



■ Features :

- Universal AC input / Full range (up to 305VAC)
- Built-in active PFC function, PF>0.95
- Protections: Short circuit / Over current / Over voltage / Over temperature
- Cooling by free air convection
- Output constant current level adjustable
- 100% full load burn-in test
- Three in one dimming function (1~10Vdc or PWM signal or resistance)
- Suitable for built in LED lighting system
- Suitable for dry / damp locations
- 3 years warranty



SELV



(for 48V,54V only)



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US (except for 48V,54V)



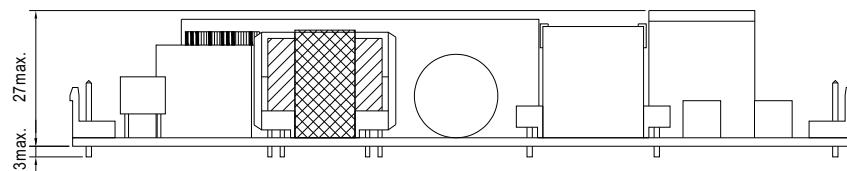
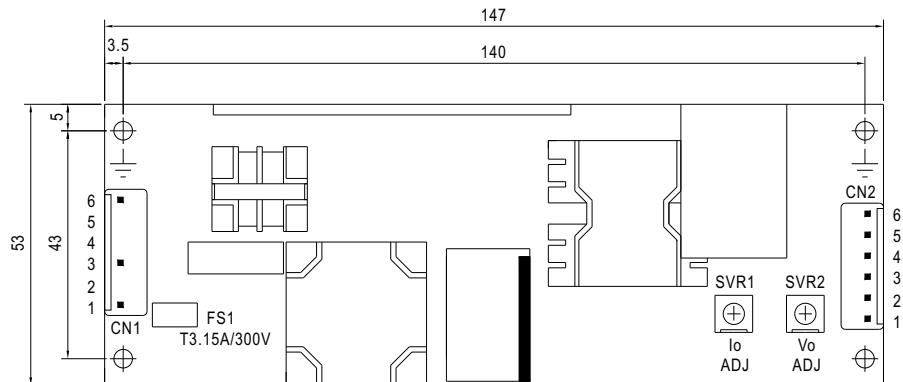
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SPECIFICATION

MODEL	HLP-40H-12	HLP-40H-15	HLP-40H-20	HLP-40H-24	HLP-40H-30	HLP-40H-36	HLP-40H-42	HLP-40H-48	HLP-40H-54							
OUTPUT	DC VOLTAGE	12V	15V	20V	24V	30V	36V	42V	48V							
	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							
	RATED CURRENT	3.33A	2.67A	2A	1.67A	1.34A	1.12A	0.96A	0.84A							
	RATED POWER	40W	40W	40W	40.1W	40.2W	40.3W	40.3W	40.5W							
	RIPLINE & NOISE (max.) Note.2	150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p	300mVp-p	300mVp-p							
	VOLTAGE ADJ. RANGE	10.8 ~ 13.5V	13.5 ~ 17V	17 ~ 22V	22 ~ 27V	27 ~ 33V	33 ~ 40V	40 ~ 46V	44 ~ 53V							
	CURRENT ADJ. RANGE	Can be adjusted by internal potentiometer or through output connector														
		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							
	VOLTAGE TOLERANCE Note.3	±2.5%	±2.0%	±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%							
INPUT	LOAD REGULATION	±2.0%	±1.5%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%							
	SETUP, RISE TIME Note.6	1500ms, 80ms / 115VAC at full load		1000ms, 80ms / 230VAC at full load												
	HOLD UP TIME (Typ.)	16ms/230VAC		16ms/115VAC at full load												
	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.)	87%	87%	88%	88%	88.5%	89%	89%	89.5%							
PROTECTION	AC CURRENT (Typ.)	0.43A / 115VAC		0.24A / 230VAC		0.23A / 277VAC										
	INRUSH CURRENT(Typ.)	COLD START 70A/230VAC														
	LEAKAGE CURRENT	<0.75mA / 277VAC														
	OVER CURRENT Note.4	95 ~ 108%														
ENVIRONMENT	Protection type : Constant current limiting, recovers automatically after fault condition is removed															
	OVER VOLTAGE	18 ~ 24V	17.5 ~ 30V	23 ~ 30V	28 ~ 35V	35 ~ 43V	41 ~ 49V	48 ~ 58V	54 ~ 63V							
	Protection type : Shut down o/p voltage, re-power on to recover															
SAFETY & EMC	OVER TEMPERATURE	85°C ±10°C (RTH2)														
	Protection type : Shut down o/p voltage, re-power on to recover															
	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														
OTHERS	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)														
	VIBRATION	10 ~ 500Hz, 2G 12min./1cycle, period for 72min. each along X, Y, Z axes														
	SAFETY STANDARDS	UL8750, CSA C22.2 No. 250.0-08 (except for 48V, 54V), EN61347-1, EN61347-2-13 approved ; Design refer to UL60950-1, TUV EN60950-1, EN60335-1														
EMC	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														
PACKING	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN61547, EN55024, light industry level (surge 4KV), criteria A														
	MTBF	287.9Khrs min. MIL-HDBK-217F (25°C)														
	DIMENSION	147*53*27mm (L*W*H)														
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C 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 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. 5. Derating may be needed under low input voltages. Please check the static characteristics for more details. 6. 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. 7. 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

