Product Specifications

ATO-TBW-HYGP1000

ATO

■ Characteristic

- The international AC Input range(Max 277VAC)
- Efficiency up to 94%
- Protection types: short circuit protection, over current protection, over voltage protection,
- Standby power consumption < 1W
- Isolation auxiliary power supply: 12V/ 0.3a
- Used for LED Illumination
- Waterproof grade IP65/IP67
- Comply with world lighting safety standards
- Built-in Surge Protection LN-PG 5KV, L-N 5KV，To ensure no damage of power supply.
- 5 Years warranty(Refer to the warranty statement)

■ Product Description

Series were researched and development by our company with high power factor,high efficiency,high reliability LED driver. With complete function and Varied specifications can meet more different parameters requirement form different customs. Still with perfect protection function to ensure the lifetime of driver and lighting.

During in designing of this driver series. We focused on the high reliability of outdoor road lighting ,excellent ability of lightning protection and perfect ability of external fault protection. Adopt the mature scheme design ,research great concentration,strict verification and reliable performance.

■ Item List

Model	(input voltage range)	(Maximum output power)	(output voltage range)	(Recommended operating voltage)	(current output)	(Total harmonic distortion (classical value)	(Power factor (classical value)	(Efficiency (classical value))	(Maximum shell temperature)
TBW-HYGP1000-*	180-264VaC	1000W	-	48V	20A	10%	0.95	94%	90℃

1. Test Condition :220Vac Input Full Load 25℃.
2. When adjusting the output current, output power must lower then 1000W power, otherwise it will cause overload and causing damage.
3. The optional letters T, or empty, Show output increase different optional features.);T letters external triad dimming function (0-10 v, PWM and the external resistance.
4. performance of LED driver, in the output voltage range needs to test the performance of LED driver with the whole lamp.

■ Technical Specifications

Input Parameter

Items	Parameter	MIN	TYP	MAX	Remarks
1.1	AC input range/Vac	180Vac		200Vac	Ta: use at 40℃
1.2		200Vac		240Vac	Ta: use at 45℃
1.3		240Vac		277Vac	Ta: use at 50℃
1.4					
1.5	Input Frequency/ HZ	47Hz	50/60Hz	63Hz	
1.6	Input Current (Max)/A	---	---	5.8A	Vin=180Vac
1.7	Input inrush current/ A	---	---	80A	Vim=230Vac/50Hz,Cold start
1.8	stand-by power consumption			1W	220Vac/ 50Hz, dimming off
1.9	Power Factor/ PF	0.95	0.98	0.99	220Vac/50Hz
1.10		0.90	---	---	180-264 vac, 70% 100% load
1.11	Total Harmonic (Distortion/THD %)		8%	10%	220 vac / 50 hz, full load
1.12		---		20%	180-264 vac, 70% 100% load

Output Parameter List
TBW-HYGP1000

Items	Parameter	MIN	TYP	MAX	Remarks
2.1	**Output current A**	0	20		
2.2	**No load Voltage dcV**		48±0.5V		
2.3	**Output voltage ripple PK-PK**	---	5%	10%	(Full load)
2.4	**Output current ripple PK-PK**	---	6%	10%	(Full load)
2.5	**Output load voltage range**		48V		
2.6					
2.7	**Efficiency: 220 vac**	93%	94%		Output voltage 48V/20A
2.8	**Efficiency: 264 vac**	94%	94.5%		Output voltage 48V/20A
2.9	**Output Overshoot**	---	---	+10%	Cold start output peak
2.10	**Rise Time**	---	---	200mS	
2.11	**Startup time**	---	---	0.5S	110 vac, full load

2.12			---	---	0.5S	220 vac, full load
2.13	Auxiliary power supply function	Output voltage	11.4V	12V	12.5V	The maximum output peak power is 6W
		Current output	0mA	300mA	400mA	Long time load power cannot exceed 4.8W
2.14						
2.15						
2.16						
2.17						

