

SPECIFICATION FOR APPROVAL

Customer : _____

Customer P/N : _____

Product Type : **Digital Ballast**

Product No. : **315W Controllable Ballast**

Issue Date : **2018.10.19**

Prepared By			
Checked By	R&D	PM	QC
Approved By			

Web: www.lumatek-lighting.com

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1. Description

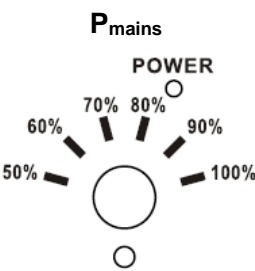
This is a 315W intelligent electronic ballast with 3.5mm headphone jack interface that can be connected to external controller. Input voltage is 220-240V, 50/60Hz. Knob dimming range can be 50%-60%-70%- 80%-90%-100% and remote wire communication function. It will delay 0-6s ignition randomly. It can match well with 315W CMH lamps.

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2. Function and parameters

2.1 Knob Control

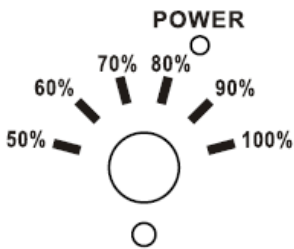
2.1.1 Input Characteristics

Parameter	Conditions	Min	Type	Max	Units
Mains Performance	Operational Performance	195	220-240	265	V
	Operational Safety	187	220-240	276	
Mains Frequency f_{mains}	Operational Performance	48	50/60	63	Hz
	Operational Safety	45	50/60	66	
Mains Power P_{mains} 	P=100%	315	334	347	W
	P=90%	284	301	315	
	P=80%	250	267	284	
	P=70%	217	233	250	
	P=60%	184	200	217	
	P=50%	150	167	184	
Mains Current I_{mains}	$V_{mains} = 240V$	1.3	1.4	1.5	A
	$V_{mains} = 230V$	1.4	1.5	1.6	
	$V_{mains} = 220V$	1.4	1.6	1.7	
	$V_{mains} = 195V$	1.6	1.8	1.9	
Power Factor	P=315W	0.97	0.98	--	--
THD	P=315W	--	--	15%	--
Inrush Current	$V_{mains} = 240V$	--	--	30	A
Pulse Duration	$T_a = 25^{\circ}C$, cold start	--	--	0.8	ms

Note: The certified current of this product is :1.9A(220V)/1.7A(240V).

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2.1.2 Output Characteristics

Parameter	Conditions	Min	Type	Max	Units
Lamp Frequency f_{lamp}	P=100%	110	120	130	Hz
Efficiency(%)	P=315W	91	92	--	--
Lamp Power P_{lamp} 	P=100%	296	315	328	W
	P=90%	267	284	300	
	P=80%	235	252	269	
	P=70%	205	221	238	
	P=60%	173	189	206	
	P=50%	141	158	175	
Lamp Voltage	315 CMH	90	100	115	V
Ignition Voltage	$C_{load} < 100\mu F$	3000	4000	5000	V
Ignition Interval	--	0.5-0.5-0.5-5-5-5-10			Min

Note: 1. Dimming accuracy is 5% (as per the output power of $V_{mains} = 220V$).

2. The parameters of input and output, such as no special requirements, It test in products in therated operating voltage and match with standard load stability after 10min .

2.2 Recommended Matching Lamps PHILIPS CDM-TM MW 315W/942/U/O C182/O

Lamp	LUMATEK CMH-315W/930
	LUMATEK CMH-315W/942
	USHIO CMH-315/930/ARGO
	USHIO CMH-315/942/ARGO
	PHILIPS CDM-TP 315W/930/U/O
	PHILIPS CDM-TM MW 315W/942/U/O C182/O

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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,

