



**4 Channels Output Switching Power Supply LL-DR-88W-4TX series**

**Features:**

- 4 Channels Input (88W)
- Universal AC input / Full range(100-277Vac)
- Built-in active PFC function
- Protections:Short circuit / Over voltage
- LVLE power unit
- Three in one dimming function (0-10Vdc or PWM or resistance)
- Suitable dry / damp locations
- 100% full load burn-in test
- High Efficiency :88%-90%(Typ.)
- 5 years warranty

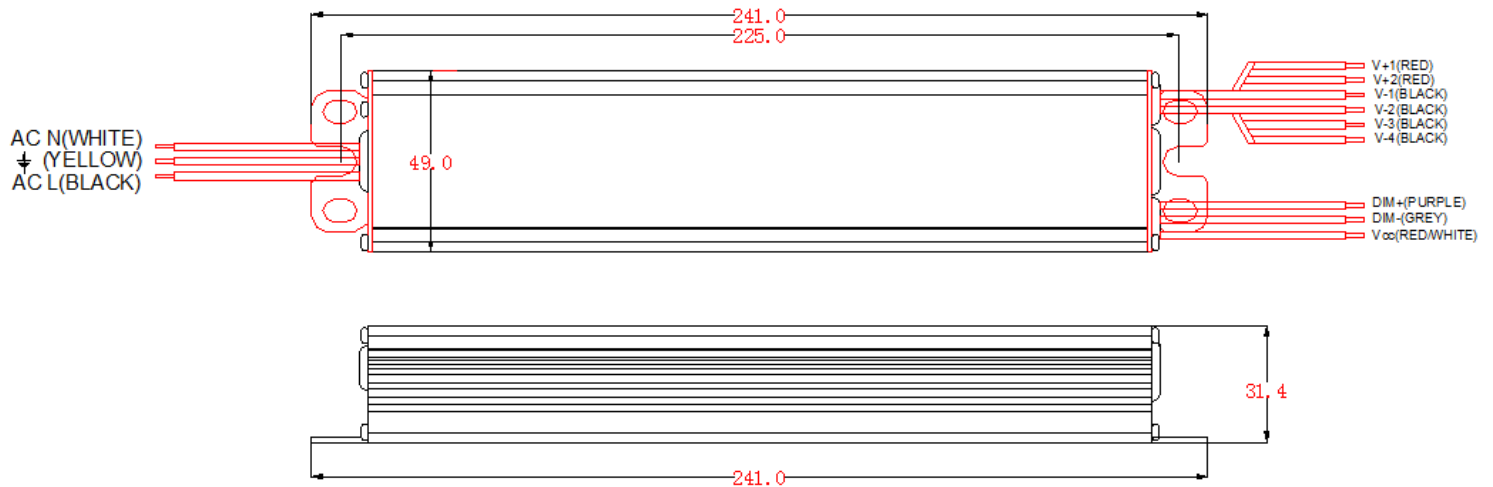
**SPECIFICATION**

MODEL		LL-DR-88W-4TX
OUTPUT	DC VOLTAGE(Max)	48V
	CONSTANT CURRENT REGION	23-42V
	RATED CURRENT	2.18A
	RIPPLE&NOISE(max.)	2Vp-p
	CURREN TOLERANCE	±10%
	LINE REGULATION	±2%
	LOAD REGULATION	±5%
	SETUP,RISETIME	<2000ms/ 115VAC at full load , <1000ms / 277V AC at full load
HOLD UP TIME(TYP)	16ms at full load 277VAC / 115VAC	
INPUT	VOLTAGE RANGE	100~277VAC
	RATED POWER	72W
	FREQUENCY RANGE	47~63Hz
	POWER FACTOR(Typ)	PF>0.99/115VAC, PF>0.98/230VAC, PF>0.95/277VAC at full load
	THD	<20%
	EFFICIENCY(Typ.)	90%
	ACCURRENT AT 88W (TYP)	0.88A / 100VAC, 0.318A /277VAC
	INRUSH CURRENT(TYP)	COLD START 75A at 277VAC
LEAKAGE CURRENT	<0.75mA/277VAC	
PROTE CTION	OVER CIRCUIT	95-110 % Protection type : Constant current limiting, recovers automatically after fault condition is removed
	Integral short circuit	Hiccup mode, recovers automatically after fault condition is removed
	Open Voltage protection	48-58V Protection type : Shut down and latch off o/p voltage, re-power on to recover
	Overload protection	105-120 % Hiccup mode, recovers automatically after fault condition is removed
ENVIRO NMENT	WORKING TEMP.	-40 ~ +60°C
	WORKING HUMIDITY	20~95%RH non-condensing
	STORAGE TEMP.,HUMIDITY	-40 ~ +80°C , 10 ~ 95%RH
	TEMP.COEFFICIENT	±0.03%/°C(0~50°C)
	VIBRATION	10~500Hz, 2G 12 min./1cycle, period for 72 min.each along X,Y,Z axes
SAFETY STANDARDS	design refer to UL8750, CSA C22.2 No. 250.0-08, EN61347-1, EN61347-2-13, UL60950-1, TUV EN60950-1	
SAFETY & EMC	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC I/P-FG: 2KVAC 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 ;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	300Khrs min. MIL-HDBK-217F(25°C)
	DIMENSION	241*49*31.4mm(L*W*H)
NOTE	Note : X can be "D" , "P" or "S" "D" = With 5 switch options,Three in one dimming function, "P" = With Three in one dimming function, Without 5 switch options, "S" = No switch option and without any dimming function	

