

SPECIFICATION FOR APPROVAL

Customer: _____

CustomerP/N : _____

ProductType: **Digital Ballast**

ProductNo: **1000W 400V Controllable Ballast**

IssueDate: **2019.03.21**

Prepared By			
Checked By	R&D	DQE	QC
Approved By			

Web: www.lumatek-lighting.com

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1. Description

This is an 1000W intelligent electronic ballast with 3.5mm headphone jack interface that can be connected to external controller. Input voltage is 220-240V, 50/60Hz. It will have 0-6S delay ignition for random. And knob dimming range can be 600W-750W-1000W-Super Lumens and remote wire communication function. It can match well with 1000W DE lamps.

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2. Function and parameters

2.1 Knob Control

2.1.1 Input Characteristics

Parameter	Conditions	Min	Type	Max	Units
Mains Voltage	Operational Voltage	195	220-240	265	V
	Safe Voltage	185	220-240	275	
Mains Frequency f_{mains}	Operational Frequency	48	50/60	63	Hz
	Safe Frequency	45	50/60	66	
Mains Power P_{mains}	P=Super Lumens	1164	1200	1236	W
	P=1000W	1024	1060	1096	
	P=750W	759	795	831	
	P=600W	600	636	672	
Mains Current I_{mains}	$V_{\text{mains}} = 240\text{V}$	4.8	5.1	5.3	A
	$V_{\text{mains}} = 220\text{V}$	5.3	5.5	5.7	
	$V_{\text{mains}} = 195\text{V}$	6.0	6.2	6.5	
Power Factor	P=Super Lumens	0.97	0.98	--	--
THD	P=Super Lumens	--	--	10%	--
Inrush Current	$V_{\text{mains}} = 240\text{V}$ $T_a = 25^\circ\text{C}$ cold start	--	--	30	A
Pulse Duration		--	--	0.8	ms

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2.1.2 Output Characteristics

Parameter	Conditions	Min	Type	Max	Units
Lamp Frequency f_{lamp}	P=Super Lumens	110	120	130	KHz
Efficiency(%)	P=Super Lumens	95	96	--	--
Lamp Power P_{lamp}	P=Super Lumens	1114	1150	1186	W
	P=1000W	964	1000	1036	
	P=750W	714	750	786	
	P=600W	564	600	636	
Lamp Voltage	1000W DE	200	250	300	V
Ignition Voltage	$C_{load} < 100pF$	3000	4000	5000	V
Ignition Interval	--	1-5-5-5-5			Min

2.2 Recommended Matching Lamps

Lamp	LUMATEK 400V/1000W
	AUVL ADVNCED UV LIGHT 1000W 400V
	USHIO AHS-DE 1000/OPTI-RED
	AGROSUN DOUBLE ENDED 2100K
	BLV DE 400V/1000W
	PHILIPS MASTER GREEN POWER PLUS 1000W EL

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2.3 Remote Wire Communication Function

2.3.1 Remote Dimming

All output specifications are reported as a percentage of the full ballast rating,

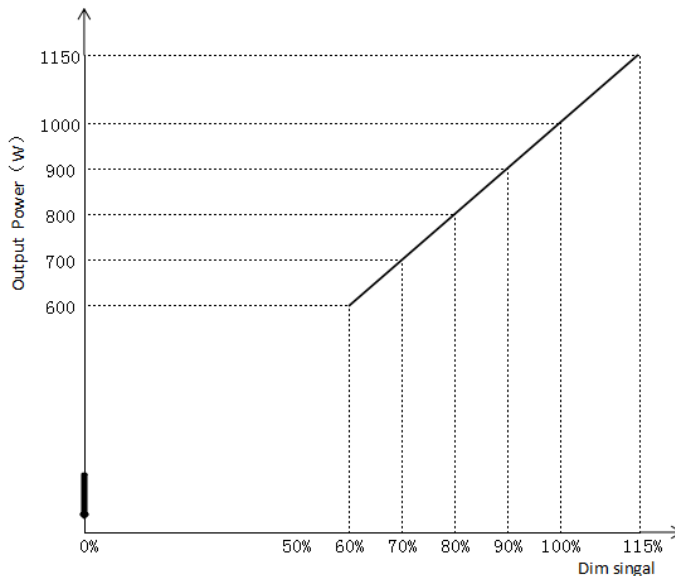
EXP: 75% of 1000W ballast = 750W.