Protection Function

Items	Parameter	MIN	TYP	MAX	Remarks
3.1	Output Over-Voltage Protection	---		50V	Over voltage recovery
3.2	Short Circuit Protection	Not damaged with long time short circuit ，short circuit power≤10W			Return to normal status when output limit current to get right
3.3	Overcurrent protection			120%	
3.4	Linear adjustment rate	-2%		+2%	Full load
3.5	Load regulation	-2%		+2%	
3.6	Temperature coefficient	-0.03%/℃		+0.03%/℃	Shell temperature: 0℃ ~90℃
3.7					

Environment Requirement

Items	Parameter	MIN	TYP	MAX	Remarks
4.1	**Operation Temperature**	-40°C	25°C	+50°C(200-264Vac) +40°C(180-200Vac)	**Ref to Derating Curve**
4.2	**Storage Temperature**	-40°C	25°C	+85°C	
4.3	**Relative Operation Humidity**	10%RH	---	90%RH	
4.4	**Relative Storage Humidity**	5%RH	---	95RH	
4.5	**Height Above Sea Level**	-100m	---	3000m	
4.6	**Cooling Method**	**Air Cooling**			
4.7					

Reliability Requirements

Items	Parameter	MIN	TYP	MAX	Remarks
5.1	Burn-in	Burn-in for 2 hours 30-50℃			Bare-board
		Burn-in for 4 hours 30-50℃			Power supply
5.2	Service life	Case temp ≤ 65°C	100,000hours		80% load
		Case temp ≤75℃	60,000hours		80% load
5.3	MTBF Estimation	150，000hours			Full load, ambient temperature 25°C
5.4	Warranty	5 years			Case temp：75℃
5.5	Weight	g	g	g	
5.6	Case Temperature	---	---	90	
5.7	Size(L*W*H)	440*89*45mm			±1mm

Safety Standards &EMI/EMS

10.1 Safety standards			
Certification	**Safety standards**	**Condition**	**Remark**
UL/ETL			
SAA			
TUV/CE			
CQC/CCC			

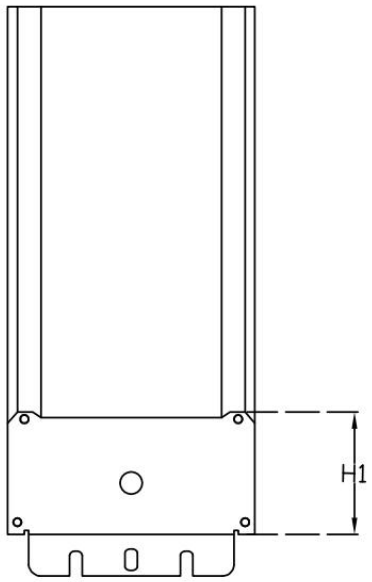
10.2 Safety Requirements			
Projects		**Technical indicators**	**Remark**
Dielectric compressive strength	**Input to output**	3750Vac/5mA Max / 60seconds	The basic insulation,No breakdown、No arcing
	Junior to ground	1750Vac/5mA Max / 60 seconds	The basic insulation,No breakdown、No arcing
	Output to ground	1000Vac/5mA Max / 60 seconds	The basic insulation,No breakdown、No arcing
Insulation resistance	**Input to ground**	≥10 MΩ	The test voltage：500Vdc
Grounding resistance		≤0.1Ω	25A/1min

10.3EMC Ask for		
Projects	Standard/grade	State
Conduction CE	EN55015:2013+A1：2015	
Radiation RE	EN55015:2013+A1：2015	
Harmonic	IEC/EN 61000-3-2	