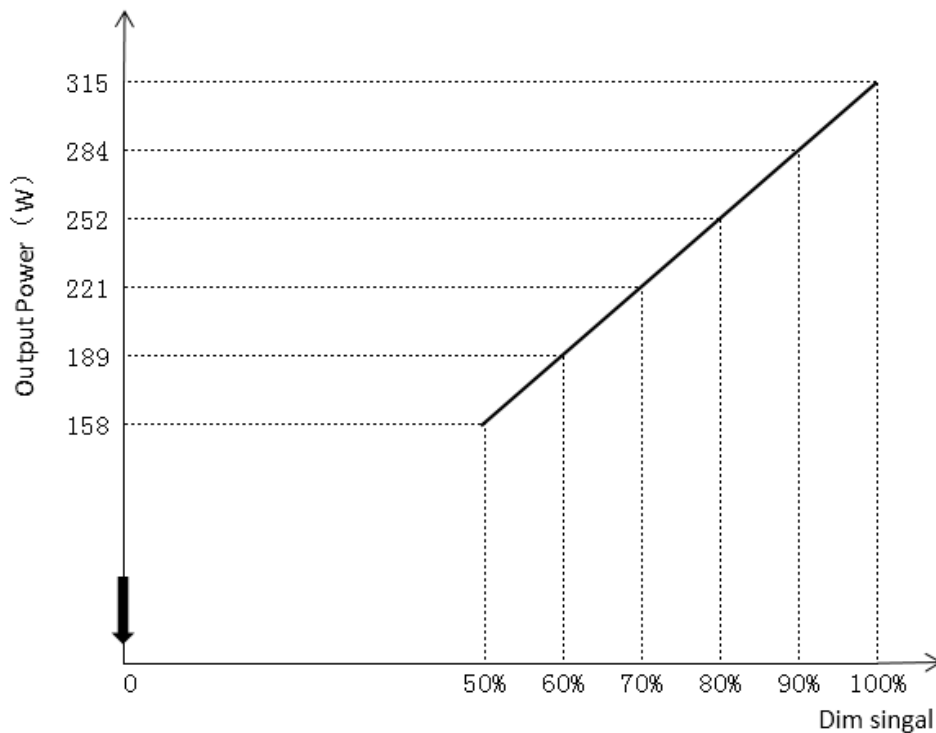
EXP: 80% of 315W ballast =252W.

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

Note: 1.Dimming accuracy is 5%(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 50%-100%.



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 drops 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. When input voltage is back to normal, the ballast can work normally.

Note: Voltage accuracy is 5%.

2.4.6 LED status

Status	LED
Ballast locked	Flash*1
Connection error	Flash*2
Low input voltage	Flash*3
Over temperature	Flash*4
High input voltage	Flash*5

Note: 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	
Direction: X,Y,Z		
3.4 Waterproof and dustproof	IP20	

4. Safety

4.1 Surface Temperature Rise

When output power is 315W, 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 500Vdc 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

