

18 ~ 240W



Waterproof LED Power Solutions



Current Automation

16 Staal Street, Kya Sand, Randburg, 2162, Gauteng

P O Box 2051, Northriding, 2162 Tel: +27-11-462-4253, Fax: +27-11-462-4310

E-mail: ettienne@switches.co.za, Web: www.rectifier.co.za

LP SERIES (IP67) C.V or C.C Function

18~60W Single output CLASS 2 power unit Description

The new economical product family LPH/LPV/LPC series are designed for the increasing demands of LED lighting, decorative lighting, and general high dust/moisture applications. With non-PFC design, they are 18/20/35/60W AC/DC enclosed type switchmode power supplies targeting the economical lighting market. To fulfill different demands of system applications, we provide both C.V (constant voltage - LPV series) and C.C (constant current - LPC series) models for users to choose from. Besides, the high IP structure against dust and moisture, this LP series can be used in harsh locations.

Using a heat-conducted glue it possesses a high efficiency up to 86%. The LP family can operate between -30 ~ 70°C by only free air convection. To protect the unit from sudden high surges from an unstable AC line, the LP family can withstand 300VAC input surges for 5 seconds. Other standard functions/features include short circuit, over load, and over voltage protections and wires style I/O (16AWG or 18AWG). Typical applications include moving signs and backlighting, LED-based decorative/architectural lighting, LED stage and theater lighting, and LED electronic displays.

The IP Code defined in international standard IEC 60529 classifies the degrees of protection provided against the intrusion of solid objects.

The first digit indicates the level of protection that the enclosure provides against access to hazardous parts: 6 = dust tight; No ingress of dust; complete protection against contact.

The second digit indicates the protection of the equipment inside the enclosure against harmful ingress of water: 4 = splashing water; 5 = water jets and 7 = immersion up to 1 m.

Features

- Universal AC input / Full range (LPV)
- 180~264 VAC input only (LPH-18)
- Fully encapsulated with IP67 level
- Protections: Short circuit / Overload / Over voltage
- Over temperature protection (LPH-18 only)
- Constant voltage design
- Withstand 300VAC surge input for 5 seconds
- Two wire input / output style, no F.G.
- Cooling by free air convection
- Pass LPS (Limited power source)
- 100% Full load burn-in test
- Low cost high reliability
- Suitable for LED lighting applications

Model No	LPH-18	LPV-20	LPV-35	LPV-60	LPC-20	LPC-35	LPC-60
AC Input voltage range	180~264VAC	90~264VAC					
AC Inrush current (max.)	Cold Start 50A @ 230VAC	Cold Start 70A @ 230VAC	Cold Start 70A @ 230VAC			Cold Start 60A @ 230VAC	
Overload Protection	Range	>105%			110%~150%		±5%
	Type	Hiccup mode, Auto-recovery				Constant current limiting, auto-recovery	
Over voltage Protection	115~135% rated output voltage						
Withstand Voltage	I/P~O/P: 3KVAC						
Working Temperature	-25°C~+70°C	-30°C~+70°C	-30°C~+75°C	-30°C~+60°C	-30°C~+75°C	-30°C~+60°C	
Safety Standards	Design refer to UL 1310 class 2, TUV EN60950-1, EN61347-2-13						
EMC Standards	FCC part 15 class B	EN55022 class B, EN6100-3-2,3, EN61000-4-2,3,4,5,6,8,11, ENV50204					
Connection (Input / Output)	UL rated, 18AWG x 2C (30cm)	UL rated, 18AWG x 2C (60cm)	UL rated, 16AWG x 2C (60cm)			UL rated, 18AWG x 2C (60cm)	UL rated, 16AWG x 2C (60cm)
Dimensions	140 x 30 x 20	118 x 35 x 26	148 x 40 x 30	162 x 42 x 30	118 x 35 x 26	148 x 40 x 30	162 x 42 x 30



18W (Constant Voltage mode)

