



■ Features

- Wireless LED driver with integrated EnOcean module
- Universal AC input / Full range (up to 305VAC)
- Built-in active PFC function
- Constant voltage PWM style output
- Dimming range : 0~100%
- High efficiency up to 90.5%
- Protections: Short circuit / Over load / Over voltage
- / Over temperature
- Class II power unit, no FG
- Built-in 3 in 1 dimming function
- (0~10Vdc or PWM signal or resistance)
- Suitable for dry / damp / wet locations
- 5 years warranty

■ Applications

- Wireless lighting
- LED strip lighting
- Indoor LED lighting
- LED decorative lighting
- Architecture lighting

■ Description

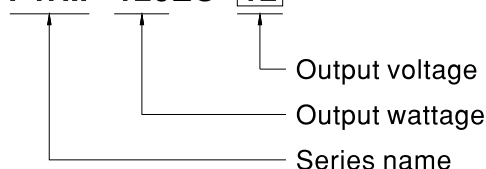
PWM-120 is one 120W waterproof constant-voltage output LED power supply series. Differentiating from general DC output power supplies, PWM-120 transmits PWM style output, adapting to directly driving all kinds of LED strips that the color temperature can be maintained and the brightness homogeneity can be assured. Adopting a universal input range between 90VAC and 305VAC and incorporating the built-in PFC function

This series is integrated with EnOcean module so that the user can dim the LED wireless!

Providing a high efficiency up to 90.5% and combine with a good standby power consumption, PWM-120 can satisfy the energy saving demand for the new generation LED lighting. The class II design (without FG pin) and the double insulation weather-resistant cable (SJTW) on the input side make it convenient for users to flexibly install on various types of lighting systems. The enclosure design is a 94V-0 flame retardant plastic case. The interior is fully potted with silicone that enhances the heat dissipation and allows PWM-120 to meet the anti-vibration demand up to 5G; it also thus conforms to IP67 level, enabling PWM-120 to be used in a highly dusty and highly humid harsh environment. The entire series can operate under the temperature between -40~+70°C and comply with the relevant global lighting safety certification.

■ Model Encoding

PWM - 120EO - 12





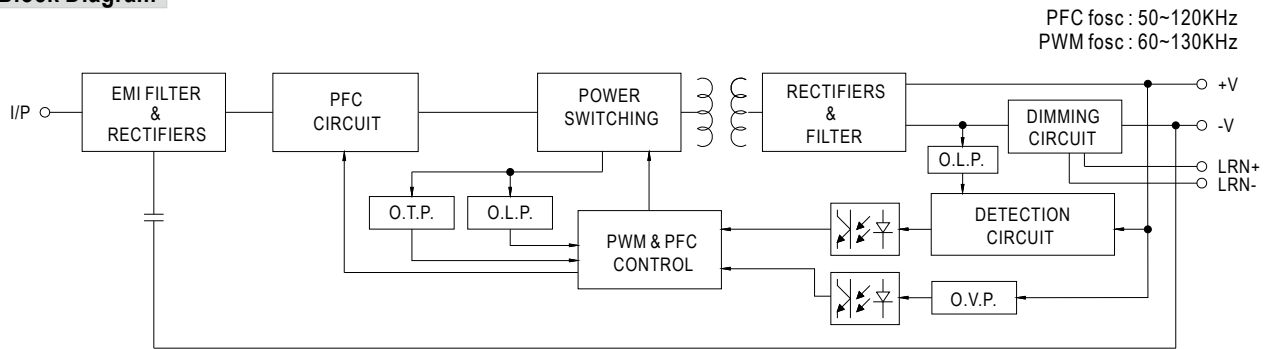
Wireless
120W PWM output LED power supply

