

# 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](http://www.lumatek-lighting.com)



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## 1. Description

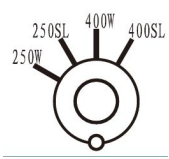
This is an 400W intelligent electronic ballast. Input voltage is 240V, 50Hz. It will delay 0-6S ignition random. And knob dimming range can be 250W-250SL-400W-400SL. It can match well with 250W/400W HPS/ MH lamps according to IEC60662 standard.

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## 2. Function and parameters

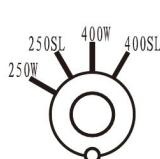
### 2.1 Knob Control

#### 2.1.1 Input Characteristics

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

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## 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

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## 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 drops 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%.

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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	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	
3.4 Waterproof and dustproof	IP20	

## 4. Safety

### 4.1 Surface Temperature Rise

When output power is 400W, ambient temperature is 25°C and input voltage is 240Vac, the surface temperature rise will be 30°C.

### 4.2 Leakage Current

$1mA_{max} V_{mains}=240V/50Hz.$

### 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 5.5mA<sub>max</sub>/60s.

### 4.5 Grounded Resistance

$<0.5 \Omega, 25A, 60s.$

### 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

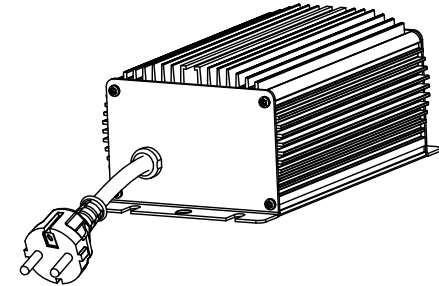
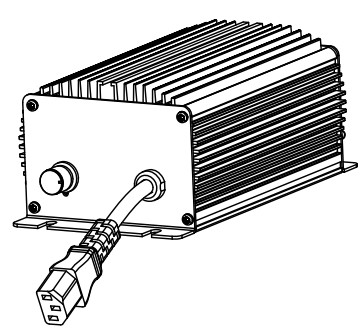
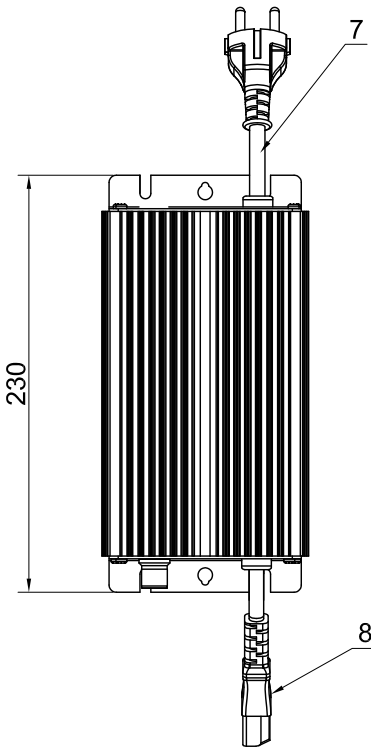
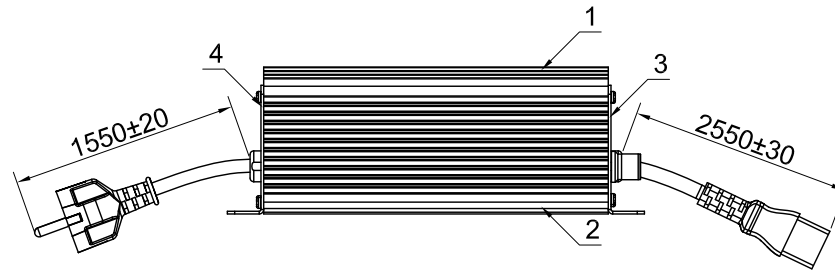
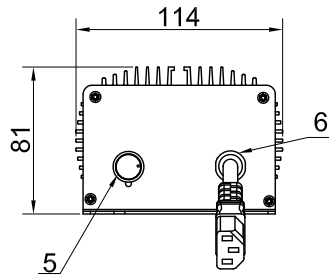
IEC 61000-4-2:

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

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

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# 6 Physical Dimension



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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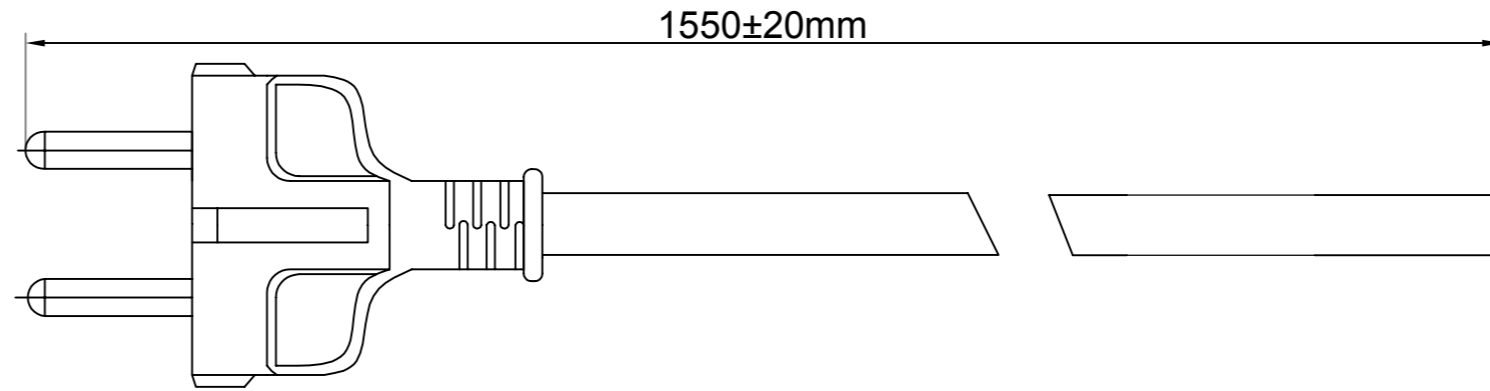
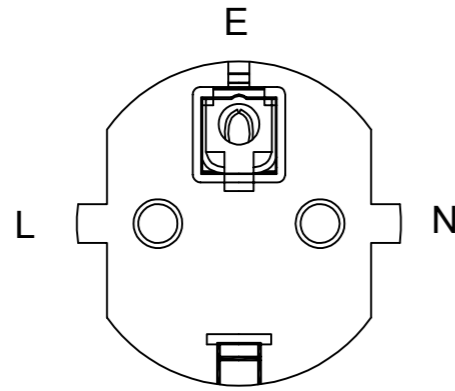
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Dimensional Tolerances (V)	Holes±0.05 (I)	Angles±0.5° (I)
<30 ±0.25	Up-100 ±0.2	Up-600 ±1.5
>30-100 ±0.35	100-150 ±0.25	600-900 ±2.4
>100-300 ±0.5	150-200 ±0.3	350-400 ±0.5
Above300 ±0.6	200-250 ±0.35	900-Over±3.1

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

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

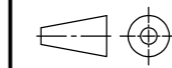


Technical requirements:  
 1.Specifications:VDE H05VV-F 3×1.5mm<sup>2</sup> 70°C

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First Angle Projection

<b>Description:</b>	Input	<b>REV</b>
<b>Part No:</b>	--	P00
<b>Used On</b>	400W Digital Ballast	<b>SIZE</b>
		A3

Scale

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Unit

mm

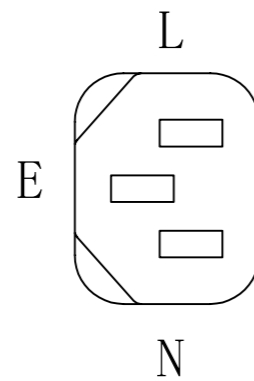
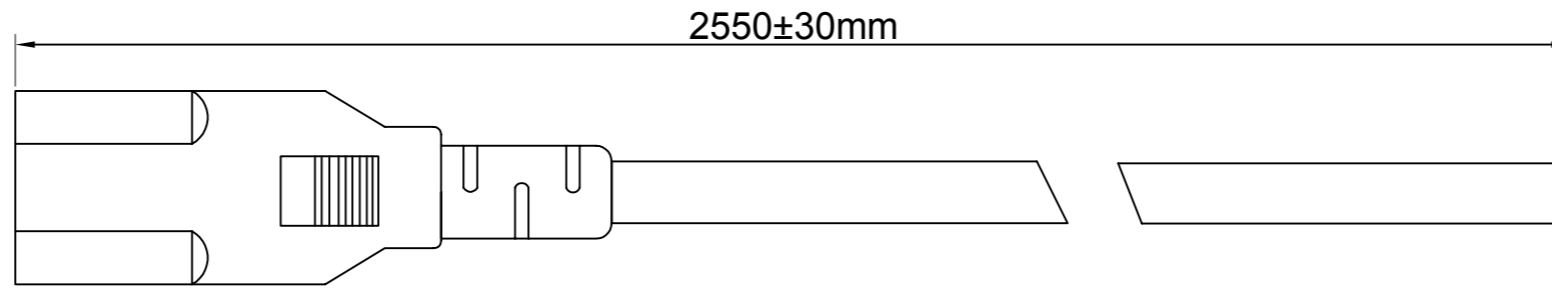
Sheet 1 Of 1

