

# **SPECIFICATIONS**

## **SS-1000NP-ML500\***

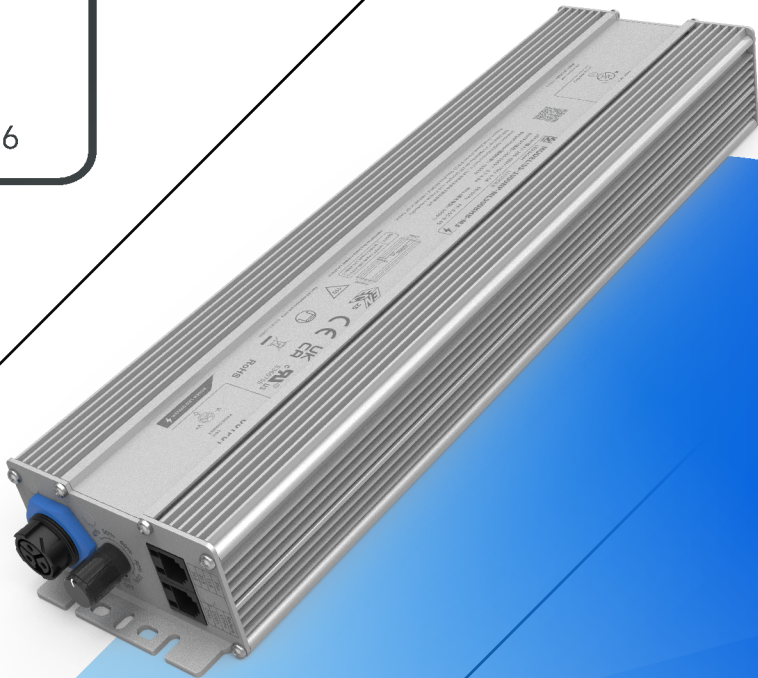
### **CC DRIVER**

Model: SS-1000NP-ML500\*

Power: 1000W

Rev.: V00

Release date: 2025-08-06



# SS-1000NP-ML500 Series LED Driver

## Features

- Efficiency up to 97%
- Dimming: 0-10V,PWM,Resistor,Timing
- Surge protection: CM: 6kV, DM: 6kV
- AUX Power: 12V/0.3A
- Constant Lumen, Life Warning
- Standby Power<0.5W
- Communication with PC
- Protections: SCP/OTP/UVP/OPP
- Warranty: 5 years



RoHS



## Description

SS-1000NP-ML500\* is 1000W non-isolated constant current LED Driver with 180-528Vac input and wide O/P voltage range and adjustable O/P current by program. LED luminaire manufactures can easily design luminaires and reduce cost,It has comprehensive protection, including short circuit protection and over-temperature protection.

Applications:

Plant lights, court lights, fish collector lights

## Model List:

| Model            | AC Input Range | Max. Pout | Vout Range | Full Power Vo Range | Iout     | THD (Typ.) | PF(Typ.) | Eff.(Typ.) | Max.Tc |
|------------------|----------------|-----------|------------|---------------------|----------|------------|----------|------------|--------|
| SS-1000NP-ML500* | 180-528Vac     | 1000W     | 150-500V   | 252-500V            | 0.7-4.0A | 10%        | 0.95     | 97%        | 90°C   |

Note:

1.Default Tested: at 400Vac, full load, Ta 25°C;

2.The performance of the LED Driver can be guaranteed within the full power Vo range. The voltage lower than full power Vo range, it is need to test the performance with the LED module ;

# SS-1000NP-ML500XX Series LED Driver

## “\*” Means Additional Function

| “*”    | AC INPUT |          | DC OUTPUT |          |          | Dimming   |          | Output-Ground | Remark |
|--------|----------|----------|-----------|----------|----------|-----------|----------|---------------|--------|
|        | Cable    | M19-3Pin | Cable     | M19-2Pin | M19-3Pin | Knob&RJ25 | M12-3Pin |               |        |
| BHB    | ✓        |          | ✓         |          |          | ✓         |          |               |        |
| BHB-G  | ✓        |          | ✓         |          |          | ✓         |          | ✓             |        |
| BHB-M2 |          | ✓        |           | ✓        |          | ✓         |          |               |        |
| BHB-M3 |          | ✓        |           |          | ✓        | ✓         |          | ✓             |        |
| BH-M2  |          | ✓        |           | ✓        |          |           | ✓        |               |        |
| BH-M3  |          | ✓        |           |          | ✓        |           | ✓        | ✓             |        |

## Input Characteristics:

| Parameter                  | Min.   | Typ.    | Max.   | Remark                   |
|----------------------------|--------|---------|--------|--------------------------|
| Rated AC Input Range       | 200Vac |         | 277Vac | <Ta:45°C                 |
|                            | 277Vac |         | 480Vac | <Ta:50°C                 |
| AC Input Range             | 180Vac |         | 528Vac |                          |
| Input Frequency Range      | 47Hz   | 50/60Hz | 63Hz   |                          |
| Max Input Current          |        |         | 6.0A   | 200Vac ,Full load        |
| Max Input Power            |        |         | 1200W  | 200Vac, Full load        |
| Max Inrush Current(220Vac) |        |         | 20A    | Cold start               |
| Max Inrush Current(347Vac) |        |         | 30A    | Cold start               |
| Max Inrush Current(400Vac) |        |         | 40A    | Cold start               |
| Max Inrush Current(480Vac) |        |         | 50A    | Cold start               |
| Standby Power              |        |         | 0.5W   | 230Vac/50Hz, Dim-off     |
| Power Factor               | 0.95   | 0.97    |        | 220Vac/60Hz, Full load   |
|                            | 0.90   |         |        | 200-480Vac, 70-100% load |
| THD                        |        | 6%      | 10%    | 347Vac/60Hz, Full load   |
|                            |        |         | 20%    | 200-480Vac, 70-100% load |

# SS-1000NP-ML500XX Series LED Driver

## O/P Characteristics:

| Parameter                    | Min.      | Typ.  | Max.      | Remark                                                                                        |
|------------------------------|-----------|-------|-----------|-----------------------------------------------------------------------------------------------|
| O/P Voltage Range            | 150V      |       | 500V      | Power derated @150-252V                                                                       |
| Rated O/P Voltage            | 252V      |       | 500V      | $P_o = V_o \cdot I_o = 1000W$ , Full load                                                     |
| Rated O/P Current            | 2.0A      |       | 4.0A      | 4.0A for 252V, 2.0A for 500V                                                                  |
| Adj. O/P Current (AOC) Range | 0.7A      |       | 4.0A      | Adjustable by program                                                                         |
| No Load Voltage              |           |       | 600V      |                                                                                               |
| Efficiency @220Vac           | 93.0%     | 95.0% |           | O/P 500V/2.0A                                                                                 |
| Efficiency @347Vac           | 95.0%     | 97.0% |           | O/P 500V/2.0A                                                                                 |
| Efficiency @400Vac           | 95.0%     | 97.0% |           | O/P 500V/2.0A                                                                                 |
| Efficiency @480Vac           | 95.0%     | 97.0% |           | O/P 500V/2.0A                                                                                 |
| O/P Current Tolerance        | -5%       |       | +5%       |                                                                                               |
| O/P Current Ripple(PK-AV)    |           | 5%    | 10%       | Full load                                                                                     |
| Start-up Current Overshoot   |           |       | 10%       | Full load                                                                                     |
| Start-up Time                |           |       | 0.5S      | 230Vac, Full load                                                                             |
| Line Regulation              | -2%       |       | +2%       | Full load                                                                                     |
| Load Regulation              | -2%       |       | +2%       |                                                                                               |
| Temperature Coefficient      | -0.03%/°C |       | +0.03%/°C | $T_c: 0^{\circ}C \sim 90^{\circ}C$                                                            |
| OTP                          | 90°C      |       | 100°C     | Drop current when OTP, and it can be automatically restored after the abnormality is removed. |
| Short Circuit Protection     |           |       |           | Driver will not be damaged, Constant current mode                                             |

