

AC-DC Converter

**POWER
SOLVE**

JB320 / JB320D Series 250-320W Single & Dual Outputs

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Features

- Power Factor Corrected to EN61000-3-2 Class A
- 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
- AC Input Range Auto-Selectable



Electrical Specification

Input Voltage	90-132 / 180-264Vac auto-ranging, 47-63Hz
Input Current	8A at 100-120Vac / 4A 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	Single output models: 70% for 3.3V, 75% for 5V, 80% for 12V & 83% minimum for higher outputs Dual output models: 75% minimum
Turn On Delay	1 second max. at 120Vac input
Hold Up Time	20mS min. at 80% of full load
Adjustability	Output user adjustable $\pm 5\%$ min.
Fan Drive	12VDC / 400mA to drive an external fan
Fan Fail (FF) Alarm	Designated as FF on pin3 of CN1. Open collector output rated for 15VDC / 5mA sink max. and will go high on fan failure
Power Supply ON	Green LED designated as LED1 on the PCB
Power Good	Designated as PG on CN1. 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 T8A/250V fuse in the primary
Short Circuit Protection	Trip without damage and auto-recovery.
Over-Power Protection	Constant current 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 at 85°C and auto-recovery
Switching Frequency	23KHz 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 ² on X, Y and Z axis
Emissions	EN55022 Class B, conducted/radiated, EN61000-3-2, EN61000-3-3, EN55024
Safety Regulation	UL60950-1, CSA C22.2 No. 60950-1-03, TUV EN60950-1, CE Mark (LVD) EN61000-3-2, 3 & IEC61000-4 Series Regulations and CB
Leakage Current	Standard model 1.5mA at 240Vac (options for 500 μ A max. at 240VAC / 300 μ 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: 180W (single), 150W (dual) convection cooled / 320W (single), 300W (dual) with 22CFM fan C Type with top cover: As above F Type with top built-in fan: 320W (single), 300W (dual) E Type enclosed with end built-in fan: 320W (single), 300W (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) & E & F	Type U (convection)	Type C (convection)		
JB320X-05	5VDC	2 - 5.5V	45A	27.28A	25A	±1%	50mV
JB320X-09	9VDC	6 - 11V	29.1A	16.37A	13.64A	±1%	1%
JB320X-12	12VDC	12 - 13.5V	320W	180W	170W	±1%	1%
JB320X-15	15VDC	13.6 - 15V	320W	180W	170W	±1%	1%
JB320X-18	18VDC	16 - 20V	320W	180W	170W	±1%	1%
JB320X-24	24VDC	21 - 26V	320W	180W	170W	±1%	1%
JB320X-28	28VDC	27 - 34V	320W	180W	170W	±1%	1%
JB320X-36	36VDC	35 - 42V	320W	180W	170W	±1%	1%
JB320X-48	48VDC	43 - 50V	320W	180W	170W	±1%	1%
JB320X-54	54VDC	51 - 60V	320W	180W	170W	±1%	1%

Dual Output Voltage & Current Ratings

MODEL	OUTPUT VOLTAGE	Max. OUTPUT CURRENT		REGULATION	RIPPLE & NOISE
		Type U (forced air) & E & F	Type U & C (convection)		
JB320DX-0512	V1: +5V	30A	15A	±5%	1%
	V2: +12V	16.67A	10.42A	±5%	1%
JB320DX-0524	V1: +5V	30A	15A	±5%	1%
	V2: +24V	8.33A	5.2A	±5%	1%
JB320DX-0548	V1: +5V	30A	15A	±5%	1%
	V2: +48V	4.16A	2.6A	±5%	1%
JB320DX-1224	V1: +12V	16.67A	12.5A	±5%	1%
	V2: +24V	8.33A	6.25A	±5%	1%

Notes:

- X in the part number can be 'E' (enclosed with end fan), 'F' (enclosed with top fan), 'U' (U chassis), 'C' (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
- Single output models provide up to 700W peak power within 500µs for all models. Longer duration available - consult sales
- Max. 300W combined power of V1 & V2 for JB320DX-1224 and 250W for other models with 18CFM min. forced air cooling
- Max. 150W combined power of V1 & V2 for JB320DX-1224 and 125W for other models with convection cooling
- 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 - consult sales

Mechanical & Connection Details

Input & Output Connector (CN2)

Howder Terminal block Part No. HB-95-7P or
Molex Part No. 09-91-1600 or equivalent (16 pins)

Output Pin Assignment

See table on right

Logic Signal 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 (FAN2)