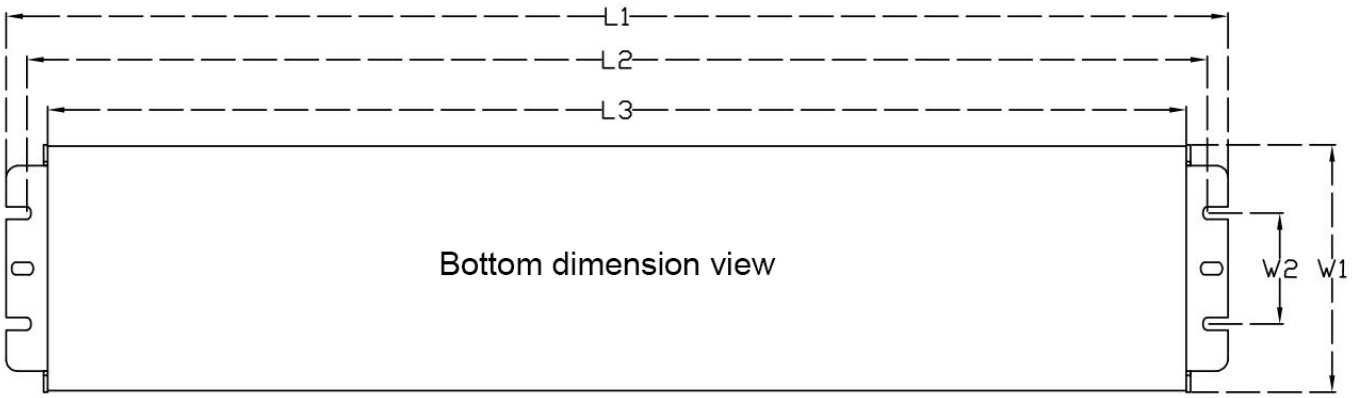
Surge	IEC/EN61000-4-5	Criterion B of LEVEL 4 (differential mode 5kV, common mode 5kV)

1. If not specified otherwise, all specifications and parameters are tested in the input to 220 vac. Under 25 ℃ temperature measurement.
2. Ripple and noise measurement method: using a squared 0.5 mm twisted pair, and a terminal to 0.1 uF and 47uF capacitance in parallel, the measurement under 20 MHZ bandwidth
3. Accuracy: contains setting error, linear regulation and load regulation.
4. While low Input voltage shall be reduced , Need deduction under low input voltage output, Refer to the static characteristic curve.
5. Safety and EMC design EN60598-1, CNS15233, GB700.1, the FCC part18.
6. Cold-Start time is measured under cold machine start, frequent switch machine could change the start up time .
7. Power Supply was seen as a component and terminal equipment used in combination, Because of EMC affected by a whole set of equipment, terminal equipment manufacturers need to confirm EMC with complete equipment

■ Size

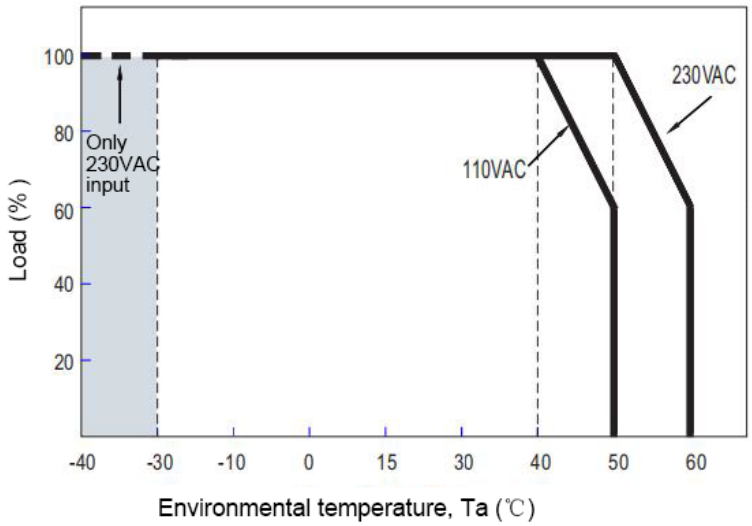


Descriptive Name	Standard code	MM
Overall length	L1	440
Installation hole length	L2	425
Shell length	L3	410
Shell width	W1	89
Installation hole width	W2	40
Shell height	H1	45