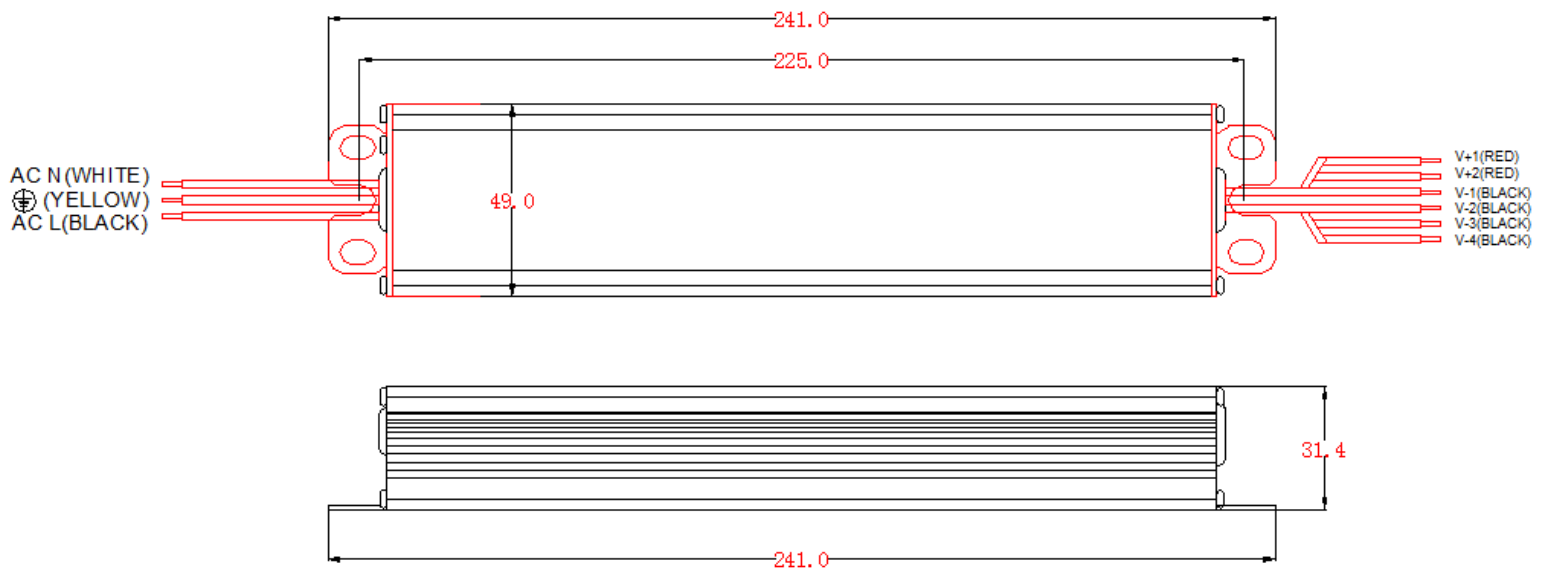


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**Mechanical Specification**



