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Datasheet

Dimmable Constant Voltage LED Driver 60W 20V 3A RS HLN-60H-20A

RS Stock number 738-2182



■ Features :

- Universal AC input / Full range (up to 305VAC)
- Built-in active PFC function
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- OCP point adjustable through output cable or internal potential meter
- 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 location or outdoor application

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SPECIFICATION

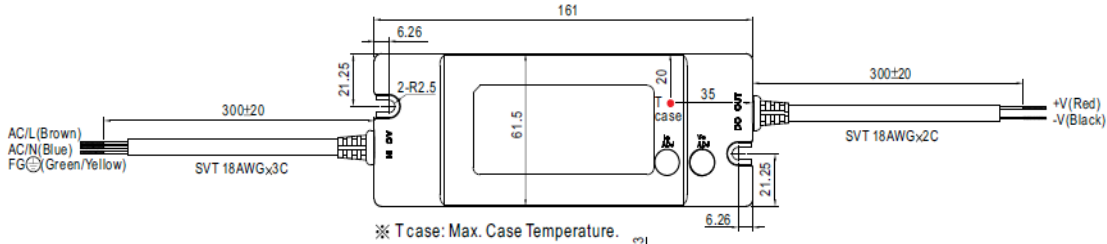
MODEL		HLN-60H-15	HLN-60H-20	HLN-60H-24	HLN-60H-30	HLN-60H-36	HLN-60H-42	HLN-60H-48	HLN-60H-54	
OUTPUT	DC VOLTAGE	15V	20V	24V	30V	36V	42V	48V	54V	
	CONSTANT CURRENT REGION <small>Note.4</small>	9 ~ 15V	12 ~ 20V	14.4 ~ 24V	18 ~ 30V	21.6 ~ 36V	25.2 ~ 42V	28.8 ~ 48V	32.4 ~ 54V	
	RATED CURRENT	4A	3A	2.5A	2A	1.7A	1.45A	1.3A	1.15A	
	RATED POWER	60W	60W	60W	60W	61.2W	60.9W	62.4W	62.1W	
	RIPPLE & NOISE (max.) <small>Note.2</small>	150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p	300mVp-p	300mVp-p	300mVp-p	
	VOLTAGE ADJ. RANGE <small>Note.6</small>	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 potential meter or through output cable								
		2.4 ~ 4A	1.8 ~ 3A	1.5 ~ 2.5A	1.2 ~ 2A	1 ~ 1.7A	0.87 ~ 1.45A	0.78 ~ 1.3A	0.69 ~ 1.15A	
	VOLTAGE TOLERANCE <small>Note.3</small>	±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%	
	LOAD REGULATION	±1.5%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	
SETUP, RISE TIME <small>Note.7</small>	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 <small>Note.5</small>	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.)	88%	89%	90%	90%	90%	91%	91%	91%	
	AC CURRENT (Typ.)	0.64A / 115VAC		0.32A / 230VAC		0.3A / 277VAC				
	INRUSH CURRENT(Typ.)	COLD START 70A/230VAC								
	LEAKAGE CURRENT	<0.75mA/277VAC								
PROTECTION	OVER CURRENT <small>Note.4</small>	95 ~ 108% Protection type : Constant current limiting, recovers automatically after fault condition is removed								
	OVER VOLTAGE	18 ~ 24V	23 ~ 30V	28 ~ 35V	35 ~ 43V	41 ~ 49V	48 ~ 58V	54 ~ 63V	59 ~ 66V	
	OVER TEMPERATURE	95°C ±10°C (RTH2) Protection type : Shut down o/p voltage, re-power on to recover								
ENVIRONMENT	WORKING TEMP.	-40 ~ +50°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 ~ 40°C)								
	VIBRATION	10 ~ 500Hz, 2G 12min./1cycle, period for 72min. each along X, Y, Z axes								
SAFETY & EMC	SAFETY STANDARDS	UL8750, 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								
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN61547, EN55024, light industry level (surge 4KV), criteria A								
OTHERS	MTBF	338Khrs min. MIL-HDBK-217F (25°C)								
	DIMENSION	161*61.5*35mm (L*W*H)								
	PACKING	0.35Kg/40pcs/15Kg/1.36CUFT								

