



# ULTRA LEVEL TECH CO., LTD.

www.ultralevel.com.tw Tel:+886-2-29180118 Fax:+886-2-29181465

We Supply the Power Customers Need ISO9001

## 220W ~ 400W AC-DC Active PFC SWITCHING POWER SUPPLY PRL0602N SINGLE OUTPUT SERIES

### FEATURES:

- ◆ Compact 400W with 1U height Power Density: 11.11 watts/cu in
- ◆ Active Power Factor Corrected to EN61000-3-2 Class D
- ◆ Built-in Remote On-Off, Power Good, Fan Fail Alarm
- ◆ Peak Power 700W within 500uS Duty Duration
- ◆ Variable Fan Speed & Low Acoustical Noise
- ◆ High Quality & Reliable Component Usage
- ◆ Output Voltage ranging from 12 ~ 60Vdc
- ◆ 4 - Mechanical Options
- ◆ Full Range AC Input



U Type: 6(L) x 4(W) x 1.5(H)"



E Type: 7(L) x 4(W) x 1.6(H)"



F Type: 6(L) x 4(W) x 2(H)"



C Type: 6(L) x 4(W) x 1.57(H)"

### PRODUCT SPECIFICATIONS:

**Input Voltage:** 90 ~ 264Vac full range, 47 ~ 63Hz.

**Input Current:** 8A at 90Vac full load.

**Inrush Current:** Max. 70A@230Vac & 35A@115Vac; both under cold start conditions.

**Power Factor Correction:** >0.9 @ Vin: 230Vac full load.

**Transient Response:** Returns to within 1% in less than 2.5mS for a 50% load change and the peak transient does not exceed 5%.

**Overshoot:** Turn-on & off overshoot < 5% over nominal voltage.

**Efficiency:** 75% minimum (Measuring at 230V and full load).

**Turn On Delay:** 1.5 second maximum at 120 Vac.

**Hold Up Time:** 16mS min. at 75% of full load at 120Vac.

**Adjustability:** Output user adjustable +/-5% minimum.

**Fan Drive:** 12VDC/300mA offering to drive an external fan.

**Fan Fail (FF) Alarm:** Designated as FF on pin 3 of CN1, two types of logical signal provided, contact manufacturer.

**Remote On-Off:** Designated as INH on pin4 of CN1, requires a low signal to inhibit output.

**Power Supply On:** Green LED designated as LED1 on the PCB.

**Power Good:** Designated as PG on CN1 and TTL high 100-500mS after DC regulation. It goes low at least 1mS before loss of regulation.

**Input Fusing Protection:** One T8A/250V fuse inserted in primary.

**Over-Power Protection:** 110~140% of I-Max; Auto-recovery.

**Short Circuit Protection:** Trip without damage and auto-recovery.

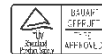
**Over Voltage Protection:** Unit latching down when output exceed 130% and recycle AC input to reset.

**Over-Temperature Protection:** Unit protected of excessive operating ambient 110 °C±5 °C, and automatic recovery.

**Operating Temperature:** 0°C to 70°C ambient, de-rating at 2.5% per degree from 50°C to 70°C.

**Warranty:** 2 years.

**Switching Frequency:** 68kHz PFC, 55 kHz PWM



**Vibration:** 5 ~ 50 Hz, acceleration ±7.35 m/s\*s on X,Y and Z Axis.

**Storage Temperature:** -20°C to 85°C.

**Operating Humidity:** 5% to 90% RH, Non-condensing.

**Storage Humidity:** 5% to 95% RH, Non-condensing.

**EMC:** EN55032 class B conducted / radiated, EN61000-3-2, EN61000-3-3; EN55024 (IEC61000-4-2, IEC61000-4-3, IEC61000-4-4, IEC61000-4-5, IEC61000-4-6, IEC61000-4-8, IEC61000-4-11).

