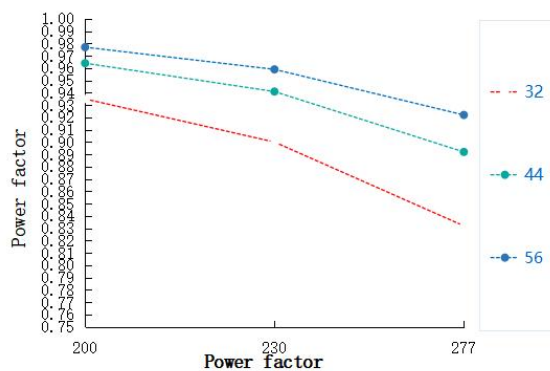
Eff. VS Output voltage HVE-50H-72A/B



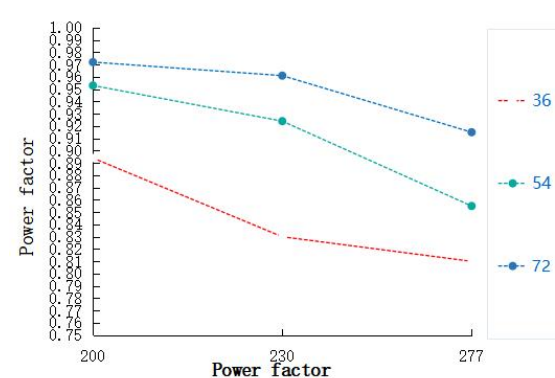
Power factor VS Input voltage HVE-50H-38A/B



Power factor VS Input voltage HVE-50H-56A/B

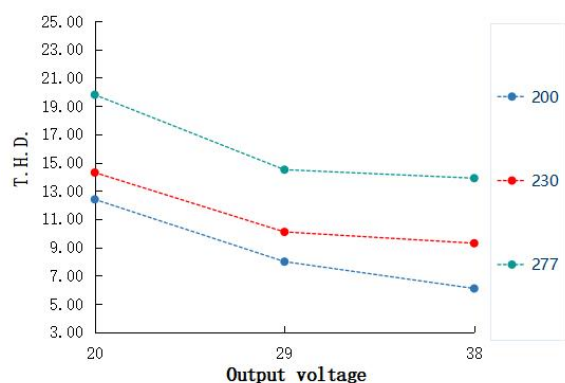


Power factor VS Input voltage HVE-50H-72A/B

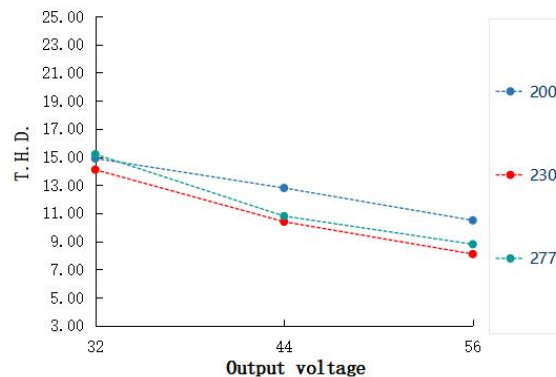




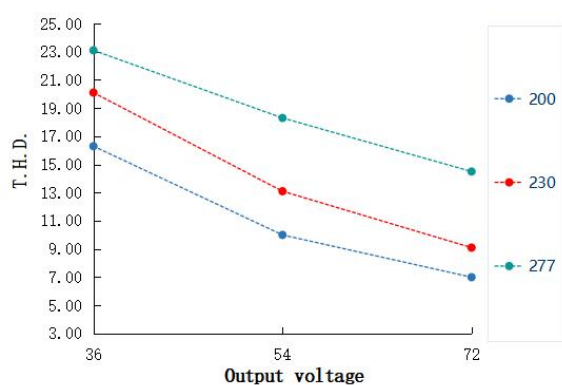
**T.H.D. VS Output voltage HVE-50H-38A/B**