Unit:mm



AC Input Connector (CN1) : JST B6P-VH or equivalent

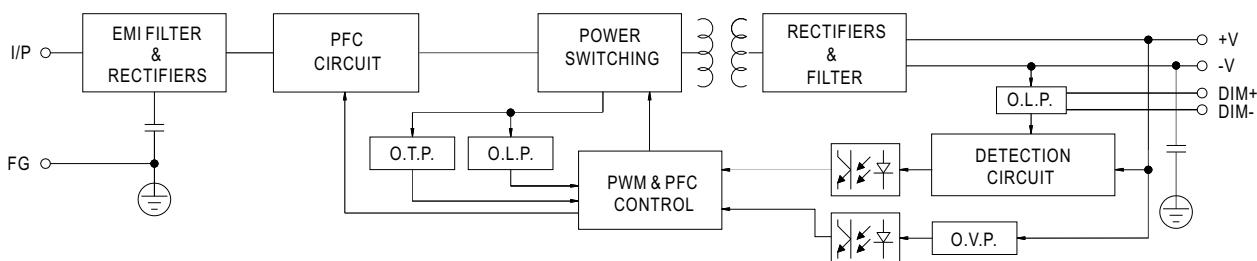
Pin No.	Assignment	Mating Housing	Terminal	
1	AC/L	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent	
2,4,5	No Pin			
3	AC/N			
6	FG \pm			

DC Output Connector (CN2) : JST B6P-VH or equivalent

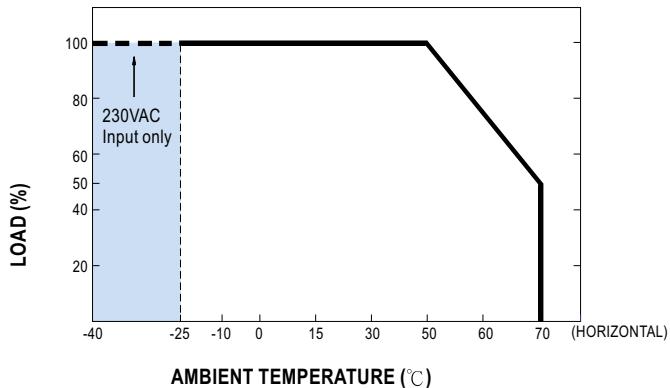
Pin No.	Assignment	Mating Housing	Terminal	
1	DIM+	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent	
2	DIM-			
3,4	-V			
5,6	+V			