Mating Connector: Molex 22-01-1022 or equivalent
Mating Pins: Molex series 2759 or 5159

Mounting Inserts

M4x0.7 in 8 places (8-32 optional).
Maximum penetration 4mm, see outline drawing for locations

Pin Connections

Single Output			
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:	Live	Pin 16:	Live
Dual Output			
Howder		Molex	
Pin 1:	V1	Pins 1-3:	V1
Pins 2-3:	RTN	Pins 4-8:	RTN
Pin 4:	V2	Pins 9-10:	V2
Pin 5:	GND	Pin 12:	GND
Pin 6:	Neutral	Pin 14:	Neutral
Pin 7:	Live	Pin 16:	Live

AC-DC Converter

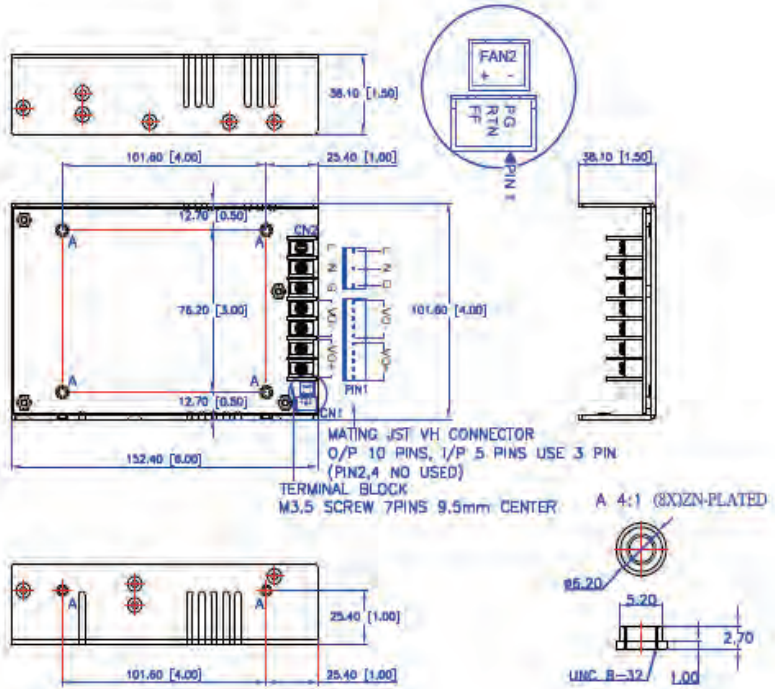
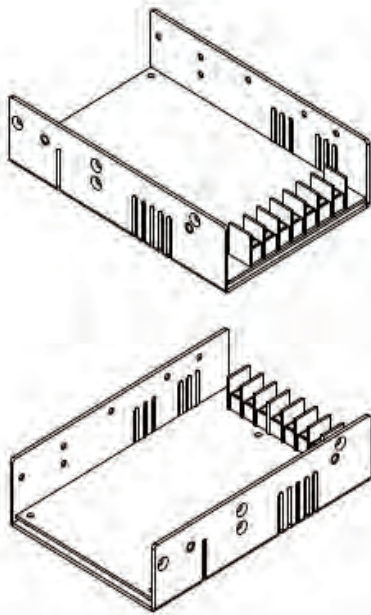