# SS-1000NP-ML500XX Series LED Driver

## Other Characteristics:

| Parameter                                |               | Min.                | Typ. | Max.      | Remark                                                                                                                               |
|------------------------------------------|---------------|---------------------|------|-----------|--------------------------------------------------------------------------------------------------------------------------------------|
| AUX Power                                | O/P Voltage   | 10.8V               | 12V  | 13.8V     |                                                                                                                                      |
|                                          | O/P Current   |                     |      | 300mA     |                                                                                                                                      |
| 0-10V Dimming (Optional)                 | Dim Vmax      | 0V                  |      | 12V       | Negative dimming by programming<br>Dimming prohibits reverse connection.<br>DIM+ source current 110uA .                              |
|                                          | Dim Range     | 10%loset            |      | 100%loset |                                                                                                                                      |
|                                          | Rec.Dim Range | 0V                  |      | 10V       |                                                                                                                                      |
| 0-10V Dimming (Optional)                 | Rec.Dim Range | 0V                  |      | 10V       | DIM+ Maximum sink current is 40uA<br>Dimming prohibits reverse connection.<br>5-0V by programming                                    |
| PWM Dimming (Optional)                   | PWM High      | 9.8V                |      | 10.2V     |                                                                                                                                      |
|                                          | PWM Low       | 0V                  |      | 0.3V      | DIM+ source current 110uA .                                                                                                          |
|                                          | Frequency     | 1KHz                |      | 2KHz      | Dimming prohibits reverse connection.                                                                                                |
|                                          | PWM Duty      | 0%                  |      | 100%      |                                                                                                                                      |
| Resistor Dimming (Optional)              | Resistance    | 0Kohm               |      | 100Kohm   |                                                                                                                                      |
|                                          | Dim Range     | 10%loset            |      | 100%loset | DIM+ source current 110uA .                                                                                                          |
| Dim to Off (Positive logic)              | Dim-off       | 7%                  | 8%   | 9%        | By DC voltage, PWM,dimming ratio<br>Auxiliary source no-load test                                                                    |
|                                          | Dim-on        | 8%                  | 9%   | 10%       | By DC voltage, PWM,dimming ratio<br>Auxiliary source no-load test                                                                    |
| NTC Founction(Optional)                  |               | By programming      |      |           | External resistance value 10K $\Omega$ ,<br>B value 3950 or 3435 NTC<br>thermistor, set parameters through<br>corresponding programs |
| Timing Curve(Optional)                   |               | By programming      |      |           | Set by program                                                                                                                       |
| Constant Lumen(Optional)                 |               | By programming      |      |           | Set by program                                                                                                                       |
| Life Warning(Optional)                   |               | By programming      |      |           | Set by program                                                                                                                       |
| Life Time( $T_c \leq 75^\circ\text{C}$ ) |               | $\geq 50,000$ hours |      |           | 80% Load, 400Vac                                                                                                                     |
| MTBF                                     |               | 199,088 hours       |      |           | 400Vac,Full load, $T_a = 25^\circ\text{C}$<br>(MIL-HDBK-217F)                                                                        |
| $T_c$                                    |               | $90^\circ\text{C}$  |      |           |                                                                                                                                      |
| Warranty                                 |               | 5 years             |      |           | $T_c \ 75^\circ\text{C}$                                                                                                             |
| Net Weight                               |               | 2688g               |      |           |                                                                                                                                      |
| Dimension                                |               | 367mm*89.5mm*44.5mm |      |           | L x W x H                                                                                                                            |

Note:1.All the parameters above are tested  $T_a \ 25^\circ\text{C}$  and LED load, unless specified.

2.When using resistor dimming (parallel connection of dimming wires), if the number of parallels is: N,  
the dimming resistor should be realized 0-100% dimming range, resistance value:  $91\text{K}\Omega/\text{N}$ .

# SS-1000NP-ML500XX Series LED Driver

## Environmental Requirements

| Parameter                    | Min.  | Typ. | Max.  | Remark |
|------------------------------|-------|------|-------|--------|
| Operating Temperature(Tcase) | -40°C | 25°C | +90°C |        |
| Storage Temperature          | -40°C | 25°C | +90°C |        |
| Operation Humidity           | 10%RH |      | 90%RH |        |
| Storage Humidity             | 5%RH  |      | 95%RH |        |
| Altitude                     | -65m  |      | 4000m |        |

## Safety and EMI/EMS Standards

| Certification | Standard                                                                          | Status | Remark                    |
|---------------|-----------------------------------------------------------------------------------|--------|---------------------------|
| UL            | UL8750                                                                            | ✓      |                           |
| CUL           | CAN/CSA C22.2 No.250.13                                                           |        |                           |
| ENEC          | EN 61347-1<br>EN 61347-2-13<br>EN IEC 62384                                       | ✓      |                           |
| RCM           | AS/NZS61347.2.13                                                                  |        |                           |
| CCC           | GB/T 19510.1<br>GB/T 19510.213                                                    |        |                           |
| CE            | EN 61347-1<br>EN 61347-2-13<br>EN 62493                                           | ✓      |                           |
|               | EN 301 489-1<br>EN 301 489-3<br>EN 300 330<br>EN 62479/EN 50663/EN 50665/EN 50364 |        | For NFC wireless products |

# SS-1000NP-ML500XX Series LED Driver

## Safety and EMI/EMS Standards

| EMI/EMS                    | Standard                         | Status | Remark                      |
|----------------------------|----------------------------------|--------|-----------------------------|
| Conduction Emission        | EN IEC 55015                     | ✓      |                             |
|                            | GB/T 17743                       |        |                             |
|                            | FCC Part 15 Subpart B;ANSI C63.4 |        | ClassB                      |
| Radiation Emission         | EN IEC 55015                     | ✓      |                             |
|                            | GB/T 17743                       |        |                             |
|                            | FCC Part 15 Subpart B;ANSI C63.4 |        | ClassB                      |
| Harmonic Current Emissions | EN IEC 61000-3-2                 | ✓      | ClassC                      |
|                            | GB 17625.1                       |        | ClassC                      |
| Surge                      | IEC/EN61000-4-5                  | ✓      | DM: 6kV,CM: 6kV,Criterion B |
|                            | ANSI/C82.77-5                    | ✓      | DM: 6kV,CM: 6kV,Criterion B |
| Ring Wave                  | IEC/EN 61000-4-12                | ✓      | DM: 6kV,CM: 6kV,Criterion B |
|                            | ANSI/C82.77-5                    |        | DM: 6kV,CM: 6kV,Criterion B |