PWM-120EO series

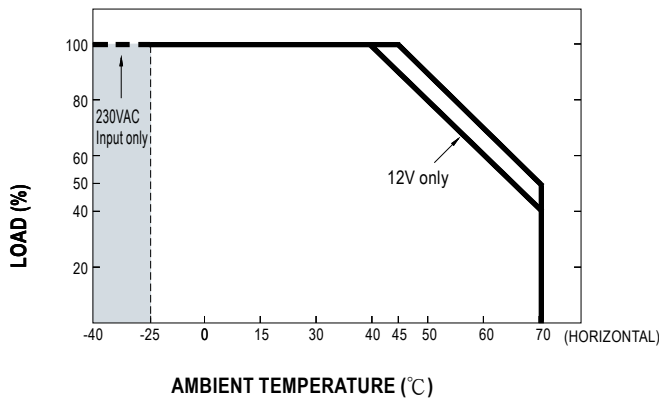
SPECIFICATION

MODEL		PWM-120-12	PWM-120-24	PWM-120-36	PWM-120-48
OUTPUT	DC VOLTAGE	12V	24V	36V	48V
	RATED CURRENT	10A	5A	3.4A	2.5A
	RATED POWER	120W	120W	122.4W	120W
	DIMMING RANGE	0 ~ 100% by EnOcean standard 868 MHz for Europe (Optional: 902 MHz for USA/ Canada);			
	PWM FREQUENCY (Typ.)	1500Hz Max. device(switch) saved into the memory : 33			
	VOLTAGE TOLERANCE	± 4.0%	± 4.0%	± 2.0%	± 1.0%
	SETUP, RISE TIME Note.2	500ms, 80ms 230VAC / 115VAC at full load			
	HOLD UP TIME (Typ.)	16ms/230VAC 16ms/115VAC at full load			
INPUT	VOLTAGE RANGE	90 ~ 305VAC 127 ~ 431VDC			
	FREQUENCY RANGE	47 ~ 63Hz			
	POWER FACTOR (Typ.)	PF>0.97/115VAC, PF>0.96/230VAC, PF>0.94/277VAC at full load (Please refer to "Power Factor Characteristic" curve)			
	TOTAL HARMONIC DISTORTION	THD< 20% when output loading ≥ 60% at 115VAC/230VAC input and output loading ≥ 75% at 277VAC input			
	EFFICIENCY (Typ.)	88%	90%	90%	90.5%
	AC CURRENT (Typ.)	1.3A / 115VAC 0.65A / 230VAC 0.55A / 277VAC			
	INRUSH CURRENT (Typ.)	COLD START 60A(twidth=520μs measured at 50% Ipeak) at 230VAC			
	MAX. NO. of PSUs on 16A CIRCUIT BREAKER	4 units (circuit breaker of type B) / 6 units (circuit breaker of type C) at 230VAC			
PROTECTION	LEAKAGE CURRENT	<0.25mA / 277VAC			
	OVERLOAD	108 ~ 120% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed			
	SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed			
	OVER VOLTAGE	15 ~ 17V	28 ~ 34V	41 ~ 46V	54 ~ 60V
	OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover Protection type : Shut down o/p voltage, re-power on to recover			
ENVIRONMENT	WORKING TEMP.	-40 ~ +70°C (Refer to "Derating Curve")			
	WORKING HUMIDITY	20 ~ 95% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-40 ~ +80°C, 10 ~ 95% RH			
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)			
	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes			
SAFETY & EMC	SAFETY STANDARDS	UL8750(type"HL"), CSA C22.2 No. 250.13-12, ENEC EN61347-1, EN61347-2-13, EN62384 independent, 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	Compliance to EN55015, EN61000-3-2 Class C (≥ 60% load) ; EN61000-3-3			
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN61547, light industry level(surge L-N : 2KV), criteria A			
OTHERS	MTBF	228.7K hrs min. MIL-HDBK-217F (25°C)			
	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 load and 25°C of ambient temperature. 2. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.				

