

SPECIFICATION FOR APPROVAL

Customer : _____

Customer P/N : _____

Product Type : Digital Ballast

Product No. : 400W Digital Ballast

Issue Date : 2016.01.28

Prepared By			
Checked By	R&D	DQE	QC
Approved By			

Web: www.lumatek-lighting.com

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Revision History

Product		400W Digital Ballast		
Rev.	Description	Editor	Check	Date
R1.0	First version			2016.01.28
R1.1	Change the input line to optimize EMC			2016.05.03
V1.0	Official version			2016.10.25

Contents

1. Description..... 1

2. Function and parameters.....2

 2.1 Knob control..... 2

 2.2 Recommended Matching Lamps.....3

 2.3 Protection..... 4

3. Environment..... 5

4. Safety..... 5

 4.1 Surface Temperature Rise..... 5

 4.2 Leakage Current..... 5

 4.3 Insulation Resistance 5

 4.4 Dielectric Withstand Voltage (HI-POT)..... 5

 4.5 Grounded Resistance..... 5

 4.6 Regulatory Standards..... 5

5. EMC..... 6

6. Physical Dimension..... 7

7. Input..... 8

8. Output..... 9

9. Packing..... 10

10.Mark..... 11

11.Color Box..... 12

1. Description

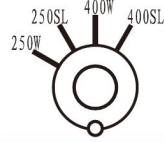
This is an 400W intelligent electronic ballast. Input voltage is 240V, 50Hz.It will delay 0-6S ignition random. And knob dimming range can be 250W-250SL-400W-400SL.It can match well with 250W/400W HPS/ MH lamps according to IEC60662 standard.

Date	Prepared	Checked	Item No	400W Digital Ballast

2. Function and parameters

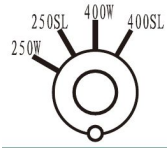
2.1 Knob Control

2.1.1Input Characteristics

Parameter	Conditions	Min	Type	Max	Units
MainsVoltage	Operational Voltage	215	240	265	V
	Safe Voltage	205	240	275	
Mains Frequency f _{mains}	Operational Frequency	48	50	63	Hz
	Safe Frequency	45	50	66	
Mains Power P _{mains} 	P=400SL	440	466	484	W
	P=400W	401	424	447	
	P=250SL	268	292	315	
	P=250W	242	265	288	
Mains Current I _{mains}	V _{mains} =240V	1.8	2.0	2.1	A
	V _{mains} =215V	2.0	2.2	2.3	
Power Factor	P=400SL	0.94	0.97	--	--
THD	P=400SL	--	--	10%	--
Inrush Current	V _{mains} =240V	--	--	30	A
Pulse Duration	--	--	--	0.8	ms

Date	Prepared	Checked	Item No	400W Digital Ballast

2.1.2 Output Characteristics

Parameter	Conditions		Min	Type	Max	Units
Lamp Frequency f_{lamp}	P=400SL		56	78	115	KHz
Efficiency(%)	$V_{mains} = 240V$	P=400SL	92	94	--	--
Lamp Power P_{lamp} 	P=400SL		414	440	458	W
	P=400W		377	400	423	
	P=250SL		252	275	298	
	P=250W		227	250	273	
Lamp Voltage	400WHPS/MH		74	120	150	V
Ignition Voltage	$C_{load} < 100pF$		3000	4000	5000	V
Ignition Interval	--		1-5-5-5-5			Min

Note: Dimming accuracy is 5%.

2.2 Recommended Matching Lamps

Lamp	400W	LUMATEK HPS 400W
		LUMATEK HPS 250W
		PHILIPS HPI-T PLUS MH 400W
	250W	PHILIPS SON-T HPS 400W
		SUNMASTER SL.250W.U46.DSP
		OSRAM HQI-T 250W/N/SI

Date	Prepared	Checked	Item No	400W Digital Ballast

2.3 Protection

2.3.1 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.

2.3.2 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.

2.3.3 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.

2.3.4 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.

2.3.5 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%.

