



- Features :
 - Universal AC input / Full range (up to 305VAC)
 - Built-in active PFC function
 - Protections: Short circuit / Over current / Over voltage / Over temperature
 - Cooling by free air convection
 - OCP point adjustable through output cable or internal potentiometer
 - IP64 design for indoor or outdoor installations
 - Three in one dimming function (1~10Vdc or PWM signal or resistance)
 - Suitable for LED lighting and moving sign applications
 - Compliance to worldwide safety regulations for lighting
 - Suitable for dry / damp locations or outdoor application
 - 3 years warranty



HLN-40H-12 **A** : IP64 rated. Output voltage and constant current level can be adjusted through internal potentiometer.
B : IP64 rated. Constant current level adjustable through output cable with 1~10Vdc or 10V PWM signal or resistance.

SPECIFICATION

MODEL		HLN-40H-12	HLN-40H-15	HLN-40H-20	HLN-40H-24	HLN-40H-30	HLN-40H-36	HLN-40H-42	HLN-40H-48	HLN-40H-54
OUTPUT	DC VOLTAGE	12V	15V	20V	24V	30V	36V	42V	48V	54V
	CONSTANT CURRENT REGION Note.4	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	3.33A	2.67A	2A	1.67A	1.34A	1.12A	0.96A	0.84A	0.75A
	RATED POWER	40W	40W	40W	40.1W	40.2W	40.3W	40.3W	40.3W	40.5W
	RIPPLE & NOISE (max.) Note.2	150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p	300mVp-p	300mVp-p	300mVp-p
	VOLTAGE ADJ. RANGE Note.6	10.8 ~ 13.5V	13.5 ~ 17V	17 ~ 22V	22 ~ 27V	27 ~ 33V	33 ~ 40V	40 ~ 46V	44 ~ 53V	49 ~ 58V
	CURRENT ADJ. RANGE	Can be adjusted by internal potentiometer or through output cable								
		2 ~ 3.33A	1.6 ~ 2.67A	1.2 ~ 2A	1 ~ 1.67A	0.8 ~ 1.34A	0.67 ~ 1.12A	0.58 ~ 0.96A	0.5 ~ 0.84A	0.45 ~ 0.75A
	VOLTAGE TOLERANCE Note.3	±2.5%	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%	±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 Note.7	1500ms, 80ms / 115VAC at full load 1000ms, 80ms / 230VAC at full load								
	HOLD UP TIME (Typ.)	16ms/230VAC 16ms/115VAC at full load								
INPUT	VOLTAGE RANGE Note.5	90 ~ 305VAC 127 ~ 431VDC								
	FREQUENCY RANGE	47 ~ 63Hz								
	POWER FACTOR (Typ.)	PF>0.97/115VAC, PF>0.95/230VAC, PF>0.92/277VAC at full load (Please refer to "Power Factor Characteristic" curve)								
	EFFICIENCY (Typ.)	86.5%	86.5%	87.5%	88%	88.5%	88.5%	88.5%	89%	89%
	AC CURRENT (Typ.)	0.43A / 115VAC 0.24A / 230VAC 0.23A / 277VAC								
	INRUSH CURRENT(Typ.)	COLD START 70A/230VAC								
PROTECTION	LEAKAGE CURRENT	<0.75mA / 277VAC								
	OVER CURRENT Note.4	95 ~ 108%								
		Protection type : Constant current limiting, recovers automatically after fault condition is removed								
	OVER VOLTAGE	12 ~ 21V	18 ~ 24V	23 ~ 30V	28 ~ 35V	35 ~ 43V	41 ~ 49V	48 ~ 58V	54 ~ 63V	59 ~ 68V
ENVIRONMENT		Protection type : Shut down o/p voltage, re-power on to recover								
	OVER TEMPERATURE	70°C ±10°C (RTH2)								
		Protection type : Shut down o/p voltage, re-power on to recover								
	WORKING TEMP.	-40 ~ +50°C (Refer to "Derating Curve")								
SAFETY & EMC	WORKING HUMIDITY	20 ~ 95% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-40 ~ +80°C, 10 ~ 95% RH								
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 40°C)								
	VIBRATION	10 ~ 500Hz, 2G 12min./1cycle, period for 72min. each along X, Y, Z axes								
OTHERS	SAFETY STANDARDS	UL8750, CSA C22.2 No. 250.0-08 (except for 48V, 54V), EN61347-1, EN61347-2-13 independent ; IP64 approved ; Design refer to UL60950-1, TUV EN60950-1, EN60335-1								
	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°C / 70% RH								
	EMC EMISSION	Compliance to EN55015, EN61000-3-2 Class C (≥ 60% load) ; EN61000-3-3								
NOTE	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN61547, EN55024, light industry level (surge 4KV), criteria A								
	MTBF	336.5Khrs min. MIL-HDBK-217F (25°C)								
	DIMENSION	161*61.5*35mm (L*W*H)								
PACKING		0.35Kg/32pcs/12.2Kg/1.10CUFT								

