AC-DC Converter

www.powersolve.co.uk

JB301 / JB301D Series
240-300W Active PFC
Single & Dual Outputs

Features

- Power Factor Corrected to EN61000-3-2 class D
- Single Output Voltages from 2 ~ 60VDC
- Dual Output Voltage Combinations of 5 / 12 / 24 & 48V
- High Power Density in a 1U Height.
- Approved to UL / TUV / CB / CE
- 4 Mechanical Options
- Full Range AC Input

Electrical Specification	
Input Voltage	90-264Vac full range, 47-63Hz
Input Current	5A @ 90Vac
Inrush Current	70A max. @ 230Vac & 35A max. @ 115Vac; cold start
PFC	Power Factor Correction meets EN61000-3-2 class D
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 & turn-off overshoot <5% of nominal voltage
Efficiency	70% for single 5V & dual outputs, 80% min. for other outputs @ 230Vac input and full load
Turn On Delay	1 second max. at 120Vac input
Hold Up Time	16mS min. at 120Vac & 80% of full load
Adjustability	Output user adjustable ±5% min.
Fan Drive	12VDC / 300mA to drive an external fan
Fan Fail (FF) Alarm	Designated as FF on pin3 of CN3. Open collector output rated for 28VDC / 5mA sink max. and will go high on fan failure
Remote On/Off	Designated as INH on pin4 of CN3, requires a low signal to inhibit output
Power Supply ON	Green LED designated as LED1 on the PCB
Power Good	Designated as PG on CN3. TTL high 100-500mS after regulation and low at least 1mS before loss of regulation and has the ability to sink 100mA
Input Fusing Protection	One F5A/350V fuse in the primary
Short Circuit Protection	Trip without damage and auto-recovery.
Over-Power Protection	Fold back mode 110-140% and auto-recovery
Over-Voltage Protection	Output latches off when output exceeds 130% of maximum. Recycle AC input to recover
Over-Temperature Protection	Unit protected against excessive operating ambient @85°C and auto-recovery
Operating Temperature	0 to 70°C ambient. De-rating at 2.5%/°C from 50°C to 70°C
Storage Temperature	-20 to 85°C
Operating Humidity	5% to 90% RH Non-condensing
Storage Humidity	5% to 95% RH Non-condensing
Vibration	5 - 50Hz, acceleration 7.35m/s*s on X, Y and Z axis
Emissions	FCC Part 15, CISPR 22 class B, conducted
Safety Regulation	Approved to UL60950-1, TUV EN60950-1, CE Mark (LVD) EN55022 & EN55024 Series
Leakage Current	Regulations and CB 3.5mA max @ 240Vac
HI-POT Withstand Voltage	1500Vac input line to chassis (10mA DC cut off current); 3000Vac primary to secondary windings; 1500Vac primary to core. All for 3 secs.
Grounding Test	Apply 25A from earth pin of input connector to the far most earth point. Max. allowable resistance 0.1 ohm.
MTBF	100000 Hrs (according to MIL-HBK-217F) at 30°C
Enclosure	U Type: 5(L) x 3.2(W) x 1.5(H) inches U Type with top cover: 5(L) x 3.2(W) x 1.66(H) inches F Type with top built-in fan: 5(L) x 3.2(W) x 2(H) inches E Type enclosed with end built-in fan: 6.5(L) x 3.2(W) x 1.6(H) inches
Cooling	U Type: 150W (single), 120W (dual) convection cooled / 300W (single), 240W (dual) with 25CFM fan U Type with top cover: As above F Type with top built-in fan: 300W (single), 240W (dual) E Type enclosed with end built-in fan: 300W (single), 240W (dual)

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Single Output Voltage & Current Ratings

MODEL	OUTPUT VOLTAGE Preset	Range	Max. OUTPUT Current or Power	REGULATION	RIPPLE & NOISE
JB301X-05	5VDC	2 - 5V	42A	±1%	1%
JB301X-09	9VDC	7 - 11V	27.27A	±1%	1%
JB301X-12	12VDC	12 - 13.8V	300W	±1%	1%
JB301X-15	15VDC	14 - 16V	300W	±1%	1%
JB301X-18	18VDC	17 - 22V	300W	±1%	1%
JB301X-24	24VDC	23 - 28V	300W	±1%	1%
JB301X-30	30VDC	29 - 34V	300W	±1%	1%
JB301X-36	36VDC	35 - 43V	300W	±1%	1%
JB301X-48	48VDC	44 - 52V	300W	±1%	1%
JB301X-54	54VDC	53 - 60V	300W	±1%	1%