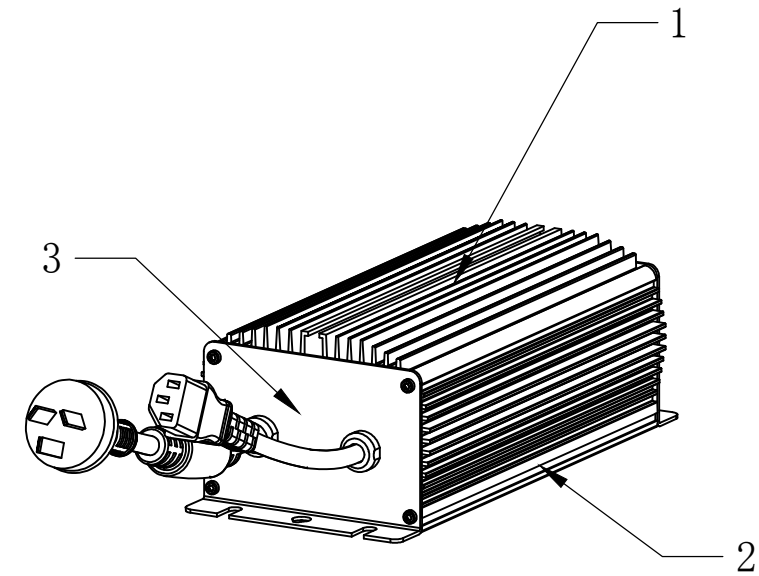
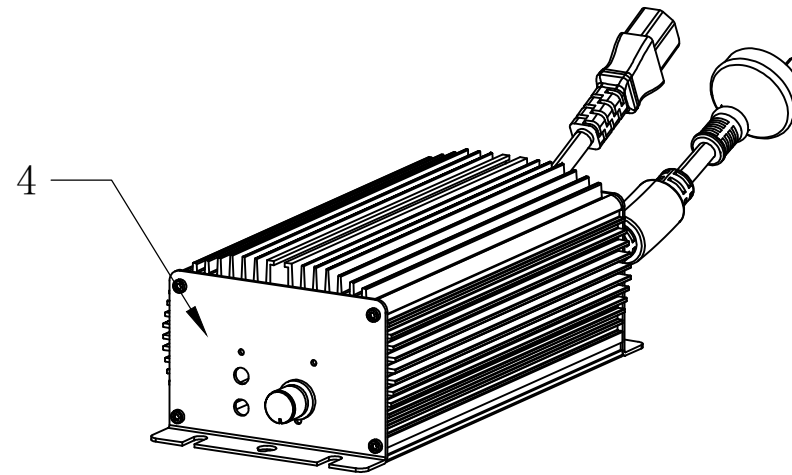
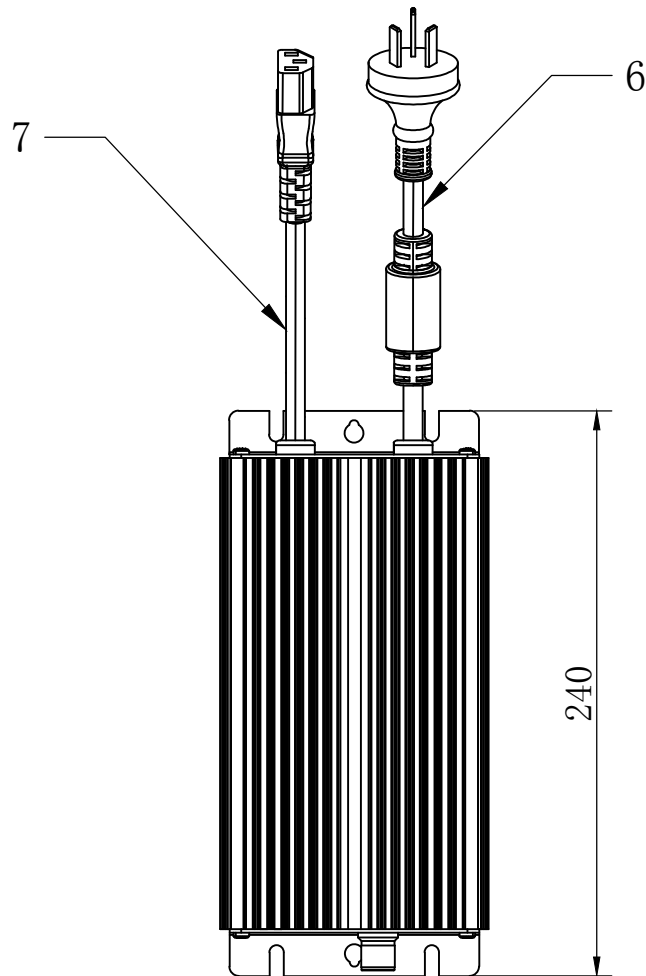
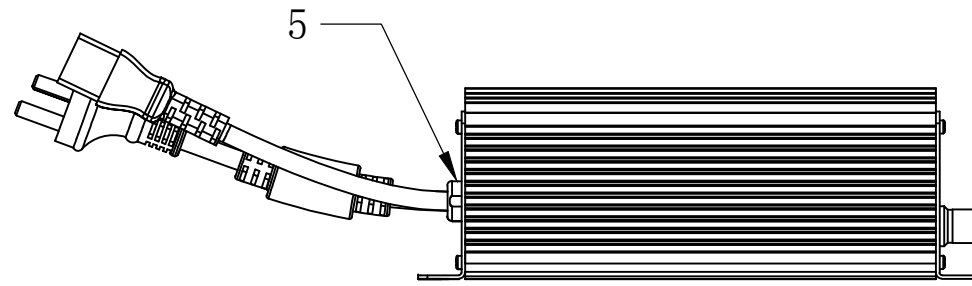
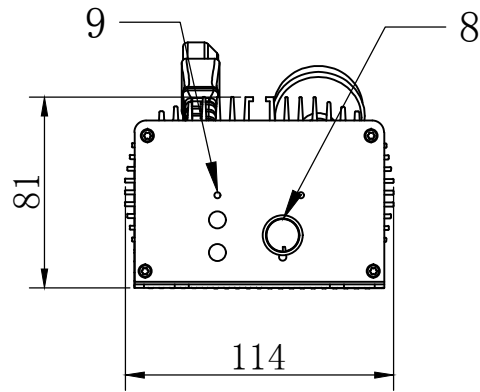
IEC 61000-4-2:

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	Silver
2	Cover	1	Silver
3	Plate	1	Purple
4	Plate	1	Purple
5	Strain Relief Bushing	2	Black
6	Input Line	1	Black
7	Output Line	1	Black
8	Knob	1	Silver White
9	LED	2	---

