

<b>Richmat</b>	Application	RICHMAT WATERPROOF LED DRIVER		
	Product Line	HJ-W50-S/A-NA	REV	1.1

Qingdao Richmat Electronic Technology Co.,Ltd.

SPECIFICATION FOR APPROVAL

CUSTOMER:			
MODEL NO. :	HJ-W50-S/A-NA		
VERSION:	V1.1		
CUSTOMER			
TEST	CHECK	APPROVE	
CUSTOMER REMARKS			
Please return to us one copy of "SPECIFICATION FOR APPROVAL" with you approved signature.			
MANUFACTURE			
EDIT	CHECK	APPROVE	
<div>Qingdao Richmat Electronic Technology Co.,Ltd.</div> <div>Research And Development Address: 3rd Floor, Building 2, No.187 Jinshui Road, Licang District, Qingdao City, 266199 Shandong, P.R. China      Postal Code: 266041 Factory Address: No.53 Yanqing Road, Jimo District, Qingdao City, Shandong, P.R. China      Postal Code: 266200 TEL:0532-89066999      FAX:0532-88597298</div>			

<b><i>Richmat</i></b>	Application	RICHMAT WATERPROOF LED DRIVER		
	Product Line	HJ-W50-S/A-NA	REV	1.1

## ■ VERSION

DATE	CAUSES OF CHANGE	REV.	CHECK
2022.8.8	Initial Release	V1.0	
2022.2.23	Change the picture and size of the packaging mode	V1.1	

<b>Richmat</b>	Application	RICHMAT WATERPROOF LED DRIVER		
	Product Line	HJ-W50-S/A-NA	REV	1.1

## ■ FEATURES

- ◇ Class I structure
- ◇ Input Voltage:100-277V ~ 50/60Hz
- ◇ Efficiency 88%
- ◇ Constant power drive, Constant current output control mode
- ◇ Metal clad construction, level of protection : IP67
- ◇ Lightning protection level : difference mode 4kV ,  
common mode 6kV
- ◇ Long life design, 5 years warranty
- ◇ Output current can be adjusted Externally
- ◇ The dimming function: Three in one dimming  
(Only S series)



## ■ TYPICAL APPLICATIONS

Road lighting、Industrial lighting、The  
flooHJighting、landscape lighting、venue lighting



## ■ MODEL LIST

Model	AC Input	Output power	Output voltage	Output current	Efficiency	T.H.D	PF
HJ-W50-V38S-NA	100-277V	50W	20-38Vdc	1.5A	>87.5%	<10%	>0.95
HJ-W50-V38A-NA	50/60Hz						
HJ-W50-V58S-NA	100-277V	50W	32-58Vdc	0.9A	>88%	<10%	>0.95
HJ-W50-V58A-NA	50/60Hz						

### Remark :

1. Default tested at 230Vac,full load with 30 minutes,Ta:25℃ .
2. When the input voltage is lower than 180Vac±5%, the output power gradually decreases ;  
200-277Vac , P rated 50W ; Please refer to the input voltage VS output power curve for details.

<b>Richmat</b>	Application	RICHMAT WATERPROOF LED DRIVER		
	Product Line	HJ-W50-S/A-NA	REV	1.1

## ■ SPECIFICATION

### ◇ INPUT

Rated voltage	100 - 277Vac
Voltage Range	90-305Vac
Frequency	50/60Hz
Power factor(PF)	PF>0.95 @230Vac full load
Total harmonic distortion(THD)	THD<10% @230Vac full load
Input current	I <sub>in</sub> <0.41A @180Vac full load
Inrush current (typ.)	Cold start (25°C) 65A @230Vac

### ◇ OUTPUT

Model	HJ-W50-V38S-NA HJ-W50-V38A-NA	HJ-W50-V58S-NA HJ-W50-V58A-NA
Rated current	1.35A	0.85A
Output current range	0.7-1.6A	0.5-1.2A
Output voltage range	20-38Vdc	32-58Vdc
Rated output power(100-180Vac)	25W±30%	25W±30%
Rated output power(200-277Vac)	50W	50W
No load voltage	50Vdc Max	70Vdc Max
Efficiency	87.5%@230Vac Full load	88%@230Vac Full load
Accuracy off output current	±5%	
Line regulation	±5%	
Load regulation	±5%	
Setup time	<500ms @230Vac full load	

**Remarks** : the range of output current is limited by in-out voltage , For details, please refer to the I-V working are.

<b>Richmat</b>	Application	RICHMAT WATERPROOF LED DRIVER		
	Product Line	HJ-W50-S/A-NA	REV	1.1

◇ Others

<b>0 - 10 V Dimming( Optional)</b>	Safety Dimming Voltage Range	0V - 12V
	Dim Range	0 - 100%
	Rated Dim Range	0V - 10V
<b>PWM Dimming(Optional)</b>	PWM High	9.5V - 10.5V
	PWM Low	0V - 0.3V
	PWM Frequency	300Hz - 2000Hz
	PWM Duty	0 - 100%
<b>Resistor Dimming</b>	Resistance	0Kohm - 100Kohm
	Dim Range	0 - 100%

**Remarks:**

1. Output current of dimming port: 100uA (typical value);
2. The maximum withstand voltage of the dimming port is 12V. If the external power supply voltage exceeds 12V or the signal line is reversely connected, the power supply will be damaged.