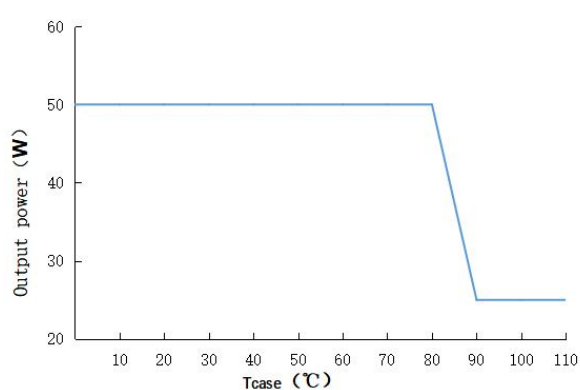
**T.H.D. VS Output voltage HVE-50H-56A/B**



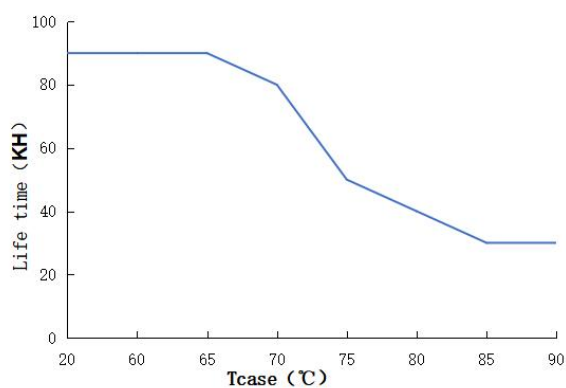
**T.H.D. VS Output voltage HVE-50H-72A/B**