Model No	Output	Tolerance	Ripple and Noise	Efficiency
LPH-18-12	12V, 0~1.5A	±3%	120mV	77%
LPH-18-24	24, 0~0.75A	±3%	150mV	83%
LPH-18-36	36V, 0~0.5A	±3%	200mV	84%

20W (Constant Voltage mode)

Model No	Output	Tolerance	Ripple and Noise	Efficiency
LPV-20-5	5V, 0~3.0A	±5%	80mV	77%
LPV-20-12	12V, 0~1.67A	±5%	120mV	81%
LPV-20-15	15V, 0~1.33A	±5%	120mV	83%
LPV-20-24	24V, 0~0.84A	±5%	150mV	83%

35W (Constant Voltage mode)

Model No	Output	Tolerance	Ripple and Noise	Efficiency
LPV-35-5	5V, 0~6.0A	±5%	80mV	74%
LPV-35-12	12V, 0~3.0A	±5%	120mV	84%
LPV-35-15	15V, 0~2.4A	±5%	120mV	84%
LPV-35-24	24V, 0~1.5A	±5%	150mV	85%
LPV-35-36	36V, 0~1.0A	±5%	150mV	85%

60W (Constant Voltage mode)

Model No	Output	Tolerance	Ripple and Noise	Efficiency
LPV-60-5	5V, 0~6.0A	±5%	80mV	76%
LPV-60-12	12V, 0~3.0A	±5%	120mV	83%
LPV-60-15	15V, 0~2.4A	±5%	120mV	83%
LPV-60-24	24V, 0~1.5A	±5%	150mV	86%
LPV-60-36	36V, 0~1.0A	±5%	150mV	86%
LPV-60-48	48V, 0~1.25A	±5%	150mV	86%



20W (Constant Current mode)

Model No	Output	Tolerance	Ripple and Noise	Efficiency
LPC-20-350	3~48V, 350mA	±5%	200mV	84%
LPC-20-700	3~30V, 700mA	±5%	200mV	84%

60W (Constant Current mode)

Model No	Output	Tolerance	Ripple and Noise	Efficiency
LPC-60-1050	9~48V, 1050mA	±5%	200mV	87%
LPC-60-1400	9~30V, 1400mA	±5%	200mV	85%
LPC-60-1750	9~34v, 1750mA	±5%	200mV	87%

35W (Constant Current mode)

Model No	Output	Tolerance	Ripple and Noise	Efficiency
LPC-35-700	9~48V, 700mA	±5%	200mV	85%
LPC-35-1050	9~30V, 1050mA	±5%	200mV	85%
LPC-35-1400	9~24v, 1400mA	±5%	200mV	85%



ELN SERIES (IP64) Dimming Function

30~60W Single output CLASS 2 power unit

Description

ELN-30 series – 30W AC/DC enclosed type switching power supply. Targeting the economical lighting applications, ELN-30 has non-PFC design to keep the cost low but still complies with the requirements of UL 1310 class 2. So that the output power of these limited power sources will less than 100VA or 5A under any situation and hence can significantly reduce the hazardous condition exposed to the technicians who execute the construction or maintenance of the LED lighting system. Besides, the IP64 design of a fully enclosed plastic case, it also protects the electronic components against dust and moisture and makes it use-able in harsh locations.

Efficiency of ELN-30 is as high as 87% and hence can operate between -20 ~ +60°C by only free air convection. Standard functions include adjustable output voltage/current level (through internal VRs), short circuit, over load, and over voltage protections. Dimming control by 1~10VDC or PWM signal is also available as the optional function for users who want to adjust the level of output current (brightness of LEDs) by external control signals. Typical applications for these new Class 2 power units include moving signs and backlighting, LED-based decorative/architectural lighting, LED stage and theater lighting, and LED electronic displays.

