

SPECIFICATION

Product name : HAE-60W (II)

Release date : 2024/09/10

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
- 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 (II)	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 (II)			28V-56Vdc Rated Power (42-56V)	1.2A	≥89%
HAE-60W-86A (II)			43V-86Vdc Rated Power (57-86V)	0.9A	≥89%
HAE-60W-86V (II)			43V-86Vdc	0.7A	≥90%
HAE-60W-66V (II)			33V-66Vdc	0.9A	≥90%
HAE-60W-58V (II)			29V-58Vdc	1.05A	≥89%
HAE-60W-48V (II)			24V-48Vdc	1.2A	≥89%
HAE-60W-42V (II)			21V-42Vdc	1.4A	≥89%
HAE-60W-33V (II)			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.

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)

Output characteristics

Parameter	Min	Typ.	Max	Remark
Rated current	-	-	-	Rated Load :38VDC
HAE-60W-38A (II)	-	1.58A	-	Rated Load: 56VDC
HAE-60W-56A (II)	-	1.08A	-	Rated Load: 86VDC
HAE-60W-86A (II)	-	0.7A	-	
Output current range		-		-
HAE-60W-38A (II)	1.05A	-	1.9A	-
HAE-60W-56A (II)	0.75A	-	1.43A	-
HAE-60W-86A (II)	0.5A	-	1.05A	-
Output voltage range		-		Constant power output range:32-38VDC
HAE-60W-38A (II)	19V	-	38V	Constant power output range:42-56VDC
HAE-60W-56A (II)	25V	-	56V	Constant power output range:57-86VDC
HAE-60W-86A (II)	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 (II)	-	-	50V	-
HAE-60W-42V (II)	-	-	55V	-
HAE-60W-48V/56A/58V (II)	-	-	70V	-
HAE-60W-66V (II)	-	-	80V	-
HAE-60W-86A/86V (II)	-	-	100V	-
Efficiency@230Vac				@230Vac input ,with full load
HAE-60W-33V/38A (II)	-	88%	-	
HAE-60W-42V/48V/56A/58V (II)	-	89%	-	
HAE-60W-66V/86A/86V (II)	-	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 (II) \pm 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;

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 (Ta= 25°C)
Lifetime	50000 hours @230Vac,80% load, Tcase= 75°C ,.Refer to" Tcase VS Lifetime" curve for details.

Safety and EMC

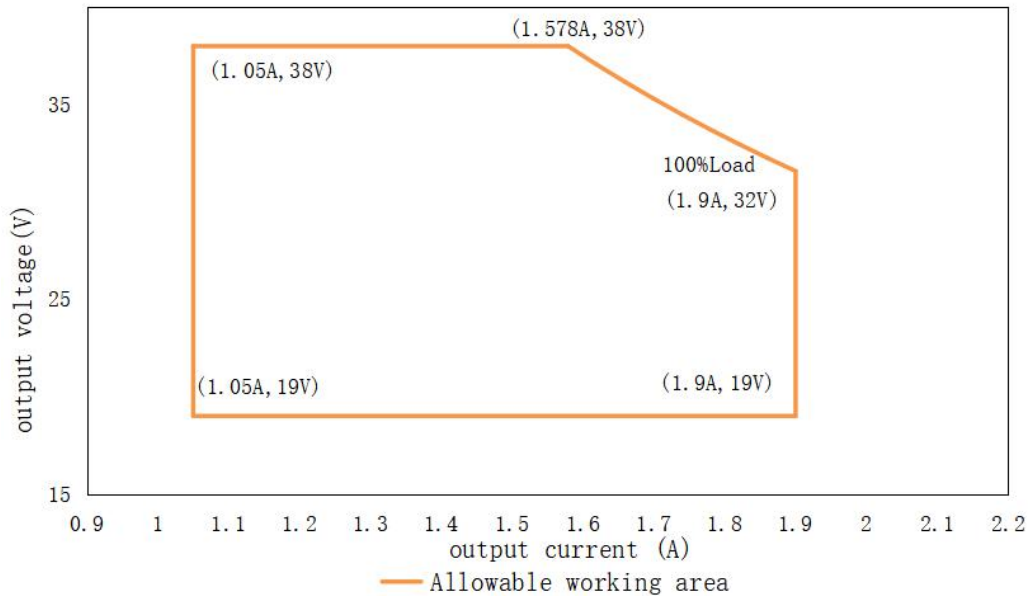
Safety categories	Standard
Safety	GB19510.1、GB19510.14、EN61347-1、EN61347-2-13、IEC61347-1、IEC61347-2-13、AS/NZS61347.1、AS61347.2.13、EN 62384;
EMC	EN 55015、EN 61547、EN 61000-3-2、GB/T 17743、GB17625.1、EN 61000-3-3
Surge level	Differential mode L-N $\pm 4KV(2\Omega)$ Refer to IEC61000-4-5 2014
High-pot test	I/P-O/P: 3.75KVac
Insulation impedance	I/P-O/P: 100M Ohms/500Vdc
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.