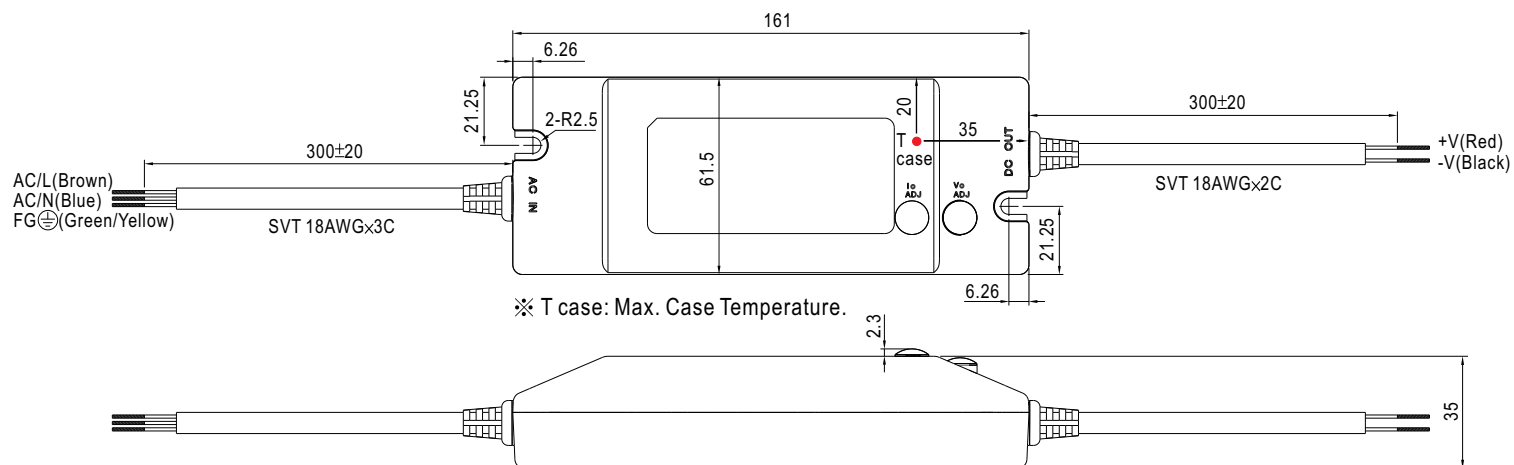
- All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
- Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
- Tolerance : includes set up tolerance, line regulation and load regulation.
- Constant current operation region is within 60% ~ 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.
- Derating may be needed under low input voltages. Please check the static characteristics for more details.
- Type A only.
- 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.
- 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