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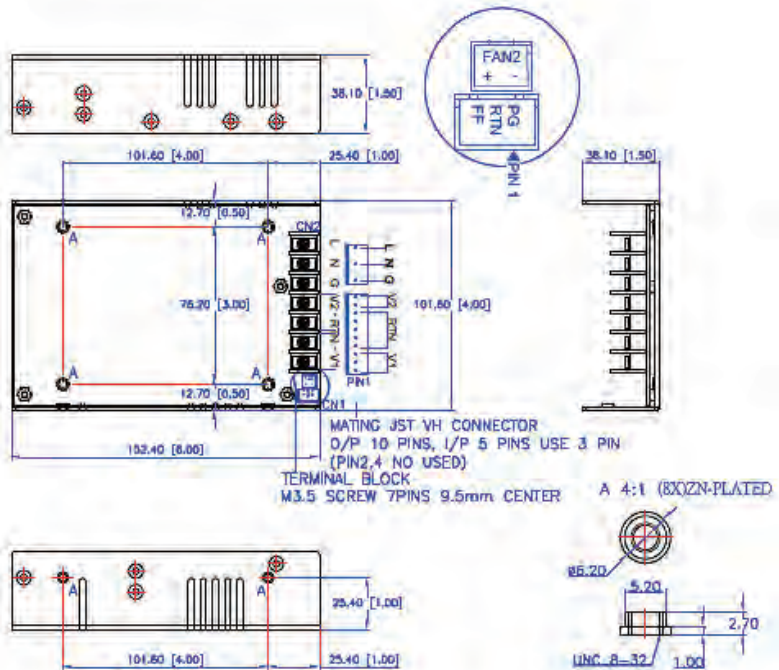
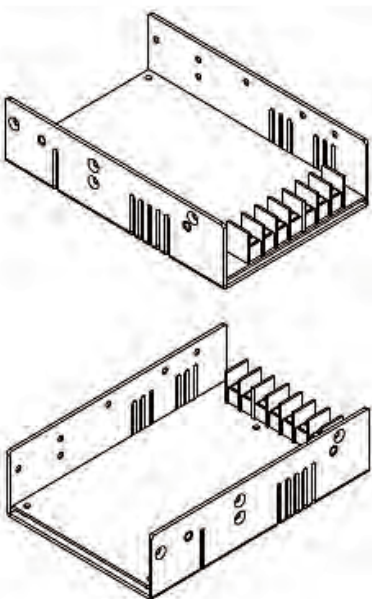
Mechanical & Connection Details

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

Single Output Version



Dual Output Version



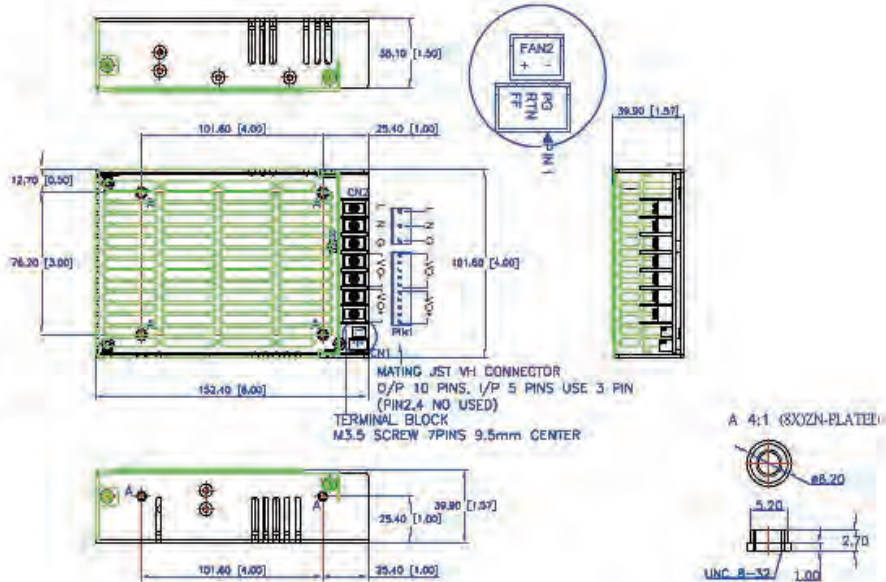
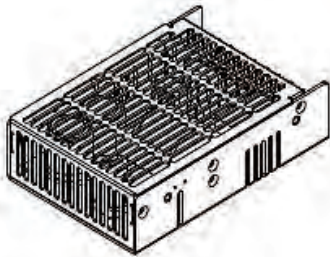
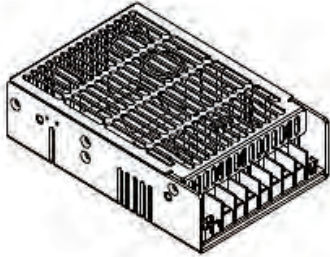
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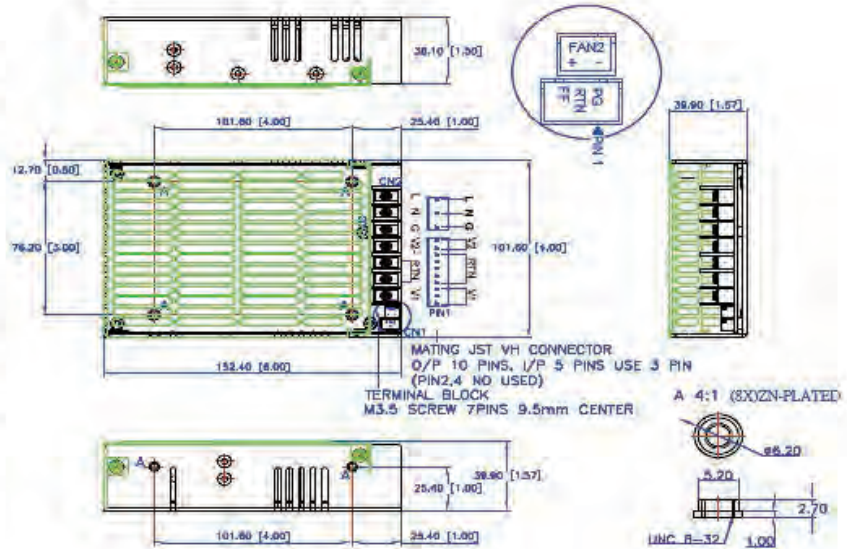
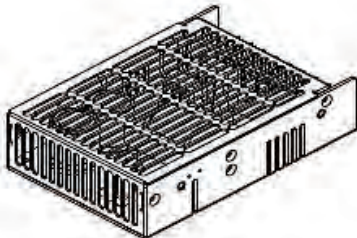
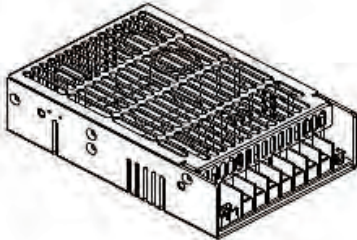
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U Type (U-Chassis with Top Cover): 6(L) x 4(W) x 1.55(H) inches; Weight: 650g

