



120W Constant Voltage + Constant Current LED Driver

**NPF-120** series



User's Manual



## ■ Features

- Constant Voltage + Constant Current mode output
- Plastic housing with Class II design
- Built-in active PFC function
- No load power consumption <0.15W
- IP67 rating for indoor or outdoor installations
- Typical lifetime>50000 hours
- 5 years warranty

## ■ Applications

- LED panel lighting
- LED downlight
- LED decorative lighting
- LED tunnel lighting
- Moving sign
- Type "HL" for use in Class I, Division 2 hazardous (Classified) location

## ■ GTIN CODE

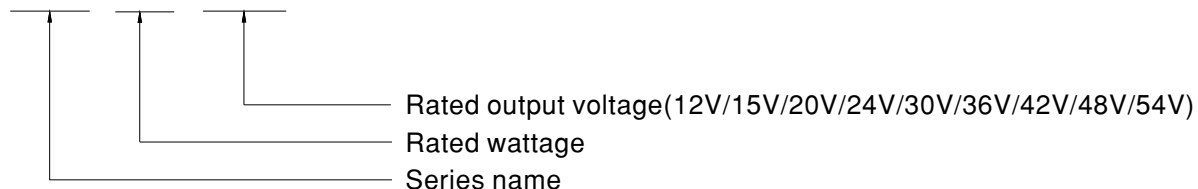
MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

## ■ Description

NPF-120 series is a 120W AC/DC LED driver featuring the dual modes constant voltage and constant current output. NPF-120 operates from 90~305VAC and offers models with different rated voltage ranging between 12V and 54V. Thanks to the high efficiency up to 90.5%, with the fanless design, the entire series is able to operate for -40°C ~ +90°C case temperature under free air convection. The entire series is rated with IP67 ingress protection level and is suitable to work for a variety of applications at dry, damp or wet locations.

