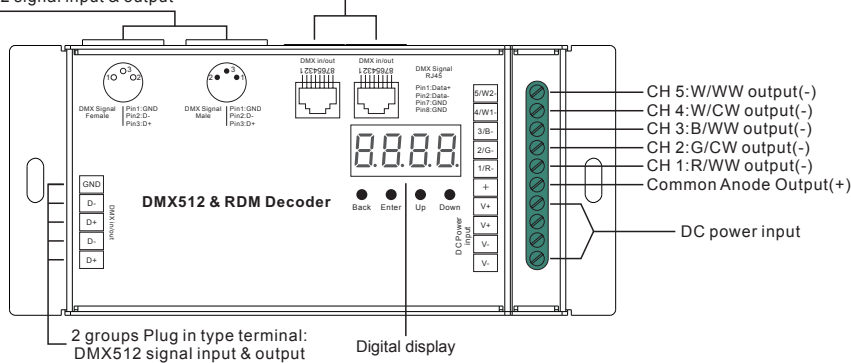


Important: Read All Instructions Before Installation



Function introduction

3/5 Pin male & female XLR terminal: DMX512 signal input & output
2xRJ45 terminal: DMX512 signal input & output



Product Data:

Input Voltage	Output Current	Output Power	Remarks	Size(LxWxH)	Protection
12-24VDC	5x8A	5x(96-192)W	Constant voltage	164x73x38mm	Short circuit
12-48VDC	5x350mA	5x(4.2-16.8)W	Constant current	164x73x38mm	Short circuit
12-48VDC	5x700mA	5x(8.4-33.6)W	Constant current	164x73x38mm	Short circuit

- Master & decoder mode, RDM function
- Metal housing, digital display to show data directly, easily to set and show DMX address.
- With multiple kinds of DMX in/out ports: RJ 45, XLR, normal screws.
- Total 5 PWM output channels, common anode. DMX channel quantity from 1CH~5CH settable
- PWM output resolution ratio 8bit, 16bit settable.
- Output PWM frequency from 500HZ ~ 30K HZ settable.
- Output dimming curve gamma value from 0.1 ~ 9.9 settable.
- Decoding mode settable.
- Galvanic isolation

Safety & Warnings:

- DO NOT install with power applied to device.
- DO NOT expose the device to moisture.

Operation

Before you do other settings, please set the device to be Master or Decoder mode.

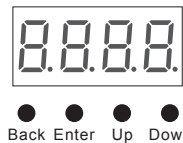
run1 = DMX Decoder mode, run2 = DMX Master mode(stand alone).

Keep on clicking Down button, to get run1 or run2, then click Enter, then click Down button to choose 1 or 2, then click Back button.

After choose run1 or run2, please power off and power on again the device.

I. For run2 DMX Master mode: After power on the device, if keep on clicking Up button, you will find below menu on display:

8.8.8.8 Means brightness for each output PWM channel. First 1 means PWM output channel 1 and it is selectable from 1 to 5 by clicking "UP" or "Down" button. Second 01 means brightness level, click "Enter" button, the display flashes, then click "UP" or "Down" button to select from 00-99-FL, which means 0%-99%-100% brightness, then click "Back" button to confirm.



8.XXX Means programs, total 1~31 programs.

8-XX Means RGB running effect's brightness, total 1~8 levels brightness

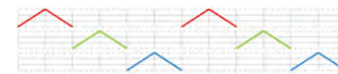
5P-X Means effect play speed, total 1~9 levels speed.

P-XX means RGB color changing modes, total 31 programs:

- 00- RGB off
- 01- Static red
- 02- Static green
- 03- Static blue
- 04- Static yellow (50% red+50% green)
- 05- Static orange (75% red+25% green)
- 06- Static cyan (50% green+50% blue)
- 07- Static purple (50% blue+50% red)
- 08- Static white (100% red+100% green+100% blue)
- 09- Any two colors of RGB mix fade, changing diagram as follow:



11- RGB FADE OUT & FADE IN, changing diagram as follow:



13- RGB FADE IN, changing diagram as follow:



15- RGB 3 colors strobe

16- White color strobe (100% red+100% green+100% blue)

17- 7 colors FADE OUT & FADE IN (red, orange, yellow, green, cyan, blue, purple FADE OUT & FADE IN)