Output Mapping Equation (W): (Dimming ratio)*ballast rating=Output.

Note: 1. Dimming accuracy is 3%(as per the output power of $V_{mains} = 220V$).

when the dimming ratio is 0%, the ballast will be off ;

user can set the parameters show in the 60%-115%.



2.3.2 Remote Control Function

- ✧ It can control remotely the ballast's on/off/dimming rate.
- ✧ Group control mode: it can control the state of a set of products .
- ✧ Single lamp control mode : it can control the state of a single product.
- ✧ Sun rise and set :When the SR/SS set time is 0min, the ballast will power on/off as its own speed, actually, it's exactly same as Power on/off.
- ✧ If no controller, we can dim by knob. If the controller works, the knob will fail at once, and after repowering, it will work.

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2.4 Protection

2.4.1 Open Circuit Protection

When output is shut off, the ballast will power off for open circuit protection. When errors are removed and the power is re-applied to the product, it can work normally.

2.4.2 Short Circuit Protection

When output is shorted, the ballast will power off for short circuit protection. When errors are removed and the power is re-applied to the product, it can work normally.

2.4.3 Over Temperature Protection

When $T_a > 40^\circ\text{C}$, the ballast will shut off for high temperature protection. When the temperature drop to normal and the power is re-applied to the product, it can work normally.

2.4.4 Lamp END of Life/Rectification

The ballast will be not damaged when the rectification appears at the end of the lamp life. When replacing a new lamp and the power is re-applied, it can work normally.

2.4.5 Over-voltage/ Low-voltage Detect Protection

Protection happens when input voltage is below 175V or up to 275V (Output power will drop to 80% when input voltage is 175V-195V). When input voltage is back to normal, the ballast can work normally.

Note: Voltage accuracy is 5%.

2.4.6 LED status

Status	LED
Output lock down	Flash*1
*Output errors	Flash*2
Low input voltage	Flash*3
Over temperature	Flash*4
High input voltage	Flash*5
*Ignition busy	Flash*6
Lamp fault	Flash*7

*LED status only as a remind of product's fault, when the output have a failure, please check the status of the two kinds of fault.

when the controller is controlled, LED (controller) flashes 2 times every 2S, When the controller is no contacted or connection failed, LED (controller) is lighting, if the 3min is still no control signal, "controller" flash, the product is shut down.

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3. Environment

Environment \ Conditions	Operating	Shipping and Storage
3.1 Temperature	-20°C--+40°C	-40°C--+70°C
3.2 Humidity	20%--90%, non-condensing	10%--95%, non-condensing
3.3 Vibration	Amplitude:0.035mm	Amplitude:0.15mm
	Frequency: 10-150Hz	
	Test time in any Direction: 30min	
	Sweep velocity: 1oct/min	
3.4 Waterproof and dustproof	IP20	

4. Safety

4.1 Surface Temperature Rise

When output power is 1000W, ambient temperature is 25°C and input voltage is 220Vac, the surface temperature rise will be less than 40°C.

4.2 Leakage Current

0.75mA_{max} V_{mains}=240V/60Hz.

4.3 Insulation Resistance

The insulation resistance shall be no less than 2M ohm after application of 500V_{dc} for 60s.

4.4 Dielectric Withstand Voltage (HI-POT)

L,N-PE:1500Vac 5.5mA_{max}/60s.

4.5 Grounded Resistance

<0.5 Ω, 30A, 60s.

4.6 Regulatory Standards

EN 61347-1 : 2008

EN 61347-2-12 : 2005

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5. EMC

5.1 EMI

EN55015

Limit value of radio disturbance characteristics of electrical lighting and similar equipment.