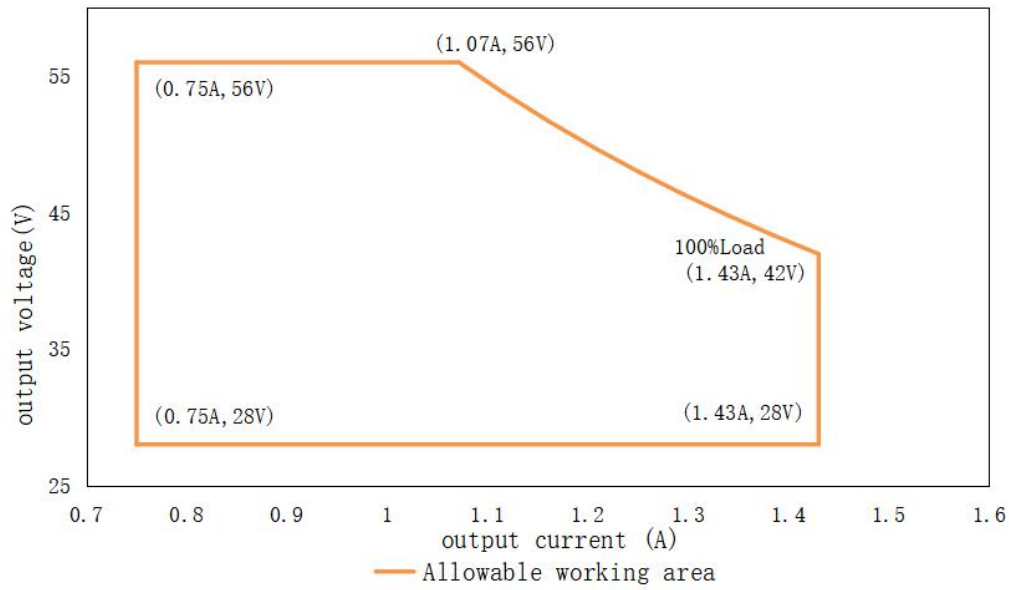
I-V Working area

HAE-60W-38A(II)(Import:120-277Vac)output voltage VS output current



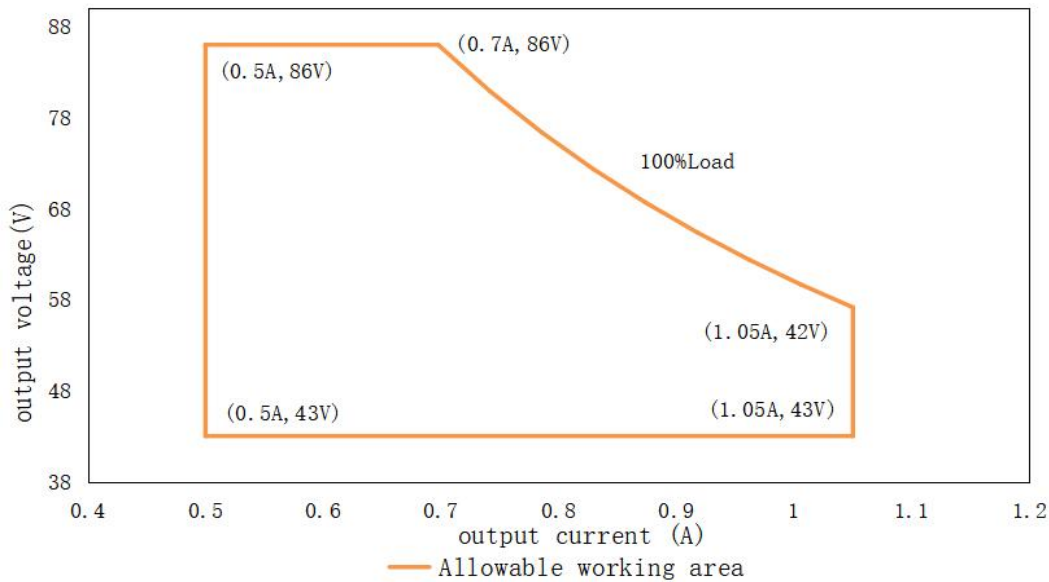
Load	Output								
Load working Voltage	19V	22V	25V	28V	30V	32V	34V	36V	38V
Io_MAX	1.9A	1.9A	1.9A	1.9A	1.9A	1.88A	1.77A	1.67A	1.58A
Po_MAX	36W	41W	47W	53W	57W	60W	60W	60W	60W

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



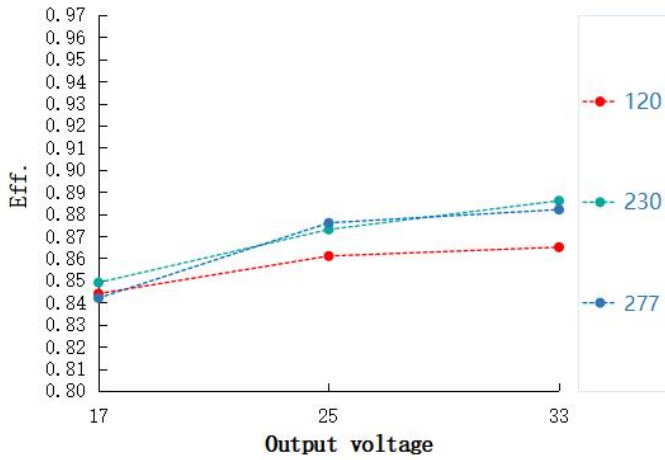
Load	Output								
Load working Voltage	28V	29V	30V	35V	38V	42V	46V	50V	56V
Io_MAX	1.43A	1.43A	1.43A	1.43A	1.43A	1.43A	1.31A	1.2A	1.071A
Po_MAX	40W	41W	43W	50W	54W	60W	60W	60W	60W

HAE-60W-86A(II)(Import:120-277Vac)output voltage VS output current

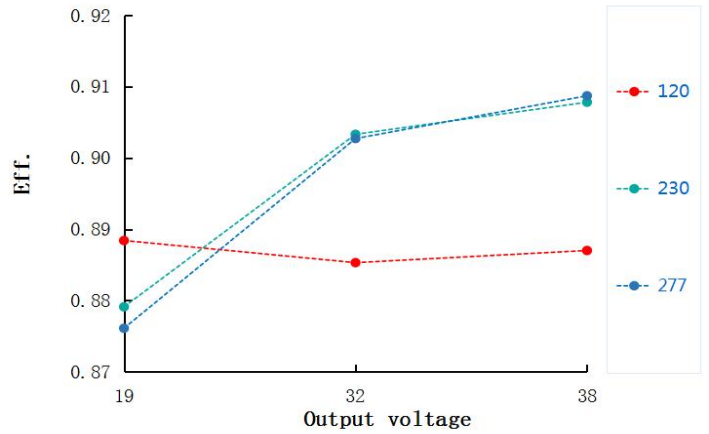


Load	Output								
Load working Voltage	43V	47V	52V	57V	62V	68V	74V	80V	86V
Io_MAX	1.05A	1.05A	1.05A	1.05A	0.967A	0.88A	0.81A	0.75A	0.7A
Po_MAX	45.1W	49.3W	54.6W	60W	60W	60W	60W	60W	60W

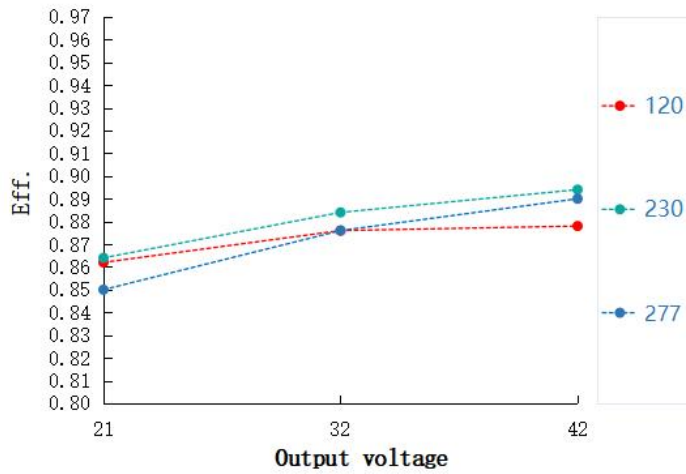
Eff. VS Output voltage HAE-60W-33V (II)



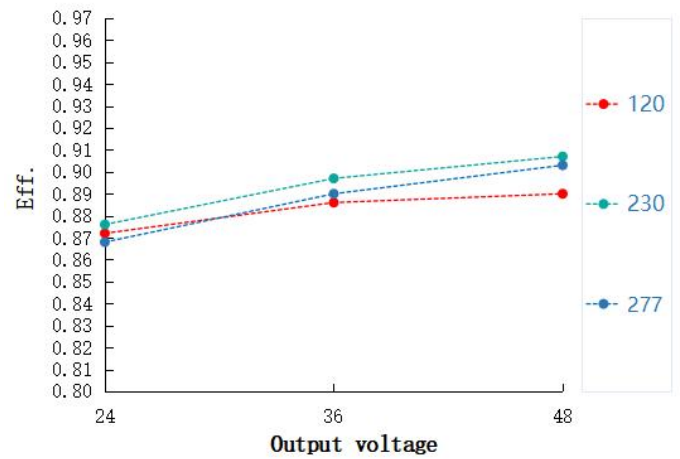
Eff. VS Output voltage HAE-60W-38A (II)