Model No	ELN-30	ELN-60
AC Input voltage range	90~264VAC	
AC Inrush current (max.)	Cold Start 60A @ 230VA	
DC adjustment range	± 10% rated output voltage	
Overload protection	95%~110% Constant current limiting, auto recovery	95%~130% Constant current limiting, auto recovery
Overload Protection	Range	115%~135% rated output voltage
	Type	Shut off, AC recycle to re-start
Withstand Voltage	I/P-O/P: 3KVAC	
Working Temperature	-20°C~+60°C (refer to output derating curve)	
Safety standards	Design refer to UL 1310 class 2, TUV EN60950-1, EN61347-2-13	
EMC Standards	EN55022 class B, EN6100-3-2,3, EN61000-4-2,3,4,5,6,8,11, ENV50204	
Connection	Input / Output: UL rated, 18AWG x 2C (30cm); Output (with optional dimming function): 18AWGx4C(30cm)	
Dimensions	145 x 47 x 30mm	181 x 61.5 x 35

Features

- Universal AC input / Full range
- Fully isolated plastic case with IP64 level
- Protections: Short circuit / Overload / Over voltage
- Over temperature protection
- Built-in constant current limiting circuit with adjustable OCP level
- Optional dimming function: 1~10VDC (D type) or PWM (P type) controlled
- UL1310 Class 2 power unit
- 100% Full load burn-in test
- Low cost high reliability
- Suitable for LED lighting and moving sign applications



Through the dimming function, the output current of the ELN series can be adjusted to reduce the energy consumption or adjust the brightness of LEDs connecting to it. Two kinds of control signals are accepted: 1~10VDC (D-type option) or PWM signal (P-Type) option.

30W (Adjustable OCP level)

OCP=Output current protection

Model No	Output	Tolerance	Ripple and Noise	Efficiency
ELN-30-5	5V,0~5.0A	± 5%	80mV	75%
ELN-30-9	9V,0~3.4A	± 5%	100mV	80%
ELN-30-12	12V,0~2.5A	± 5%	120mV	82%
ELN-30-15	15V,0~2.0A	± 5%	120mV	82%
ELN-30-24	24V,0~1.25A	± 5%	150mV	85%
ELN-30-27	27V,0~1.12A	± 5%	150mV	85%
ELN-30-48	48V,0~0.63A	± 5%	250mV	87%

60W (Adjustable OCP level)

Model No	Output	Tolerance	Ripple and Noise	Efficiency
ELN-60-9	9V,0~5.0A	± 5%	120mV	82%
ELN-60-12	12V,0~5.0A	± 5%	120mV	85%
ELN-60-15	15V,0~4.0A	± 5%	150mV	86%
ELN-60-24	24V,0~2.5A	± 5%	150mV	87%
ELN-60-27	27V,0~2.3A	± 5%	200mV	87%
ELN-60-48	48V,0~1.3A	± 5%	250mV	88%

PLN/PLC SERIES (IP64) Adjustable Volts & Amps

30~96W Single output CLASS 2 power unit

Description

PLN-30 series – 30W AC/DC enclosed type switching power supply with active PFC function. These limited power sources comply with UL 1310 class 2 which ensures that under any situation the output power will be less than 100VA or 5A. This will significantly reduce the hazardous condition exposed to the technicians who execute the construction or maintenance of the LED lighting system. The IP64 enclosure design can protect the electronic components against from dust and moisture that makes them usable in indoor or outdoor locations.

Thanks to the simplified single stage PFC topology, the required high power factor as well as the class C harmonic level for the lighting industry can be achieved economically. Efficiency of PLN-30 series are as high as 86% and hence can operate between -30 ~ +50°C by only free air convection inside the fully covered plastic enclosure. Standard functions include short circuit, over load, over voltage, and over temperature protections. Besides, the adjustable output voltage and current level the unit enables the fine tune of the PSU to comply with the requirement of LED characteristics. Typical applications for these new Class 2 power units include small scale moving signs, backlighting, LED-based decorative / architectural lighting, LED stage and theater lighting, and LED electronic displays.