■ Block Diagram

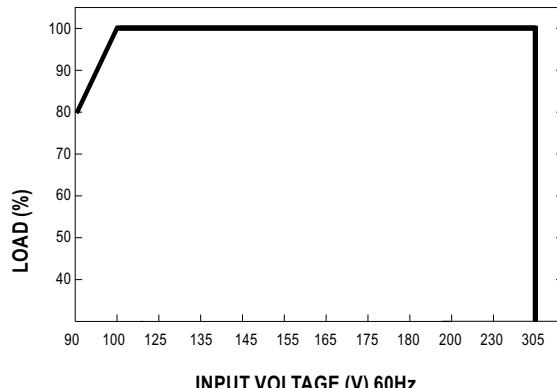
fosc : 100KHz

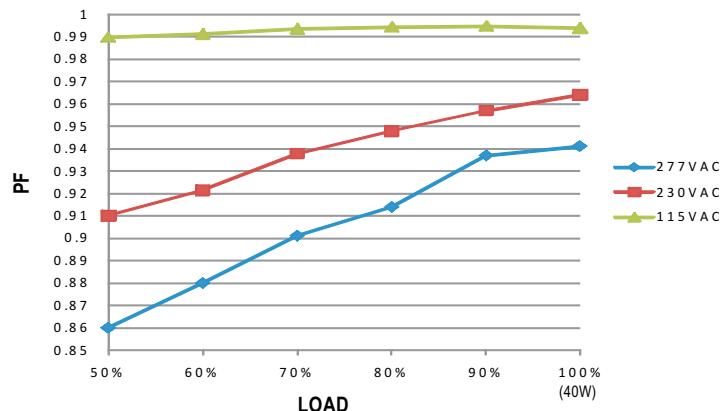


■ Derating Curve

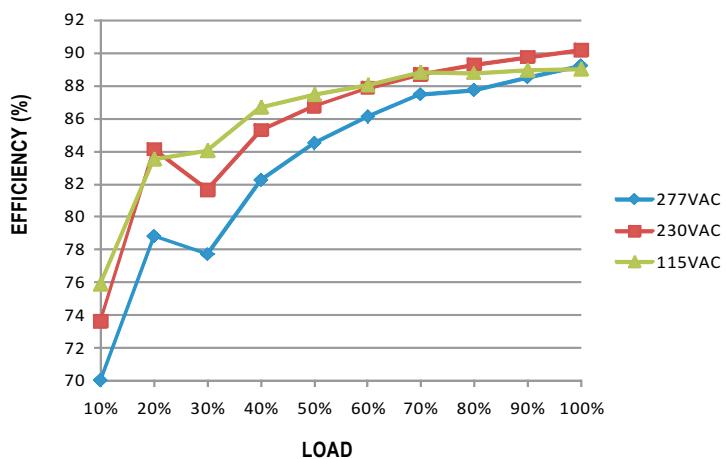


■ Static Characteristics



■ Power Factor Characteristic
Constant Current Mode

■ EFFICIENCY vs LOAD (48V Model)

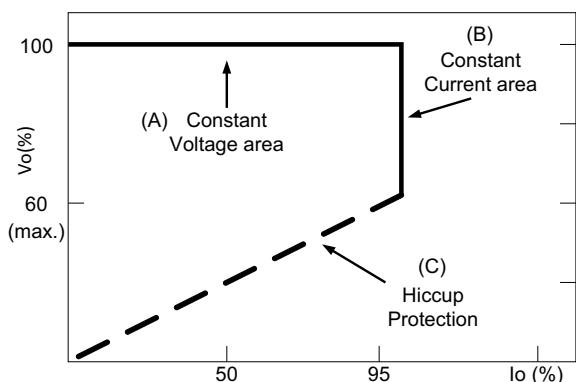
HLP-40H series possess superior working efficiency that up to 89.5% can be reached in field applications.


■ DRIVING METHODS OF LED MODULE

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

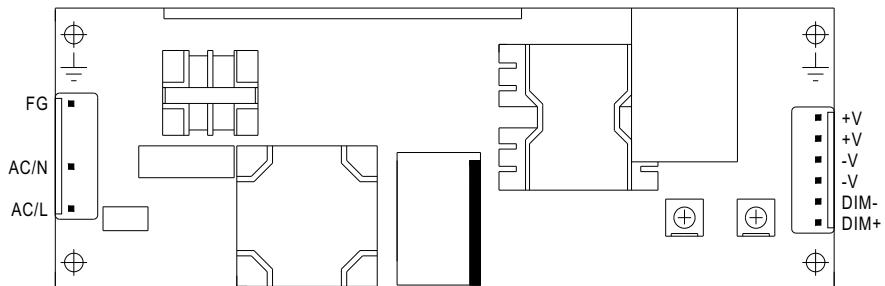
A typical LED power supply may either work in "constant voltage mode (CV) or constant current mode (CC)" to drive the LEDs.

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



※ Output constant current level can be adjusted through output connector by 1~10VDC, PWM signal, or connecting a resistance between DIM+ and DIM-.

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

※ Reference resistance value for output current adjustment (Typical)

Resistance value	Single driver	10KΩ	20KΩ	30KΩ	40KΩ	50KΩ	60KΩ	70KΩ	80KΩ	90KΩ	100KΩ	OPEN
Multiple drivers (N=driver quantity for synchronized dimming operation)	10KΩ/N	20KΩ/N	30KΩ/N	40KΩ/N	50KΩ/N	60KΩ/N	70KΩ/N	80KΩ/N	90KΩ/N	100KΩ/N	100KΩ/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)

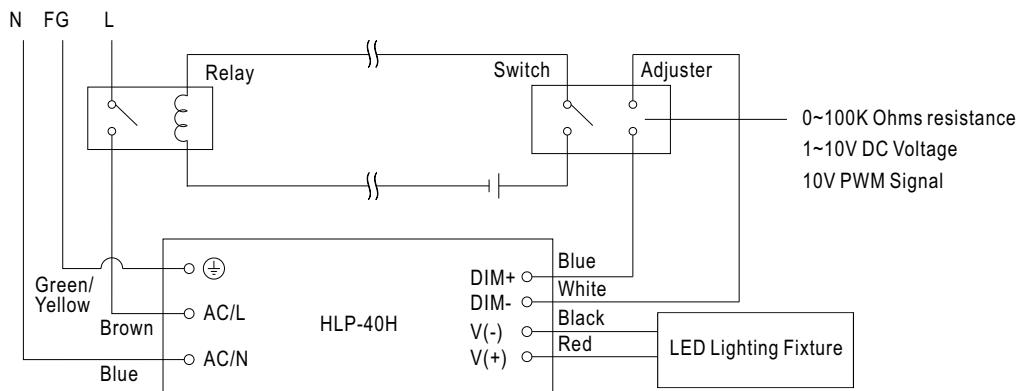
Dimming value	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
Percentage of rated current	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~105%

※ 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 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 connector 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.