

# SPECIFICATION FOR APPROVAL

Customer : \_\_\_\_\_

Customer P/N : \_\_\_\_\_

Product Type :           **Digital Ballast**          

Product No. :           **600W Ultimate Digital Ballast**          

Issue Date :           **2016.12.02**          

|             |     |     |    |
|-------------|-----|-----|----|
| 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

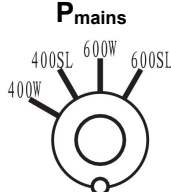
This is an 600W intelligent electronic ballast. Input voltage is 240V, 50/60Hz. It will have 0-6S delay ignition for random. And knob dimming range can be 400W-400SL-600W-600SL. It can match well with 600W HPS/MH lamps according to IEC60662 standard and 600W high voltage HPS lamps.

| Date | Prepared | Checked | Item No | 600W Ultimate Digital Ballast |
|------|----------|---------|---------|-------------------------------|
|      |          |         |         |                               |

## 2. Function and parameters

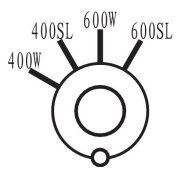
### 2.1 Knob Control

#### 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><br>$f_{\text{mains}}$   | Operational Frequency     | 48   | 50   | 63  | Hz    |
|  | Safe Frequency            | 45   | 50   | 66  |       |
| <b>Mains Power</b><br>$P_{\text{mains}}$<br> | P=600SL                   | 669  | 690  | 711 | W     |
|  | P=600W                    | 615  | 636  | 657 |       |
|  | P=400SL                   | 446  | 466  | 487 |       |
|  | P=400W                    | 403  | 424  | 445 |       |
| <b>Mains Current</b><br>$I_{\text{mains}}$   | $V_{\text{mains}} = 240V$ | 2.8  | 2.9  | 3.0 | A     |
|  | $V_{\text{mains}} = 215V$ | 3.1  | 3.2  | 3.4 |       |
| <b>Power Factor</b>  | P=600SL                   | 0.97 | 0.99 | --  | --    |
| <b>THD</b>   | P=600SL                   | --   | --   | 10% | --    |
| <b>Inrush Current</b>  | $V_{\text{mains}} = 240V$ | --   | --   | 30  | A     |
| <b>Pulse Duration</b>  | --                        | --   | --   | 0.8 | ms    |

|             |                 |                |                |                                      |
|-------------|-----------------|----------------|----------------|--------------------------------------|
| <b>Date</b> | <b>Prepared</b> | <b>Checked</b> | <b>Item No</b> | <b>600W Ultimate Digital Ballast</b> |
|             |                 |                |                |                                      |

## 2.1.2 Output Characteristics

| Parameter   | Conditions            | Min       | Type   | Max  | Units |
|---|-----------------------|-----------|--------|------|-------|
| Lamp Frequency<br>$f_{lamp}$  | P=600SL               | 60        | 75/120 | 150  | KHz   |
| Efficiency(%)   | P=600SL               | 94        | 95     | --   | --    |
| Lamp Power<br>$P_{lamp}$<br> | P=600SL               | 639       | 660    | 681  | W     |
|   | P=600W                | 579       | 600    | 621  |       |
|   | P=400SL               | 419       | 440    | 461  |       |
|   | P=400W                | 379       | 400    | 421  |       |
| Lamp Voltage  | 600W HPS              | 86        | 110    | 134  | V     |
|   | 600W high voltage HPS | 160       | 220    | 280  |       |
| Ignition Voltage  | $C_{load} < 100pF$    | 3000      | 4000   | 5000 | V     |
| Ignition Interval   | --                    | 1-5-5-5-5 |        |      | Min   |

Note: Dimming accuracy is 3%.