Issue Date:

Drawn:

Design:

# 8 Output

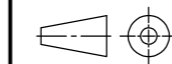


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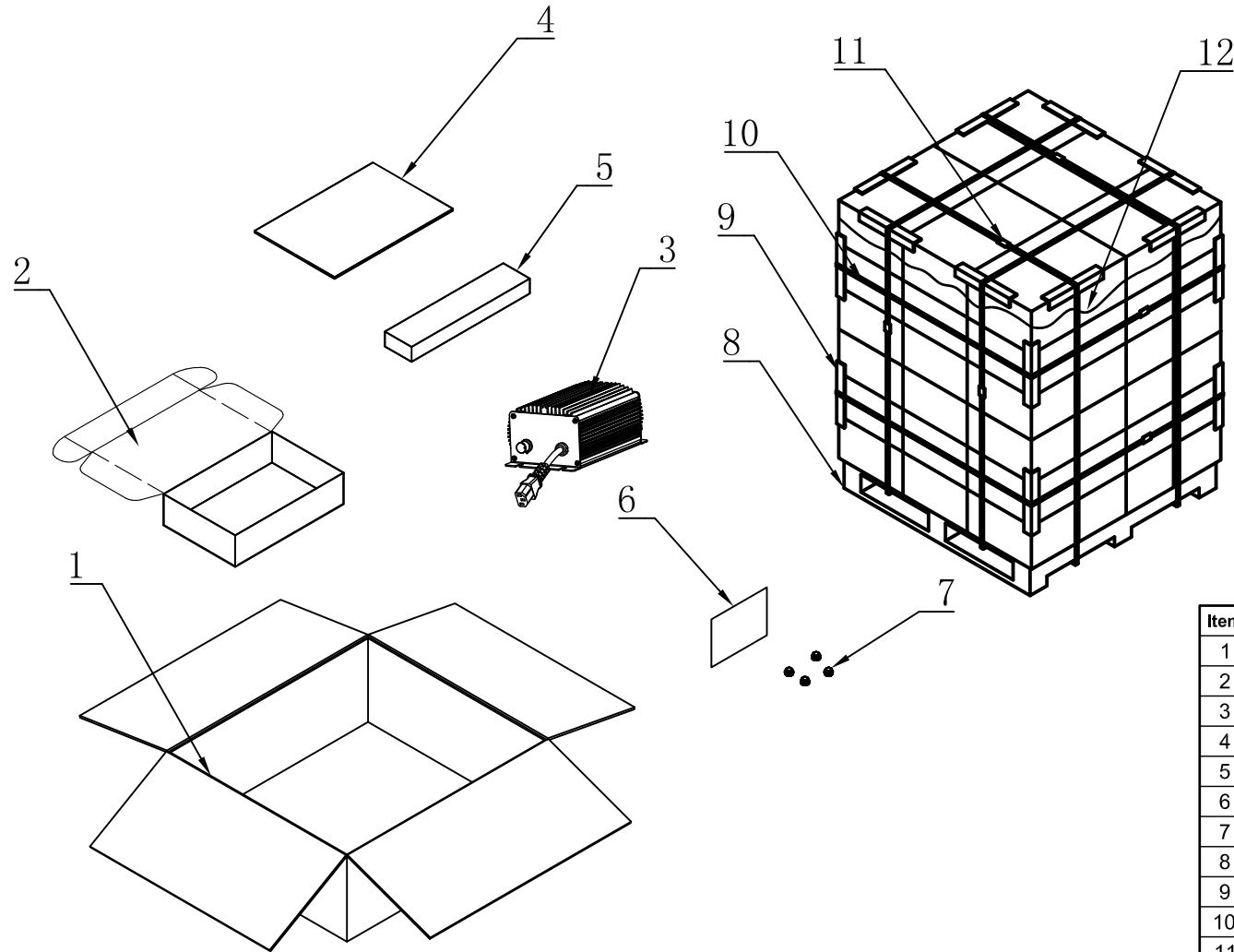


First Angle Projection

<b>Description:</b>	Output	<b>REV</b>
<b>Part No:</b>	--	P00
<b>Used On</b>	400W Digital Ballast	<b>SIZE</b>
		A3

<b>Scale</b>	---	<b>Unit</b>	mm	<b>Sheet</b> 1 <b>Of</b> 1	<b>Issue Date:</b>	<b>Drawn:</b>	<b>Design:</b>
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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.

