

# AC-DC Converter

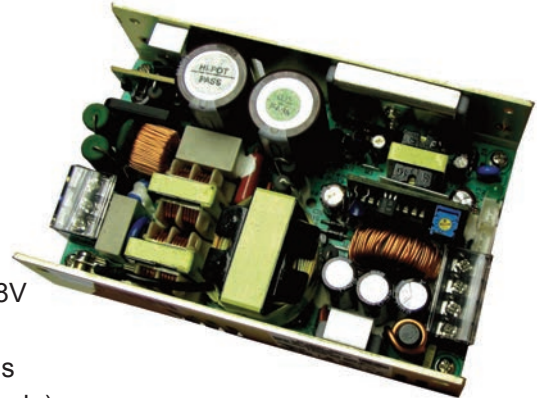
**POWER  
SOLVE**

## JB250 / JB250D Series 100-250W Single & Dual Outputs

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### Features

- AC Input Range Auto-Selectable
- High Power Density in a 1U Height.
- Single Output Voltages from 2 ~ 60VDC
- Dual Output Voltage Combinations of 3.3 / 5 / 12 / 24 & 48V
- Approved to UL / TUV / CB / CE
- U-Chassis & Enclosed with built-in fan Mechanical Options
- Peak Power 600W (single output versions - limited duty cycle)



### Electrical Specification

Input Voltage	90-132 / 180-264VAC auto-selectable, 47-63Hz
Input Current	6A at 100-120VAC / 3A at 200-240VAC
Inrush Current	70A max. at 230VAC & 35A max. at 115VAC; cold start
PFC	Power Factor Correction meets EN61000-3-2 Class A
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% - 85% dependant on model
Turn On Delay	1 second max. at 230VAC input
Hold Up Time	20mS min. at 80% of full load
Adjustability	Output user adjustable $\pm 5\%$ min.
Fan Drive	12VDC / 300mA to drive an external fan
Power Supply ON	Green LED designated as LED1 on the PCB
Power Good	Designated as PG on CN1. TTL high 100-500mS after DC regulation and low at least 1mS before loss of regulation (open collector)
Remote On/Off	Designated as RMSW on CN1, requires a low signal to inhibit output. Hiccup mode
Input Fusing Protection	One T8A/250V fuse in the primary
Short Circuit Protection	Trip without damage and auto-recovery.
Over-Power Protection	110-140% of I max. 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 at 110°C and auto-recovery
Switching Frequency	25KHz fixed frequency
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 <sup>2</sup> on X, Y and Z axis
Emissions	EN55022 Class B, conducted/radiated, EN61000-3-2, EN61000-3-3, EN55024 (IEC61000-4-2, -3, -4, -5, -6, -11)
Safety Regulation	UL60950-1, EN60950-1, IEC60950-1
Leakage Current	Standard model 1mA at 264VAC (options for 500 $\mu$ A max. at 240VAC / 300 $\mu$ A max. at 120VAC input)
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 i/p connector to far most earth point. Max. allowable resistance 0.1 ohm.
MTBF	100000 Hrs (according to MIL-HBK-217F) at 30°C
Cooling	U Type: 135W (single), 135W (dual) convection cooled / 250W (single), 250W (dual) with fan F Type with top built-in fan: 250W (single), 250W (dual)
Dimensions	U Type: 5(L) x 3.2(W) x 1.5(H) inches F Type: 5(L) x 3.2(W) x 2(H) inches
Weight	U Type: 400g (single) / 450g (dual) F Type: 500g (single) / 550g (dual)

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## Single Output Voltage & Current Ratings