18- 7 colors jump changing (red, orange, yellow, green, cyan, blue, purple jump changing)

19- 7 colors strobe (red, orange, yellow, green, cyan, blue, purple strobe)

20- Red-white (100% red+100% green+100% blue) circle gradual changing

21- Green-white (100% red+100% green+100% blue) circle gradual changing

22- Blue-white (100% red+100% green+100% blue) circle gradual changing

23- Red-orange circle gradual changing

24- Red-purple circle gradual changing

25- Green-yellow circle gradual changing

26- Green-cyan circle gradual changing

27- Blue-purple circle gradual changing

28- Blue-cyan circle gradual changing

29- Red-yellow-green circle gradual changing

30- Red-purple-blue circle gradual changing

31- Green-cyan-blue circle gradual changing

II. For run1 DMX decoder mode: After power on the decoder, if keep on clicking Up button, you will find below menu on display:

DMX signal indicator ●: When DMX signal input is detected, the indicator on the display following after 8 turns on red 8.XXX.

8.XXX Means DMX address. factory defaults setting is 001.

88XX Means DMX channels quantity. factory defaults setting is Ch05

88XX Means Bit (8bit or 16bit). factory defaults setting is 16bit

88XX Means output PWM frequency. factory defaults setting is 1K HZ

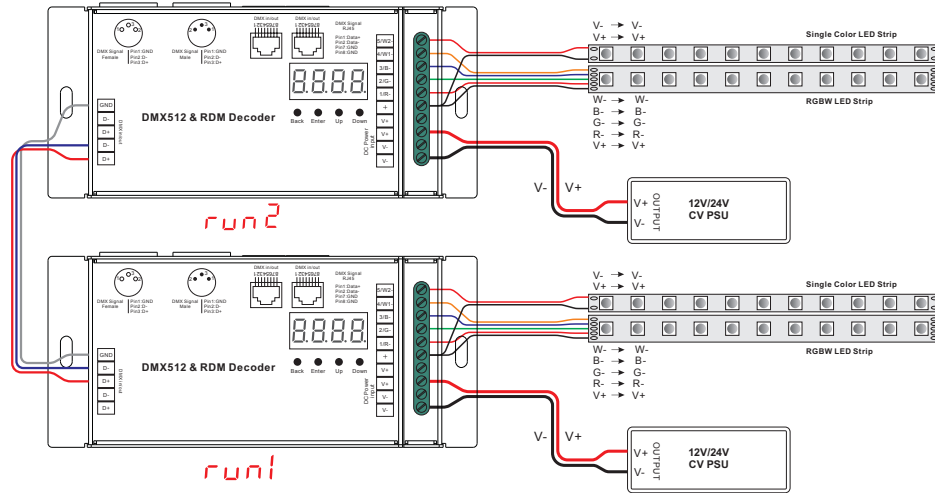
88XX Means output dimming curve gamma value, factory defaults setting is ga 1.5

88XX Means Decoding mode, factory defaults setting is dp1.1

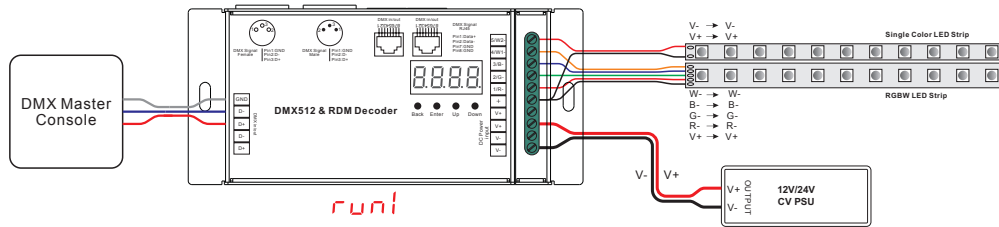
By holding button Back + Enter together at the same time over 5 seconds until the display go off, it will restore default settings .

Wiring diagram

1.Work as Master mode



2.Work as Decoder mode



1. DMX address setting:

select menu **8 XXX** , click button “Enter”, display flashes, then click or hold button “Up” / “Down” to set DMX address (click is slow, hold is fast.), then click button “Back” to confirm.