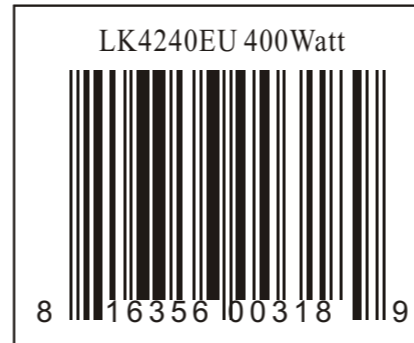
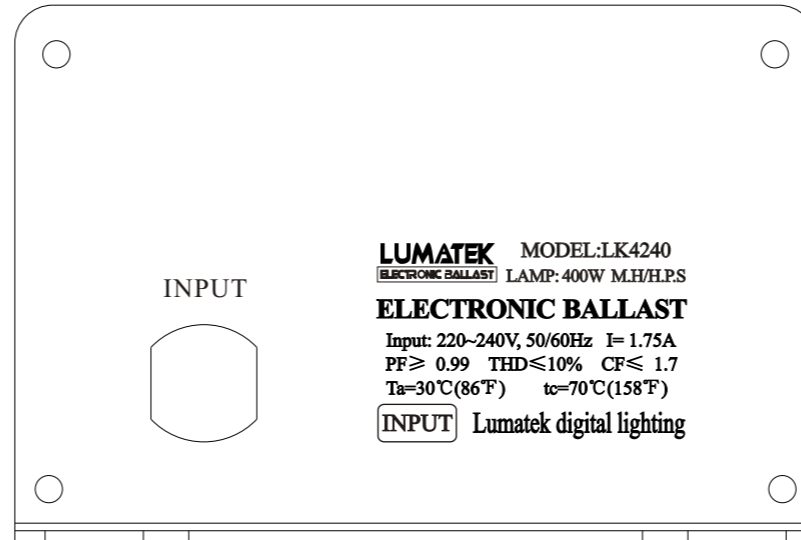
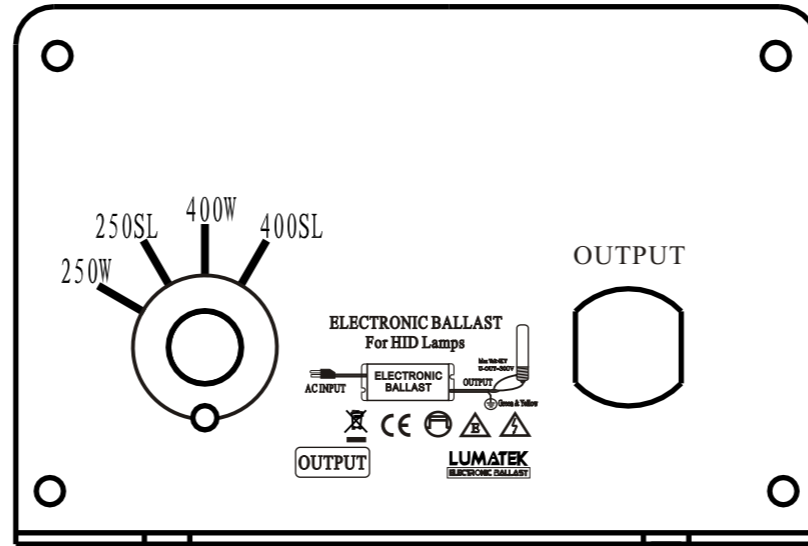
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<p>First Angle Projection</p>	Description:		REV
	Part No:	-	P00
	Used On:	400W Digital Ballast	SIZE
			A3

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



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

<b>Scale</b>	--	<b>Unit</b>	mm	<b>Sheet</b> 1 <b>Of</b> 1	<b>Issue Date:</b>	<b>Drawn:</b>	<b>Design:</b>
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