# SS-1000NP-ML500XX Series LED Driver

## Safety Test Items:

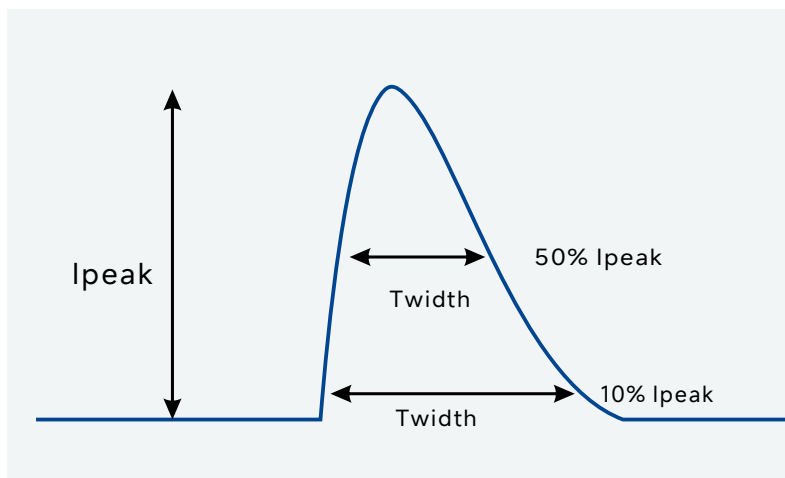
| Safety Test Items       | Technical Indicators       |                              | Remark                          |
|-------------------------|----------------------------|------------------------------|---------------------------------|
| Insulation Requirements | UL Insulation Requirements | ENEC Insulation Requirements |                                 |
| Input-Case              | 2U+1000                    | 2U+1000                      | Basic insulation                |
| Input-Dim               | 2U+1000                    | 4U+2000                      | Reinforced insulation           |
| Dim-Case                | 500Vac                     | 500Vac                       | Basic insulation                |
| Insulation Resistance   | $\geq 10\text{M}\Omega$    |                              | Input-DIM, Test voltage: 500Vdc |
| Ground Resistance       | $\leq 0.1\Omega$           |                              | 25A/1min                        |
| Leakage Current         | $\leq 0.75\text{mA}$       |                              | 480Vac                          |

### NOTE:

- 1.SOSEN warrants the LED Driver itself complies with EMC standard. However, LED Driver's EMC should be re-checked when integrated into lighting systems due to unexpected interference as component.
- 2.During the withstand voltage test, the input and output wires are shorted together to withstand voltage to ground.
- 3.When applying withstand voltage to ground, the input and output lines need to be short-circuited together.

## Performance Curves:

### Input Inrush Current

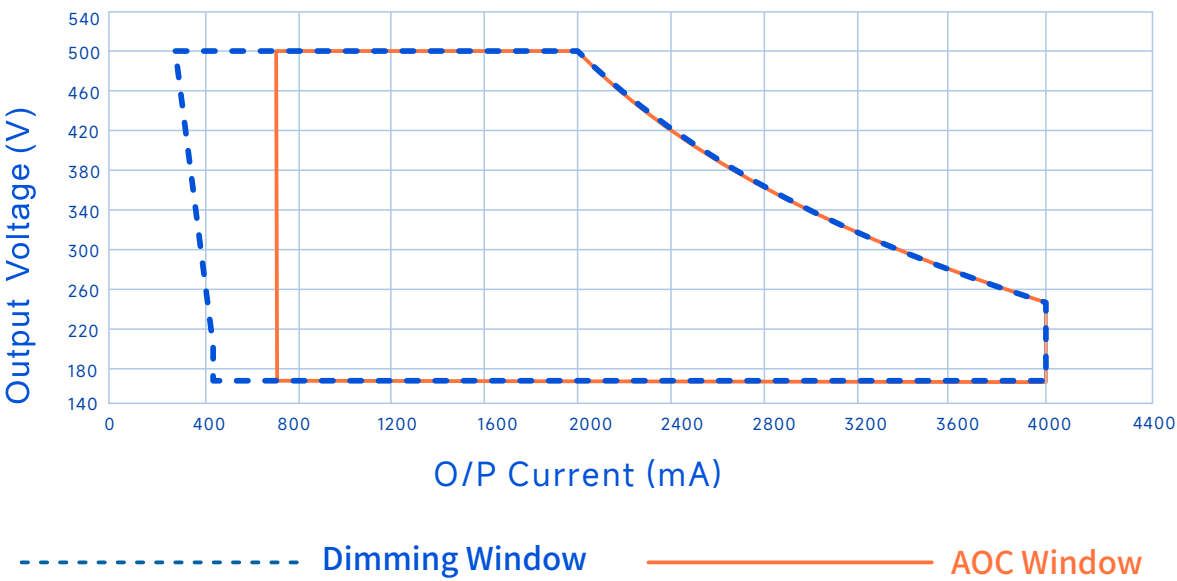


| $V_{in}$ | $I_{peak}$ | $T(@10\% \text{ of } I_{peak})$ | $T(@50\% \text{ of } I_{peak})$ |
|----------|------------|---------------------------------|---------------------------------|
| 220Vac   | 20A        | 10mS                            | 5mS                             |
| 347Vac   | 30A        | 8mS                             | 3mS                             |
| 400Vac   | 40A        | 8mS                             | 3mS                             |
| 480Vac   | 50A        | 8mS                             | 3mS                             |

# SS-1000NP-ML500XX Series LED Driver

## Performance Curves:

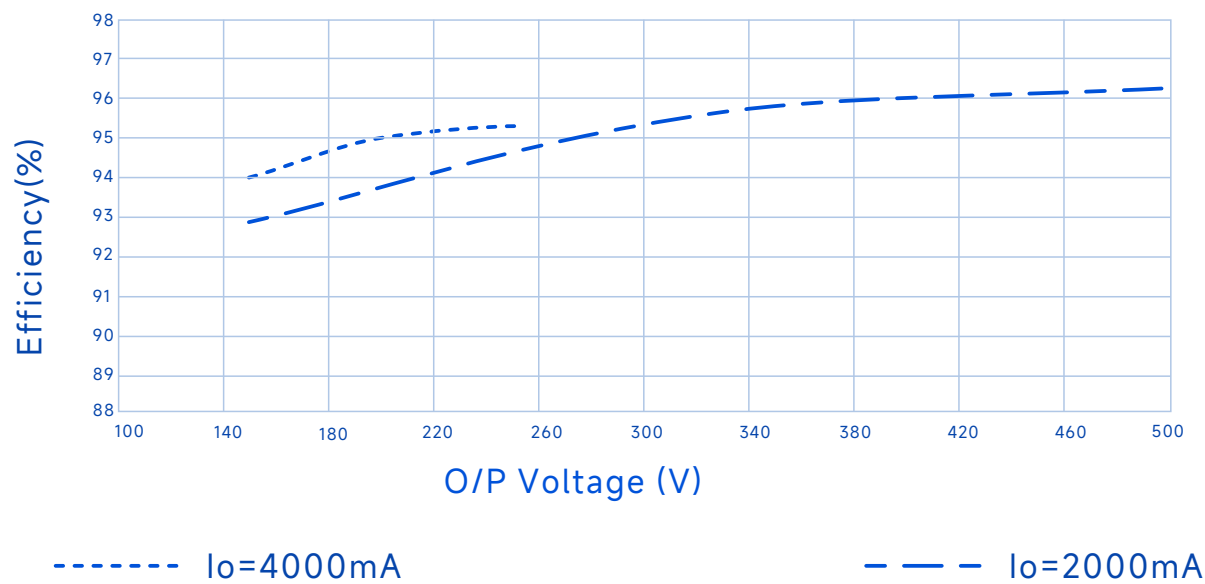
O/P Voltage Vs. O/P Current(Dim/AOC Window)



