



### Product Features:

- Input voltage range: 176~264Vac;
- Constant power design;
- External NTC;
- DALI-2 & VMF, Dim to off;
- NFC programmable;
- Constant Lumen Output (CLO);
- Suitable for luminaires of protection class I and II;
- Auxiliary power supply: 24V/250mA;
- Surge protection: 6KV line-line, 10KV line-earth;
- Multiple protection: SCP, OVP(Output), OTP;
- Meet the zhaga Book 13;
- IP20;
- 7 Years Warranty

### Application

- Suitable for LED roadway lighting, plant lighting, industrial lighting, landscape lighting, etc.

### DESCRIPTION

U6 series is an ultra-high efficiency DALI programmable IP20 outdoor constant current drive power, input voltage range 176-264 Vac. Designed for European street lamps, compatible Class I & Class II. U6 series has surge protection, output over-voltage protection, short-circuit protection and over-temperature protection.

### MODELS

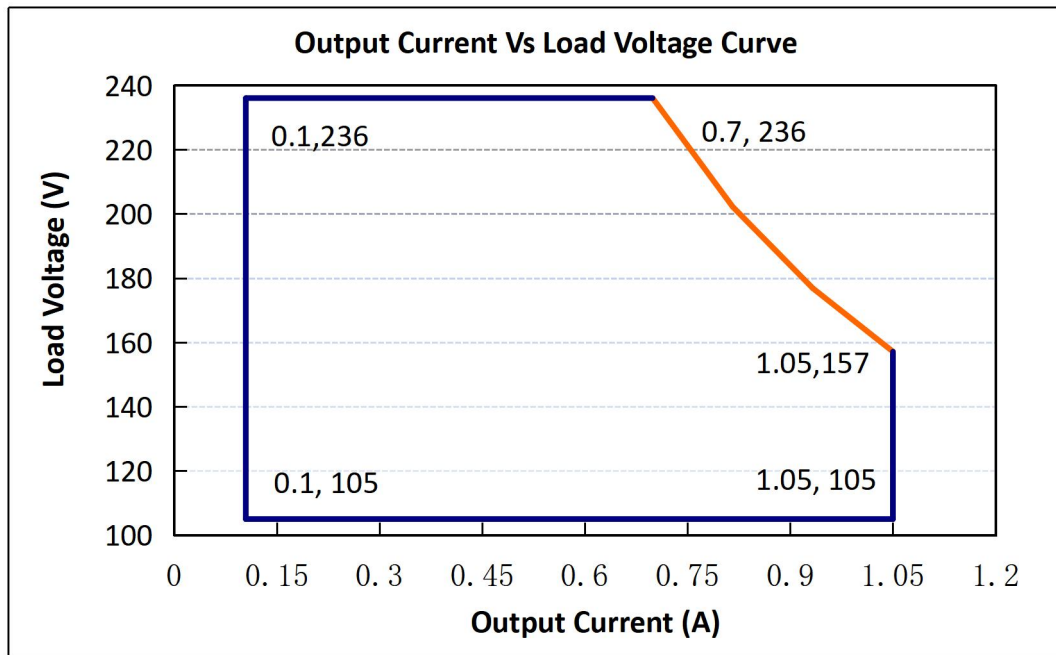
| Model Number [1] | Max Output Power (W) | Output Voltage Range (Vdc) | Full Power Output Voltage Range (Vdc) | Full Power Current Adjustable Range (A) [2] | Default Output Current Setting(A) | Typical Efficiency [3] | PF   |
|------------------|----------------------|----------------------------|---------------------------------------|---|-----------------------------------|------------------------|------|
| U6-165D236       | 165                  | 105-236                    | 158-236                               | 0.7-1.05                                    | 0.7                               | 93%                    | 0.98 |

#### Notes:

[1]. All performance parameters are at 25 degrees ambient temperature 230 VAC input, full load conditions measured typical values, except specified

[2]. When the power supply reaches the set life(example 60000H), when the power supply is restarted, The output current remains constant 10%Io, Or output flashing warning to indicate that the power supply needs to be replaced.

### OPERATING AREA



### INPUT SPECIFICATIONS

| Parameter                           | Min.   | Typ.       | Max.   | Notes                              |     |   |                  |
|-------------------------------------|--------|------------|--------|------------------------------------|-----|---|------------------|
| Input Voltage                       | 176Vac | 200-240Vac | 264Vac |                                    |     |   |                  |
| Input Frequency                     | 47Hz   | 50/60      | 63Hz   |                                    |     |   |                  |
| Leakage Current                     | -      | -          | 0.7mA  | 240Vac/60Hz                        |     |   |                  |
| Input AC Current                    | -      | -          | 1.26A  | 200-240Vac & full load             |     |   |                  |
| Inrush Current                      | -      | -          | 75A    | 230Vac & full load                 |     |   |                  |
| Standby Power Consumption           | -      | -          | 0.5W   | 230Vac/50Hz                        |     |   |                  |
| Power Factor                        | 0.96   | 0.98       | -      | 240Vac, 50-60Hz, & full load       |     |   |                  |
|                                     | 0.9    | 0.92       | -      | 200-240Vac, 50-60Hz, 60%-100% load |     |   |                  |
| THD                                 | -      | 5%         | 15%    | 200-240Vac, 50-60Hz, 60%-100% load |     |   |                  |
| Max. NO. of PSUs on Circuit Breaker | B10    | 2          | B16    | 3                                  | B25 | 5 | 230Vac 100% load |
|                                     | C10    | 4          | C16    | 6                                  | C25 | 9 |                  |