2. DMX channel quantity setting:

Select menu **88 XX** , click button “Enter”, display flashes, then click button “Up” / “Down” to set DMX channel quantity , then click button “Back” to confirm.

For example the DMX address is already set 001.

CH01=1 DMX address for all the output channels, which are all address 001.

CH02=2 DMX addresses , output 1&3 is address 001, output 2,4&5 is address 002

CH03=3 DMX addresses, output 1, 2 is address 001,002, output 3,4&5 is address 003

CH04=4 DMX addresses, output 1,2,3 is address 001,002,003, output 4&5 is address 004

CH05=5 DMX addresses, output 1,2,3,4,5 is address 001,002,003,004,005.

3. PWM output resolution Bit setting:

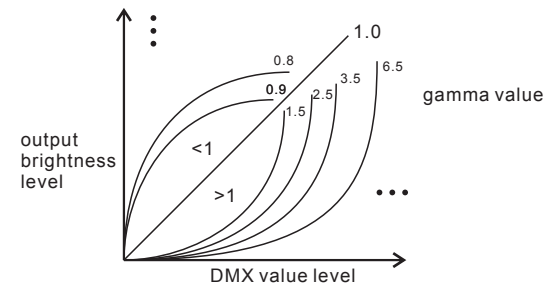
select menu **88 XX** , click button “Enter”, display flashes, then click button “Up” / “Down” to choose 08 or 16 bit, then click button “Back” to confirm.

4. output PWM frequency setting:

select menu **88 XX** , click button “Enter”, display flashes, then click button “Up” / “Down” to choose 00~30, then click button “Back” to confirm. 00=500HZ, 01=1kHz, 02=2kHz.....30=30kHz.

5. output dimming curve gamma value setting:

select menu **88 XX** , click button “Enter”, display flashes, then click or hold button “Up” / “Down” to choose 0.1~9.9, then click button “Back” to confirm.



6. DMX decoding mode setting:

Select menu **88 XX** , click button “Enter”, display flashes, then click or hold button “Up” / “Down” to choose the decoding mode, then click button “Back” to confirm. “dPxx” means the DMX address quantity used for control of corresponding PWM output channel quantity. 1st “x” is DMX address quantity, 2nd “x” is PWM channel quantity.

Micro dimming: the micro dimming effect can only be visible when the dimming curve gamma value is set lower than 1.4, and the lower the value is, the more visible the micro dimming effect will be.

DMX address is 001, CH01

DMX Console Slider number	dp1.1	dp2.1
DMX channel		
1	for all output dimming	for all output dimming
2	No use	for all output micro dimming

DMX address is 001, CH02

DMX Console Slider number	dp1.1	dp2.1	dp3.2
DMX channel			
1	for output 1&3 dimming	for output 1&3 dimming	for output 1&3 dimming
2	for output 2,4 &5 dimming	for output 1&3 micro dimming	for output 2,4 &5 dimming
3		for output 2,4 &5 dimming	for all output dimming
4		for output 2,4&5 micro dimming	

DMX address is 001, CH03

DMX Console Slider number	dp1.1	dp2.1	dp4.3	dp5.3
DMX channel				
1	for output 1 dimming	for output 1 dimming	for output 1 dimming	for output 1 dimming
2	for output 2 dimming	for output 1 micro dimming	for output 2 dimming	for output 2 dimming
3	for output 3,4 &5 dimming	for output 2 dimming	for output 3,4&5 dimming	for output 3,4&5 dimming
4		for output 2 micro dimming	for all output master dimming	for all output master dimming
5		for output 3,4 &5 dimming		strobe effects
6		for output 3,4&5 micro dimming		

DMX address is 001, CH04

DMX Console Slider number	dp1.1	dp2.1	dp5.4	dp6.4
DMX channel				
1	for output 1 dimming	for output 1 dimming	for output 1 dimming	for output 1 dimming
2	for output 2 dimming	for output 1 micro dimming	for output 2 dimming	for output 2 dimming
3	for output 3 dimming	for output 2 dimming	for output 3 dimming	for output 3 dimming
4	for output 4&5 dimming	for output 2 micro dimming	for output 4&5 dimming	for output 4&5 dimming