◇ Protection

<b>Low Voltage protection</b>	When the input voltage is less than 180Vac, the output power is reduced by about half
<b>Over Load protection</b>	Protection mode: hiccup restart mode, automatic recovery after removal of abnormal load conditions
<b>Short Circuit Protection</b>	Doze mode, can automatically recover after abnormal conditions are removed
<b>Over Voltage protection</b>	Protection mode: hiccuping or clamping in output maximum voltage , Production undamaged, When troubleshooting, Normal operation of power supply

**Remarks:**

1. All specifications are tested at 230Vac (50Hz) , rated load, and Ta:25°C .
2. Including setting error, linear adjustment rate and load adjustment rate.

<b>Richmat</b>	Application	RICHMAT WATERPROOF LED DRIVER		
	Product Line	HJ-W50-S/A-NA	REV	1.1

## ■ ENVIRONMENT

<b>Working temperature</b>	-40 ~ +60°C (Refer to "Derating Curve")
<b>Working humidity</b>	20 ~ 95% RH, non-condensing
<b>Storage temperature/ humidity</b>	-40~+80°C, 10 ~ 95% RH
<b>Resistant to vibration</b>	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes
<b>MTBF</b>	230K hrs min. MIL-HDBK-217F (Ta=25°C)

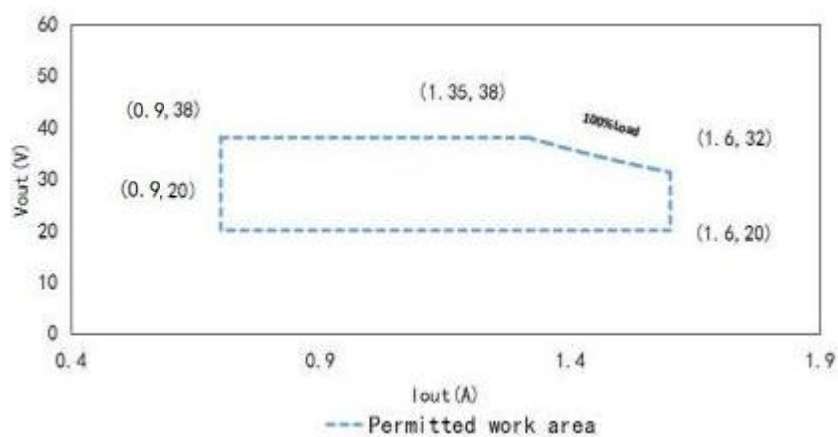
## ■ SAFETY & EMC

<b>Safety</b>	GB19510.1、GB19510.14、EN61347-1、EN61347-2-13、IEC61347-1、IEC61347-2-13、AS/NZS61347.1、AS61347.2.13;
<b>EMC</b>	EN 55015、EN 61000-3-2 、GB/T 17743、GB17625.1、EN 61000-3-3
<b>Surge level</b>	difference mode L-N $\pm 4$ KV ( 2 ohm ), common mode L, N -PE $\pm 6$ KV ( 12 ohm ) Refer to IEC61000-4-5 2014
<b>High-pot test</b>	I/P-O/P:3.75KVAC      I/P-PE :1.5KVAC      O/P-PE : 0.5KVAC      I/P-DIM:1.5KVAC
<b>Insulation resistance</b>	I/P-O/P:100M Ohms / 500VDC / 25°C/ 70% RH
<b>Leakage current</b>	<0.7mA

**Remarks:**  
The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.

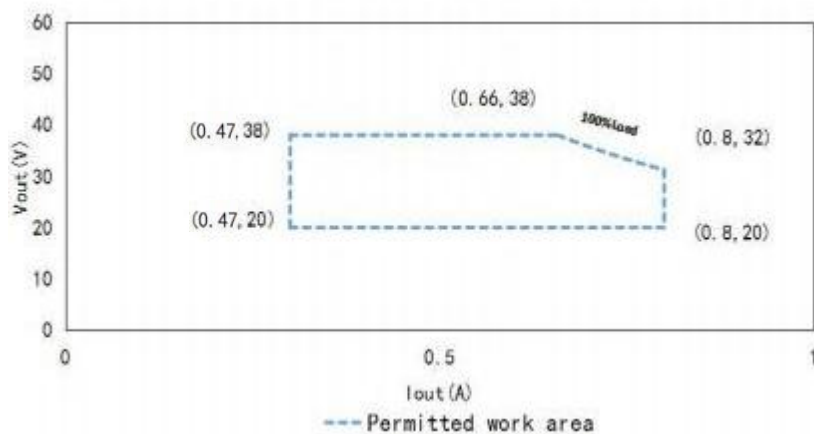
<b>Richmat</b>	Application	RICHMAT WATERPROOF LED DRIVER		
	Product Line	HJ-W50-S/A-NA	REV	1.1