**Remark: Support 0-10Vdc or PWM or resistance dimming function.**

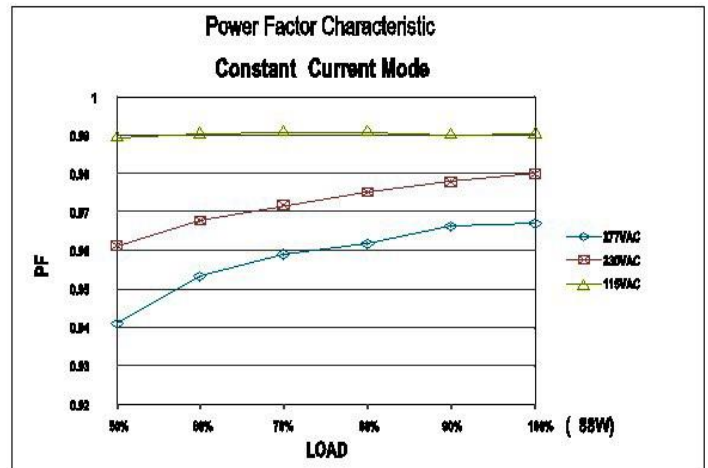
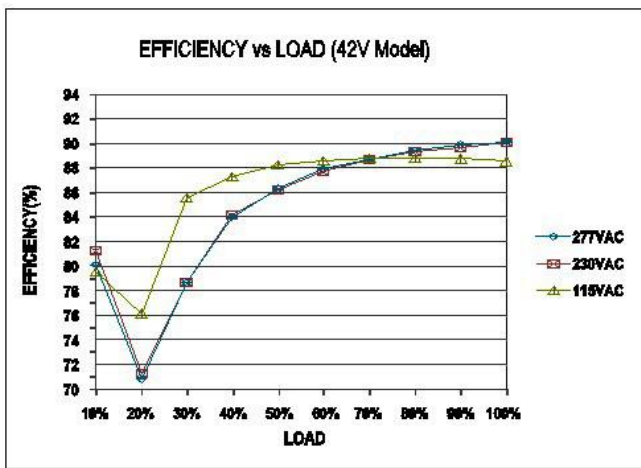
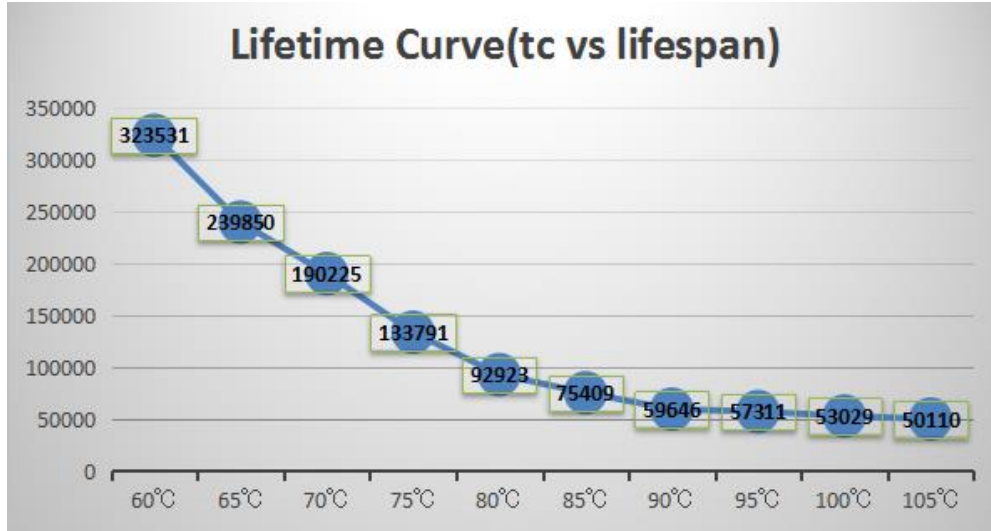


**Remark: without dimming switch.**

**Block Diagram**

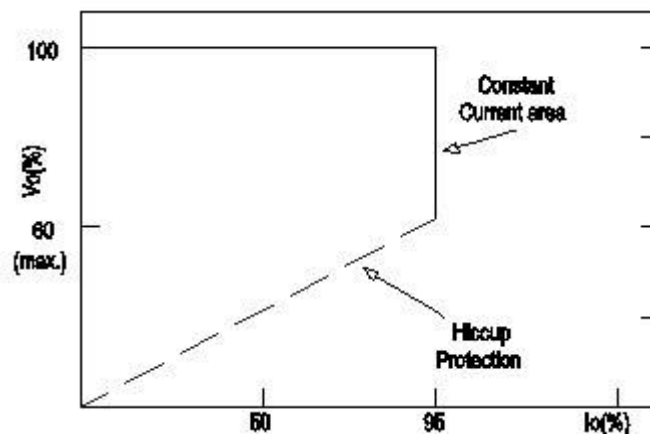
The life time curve:										
TC (°C)	60°C	65°C	70°C	75°C	80°C	85°C	90°C	95°C	100°C	105°C
TA (°C)	25°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C	65°C	70°C
The power of life (Hour)	323531	239850	190225	133791	92923	75409	59646	57311	53029	50110

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**DRIVING METHODS OF LED MODULE**

This LED power supply is suggested to work in constant current mode area (CC) to drive the LEDs