## ■ Model Encoding

**NPF - 120 - 20**





## 120W Constant Voltage + Constant Current LED Driver

**NPF-120 series****SPECIFICATION**

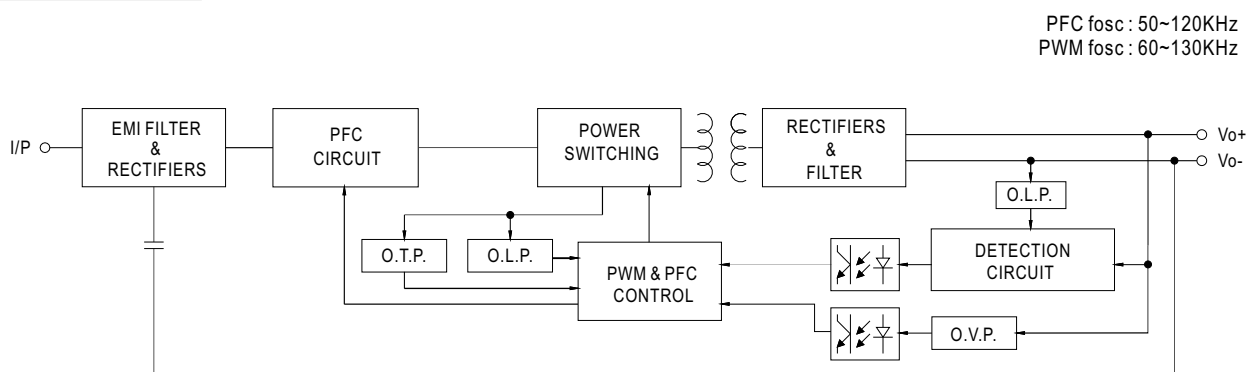
| MODEL               |  | NPF-120-12  | NPF-120-15 | NPF-120-20 | NPF-120-24 | NPF-120-30 | NPF-120-36 | NPF-120-42 | NPF-120-48 | NPF-120-54 |  |
|---------------------|--|---|------------|------------|------------|------------|------------|------------|------------|------------|--|
| OUTPUT              | DC VOLTAGE   | 12V   | 15V        | 20V        | 24V        | 30V        | 36V        | 42V        | 48V        | 54V        |  |
|                     | CONSTANT CURRENT REGION <small>Note.2</small>  | 7.2 ~ 12V   | 9 ~ 15V    | 12 ~ 20V   | 14.4 ~ 24V | 18 ~ 30V   | 21.6 ~ 36V | 25.2 ~ 42V | 28.8 ~ 48V | 32.4 ~ 54V |  |
|                     | RATED CURRENT  | 10A   | 8A         | 6A         | 5A         | 4A         | 3.4A       | 2.9A       | 2.5A       | 2.3A       |  |
|                     | RATED POWER <small>Note.5</small>  | 120W  | 120W       | 120W       | 120W       | 120W       | 122.4W     | 121.8W     | 120W       | 124.2W     |  |
|                     | RIPPLE & NOISE (max.) <small>Note.3</small>  | 150mVp-p  | 150mVp-p   | 150mVp-p   | 150mVp-p   | 200mVp-p   | 200mVp-p   | 250mVp-p   | 250mVp-p   | 350mVp-p   |  |
|                     | VOLTAGE TOLERANCE <small>Note.4</small>  | ± 4.0%  | ± 4.0%     | ± 4.0%     | ± 4.0%     | ± 3.0%     | ± 2.0%     | ± 1.0%     | ± 1.0%     | ± 1.0%     |  |
|                     | LINE REGULATION  | ± 0.5%  | ± 0.5%     | ± 0.5%     | ± 0.5%     | ± 0.5%     | ± 0.5%     | ± 0.5%     | ± 0.5%     | ± 0.5%     |  |
|                     | LOAD REGULATION  | ± 2.0%  | ± 1.5%     | ± 1.0%     | ± 0.5%     | ± 0.5%     | ± 0.5%     | ± 0.5%     | ± 0.5%     | ± 0.5%     |  |
|                     | SETUP, RISE TIME <small>Note.6</small>   | 500ms, 80ms 115VAC / 230VAC   |            |            |            |            |            |            |            |            |  |
| HOLD UP TIME (Typ.) | 16ms/230VAC 16ms/115VAC  |   |            |            |            |            |            |            |            |            |  |
| INPUT               | VOLTAGE RANGE <small>Note.5</small>  | 90 ~ 305VAC 127 ~ 431VDC<br>(Please refer to "STATIC CHARACTERISTIC" section)   |            |            |            |            |            |            |            |            |  |
|                     | FREQUENCY RANGE  | 47 ~ 63Hz   |            |            |            |            |            |            |            |            |  |
|                     | POWER FACTOR   | PF ≥ 0.97/115VAC, PF ≥ 0.96/230VAC, PF ≥ 0.94/277VAC@full load<br>(Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)  |            |            |            |            |            |            |            |            |  |
|                     | TOTAL HARMONIC DISTORTION  | THD< 20%(@load≥60%/115VC,230VAC; @load≥75%/277VAC)<br>(Please refer to "TOTAL HARMONIC DISTORTION(THD)" section)  |            |            |            |            |            |            |            |            |  |
|                     | EFFICIENCY (Typ.)  | 89%   | 89%        | 90%        | 90.5%      | 89.5%      | 90%        | 90%        | 90%        | 90.5%      |  |
|                     | AC CURRENT   | 1.3A / 115VAC 0.65A / 230VAC 0.55A / 277VAC   |            |            |            |            |            |            |            |            |  |
|                     | INRUSH CURRENT(Typ.)   | COLD START 60A(twidth=520μs measured at 50% Ipeak) at 230VAC; Per NEMA 410  |            |            |            |            |            |            |            |            |  |
|                     | MAX. No. of PSUs on 16A CIRCUIT BREAKER  | 4 units (circuit breaker of type B) / 6 units (circuit breaker of type C) at 230VAC   |            |            |            |            |            |            |            |            |  |
|                     | LEAKAGE CURRENT  | <0.25mA / 277VAC  |            |            |            |            |            |            |            |            |  |
|                     | NO LOAD POWER CONSUMPTION  | <0.15W  |            |            |            |            |            |            |            |            |  |
| PROTECTION          | OVER CURRENT   | 95 ~ 108%<br>Constant current limiting, recovers automatically after fault condition is removed   |            |            |            |            |            |            |            |            |  |
|                     | SHORT CIRCUIT  | Hiccup mode, recovers automatically after fault condition is removed  |            |            |            |            |            |            |            |            |  |