5		for output 3 dimming	for all output master dimming	for all output master dimming
6		for output 3 micro dimming		strobe effects
7		for output 4 &5 dimming		
8		for output 4&5 micro dimming		

DMX address is 001, CH05

DMX Console Slider number DMX channel	dp1.1	dp2.1	dp6.5	dp7.5
1	for output 1 dimming	for output 1 dimming	for output 1 dimming	for output 1 dimming
2	for output 2 dimming	for output 1 micro dimming	for output 2 dimming	for output 2 dimming
3	for output 3 dimming	for output 2 dimming	for output 3 dimming	for output 3 dimming
4	for output 4 dimming	for output 2 micro dimming	for output 4 dimming	for output 4 dimming
5	for output 5 dimming	for output 3 dimming	for output 5 dimming	for output 5 dimming
6		for output 3 micro dimming	for all output master dimming	for all output master dimming
7		for output 4 dimming		strobe effects
8		for output 4 micro dimming		
9		for output 5 dimming		
10		for output 5 micro dimming		

The data definitions for strobe channel are as follows:

{0, 7},//undefined
 {8, 65},//slow strobe-->fast strobe
 {66, 71},//undefined
 {72, 127},//slow push fast close
 {128, 133},//undefined
 {134, 189},//slow close fast push
 {190, 195},//undefined
 {196, 250},//random strobe
 {251, 255},//undefined

The supported RDM PIDs are as follows:

DISC_UNIQUE_BRANCH
 DISC_MUTE
 DISC_UN_MUTE
 DEVICE_INFO
 DMX_START_ADDRESS
 IDENTIFY_DEVICE
 SOFTWARE_VERSION_LABEL
 DMX_PERSONALITY
 DMX_PERSONALITY_DESCRIPTION
 SLOT_INFO
 SLOT_DESCRIPTION
 MANUFACTURER_LABEL
 SUPPORTED_PARAMETERS

Restore to Factory Default Setting

Press and hold down both "Back" and "Enter" keys until the digital display turns off, then release the keys, system will reset and the digital display will turn on again, all settings will be restored to factory default.

Default settings are as follows:

DMX Address Code: a001

DMX Address Quantity: SW1=0: ch05, SW1=1: ch04

ch04

PWM Resolution Mode: bt16

PWM Frequency: pf01

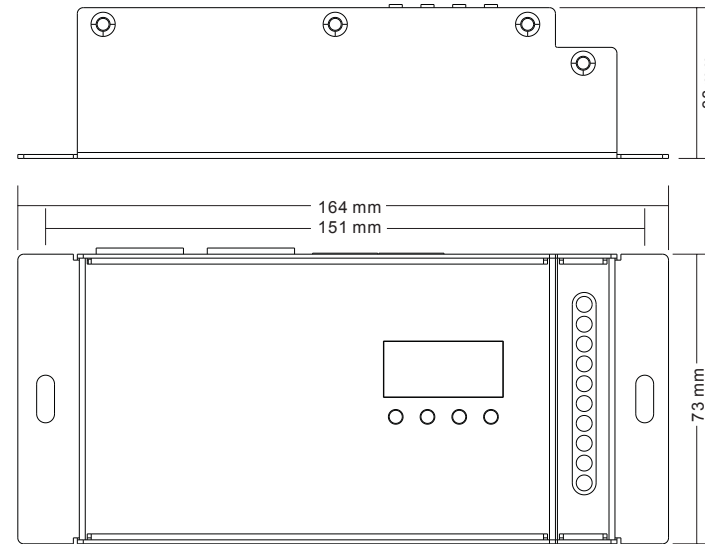
Gamma: ga1.5

Decoding Mode: dp1.1

Short circuit protection

If short circuit of the connected load is detected, the display will flash to alarm and the load will be forced to open circuit status. Once the fault is removed, the decoder will recover after re-powered on.