Single Output Version



Dual Output Version



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

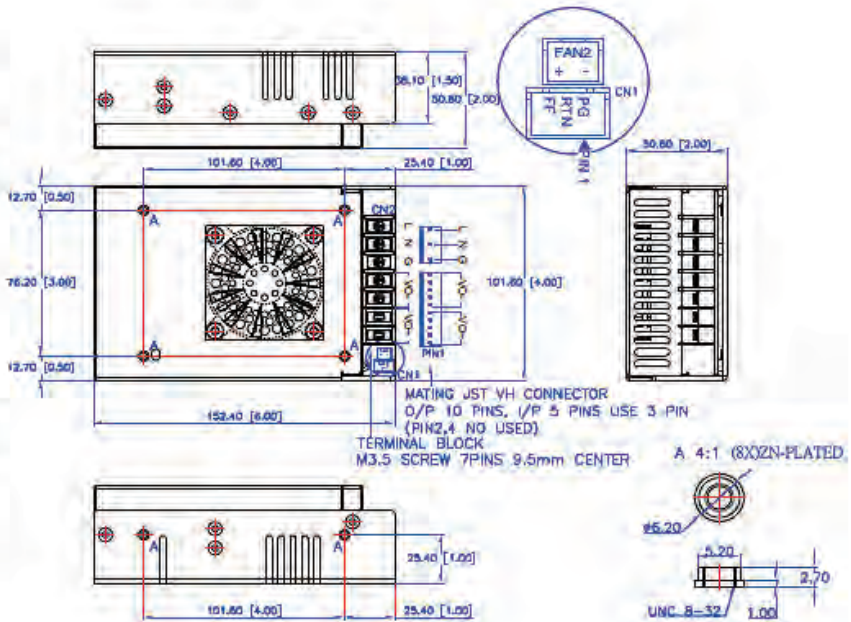
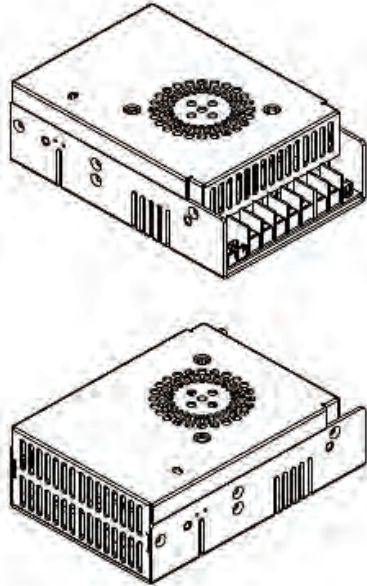
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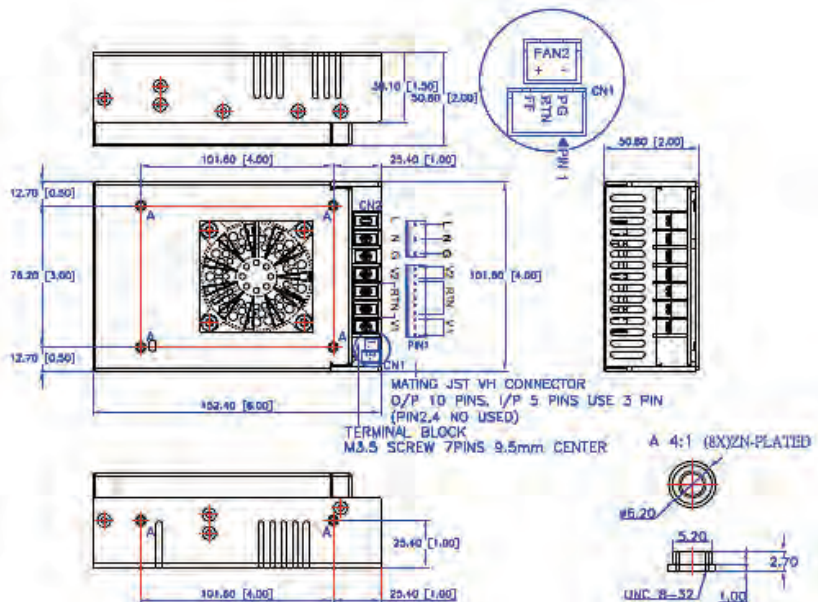
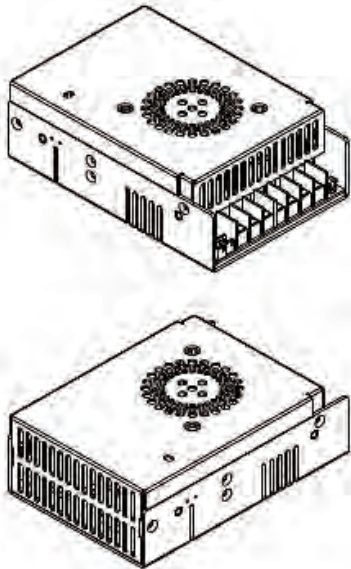
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F Type (Enclosed with built-in Top Fan): 6(L) x 4(W) x 2(H) inches; Weight: 800g