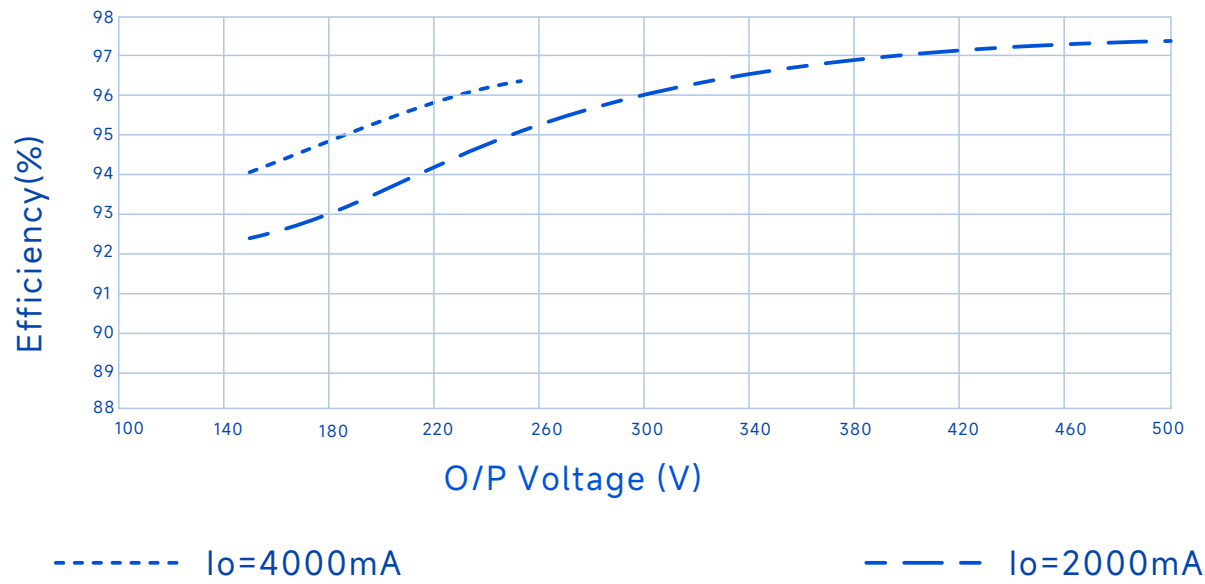
# SS-1000NP-ML500XX Series LED Driver

## Performance Curves:

Efficiency Vs. O/P Voltage (Vin=220Vac)



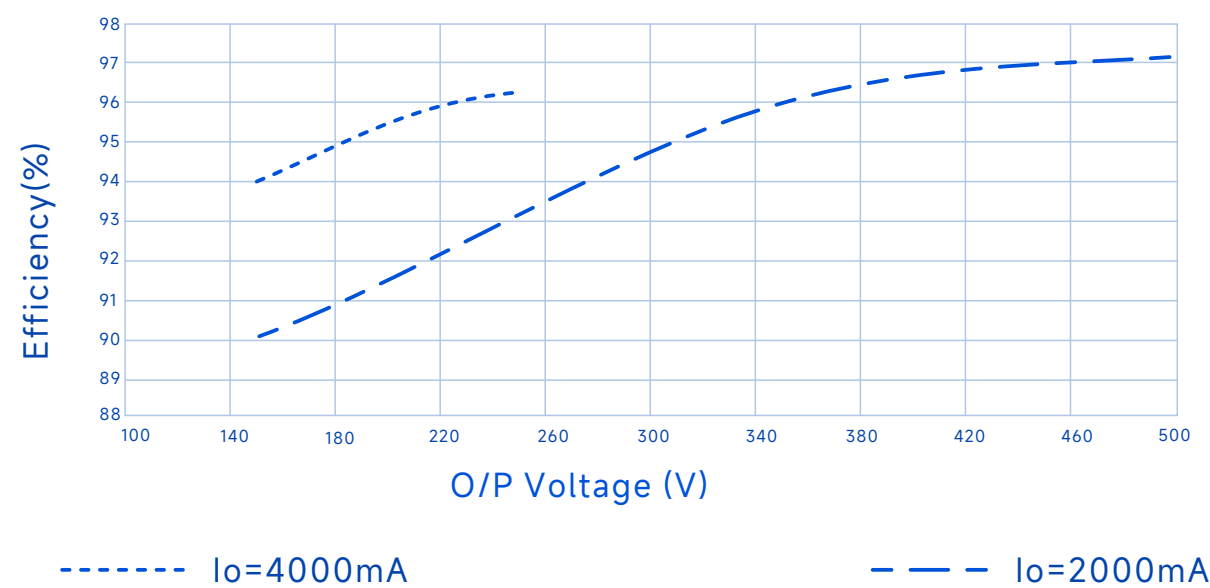
Efficiency Vs. O/P Voltage (Vin=347Vac)



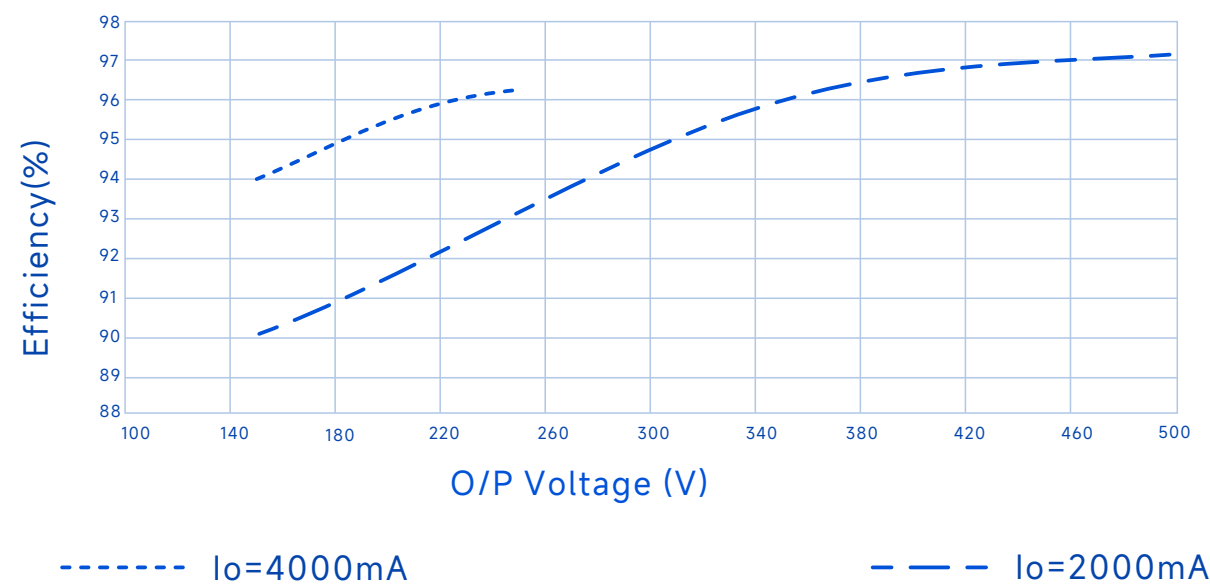
# SS-1000NP-ML500XX Series LED Driver

## Performance Curves:

Efficiency Vs. O/P Voltage (Vin=400Vac)



