

AC-DC Converters

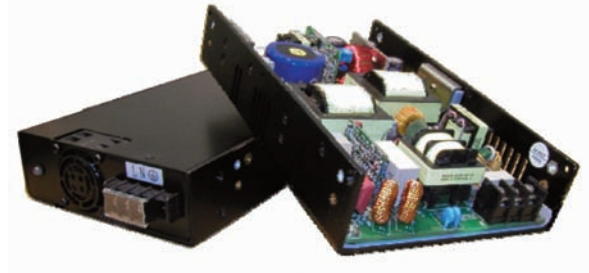


JB400 & JB400D Series 400 Watts, Single & Dual Outputs Medical & ITE Approvals

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Features

- Active Power Factor Correction meets EN61000-3-2 Class D
- Optional Medical Approved Versions (M)
- Optional Active Current Sharing (I)
- Peak Power up to 700W with 500µS Duty Cycle
- U Chassis or Enclosed with Integral Fan
- 1U Height with High Power Density of 6.25W per Cubic Inch
- Current Monitoring and Remote Voltage Adjustment (Remote Margin)
- Single & Dual Output Models



Electrical Specification

Input Voltage:	90-264VAC, 47-63Hz	Over Power Protection:	C.C mode 110-140% auto recovery
Input Current:	6.35A @ 90VAC full load output	Input Voltage Protection:	Power shutdown when AC input <80V ±5V AC and recovery >86VAC
Inrush Current:	35A max @ 230VAC cold start full load	Output OVP:	Latching will occur when Vout exceeds 130% recycle AC input to reset
Power Factor Correction:	Active PFC meets EN61000-3-2 class D	Over Temp Protection:	Shutdown at ambient of +85°C with auto recovery
Fan Drive:	12V DC 400mA output for external fan	Short Circuit Protection:	Trip without damage and auto recovery
Transient Response:	Returns to 1% in <2.5mS for 50% load change, pk transient not exceeding 5%	Switching Frequency:	30kHz fixed frequency
Overshoot:	Turn on/off does not exceed 5%	Operating Temperature:	0 to +70°C, derating 2.5%/°C from +50-70°C
Efficiency:	See table	Storage Temperature:	-20 to +85°C
Turn on Delay:	1 second max at 120VAC	Operating Humidity:	5 to 90% RH non-condensing
Hold Up Time:	20mS minimum @ 80% load	Storage Humidity:	5 to 95% RH non-condensing
Output Adjustability:	±5% min V1 on trimpot, (see margin)	Vibration:	Frequency 5 to 50Hz acceleration ±7.35M (SxS) on X,Y & Z axis
Remote Sense:	V1 RS+ & RS- on CN3, not with 'I' option	Emmissions (conducted):	FCC Part 15, CISPR22 'B', EN55022'B'
Remote On/Off:	RSW on CN3, low signal turns off Vout	Safety Approvals:	UL/cUL60950-1, UL/cUL60601-1 (Medical) TUV EN60950-1, TUV EN60601-1 (Medical)
Power Supply On:	Green LED, LED 1 on PCB	Earth Leakage Current:	ITE version 1.5mA, Medical version 300µA
LED Display:	Bi colour green LED in front panel on enclosed (E) version only any fault or remote on/off will indicate orange	Hi-Pot Test:	1500VAC Live to Chassis (2mA DC cut off I) 4000VAC Primary to Secondary 1500VAC Primary to Core All for 3 seconds
Power Good:	PG on CN3 will go high 100-500mS after Vout within regulation and low 1mS before loss of regulation	Grounding Test:	Apply 40A from ground pin to earth connection point. Max allowable resistance 0.1 ohm
Current Sharing (I Option): (optional on single output models only)	CSH on CN3 for single wire current sharing for up to 4 units operating in parallel, 10% accuracy at full load Includes or'ing diodes	MTBF:	100,000 Hours to MIL-HBK-217F @ 30°C
Current Monitor:	CMN on CN3 for current sense 0.5 to 3V DC = 0 to 100% output I	Cooling:	U Channel 250W convection, 400W with 23CFM airflow. Enclosed versions have fan
Remote Margin:	MAG on CN3 providing 50% output adjustment by applying 0.4 to 5V input	Dimensions:	U Channel version 8(L) x 5(W) x 1.6(H) inches Enclosed version 9(L) x 5(W) x 1.6(H) inches
AC Fail (optional on single output models only)	ACF on CN3 goes low when AC input <80V ±5VAC, goes high >86VAC	Weight:	U Channel version 1.3 Kilo Enclosed version 1.6 Kilo
Input Fuse:	2 x T8A 250V fuses in Line & Neutral		