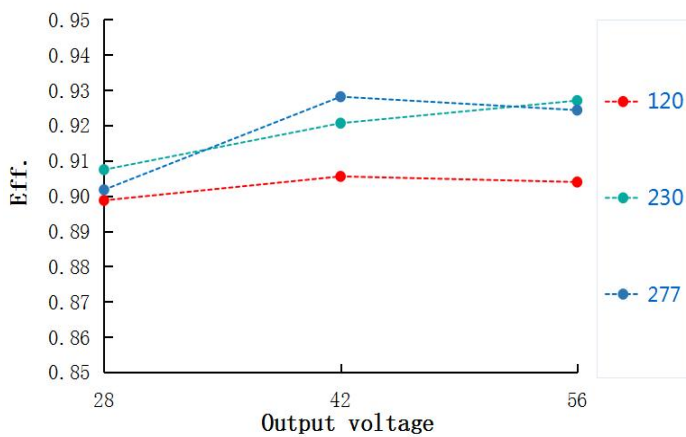
Eff. VS Output voltage HAE-60W-42V (II)



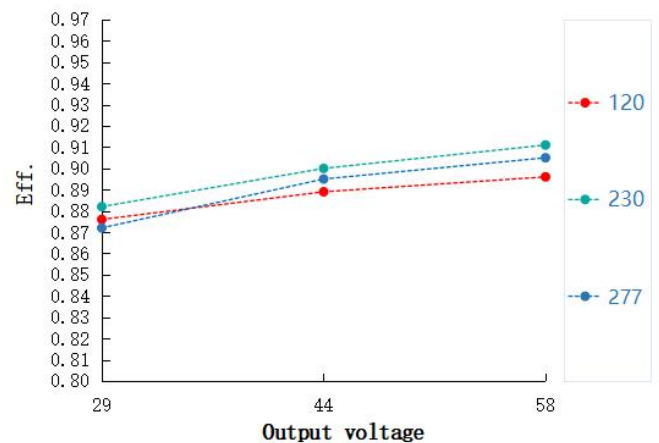
Eff. VS Output voltage HAE-60W-48V (II)



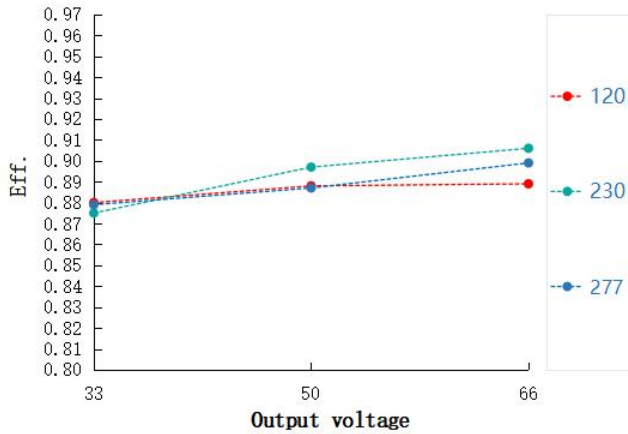
Eff. VS Output voltage HAE-60W-56A (II)



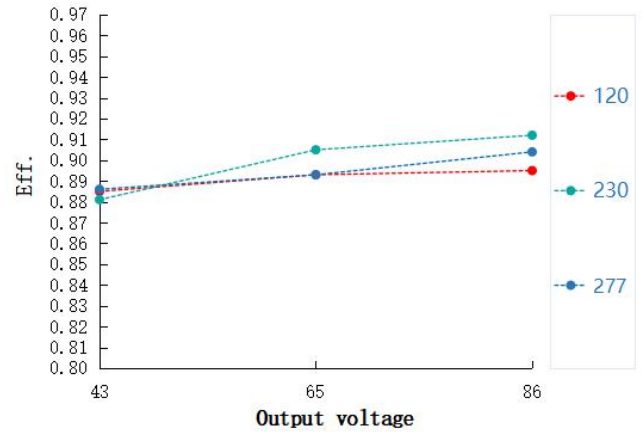
Eff. VS Output voltage HAE-60W-58V (II)



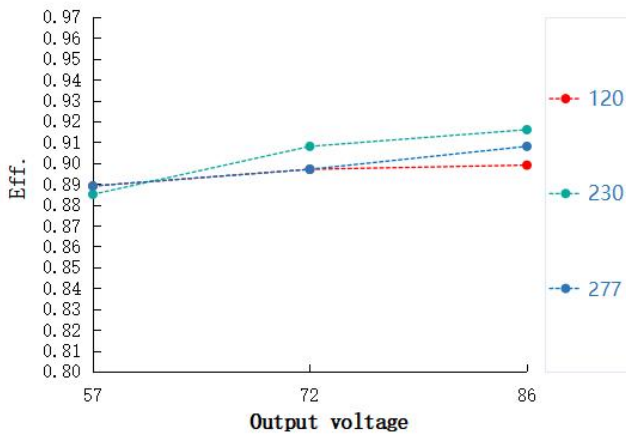
Eff. VS Output voltage HAE-60W-66V (II)



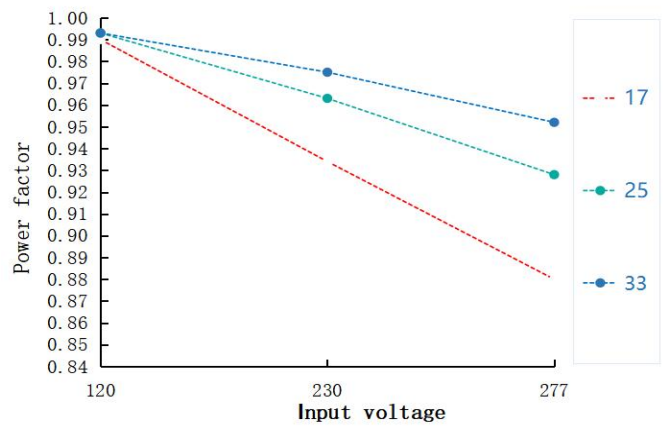
Eff. VS Output voltage HAE-60W-86V (II)



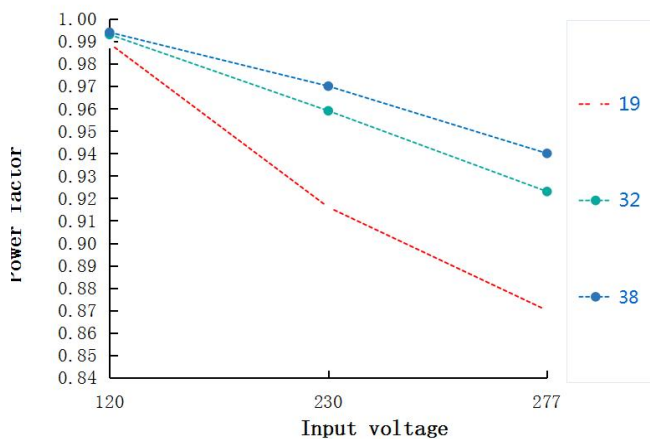
Eff. VS Output voltage HAE-60W-86A (II)