## ■ I-V Working Area



**HJ-W50-V38S/38A-NA(200-277Vac, Rated output current and output power corresponding to different load voltages)**

Load working Voltage	20V	22V	24V	26V	28V	30V	33V	36V	38V
Io_MAX	1.6A	1.6A	1.6A	1.6A	1.6A	1.6A	1.6A	1.465A	1.35A
Po_MAX	32W	35.2W	38.4W	43.2W	44.8W	48W	51.2W	51.3W	51.3W

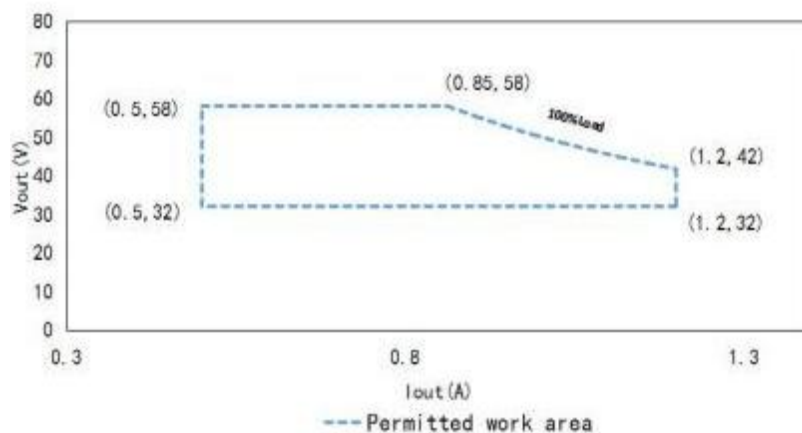


**HJ-W50-V38S/38A-NA(100-180Vac, Rated output current and output power corresponding to different load voltages)**

Load working Voltage	20V	22V	24V	26V	28V	30V	33V	36V	38V
Io_MAX	0.8A	0.8A	0.8A	0.8A	0.8A	0.8A	0.8A	0.71A	0.66A
Po_MAX	16W	17.6W	19.2W	21.6W	22.4W	24W	25.6W	25.6W	25.6W

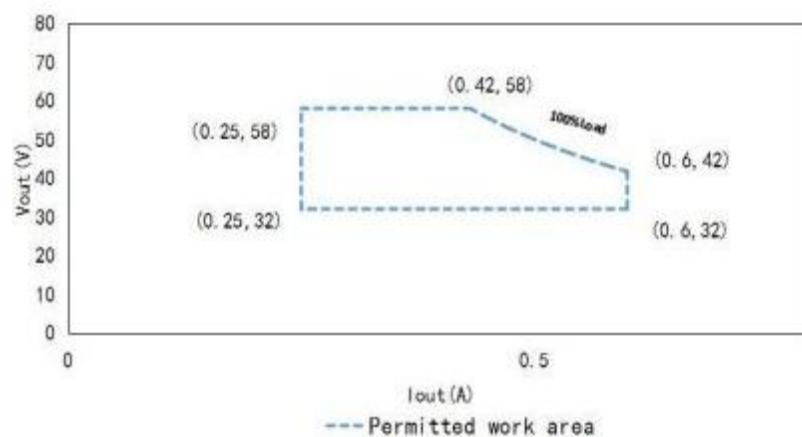
<b>Richmat</b>	Application	RICHMAT WATERPROOF LED DRIVER		
	Product Line	HJ-W50-S/A-NA	REV	1.1

## ■ I-V Working Area



**HJ-W50-V58S/58A-NA(200-277Vac, Rated output current and output power corresponding to different load voltages)**

Load working Voltage	32V	35V	39V	42V	45V	48V	50V	55V	58V
Io_MAX	1.2A	1.2A	1.2A	1.2A	1.17A	1.07A	0.98A	0.91A	0.85A
Po_MAX	38.4W	40.8W	43.2W	46.8W	49.3W	49.3W	49.3W	49.3W	49.3W



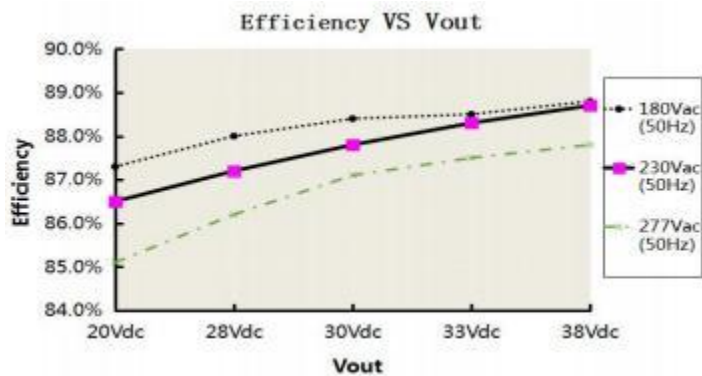
**HJ-W50-V58S/58A-NA(100-180Vac, Rated output current and output power corresponding to different load voltages)**