Dual Output Voltage & Current Ratings

MODEL	OUTPUT 1 Volts	Current	OUTPUT 2 Volts	Current	REGULATION	RIPPLE & NOISE
JB301DX-0512	5V	24A	12V	13.33A	±5%	1%
JB301DX-0524	5V	24A	24V	6.67A	±5%	1%
JB301DX-0548	5V	24A	48V	3.33A	±5%	1%
JB301DX-1224	12V	13.33A	24V	6.67A	±5%	1%

Notes:

- X in the part number can be 'E' (enclosed with end fan), 'F' (enclosed with top fan), 'U' (U chassis with optional cover)
- All single output voltages shown in output voltage range can be set and still carry agency certifications
- Standard models come with output voltage preset
- U chassis versions need external 25CFM forced air cooling to achieve maximum output power
- Ripple & noise are measured from 10KHz to 20MHz bandwidth with an 0.1µF ceramic and 22µF electrolytic capacitor across the output
- 1% (single) & 10% (dual) minimum load required to maintain regulation
- Cover is optional for U-chassis type
- Output is fully isolated
- Optional input and output connectors available

Mechanical & Connection Details

AC Input Connector (CN1)
E Type: IEC320 or equivalent Snap-in mounting type or Howder Terminal block Part No. HD-602-3P (3 pin)
U & F Type: Mating Molex Part No. 035977-0500 or equivalent (5 pins, 3 used) or Howder Terminal Block Part No. HD-601-3P

Output Connector (CN2)
Single Output: Mating Molex Part No. 035977-0600 (6 pin) or DINKLE Terminals Part No. P-830N (2 pin)
Dual Output: Mating Molex Part No. 035977-0800 (8 pin) or Howder Terminal block Part No. HD-816-3P (3 pin)

Output Pin Assignment
Single Output: Molex: VO+ (Pins 4-6), VO- (Pins 1-3); DINKLE: VO+ (Pin 2), VO- (Pin 1)
Dual Output: Molex: V1 (Pins 6-8), RTN (Pins 2-5), V2 (Pin 1); Howder: V1 (Pin 3), RTN (Pin 2), V2 (Pin 1)

Logic Signal Connectors (CN3)
Mating JST XHP-4 or equivalent (CHYAO SHIUNN JS-2001-04)

Fan Drive (FAN1)
Mating JST XHP-3 or equivalent (CHYAO SHIUNN JS-2001-03)

Mounting Inserts
M3 in 6 places. Maximum penetration 3.8mm, see outline drawing for locations