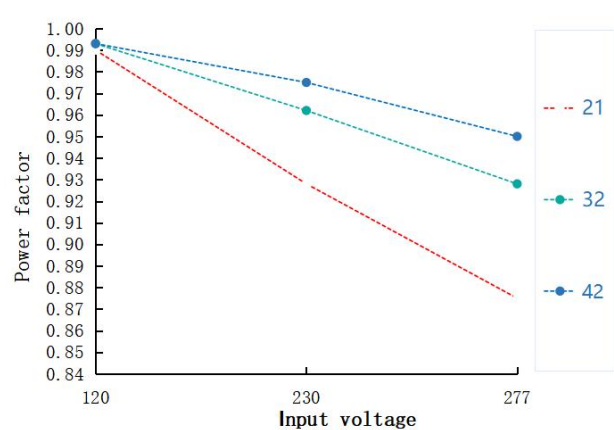
Power factor VS Input voltage HAE-60W-33V (II)



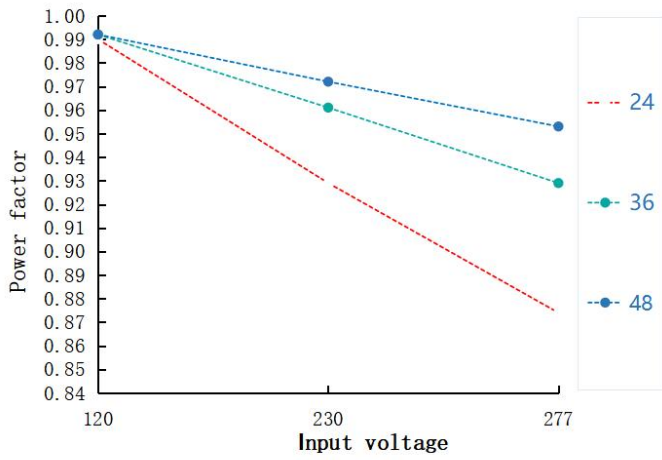
Power factor VS Input voltage HAE-60W-38A (II)



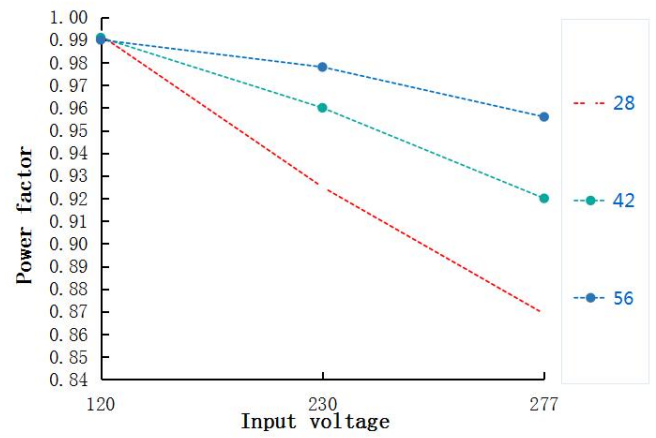
Power factor VS Input voltage HAE-60W-42V (II)



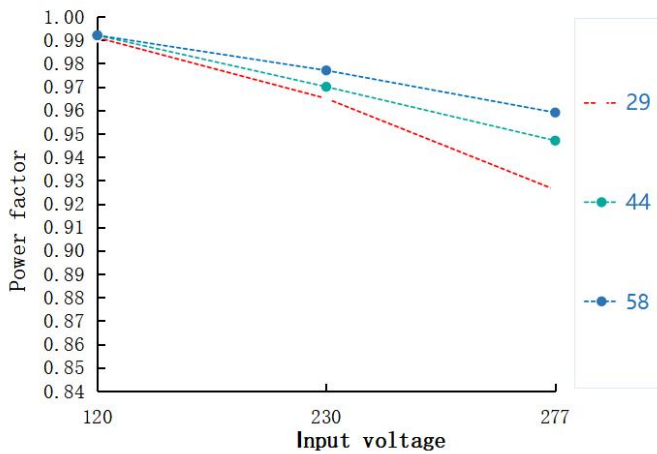
Power factor VS Input voltage HAE-60W-48V (II)



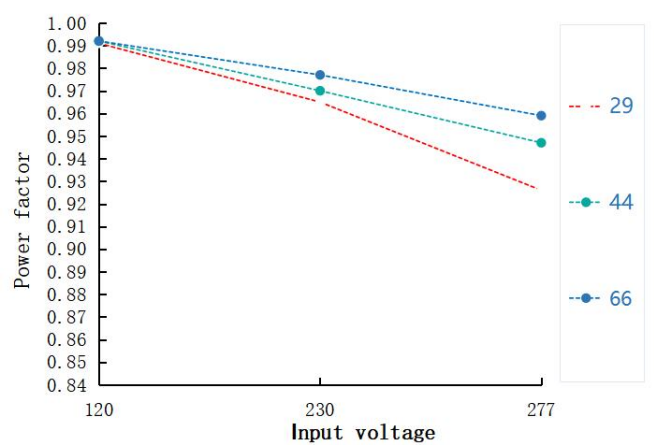
Power factor VS Input voltage HAE-60W-56A (II)



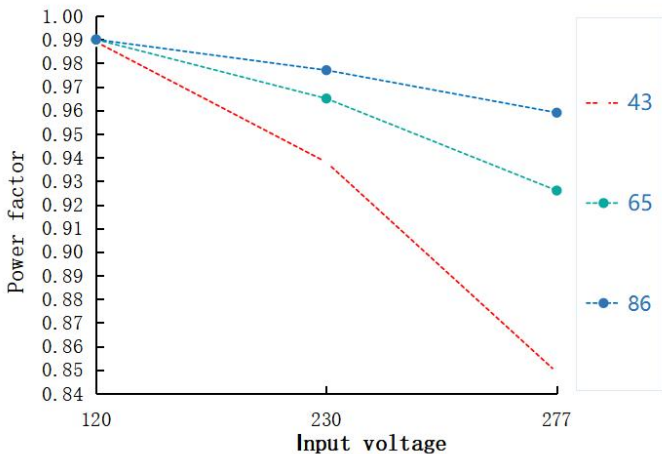
Power factor VS Input voltage HAE-60W-58V (II)



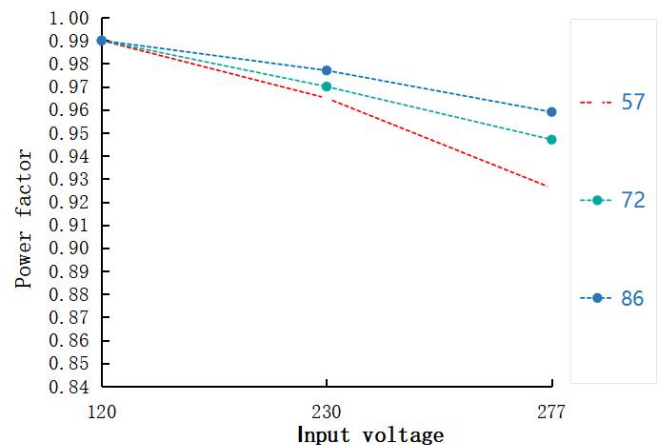
Power factor VS Input voltage HAE-60W-66V (II)