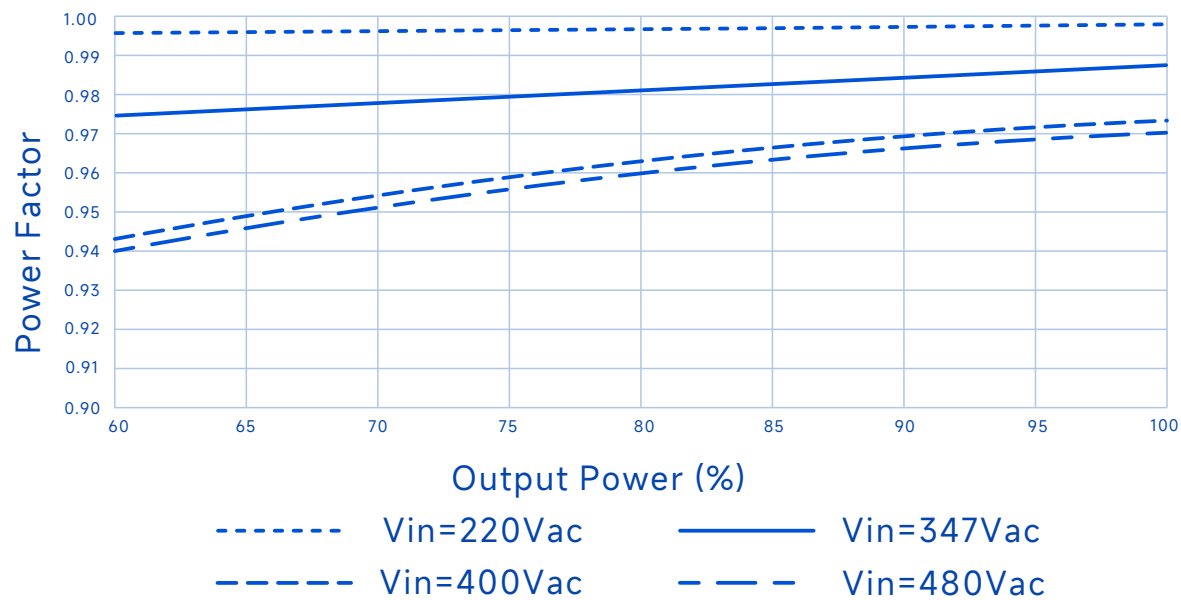
Efficiency Vs. O/P Voltage (Vin=480Vac)



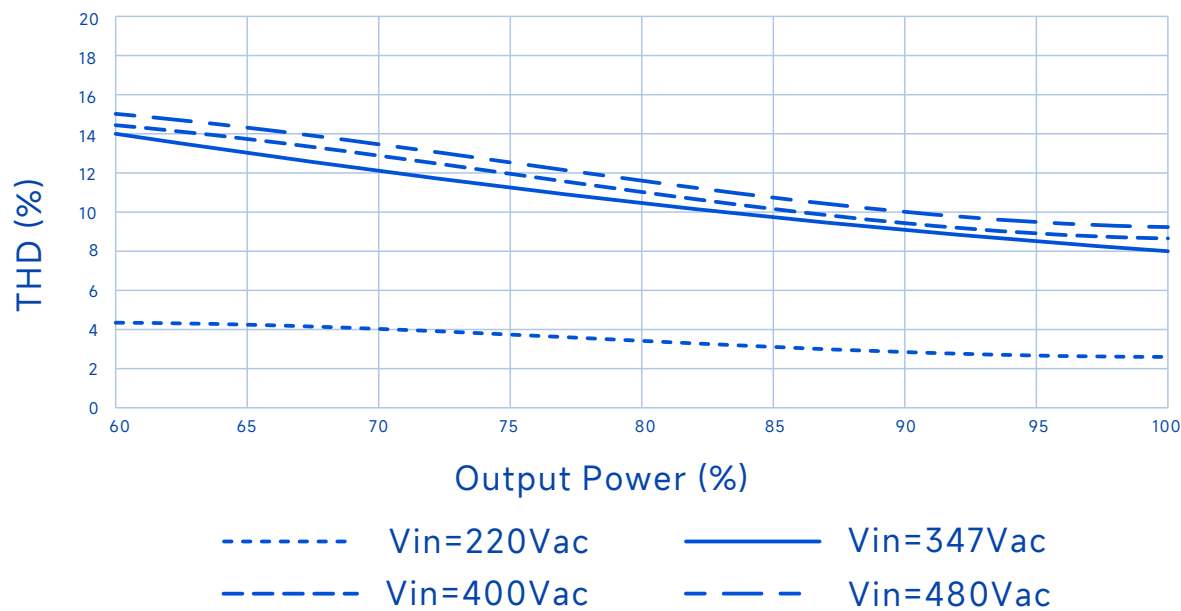
# SS-1000NP-ML500XX Series LED Driver

## Performance Curves:

Power Factor Vs. O/P Power



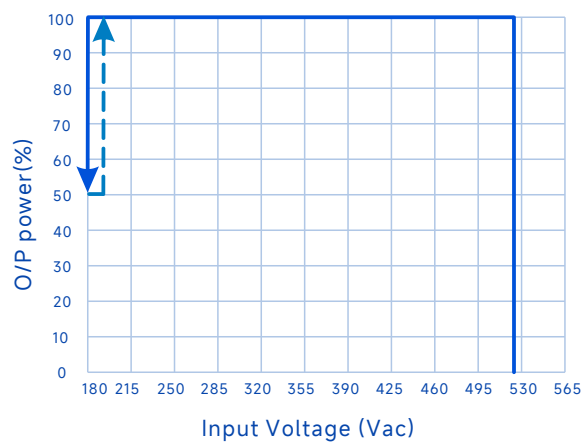
THD Vs. O/P Power



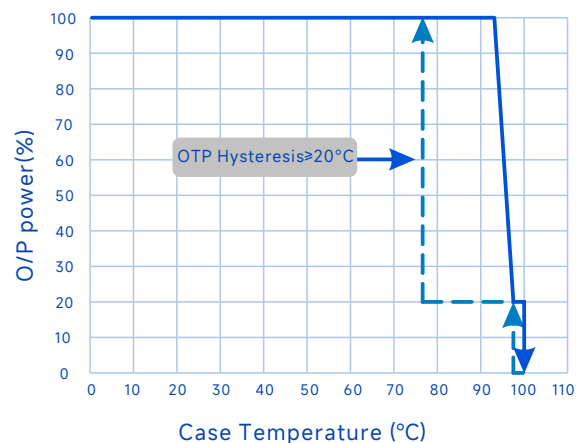
# SS-1000NP-ML500XX Series LED Driver

## Performance Curves:

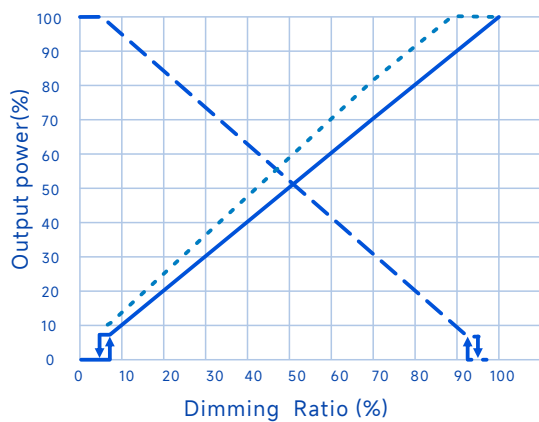
O/P Power Vs. Input Voltage



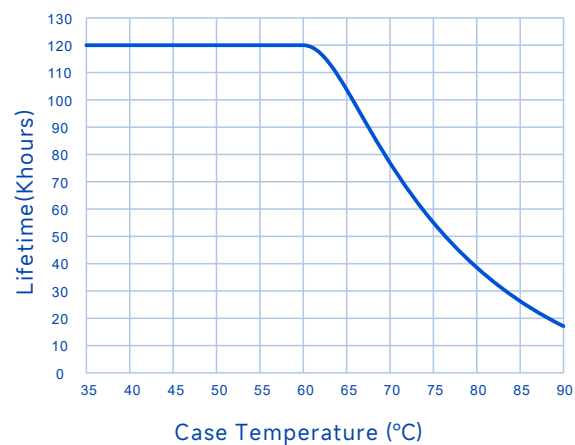
O/P Power Vs. Case Temperature



O/P Power Vs. Dimming



Lifetime Vs. Case Temperature



- 0-10V, 0-5V, PWM
- - 10-0V, 5-0V
- ... Resistor Dimming(100KΩ)

## Programming connection diagram

Legacy Timer: Driver's O/P follows the pre-programmed timing curve after turn-on.