Load working Voltage	32V	35V	39V	42V	45V	48V	50V	55V	58V
Io_MAX	0.6A	0.6A	0.6A	0.6A	0.559A	0.503A	0.49A	0.455A	0.42A
Po_MAX	19.2W	20.4W	21.6W	23.4W	24.6W	24.6W	24.6W	24.6W	24.6W

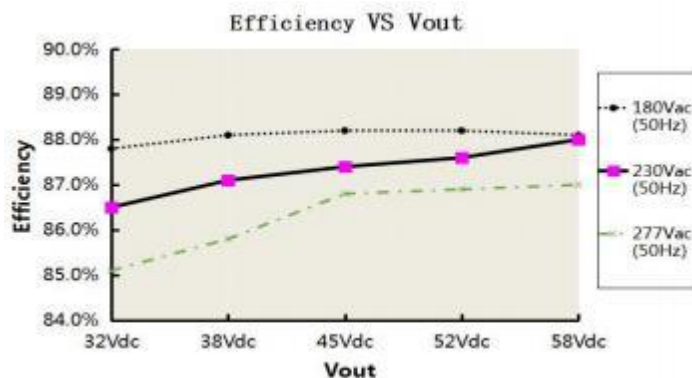


<b>Richmat</b>	Application	RICHMAT WATERPROOF LED DRIVER		
	Product Line	HJ-W50-S/A-NA	REV	1.1

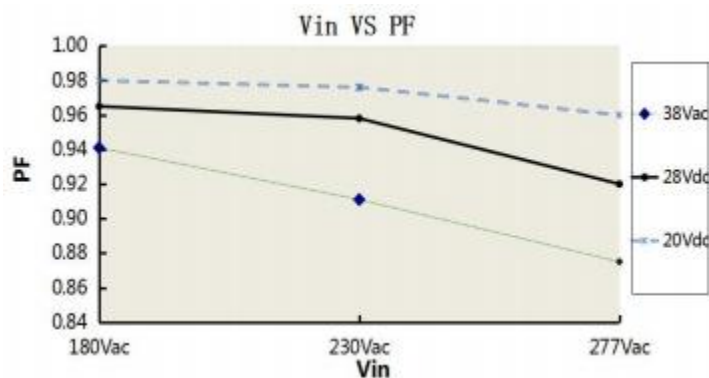
#### ■ Efficiency VS Vout(HJ-W50-V38S-NA)



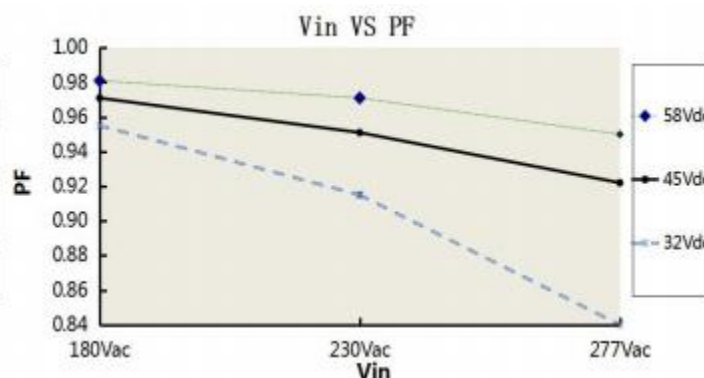
#### ■ Efficiency VS Vout(HJ-W50-V58S-NA)



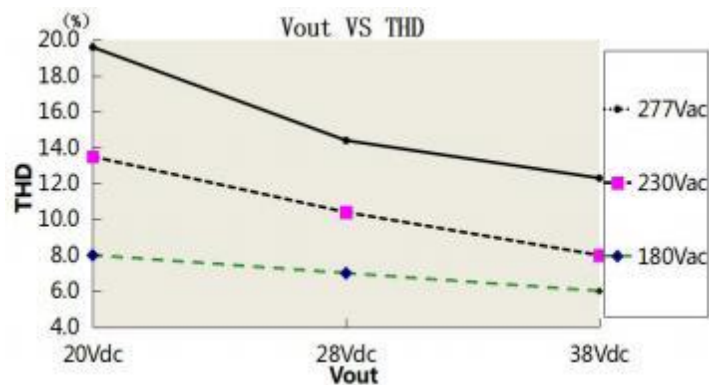
#### ■ Vin VS PF(HJ-W50-V38S-NA)