Product Dimension



90W Constant Voltage + Constant Current LED Driver



■ Features

- Constant Voltage + Constant Current mode output
- Plastic housing with Class II design
- Built-in active PFC function
- Class 2 power unit(except NPF-90-12/15)
- No load power consumption <0.15W
- IP67 rating for indoor or outdoor installations
- Typical lifetime>50000 hours
- 5 years warranty

■ Applications

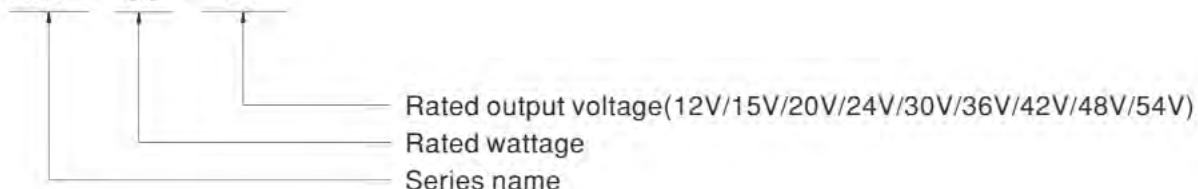
- LED panel lighting
- LED downlight
- LED decorative lighting
- LED tunnel lighting
- Moving sign

■ Description

NPF-90 series is a 90W AC/DC LED driver featuring the dual modes constant voltage and constant current output. NPF-90 operates from 90~305VAC and offers models with different rated voltage ranging between 12V and 54V. Thanks to the high efficiency up to 91%, with the fanless design, the entire series is able to operate for -40°C ~ +85°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 - 90 - 24