Single Output Version



Dual Output Version



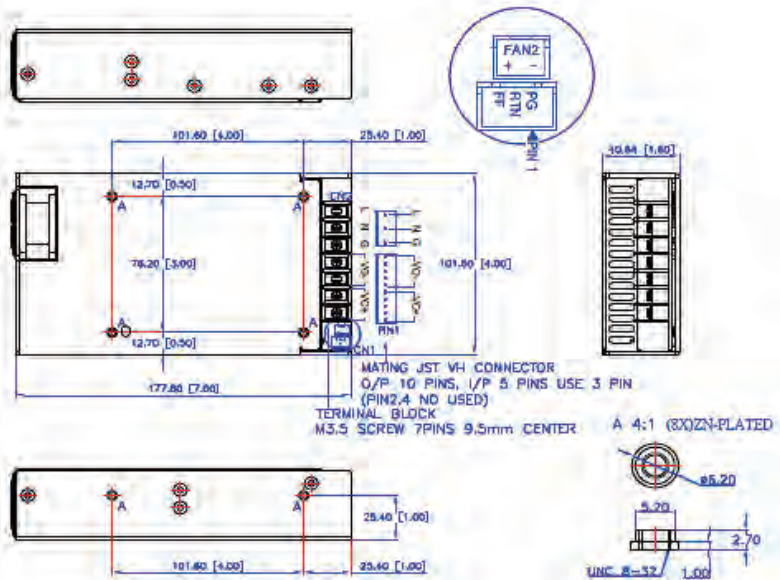
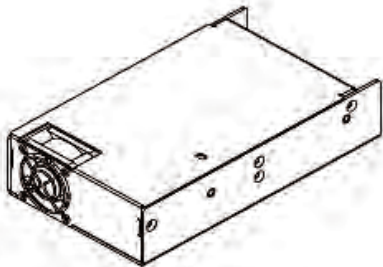
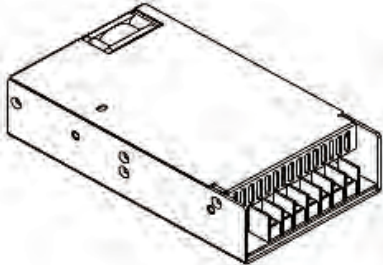
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E Type (Enclosed type with built-in end fan): 7(L) x 4(W) x 1.6(H) inches; Weight: 750g

Single Output Version



Dual Output Version