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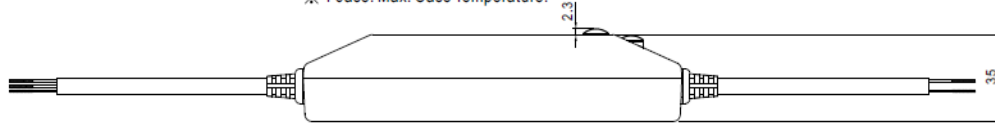
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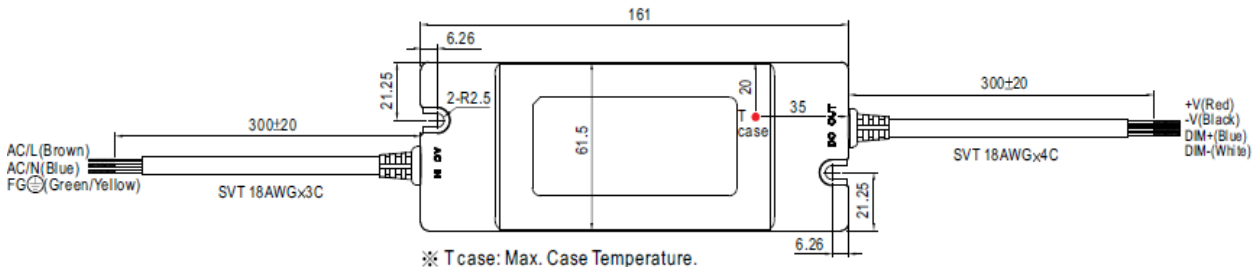
Mechanical Specification

Case No. HLN-60A Unit:mm

A Type:(HLN-60H- A)


※ T case: Max. Case Temperature.


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

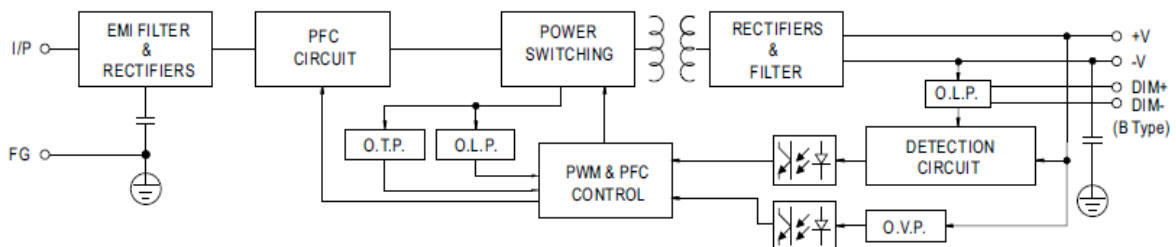
B Type:(HLN-60H- B)


※ T case: Max. Case Temperature.



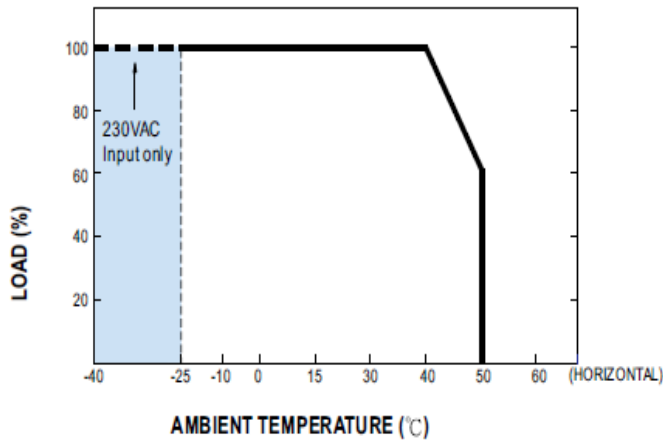
Block Diagram

fosc : 100KHz

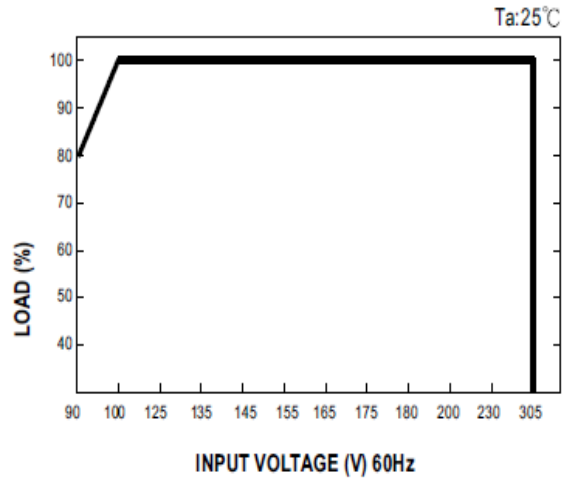


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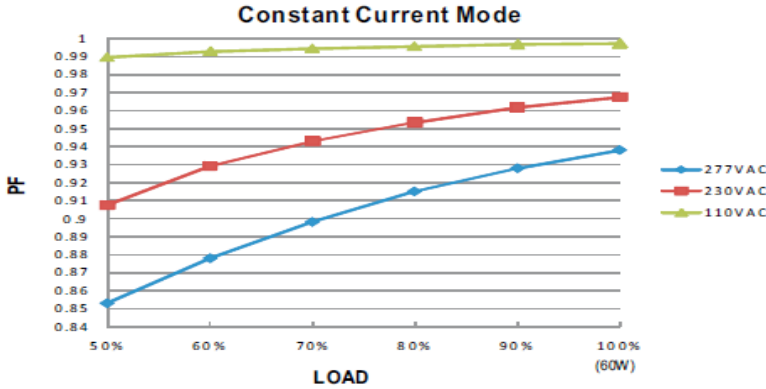
Derating Curve