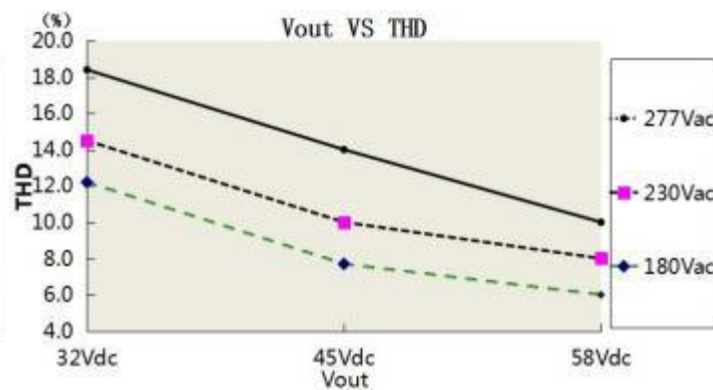
#### ■ Vin VS PF(HJ-W50-V58S-NA)



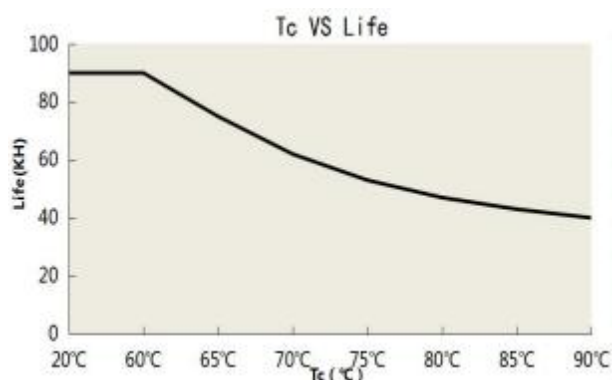
#### ■ Vout VS THD(HJ-W50-V38S-NA)



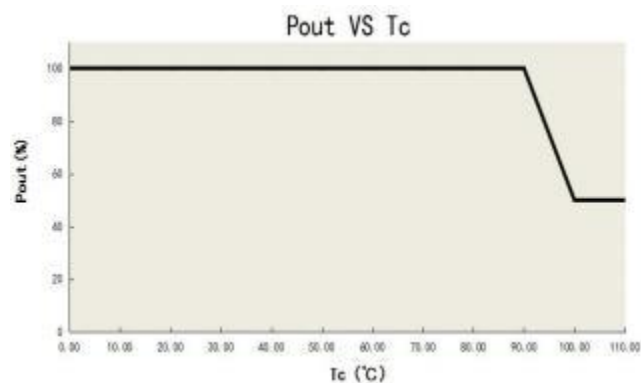
#### ■ Vout VS THD(HJ-W50-V58S-NA)



#### ■ Tc VS Life(HJ-W50-S/A-NA)



#### ■ Pout VS Tc



<b>Richmat</b>	Application	RICHMAT WATERPROOF LED DRIVER		
	Product Line	HJ-W50-S/A-NA	REV	1.1

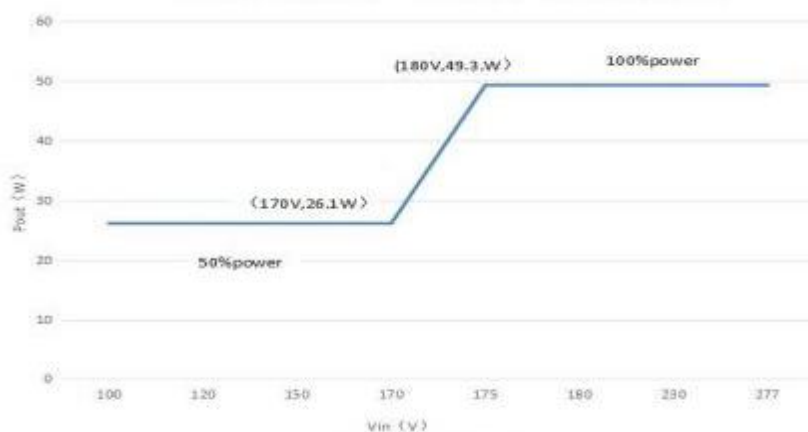
## ■ Pout VS Vin



**HJ-W50-V38S/A-NA(38Vdc, Rated output current and output power corresponding to different Input voltages)**

Input Voltage	100Vac	120Vac	150Vac	170Vac	175Vac	180Vac	230Vac	277Vac
Io	0.75A	0.75A	0.75A	0.75A	1.15A	1.35A	1.35A	1.35A
Po	28.3W	28.3W	28.3W	28.3W	51.3W	51.3W	51.3W	51.3W

## ■ Pout VS Vin



**HJ-W50-V58S/A-NA(58Vdc, Rated output current and output power corresponding to different Input voltages)**

Input Voltage	100Vac	120Vac	150Vac	170Vac	175Vac	180Vac	230Vac	277Vac
Io	0.45A	0.42A	0.42A	0.42A	0.66A	0.85A	0.85A	0.85A
Po	26.1W	26.1W	26.1W	26.1W	49.3W	49.3W	49.3W	49.3W

### Remarks:

1. Due to input voltage fluctuations and resistance errors. When the power decreases or increases (that is,  $V_{in}=150V$  or  $V_{in} = 180V$ ), it will move left and right, and the approximate moving range is  $150V\pm10\%$ ,  $180V\pm10\%$
2. When the input voltage is 100-180V, the output power range is  $25W\pm30\%$ .