## 2.2 Recommended Matching Lamps

|      |   |
|------|---|
| Lamp | SYLVANIA GROLUX HPS 600W                |
|      | SUNMASTER HPS600W SL.600W.U46.VRD.HO    |
|      | AGROSUN HPS600W SUPER 5002070           |
|      | SUNMASTER MH600W LM.600W.U76.CDX        |
|      | SOLARMAX MH600W MHT 600W/VEG            |
|      | PHILIPS MASTER Green Power Plus 600W EL |
|      | LUCALOX HPS600W LU400V/600W/PSL         |

|      |          |         |         |                               |
|------|----------|---------|---------|-------------------------------|
| Date | Prepared | Checked | Item No | 600W Ultimate 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 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 (Output power will drop to 90% when input voltage is 175-195V). When input voltage is back to normal, the ballast can work normally.

Note: Voltage accuracy is 5%.

| Date | Prepared | Checked | Item No | 600W Ultimate Digital Ballast |
|------|----------|---------|---------|-------------------------------|
|      |          |         |         |                               |

### 3. Environment

| Environment \ Conditions     | Operating                         | Shipping and Storage       |
|------------------------------|-----------------------------------|----------------------------|
| 3.1 Temperature              | -20°C--+40°C                      | -40°C--+70°C               |
| 3.2 Humidity                 | 0%--90%,<br>Non-condensing        | 0%--95%,<br>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 600W, 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

| Date | Prepared | Checked | Item No | 600W Ultimate 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:  $\pm 1\text{KV}$ ;

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

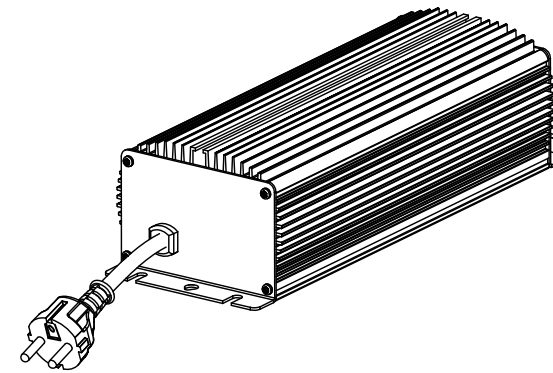
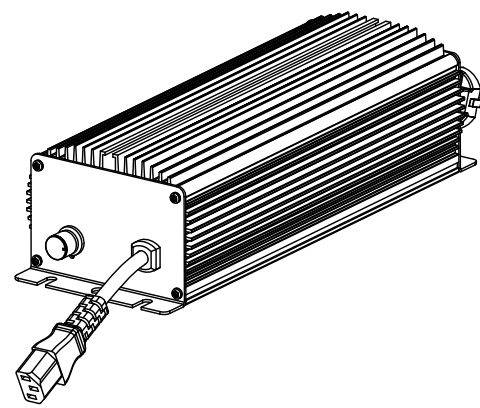
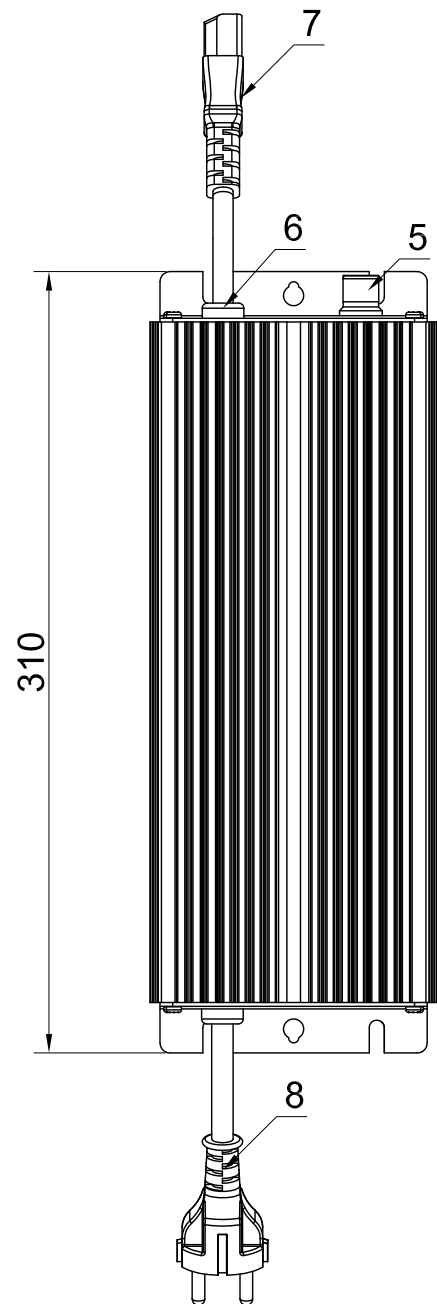
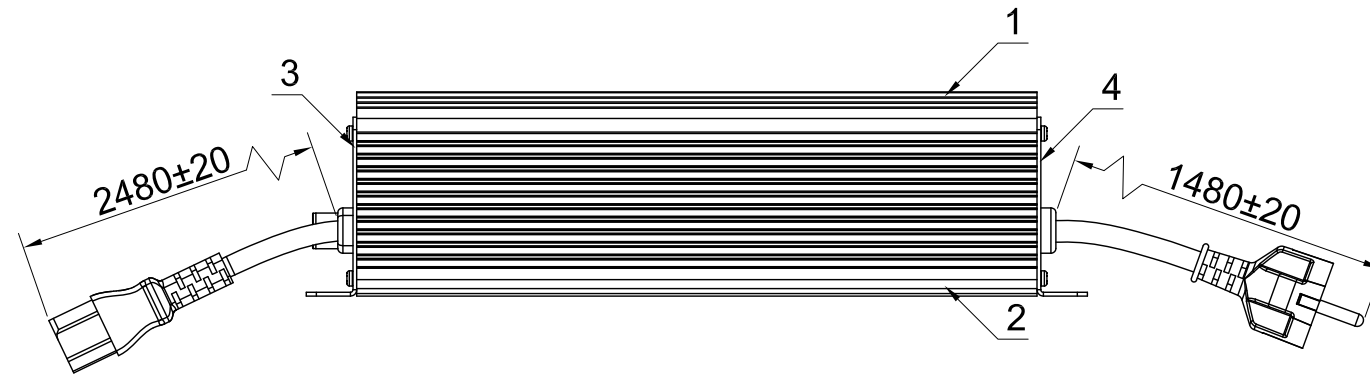
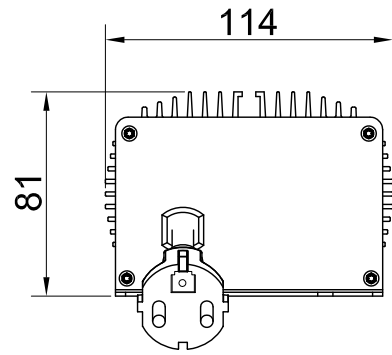
IEC 61000-4-2:

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

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

| Date | Prepared | Checked | Item No | 600W Ultimate Digital Ballast |
|------|----------|---------|---------|-------------------------------|
|      |          |         |         |                               |

# 6 Physical Dimension



| 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    | Output Line           | 1    | Black        |
| 8    | Input Line            | 1    | Black        |

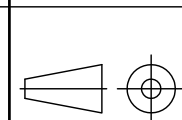
| Physical Dimension |            |
|--------------------|------------|
| Material           | Aluminium  |
| Dimension          | 310×114×81 |
| Weight             | 3.3±10% Kg |

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| Dimensional Tolerances (mm) |       | Holes: ±0.05 (mm) |       | 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  | 150~200           | ±0.3  | 350~400           | ±0.5  |
| Above 300                   | ±0.6  | 200~250           | ±0.35 | 900~Over          | ±3.1  |

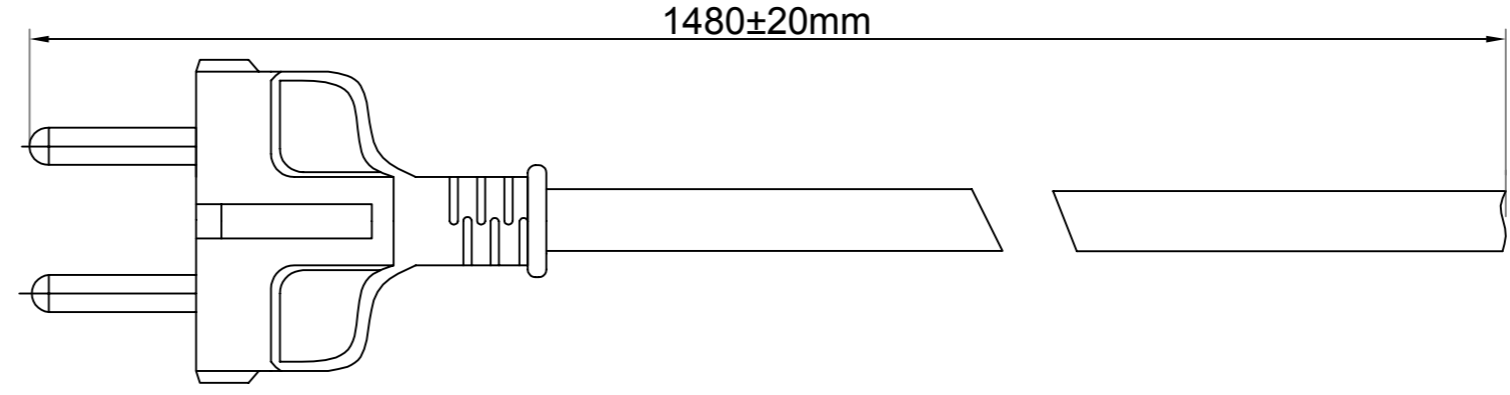
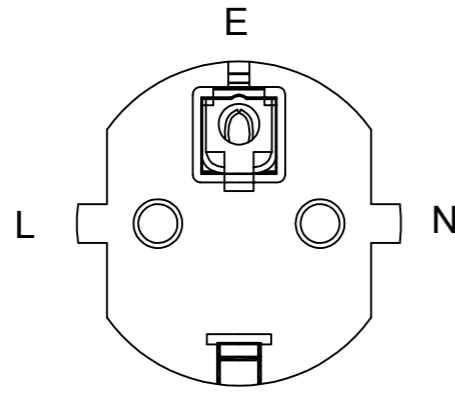


First Angle Projection

|              |                                      |      |
|--------------|--------------------------------------|------|
| Description: |                                      | REV  |
| Part No:     | —                                    | P00  |
| Used On:     | <b>600W Ultimate Digital Ballast</b> | SIZE |
|              |                                      | A3   |

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

# 7 Input

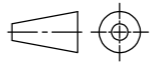


Technical requirements:  
 1.Specifications:VDE H05VV-F 3×1.5mm<sup>2</sup> 70°C

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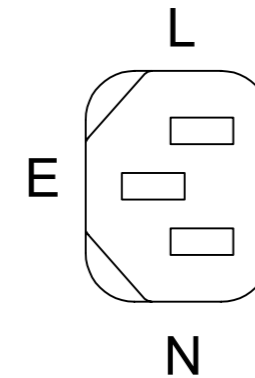
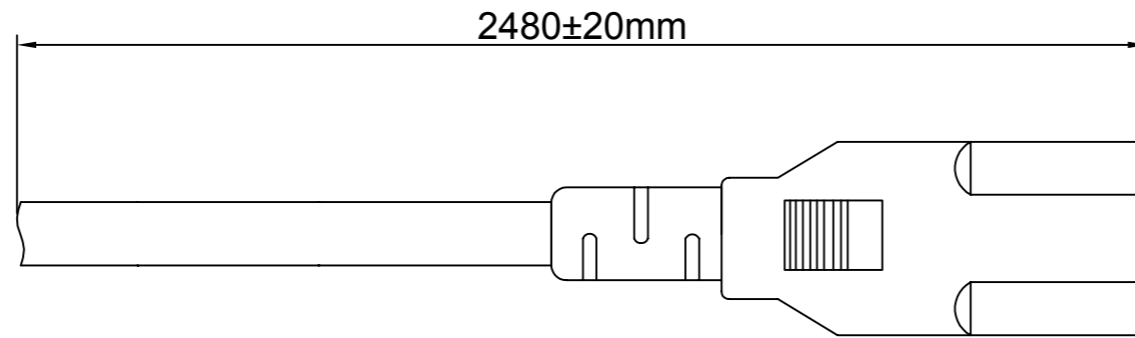