**Safety Regulation:** UL1950, CSA C22.2 No. 950-95, EN60950 and CB certificate

**Leakage Current:** < 3.5mA @ 264Vac.

(optional for 500uA max. at 240Vac / 300uA max. at 120Vac input)

**HI-POT Test:** 1500 VAC input line to chassis (10mA AC cut off current); Isolating 3000VAC primary to secondary windings; Primary to core 1500VAC. All for 3 sec.

**Grounding Test:** Apply 25 A from ground pin of the three prong plug to the far most earth. Max allowable resistance 0.1 ohm.

**Warranty:** 2 years.

**MTBF:** 100000 Hrs (according to MIL-HBK-217F) at 30 °C .

**Cooling:**

Internal fan is provided.

**Enclosure:**

U Type: 6(L) x 4(W) x 1.5(H) inches.

C Type: 6(L) x 4(W) x 1.57(H) inches.

E Type: 7(L) x 4(W) x 1.6(H) inches.

F Type: 6(L) x 4(W) x 2(H) inches.

**Burn in:** 45 +/- 5 degree C for 1 hour @230Vac with full load.

**Weight:** Maximum weight is 800g.



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## OUTPUT VOLTAGE / CURRENT RATING CHART: Measured at output power connector.

Model	Output Range	Preset Voltage	Max. Output Current		Regulation	Ripple & Noise
			Type U & E & F (forced air)	Type U & C (Convection)		
PRL0602Nx-12	10 ~ 13.8V	12 V	33.33A	18.33A	+/- 1%	1%
PRL0602Nx-15	14 ~ 15.5V	15 V	26.67A	14.67A	+/- 1%	1%
PRL0602Nx-18	16 ~ 20V	18V	22.22A	12.22A	+/- 1%	1%
PRL0602Nx-24	21 ~ 26V	24V	16.67A	9.17A	+/- 1%	1%
PRL0602Nx-28	27 ~ 34V	28V	14.29A	7.86A	+/- 1%	1%
PRL0602Nx-36	35 ~ 42V	36V	11.11A	6.11A	+/- 1%	1%
PRL0602Nx-48	43 ~ 50V	48V	8.33A	4.58A	+/- 1%	1%
PRL0602Nx-54	51 ~ 60V	54V	7.41A	4.07A	+/- 1%	1%

### Note:

\* PRL0602N series are designated as PRL0602Nx-y where x can be **U** (U-Chassis), **C** (U-chassis with top vented cover), **E** (Enclosed Type with end side built-in fan) or **F** (Enclosed Type with top cover built-in fan) or ,y can be **12, 15, 18, 24, 28, 36, 48 or 54**.

•**PRL0602NU Series:** U-Chassis @400W max. with min. 26.84CFM forced airflow or 220W convection cooled output.

•**PRL0602NC Series:** U-chassis with vented cover@220W max. convection cooling.

\* **PRL0602NE Series:** Enclosed with rear side built-in fan @400W max.

\* **PRL0602NF Series:** Enclosed with top built-in fan @400W max.

\* All output ranges are covered in agency certifications and the preset voltage will be set as standard model if any request is not preset output please contact us in advance.

\* Ripple and noise are measured from 10KHZ to 20MHz bandwidth at output with parallel 0.1μF ceramic and 22μF electrolytic capacitors.

\* Providing peak power to 700W within 500uS for all models, longer duty duration need contact manufacture.

•1% minimum load is required to maintain the ripple and regulation.

\* Output is fully isolated.

## OUTLINE DRAWING:

### Input and Output Connector (CN2):

Terminal block - Howder Part No. HD-121-7P or Molex - Mating JST VH series.

Input 5 pin connector (3 pin used, pin 2 & pin 4 removed), PCB labeling: L = Line; N = Neutral;

G = Chassis Ground. Output 10 pin connector.

**Output Pin Assignment:** (See table in right).

**Mounting Inserts:** 6 Places M4X0.7. Maximum Penetration 2mm.

### Logic signal connector (CN1):

Mating JST XHP-4 or equivalent (CHYAO SHIUNN JS-2001-04);

Mating Pins: JST SXH-002T-P0.6 FOR AWG 30 to 26.