Case No.HLN-60A

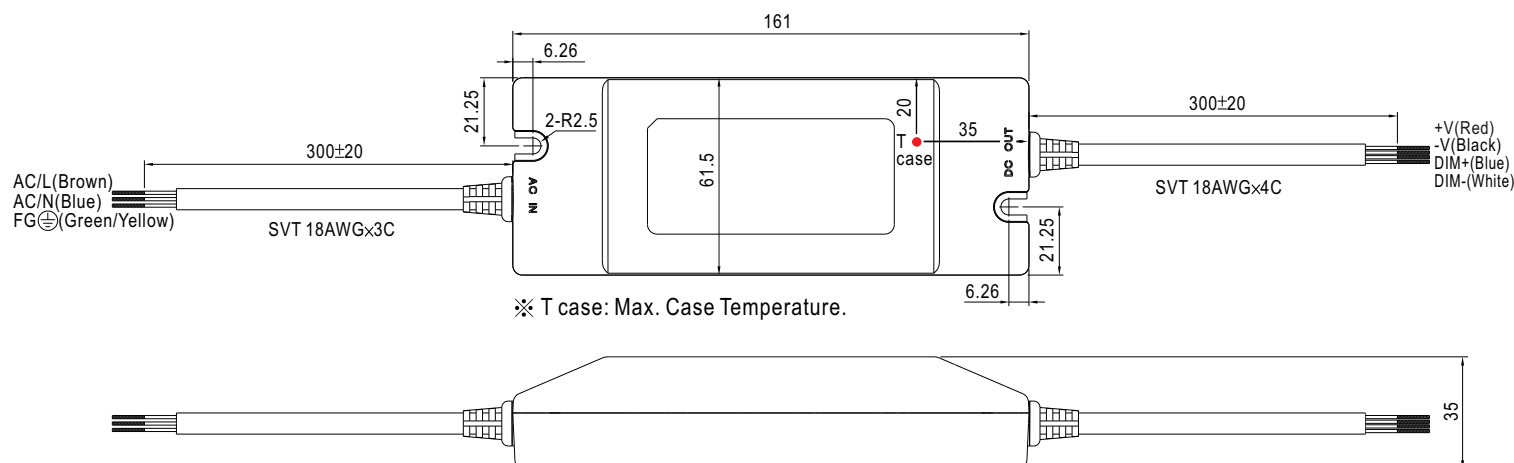
Unit:mm

A Type:(HLN-40H-_A)



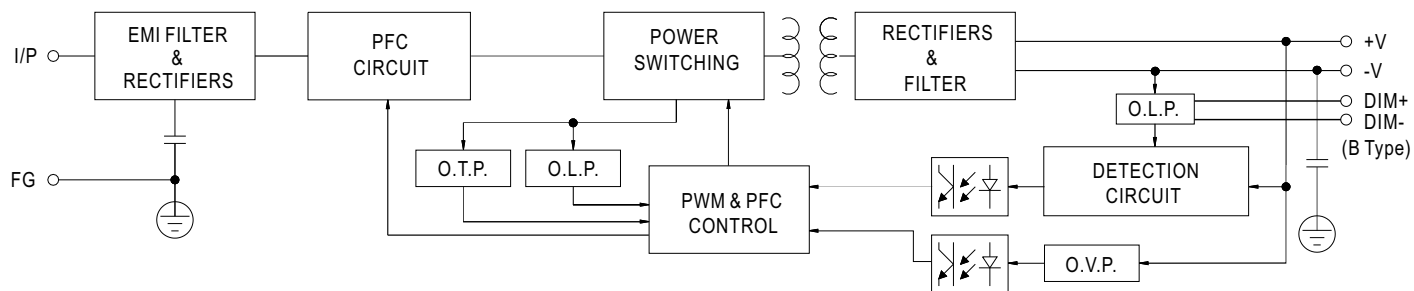
※IP64 rated. Output voltage and constant current level can be adjusted through internal potentiometer.
(can access by removing the rubber stopper on the case).

B Type:(HLN-40H-_B)