MODEL	OUTPUT VOLTAGE		Max. OUTPUT POWER or CURRENT		REGULATION	RIPPLE & NOISE
	Preset	Range	Type U (forced air) & Type F	Type U (convection)		
JB250X-05	5VDC	2 - 5V	40A	20A	±1%	1%
JB250X-09	9VDC	6 - 10V	25A	13.5A	±1%	1%
JB250X-12	12VDC	11 - 13.8V	250W	135W	±1%	1%
JB250X-15	15VDC	14 - 15.5V	250W	135W	±1%	1%
JB250X-18	18VDC	16 - 20V	250W	135W	±1%	1%
JB250X-24	24VDC	21 - 26V	250W	135W	±1%	1%
JB250X-28	28VDC	27 - 34V	250W	135W	±1%	1%
JB250X-36	36VDC	35 - 42V	250W	135W	±1%	1%
JB250X-48	48VDC	43 - 50V	250W	135W	±1%	1%
JB250X-54	54VDC	51 - 60V	250W	135W	±1%	1%

## Dual Output Voltage & Current Ratings

MODEL	OUTPUT VOLTAGE	Max. OUTPUT CURRENT		REGULATION	RIPPLE & NOISE
		Type U (forced air) & Type F	Type U (convection)		
JB250DX-3.312	V1: +3.3V	24A	12A	±5%	50mV
	V2: +12V	12A	7A	±5%	1%
JB250DX-3.324	V1: +3.3V	24A	12A	±5%	50mV
	V2: +24V	6A	4A	±5%	1%
JB250DX-0512	V1: +5V	24A	12A	±5%	1%
	V2: +12V	12A	7A	±5%	1%
JB250DX-0524	V1: +5V	24A	12A	±5%	1%
	V2: +24V	6A	4A	±5%	1%
JB250DX-0548	V1: +5V	24A	12A	±5%	1%
	V2: +48V	3A	2A	±5%	1%
JB250DX-1224	V1: +12V	12A	7A	±5%	1%
	V2: +24V	6A	4A	±5%	1%

### Notes:

- X in the part number can be 'F' (enclosed with top fan), 'U' (U chassis),
- Standard models come with output voltage preset
- Single output models provide up to 600W peak power within 500µs for all models. Longer duration available - consult sales
- Type U (with 16CFM forced cooling) & Type F: Max. 250W combined power of V1 & V2 for JB250DX-1224 and 200W for other models
- Type U (with convection cooling): Max. 135W combined power of V1 & V2 for JB250DX-1224 and 100W for other models
- 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 - consult sales

## Mechanical & Connection Details

### Input Connector (CN3)

Howder Terminal block Part No. HD-601-3P or  
Molex Part No. 09-93-0500 or equivalent (5 pins, 3 used)

### Output Connector (CN2)

Howder Terminal Block Part No. HD-601-4P or  
Molex Part No. 09-93-0800 or equivalent

### Output Pin Assignment

See table on right

### Power Good, Remote On/Off Connector (CN1)

Mating Connector: JST XHP-3 or equivalent (CHYAO SHIUNN JS-2001-03)  
Mating Pins: JST SXH-002T-P0.6 for AWG 30 to 26

### Fan Drive Connector

Mating Connector: JST XHP-2 or equivalent (CHYAO SHIUNN JS-2001-02)

### Mounting Inserts

M3 in 7 places  
Maximum penetration 3.8mm, see outline drawing for locations

Pin Connections			
Single Output			
Howder	Molex		
Pins 1-2: V+	Pins 1-3:	V+	
Pins 3-4: V-	Pins 4-6:	V-	
Dual Output			
Howder	Molex		
Pin 1: V2	Pins 1:	V2	
Pin 2: RTN	Pins 2-5:	RTN	
Pin 3: V1	Pins 6-8:	V1	
Signal Pin Assignment			
Pin 1:	Power Good		
Pin 2:	Remote Switch		
Pin 3:	RTN		