Physical Dimension	
Material	Aluminium
Dimension	240×114×81
Weight	2.25±10% Kg

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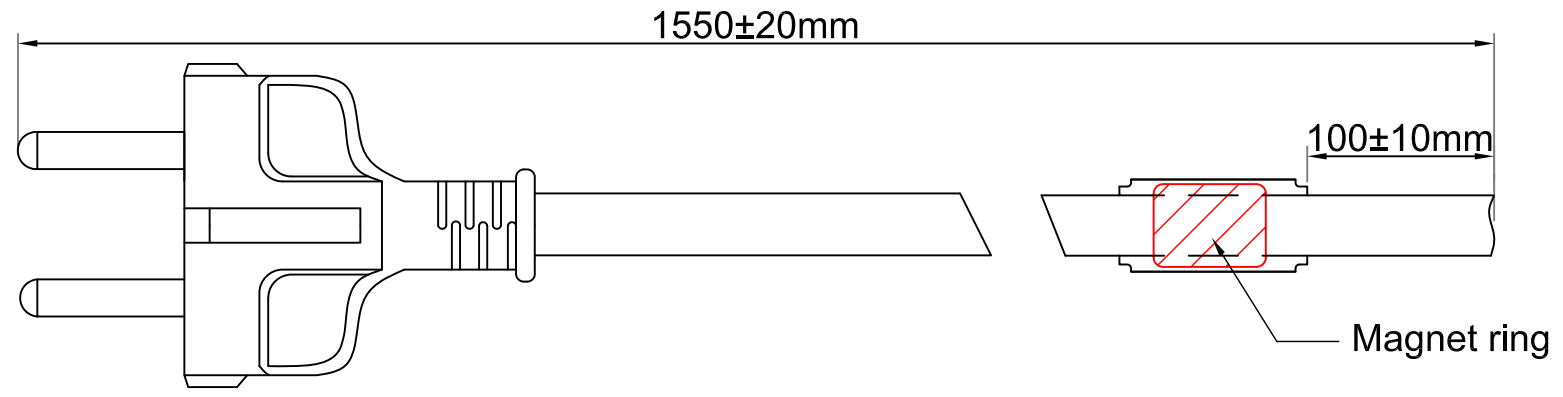
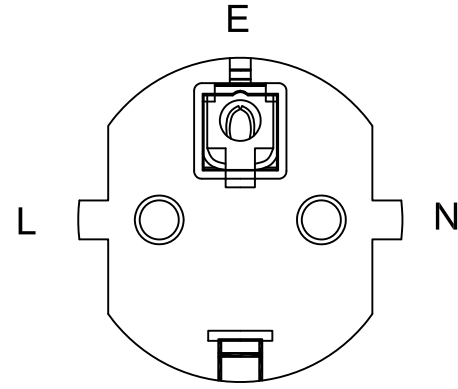
Dimensional Tolerances (V)		Holes:±0.05 ()		Angles:±0.5° ()	
<30	:±0.25	Up~100	:±0.2	250~300	:±0.4
>30~100	:±0.35	100~150	:±0.25	300~350	:±0.45
>100~300	:±0.5	X.X	:±0.2	150~200	:±0.3
Above300	:±0.6	X.XX	:±0.1	200~250	:±0.35
				350~400	:±0.5
				600~900	:±2.4
				900~Over	:±3.1



<p>First Angle Projection</p>	Description:		REV
	Part No:		P00
	Used On:	315W Controllable Ballast	SIZE A3

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

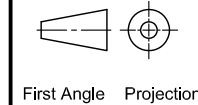


- Technical requirements:
1. Emifil: $19 \times 50.8 \times 10.15$
 2. Power cord: Emifil set on the power cord directly, seal
 3. Specifications: VDE H05VV-F $3 \times 1.5 \text{mm}^2$ 70°C

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First Angle Projection

Description:	Input	REV
Part No:	--	P00
Used On	315W Controllable Ballast	SIZE
		A3