Pin 1: PG, Pin 2: RTN, PIN3: FF, Pin4: INH

### Fan driver connector (FAN1):

12VDC/300mA is available to drive an external fan, Mating connector JST P/N XHP-2 (2 pins 0.98 pitch), equivalent (CHYAO SHIUNN JS-2001-02).

Howder	Molex
Pins 1 ~ 2: V+	Pins 1 ~ 5: V+
Pins 3 ~ 4: V-	Pins 6 ~ 10: V-
Pin 5: GND	Pin 12: GND
Pin 6: Neutral	Pin 14: Neutral
Pin 7: Line	Pin 16: Line

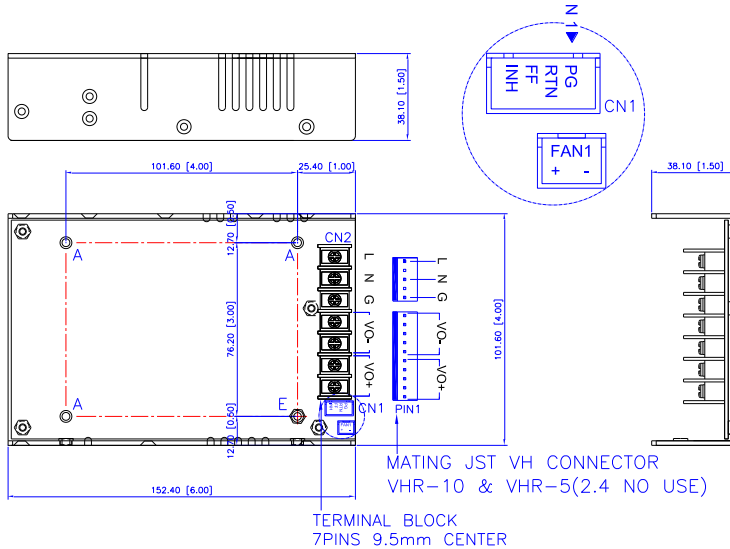


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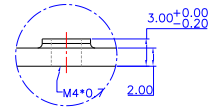
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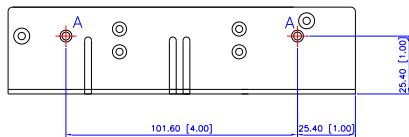
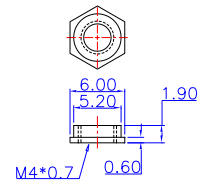
PRL0602NU Series (U-Chassis Type only): 6(L) x 4(W) x 1.5(H) inches; Weight: 600g.