**Output power VS Tcase HVE-50H-38/56/72A/B**

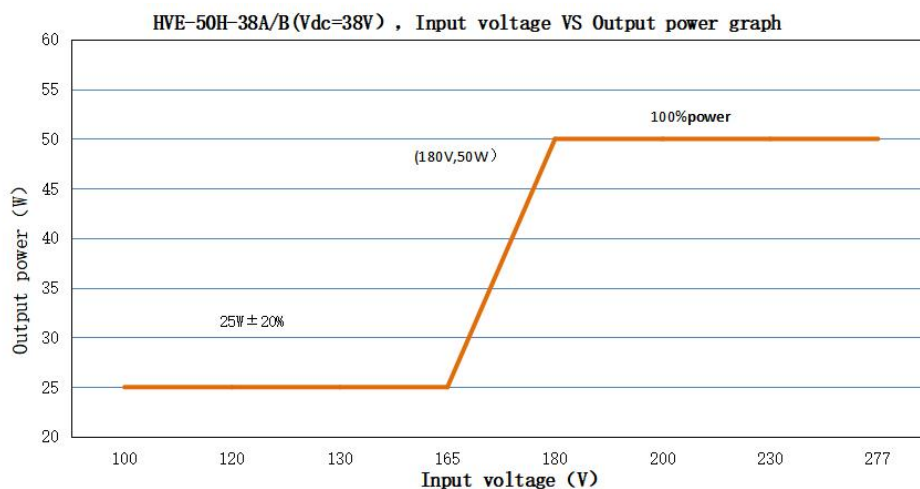


**Tcase VS Life time HVE-50H-38/56/72A/B**



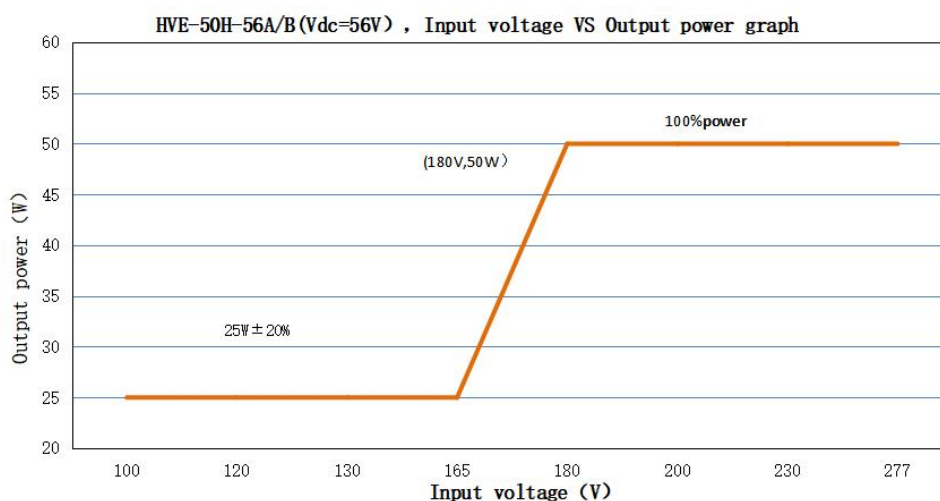


## Output power VS Input voltage



### The rated output current & power under different input voltage

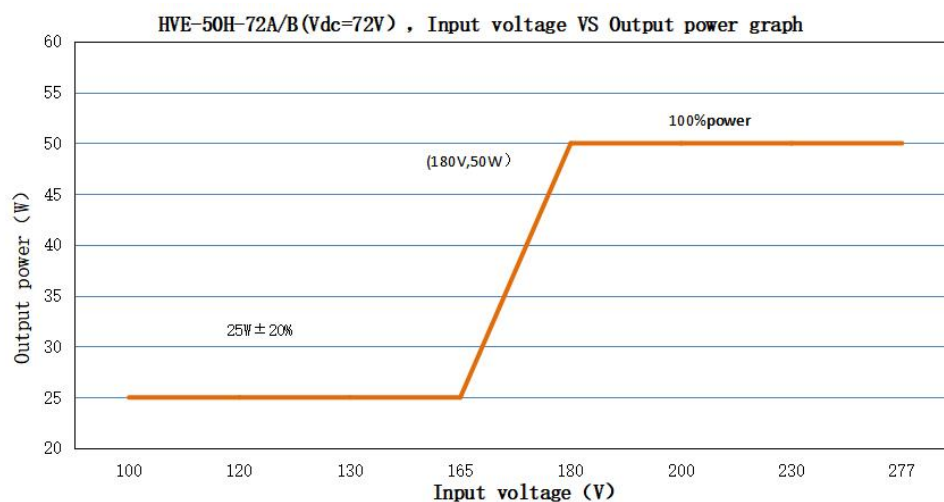
Input Voltage	100Vac	120Vac	130Vac	165Vac	180Vac	240Vac	230Vac	277Vac
I <sub>o</sub>	0.68A	0.68A	0.68A	0.68A	1.32A	1.32A	1.32A	1.32A
P <sub>o</sub>	25W	25W	25W	25W	50W	50W	50W	50W



### The rated output current & power under different input voltage

Input Voltage	100Vac	120Vac	130Vac	165Vac	180Vac	240Vac	230Vac	277Vac
I <sub>o</sub>	0.45A	0.45A	0.45A	0.45A	0.9A	0.9A	0.9A	0.9A
P <sub>o</sub>	25W	25W	25W	25W	50W	50W	50W	50W






The rated output current &amp; power under different input voltage

Input Voltage	100Vac	120Vac	130Vac	165Vac	180Vac	240Vac	230Vac	277Vac
I <sub>o</sub>	0.35A	0.35A	0.35A	0.35A	0.7A	0.7A	0.7A	0.7A
P <sub>o</sub>	25W	25W	25W	25W	50W	50W	50W	50W