Date	Prepared	Checked	Item No	400W Digital Ballast

3. Environment

Environment \ Conditions	Operating	Shipping and Storage
3.1 Temperature	-20℃--+40℃	-40℃--+70℃
3.2 Humidity	0%--90%, Non-condensing	0%--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 400W, ambient temperature is 25℃ and input voltage is 240Vac, the surface temperature rise will be 30℃.

4.2 Leakage Current

1mAmax Vmains=240V/50Hz.

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 5.5mAmax/60s.

4.5 Grounded Resistance

<0.5 Ω ,25A,60s.

4.6 Regulatory Standards

EN 61347-1:2008

EN 61347-2-12 : 2005

Date	Prepared	Checked	Item No	400W Digital Ballast

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: ±1KV;
L/N-PE: ±2KV.

5.2.2 Electrical Fast Transient

IEC 61000-4-4:
L-N-PE : ±1KV.

5.2.3 Voltage Dips and Interruptions Immunity

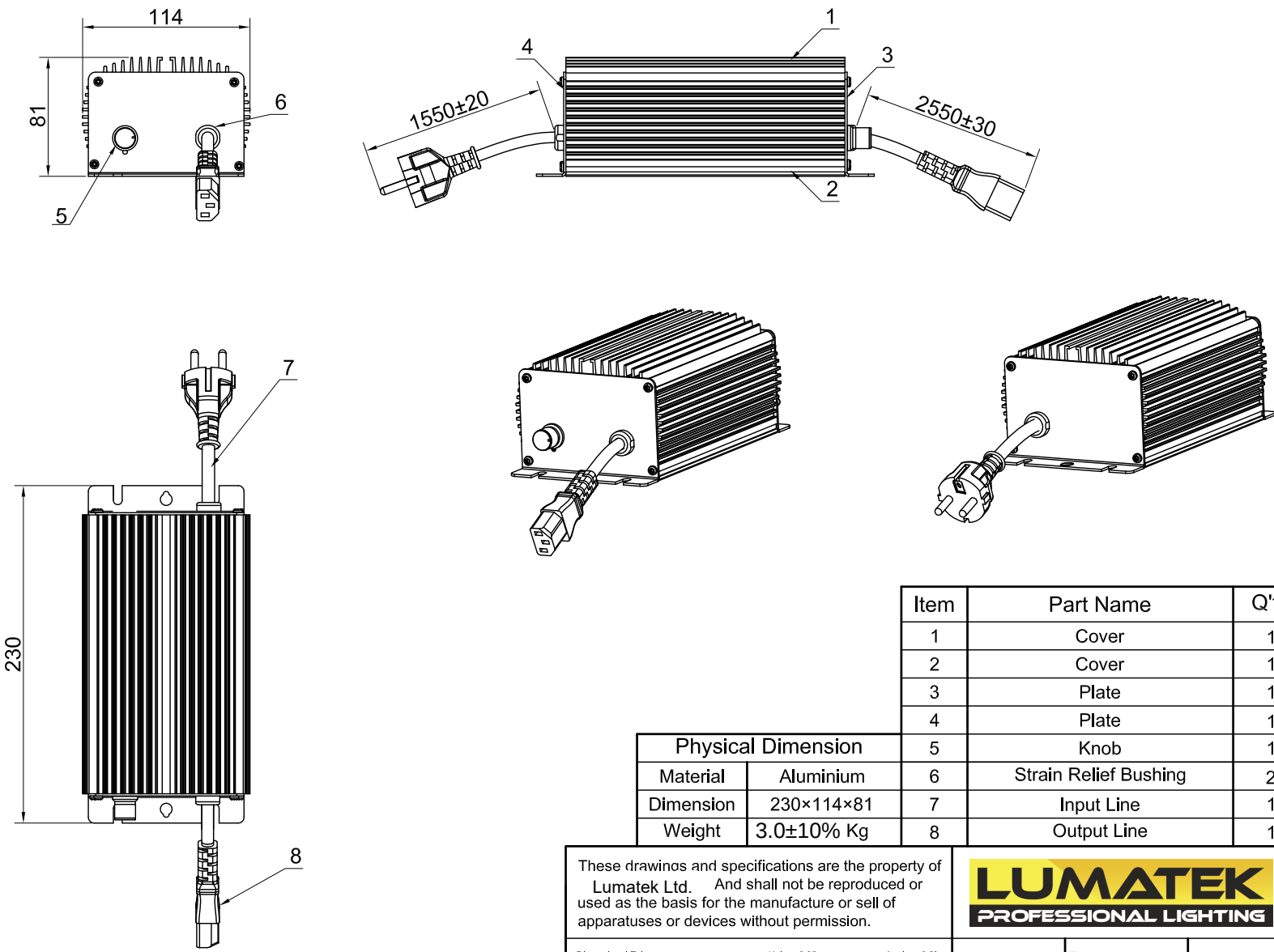
IEC 61000-4-11:
Drop: 30% ;cycles: 10;
Drop: 100% ;cycles: 0.5.