Auto-Adjust by Percentage: Driver's O/P will be adjusted by automatically changed dimming curve by the period percentage based on the latest 5 dimming curve.

Auto-Adjust by Mid-point: Driver's O/P will be adjusted by automatically changed dimming curve by mid-point based on the latest 5 dimming curve.



### Note:

1. During the programming process, all programming functions can be realized without powering on the driver.
2. All programming functions can be realized without powering off the drive that is currently in use.
3. It can be disconnected from the PC and offline programming can be implemented.

## Constant Lumen Output

Constant Lumen Output are design to maintain fixture's stable output lumen by increasing driver's output current within driver's life span to counteract LED lumen degradation.

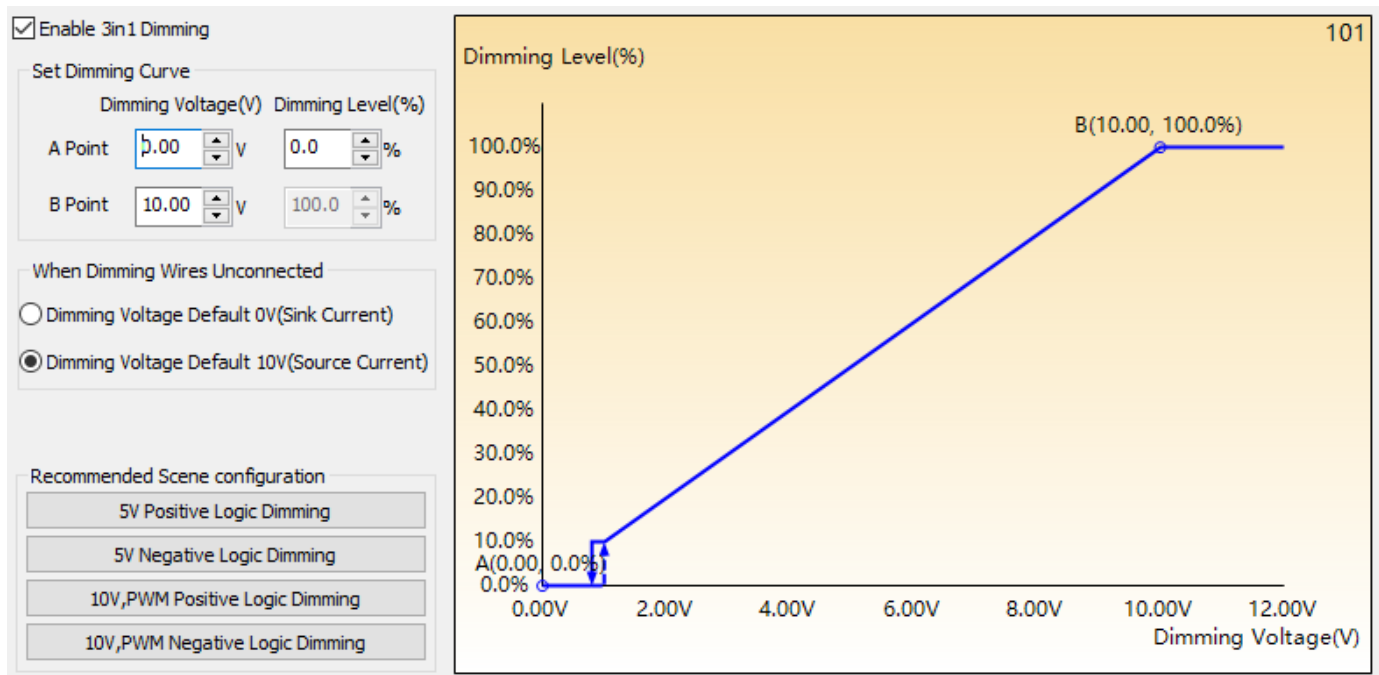
# SS-1000NP-ML500XX Series LED Driver

| Parameter        |                                              | Remark                             |
|------------------|----------------------------------------------|------------------------------------|
| Dimming Settings | Dimming voltage default 10V (source current) | Factory Default Mode(other models) |
|                  | Dimming voltage default 0V (sink current)    | Factory Default Mode(BHB* models)  |

## Note:

According to the application of the dimmer, customers can set the two modes of “dimming voltage default 10V (output current)” / “dimming voltage default 0V (draw current)” by Songsheng programming software.

## Settings Interface



# SS-1000NP-ML500XX Series LED Driver

## Mechanical Characteristics

INPUT

ACL

ACN



LED DRIVER

V+

V-

Knob Dimmer

VPP+

DIM+

DIM-

OUTPUT

Dimming

**AC Input Cable(Exposed Length 450±10mm):**

Global model: SJOW,3\*17AWG,O.D: 8.0mm,Brown:L,Blue:N,Yellow/Green: ⊕

UL model: SJTW,3\*16AWG,O.D: 8.5mm,Black:L,White:N,Green: ⊕

**DC O/P Cable(Exposed Length 250±10mm):**

Global model: SJOW,2\*12AWG,O.D: 10.7mm,Black:V+,White:V-

Global model:SJTW,2\*12AWG,O.D:9.2mm,Black:V+,White:V-,Yellow/Green:GND(Suffix-G) ⊕