**OUTPUT SPECIFICATIONS**

| Parameter  | Min.  | Typ. | Max.  | Notes   |
|--|-------|------|-------|---|
| Output Current Tolerance                                       | -5%   | -    | 5%    | Iset>0.35A  |
| Output Current Setting Range (A)<br>U6-165D236                 | 10%   | -    | 100%  |   |
| Output Current Setting Range with Constant Power<br>U6-165D236 | 0.7   | -    | 1.05  |   |
| Total Output Current Ripple(pk-pk)                             | -     | 5%   | 10%   | 20MHz BW, full load& LED load, the ripple would be tiny different under different LED load. |
| Startup Overshoot Current                                      | -     | -    | 10%   | 200~240Vac &100% Load, load is LED  |
| No Load Output Voltage(V)<br>U6-165D236                        | -     | -    | 260V  |   |
| Auxiliary Power Supply   | 22.8V | 24V  | 25.2V | 176-264Vac  |
|  | -     | -    | 250MA |   |
| Line Regulation  | -1%   | -    | 1%    | 25°C±10°C ambient temperature, input voltage changes from 200Vac to 264Vac.                 |
| Load Regulation  | -3%   | -    | 3%    | 25°C±10°C ambient temperature, 230Vac, load changes from 60% to 100%.                       |
| Turn-on Delay Time   | -     | -    | 1.5S  | 230Vac,100% load  |

**GENERAL SPECIFICATIONS**

| Parameter   | Min.          | Typ.       | Max.    | Notes  |
|---|---------------|------------|---------|--|
| Efficiency @230Vac<br>U6-165D236<br>Io=0.7A<br>Io=1.05A | 91%<br>91%    | 93%<br>93% | -<br>-  | Measured at full load and 25°C ambient temperature             |
| Dielectric Strength                                     | Input-Output  | -          | 3750Vac | Max 5mA/60S  |
|   | Input-PE      | -          | 3000Vac |  |
|   | Output-PE     | -          | 1600Vac |  |
| Insulation Resistance                                   | 10MΩ          | -          | -       | Input-Output, 500Vdc/60S/25°C /70%RH                           |
| MTBF  | -             | 200000Hrs  | -       | 25°C±10°C ambient temperature, 230Vac,80% load (MIL-HDBK-217F) |
| Lifetime  | -             | 100000Hrs  | -       | Tc=75°C, 230Vac&100% load, 10% failure rate                    |
| Ambient Temperature                                     | -40°C         |            | +50°C   | 230Vac&100% load   |
| Operating Case Temperature for Safety<br>Tc_s           | -40°C         | -          | +90°C   |  |
| Operating Case Temperature for Warranty<br>Tc_s         | -40°C         | -          | +75°C   | 7 years warranty case temperature                              |
| Storage Temperature                                     | -40°C         | -          | +85°C   | Humidity: 5% to 85% RH No condensation                         |
| Dimensions (L*W*H)mm                                    | 170L*100W*40H |            |         |  |

|            |                                    |  |
|------------|------------------------------------|--|
| Net Weight | 720±50g/PCS                        |  |
| Package    | L555mm*W375mm*H235mm;<br>18PCS/Ctn |  |

### DIMMING

| Parameter            |                          | Min.    | Typ. | Max.     | Notes                   |
|----------------------|--------------------------|---------|------|----------|-------------------------|
| DALI 2               | DA,DA High Voltage Level | 9.5     | 16   | 22.5     |                         |
|                      | DA,DA Low Voltage Level  | -6.5    | 0    | 6.5      |                         |
| Dimming Output Range |                          | 10%Iset | -    | 100%Iset | I <sub>max</sub> =1.05A |

### SAFETY STANDARDS

| Safety Category | Country / Territory | Standards                 | Approved |
|-----------------|---------------------|---------------------------|----------|
| CCC             | China               | GB19510.1, GB19510.14     |          |
| CE              | Europe              | EN61347-1, EN61347-2-13   | √        |
|                 |                     | EN62493                   | √        |
|                 |                     | EN62384                   | √        |
| CB              | CB Countries        | IEC61347-1, IEC61347-2-13 | √        |

### EMC COMPLIANCE

| EMC Category | Country / Territory | Standards                  | Approved |
|--------------|---------------------|----------------------------|----------|
| CCC          | China               | GB/T 17743, GB 17625.1     |          |
| CE           | Europe              | EN 55015                   | √        |
|              |                     | EN 61000-3-2, EN 61000-3-3 | √        |
|              |                     | EN61000-4-2,3,4,5,6,11     | √        |
|              |                     | EN 61547                   | √        |