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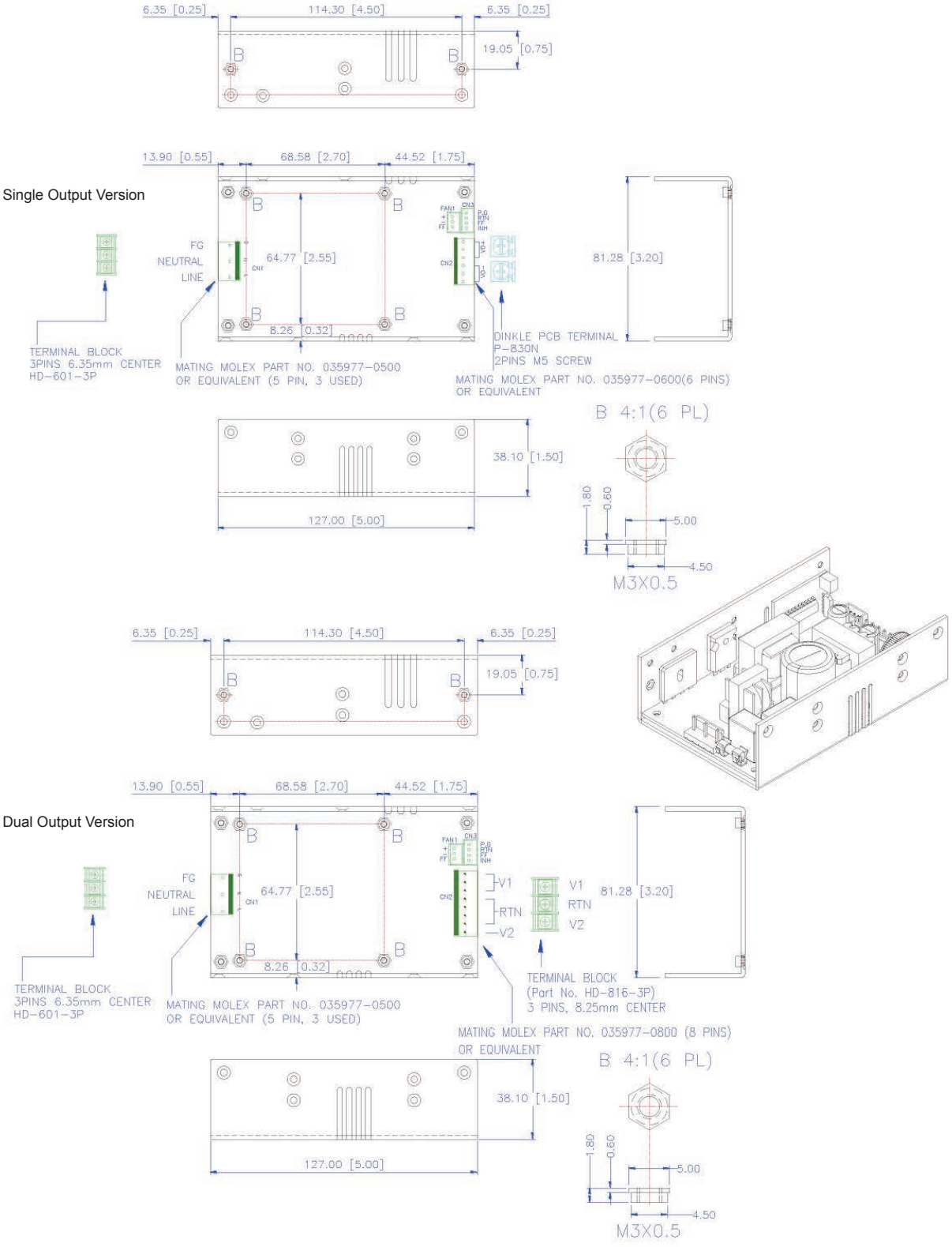
Mechanical & Connection Details

