UE Electronic

100W Single Output LED Driver

UEL100 series

■ Features：

. Universal AC input / Full range (up to 305VAC)
. Protections：Short circuit / Overload / Over voltage / Over temperature
. Built-in active PFC function
. Cooling by free air convection
. OCP point adjustable through output cable or internal potential meter
. Suitable for LED lighting and moving sign applications
. Design for indoor installation
. Compliance to worldwide safety regulations for lighting
. 3 years warranty

UEL100-SXXXV/CYYY-D1 Serie

D Type: Output voltage and constant current level can be adjusted through internal potential meter.

SPECIFICATION

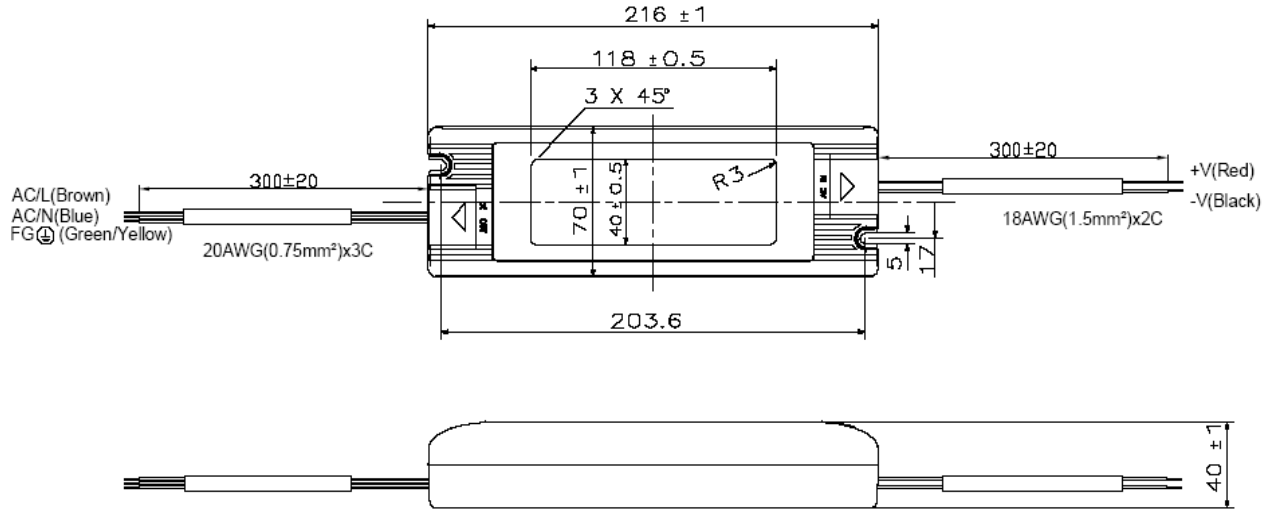
MODEL		S012V/C833	S024V/C417	S036V/C278	S042V/C238	S048V/C208	S052V/C192	S054V/C185
OUTPUT	DC VOLTAGE	12V	24V	36V	42V	48V	52V	54V
	CANSTANT CURRENT REGION Note.4	6～12V	12～24V	18～36V	21～42V	24～48V	26～52V	27～54V
	RATED CURRENT	8.33A	4.17A	2.78A	2.38A	2.08A	1.92A	1.85A
	RATED POWER	100W	100W	100W	100W	99.8W	99.8W	100W
	RIPPLE & NOISE (max.) Note.2	150mVp-p	200mVp-p	200mVp-p	300mVp-p	300mVp-p	300mVp-p	300mVp-p
	VOLTAGE TOLERANCE Note.3	±2.5%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±2.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP. RISE TIME Note.9	2500ms, 80ms at full load 230VAC / 115VAC						
	HOLD UP TIME(Typ.)	15ms at full load 230VAC / 115VAC						
INPUT	VOLTAGE RANGE Note.5	90～305VAC 127～431VDC						
	FREQUENCY RANGE	47～63Hz						
	POWER FACTOR	PF≥0.95/230VAC PF≥0.98/115VAC at full load rated output voltage PF≥0.9 at 65～100% load						
	EFFICIENCY (Typ.)	91%	93%	93%	93%	93%	93%	93%
	AC CURRENT	2.0A / 115VAC 1.5A / 230VAC						
	INRUSH CURRENT(Typ.)	COLD STARD 75A / 230VAC						
	LEAKAGE CURRENT	<0.75mA / 277VAC						
PROTECTION	OVER CURRENT Note.4	90～108%						
		Protection type : Constant current limiting, recovers automatically after fault condition is removed						
	SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed.						
	OVER VOLTAGE	13.5～16V	26～33V	40～48V	46～50V	53～62V	59～65V	61～68V
		Protection type : Shut down and latch off o/p voltage, re-power on to recover						
	OVER TEMPERATURE	105℃±5℃（TSW1）						
		Protection type : Shut down o/p voltage, recovers automatically after temperature goes down						
VIRONMENT	WORKING TEMP.	0～+40℃@ full load (Refer to derating curve)						
	WORKING HUMIDITY	20～90% RH non-condensing						
	STORAGE TEMP.,HUMIDITY	40～+80℃, 10～95% RH						
	TEMP.COEFFICIENT	±0.03%/℃(0～50℃)						
	VIBRATION	10～500Hz 5G 12min ./1 cycle,period for 72 min. each along X,Y,Z axes						
SAFETY & EMC	SAFETY STANDARDS Note.8	UL1012; EN61347-1, EN61347-2-13 independent ; UL60950-1,TUV EN60950-1						
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC I/P-FG:1.88KVAC O/P-FG:0.5KVAC						
	ISOLATION RESISTANCE	I/P-O/P,I/P-FG,O/P-FG:100M Ohms/500VDC/25℃/70%RH						
	EMI CONDUCTION & RADIATION	Compliance to EN55015,EN55022(CISPR22) Class B						
	HARMONIC CURRENT	Compliance to EN61000-3-2 Class C(≥50% load);EN61000-3-3						
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11;ENV50204,EN61547,EN55024,heavy industry lever(surge 4KV),criteria A						
OTHERS	MTBF	207.9Khrs min. MIL-HDBK-217F(25℃)						
	DIMENSION	216*70*40mm (L*W*H)(UEL100-SXXXV/CYYY-D1)						
	PACKING	0.45Kg; 12pcs/5.4Kg (UEL100-SXXXV/CYYY-D1)						