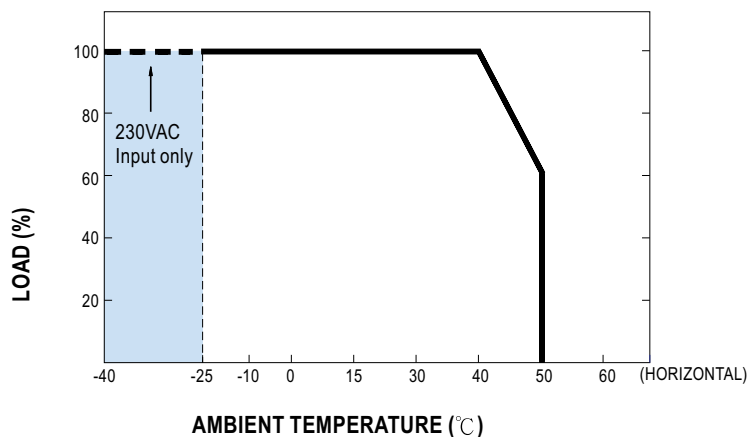


Block Diagram

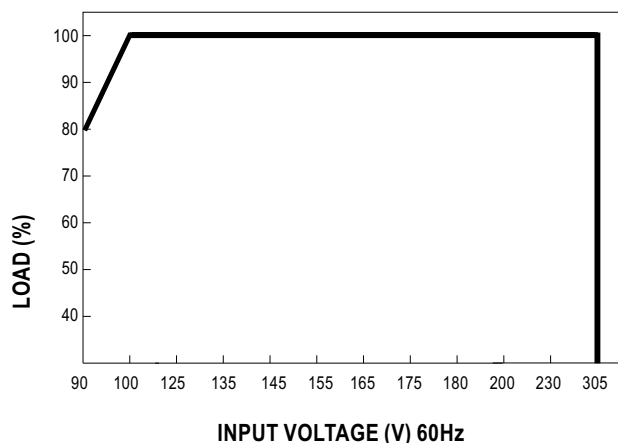
fosc : 100KHz



Derating Curve

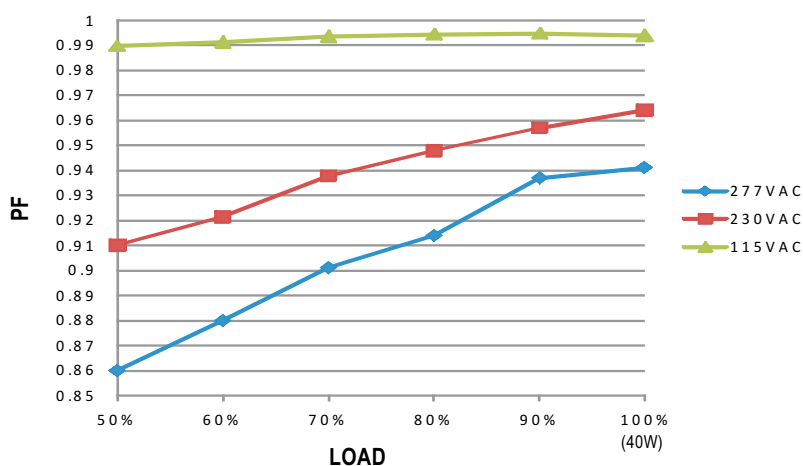


Static Characteristics



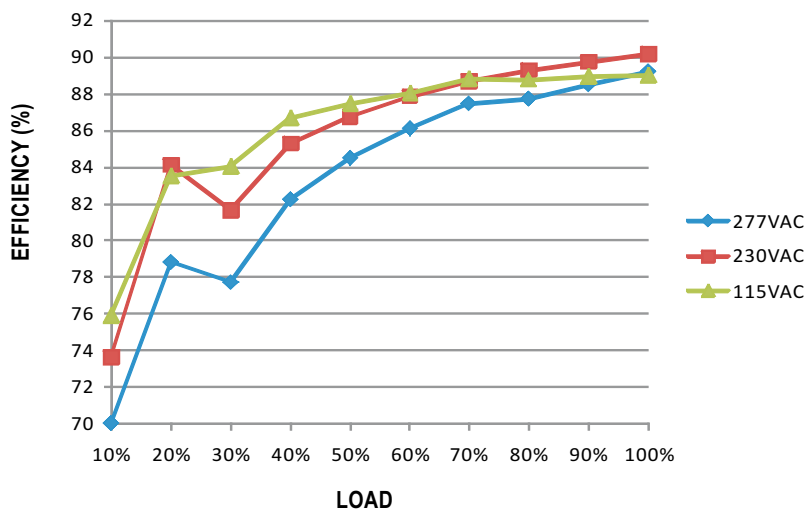
Power Factor Characteristic

Constant Current Mode



EFFICIENCY vs LOAD (48V Model)

HLN-40H series possess superior working efficiency that up to 89% can be reached in field applications.