5.2.4 Electrostatic Discharge Immunity

IEC 61000-4-2:
Contact discharge: ±4KV;
Air discharge: ±8KV.

Date	Prepared	Checked	Item No	400W Digital Ballast

6 Physical Dimension



Physical Dimension	
Material	Aluminium
Dimension	230×114×81
Weight	3.0±10% Kg

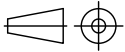
Item	Part Name	Q'ty	Remark
1	Cover	1	Purple
2	Cover	1	Purple
3	Plate	1	Purple
4	Plate	1	Purple
5	Knob	1	Silver White
6	Strain Relief Bushing	2	Black
7	Input Line	1	Black
8	Output Line	1	Black

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Dimensional Tolerances (V)	Holes±0.05 (°)	Angles±0.5° (°)
<30 ±0.25 >30~100 ±0.35 >100~300 ±0.5 Above300 ±0.6	Decimals .X ±0.3 X.X ±0.2 X.XX ±0.1	Up~100 ±0.2 100~150 ±0.25 150~200 ±0.3 200~250 ±0.35
		250~300 ±0.4 300~350 ±0.45 350~400 ±0.5 400~450 ±0.5
		Up~600 ±1.5 600~900 ±2.4 900~Over±3.1

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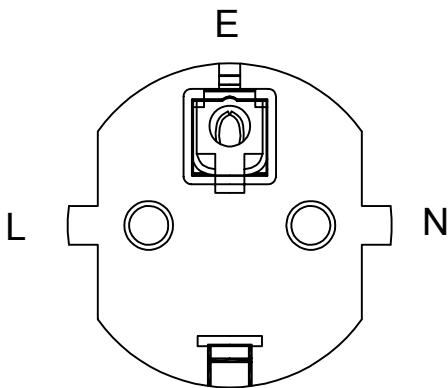
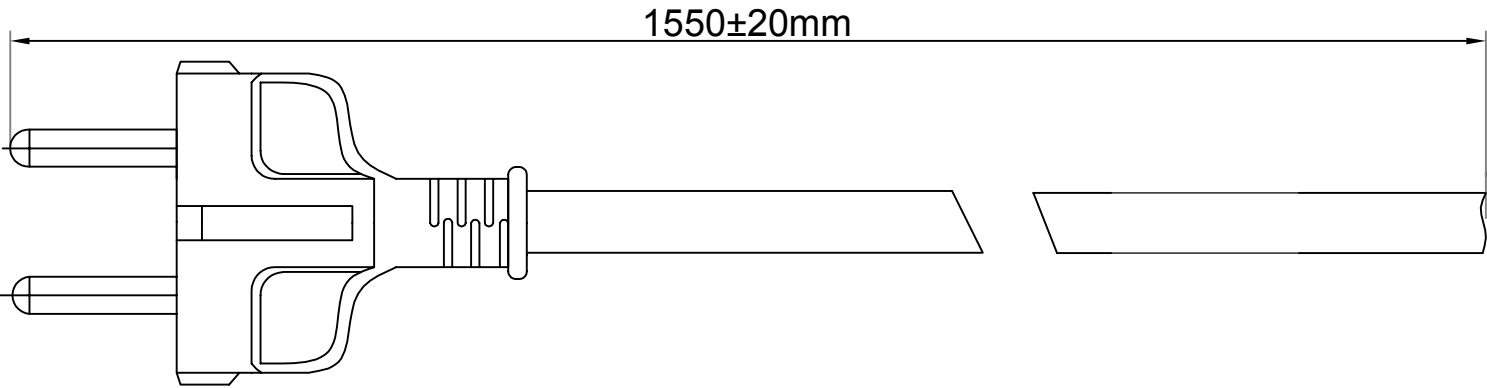
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First Angle Projection