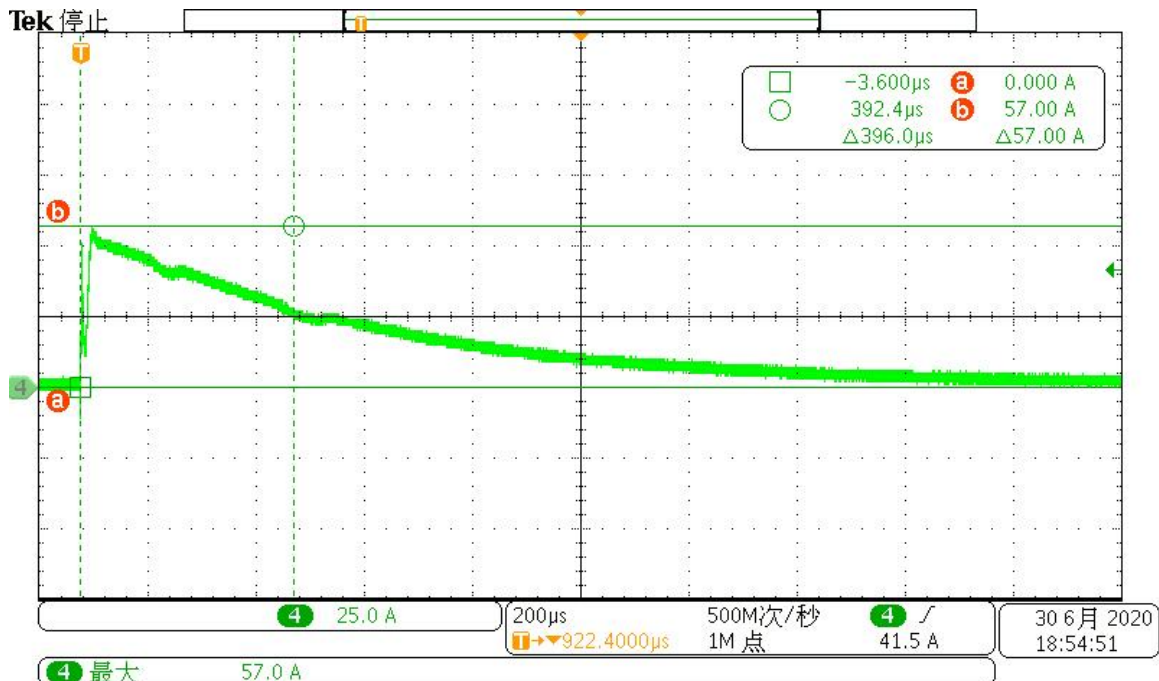
### INSULATION

| Insulation             | Input/Mains | DALI                | LED Output          | Supporting Surface | Auxiliary Power Supply |
|------------------------|-------------|---------------------|---------------------|--------------------|------------------------|
| Input/Mains            | /           | Double              | Double              | Double             | Double                 |
| DALI                   | Double      | /                   | Basic/Supplementary | Double             | Basic/Supplementary    |
| LED Output             | Double      | Basic/Supplementary | /                   | Double             | Basic/Supplementary    |
| Supporting Surface     | Double      | Double              | Double              | /                  | Double                 |
| Auxiliary Power Supply | Double      | Basic/Supplementary | Basic/Supplementary | Double             | /                      |

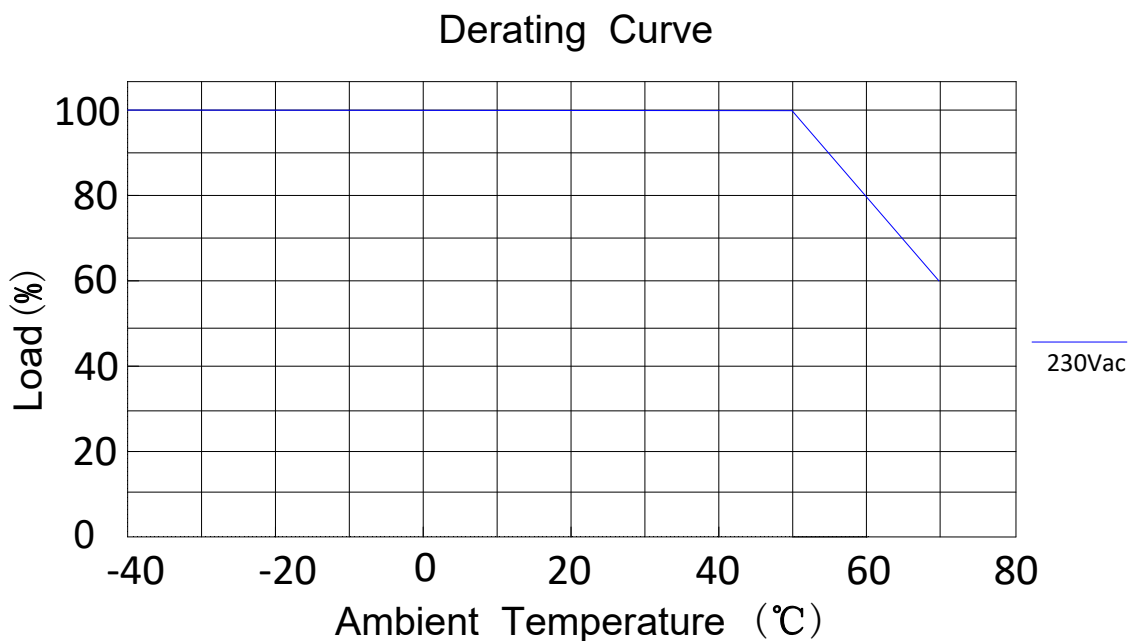
### NOTE:

This LED driver meets the EMI specifications above, but as a component of a luminaire, end customer need to identify the EMI performance of a luminaire including LED driver, other devices connected to the driver and on the luminaire itself.