U Type (U-Chassis only): 5(L) x 3.2(W) x 1.5(H) inches; Weight: 500g



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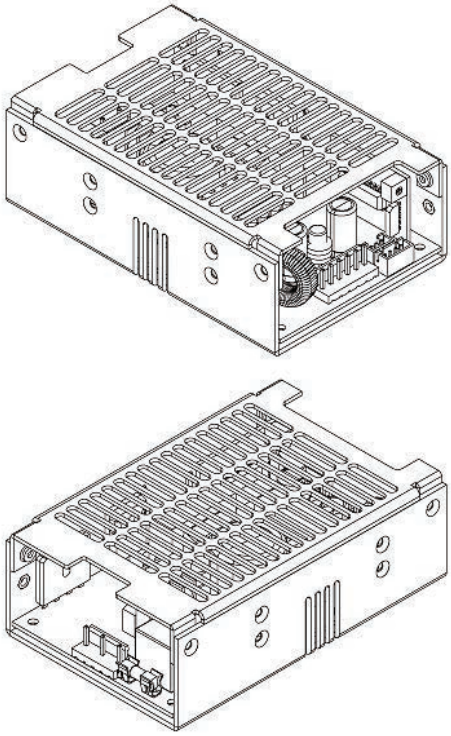
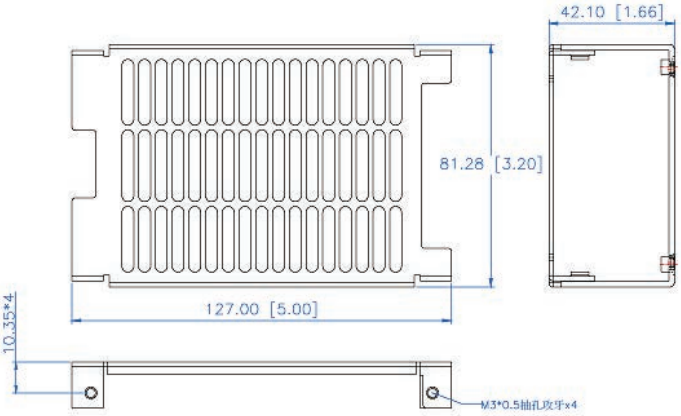
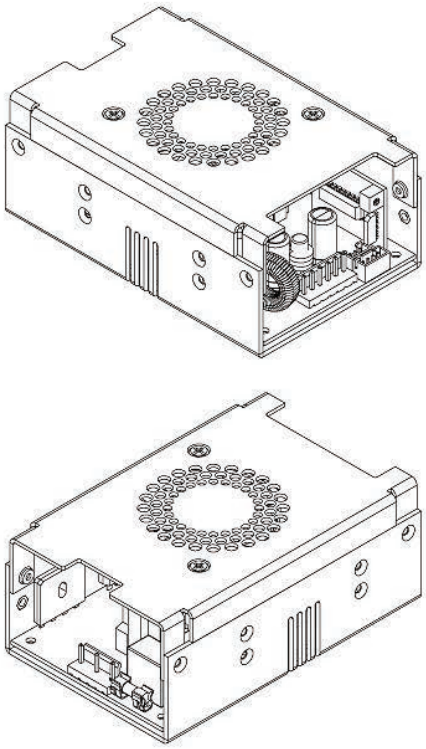
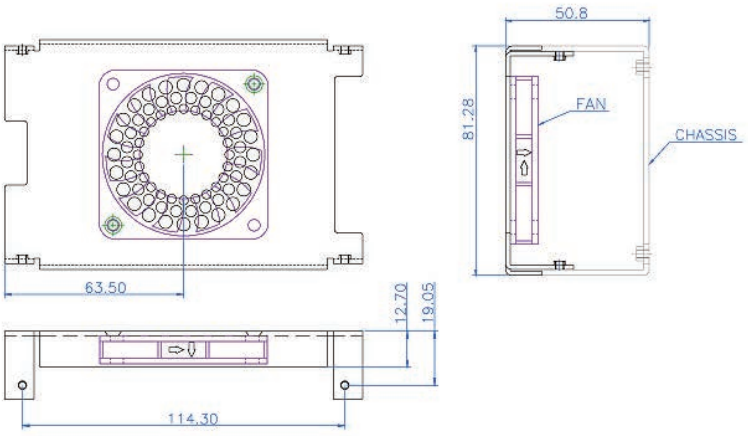
U Type (U-Chassis with Top Cover): 5(L) x 3.2(W) x 1.66(H) inches; Weight: 550g





F Type (U-Chassis with built-in Top Fan): 5(L) x 3.2(W) x 2(H) inches; Weight: 600g