NOTE

1.All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.
2.Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3.Tolerance : includes set up tolerance, line regulation and load regulation.
4.Constant current operation region is within 50%～100% rated output voltage. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.
5.Derating may be needed under low input voltages. Please check the derating curve for more details.
6.Type D only.
7.Please refer to OLP characteristics.
8.Safety and EMC design refer to EN60598-1, subject 8750(UL),CNS15233,GB7000.1 FCC part18.
9.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.
10.The power supply 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.

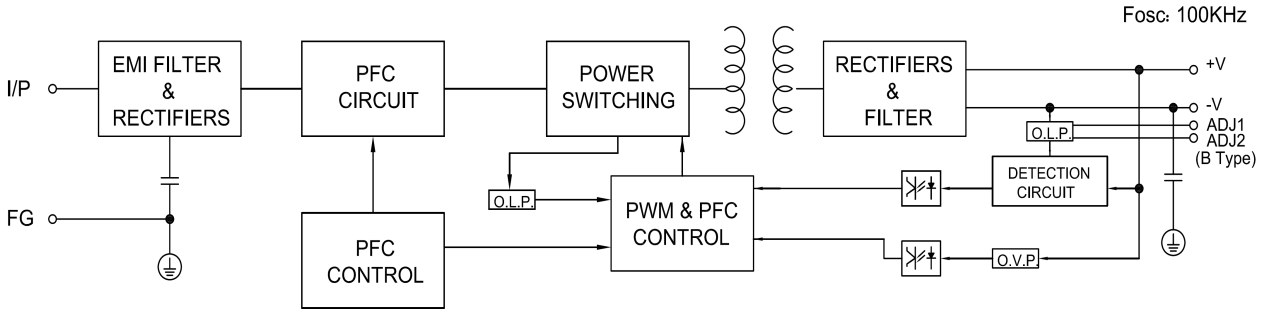
■Mechanical Specification

D-Type: (UEL100-SXXXV/CYYY-D1)