5.2 EMS

5.2.1 Surge Immunity

IEC 61000-4-5:

L-N: $\pm 1\text{KV}$;

L/N-PE: $\pm 2\text{KV}$.

5.2.2 Electrical Fast Transient

IEC 61000-4-4:

L-N-PE : $\pm 1\text{KV}$.

5.2.3 Voltage Dips and Interruptions Immunity

IEC 61000-4-11:

Drop: 30% ;cycles: 10;

Drop: 100% ;cycles: 0.5.

5.2.4 Electrostatic Discharge Immunity

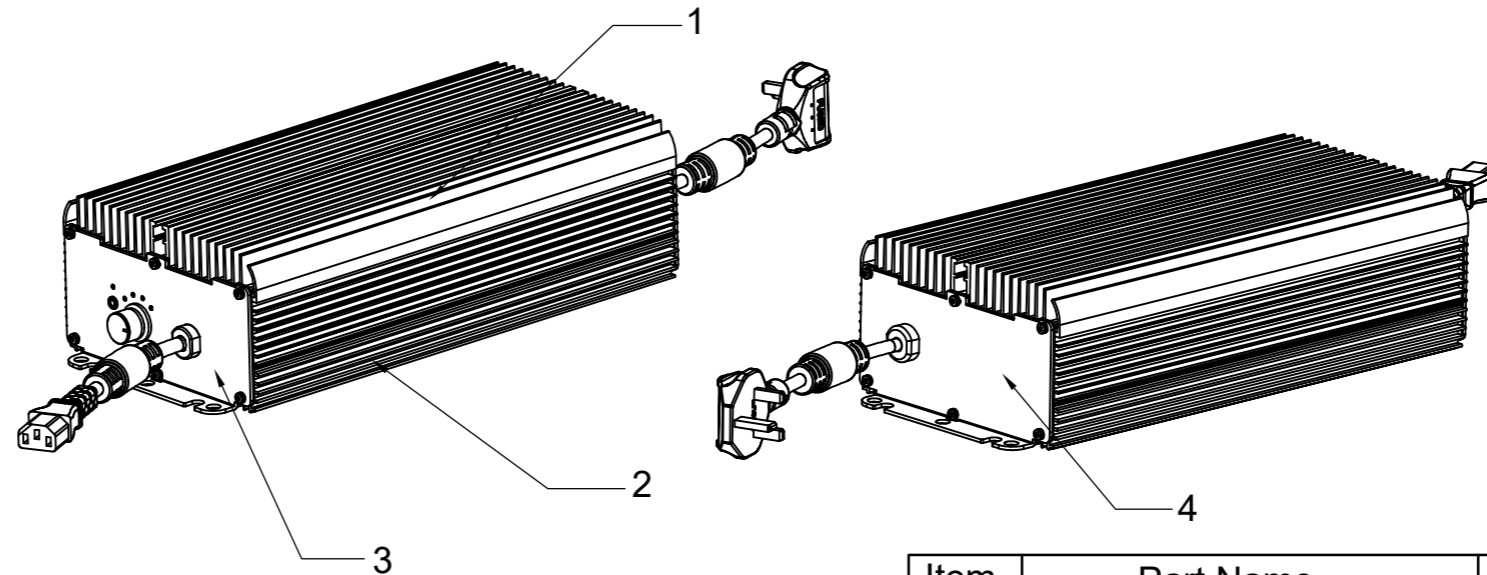
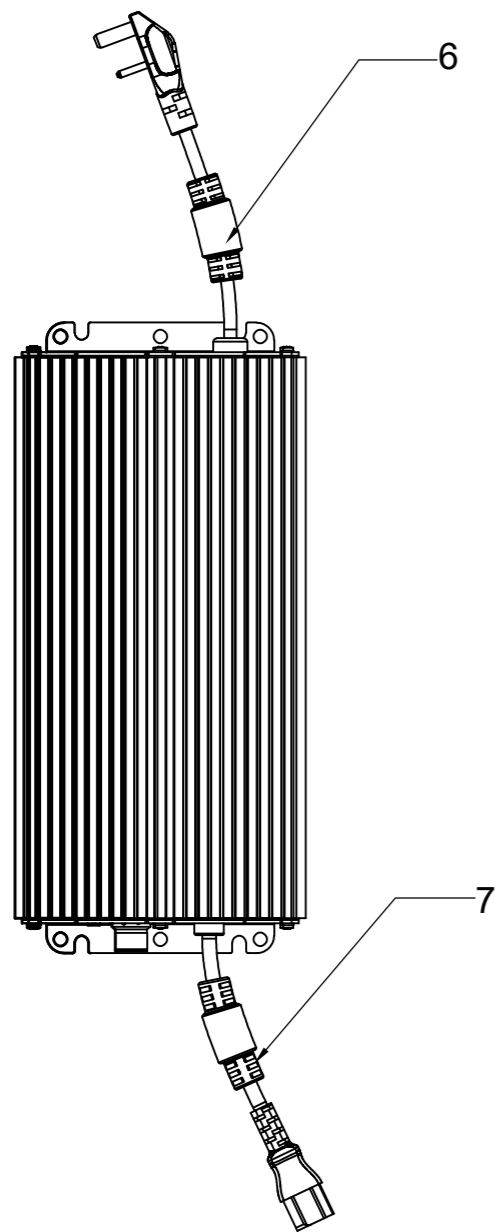
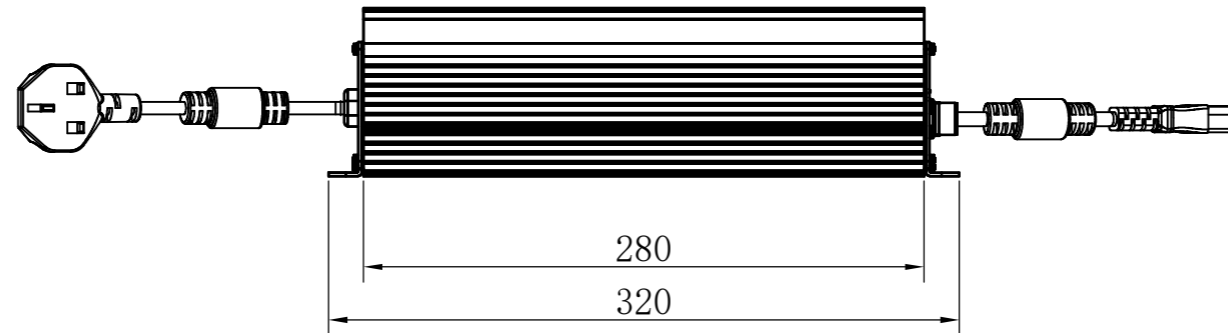
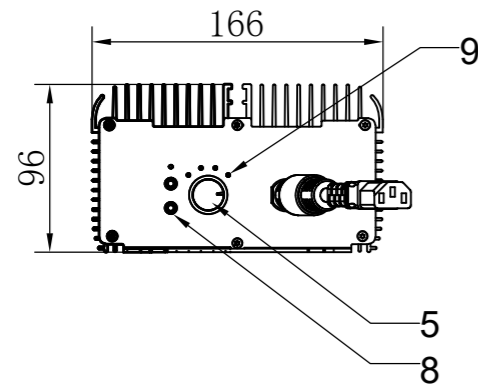
IEC 61000-4-2:

Contact discharge: $\pm 4\text{KV}$;

Air discharge: $\pm 8\text{KV}$.