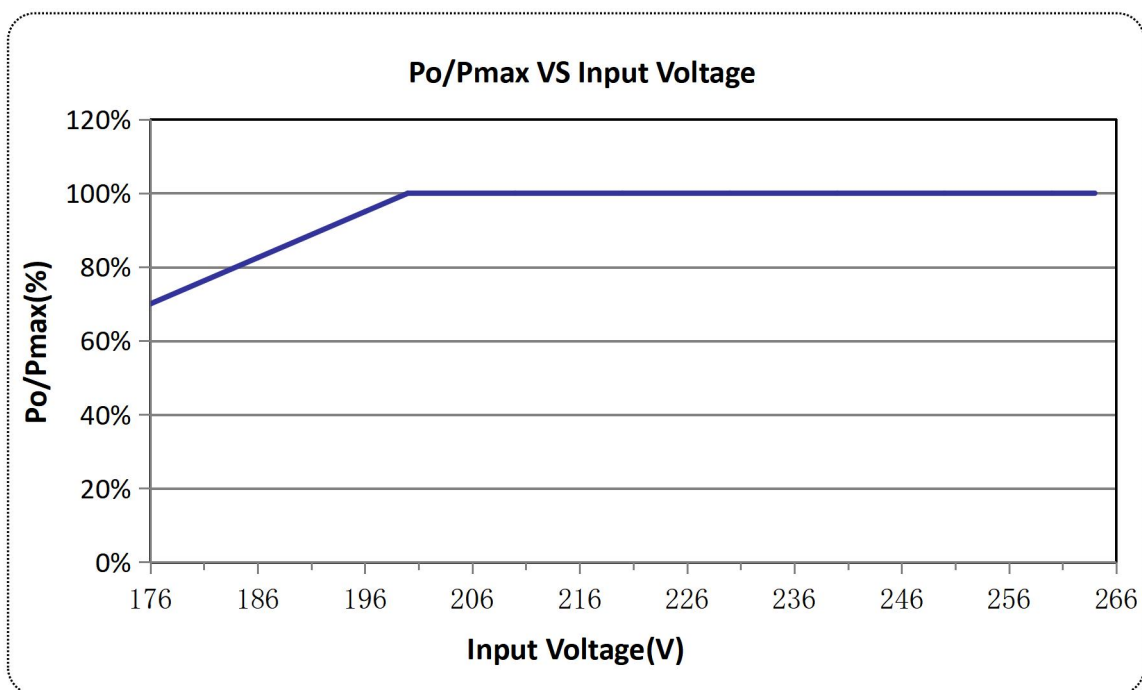
### INRUSH CURRENT WAVEFORM



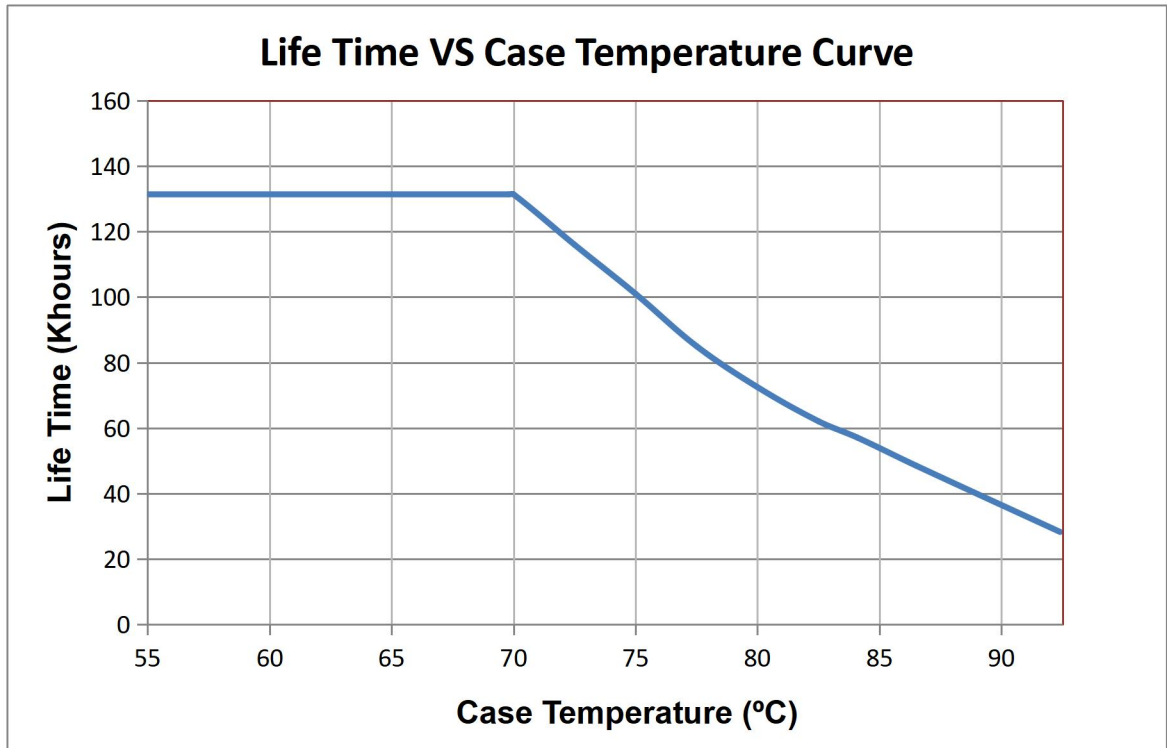
### DERATING CURVE



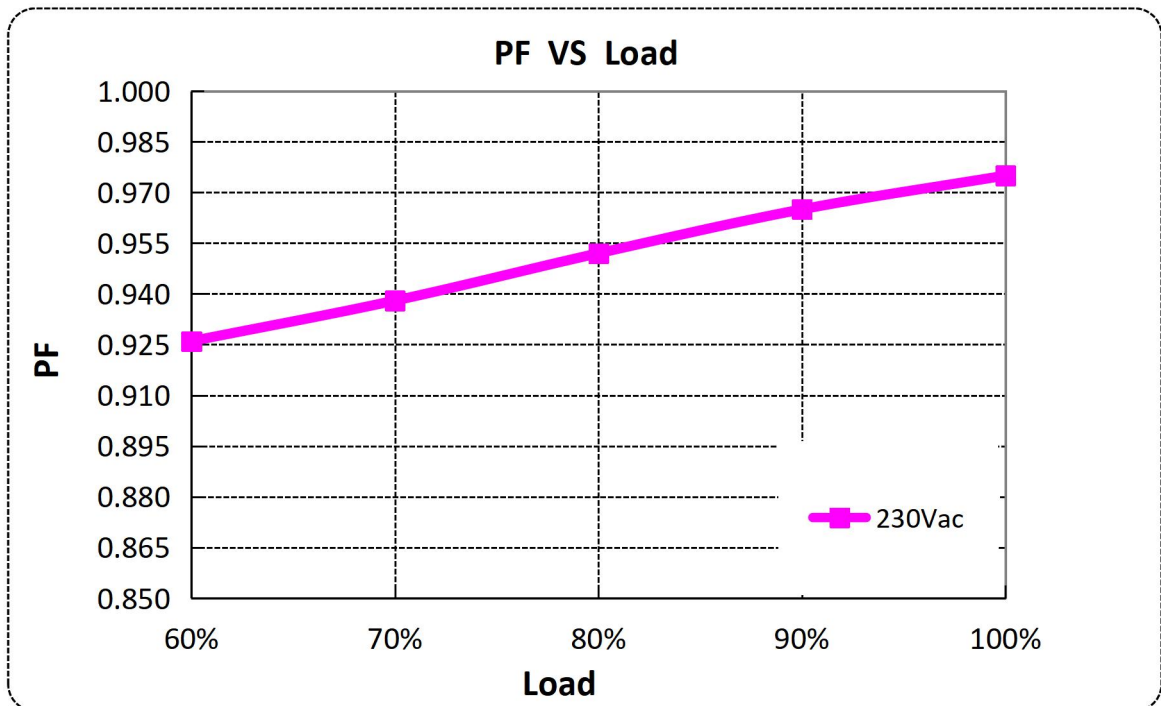
### OUTPUT POWER VS INPUT VOLTAGE



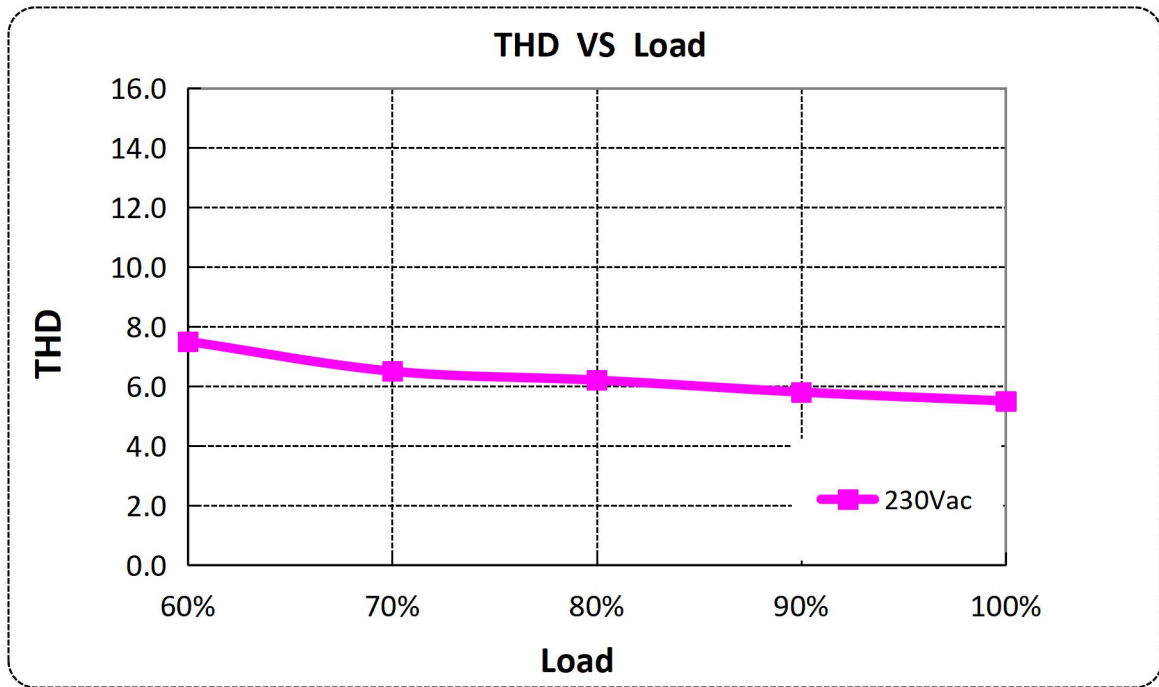
### LIFETIME VS CASE TEMPERATURE



### POWER FACTOR VS LOAD

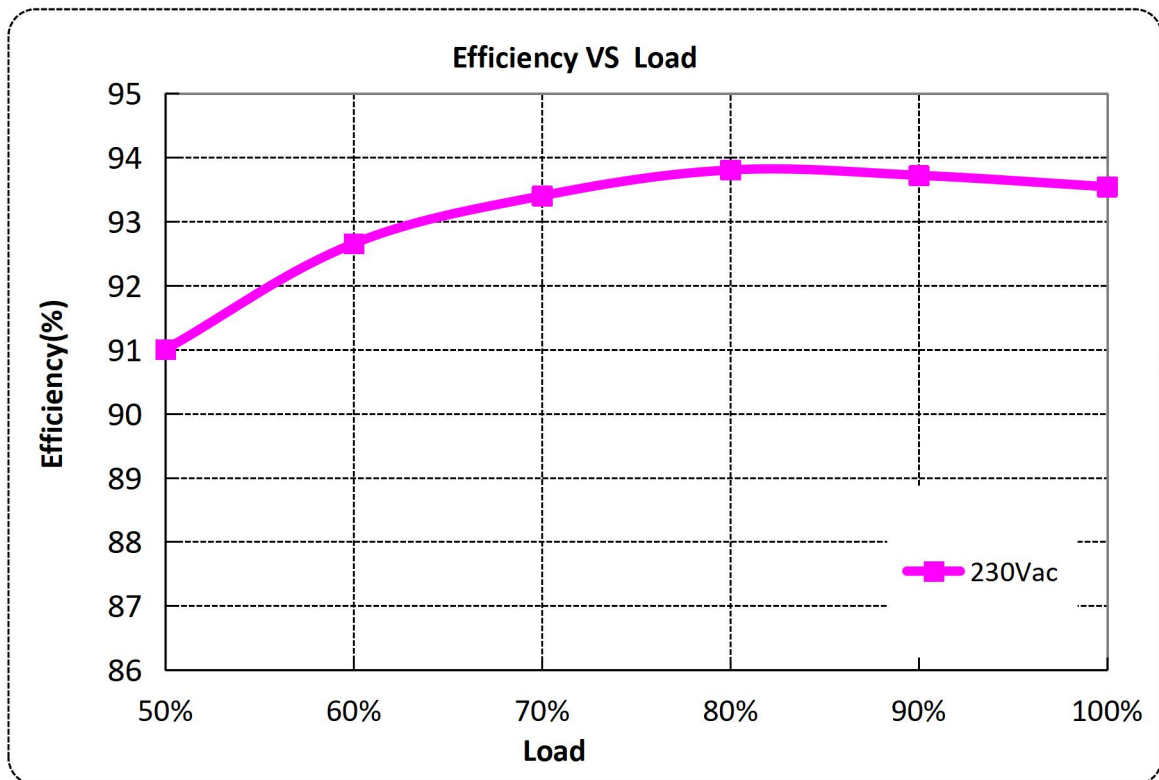


### TOTAL HARMONIC DISTORTION



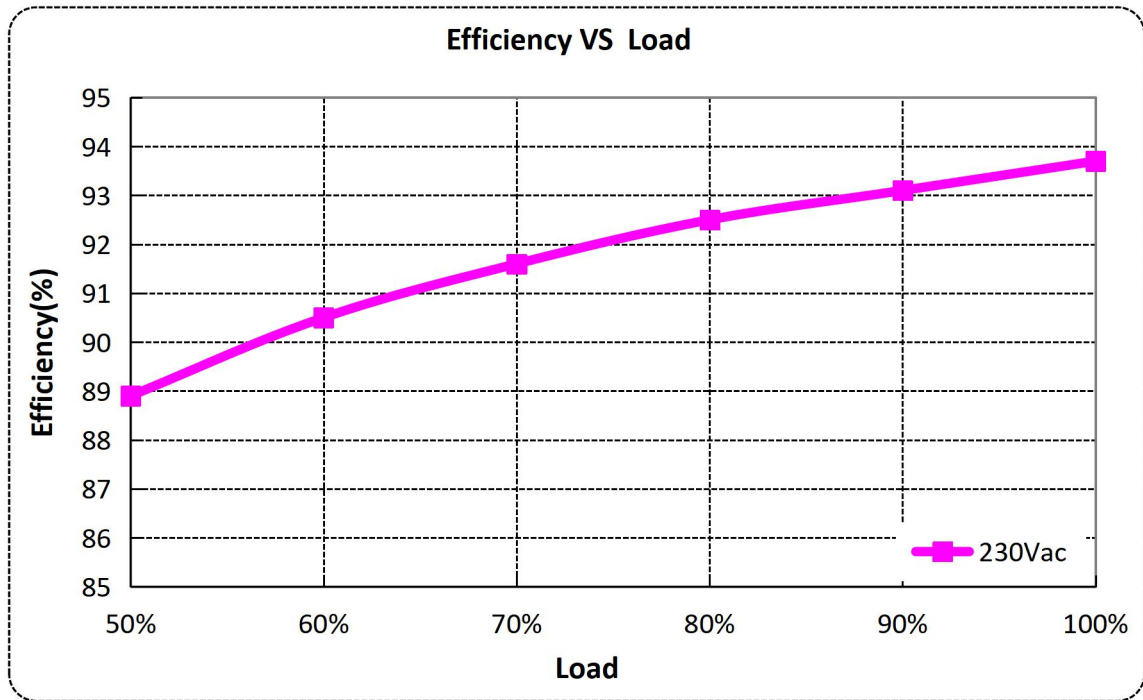
### EFFICIENCY VS LOAD

$I_o=0.7A$





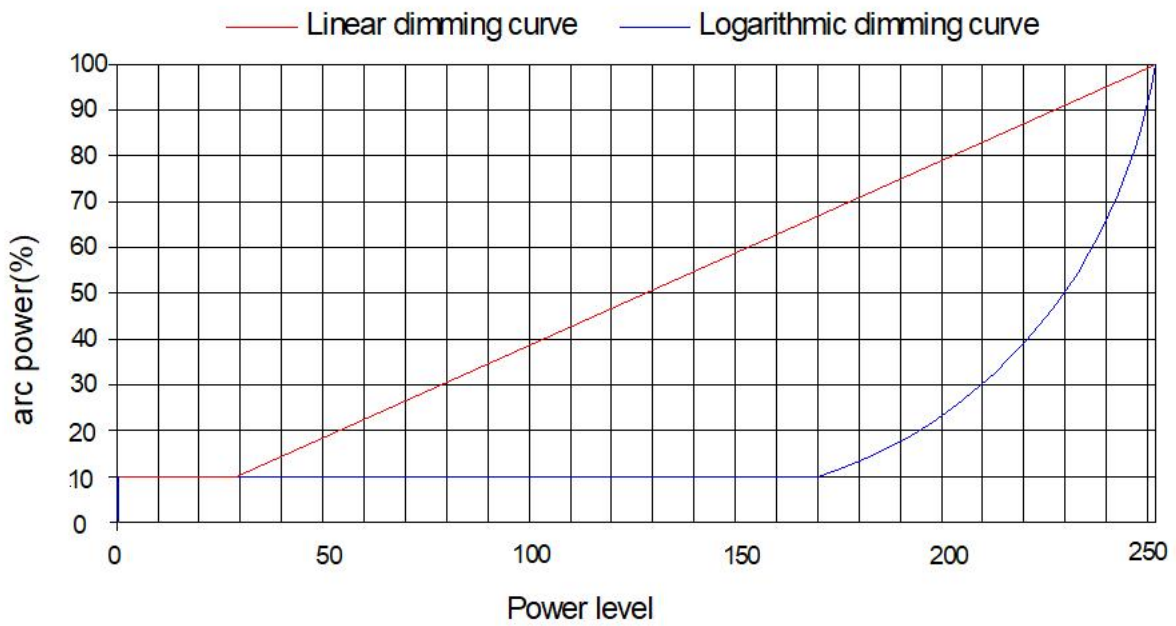
$I_o=1.05A$



### PROTECTIONS

| Parameter                   |                    | Min.   | Typ.                              | Max.   | Notes  |
|-----------------------------|--------------------|--|-----------------------------------|--|--|
| External NTC                | R1                 | -  | 7.81kOhm<br>(Setting by software) | -  | When the R-NTC is reduced to R1, the external thermal protection is triggered and the output current gradually decreases |
|                             | R2                 | -  | 4.16kOhm<br>(Setting by software) | -  | When the R-NTC is reduced to R2, the output current is reduced to the programmed protection current value                |
|                             | Protection Circuit | 10% lo set   | 60% lo set                        | 100% lo set  | 10% lo set > I <sub>omin</sub> (Default setting 60%)   |
| I <sub>omin</sub>           |                    | 60% lo set   | 100% lo set                       | 10% lo set ≤ I <sub>omin</sub> (Default setting 60%) |  |
| Over Temperature Protection |                    | Decreases output current, returning to normal after over temperature is removed.   |                                   |  |  |
| Short Circuit Protection    |                    | Constant current mode and auto recovery. No damage will occur when any output is short circuited. The output shall return to normal when the fault condition is removed. |                                   |  |  |
| Over Voltage Protection     |                    | Run into protection model when output voltage exceeds limit, and return to normal when the fault   |                                   |  |  |