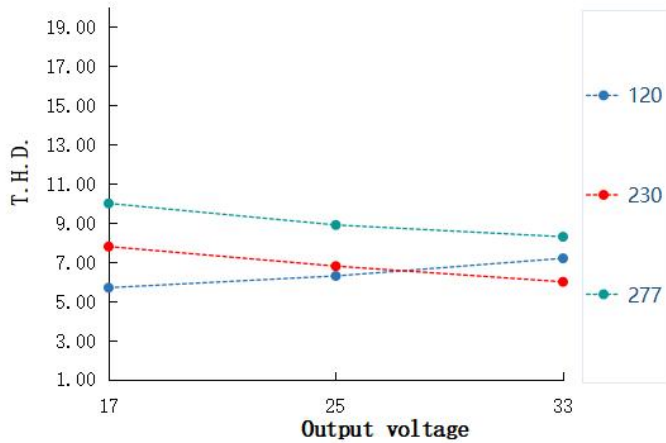
Power factor VS Input voltage HAE-60W-86V (II)



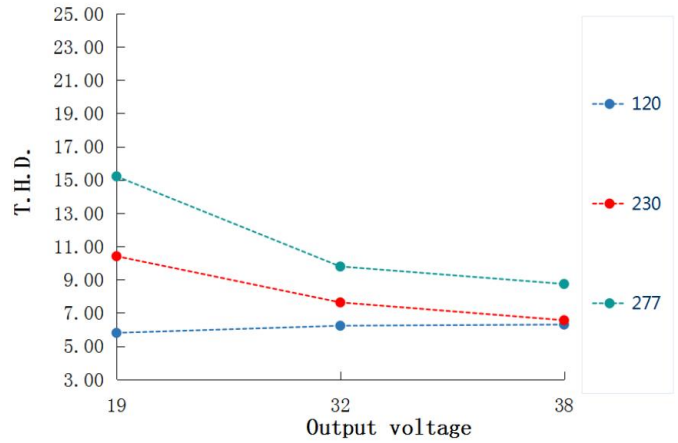
Power factor VS Input voltage HAE-60W-86A (II)



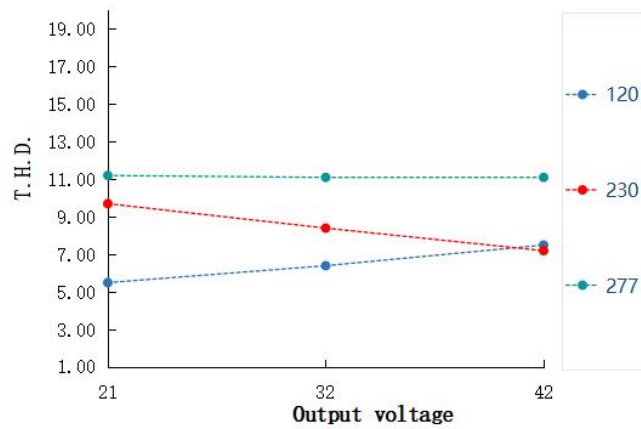
T.H.D. VS Output voltage HAE-60W-33V (II)



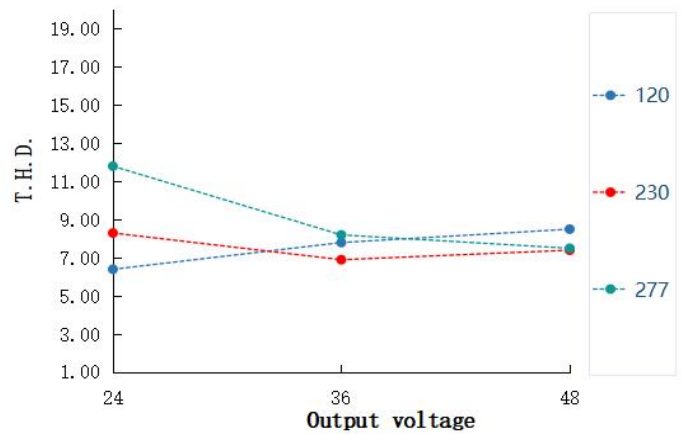
T.H.D. VS Output voltage HAE-60W-38A (II)



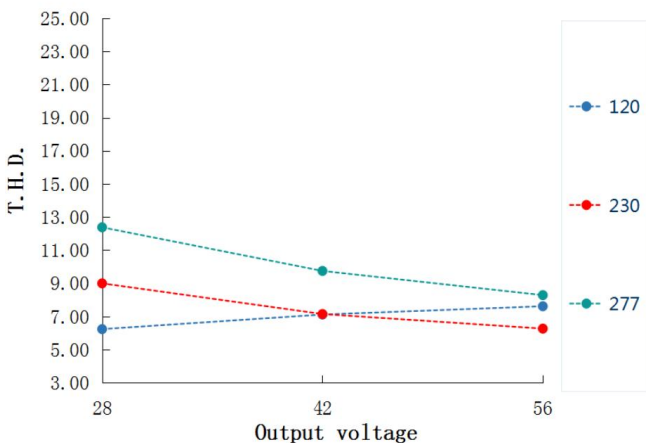
T.H.D. VS Output voltage HAE-60W-42V (II)



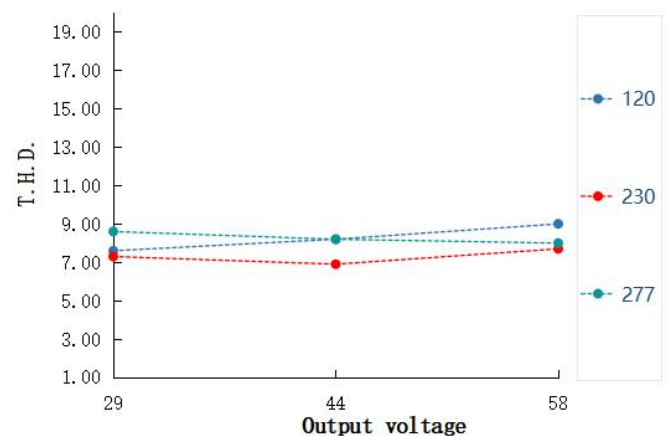
T.H.D. VS Output voltage HAE-60W-48V (II)



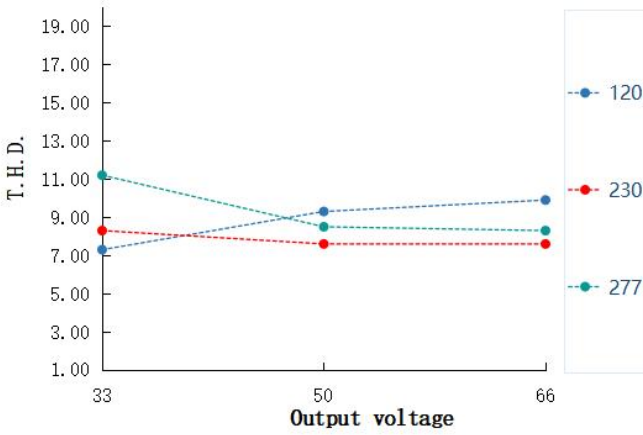
T.H.D. VS Output voltage HAE-60W-56A (II)