90W Constant Voltage + Constant Current LED Driver



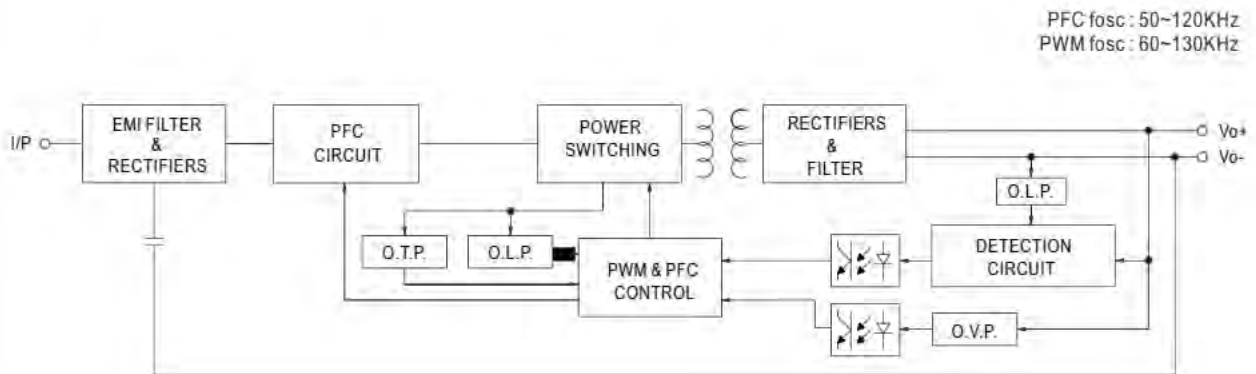
SPECIFICATION

MODEL	NPF-90-12	NPF-90-15	NPF-90-20	NPF-90-24	NPF-90-30	NPF-90-36	NPF-90-42	NPF-90-48	NPF-90-54	
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	7.5A	6A	4.5A	3.75A	3A	2.5A	2.15A	1.88A	1.67A
	RATED POWER <small>Note.5</small>	90W	90W	90W	90W	90W	90W	90.3W	90.24W	90.18W
	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%	±3.0%	±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	±1.5%	±1.0%	±0.5%	±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 (Please refer to "STATIC CHARACTERISTIC" section)								
	FREQUENCY RANGE	47 ~ 63Hz								
	POWER FACTOR	PF ≥ 0.98/115VAC, PF ≥ 0.96/230VAC, PF ≥ 0.94/277VAC@full load (Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)								
	TOTAL HARMONIC DISTORTION	THD < 20% (@load ≥ 60%/115VAC, 230VAC; @load ≥ 75%/277VAC) (Please refer to "TOTAL HARMONIC DISTORTION (THD)" section)								
	EFFICIENCY (Typ.)	89%	89.5%	90.5%	91%	89.5%	90.5%	90.5%	90.5%	90.5%
	AC CURRENT	0.95A / 115VAC			0.5A / 230VAC		0.4A / 277VAC			
	INRUSH CURRENT(Typ.)	COLD START 60A(twidth=550μs measured at 50% Ipeak) at 230VAC; Per NEMA 410								
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	3 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% 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
	OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover								
ENVIRONMENT	WORKING TEMP.	Tcase=-40 ~ +85°C (Please refer to "OUTPUT LOAD vs TEMPERATURE" section)								
	MAX. CASE TEMP.	Tcase=+85°C								
	WORKING HUMIDITY	20 ~ 95% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-40 ~ +80°C, 10 ~ 95% RH								
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)								
SAFETY & EMC	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes								
	SAFETY STANDARDS <small>Note.8</small>	UL8750, CSA C22.2 No. 250.13-12, IEC EN61347-1, EN61347-2-13 independent, EN62384, GB19510.1, GB19510.14, EAC TP TC 004, IP67 approved; Design refer to EN60335-1								
	WITHSTAND VOLTAGE	I/P-O/P: 3.75KVAC								
	ISOLATION RESISTANCE	I/P-O/P: 100M Ohms / 500VDC / 25°C / 70% RH								
	EMC EMISSION <small>Note.8</small>	Compliance to EN55015, EN61000-3-2 Class C (@load ≥ 60%); EN61000-3-3; GB17743 and GB17625.1, EAC TP TC 020								
OTHERS	EMC IMMUNITY	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11; EN61547, light industry level (surge Immunity Line-Line 2KV); EAC TP TC 020								
	MTBF	1011.4K hrs min. Telcordia SR-332 (Bellcore); 292.8Khrs min. MIL-HDBK-217F (25°C)								
	DIMENSION	171*63*37.5mm (L*W*H)								
NOTE	PACKING	0.77Kg, 18pcs/14.9Kg/0.82CUFT								
	NOTE	<ol style="list-style-type: none"> All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25°C of ambient temperature. Please refer to "DRIVING METHODS OF LED MODULE". Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. Tolerance : includes set up tolerance, line regulation and load regulation. De-rating may be needed under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details. 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. 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. 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°C or less. Please refer to the warranty statement on MEAN WELL's website at http://www.meanwell.com The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft). For any application note and IP water proof function installation caution, please refer our user manual before using. https://www.meanwell.com/Upload/PDF/LED_EN.pdf 								

90W Constant Voltage + Constant Current LED Driver

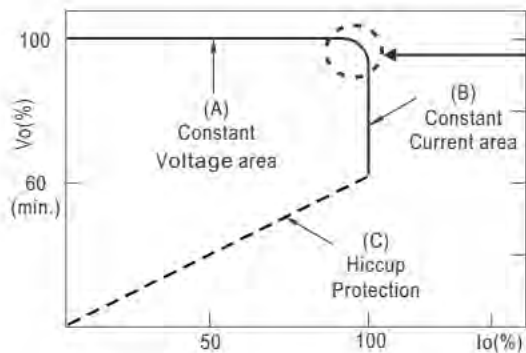


■ BLOCK DIAGRAM



■ 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 (%)

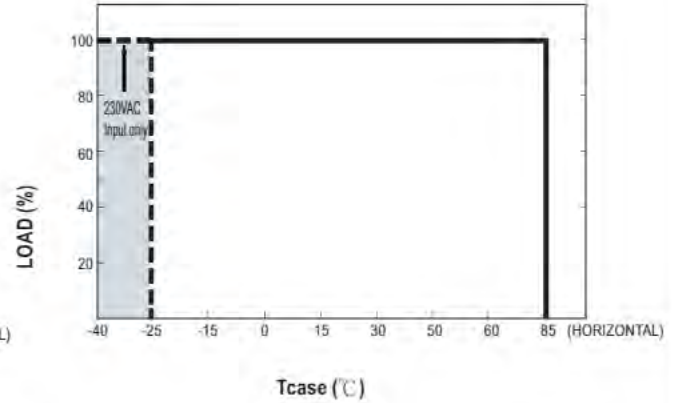
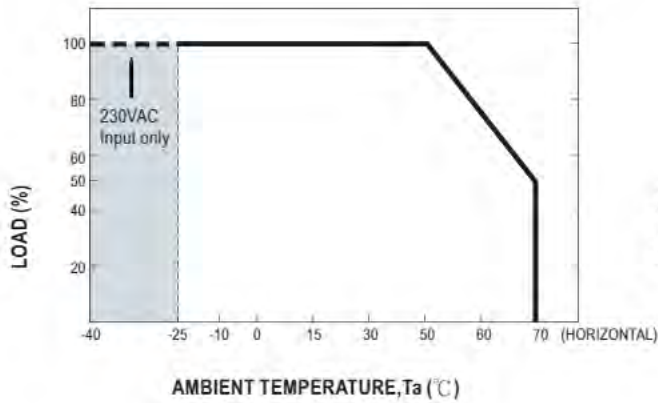
In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.