Description:		REV P00
Part No:	—	SIZE A3
Used On:	400W Digital Ballast	

7 Input

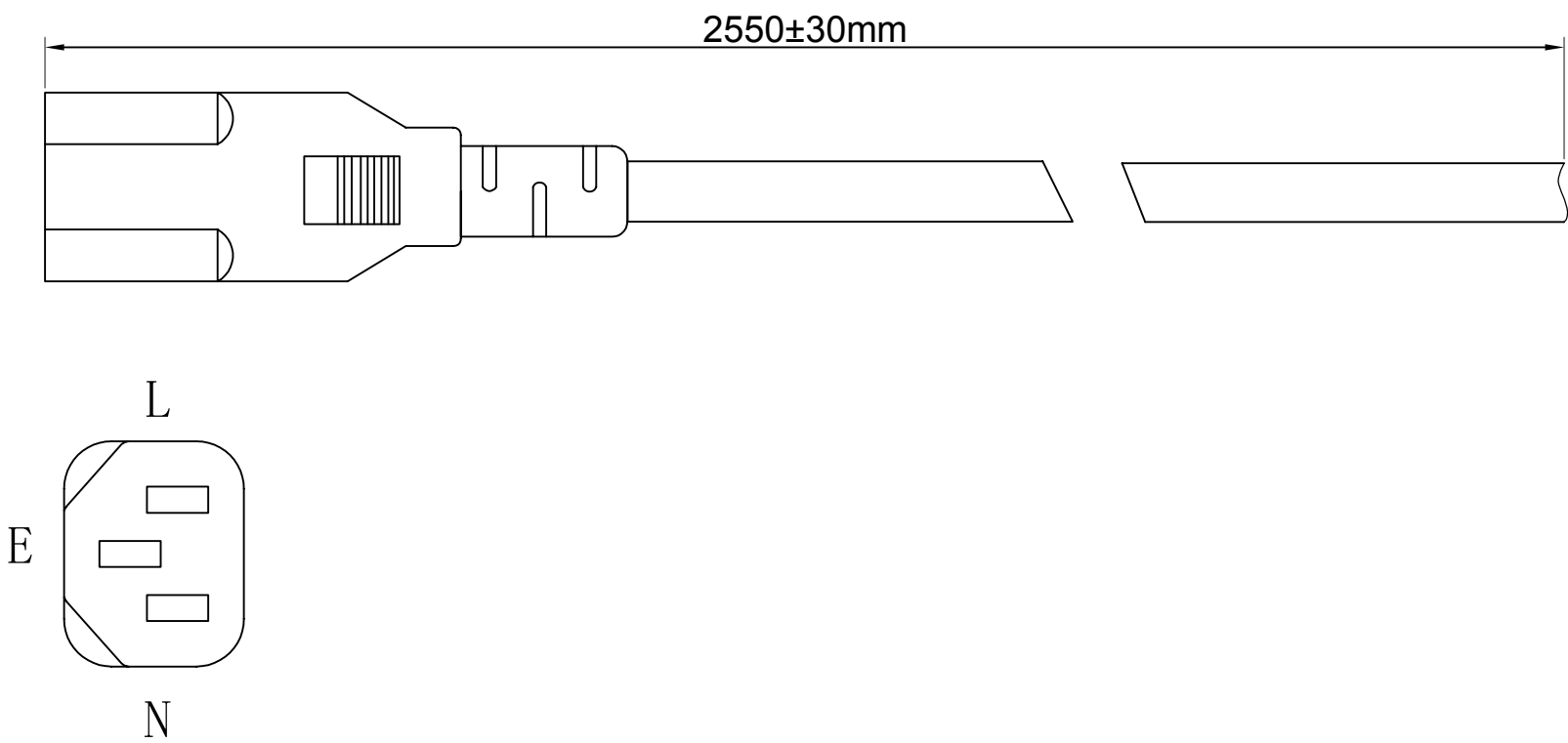


Technical requirements:
1.Specifications:VDE H05VV-F 3×1.5mm2 70℃

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		<div><div><div></div><div></div></div><div>First Angle