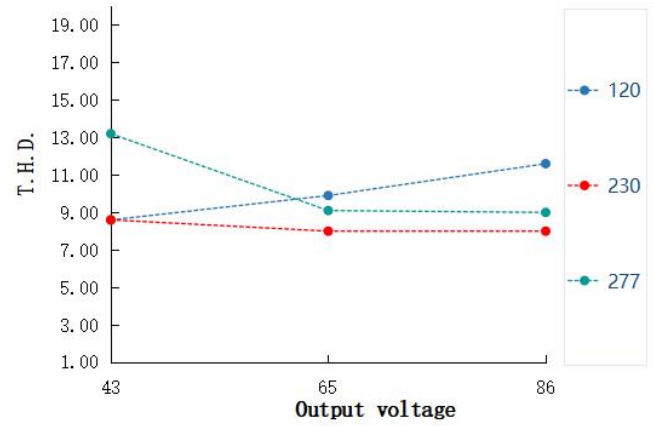
T.H.D. VS Output voltage HAE-60W-58V (II)



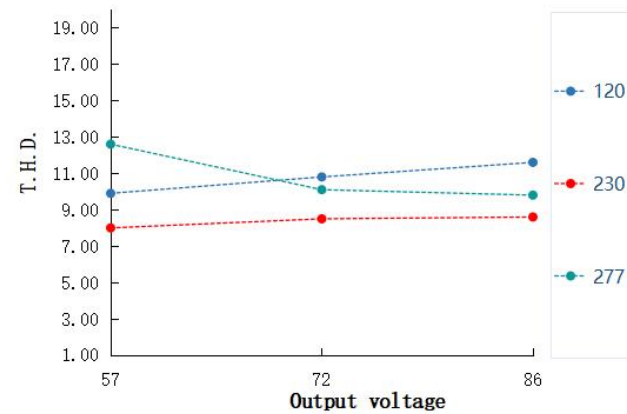
T.H.D. VS Output voltage HAE-60W-66V (II)



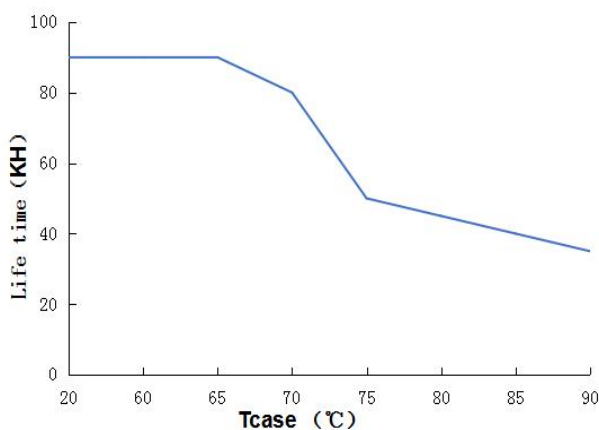
T.H.D. VS Output voltage HAE-60W-86V (II)



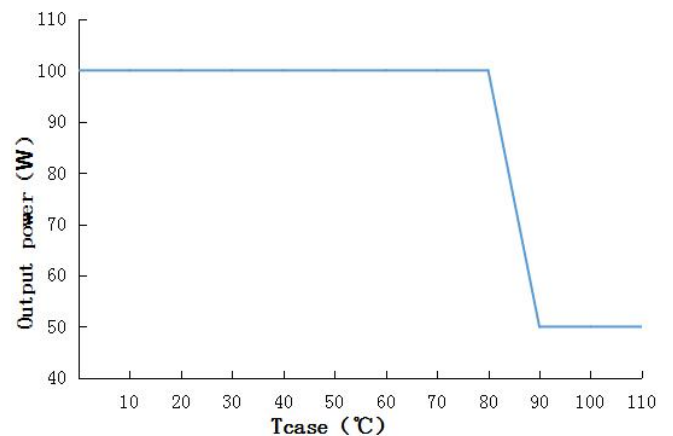
T.H.D. VS Output voltage HAE-60W-86A (II)



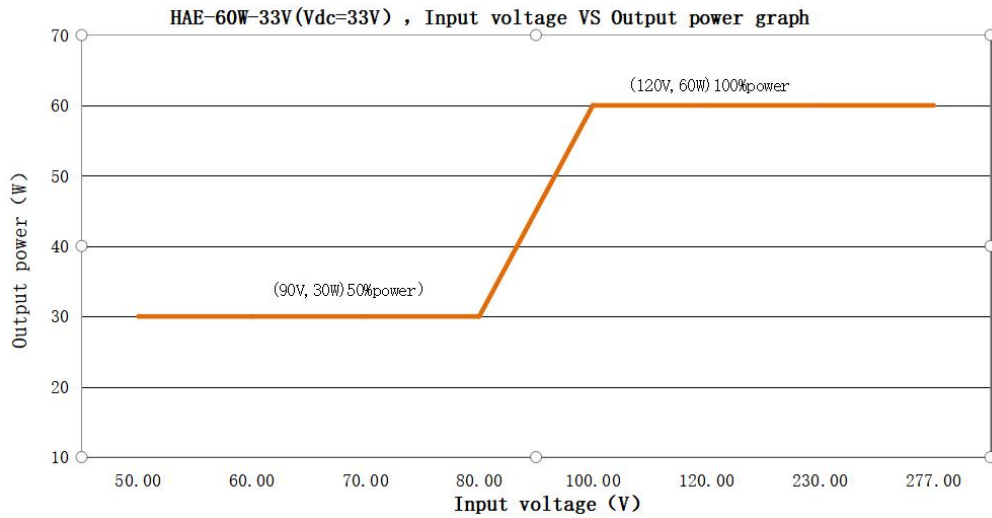
Tc case VS Life time (HAE-60W-X)



Output power VS Tc case (HAE-60W-X)

