

## Description

The N7L-( II ) series is specifically designed for industrial lighting applications, non-isolated design, operating in constant current with high power factor and a universal input voltage range of 90~305Vac. This series provides 0-10V/PWM/Resistor dimming controls. The compact housing and high efficiency allow the drivers to operate with high reliability, while featuring input surge, output over voltage, short circuit and over temperature



## Product Features

- Universal input voltage: 90~305Vac;
- Non-isolated constant current design, Efficiency up to 97%;
- 3 in 1 dimmable: 0-10Vdc/PWM/Resistor;
- Off-line programmable;
- DIP switch power and photocontrol related settings are programmable;
- Output and dimming signal isolating;
- Standby Power Consumption:<0.5W;
- 12V/0.2A auxiliary power supply;
- Surge protection: DM: 6KV, CM: 6KV;
- Protection: SCP/OVP/OTP/UVP;
- Warranty: 5 years.

## Application

Industrial lighting

Road lighting

Landscape lighting

## Models

| Model                 | Input Voltage (Vac) | MAX Output Power (W) | Output Voltage (Vdc) | Output Current Adjustable Range (A) | Default Current (A) | Eff. (Typ.) | PF(Typ.) | THD(Typ.) |
|-----------------------|---------------------|----------------------|----------------------|-------------------------------------|---------------------|-------------|----------|-----------|
| N7L-400M300A12 ( II ) | 90~305              | 400                  | 180~300              | 0.36~1.80                           | 1.60                | 97%         | 0.97     | 8%        |

Notes:

[1].All specifications are measured at 25°C ambient temperature, input voltage 230Vac, and the typical value tested at full load, if no specific note.

## Input Specifications

| Parameter                 | Min.   | Typ.    | Max.    | Notes                                                  |
|---------------------------|--------|---------|---------|--------------------------------------------------------|
| Input Voltage Range       | 90Vac  | -       | 305Vac  |                                                        |
| Rated Input Voltage       | 100Vac | -       | 277Vac  | Refer to Output Power vs. Input Voltage Curve          |
| Input Frequency AC        | 47Hz   | 50/60Hz | 63Hz    |                                                        |
| Max Input Current         | -      | -       | 4.0A    | 120Vac&100% load                                       |
| Max Input Power           | -      | -       | 450W    | 120Vac&100% load                                       |
| Leakage Current           | -      | -       | 0.70mA  | IEC 60598-1; 240Vac/50Hz                               |
| Leakage Current           |        |         | 0.75mIU | UL 8750; 277Vac/60Hz                                   |
| Inrush Current            | -      | -       | 75A     | 230Vac, 100% load                                      |
| Standby Power Consumption | -      | -       | 0.5W    | 220Vac, dimming off, no load on auxiliary power supply |
| Power Factor              | 0.90   |         | -       | 230Vac, 50/60Hz, 70%-100% load                         |
|                           | 0.90   | 0.95    | -       | 120-277Vac, 50/60Hz, 70%-100% load                     |
| THD                       | -      | 8%      | 10%     | 230Vac, 50/60Hz, 100% load                             |
|                           | -      | 10%     | 20%     | 120-277Vac, 50/60Hz, 70%-100% load                     |
| MCB(B16)                  | -      | 5       | -       | 230Vac; 100% load                                      |