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

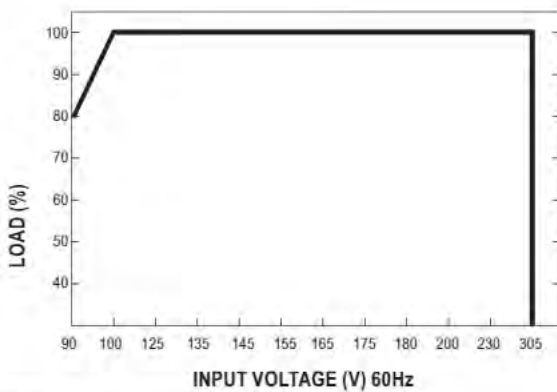
90W Constant Voltage + Constant Current LED Driver



OUTPUT LOAD vs TEMPERATURE



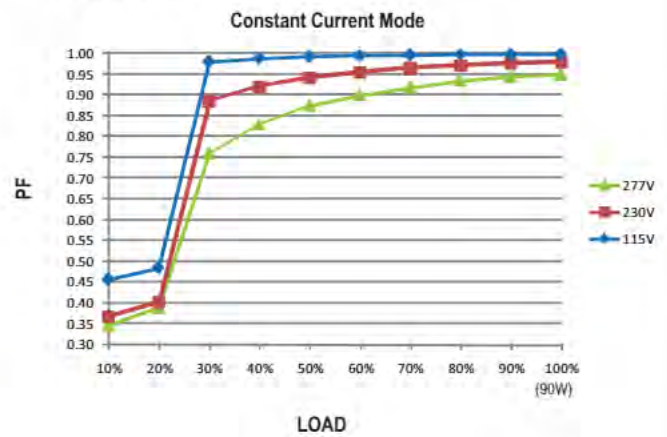
STATIC CHARACTERISTIC



※ De-rating is needed under low input voltage.

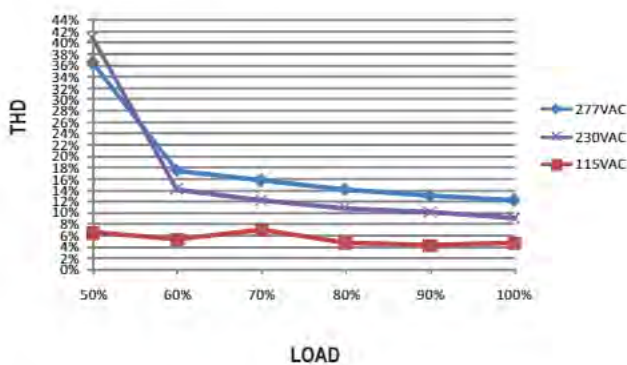
POWER FACTOR (PF) CHARACTERISTIC

※ T_{case} at 75°C



TOTAL HARMONIC DISTORTION (THD)

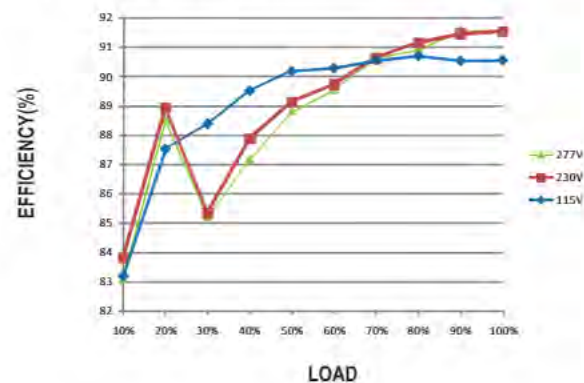
※ 48V Model, T_{case} at 75°C



EFFICIENCY vs LOAD

NPF-90 series possess superior working efficiency that up to 90.5% can be reached in field applications.