### DALI2 DIMMING CURVE



**Note: Factory Default Output Logarithmic Curve**

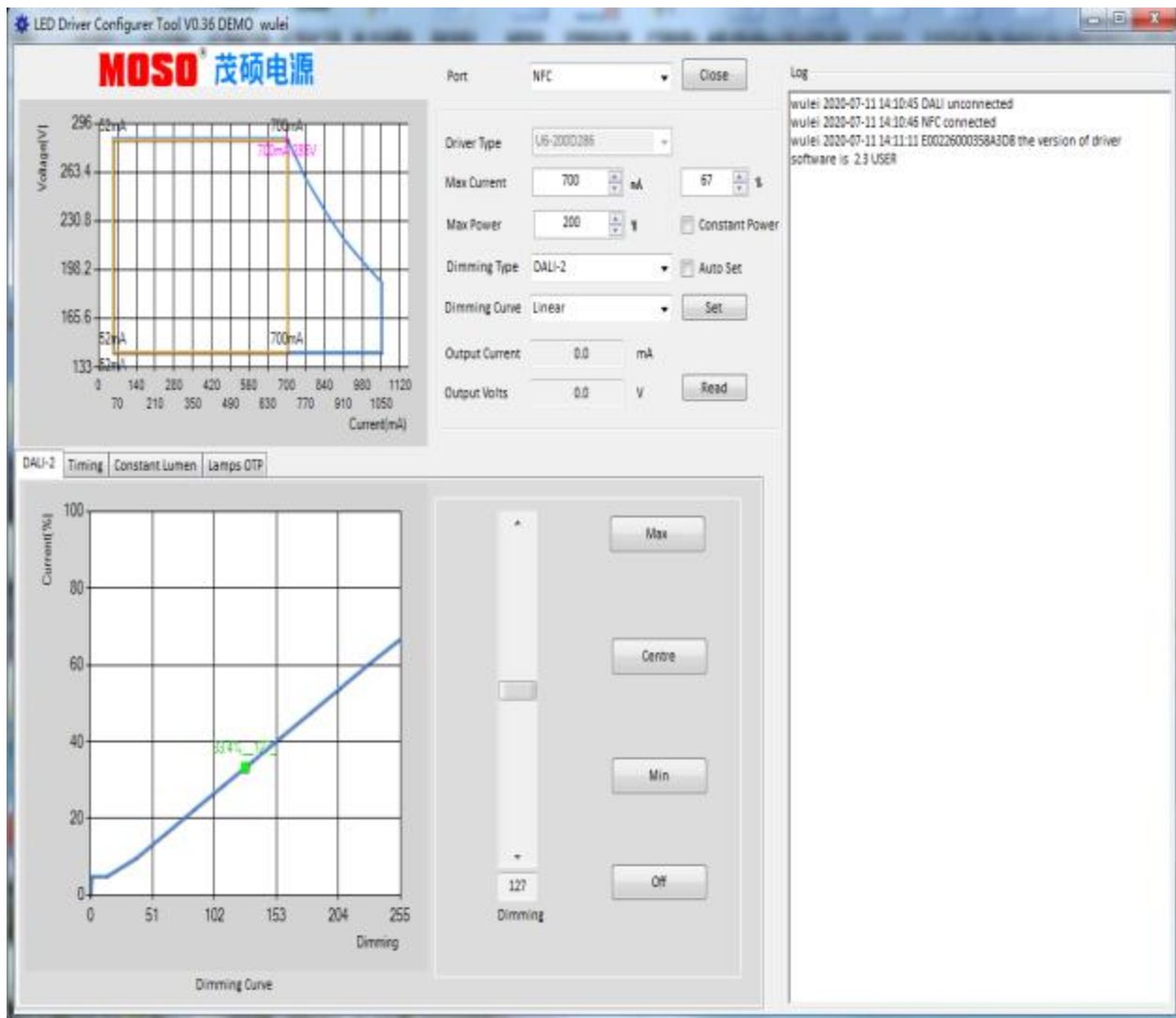
### DALI2 Standards

IEC62386-101,102,207

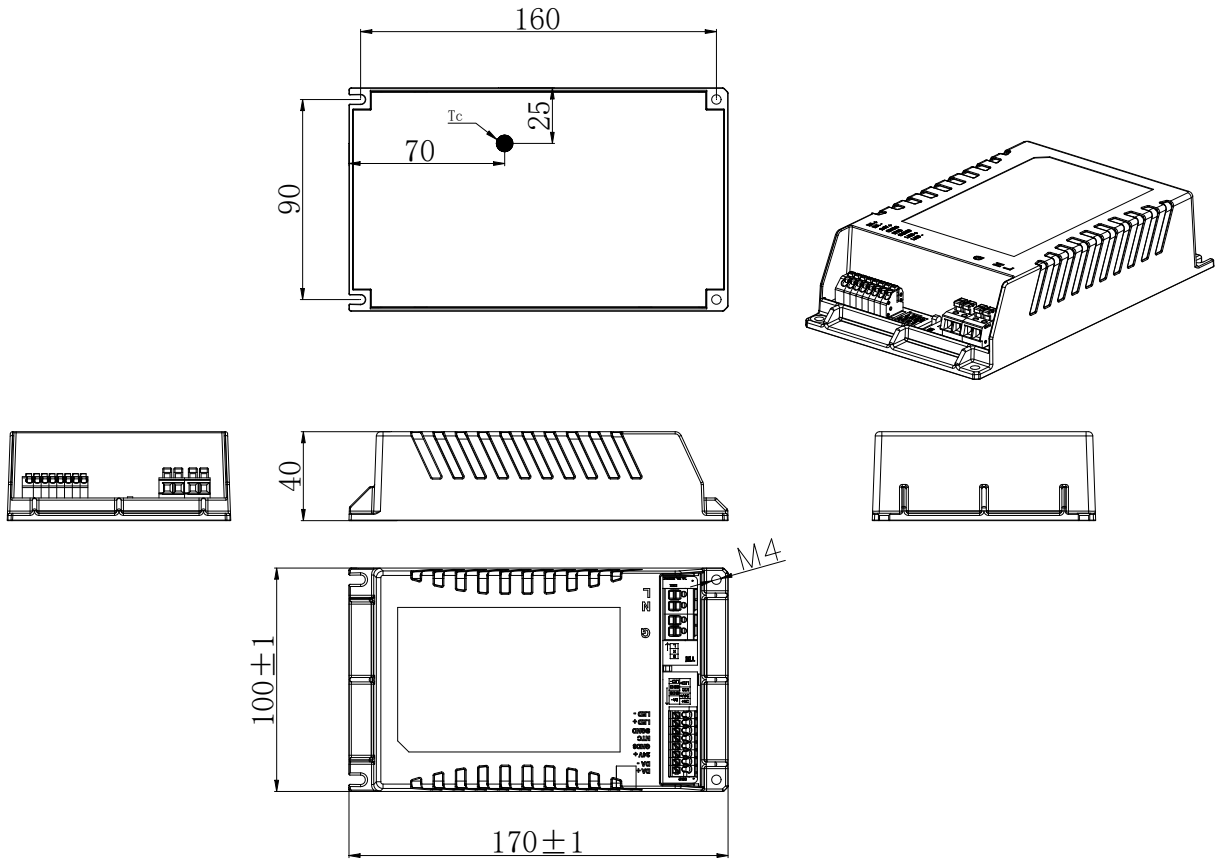
### DIAGRAM OF UPPER COMPUTER CONNECTION:



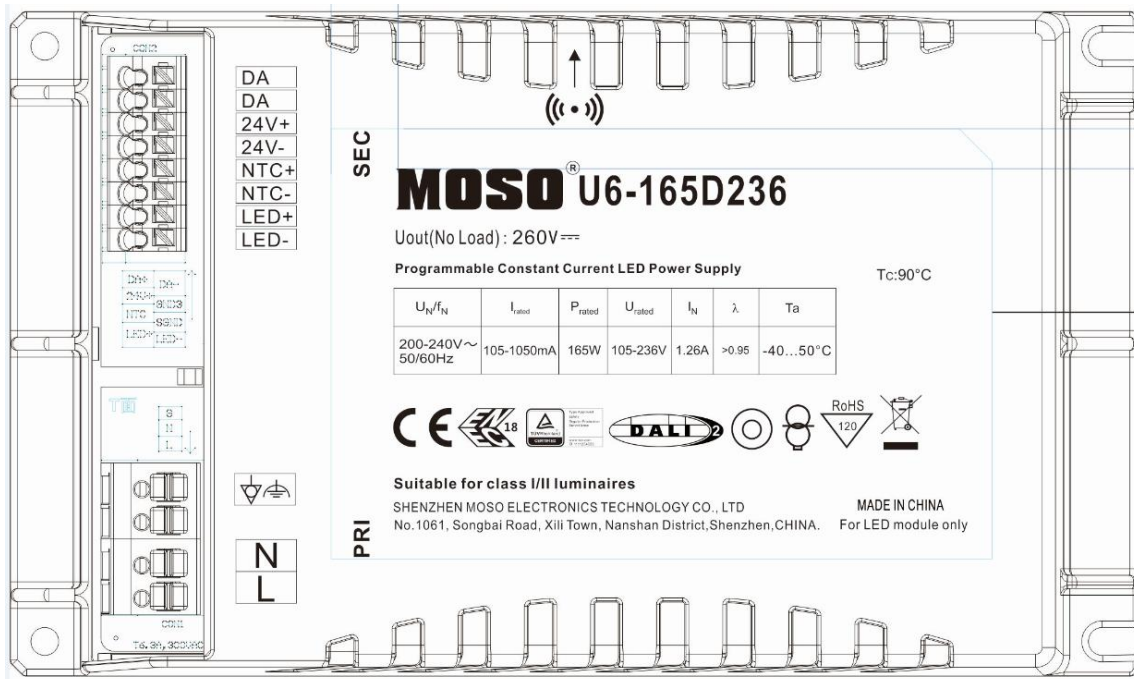
### Software programming interface



### MECHANICAL OUTLINE



### LABEL







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# Product Specification

Product Name:      165W NFC Programmable Driver  
Product Model:    U6-165D236   
Rev.                    E.2

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|             |            |             |