## Output Specifications

| Parameter                             | Min.   | Typ. | Max.   | Notes                                                                                      |
|---------------------------------------|--------|------|--------|--------------------------------------------------------------------------------------------|
| Output Voltage Range                  | 180Vdc | -    | 300Vdc |                                                                                            |
| Open Circuit Voltage                  | -      | -    | 350Vdc |                                                                                            |
| Output Current Adjustable Range       | 0.133A | -    | 1.80A  | The current range can be set via PC software                                               |
| Full Power Current Range              | 0.36A  | -    | 1.80A  | 202-300Vdc                                                                                 |
| Default Photocontrol Turn-off Voltage | 0V     | 1V   | 2V     | Adjust via PC software                                                                     |
| Default Photocontrol Turn-on Voltage  | 3V     | 4V   | 5V     |                                                                                            |
| Current Accuracy                      | -8%    | -    | +8%    |                                                                                            |
| Total Output Current Ripple (pk-pk)   | -      | 10%  | 15%    | 20MHz BW full load & LED load the LED load ripple is slightly different for different LEDs |
| Startup Overshoot Current             | -      | -    | 10%    | 120-277Vac full load condition, LED load                                                   |
| Auxiliary Source output voltage       | 10.8V  | 12V  | 13.8V  |                                                                                            |
| Auxiliary Source output current       | -      | -    | 200mA  |                                                                                            |
| Line Regulation                       | -5%    | -    | +5%    | 25°C±10°C ambient temperature, input voltage changes from 120Vac to 277Vac                 |
| Load Regulation                       | -8%    | -    | +8%    | 25°C±10°C ambient temperature, 230Vac input, load changes from 70% to 100%                 |
| Turn-on Delay Time                    | -      | -    | 1.0s   | 120-277Vac, 100% load                                                                      |

## General Specification

| Parameter                                    | Min.                                 | Typ.      | Max.  | Notes                                                                                                                                                                           |
|----------------------------------------------|--------------------------------------|-----------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Efficiency @120Vac                           | 92%                                  | 94%       | -     | 0.50A, 300Vdc; 25°C ambient temperature, no load of auxiliary source                                                                                                            |
| Efficiency @230Vac                           | 95%                                  | 97%       | -     | 0.50A, 300Vdc; 25°C ambient temperature, no load of auxiliary source                                                                                                            |
| Efficiency @277Vac                           | 95%                                  | 97%       | -     | 0.50A, 300Vdc; 25°C ambient temperature, no load of auxiliary source                                                                                                            |
| MTBF                                         | -                                    | 200Khours | -     | 25 °C ± 10 ° ambient temperature, 230Vac, 80% load (MIL-HDBK-217/SR-332)                                                                                                        |
| Lifetime                                     | -                                    | 50Khours  | -     | 230Vac & 100% load, Tc 75°C, refer to lifetime vs. case temperature curve                                                                                                       |
| Operating Temperature Ta                     | -45°C                                | -         | +60°C | 120-200VAC Ta:50°C<br>200-277VAC Ta:60°C                                                                                                                                        |
| Operating Case Temperature for Safety Tc_s   | -40°C                                | -         | +85°C |                                                                                                                                                                                 |
| Operating Case Temperature for Warranty Tc_w | -40°C                                | -         | +85°C | 5 years warranty shell temperature<br>Humidity: 10%-90% RH                                                                                                                      |
| Storage Temperature Ta                       | -40°C                                | -         | +85°C | Humidity: 5%-95% RH                                                                                                                                                             |
| Over Temperature Protection Tc               | 90°C                                 | 95°C      | 100°C | Decreases output current, returning to normal after over temperature is removed                                                                                                 |
| Short Circuit Protection                     | -                                    | -         | 15W   | Constant current mode. The output shall return to normal when the fault condition is removed.                                                                                   |
| Output Over Voltage Protection               | -                                    | -         | 5W    | When the output voltage of the product exceeds the limit range, it will enter the protection state. When the fault is removed, the product will automatically return to normal. |
| Dimensions (L*W*H)mm                         | 225*55*33                            |           |       |                                                                                                                                                                                 |
| Net Weight                                   | 500±50g/PCS                          |           |       |                                                                                                                                                                                 |
| Package (L*W*H)                              | 500*370*120 mm; 12PCS/Ctn., GW:9.0Kg |           |       |                                                                                                                                                                                 |