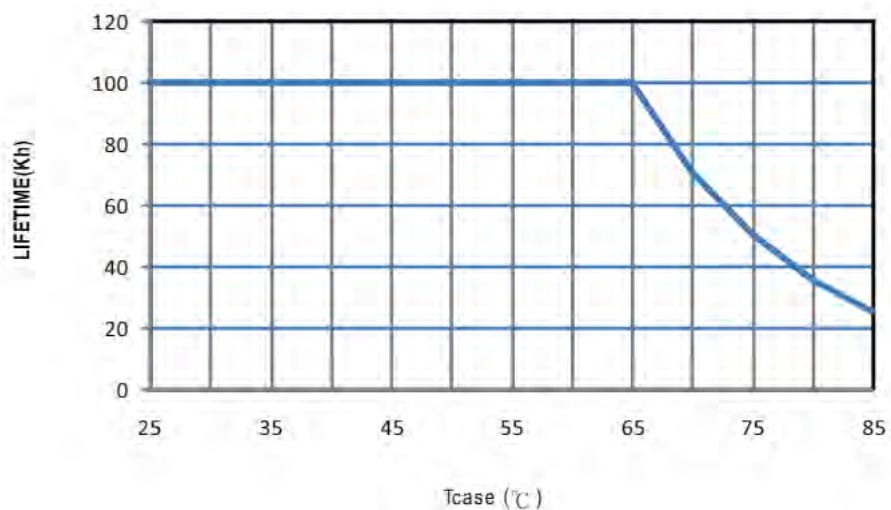
※ 48V Model, T_{case} at 75°C



90W Constant Voltage + Constant Current LED Driver



■ LIFE TIME

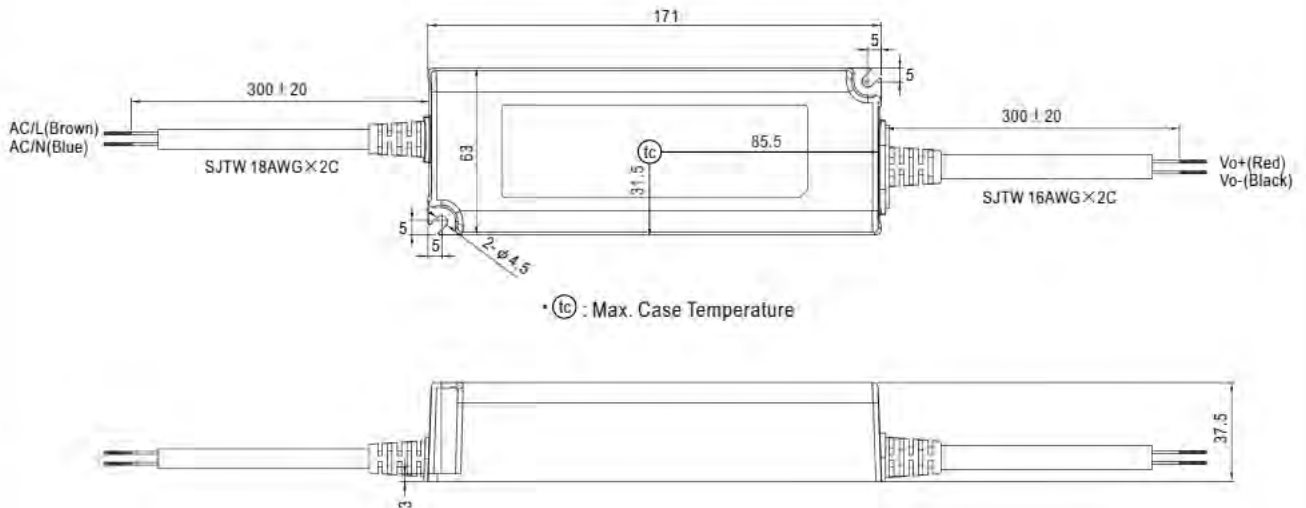


90W Constant Voltage + Constant Current LED Driver



MECHANICAL SPECIFICATION

CASE NO.: PWM-90P Unit:mm



Recommend Mounting Direction



INSTALLATION MANUAL

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