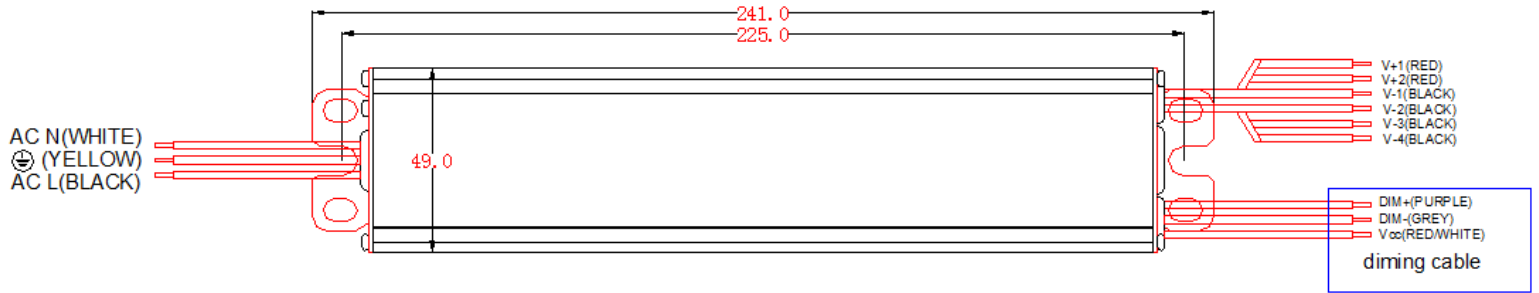


Typical LED power supply I-V curve



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**DIMMING OPERATION**



Built-in 3 in 1 dimming function, output constant current level can be adjusted through dimming cable by connecting a resistance or 0~10Vdc or 10V PWM signal between DIM+ and GND. Please DO NOT connect "DIM-" to "V-1".

**Reference resistance value for output current adjustment (Typical)**

Resistance value	Single driver	0 Ω	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)	0Ω /N	10KΩ /N	20KΩ /N	30KΩ /N	40KΩ /N	50KΩ /N	60KΩ /N	70KΩ /N	80KΩ /N	90KΩ /N	100KΩ /N	-----
Percentage of rated current		0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%-110 %

**0~10V dimming function for output current adjustment (Typical)**

Dimming value	0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
Percentage of rated current	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%-110 %

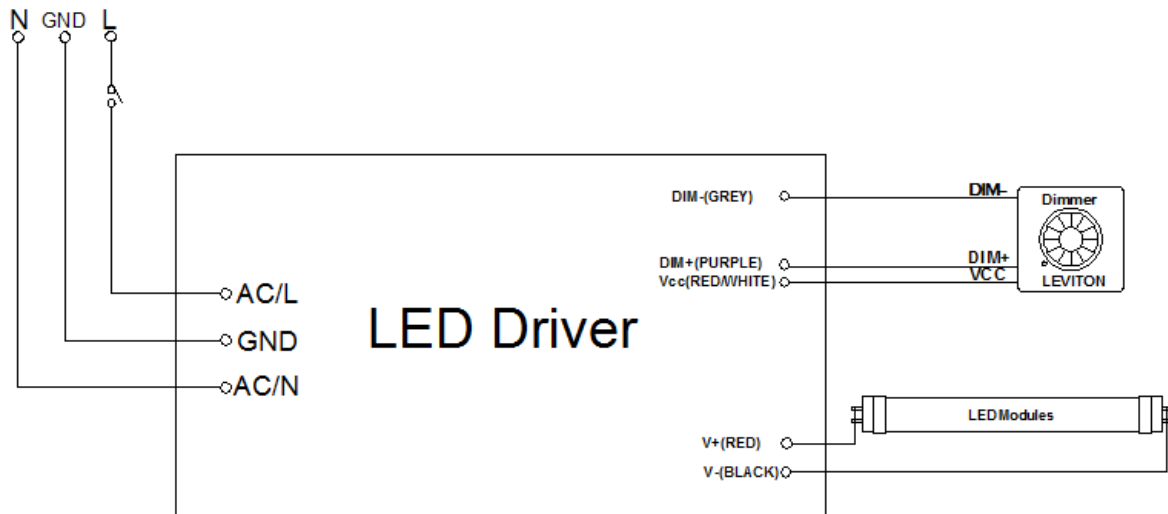
**10V PWM signal for output current adjustment (Typical): Frequency range: 100HZ~3KHz**

Duty value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN
Percentage of rated current	0%	10%	20%	30%	40%	50%	50%	70%	80%	90%	100%	95%-110%

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

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**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 dimming cable by connecting a resistance or 0~10Vdc or 10V PWM signal between DIM+ and DIM-.
2. The LED lighting fixture can be turned ON/OFF by the switch or dimming.