Projection</div></div>	Description:	Input	REV
			Part No:	--	P00
			Used On	400W Digital Ballast	SIZE A3

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

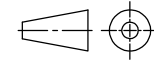


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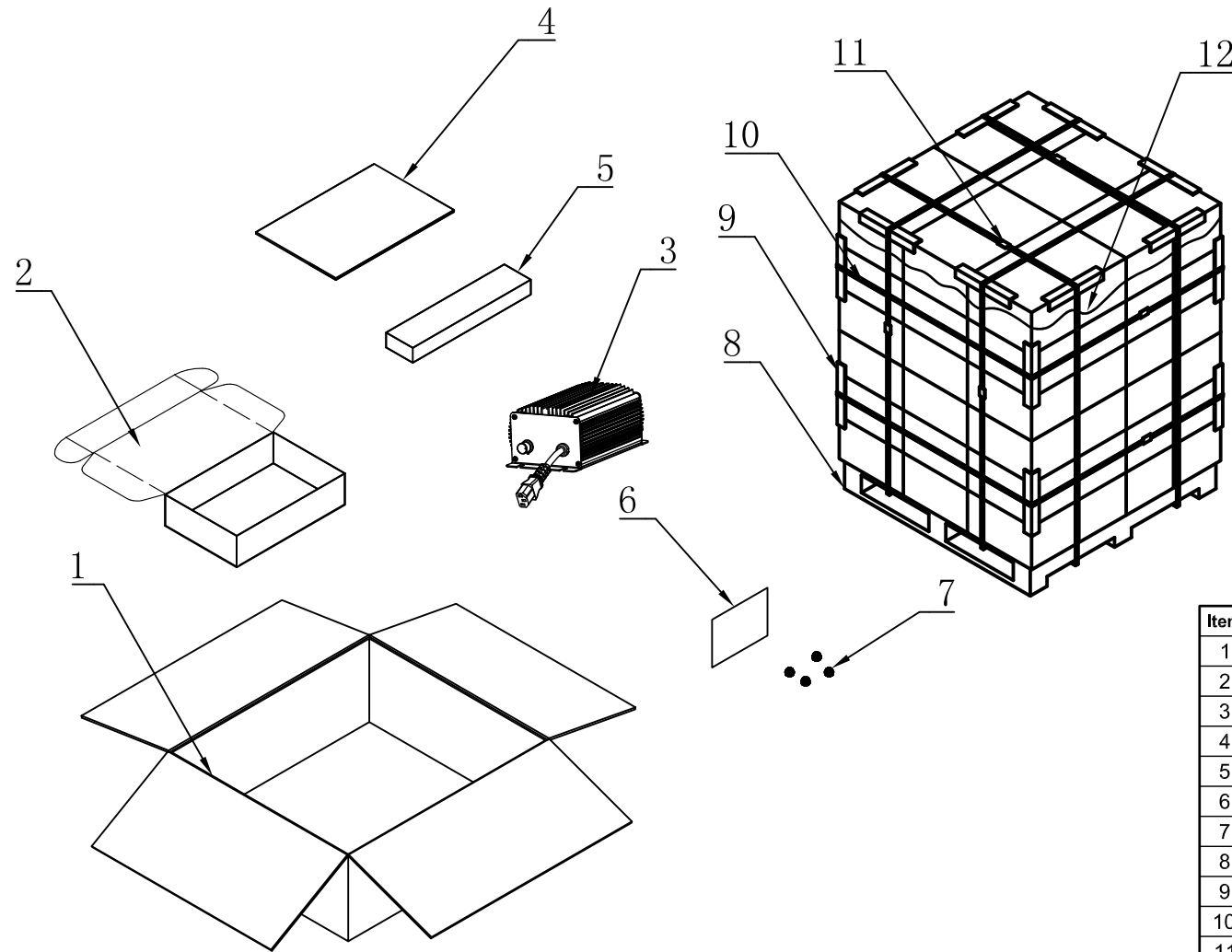