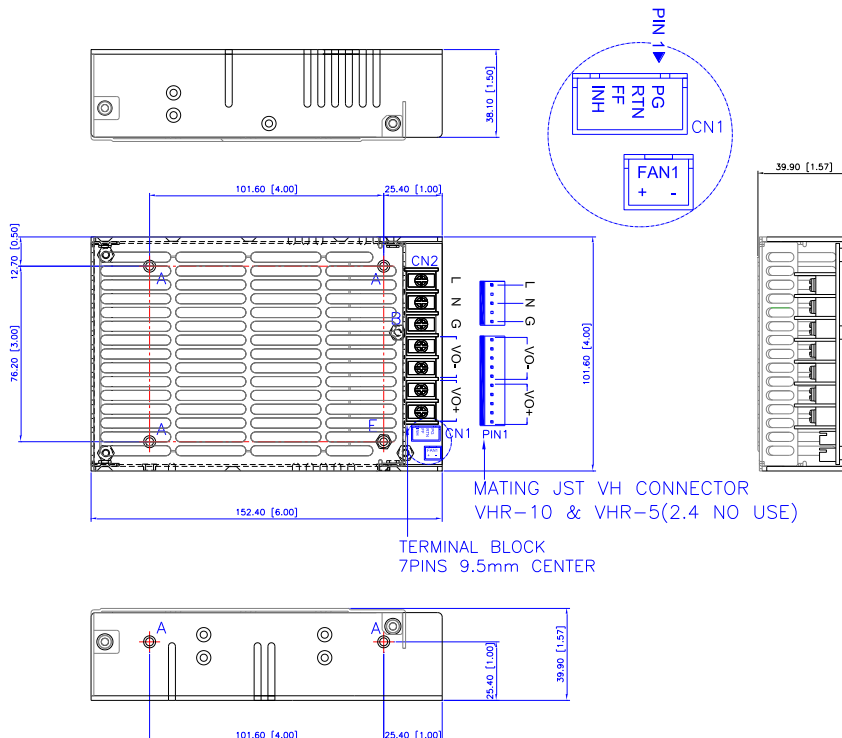
A 4:1 M4x0.7 TAP



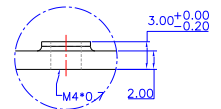
E 4:1 (1X)ZN-PLATED



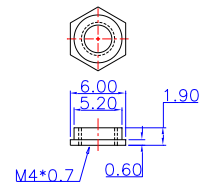
PRL0602NC Series (U chassis with Top vented cover): 6(L) x 4(W) x 1.57(H) inches; Weight: 650g.



A 4:1 M4x0.7 TAP



E 4:1 (1X)ZN-PLATED



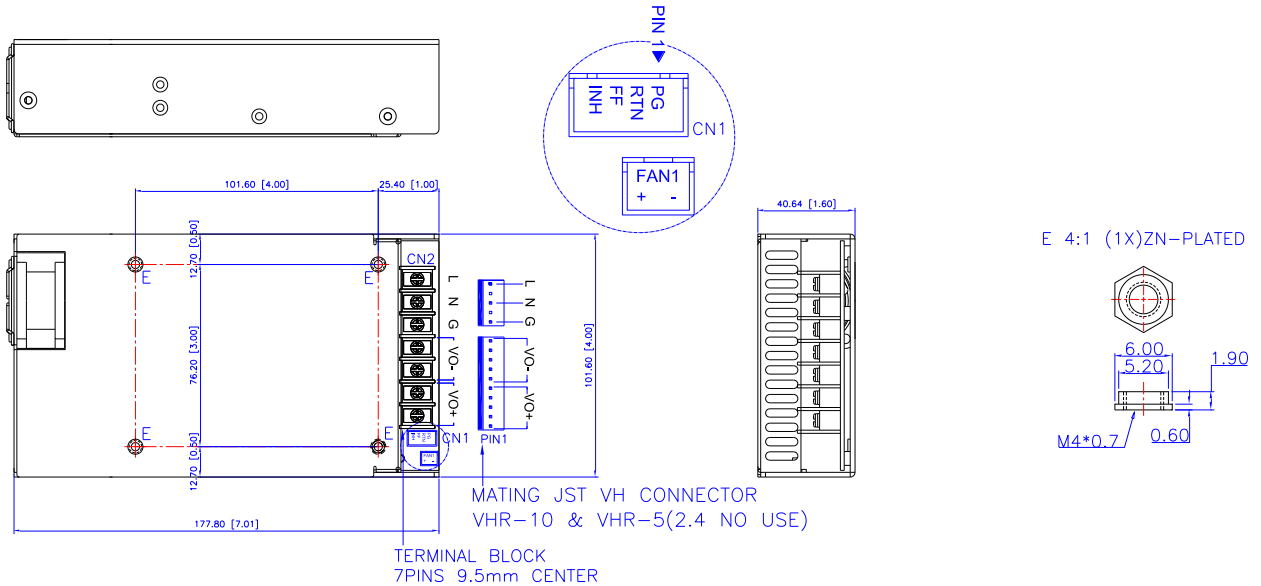


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PRL0602NE Series (Enclosed with Rear Side built-in Fan Type): 7(L) x 4(W) x 1.6(H)inches; Weight: 750g.



PRL0602NF Series (Enclosed with Top built-in Fan Type): 6(L) x 4(W) x 2(H)inches; Weight: 800g.