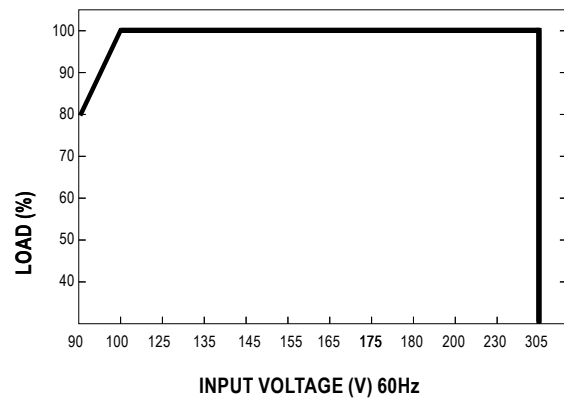
Block Diagram



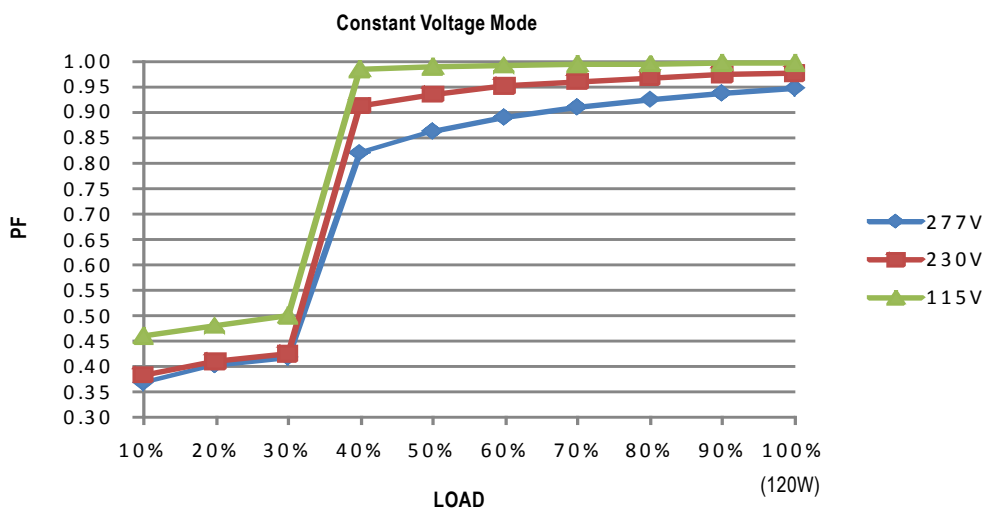
Derating Curve



Static Characteristics

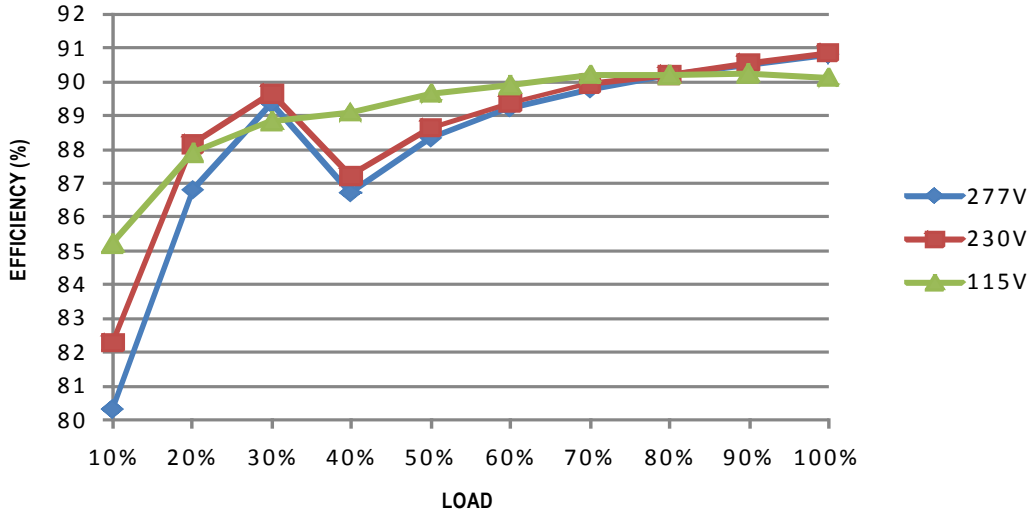


Power Factor Characteristic



EFFICIENCY vs LOAD (48V Model)

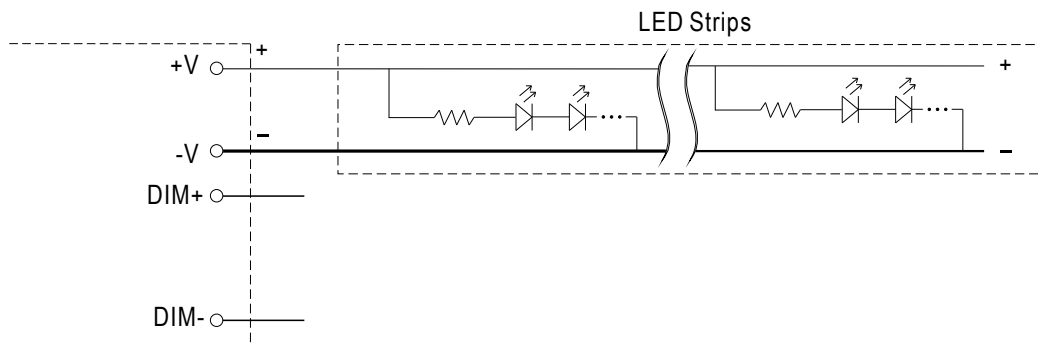
PWM-120 series possess superior working efficiency that up to 90.5% can be reached in field applications.



DIMMING OPERATION

The PWM style output is a simple switching of supply ON/OFF at a rate so fast that the human eye cannot see LED flickering. Duty cycle describes the proportion of time when output voltage is ON relative to the entire period of time. It is expressed in percentage, 100% being fully ON (maximal brightness) and a low duty cycle corresponding to lower brightness.