## Dimming

| Parameter                     | Min.                   | Typ.  | Max.                  | Notes                        |
|-------------------------------|------------------------|-------|-----------------------|------------------------------|
| Absolute Maximum Voltage      | -                      | 10V   | 15V                   | On the Vdim (+) Pin          |
| Source Current on Vdim (+)Pin | -                      | 100uA | 200uA                 |                              |
| Dimming Range                 | 10% I <sub>o max</sub> | -     | 100% I <sub>set</sub> | I <sub>set</sub> =1.33-1.80A |
| Suggest Dimming Input 0-10V   | 0V                     | -     | 10V                   |                              |
| Turn-on voltage               | 0.8V                   | -     | 1.1V                  |                              |
| Turn-off voltage              | 0.6V                   | -     | 0.9V                  |                              |
| PWM in High Level             | 9.7V                   | -     | 10.3V                 |                              |
| PWM in Low Level              | 0V                     | -     | 0.3V                  |                              |
| PWM in Frequency Range        | 1KHz                   | -     | 2KHz                  |                              |
| PWM in Duty Cycle             | 1%                     | -     | 99%                   |                              |
| Turn-on duty cycle            | 8%                     | -     | 11%                   |                              |
| Turn-off duty cycle           | 6%                     | -     | 9%                    |                              |
| Resistor Range                | 0                      | -     | 100KΩ                 |                              |

## Safety Specifications

| Parameter                          | CE               | Note                                                        |
|------------------------------------|------------------|-------------------------------------------------------------|
| Dielectric Strength (Input-Ground) | 1600Vac          | 60s, Current not exceeding 5mA input L/N short-circuit      |
| Grounding Resistance               | $\leq 0.1\Omega$ | 25°C $\pm$ 10°C Ambient Temperature, pass 25A Current, 60s. |
| Insulation Resistance              | $\geq 10M\Omega$ | Input-PE, 500Vdc/60s/25°C                                   |

Notes: 1.The voltage resistance requirement of aluminum substrate is greater than 2KVac.

Note: 2. The power supply complies with relevant EMC standards. As part of the terminal equipment system, the EMC of the power supply needs to be reconfirmed in combination with the entire system.

Note: 3. When conducting the withstand voltage test, please short-

circuit the L/N ratio, the positive/negative of the output line, and the positive/negative of the dimming light and the auxiliary power supply.

## Safety Compliance

| Safety Category | Safety normative standards       | Certification | Notes |
|-----------------|----------------------------------|---------------|-------|
| CCC             | GB19510.1, GB19510.14            | √             |       |
| CE              | EN61347-1, EN61347-2-13, EN62493 | √             |       |
| ENEC            | EN61347-1, EN61347-2-13, EN62384 | √             |       |
| CB              | IEC61347-1, IEC61347-2-13        | √             |       |
| BIS             | IS 15885(PART 2/SEC 13)          |               |       |
| UL              | UL 8750                          | √             |       |
| CUL             | CSA C22.2 No.250.13              | √             |       |
| KC              | K61347-1, K61347-2-13            |               |       |
| PSE             | J61347-1, J61347-2-13            |               |       |
| SAA             | AS/NZS IEC 61347.2.13            | √             |       |
| SAA             | AS/NZS 61347.1                   | √             |       |

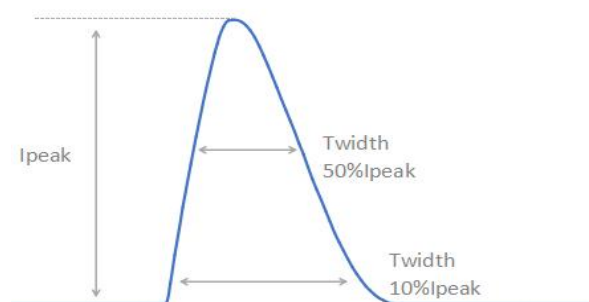
## EMC Compliance

| EMC Category         | Standards                  | Approved | Notes   |
|----------------------|----------------------------|----------|---------|
| CCC                  | GB/T 17743, GB 17625.1     | √        |         |
| CE                   | EN 55015                   | √        |         |
| CE                   | EN 61000-3-2, EN 61000-3-3 | √        |         |
| CE                   | EN61000-4-2,3,4,5,6,11     | √        |         |
| CE                   | EN 61547                   | √        |         |
| KC                   | K61547                     |          |         |
| KC                   | K00015                     |          |         |
| PSE                  | J55015                     |          |         |
| FCC                  | FCC part 15                | √        | Class B |
| Surge Shock Immunity | ANSI/C82.77-5-2017         |          |         |
|                      | IEC/EN 61000-4-5           | √        |         |
| Ringing Wave         | IEC/EN 61000-4-12          |          |         |
|                      | ANSI/IEEE C62.41.2         |          |         |