**DIM/AUX Power/Programming Cable:**

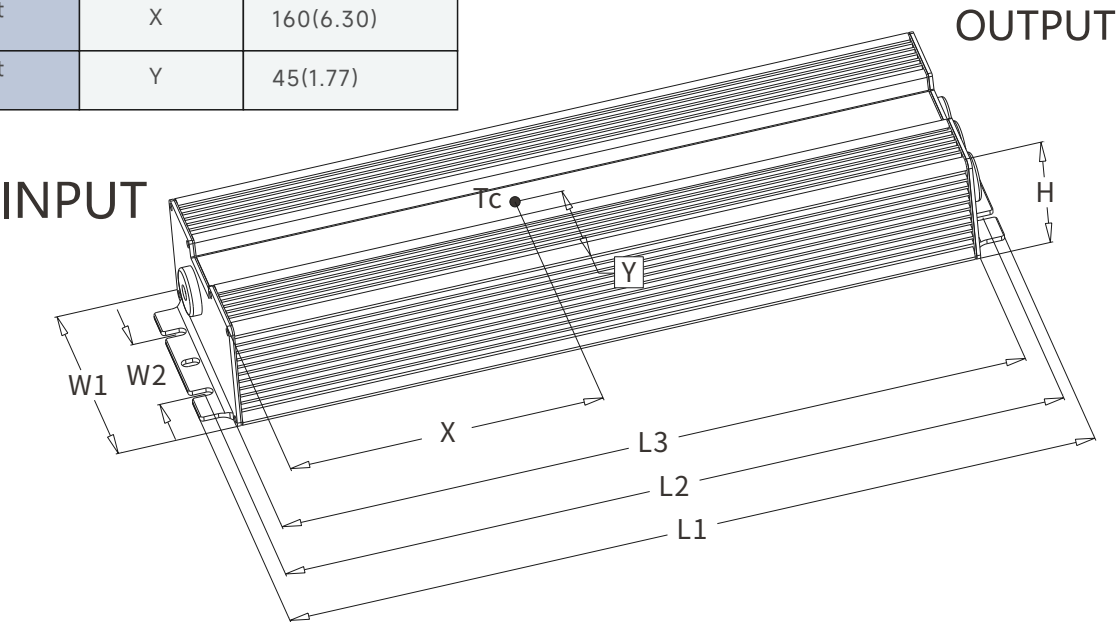
Knob Dimmer, RJ25 port

| Name<br>Description     | Standard<br>Code | mm(In.)      |
|-------------------------|------------------|--------------|
| Case Length             | L3               | 340(13.38)   |
| Case Width              | W1               | 89.5(3.52)   |
| Case Height             | H                | 44.5(1.75)   |
| Overall Length          | L1               | 367(14.45)   |
| Mounting Hole<br>Length | L2               | 353.5(13.92) |
| Mounting Hole<br>Width  | W2               | 40(1.57)     |
| TC Point<br>Position    | X                | 160(6.30)    |
| TC Point<br>Position    | Y                | 45(1.77)     |

Note

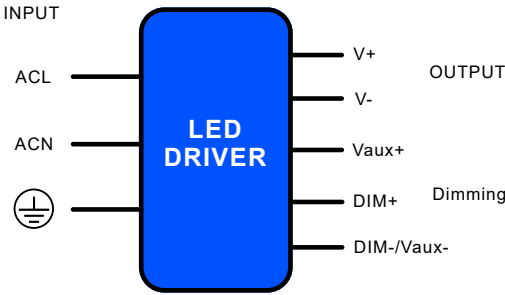
1,Please follow the "LED Driver User Manual" obtained from SOSEN's official website for assembly.

2,AC Input Cable,DC O/P Cable,DIM/AUX Power/Programming Cable: Peeled length of cable:43±5mm, Tinned length of wire:10±2mm



# SS-1000NP-ML500XX Series LED Driver

## Mechanical Characteristics(BH-M2/BH-M3 model)



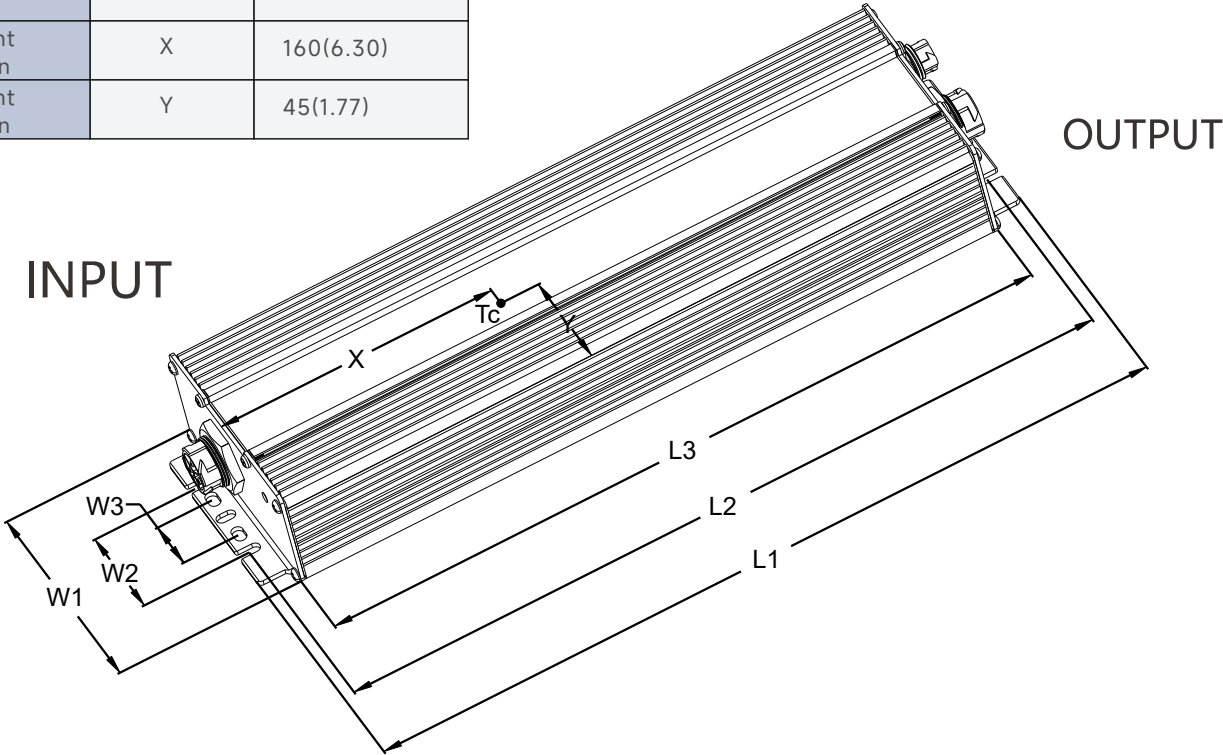
| AC INPUT        | DC OUTPUT       |                 | DIM OUTPUT      |
|-----------------|-----------------|-----------------|-----------------|
| M19LLT-3 Pin    | M19LLT-2 Pin    | M19LLT-3 Pin    | M12LLT-3 Pin    |
| M19JNICON-3 Pin | M19JNICON-2 Pin | M19JNICON-3 Pin | M12JNICON-3 Pin |
|                 |                 |                 |                 |

| Name<br>Description  | Standard<br>Code | mm(In.)      |
|----------------------|------------------|--------------|
| Case Length          | L3               | 340(13.38)   |
| Case Width           | W1               | 89.5(3.52)   |
| Case Height          | H                | 44.5(1.75)   |
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| Mounting Hole Width  | W2               | 40(1.57)     |
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Note

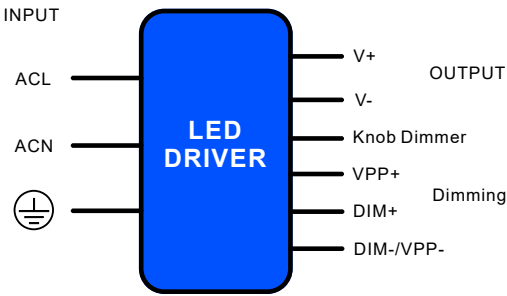
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2,AC Input Cable,DC O/P Cable,DIM/AUX Power/Programming Cable:  
Peeled length of cable:43±5mm, Tinned length of wire:10±2mm