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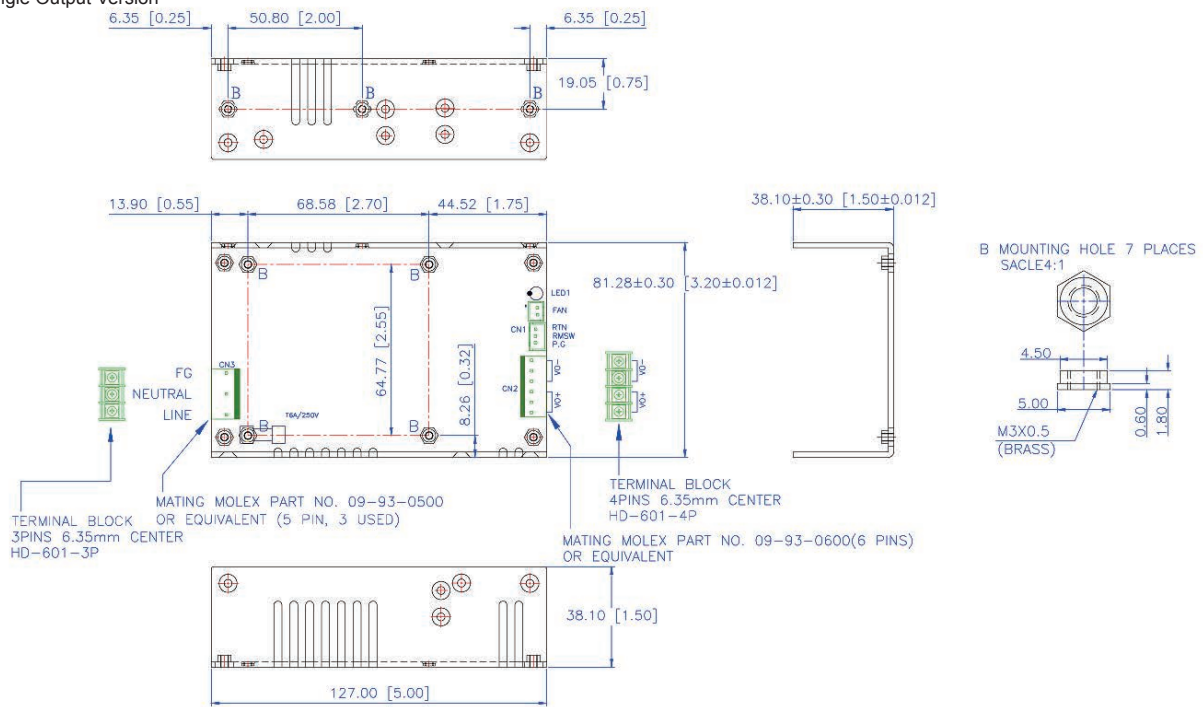


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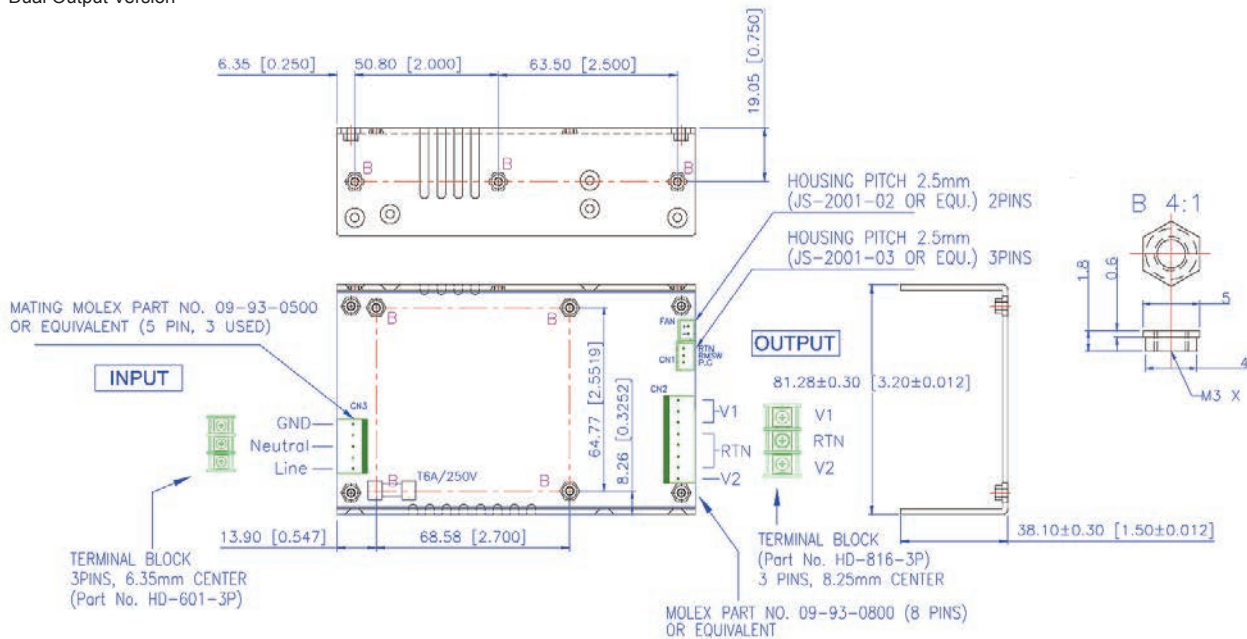
## Mechanical & Connection Details