|                     | OVER VOLTAGE   | 15 ~ 17V  | 17.5 ~ 21V | 23 ~ 27V   | 28 ~ 34V   | 34 ~ 40V   | 41 ~ 46V   | 46 ~ 54V   | 54 ~ 60V   | 59 ~ 66V   |  |
|                     |  | Shut down and latch off o/p voltage, re-power on to recover   |            |            |            |            |            |            |            |            |  |
|                     | OVER TEMPERATURE   | Shut down o/p voltage, re-power on to recover   |            |            |            |            |            |            |            |            |  |
| ENVIRONMENT         | WORKING TEMP.  | Tcase=-40 ~ +90℃ (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)  |            |            |            |            |            |            |            |            |  |
|                     | MAX. CASE TEMP.  | Tcase=+90℃  |            |            |            |            |            |            |            |            |  |
|                     | WORKING HUMIDITY   | 20 ~ 95% RH non-condensing  |            |            |            |            |            |            |            |            |  |
|                     | STORAGE TEMP., HUMIDITY  | -40 ~ +80℃, 10 ~ 95% RH   |            |            |            |            |            |            |            |            |  |
|                     | TEMP. COEFFICIENT  | ±0.03%/℃ (0 ~ 50℃)  |            |            |            |            |            |            |            |            |  |
|                     | VIBRATION  | 10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes   |            |            |            |            |            |            |            |            |  |
| SAFETY & EMC        | SAFETY STANDARDS <small>Note.8</small>   | UL8750(type"HL"), CSA C22.2 No. 250.13-12, EN BS EN/EN61347-1, BS EN/EN61347-2-13 independent, BS EN/EN62384, EAC TP TC 004, GB19510.1,GB19510.14, IP67 approved; Design refer to BS EN/EN60335-1 |            |            |            |            |            |            |            |            |  |
|                     | WITHSTAND VOLTAGE  | I/P-O/P:3.75KVAC  |            |            |            |            |            |            |            |            |  |
|                     | ISOLATION RESISTANCE   | I/P-O/P:100M Ohms / 500VDC / 25℃ / 70% RH   |            |            |            |            |            |            |            |            |  |
|                     | EMC EMISSION <small>Note.8</small>   | Compliance to BS EN/EN55015, BS EN/EN61000-3-2 Class C (@load ≥ 60%) ; BS EN/EN61000-3-3; GB17743 and GB17625.1, EAC TP TC 020  |            |            |            |            |            |            |            |            |  |
|                     | EMC IMMUNITY   | Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11; BS EN/EN61547, light industry level (surge immunity Line-Line 2KV); EAC TP TC 020   |            |            |            |            |            |            |            |            |  |
| OTHERS              | MTBF   | 2632.6K hrs min. Telcordia SR-332 (Bellcore) ; 295.2Khrs min. MIL-HDBK-217F (25℃)   |            |            |            |            |            |            |            |            |  |
|                     | DIMENSION  | 191*63*37.5mm (L*W*H)   |            |            |            |            |            |            |            |            |  |
|                     | PACKING  | 0.97Kg; 15pcs/15.6Kg/0.87CUFT   |            |            |            |            |            |            |            |            |  |
| NOTE                | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25℃ of ambient temperature.<br>2. Please refer to "DRIVING METHODS OF LED MODULE".<br>3. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.<br>4. Tolerance : includes set up tolerance, line regulation and load regulation.<br>5. De-rating may be needed under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details.<br>6. Length of set up time is measured at first cold start. Turning ON/OFF the driver may lead to increase of the set up time.<br>7. The driver is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.<br>8. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly (Tc) point (or TMP, per DLC), is about 75℃ or less.<br>9. Please refer to the warranty statement on MEAN WELL's website at <a href="http://www.meanwell.com">http://www.meanwell.com</a><br>10. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).<br>11. For any application note and IP water proof function installation caution, please refer our user manual before using.<br><a href="https://www.meanwell.com/Upload/PDF/LED_EN.pdf">https://www.meanwell.com/Upload/PDF/LED_EN.pdf</a><br>⊗ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a> |   |            |            |            |            |            |            |            |            |  |