<b>Richmat</b>	Application	RICHMAT WATERPROOF LED DRIVER		
	Product Line	HJ-W50-S/A-NA	REV	1.1

## ■ DIMMING OPERATION

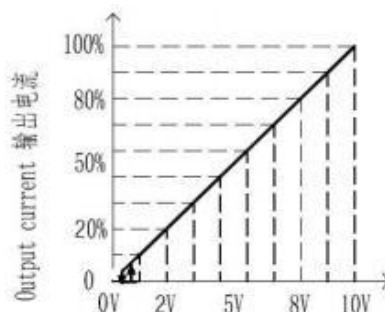
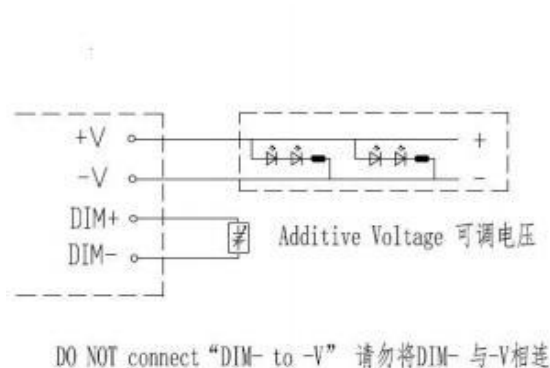
### ※ 3 in 1 dimming (For S Type)

1. Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-: 0 ~ 10VDC, or 10V PWM signal or resistance.

Direct connecting to LEDs is suggested. It is not suitable to be used with additional drivers.

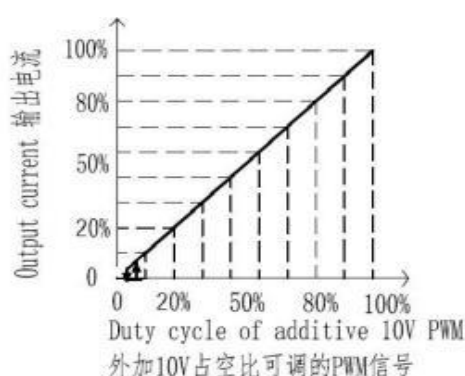
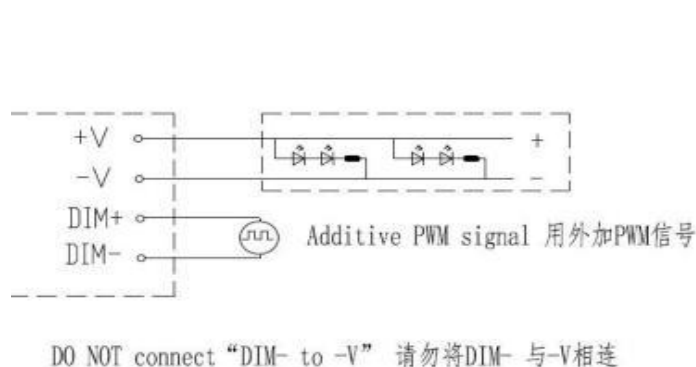
2. Dimming source current from power supply: 100 $\mu$ A (typ.)

#### ◎ Applying additive 0-10Vdc:



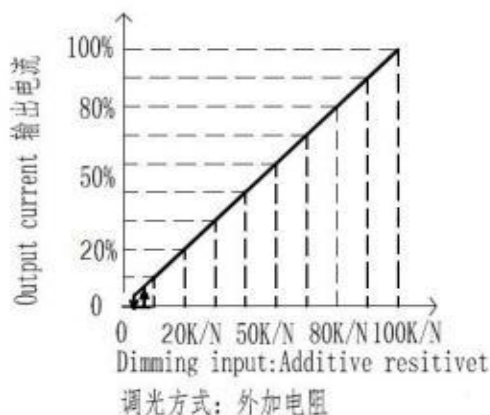
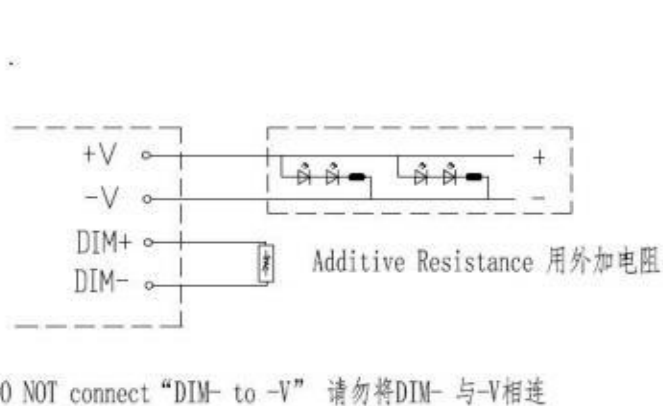
Dimming input: Additive voltage 调光输入: 外加电压