Connection



※DO NOT connect "LRN-" to "-V"

LRN wiring description

Short LRN+ and LRN- (around 2 second) to enter linking (pairing) / unlinking mode. The LED connected at the output starts blinking indicating that linking mode is active. Once activated, this mode stays temporary active to provide time to link or unlink multiple wireless switches or other EnOcean devices. The mode will stop and back to normal mode after 30 seconds if no wireless telegram from switch is received.

For the wireless switch to be linked, click the "I" button (top button marked on the switch plastic or "I" symbol on the back of the switch) continuous 100% 4 seconds, it mean the switch is linked successfully.

The driver is now ready to accept new links on another wireless switch.

In case a linked switch to be unlinked, please use the same action as described from the linking method above.

To exit linking / unlinking mode and return to normal operation, wait 30s without doing anything or shortly press the button again.

In order to clear all linked switches and reset the driver to factory settings, please short LRN+ and LRN- for 10 seconds.



Installation & Pairing

Hardware connection:

1. Connect the LED the driver.
2. Connect the driver to the AC mains.

There are two approaches for linking(pairing):

1. Using the LRN wiring on the driver
The instruction is in the LRN wiring description.
2. Using the NAVIGAN wireless software
Benefit to use NAVIGAN is more dimming parameters can be configured .

The software can be download in the website link below.

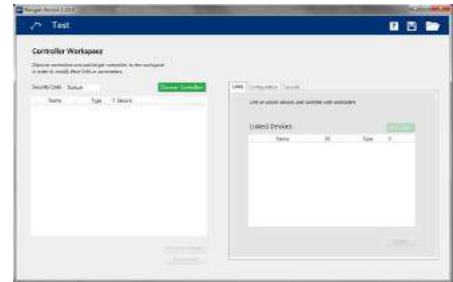
<http://www.navigan.com/>

After the software installation, insert the USB300 into one of USB port from the computer.

For more details, please check the manual.