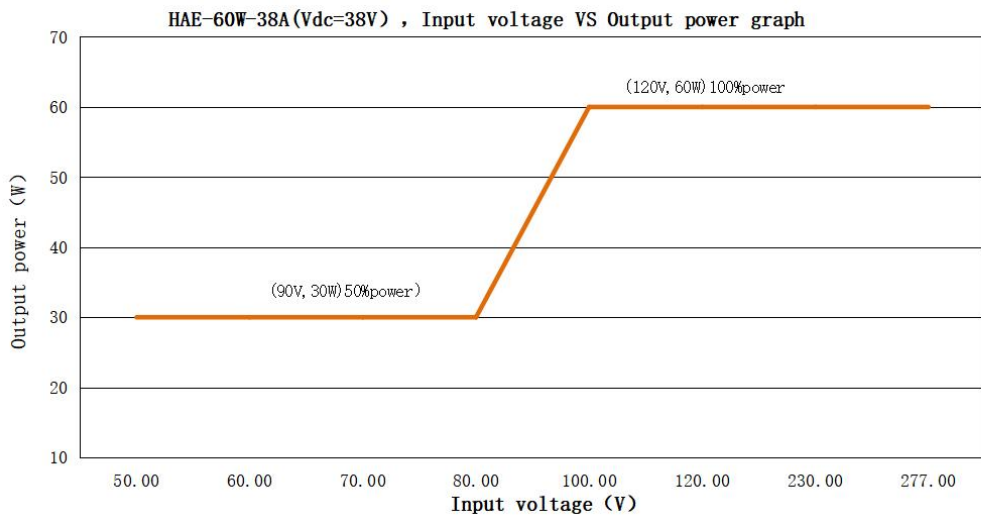


Output power VS Input voltage



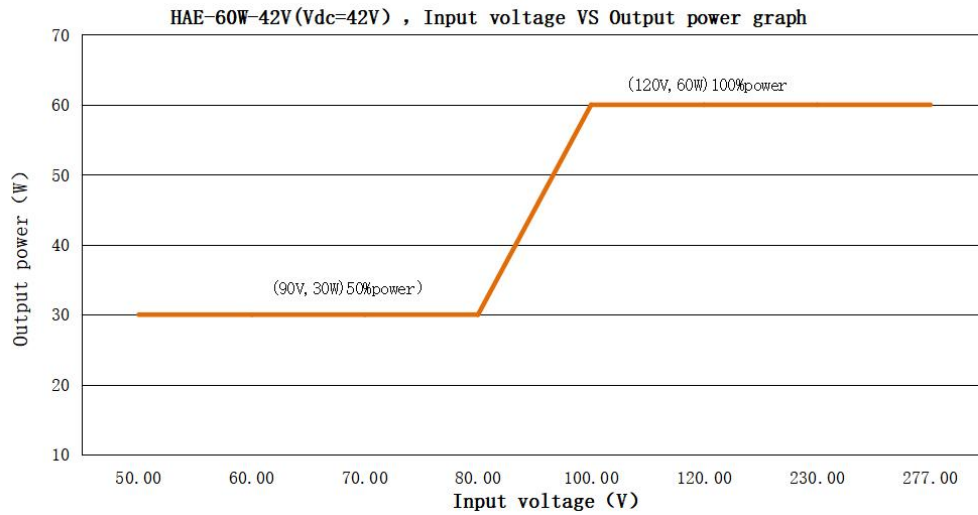
HAE-60W-33V (For output 33Vdc, the rated output current & power under different input voltage)

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



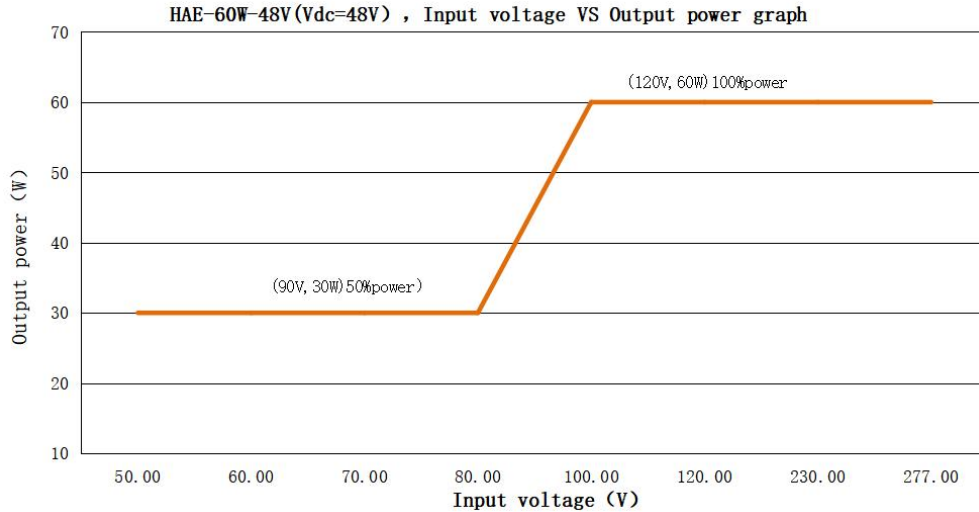
HAE-60W-38A (For output 38Vdc, the rated output current & power under different input voltage)

Input Voltage	50Vac	60Vac	70Vac	80Vac	100Vac	120Vac	230Vac	277Vac
Io	0.79A	0.79A	0.79A	0.79A	1.58A	1.58A	1.58A	1.58A
Po	30W	30W	30W	30W	60W	60W	60W	60W



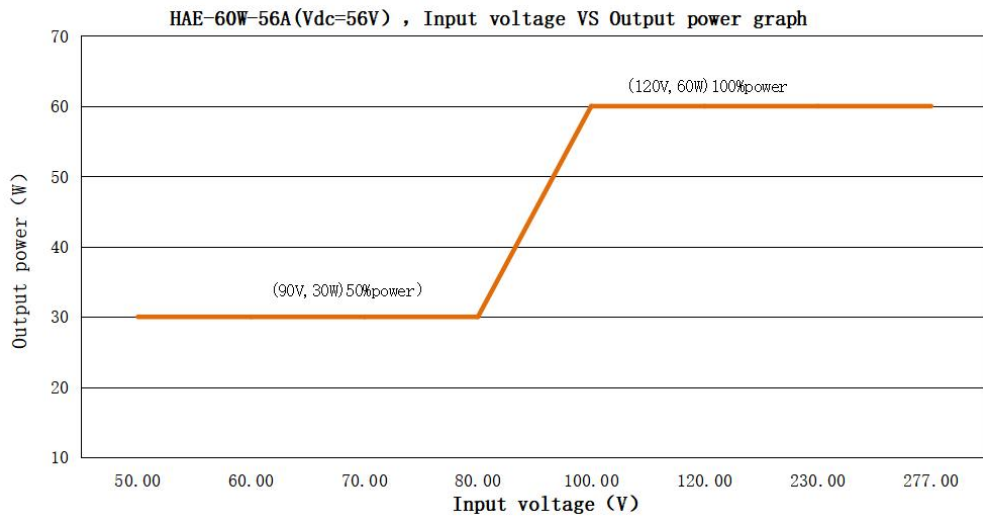
HAE-60W-42V (For output 42Vdc, the rated output current & power under different input voltage)

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



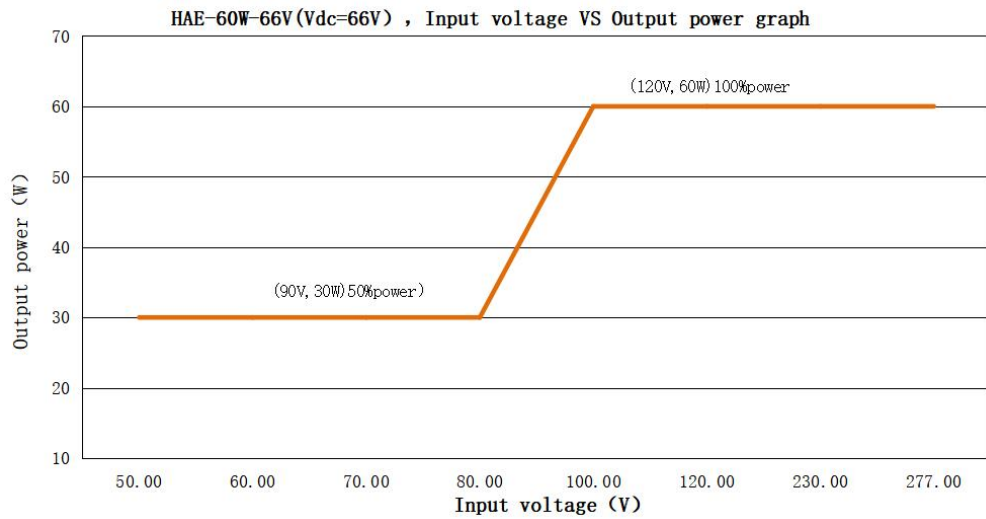
HAE-60W-48V (For output 48Vdc, the rated output current & power under different input voltage)