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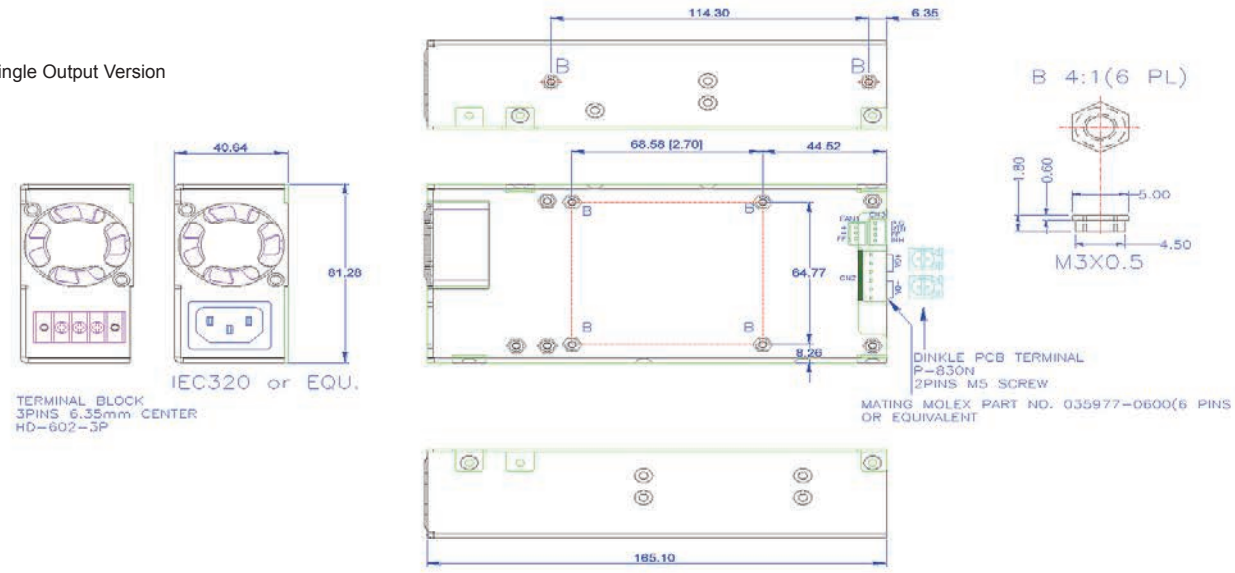
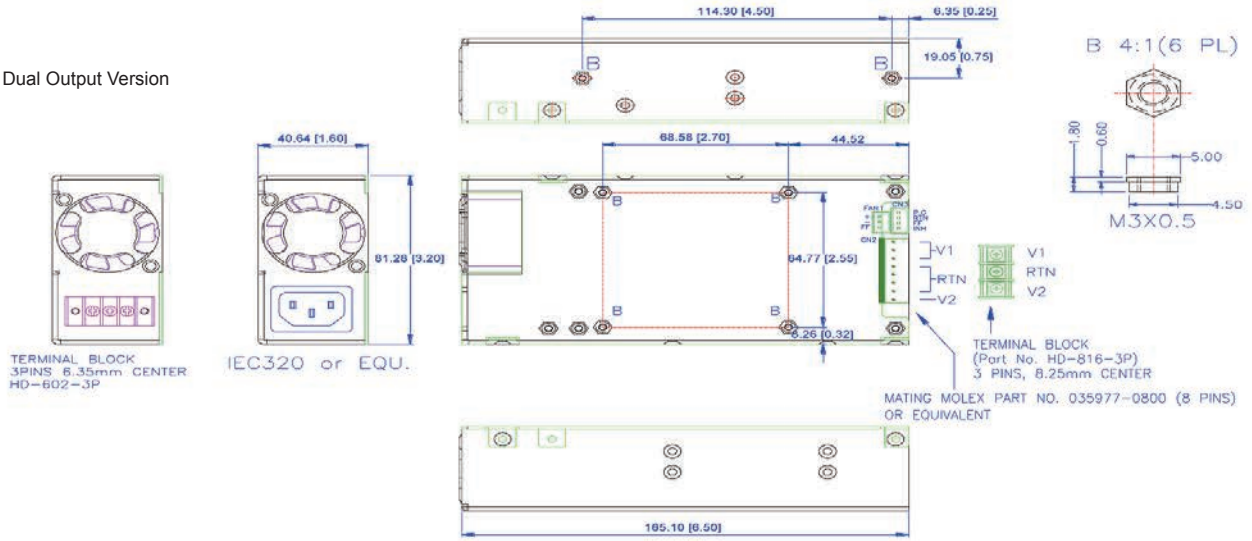
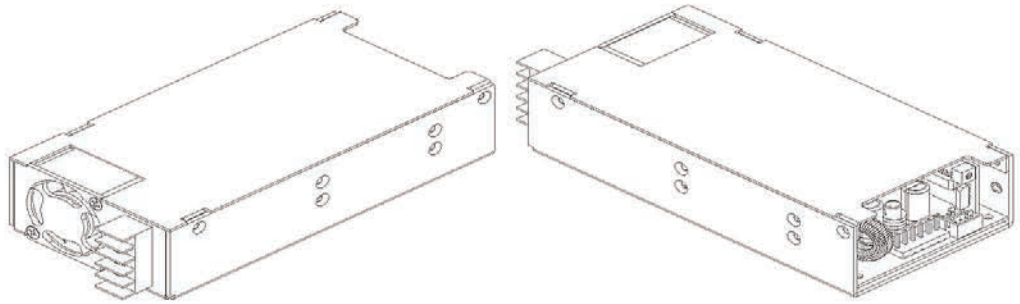
E Type (Enclosed type with built-in end fan): 6.5(L) x 3.2(W) x 1.6(H) inches; Weight: 650g

Single Output Version



Dual Output Version





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