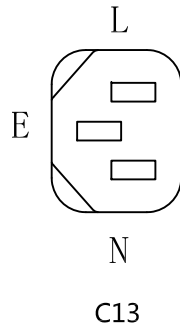
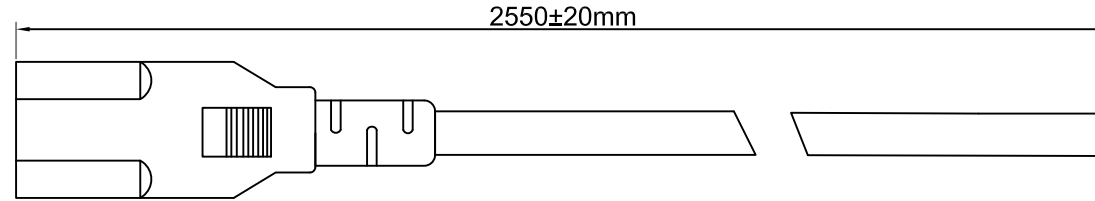
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Issue Date:

Drawn:

Design:

8 Output

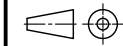


Technical requirements:
1.Specifications:VDE H05VV-F 3×1.5mm² 70°C

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First Angle Projection

Description:	Output	REV
Part No:	--	P00
Used On	315W Controllable Ballast	SIZE
		A3

Scale

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Unit

mm

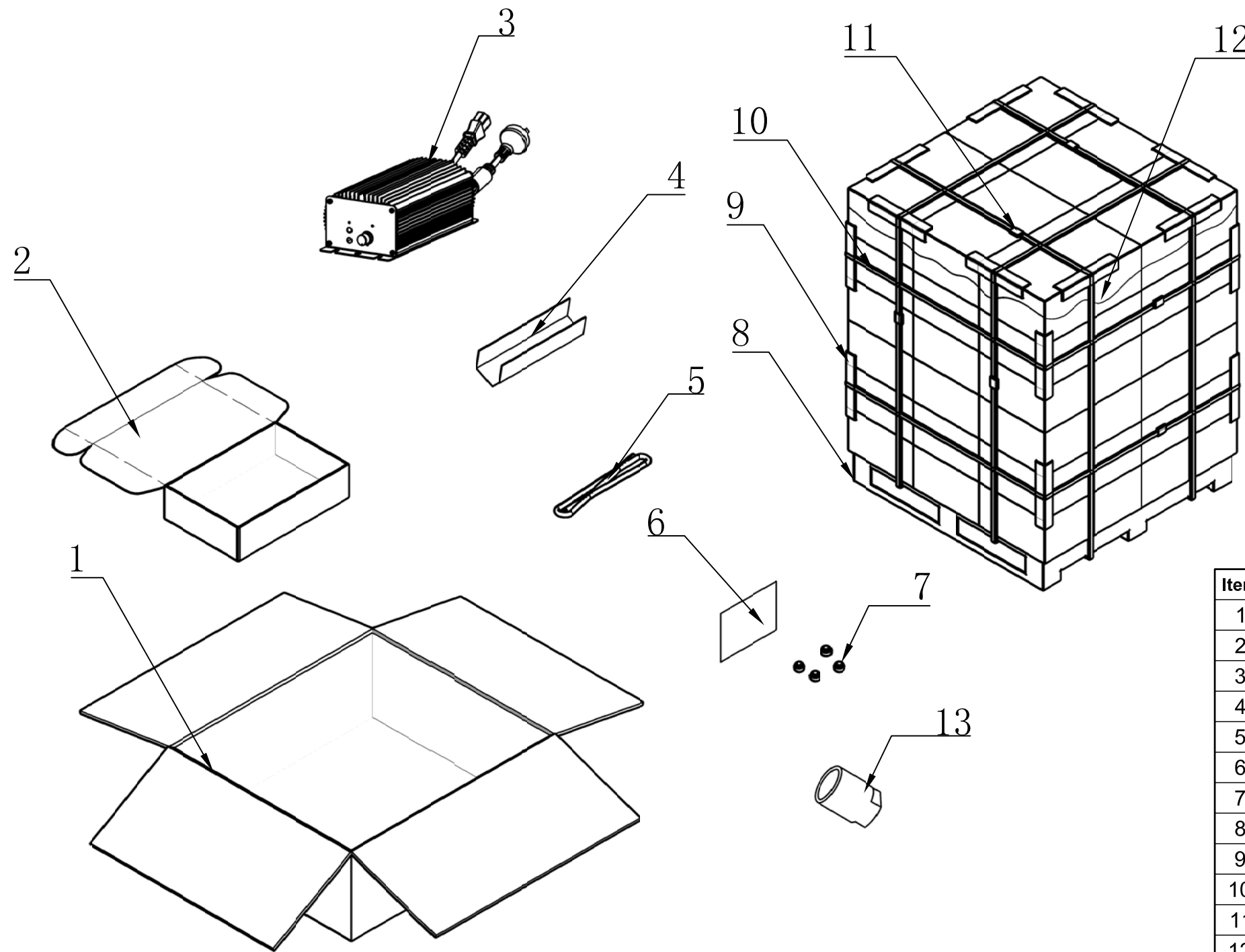
Sheet 1 Of 1

Issue Date:

Drawn:

Design:

9 Packing



Item	Part Name	Outside Dim(mm)	Q'ty
1	Carton	448×289×208	1/4
2	Inner Box	267×212×85	1
3	Digital Ballast	240×114×81	1
4	Liner	245×250×3	1
5	Signal line	\	1
6	Instruction	A5	1
7	Rubber Feet	\	4
8	Pallet	\	1/n
9	Angle Paper	\	\
10	Plastic Strip	\	\
11	Staple Wire	\	1
12	PE Film	t=0.02	1
13	Lamp holder	\	1

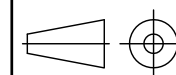
Notes:

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

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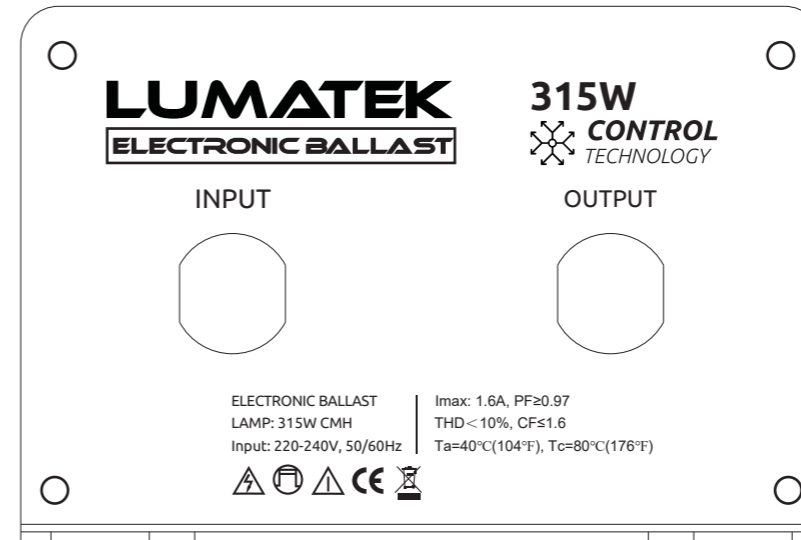
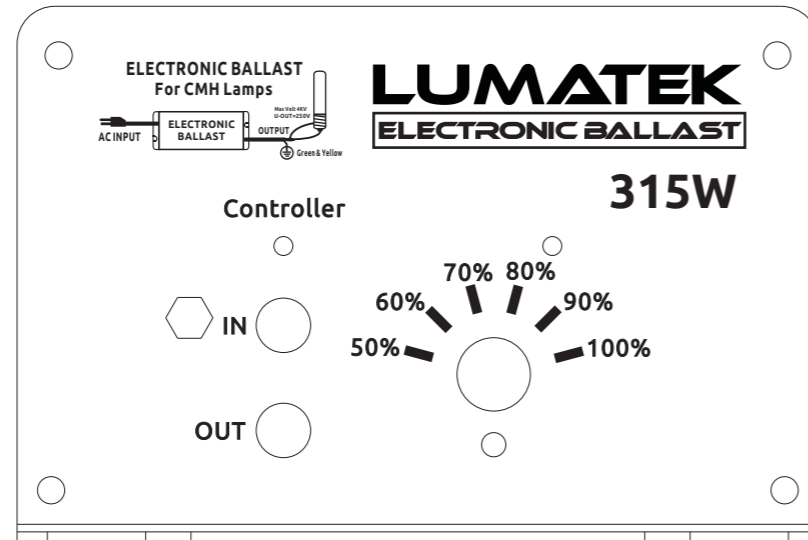


First Angle Projection

Description:		REV P00
Part No:	-	SIZE A3
Used On:	315W Controllable Ballast	

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



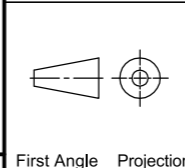
LK315CMH-EU-No lamp 315Watt



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Description:	Mark	REV P00
Part No:	--	SIZE A3
Used On	315W Controllable Ballast	

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