## 120W Constant Voltage + Constant Current LED Driver

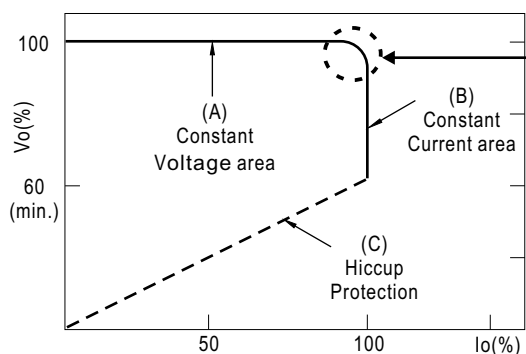
## NPF-120 series

### ■ BLOCK DIAGRAM



### ■ DRIVING METHODS OF LED MODULE

- ※ This series is able to work in either Constant Current mode (a direct drive way) or Constant Voltage mode (usually through additional DC/DC driver) to drive the LEDs.



Typical output current normalized by rated current (%)

In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.

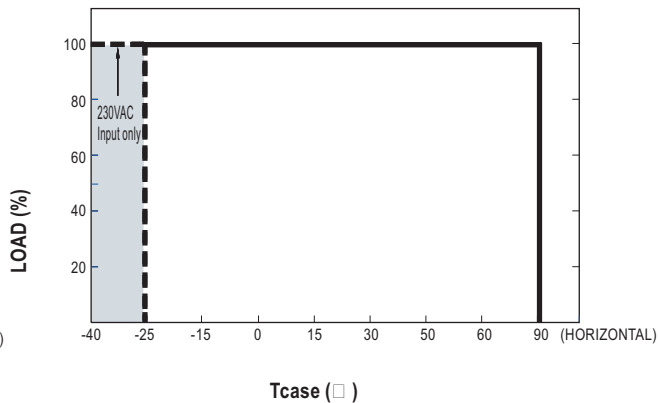
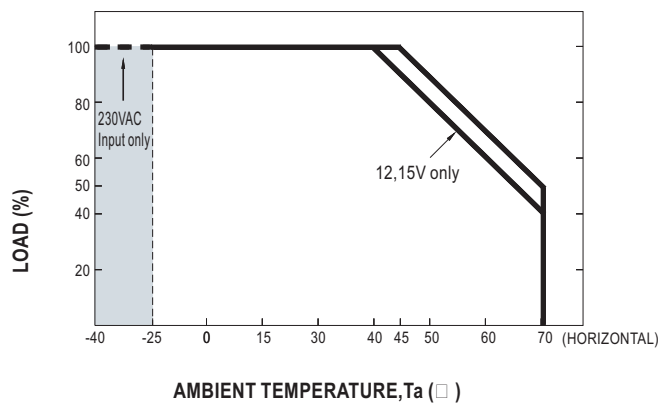
Should there be any compatibility issues, please contact MEAN WELL.