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Output Voltage & Current Ratings (Single Output)

Model	Output Range (Factory Set)	Preset Voltage	Max Output Power or Current		Total Regulation	Ripple & Noise	Min Efficiency @ full load
			Convection	Forced Air			
JB400X-03(I)(M)	2-3.3V DC	3.3V DC	45A	60A	±1%	±1%	70%
JB400X-05(I)(M)	5-6V DC	5V DC	45A	60A	±1%	±1%	75%
JB400X-12(I)(M)	12-15V DC	12V DC	250W	400W	±1%	±1%	80%
JB400X-18(I)(M)	16-21V DC	18V DC	250W	400W	±1%	±1%	83%
JB400X-24(I)(M)	22-30V DC	24V DC	250W	400W	±1%	±1%	83%
JB400X-36(I)(M)	31-41V DC	36V DC	250W	400W	±1%	±1%	83%
JB400X-48(I)(M)	42-58V DC	48V DC	250W	400W	±1%	±1%	83%

Note:

X in model number above = U for U channel version or E for enclosed with end fan, if top cover required on U channel version add suffix -CVR to end of part number. E enclosed version is available with either screw terminal AC input or IEC320-14 inlet connector with ON/OFF switch. Add suffix -ST to end of part number for screw terminals or -IEC for IEC inlet. U channel version is also available with either Molex input and output connectors or screw terminals. Add suffix -MX to end of part number for Molex or -ST for screw terminals.

Options:

(I) in part number is for single wire current sharing and includes or'ing diodes

(M) in part number above is for medical safety approvals and low earth leakage current

For AC Power fail add suffix -ACP to part number above.

For example a 12V medically approved enclosed fan cooled unit with IEC inlet, Current Sharing and AC Power Fail would be as follows:-
JB400E-12IM-IEC-ACP

Regulation & Ripple & Noise:

Figures above are with 1% minimum load, however unit is able to operate from zero load but there may be a slight difference in specified limits above.

Output Voltage & Current Ratings (Dual Outputs)

Model	DC Outputs	Max Output Current		Total Regulation	Ripple & Noise	Min Efficiency @ full load
		Convection	Forced Air			
JB400DX-0312(M)	V1: +3.3V	30A	40A	±5%	±1%	75%
	V2: +12V	16.7A	25A	±5%	±1%	
JB400DX-0324(M)	V1: +3.3V	30A	40A	±5%	±1%	75%
	V2: +24V	8.34A	12.5A	±5%	±1%	
JB400DX-0512(M)	V1: +5V	30A	40A	±5%	±1%	75%
	V2: +12V	16.7A	25A	±5%	±1%	
JB400DX-0524(M)	V1: +5V	30A	40A	±5%	±1%	75%
	V2: +24V	8.34A	12.5A	±5%	±1%	
JB400DX-1224(M)	V1: +12V	16.7A	25A	±5%	±1%	75%
	V2: +24V	8.33A	12.5A	±5%	±1%	

Note:

Maximum combined power of V1 & V2 above is 250W convection cooled (U Channel version) or 400W with 23 CFM forced air cooling.