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6 Physical Dimension



Item	Part Name	Q'ty	Remark
1	Cover	1	Violet
2	Cover	1	Violet
3	Plate	1	Violet
4	Plate	1	Violet
5	Knob	1	Silver White
6	Input Line	1	Black
7	Output Line	1	Black
8	Earphone hole	2	Black
9	LED	5	---

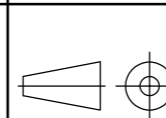
Physical Dimension	
Material	Aluminium
Dimension	320x166x96
Weight	4.0±10% Kg

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Dimensional Tolerances (V)	Holes:±0.05 ()	Angles:±0.5° ()
<30 :±0.25 Decimals	Up~100 :±0.2 250~300 :±0.4	Up~600 :±1.5
>30~100 :±0.35 X :±0.3	100~150 :±0.25 300~350 :±0.45	600~900 :±2.4
>100~300 :±0.5 X.X :±0.2	150~200 :±0.3 350~400 :±0.5	900~Over:±3.1
Above300 :±0.6 X.XX :±0.1	200~250 :±0.35	

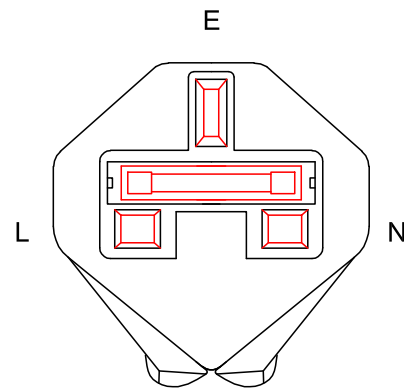
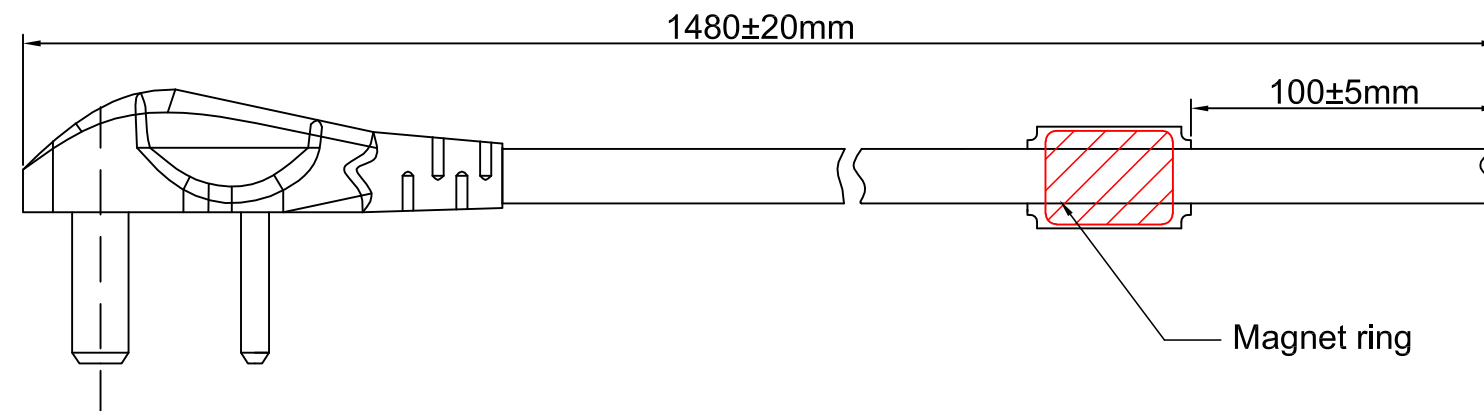


First Angle Projection

Description:		REV P00
Part No:		SIZE A3
Used On:	1000W 400V Controllable Ballast	

Scale	---	Unit	mm	Sheet 1 Of 1	Issue Date:	Drawn:	Design:
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7 Input



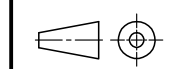
Technical requirements :

1. Emifil: 19×50.8×10.15
2. Power cord: Emifil set on the power cord directly, seal
3. Specifications: VDE H05VV-F 3×1.5mm² 70 °C