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|   |                     |                               |             |
|---|---------------------|-------------------------------|-------------|
| <br>First Angle Projection | <b>Description:</b> | Input                         | <b>REV</b>  |
|   | <b>Part No:</b>     | --                            | P00         |
|   | <b>Used On</b>      | 600W Ultimate Digital Ballast | <b>SIZE</b> |
|   |                     |                               | <b>A3</b>   |

|              |     |             |    |                            |                    |               |                |
|--------------|-----|-------------|----|----------------------------|--------------------|---------------|----------------|
| <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> |
|--------------|-----|-------------|----|----------------------------|--------------------|---------------|----------------|

# 8 Output

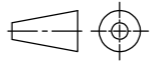


Technical requirements:  
1.Specifications: VDE H05VV-F 3×1.5mm<sup>2</sup> 70°C

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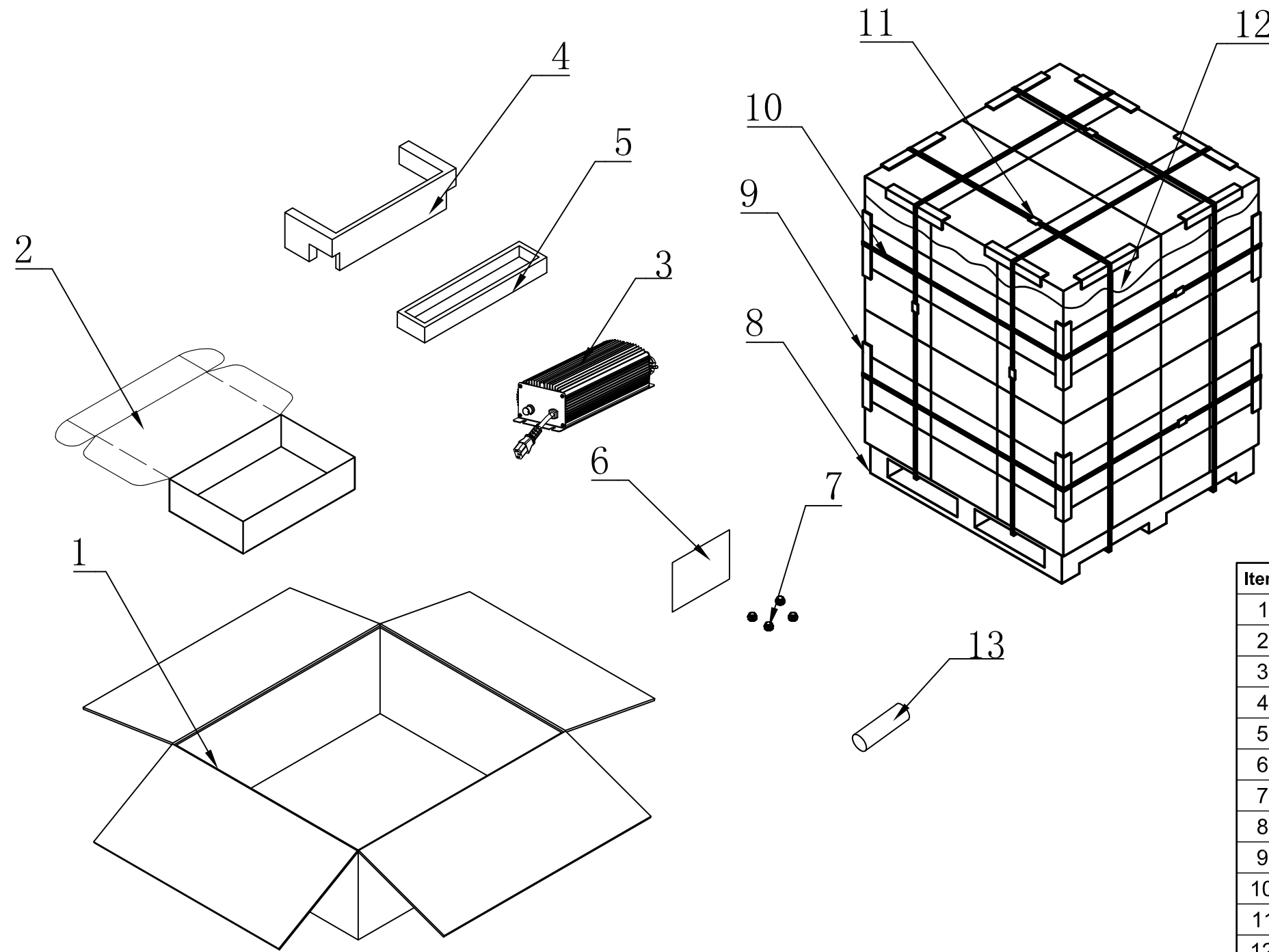