#### ◎ Applying additive 10V PWM signal (Frequency range: 100Hz-2K Hz):



Duty cycle of additive 10V PWM  
外加10V占空比可调的PWM信号

#### ◎ Applying additive 0-100K resistance:



Dimming input: Additive resistance  
调光方式: 外加电阻

#### Remarks:

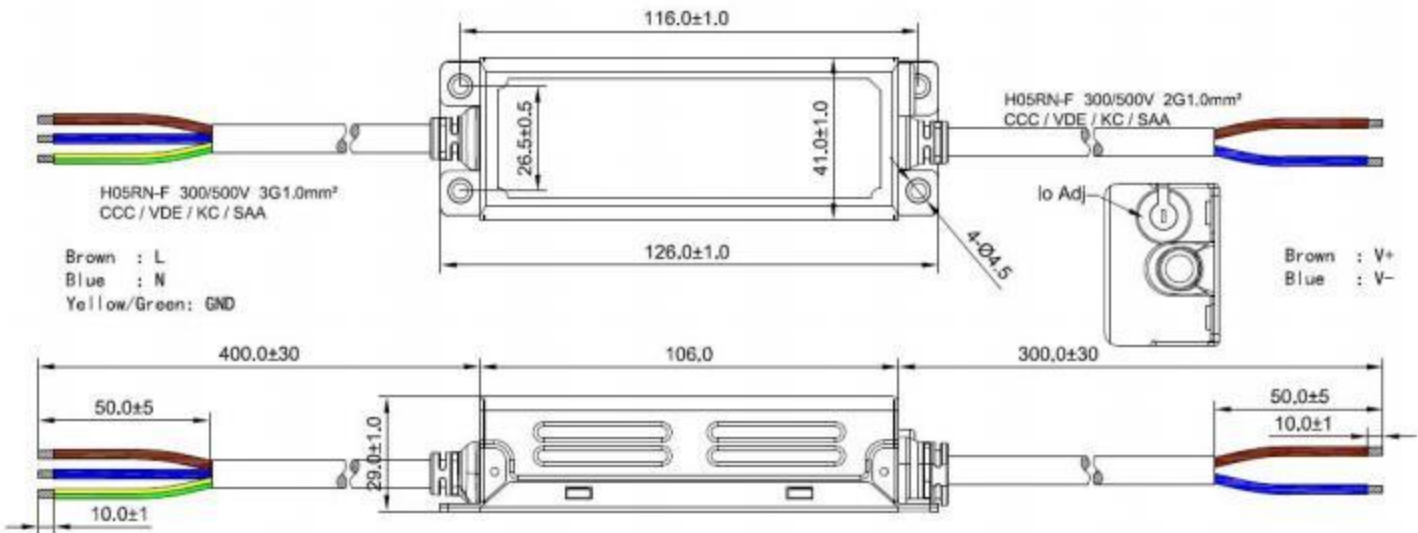
N is the number of synchronous dimming operation drivers; Example: If the number of synchronous dimming operation drivers is 1 and the output current is 20%, then the external resistance is  $20K/1=20K$ ; The number of synchronous dimming operators is 2, the output current is 20%, and the external resistance is  $20K/2=10K$ , and so on.

<b>Richmat</b>	Application	RICHMAT WATERPROOF LED DRIVER		
	Product Line	HJ-W50-S/A-NA	REV	1.1