# SS-1000NP-ML500XX Series LED Driver

## Mechanical Characteristics(BHB-M2/BHB-M3 model)



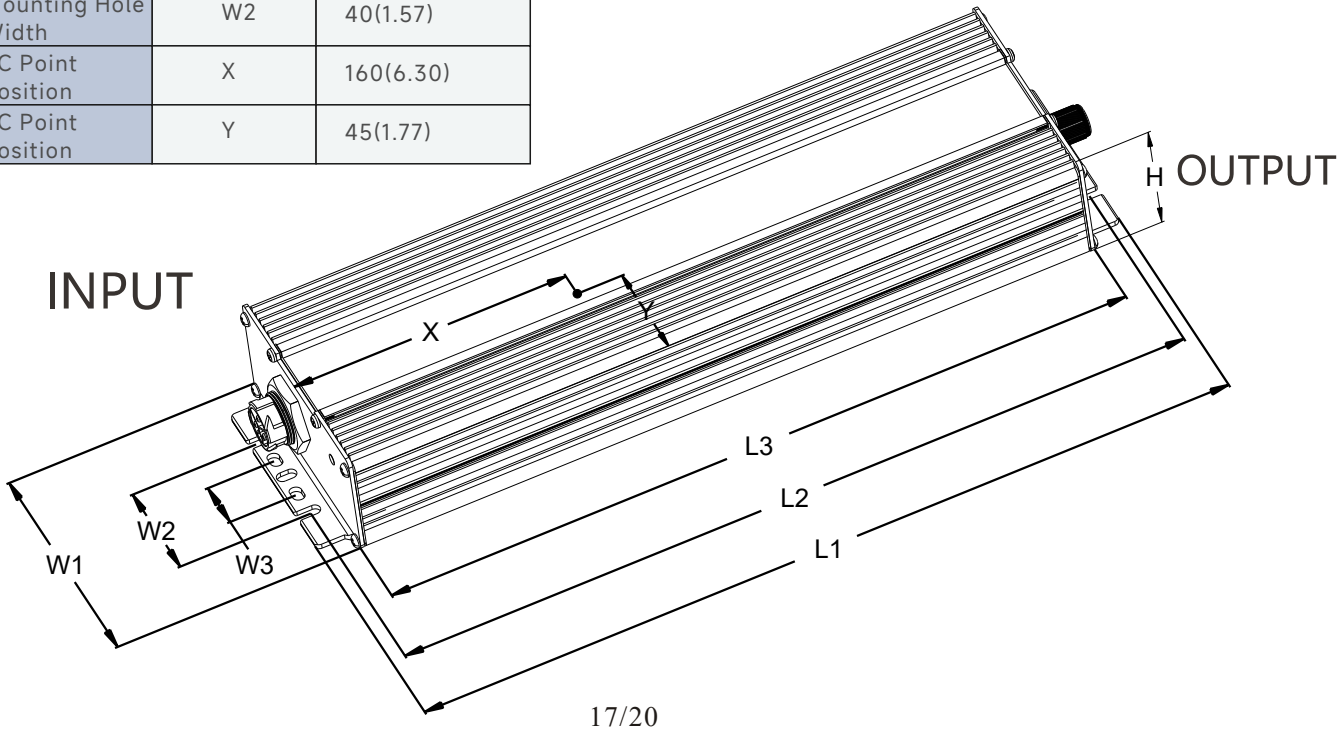
| AC INPUT                                     | DC OUTPUT       |                 |
|----------------------------------------------|-----------------|-----------------|
| M19LLT-3 Pin                                 | M19LLT-2 Pin    | M19LLT-3 Pin    |
| M19JNICON-3 Pin                              | M19JNICON-2 Pin | M19JNICON-3 Pin |
|                                              |                 |                 |
| DIM/Programming Cable Knob Dimmer, RJ25 port |                 |                 |

| Name Description     | Standard Code | mm(In.)      |
|----------------------|---------------|--------------|
| Case Length          | L3            | 340(13.38)   |
| Case Width           | W1            | 89.5(3.52)   |
| Case Height          | H             | 44.5(1.75)   |
| Overall Length       | L1            | 367(14.45)   |
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| TC Point Position    | X             | 160(6.30)    |
| TC Point Position    | Y             | 45(1.77)     |

Note

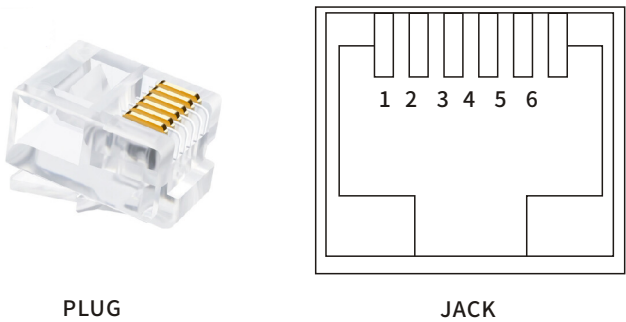
1,Please follow the "LED Driver User Manual" obtained from SOSEN's official website for assembly.

2,AC Input Cable,DC O/P Cable,DIM/AUX Power/Programming Cable: Peeled length of cable:43±5mm, Tinned length of wire:10±2mm

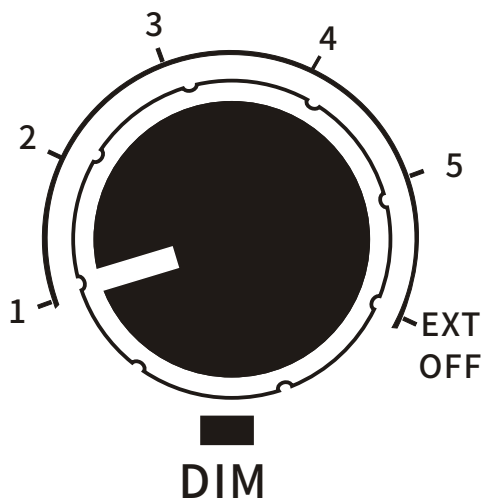


# SS-1000NP-ML500XX Series LED Driver

## Knob/RJ25 terminal definition:



| RJ25 PIN |           |
|----------|-----------|
| 1&6      | VPP+      |
| 2&5      | DIM+      |
| 3&4      | DIM-/VPP- |



|         | Definition                   |
|---------|------------------------------|
| 1       | 40%loset                     |
| 2       | 50%loset                     |
| 3       | 60%loset                     |
| 4       | 80%loset                     |
| 5       | 100%loset                    |
| EXT/OFF | External Dimming /Dim to off |

# SS-1000NP-ML500XX Series LED Driver



## Assembly Tips

1. Dimming or AUX Power tinned connectors should be capped if not used to avoid dimming or AUX Power parts damage from external signals.
2. Safety space between aluminum base and LED coppers  $>5.6\text{mm}$ .
3. Safety space/coppers between LED+ and LED-  $\geq 3.6\text{mm}$ .
4. Minimize the copper area on the aluminum PCB to reduce parasitic capacitance and leakage current.
5. It is recommended to design LED beads in parallel first and then in series.
6. The insulation level of LED light panels should meet the reliability design requirements.
7. It's recommended to add resistors or capacitors in parallel with the LED on PCB to reduce the risk of surge when a non isolated LED driver is used for the luminaire
8. For other precautions, please refer to the "LED Driver User Manual".

## Package

- Outside carton dimension:  $L \times W \times H = 495\text{mm} \times 385\text{mm} \times 162\text{mm}$ ;
- 5PCS/Carton;
- Net weight/Piece:  $2.688\text{kg}$ ; Gross weight/Carton:  $14.5\text{kg}$ ;
- Please refer to the product name, model number, manufacturer identification, QC PASS, manufacturing date on the package.

## Transportation

Packaging is designed suitable for transportation by trucks, vessels and flights. The products should be avoided direct sunlight and rain, loaded/unloaded with caution.

## Storage

The product storage meets the standard of the GB 3873—83.  
Products should be rechecked if stored for over 1 year before assembly.

## RoHS

Products comply with RoHS Directive (2011/65/EU) and amendment 2015/863/EU.

Revision History

| Version | Description of Update | Updated Date | Remark |
|---------|-----------------------|--------------|--------|
| V00     | Original Release      | 2025/08/06   |        |
|         |                       |              |        |
|         |                       |              |        |
|         |                       |              |        |
|         |                       |              |        |