

## JPS130/JPS130-M Series



- High Efficiency - up to 90%
- Medical Approval (JPS130-M Versions)
- 3" x 5" Footprint
- Zero Voltage Switching Technology
- High Power Density
- 100 W Convection-cooled
- Single & Multi Outputs

## Specification

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### Input

Input Voltage	• 90-264 VAC (130-370 VDC)
Input Frequency	• 47-63 Hz
Input Current	• 2.0/1.0 A max at 115/230 VAC
Inrush Current	• 30 A at 115 VAC, 60 A at 230 VAC
Power Factor	• 0.9 typical
Earth Leakage Current	• 1.5 mA max at 264 VAC/60 Hz JPS130 250 $\mu$ A max at 240 VAC/60 Hz JPS130-M
Input Protection	• Internal 3.15 A/250 V fuse Both line & neutral fused (JPS130-M)

### Output

Output Voltage	• See table
Output Voltage Trim	• $\pm 10\%$ on single output models, $\pm 5\%$ on multi output models, other voltages will track by the same percentage
Initial Set Accuracy	• At 60% rated load $\pm 1\%$ single outputs, $\pm 3\%$ on V1 for multi outputs
Minimum Load	• Single output: no minimum load required Multi-outputs: (see note 1)
Start Up Rise Time	• <20 ms
Hold Up Time	• 16 ms typical at low line
Line Regulation	• $\pm 0.5\%$ $V_{min}$ to $V_{max}$
Load Regulation	• $\pm 1\%$ , $\pm 5\%$ for auxiliaries, 20-100% of rated load
Transient Response	• 4% max deviation, recovery to within 1% in 500 $\mu$ s for a 25% load change
Ripple & Noise	• $\pm 1\%$ max pk-pk (see note 4)
Overvoltage Protection	• 110-140% on V1 only, recycle input to reset
Overload Protection	• 110-150%, auto recovery
Short Circuit Protection	• Trip & restart (Hiccup mode)
Temperature Coefficient	• 0.05%/ $^{\circ}$ C
Remote Sense	• Single output models only, compensates for up to 0.5 V drop
Fan Output	• 12 V, 450 mA multi-output models only

### General

Efficiency	• Up to 90% nominal line, full load
Isolation	• 3000 VAC Input to Output (JPS130), 4000 VAC Input to Output (JPS130-M), 1500 VAC Input to Ground, 500 VAC Output to Ground
Switching Frequency	• 120 kHz fixed, $\pm 10\%$ for both active PFC & PWM
Power Density	• 6.7 W/ $in^3$
MTBF	• 250 kHrs per MIL-HDBK-217F at 25 $^{\circ}$ C

### Environmental

Operating Temperature	• 0 $^{\circ}$ C to +70 $^{\circ}$ C, (see derating curves)
Cooling	• 130 W with 18 CFM airflow, 100 W with convection cooling
Operating Humidity	• 5-95% RH, non-condensing
Storage Temperature	• -20 $^{\circ}$ C to +85 $^{\circ}$ C
Operating Altitude	• 3000 m

### EMC & Safety

Emissions	• EN55022, level B conducted FCC 20780, level B conducted
Harmonic Currents	• EN61000-3-2
Voltage Flicker	• EN61000-3-3
ESD Immunity	• EN61000-4-2, level 3 Perf Criteria A
Radiated Immunity	• EN61000-4-3, 10 V/m Perf Criteria A
EFT/Burst	• EN61000-4-4, level 3 Perf Criteria A
Surge	• EN61000-4-5, level 3 Perf Criteria A
Conducted Immunity	• EN61000-4-6, 3 V Perf Criteria A
Dips & Interruptions	• EN61000-4-11, 30% 10 ms, 60% 100 ms, 95% 5000 ms Perf Criteria A, B, B
Safety Approvals	• JPS130: EN60950-1:2001, UL60950-1, CSA C22.2 No. 60950-1, CE Mark LVD. JPS130-M: UL2601-1, EN60601-1, CSA C22.2 No. 601.1 CE Mark LVD.