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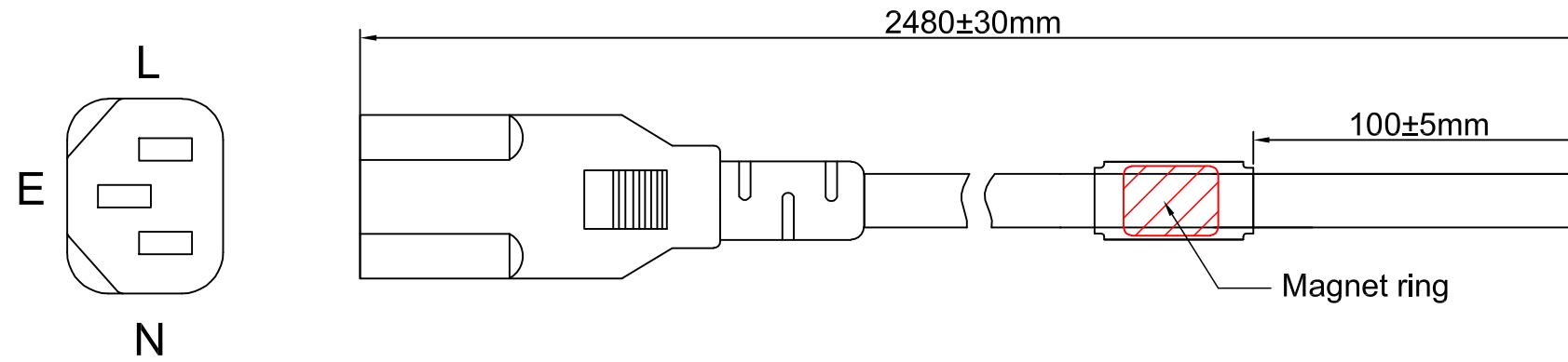


First Angle Projection

Description:	Input	REV P00 SIZE A3
Part No:	--	
Used On	1000W 400V Controllable Ballast	

Scale	--	Unit	mm	Sheet 1 Of 1	Issue Date:	Drawn:	Design:
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8 Output