**Note:**

1. When the input voltage is below 165±15Vac, the output power decreases to 25W±20%.

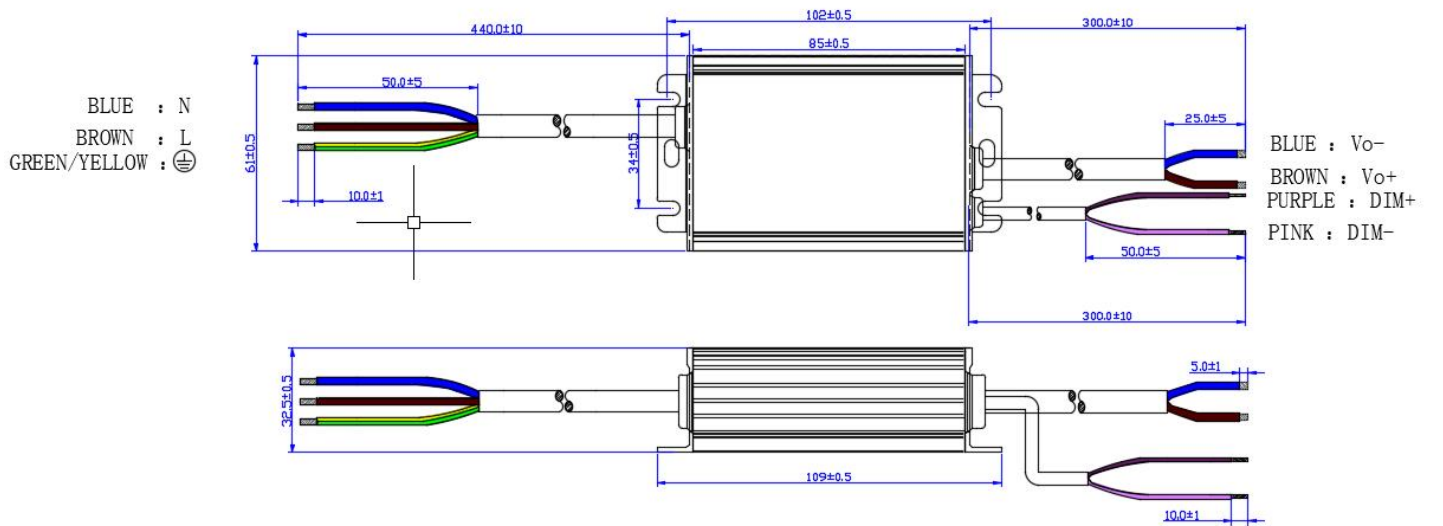


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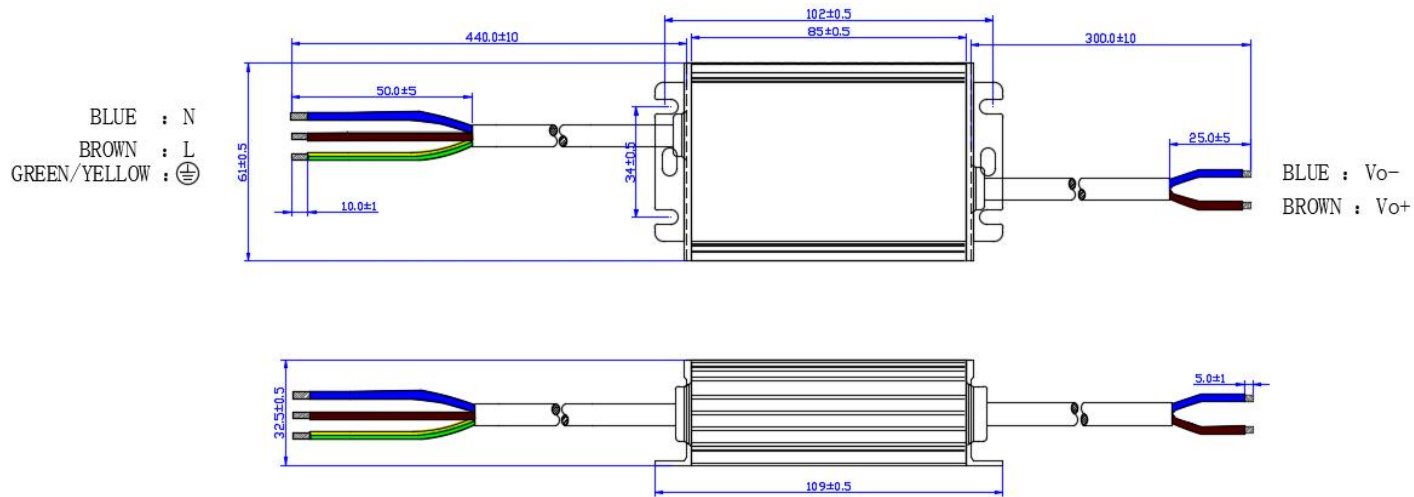
Mechanical specification

Size (mm)	L109mm*W61mm*H32.5mm
Weight (Kg)	0.365K g
Packaging (mm)	


HVE-50H-38/56/72B



HVE-50H-38/56/72A





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Version

DATE	DESCRIPTION	REV.	CHECK
2023.06.03	Initial version.	V1.0	
2023.08.11	Increase High Pressure 72V	V2.0	