Input Voltage	50Vac	60Vac	70Vac	80Vac	100Vac	120Vac	230Vac	277Vac
Io	0.625A	0.625A	0.625A	0.625A	1.25A	1.25A	1.25A	1.25A
Po	30W	30W	30W	30W	60W	60W	60W	60W



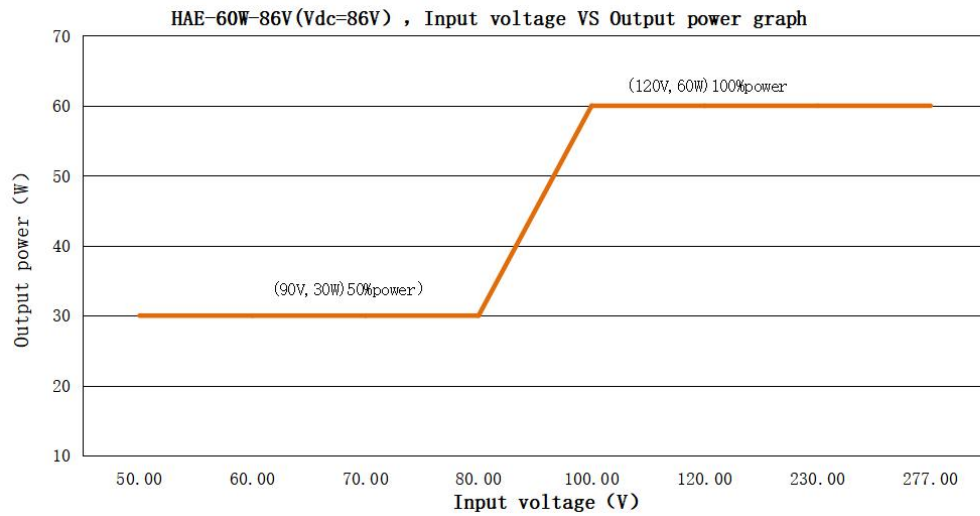
HAE-60W-56A (For output 56Vdc, the rated output current & power under different input voltage)

Input Voltage	50Vac	60Vac	70Vac	80Vac	100Vac	120Vac	230Vac	277Vac
Io	0.535A	0.535A	0.535A	0.535A	1.07A	1.07A	1.07A	1.07A
Po	30W	30W	30W	30W	60W	60W	60W	60W



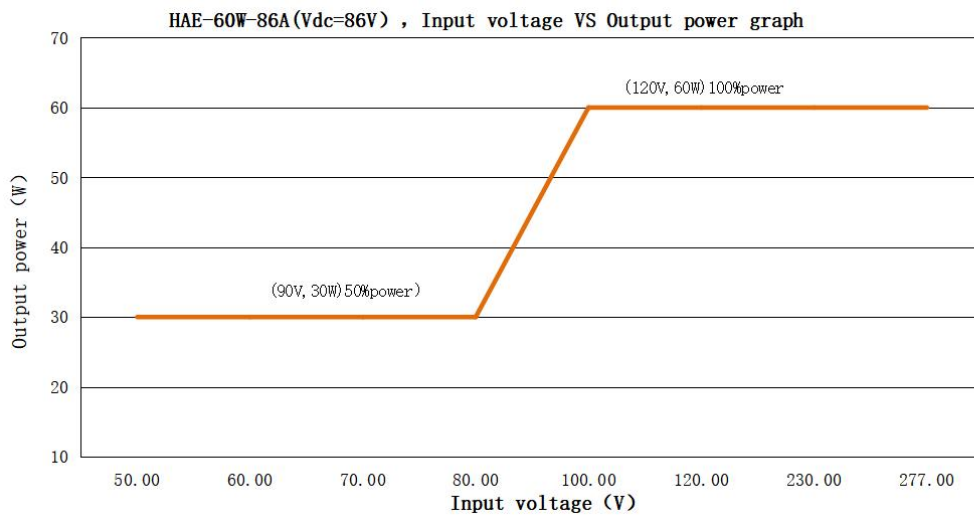
HAE-60W-66V (For output 66Vdc, the rated output current & power under different input voltage)

Input Voltage	50Vac	60Vac	70Vac	80Vac	100Vac	120Vac	230Vac	277Vac
Io	0.455A	0.455A	0.455A	0.455A	0.91A	0.91A	0.91A	0.91A
Po	30W	30W	30W	30W	60W	60W	60W	60W



HAE-60W-86V(For output 86Vdc, the rated output current & power under different input voltage)

Input Voltage	50Vac	60Vac	70Vac	80Vac	100Vac	120Vac	230Vac	277Vac
Io	0.349A	0.349A	0.349A	0.349A	0.698A	0.698A	0.698A	0.698A
Po	30W	30W	30W	30W	60W	60W	60W	60W



HAE-60W-86A(For output 86Vdc, the rated output current & power under different input voltage)

Input Voltage	50Vac	60Vac	70Vac	80Vac	100Vac	120Vac	230Vac	277Vac
Io	0.349A	0.349A	0.349A	0.349A	0.698A	0.698A	0.698A	0.698A
Po	30W	30W	30W	30W	60W	60W	60W	60W

Note:

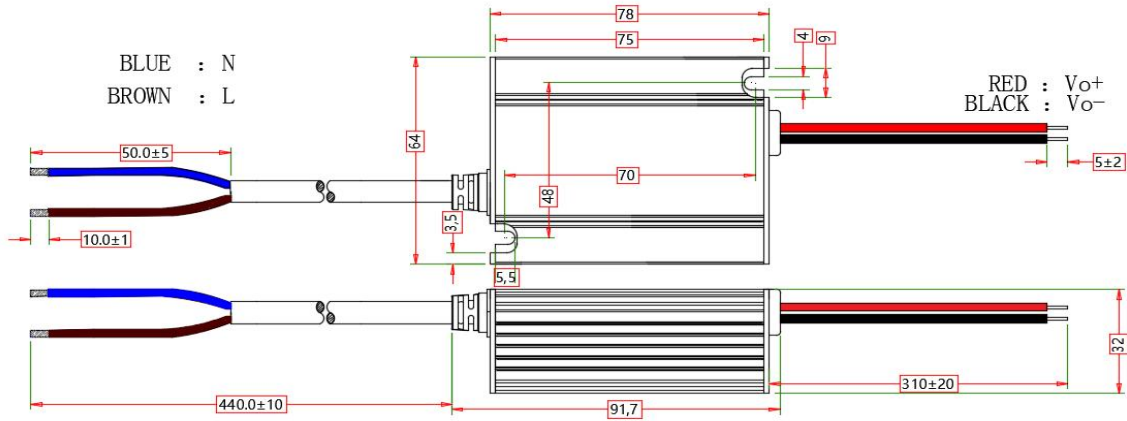
1. When the input voltage is below 90±15Vac, the output power decreases to 30W±20%.

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

Mechanical specification

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

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





Product Type

LED INTEGRATED SPECIAL DRIVER

Product Series

HAE-60W (II) -XX Series

REV

V1.0

Version

DATE	DESCRIPTION	REV.	CHECK
2024.09.10	Initial version.	V1.0	