## RoHS

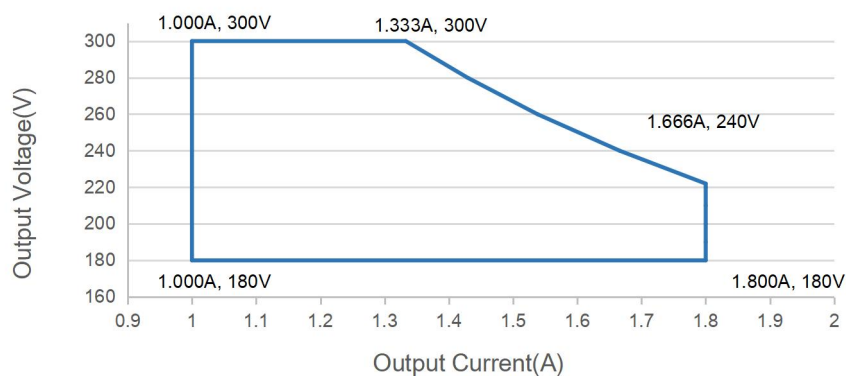
Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.

## Inrush Current Waveform

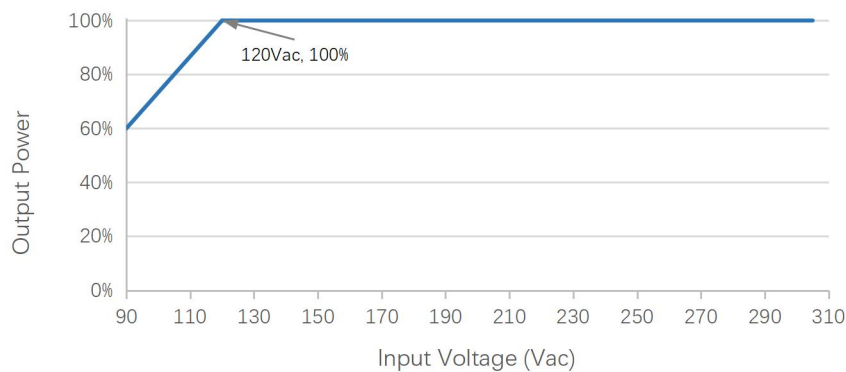


| $V_{in}$ | $I_{peak}$ | $T(@10\% \text{ of } I_{peak})$ | $T(@50\% \text{ of } I_{peak})$ |
|----------|------------|---------------------------------|---------------------------------|
| 120Vac   | 60A        | -                               | 150 $\mu$ s                     |
| 230Vac   | 120A       | -                               | 150 $\mu$ s                     |
| 277 Vac  | 150A       |                                 | 150 $\mu$ s                     |