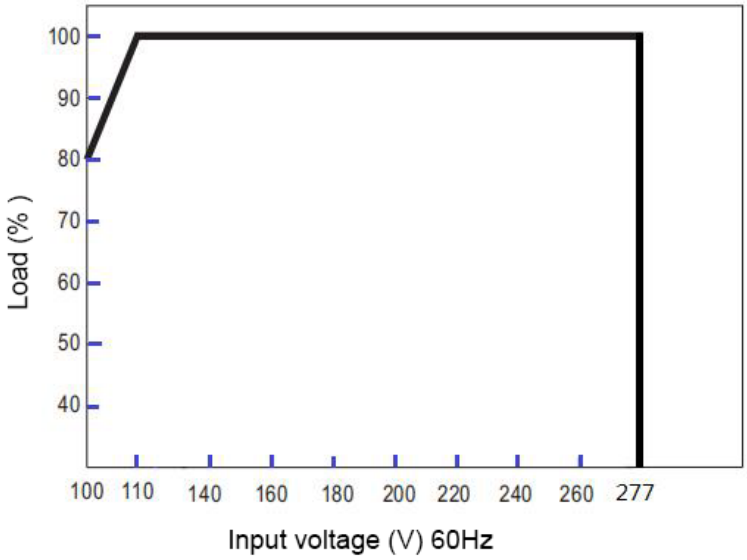


■ Wire instructions

AC Input wire	3*1.5²mm,Rubber Thread, The length of exposed wire 35cm(±3cm) Wire stripping 4cm(±5mm) Wicking 8mm(±2mm Brown or Black as L ,Blue or White as N ,Yellow and Green or Yellow as P/E
DC Output wire	2*2.5²mm,Rubber Thread,The length of exposed wire35cm(±3cm) Wire stripping 4cm(±5mm) Wicking 4mm(±1mm) Brown or Black as +,Blue or White as -
DIM dimming Wire(Only T Model	

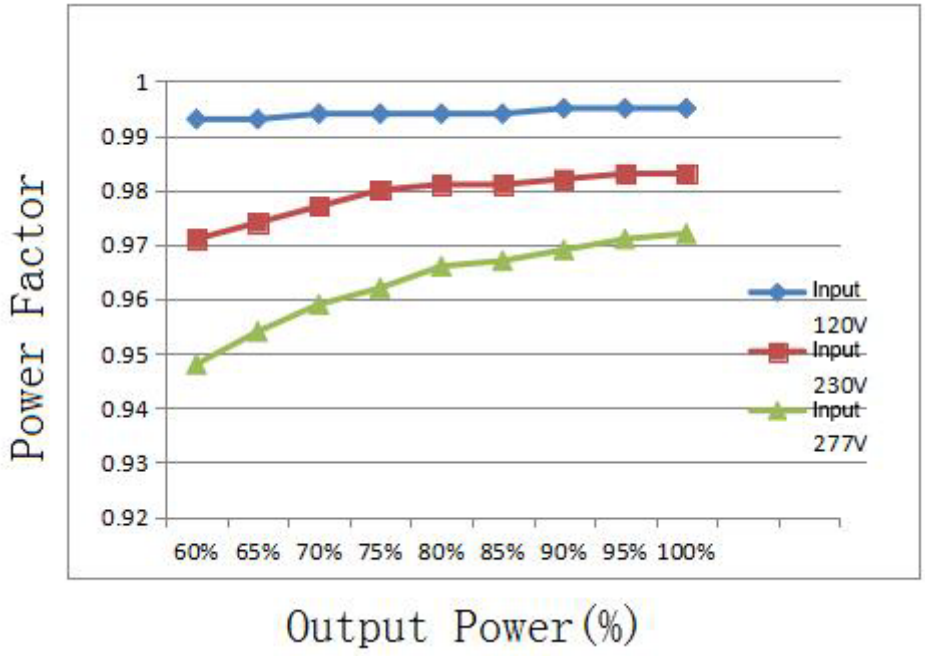


Output power and input voltage



■ Power Factor Characteristic

Power factor and output power



■ The shell temperature life