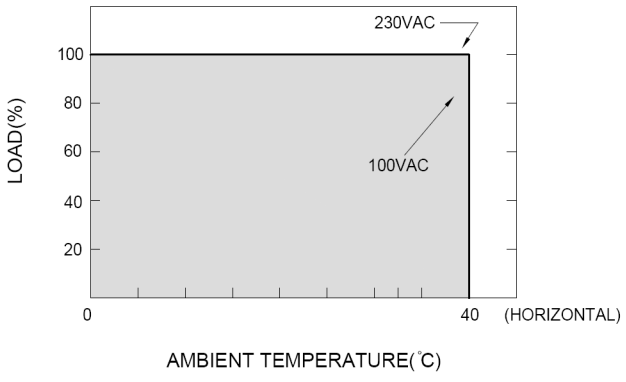


※ Cable for I/O connection.

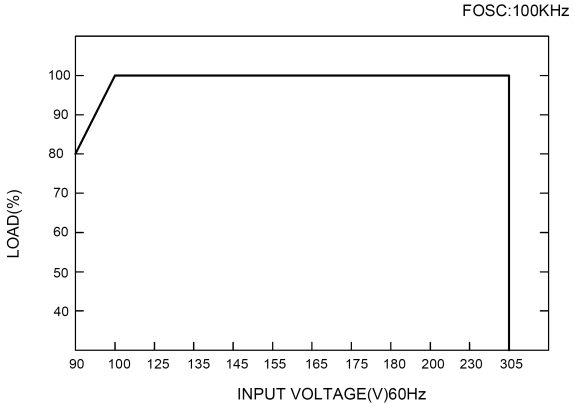
■Block Diagram



■Derating Curve

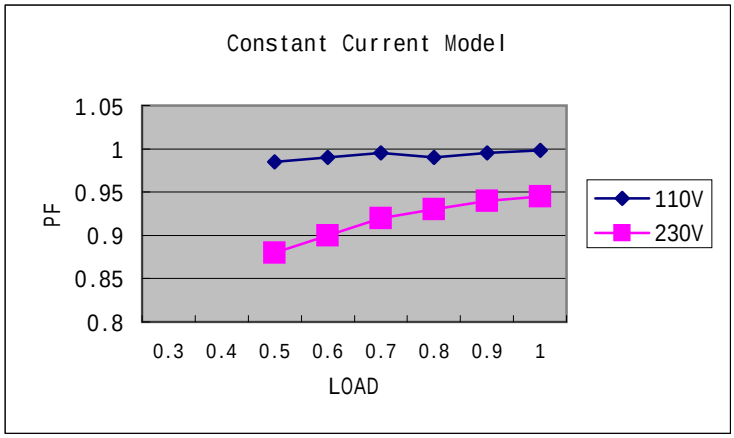


■Static Characteristics



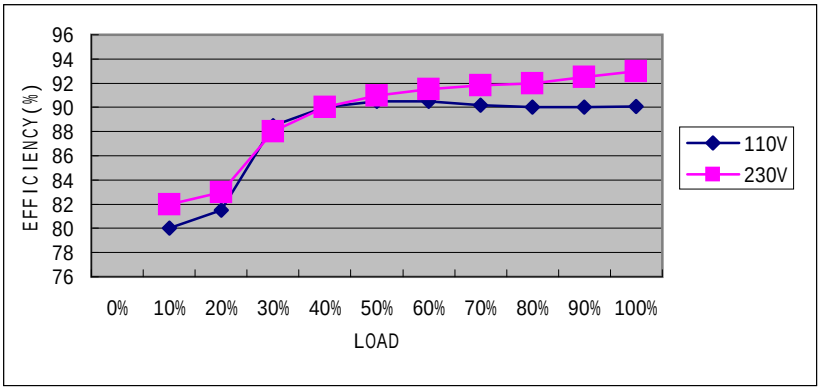
■Power Factor Characteristic

Power factor will be higher than 0.9 when output loading is 65% or higher.