U Type (U-Chassis only): 5(L) x 3.2(W) x 1.5(H) inches; Weight: 400g (single output) / 450g (dual output)

### Single Output Version



### Dual Output Version

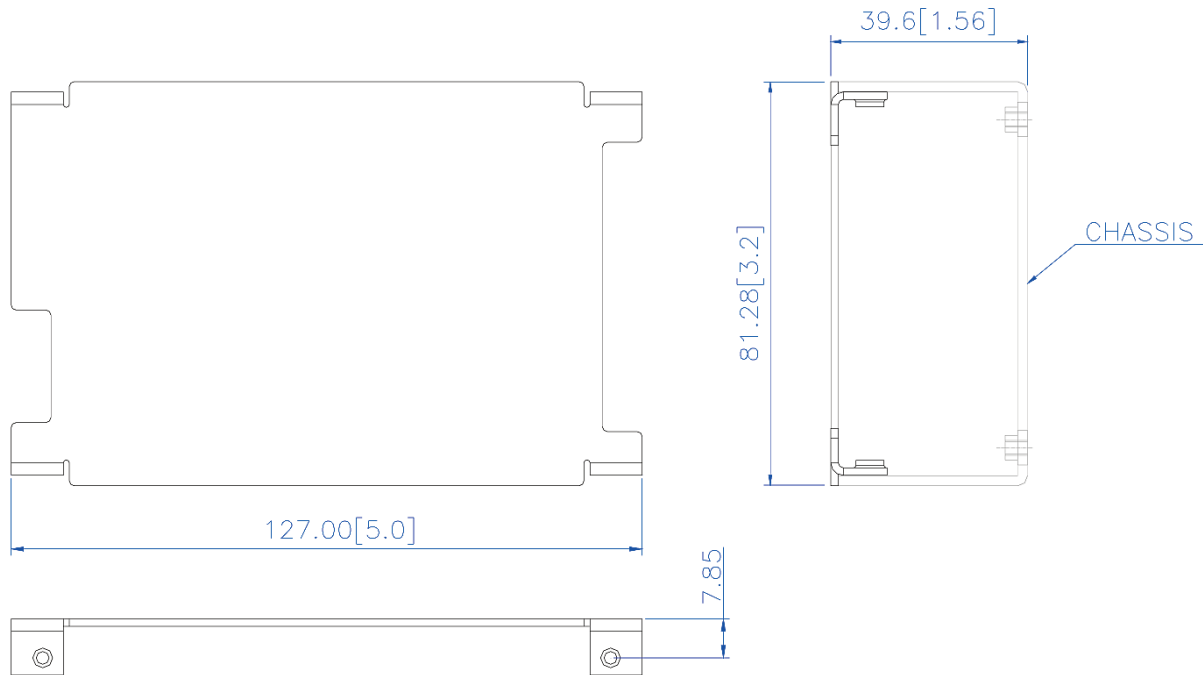


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U Type (U-Chassis with Top Cover): 5(L) x 3.2(W) x 1.56(H) inches; Weight: 420g (single output) / 470g (dual output)



F Type (U-Chassis with built-in Top Fan): 5(L) x 3.2(W) x 2(H) inches; Weight: 500g (single output) / 550g (dual output)