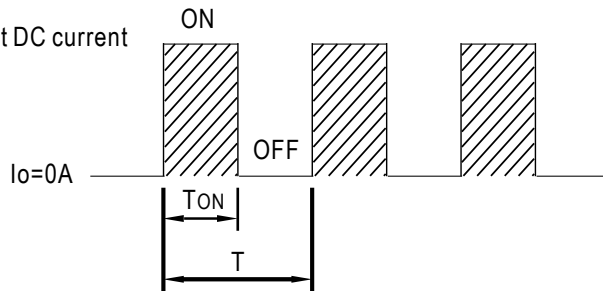
USB300



Navigan software interface

PWM Style Output

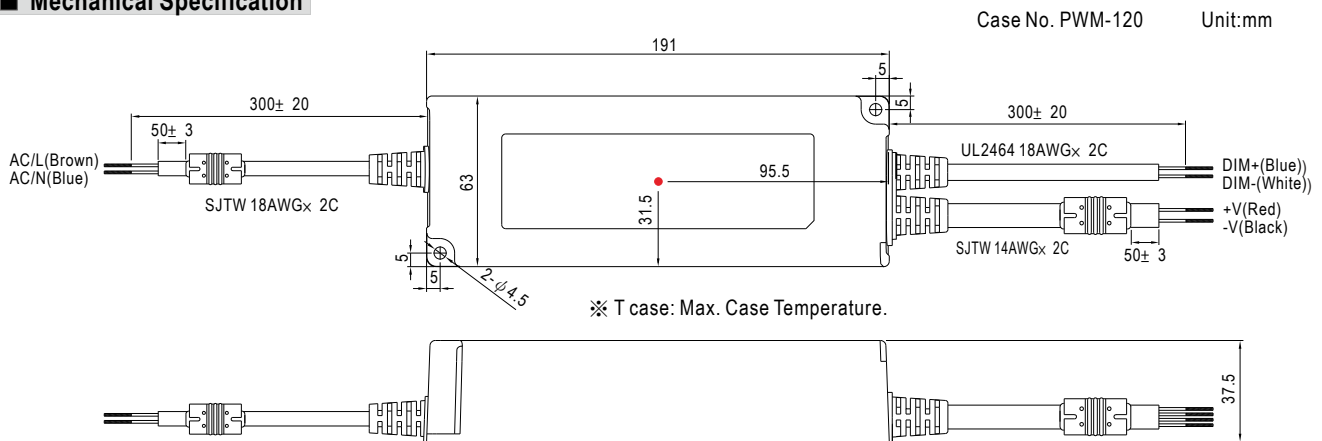
Output DC current



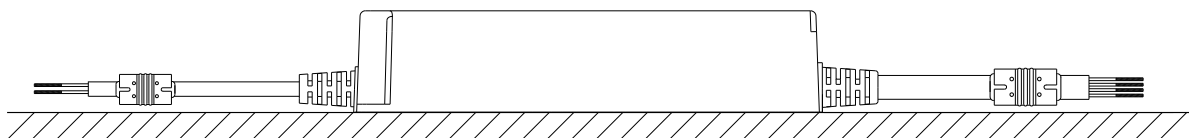
$$\text{Duty cycle(\%)} = \frac{T_{ON}}{T} \times 100\%$$

Output PWM frequency : 1500Hz fixed (Typ.)

Mechanical Specification



Recommend Mounting Direction





Wireless
120W PWM output LED power supply

PWM-120EO series

■ Interoperable products / EnOcean Equipment Profile(EEP)

Support Equipment	Telegram
Rocker Pad Switch	F6-02-02
Occupancy Sensor	A5-07-01
Occupancy Sensor	A5-07-02
Occupancy Sensor	A5-07-03
Light Level Sensor	A5-06-02
Light Level Sensor	A5-06-03
Central Controller	A5-38-08
Demand Response	A5-37-01

■ Batteryless wireless switch supplier

MW order code:WPD-06SWT. There are many other switch supplier listed in the below.



WPD-06SWT

Manufacturer	Model*
Legrand	0 784 42
Siemens	5WG4222-3AB10
Berker	24121009
Jung	ENO A 595
Busch-jaeger	EASYSENS/ ENOCEAN
Gira	2422 03
Peha	D 455/61.022 FU-BLS N
Eltako	F4T65
VIMAR	20505+20506.B+21507.B

*: The model list is provided for reference. For more information please contact original supplier



■ World Coverage Map

COUNTRY/REGION	STANDARD	FREQUENCY
Aruba	Possibly R&TTE Directive	868 MHz – Confirm with test house
Australia / New Zealand	N.A.	
Barbados	N.A.	Note1
Bermuda	N.A.	Note1
Bolivia	N.A.	Note1
Brazil	ANATEL	868 MHz
British Virgin Islands	N.A.	Note1
Cayman Islands	Possibly R&TTE Directive	868 MHz
CEPT (European regional)*	EN 300 220	868 MHz
Chile	Possibly R&TTE Directive	868 MHz
China	CNAS/MIIT EN 300 220	868 MHz
Colombia	Possibly ANATEL	868 MHz
Ecuador	N.A.	Note1
El Salvador	Possibly R&TTE Directive	868 MHz
French Guiana	ETSI EN 300 220	868 MHz
Guatemala	N.A.	Note1
Hong Kong	Possibly 315MHz	Note1
India	Possibly 315MHz	Note1
Israel	Possibly 315MHz	Note1
Jamaica	N.A.	Note1
Japan 920**	ARIB STD-T108	928MHz
Malaysia	SKMM WTS SRD/ EN 300 220	868 MHz
Mexico	We believe Mexico does not accept FCC	868 MHz
Nicaragua	N.A.	Note1
Peru	N.A.	Note1
Panama	FCC CFR47 Part 15.249	902 MHz
Russia	N.A.	
Singapore	TS SRD/ EN 300 220	868 MHz
South Africa	ICASA/ EN 300 220	868 MHz
South Korea	N.A.	
Suriname	N.A.	Note1
Taiwan	Possibly 315MHz	Note1
Trinidad & Tabago	N.A.	Note1
Turks & Caicos Islands	Possibly R&TTE Directive	868 MHz
UAE	EN 300 220	868 MHz
Uruguay	N.A.	Note1
USA/Canada	FCC CFR47 Part 15.249	315MHz, 902 MHz

Note1: It is suggested to check with local accredited certification agency.

*CEPT is the European regional organization dealing with postal and telecommunications issues and presently has 45 Members: Albania, Andorra, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Monaco, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, San Marino, Serbia and Montenegro, Slovakia, Slovenia, Spain, Sweden, Switzerland, The former Yugoslav Republic of Macedonia, Turkey, Ukraine, United Kingdom, and Vatican.

**In February 2012, Japanese regulatory body ARIB (Association of Radio Industries and Businesses) released new 920 MHz frequency band for radio equipment, due to LTE rollout. The 950 MHz frequency band will be obsolete by end of 2015.