■Efficiency vs Load(48v Model)

UEL100 series possess superior working efficiency that up to 93% can be reached in field applications.

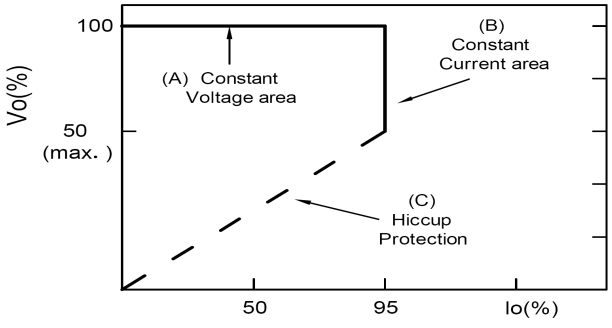


■Driving Methods of Led Module

There are tow major kinds of LED drive method "direct drive" and "with LED driver".

A typical LED power supply may either work in "constant voltage mode (CV) or constant current mode (CC)" to drive the LEDs.

LED power supply with CV+CC characteristic can be operated at both CV mode (with LED driver,at area (A) and CC mode (driver, at area (B).

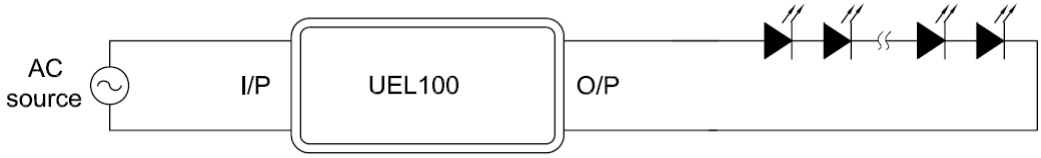


Typical LED power supply I-V curve

◎**Direct driving :**

Under direct driving, the power supply will work in "constant current mode (CC)" and output voltage of the power supply will be clamped by sum of forward voltage (Vf) of the LED strip.

The total forward voltage of series connecting LEDs is suggested for 75%～95% of power supply rated output voltage due to concern of the best PF value and efficiency.

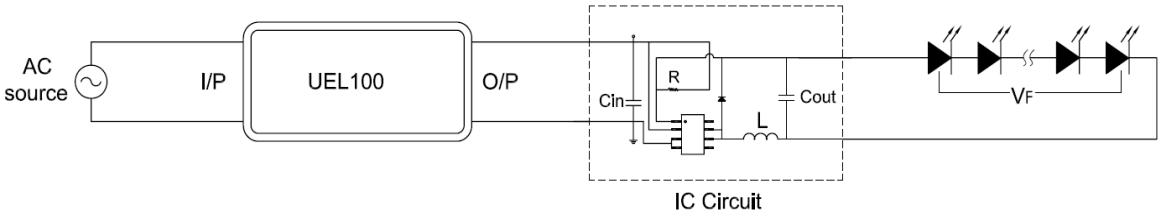


◎**With LED driver :**

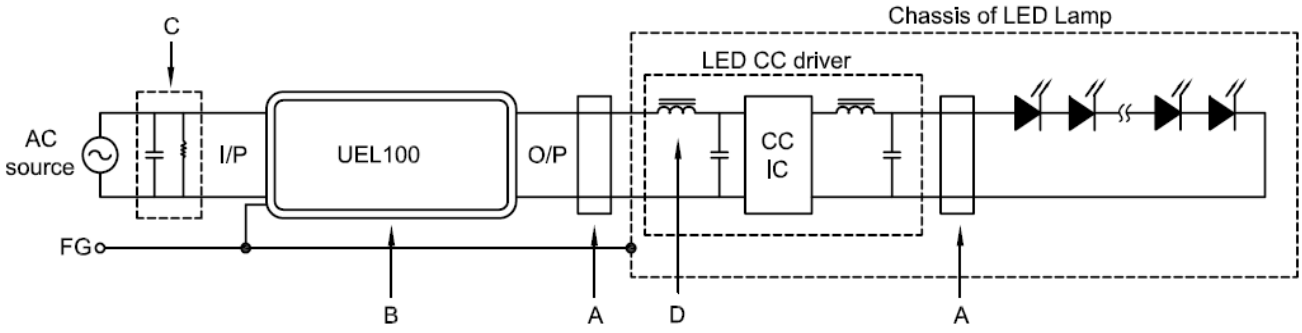
Using additional driver, the power supply will work in "constant voltage mode (CV)" and output voltage of the power supply will be kept in rated value.In this driver mode, several design issues need to be considered:

1.Output voltage of PSU must be higher than total forward voltage of series connecting LEDs by 3V minimum.

2.Input capacitor (Cin) of LED driver circuit should use 2.2uF ～22uF(typ.) of rating depends on the operating frequency of the LED driver. The higher the operating frequency is used, the smaller value of Cin should be chosen, and vice versa.



■EMI Debug Suggestion



A. Add a common moed ferrite choke on output wires to reduce the common emission between 10M～ 300MHz per lighting EMI regulation.

B.Chassis of LED lamp and chassis of UEL100 of the FG wire shouled be connected to the safety ground to reduce the EMI noise. Including the conduction and radiation emission.

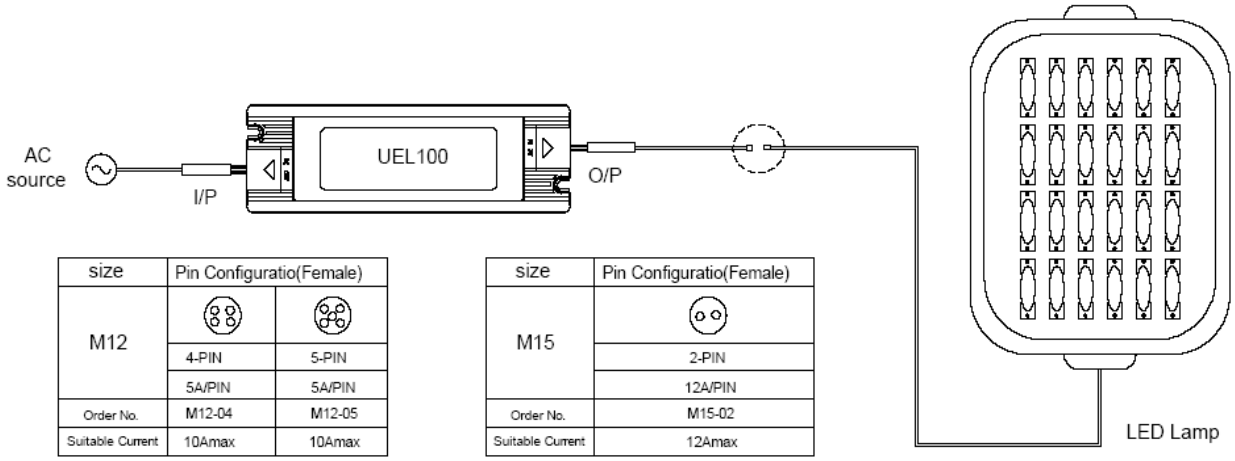
C.The additional X-Cap and discharge resistor can reduce the low frequency conduction noise between 9K-1MHz per lighting EMI regulation.

D.L-C filter should be added at the DC input of LED constant current driver to avoid the differential emission and high frequency noise generated by the CC driver.

■Waterproof Connection

◎ Waterproof connector

Waterproof connector can be assembled on the output cable of UEL100 to operate in wet/damp or outdoor environment.



size	Pin Configuratio(Female)	
M12		
	4-PIN	5-PIN
	5A/PIN	5A/PIN
Order No.	M12-04	M12-05
Suitable Current	10Amax	10Amax

size	Pin Configuratio(Female)
M15	
	2-PIN
	12A/PIN
Order No.	M15-02
Suitable Current	12Amax

◎ Cable joiner