Static Characteristics

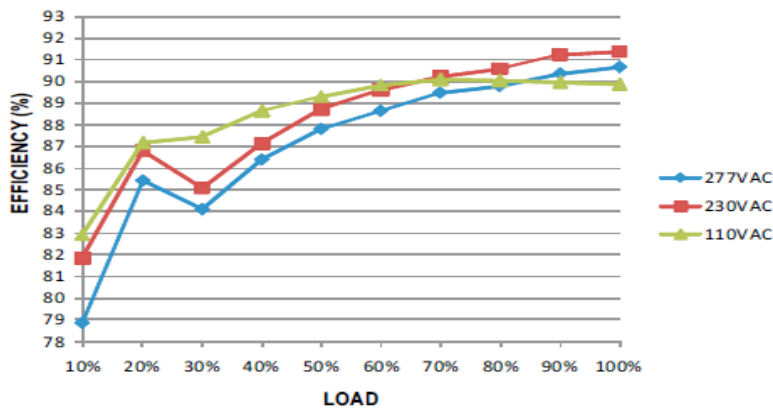


Power Factor Characteristic



EFFICIENCY vs LOAD (48V Model)

HLN-60H series possess superior working efficiency that up to 91% can be reached in field applications.



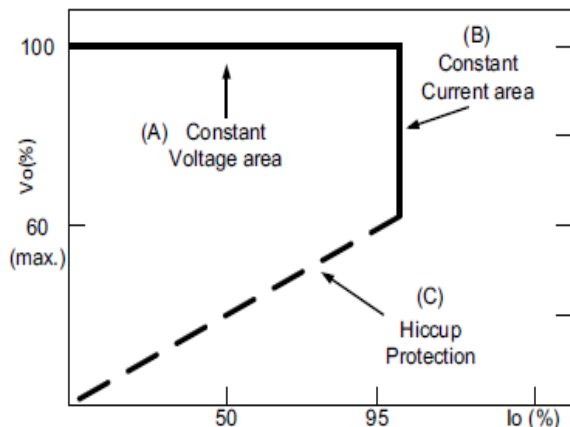
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DRIVING METHODS OF LED MODULE

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

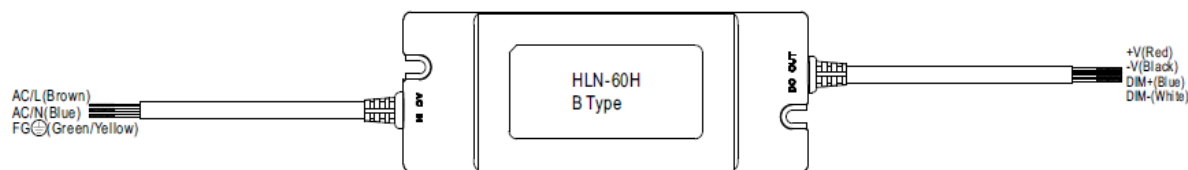
A typical LED power supply may either work in "constant voltage mode (CV) or constant current mode (CC)" to drive the LEDs.

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 (No dimming function 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%

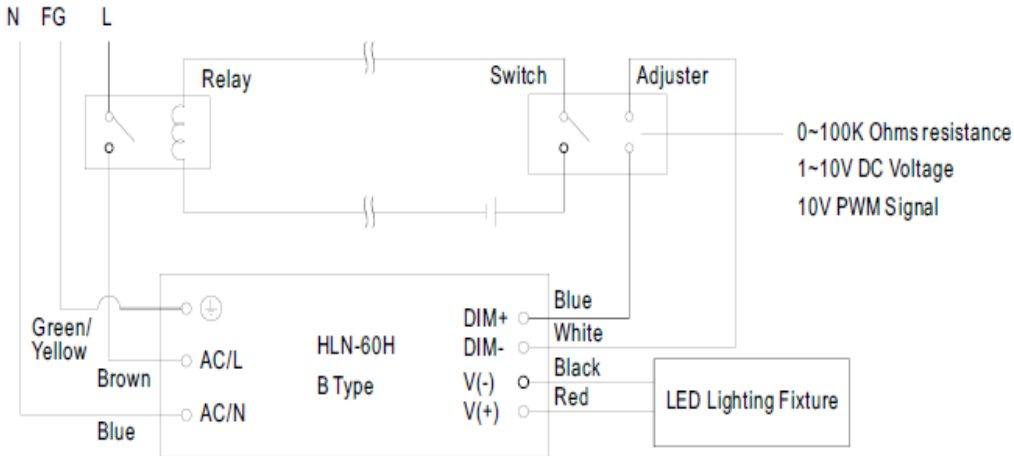
- ✗ 10V PWM signal for output current adjustment (Typical): Frequency range: 100Hz ~ 3KHz

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%

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※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 resistor or 1~10Vdc or 10V PWM signal between DIM+ and DIM-.
2. The LED lighting fixture can be turned ON/OFF by the switch.