First Angle Projection

Description:	Output	REV
Part No:	--	P00
Used On	400W Digital 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	434×364×208	1/4
2	Inner Box	345×205×85	1
3	Digital Ballast	230×114×81	1
4	EPE	600×400×0.5	1
5	EPE	115×60×40	2
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

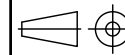
Notes:

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

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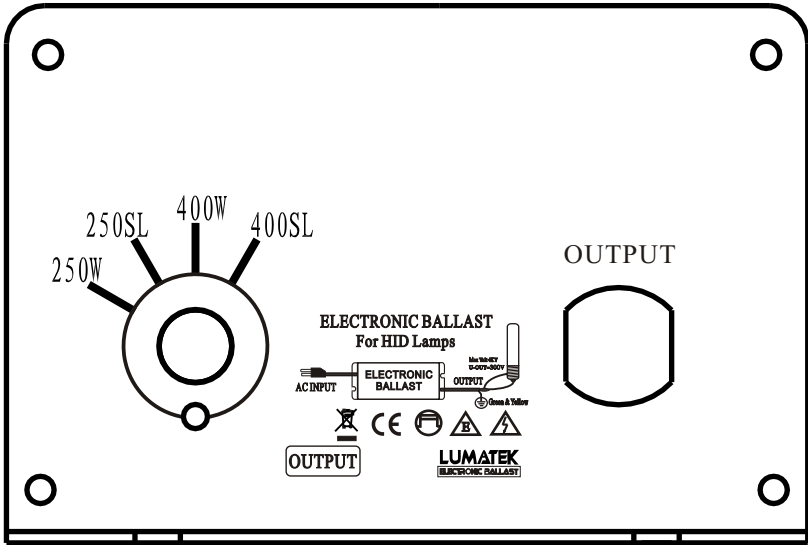
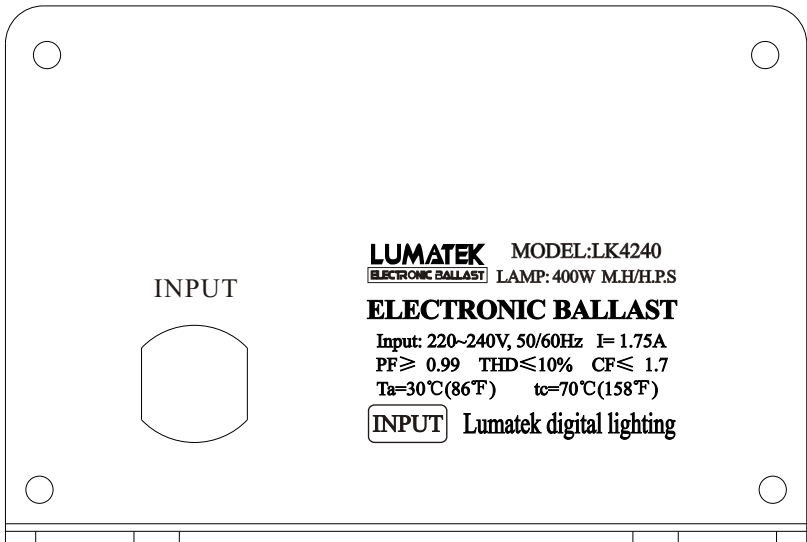


First Angle
Projection

Description:		REV P00
Part No:	-	SIZE A3
Used On:	400W Digital Ballast	

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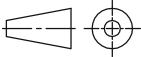
10 Mark



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 First Angle Projection	Description:	Mark	REV P00
	Part No:	--	
	Used On	400W Digital Ballast	SIZE A3

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