X in model number above = U for U Channel Version or E for enclosed with end fan, if top cover required on U channel version add suffix -CVR to end of part number. E enclosed version is available with either screw terminal AC input or IEC320-14 inlet connector with ON/OFF switch. Add suffix -ST to end of part number for screw terminals or -IEC for IEC inlet. U channel version is also available with either Molex input and output connectors or screw terminals. Add suffix -MX to end of part number for Molex or -ST for screw terminals.

Regulation & Ripple & Noise:

Figures above are with 10% minimum load on both outputs to maintain regulation.

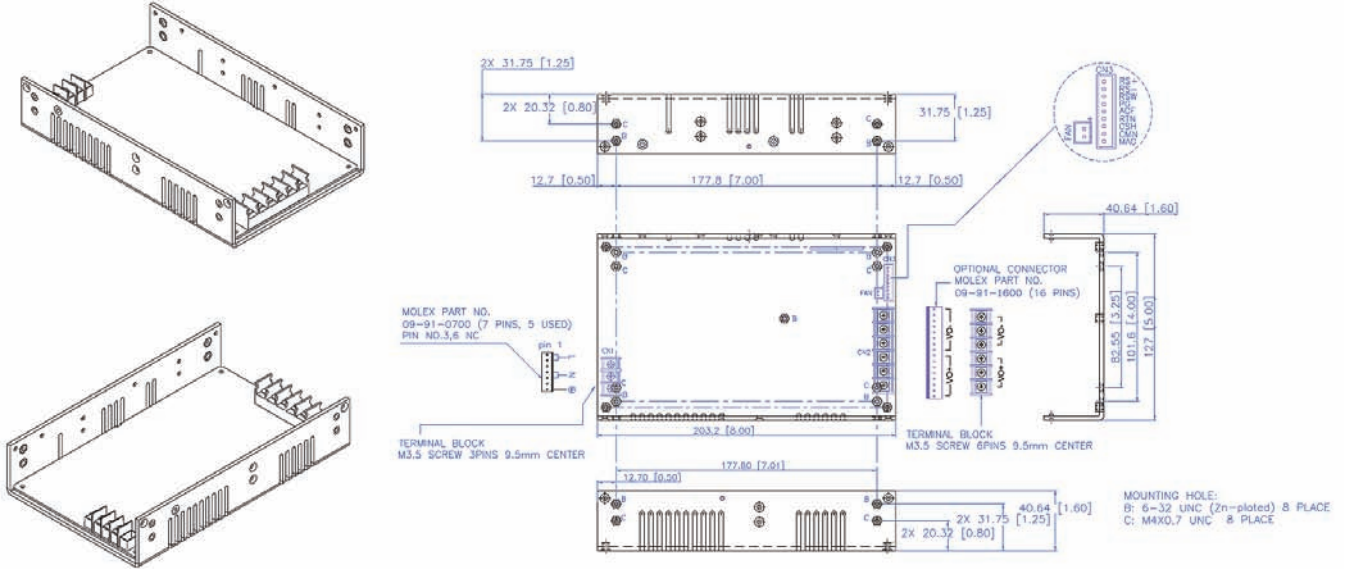
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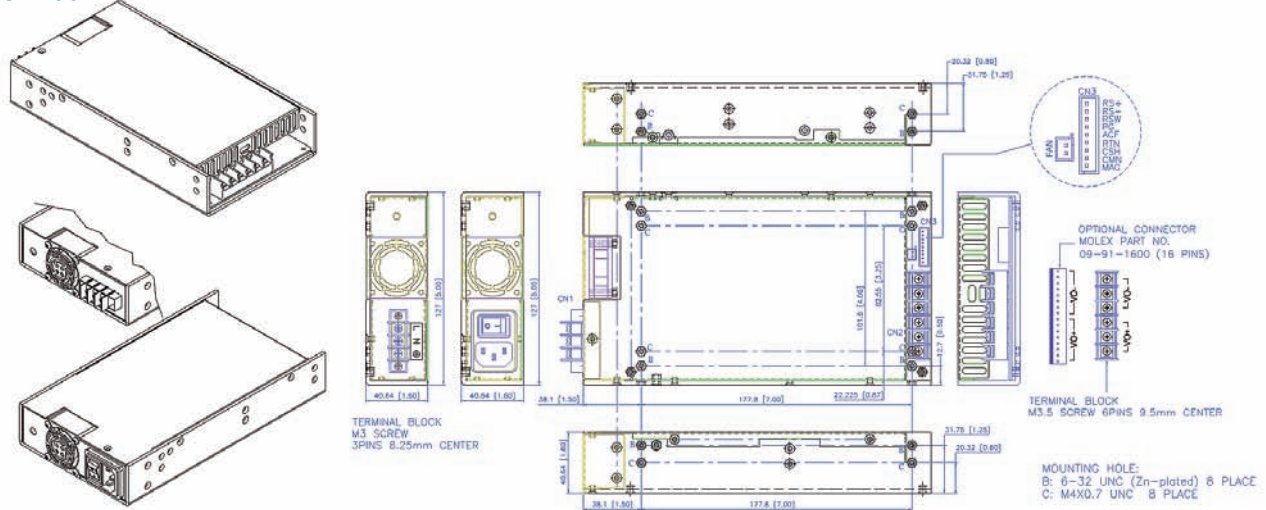
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Mechanical & Connector Details (Single Output)