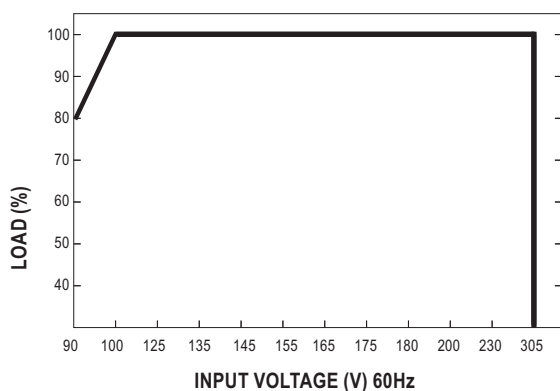
120W Constant Voltage + Constant Current LED Driver

**NPF-120 series**

### ■ OUTPUT LOAD vs TEMPERATURE



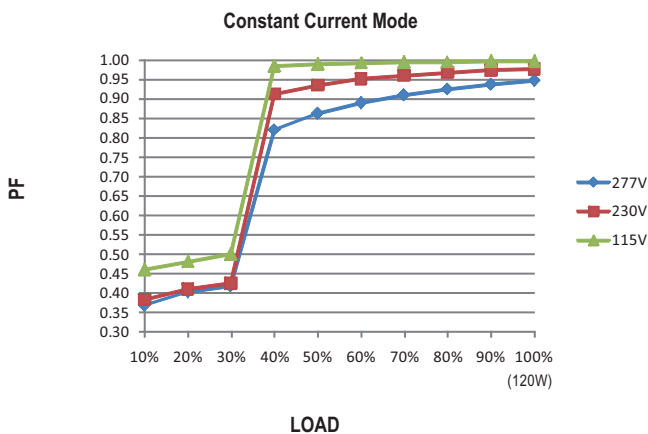
### ■ STATIC CHARACTERISTIC



※ De-rating is needed under low input voltage.

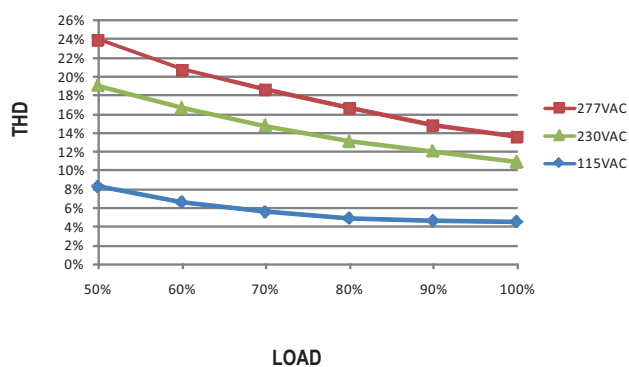
### ■ POWER FACTOR (PF) CHARACTERISTIC

※  $T_{case}$  at 80°C



### ■ TOTAL HARMONIC DISTORTION (THD)

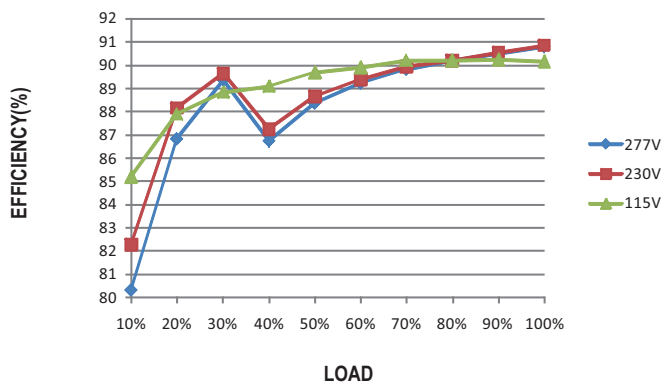
※ 48V Model,  $T_{case}$  at 80°C



### ■ EFFICIENCY vs LOAD

NPF-120 series possess superior working efficiency that up to 90% can be reached in field applications.