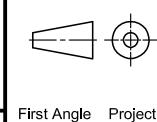


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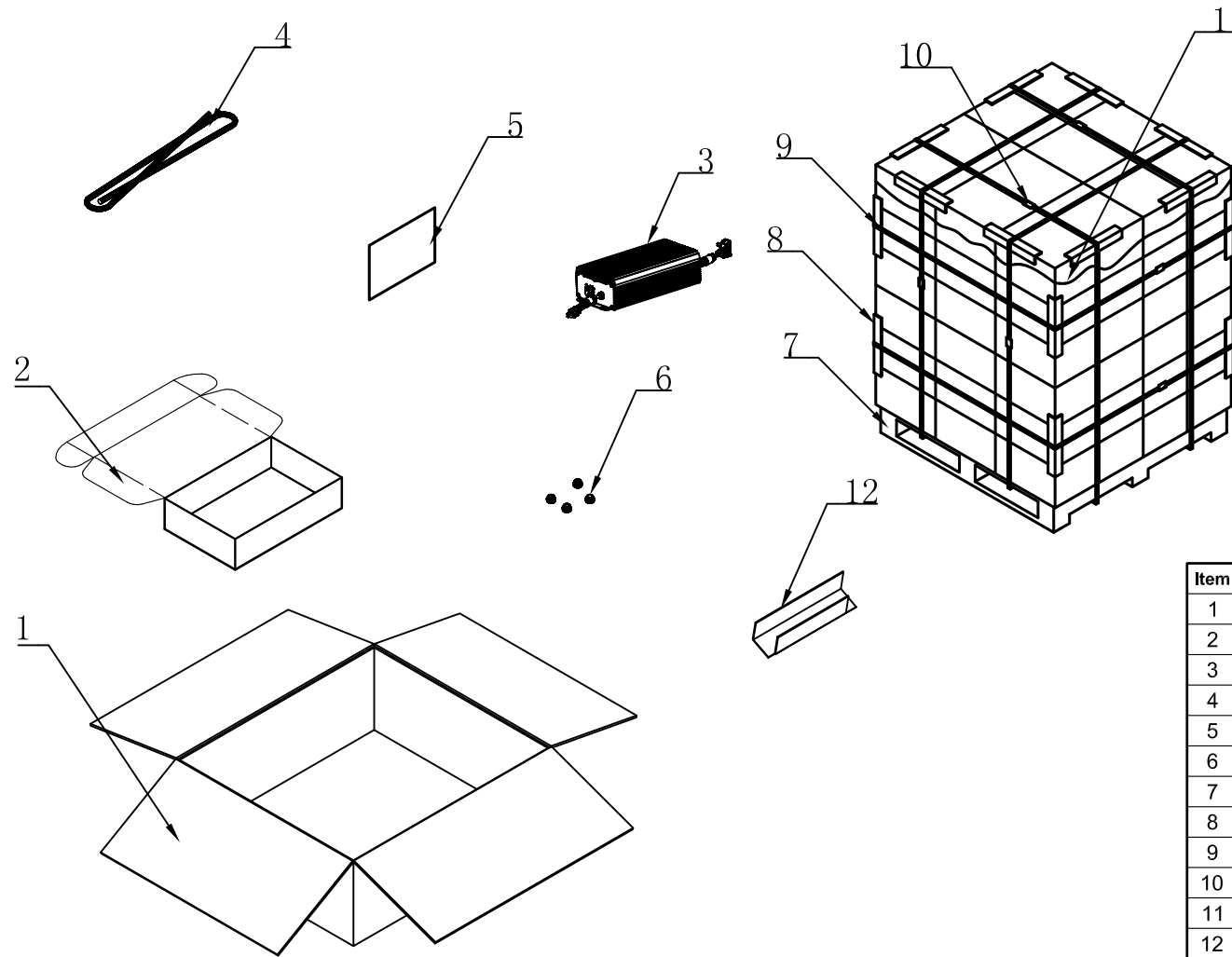
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Description: Part No: Used On	Output	REV
	--	P00
	1000W 400V Controllable Ballast	SIZE A3