JB400U



JB400E



Input Connector (CN1)

JB400U Mating Molex Connector Part No. 09-91-0700 7 pin (5 used), or Howder Terminal Block Part No. HD-121-3P

JB400E IEC320 Snap In Connector or DINKLE Terminal Block Part No. DT-35-A02W-03 3 pin

Output Connector (CN2)

JB400U or E Mating Molex 16 pins (09-91-1600) or Howder Terminal Block HD-121-6P M3.5 6 way, 9.5mm centre

Logic Signal Connectors (CN3)

Mating JST XHP-9 or equivalent (CHYAO SHIUNN JS-2001-09) Mating Pins JST SXH-002T-P0.6 for AWG 30-26

Mounting Inserts

B = 8 x 6-32 UNC, C = 8 x M4 with maximum penetration of 3.8mm on bottom or 6mm on side

Connections

Output	Molex	Howder
VO+	Pins 1-8	Pins 1-3
RTN	Pins 9-16	Pins 4-6

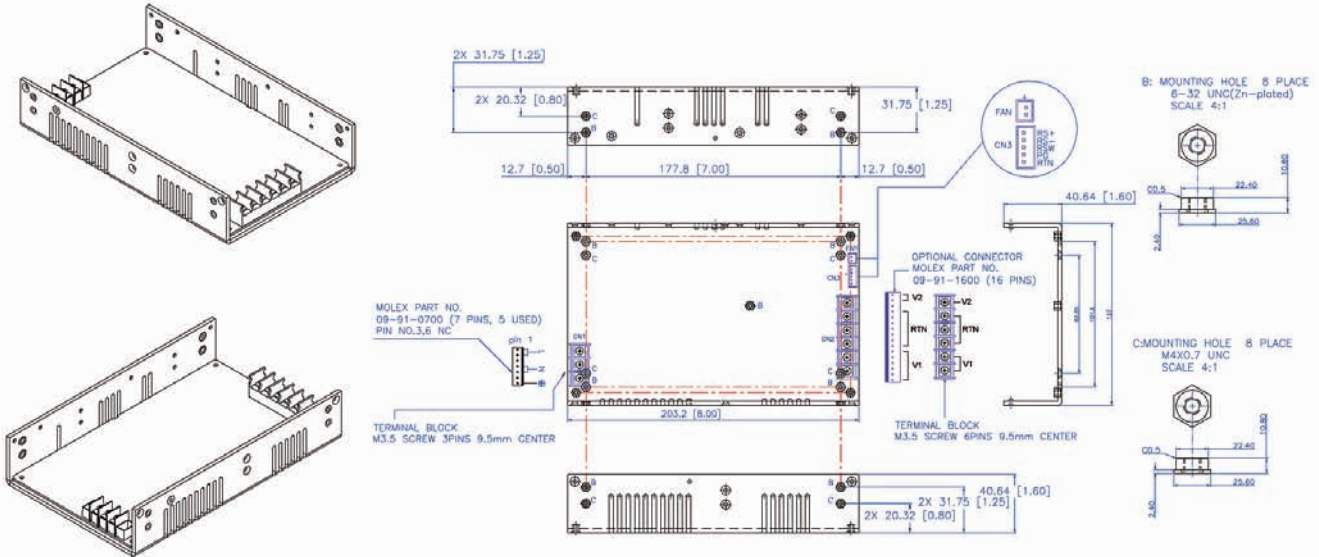
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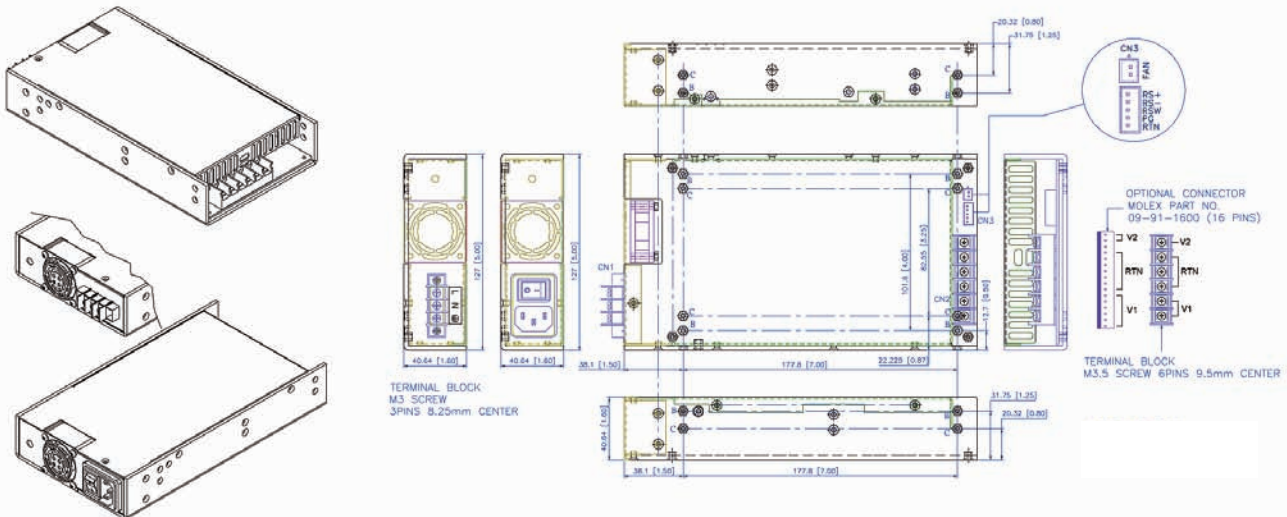
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Mechanical & Connector Details (Dual Output)

JB400DU



JB400DE



Input Connector (CN1)

JB400U Mating Molex Connector Part No. 09-91-0700 7 pin (5 used), or Howder Terminal Block Part No. HD-121-3P
JB400E IEC320 Snap In Connector or DINKLE Terminal Block Part No. DT-35-A02W-03 3 pin

Output Connector (CN2)

JB400U or E Mating Molex 16 pins (09-91-1600) or Howder Terminal Block HD-121-6P M3.5 6 way, 9.5mm centre

Logic Signal Connectors (CN3)

Mating JST XHP-9 or equivalent (CHYAO SHIUNN JS-2001-09) Mating Pins JST SXH-002T-P0.6 for AWG 30-26

Mounting Inserts

B = 8 x 6-32 UNC, C = 8 x M4 with maximum penetration of 3.8mm on bottom or 6mm on side

Connections

Output	Molex	Howder
V1	Pins 1-8	Pins 1 & 2
RTN	Pins 7-13	Pins 3-5
V2	Pins 15 & 16	Pin 6