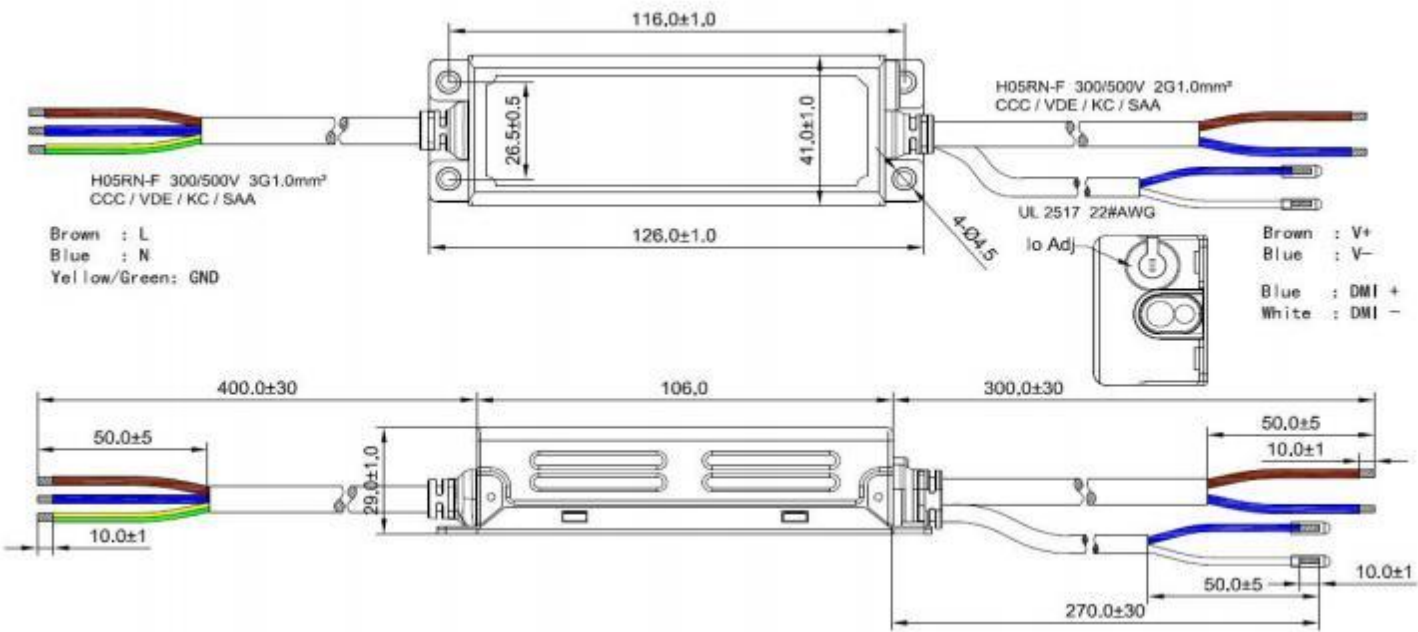
MACHINE SIZE MAP:

Size(mm)	L126mm*W41mm*H29mm
----------	--------------------

Case model : B40
 unit:mm  
 (HJ-W50-V38A/58A-NA)



(HJ-W50-V38S/58S-NA)



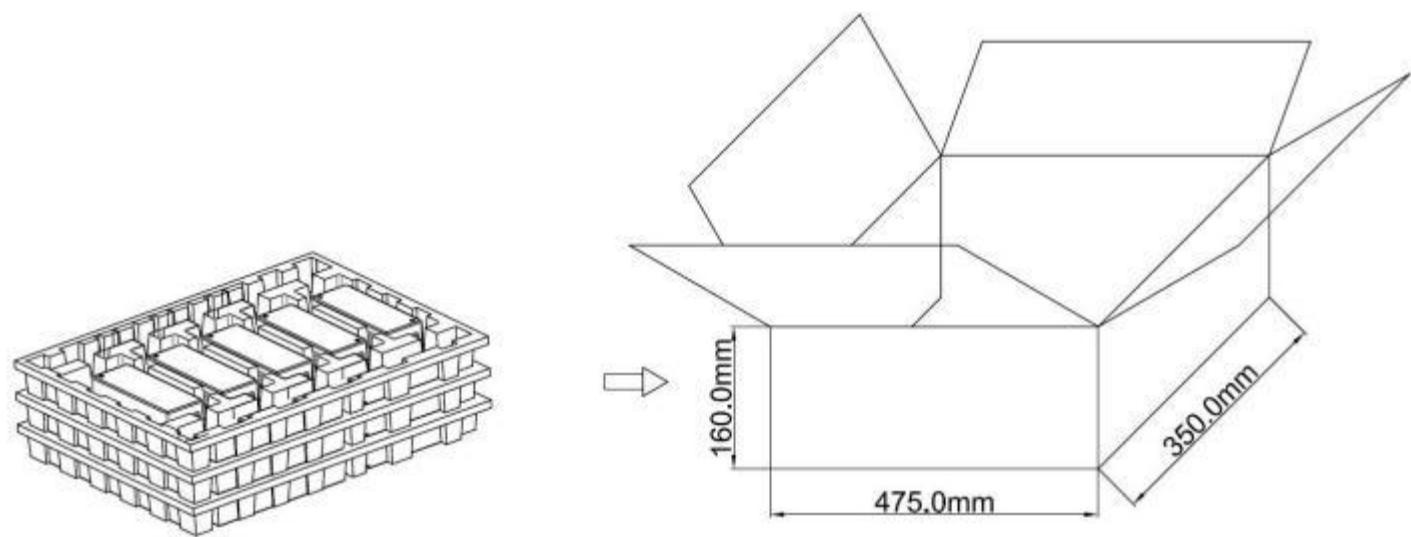
WEIGHT

Weight	300g
--------	------

<b>Richmat</b>	Application	RICHMAT WATERPROOF LED DRIVER		
	Product Line	HJ-W50-S/A-NA	REV	1.1

**PACKAGING**

Packaging(mm)	L475*W350*H160
---------------	----------------



**Remark:** 42 drivers in a packing case