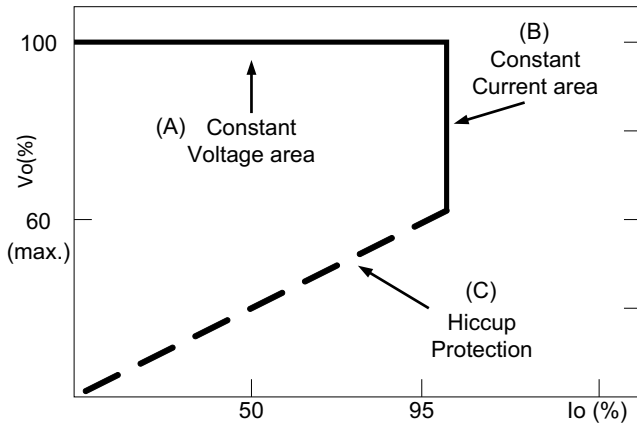


DRIVING METHODS OF LED MODULE

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

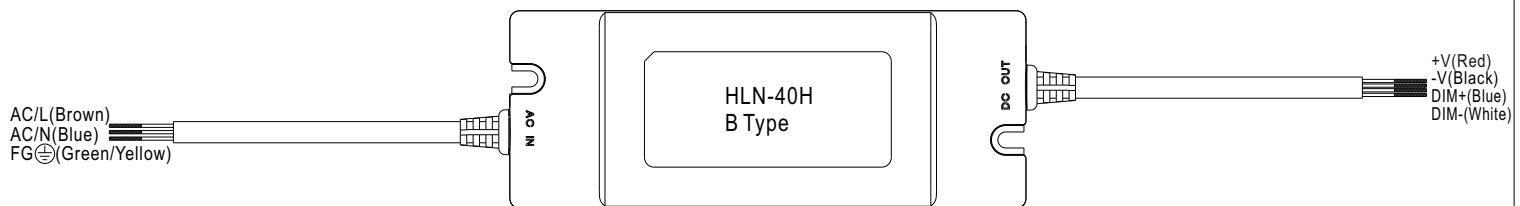
A typical LED power supply may either work in "constant voltage mode (CV) or constant current mode (CC)" to drive the LEDs.

Mean Well's LED power supply with CV+ CC characteristic can be operated at both CV mode (with LED driver, at area (A) and CC mode (direct drive, at area (B)).



Typical LED power supply I-V curve

DIMMING OPERATION(for B-type only)



※ V_o and I_o can not be adjusted (B type)

※ Built-in 3 in 1 dimming function, IP64 rated. Output constant current level can be adjusted through output cable by connecting a resistance or 1 ~ 10Vdc or 10V PWM signal between DIM+ and DIM-.

※ Please DO NOT connect "DIM-" to "-V".

※ Reference resistance value for output current adjustment (Typical)

Resistance value	Single driver	10K Ω	20K Ω	30K Ω	40K Ω	50K Ω	60K Ω	70K Ω	80K Ω	90K Ω	100K Ω	OPEN
	Multiple drivers (N=driver quantity for synchronized dimming operation)	10K Ω /N	20K Ω /N	30K Ω /N	40K Ω /N	50K Ω /N	60K Ω /N	70K Ω /N	80K Ω /N	90K Ω /N	100K Ω /N	-----
Percentage of rated current		10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~105%

※ 1 ~ 10V dimming function for output current adjustment (Typical)

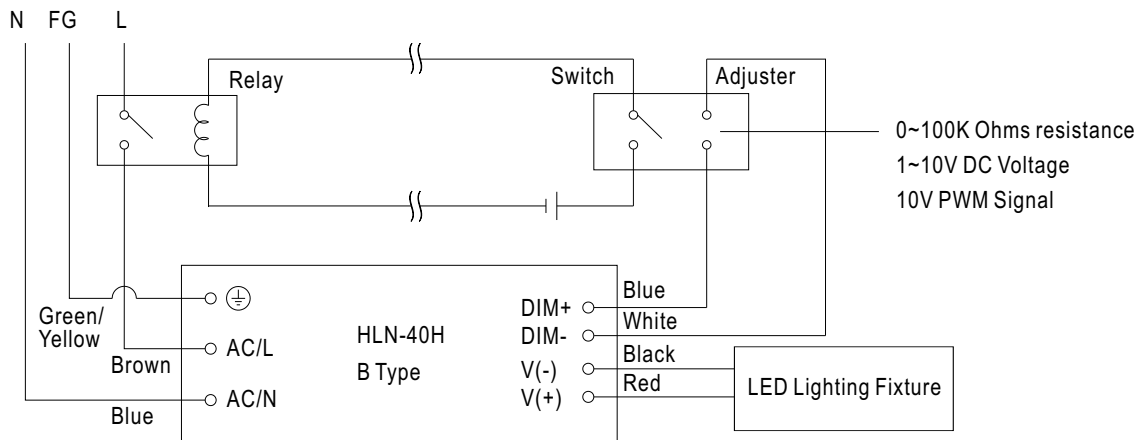
Dimming value	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
Percentage of rated current	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~105%

※ 10V PWM signal for output current adjustment (Typical): Frequency range:100Hz ~ 3KHz

Duty value	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN
Percentage of rated current	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~105%

※Using the built-in dimming function on B-type model can't turn the lighting fixture totally dark. Please refer to the connection method below to achieve 0% brightness of the lighting fixture connecting to the LED power supply unit.

Dimming connection diagram for turning the lighting fixture ON/OFF :



Using a switch and relay can turn ON/OFF the lighting fixture.

1. Output constant current level can be adjusted through output cable by connecting a resistance or 1~10Vdc or 10V PWM signal between DIM+ and DIM-.
2. The LED lighting fixture can be turned ON/OFF by the switch.