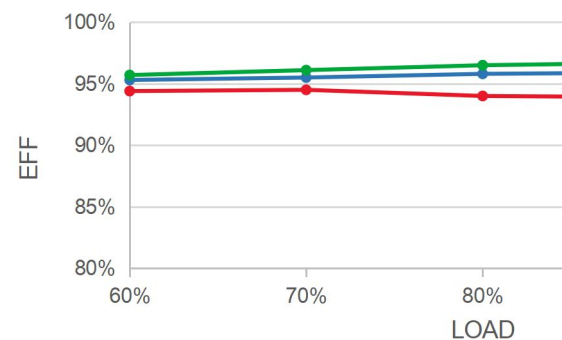
## Output Voltage vs. Output Current

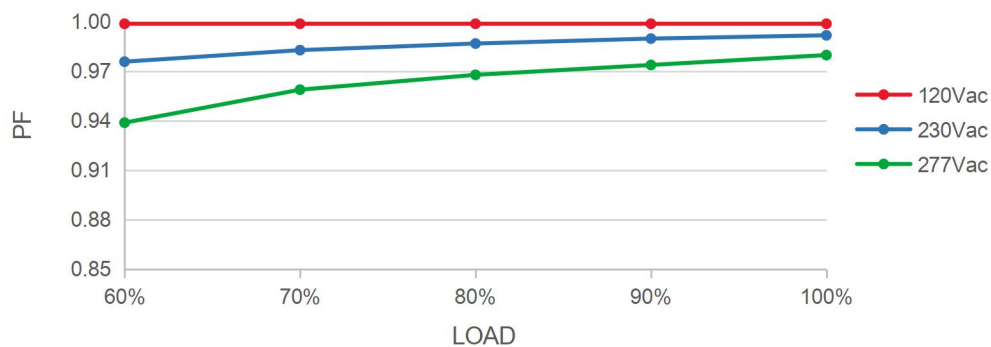
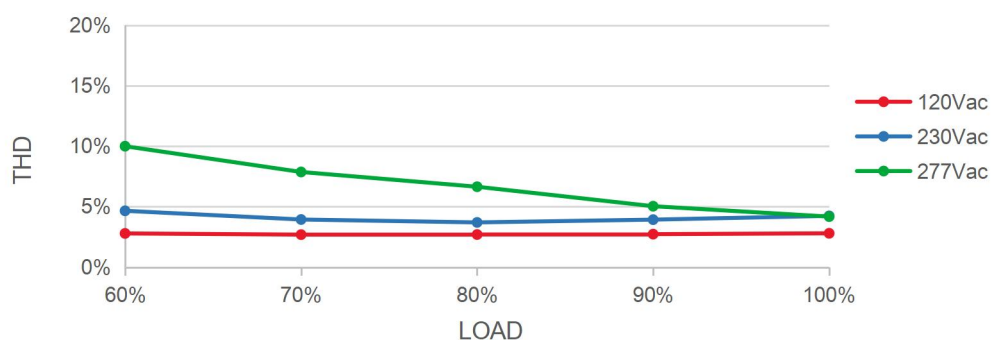
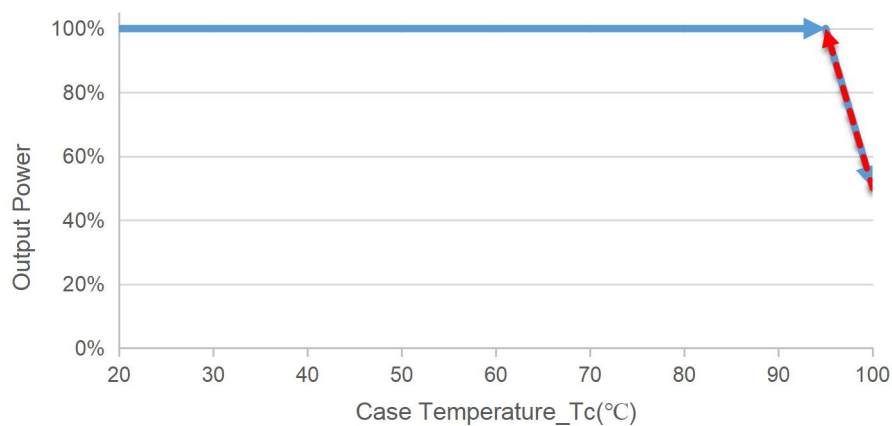