- Universal AC input / Full range
- Fully isolated plastic case with IP64 level
- Protections: Short circuit / Overload / Over voltage
- Over temperature protection
- Built-in constant current limiting circuit
- User adjustable output voltage and current protection level
- UL1310 Class 2 power unit
- 100% Full load burn-in test
- Low cost high reliability
- Suitable for LED lighting and moving sign applications
- PLC-100 with screw terminal type I/O connection

Model No	Output	Tolerance	Ripple and Noise	Efficiency
PLN-30-9	9V,0~3.3A	± 10%	2.6V	80%
PLN-30-12	12V,0~2.5A	± 10%	2.0V	83%
PLN-30-15	15V,0~2.0A	± 10%	2.6V	84%
PLN-30-20	20V, 0~1.5A	± 10%	2.0V	84%
PLN-30-24	24V,0~1.25A	± 10%	2.6V	85%
PLN-30-27	27V,0~1.12A	± 10%	2.3V	85%
PLN-30-36	36V,0~0.84A	± 10%	4.5V	86%
PLN-30-48	48V, 0~0.63A	± 10%	3.7V	86%

Model No		PLN-30	PLN-60	PLN-100
AC Input voltage range		90~264VAC		
AC Inrush current (max.)		Cold Start 40A @ 230VA		
DC adjustment range		±10% rated output voltage adjustable by internal potential meter		0%~-15% rated output voltage
Current adjustment range		3%~-25% rated output current adjustable by internal potential meter		
Overload Protection	Range	110%~120% constant current limiting	<130% constant current limiting	95%~100% constant current limiting
	Type	auto-recovery	auto-recovery	auto recovery
Over voltage protection		110%~155% rated output voltage	115%~140% rated output voltage	107%~135% rated output voltage
Setup, rise, hold up time		1500ms, 150ms at full load and 230VAC, no hold up time	1500ms, 100ms at full load and 230VAC, no hold up time	1200ms, 80ms, 60ms up time at full load AND 230VAC
Withstand Voltage		I/P-O/P: 3KVAC	I/P-O/P: 4.25KVDC	
Working Temperature		-30°C~+50°C (refer to output derating curve)		
Safety standards		UL 1310 class 2, CAN/CSA-C22.2 No.223-M91, EN61347-1, EN61347-2-13		
EMC Standards		EN55015, EN55022 Class B(PLN-60/100 only), EN61000-3-2,3,EN61000-4-2,3,4,5,6,8,11, ENV50204, EN61547		
Connection	Input	Input / Output: UL rated, 18AWG x 2C (30cm)		UL rated, 18AWG x 3C (30cm) (PLN-60/100)
	Output			UL rated, 18AWG x 2C (30cm) (PLN-60/100)
Dimensions / Weight		145 x 47 x 30mm / 0.22kg	181 x 61.5 x 35 / 0.5kg	200 x 70.5 x 35 / 0.52kg

Model No	Output	Tolerance	Ripple and Noise	Efficiency
PLN-60-12	12V,0~5.0A	±5%	2.0V	83%
PLN-60-15	15V,0~4.0A	±5%	2.6V	84.5%
PLN-60-20	20V, 0~3.0A	±5%	2.0V	86.5%
PLN-60-24	24V,0~2.5A	±5%	2.6V	87%
PLN-60-27	27V,0~2.3A	±5%	2.3V	87%
PLN-60-36	36V,0~1.7A	±5%	4.5V	87%
PLN-60-48	48V, 0~1.3A	±5%	3.7V	88%

Model No	Output	Tolerance	Ripple and Noise	Efficiency
PLN-100-12	12V,0~5.0A	±3%	150mV	83%
PLN-100-15	15V,0~5.0A	±3%	150mV	85%
PLN-100-20	20V, 0~4.8A	±3%	150mV	87%
PLN-100-24	24V,0~4.0A	±3%	150mV	87%
PLN-100-27	27V,0~3.55A	±3%	150mV	87%
PLN-100-36	36V,0~2.65A	±3%	150mV	87%
PLN-100-48	48V, 0~2.0A	±3%	200mV	88%

CLG SERIES (IP65/IP67 - OCP Adjustable)

60~240W Single output CLASS 2 power unit

Description

CLG-150 series are 150W high IP rated AC/DC products for the growing demands of larger scale LED lighting related applications. With wide range input 90~280VAC, the CLG-150 series also possesses active PFC function complying with EN61000-3-2 (harmonic current) class C for > 50% of output rated loading fulfills the requirement of typical lighting applications. The most important feature for CLG-150 is the user adjustable output voltage and current levels. Keeping IP65/67 high protection level against dust and moisture, users still can adjust Io (and Vo) by removing the rubber stopper on the case (A,C type) or through the output signal cable (B type) which is often requested by LED system integrators.