Scale	--	Unit	mm	Sheet 1 Of 1	Issue Date:	Drawn:	Design:
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9 Packing



Item	Part Name	Outside Dim(mm)	Q'ty
1	Carton	500×332×238	1/4
2	Inner Box	310×238×100	1
3	Digital Ballast	280×166×96	1
4	Signal line	\	1
5	Instruction	297×210	1
6	Rubber Feet	\	4
7	Pallet	1100×1100×150	1/n
8	Angle Paper	320×45×45	\
9	Plastic Strip	\	\
10	Staple Wire	\	1
11	PE Film	t=0.02	1
12	Liner	288×254×3	1

Notes:

1. Units:mm
2. All the packing material should meet Lumatek specification.

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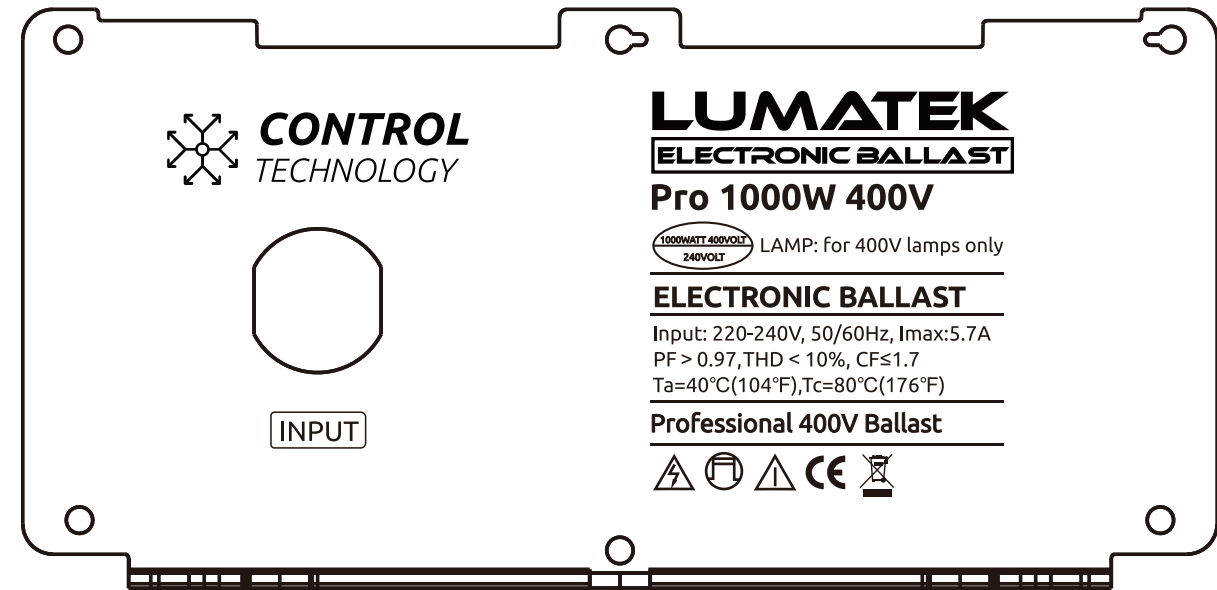
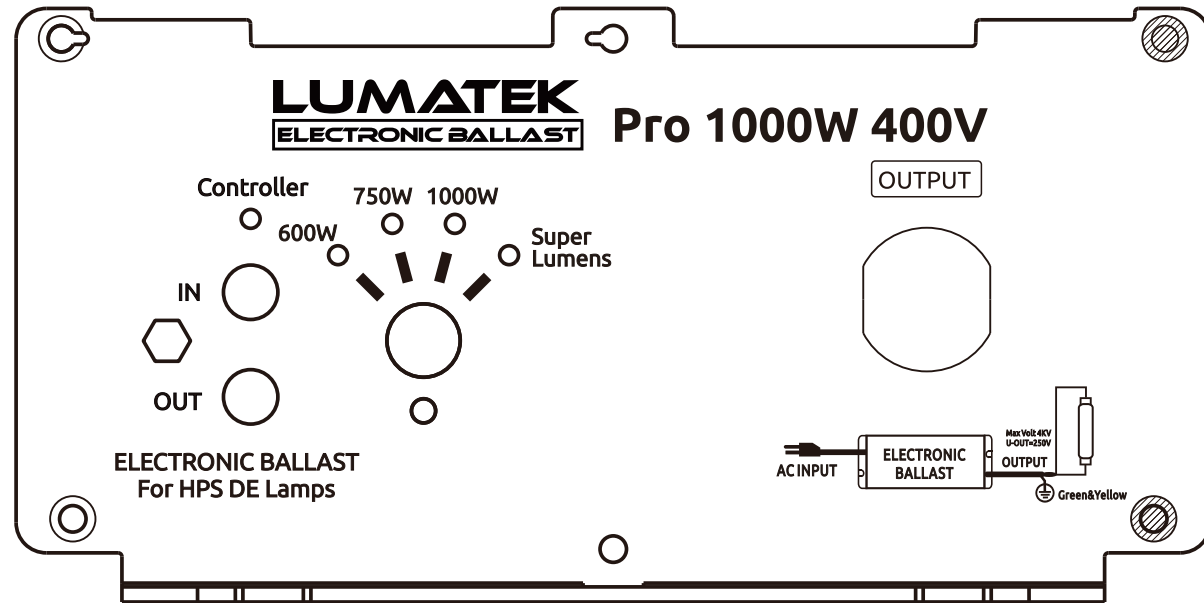


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 First Angle Projection	Description:		REV P00
	Part No:	-	
	Used On:	1000W 400V Controllable Ballast	SIZE A3

Scale	--	Unit	mm	Sheet 1 Of 1	Issue Date:	Drawn:	Design:
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10 Mark



LK1TH240ProUK-C

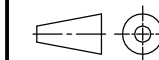


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First Angle Projection

Description:	Mark	REV P00
Part No:	--	
Used On	1000W 400V Controllable Ballast	SIZE A3

Scale	--	Unit	mm	Sheet 1 Of 1	Issue Date:	Drawn:	Design:
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