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|   |                     |                               |             |
|---|---------------------|-------------------------------|-------------|
| <br>First Angle Projection | <b>Description:</b> | Output                        | <b>REV</b>  |
|   | <b>Part No:</b>     | --                            | P00         |
|   | <b>Used On</b>      | 600W Ultimate Digital Ballast | <b>SIZE</b> |
|   |                     |                               | <b>A3</b>   |

|              |     |             |    |                            |                    |               |                |
|--------------|-----|-------------|----|----------------------------|--------------------|---------------|----------------|
| <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> |
|--------------|-----|-------------|----|----------------------------|--------------------|---------------|----------------|

# 9 Packing



| Item | Part Name       | Outside Dim(mm) | Q'ty |
|------|-----------------|-----------------|------|
| 1    | Carton          | 564×364×208     | 1/4  |
| 2    | Inner Box       | 345×270×85      | 1    |
| 3    | Digital Ballast | 310×114×81      | 1    |
| 4    | EPE             | 320×72×35       | 2    |
| 5    | EPE             | 325×124×80      | 1    |
| 6    | Instruction     | 297×210         | 1    |
| 7    | Rubber Feet     | \               | 4    |
| 8    | Pallet          | 1100×1100×150   | 1/n  |
| 9    | Angle Paper     | 320×45×45       | \    |
| 10   | Plastic Strip   | \               | \    |
| 11   | Staple Wire     | \               | 1    |
| 12   | PE Film         | t=0.02          | 1    |
| 13   | Lamps           | \               | 1    |

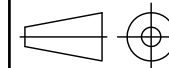
Notes:

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

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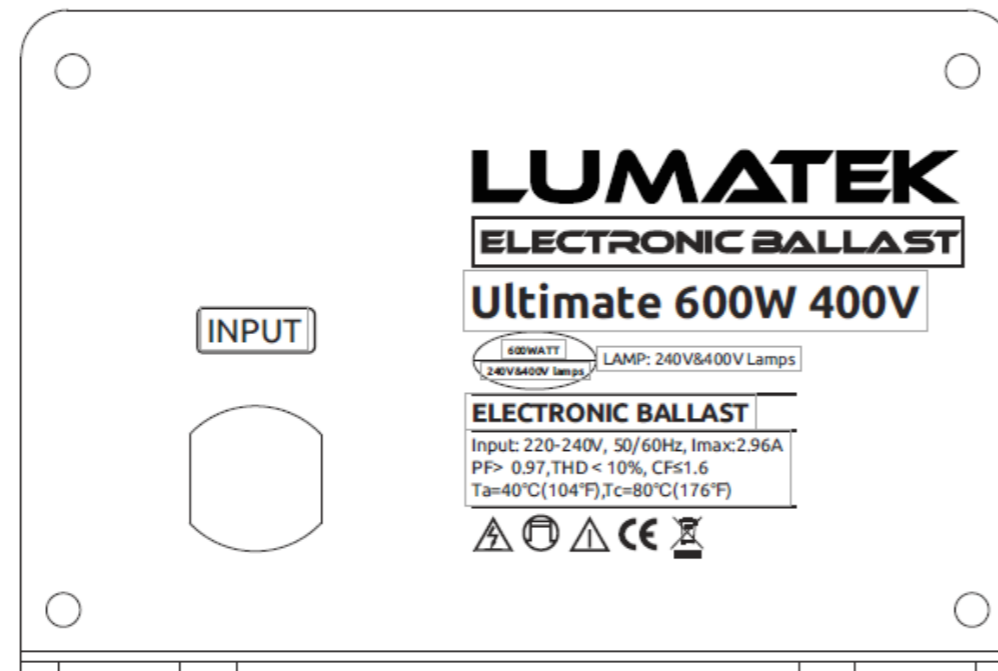
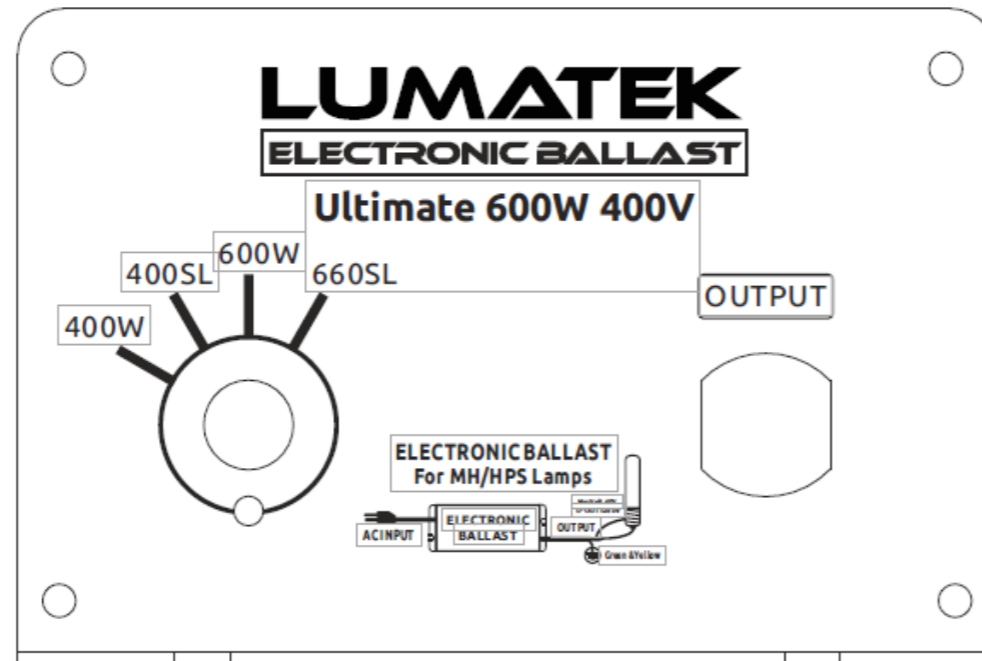


First Angle  
Projection

|              |                                      |            |
|--------------|--------------------------------------|------------|
| Description: |                                      | REV<br>P00 |
| Part No:     | —                                    | SIZE<br>A3 |
| Used On:     | <b>600W Ultimate Digital Ballast</b> |            |

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

10 Mark



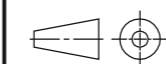
LK6240UltProEU 600Watt



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First Angle Projection

|              |          |                               |
|--------------|----------|-------------------------------|
| Description: | Mark     | REV<br>P00                    |
|              | Part No: |                               |
|              | Used On  | 600W Ultimate Digital Ballast |

|       |    |      |    |              |             |
|-------|----|------|----|--------------|-------------|
| Scale | -- | Unit | mm | Sheet 1 Of 1 | Issue Date: |
|-------|----|------|----|--------------|-------------|

|        |         |
|--------|---------|
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