## Output Power vs. Input Voltage

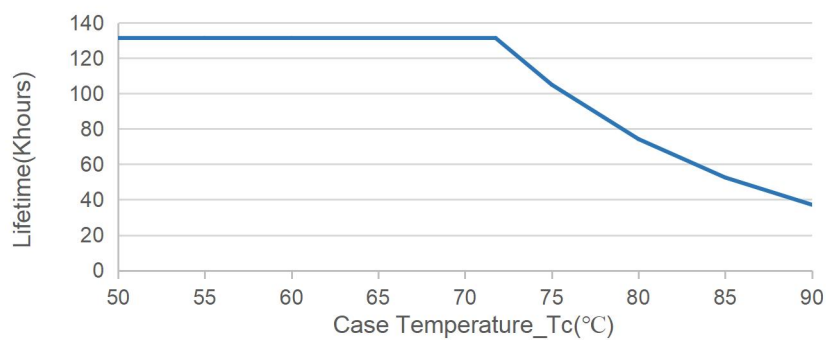


## Efficiency vs. Load

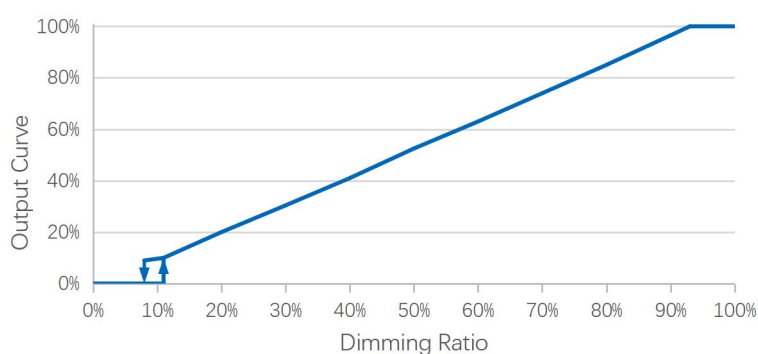


**PF vs. Load****THD vs. Load****Output Power vs. Case Temperature**

## Lifetime vs. Case Temperature

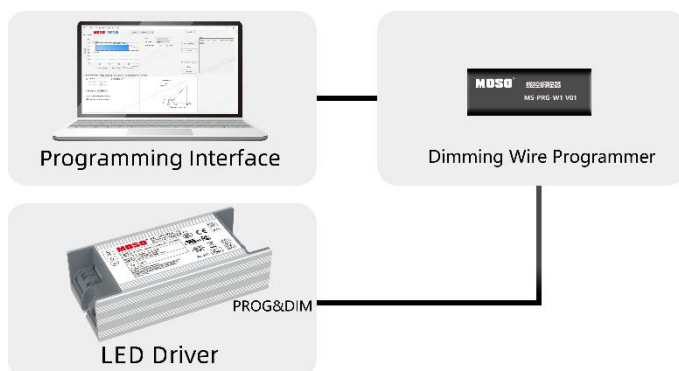


## 0-10V/PWM/ Resistor Dimming

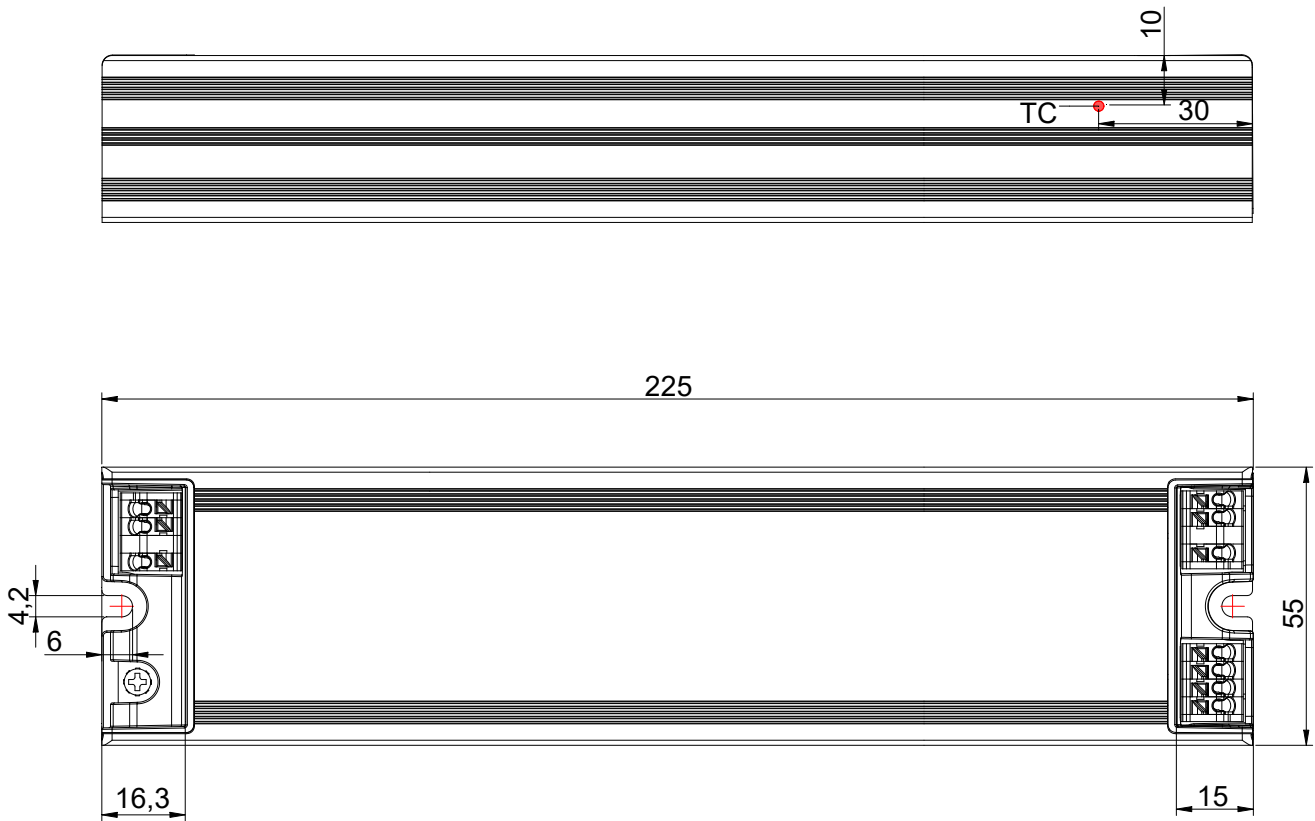


## Off-line Programming

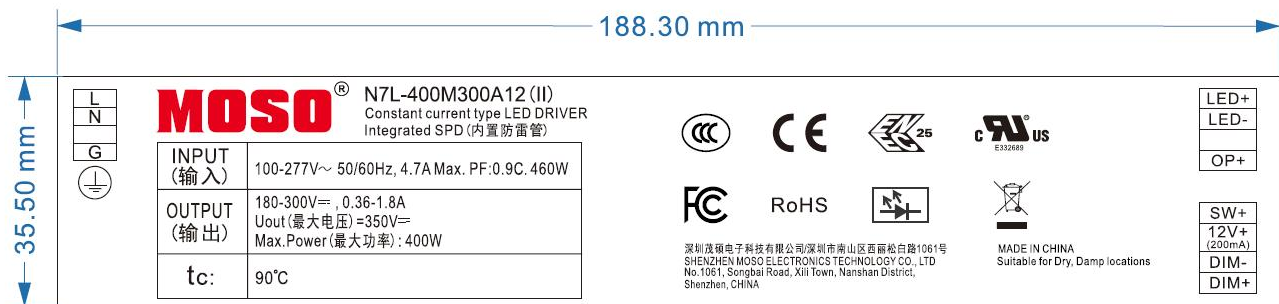
User-friendly connection of programming without necessary to power on device (suitable for N7-II, N7L-II Series).



## Mechanical Outline



## Label



ECN History

|     |               |            |
|-----|---------------|------------|
| A.1 | First edition | 2025-11-05 |
|     |               |            |
|     |               |            |
|     |               |            |
|     |               |            |
|     |               |            |
|     |               |            |

## Specification for Approval

Product Name: 400W Linear Non-isolated Driver

Product Model: N7L-400M300A12(II)

Rev. A.1

Address: Xi Li Song bai Road 1061, Nanshan District, Shenzhen City, Guangdong Province, P.R. China

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| Prepared By | Checked By | Approved By |
|-------------|------------|-------------|
|             |            |             |

## Specification for Approval

Product Name: 400W Linear Non-isolated Driver

Product Model: N7L-400M300A12(II)

Rev. A.1

| CUSTOMER AUTHORIZED SIGNATURE                                                   |            |             |
|---------------------------------------------------------------------------------|------------|-------------|
| Tested By                                                                       | Checked By | Approved By |
|                                                                                 |            |             |
| (Company seal) Return one copy to MOSO with approved signature and company seal |            |             |

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| Prepared By | Checked By | Approved By |
|-------------|------------|-------------|
|             |            |             |