※ 48V Model,  $T_{case}$  at 80°C

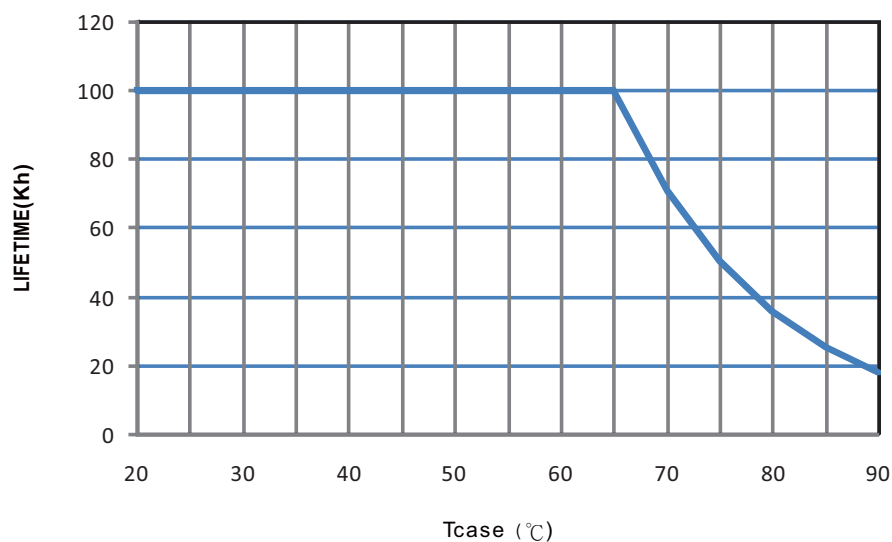




120W Constant Voltage + Constant Current LED Driver

**NPF-120** series

■ LIFE TIME



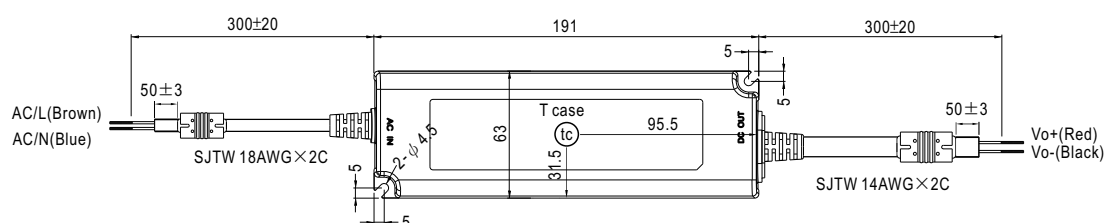


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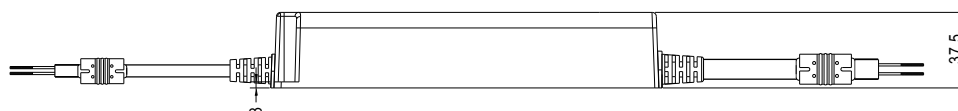
# NPF-120 series

## MECHANICAL SPECIFICATION

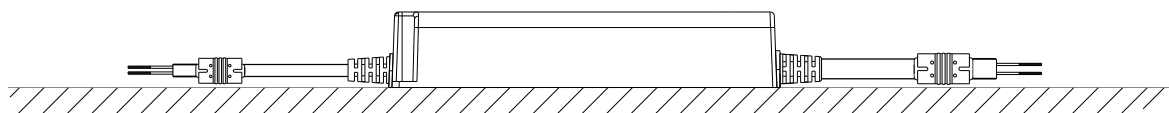
CASE NO.: PWM-120      Unit:mm



- (tc) : Max. Case Temperature



### ■ Recommend Mounting Direction



## ■ INSTALLATION MANUAL

Please refer to : <http://www.meanwell.com/manual.html>