Efficiency of CLG-150 are as high as 90% and hence can operate -30°C up to +70°C by only free air convection. Standard functions include short circuit, over load, over voltage, and over temperature protections. Three types of mechanical design (A, B, C type) can be chosen and users can select the most suitable I/O connection style (cable or terminal block). Typical applications include general outdoor usage, LED streetlamps, midscale moving signs and backlighting. LED stage and theater lighting.

Features

- Universal AC input / Full range.
- Built-in active PFC function.
- IP67 / IP65 design.
- Protections: Short circuit / Overload / Over voltage.
- Over temperature protection).
- OCP point adjustable through output cable or internal potential meter. (CLG-150 / 240).
- UL1310 class 2 power unit (CLG-60&100).
- Optional Model for CLG-150 /240:
 A-Type: IP65 rated. Output and constant current level can be adjusted through internal potential meter.
 B-Type: IP67 rated and constant current level adjustable through output cable (optional).
 C-Type: Terminal block I/O connection (optional).



Type A: IP65

Type B: IP67 (Constant current level adjustable)

Model No	Output	Tolerance	Ripple and Noise	Efficiency
CLG-60-12	12V,0~5.0A	±10%	2.0V	83%
CLG-60-15	15V,0~4.0A	±10%	2.6V	84.5%
CLG-60-20	20V, 0~3.0A	±10%	2.0V	86.5%
CLG-60-24	24V,0~2.5A	±10%	2.6V	86.5%
CLG-60-27	27V,0~2.3A	±10%	2.3V	87%
CLG-60-36	36V,0~1.7A	±10%	4.5V	87%
CLG-60-48	48V, 0~1.3A	±10%	3.7V	88%

Model No	Output	Tolerance	Ripple and Noise	Efficiency
CLG-100-12	12V,0~5.0A	±5%	150mV	83%
CLG-100-15	15V,0~5.0A	±5%	150mV	85%
CLG-100-20	20V, 0~4.8A	±5%	150mV	87%
CLG-100-24	24V,0~4.0A	±5%	150mV	87%
CLG-100-27	27V,0~3.55A	±5%	150mV	87%
CLG-100-36	36V,0~2.65A	±5%	150mV	87%
CLG-100-48	48V, 0~2.0A	±5%	200mV	87%



Type C: Terminal Block

Model No	Output	Tolerance	Ripple and Noise	Efficiency
CLG-150-12	12V,0~11A	±2%	150mV	88%
CLG-150-15	15V,0~9.5A	±2%	150mV	88%
CLG-150-20	20V, 0~7.5A	±1%	150mV	90%
CLG-150-24	24V,0~6.3A	±1%	150mV	90%
CLG-150-30	30V,0~5.0A	±1%	150mV	90%
CLG-150-36	36V,0~4.2A	±1%	150mV	89%
CLG-150-48	48V, 0~3.2A	±1%	200mV	90%

Model No	Output	Tolerance	Ripple and Noise	Efficiency
CLG-240-12	12V,0~18.0A	±2%	150mV	91%
CLG-240-15	15V,0~15.0A	±2%	150mV	92%
CLG-240-20	20V, 0~12A	±1%	150mV	93%
CLG-240-24	24V,0~10A	±1%	150mV	93%
CLG-240-30	30V,0~8A	±1%	150mV	93%
CLG-240-36	36V,0~6.7A	±1%	150mV	93%
CLG-240-48	48V, 0~5.0A	±1%	200mV	93%