**Models and Ratings**

Output Power <sup>(3)</sup>	Output Voltage	Output Current		Ripple & Noise Pk-Pk <sup>(4)</sup>	Model Number
		Convection-cooled	18 CFM		
100 W	3.3 V	25.0 A	30.0 A	50 mV	JPS130PS03 <sup>^</sup>
130 W	5.0 V	20.0 A	26.0 A	50 mV	JPS130PS05 <sup>†^</sup>
	12.0 V	9.0 A	10.8 A	120 mV	JPS130PS12 <sup>†^</sup>
	15.0 V	7.0 A	8.7 A	120 mV	JPS130PS15 <sup>†^</sup>
	24.0 V	4.5 A	5.4 A	200 mV	JPS130PS24 <sup>†^</sup>
	48.0 V	2.3 A	2.7 A	200 mV	JPS130PS48 <sup>†^</sup>
130 W	5.0 V <sup>(1)</sup>	11.5 A	15.0 A	50 mV	JPS130PT31 <sup>†^</sup>
	12.0 V <sup>(2)</sup>	3.0 A	5.0 A	100 mV	
	-12.0 V <sup>(2)</sup>	0.5 A	0.5 A	100 mV	
130 W	3.3 V <sup>(1)</sup>	10.0 A	15.0 A	50 mV	JPS130PT30 <sup>(2)†^</sup>
	5.0 V <sup>(2)</sup>	8.0 A	15.0 A	50 mV	
	12.0 V <sup>(2)</sup>	0.5 A	0.5 A	100 mV	

**Notes**

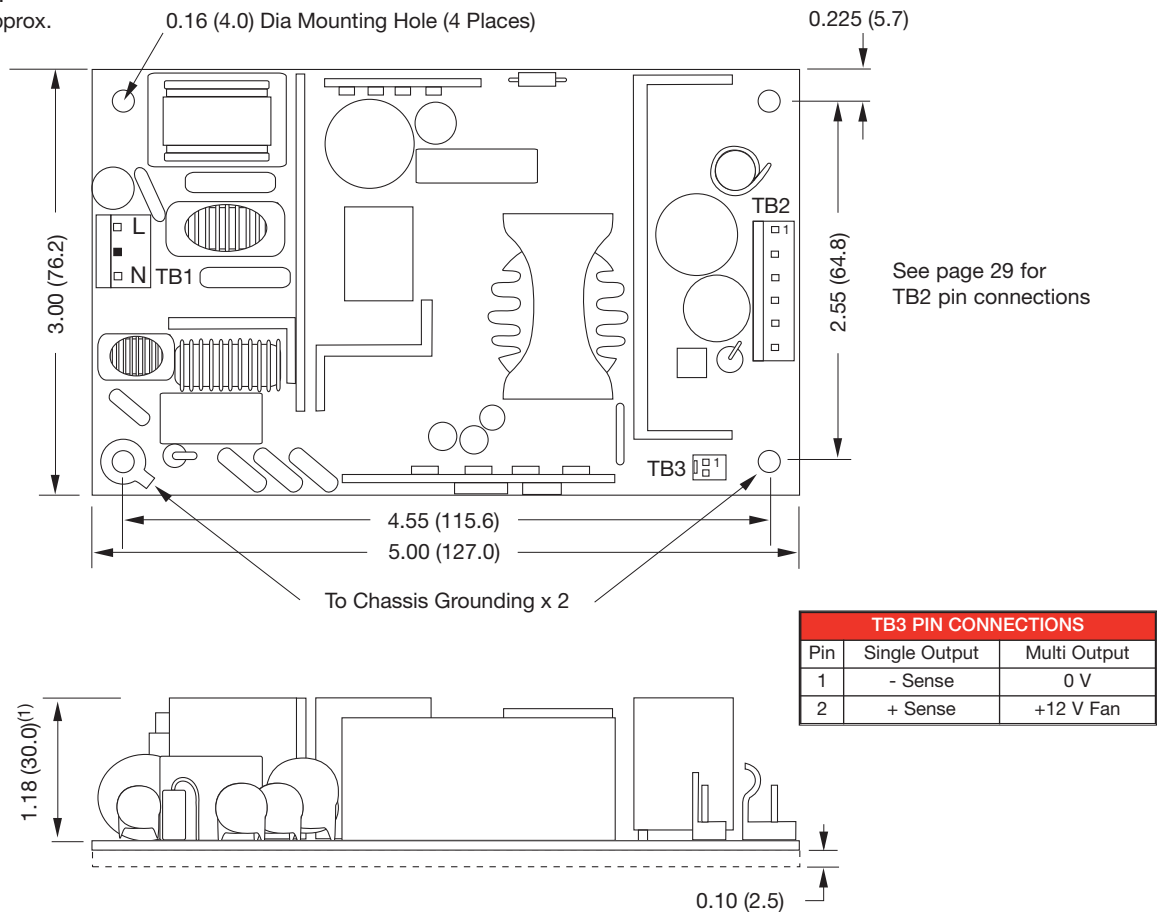
- 20% minimum load required on V1 to maintain stated regulation for auxiliary rails.
- Load regulation of auxiliary rails is defined over the range of 60% of rated output ±40%.
- Maximum power with 18 CFM of forced air.
- Ripple and noise measured over 15 MHz bandwidth with a 47 µF electrolytic capacitor and 0.47 µF ceramic capacitor.
- Covers available, order part number 'JPS130 COVER'<sup>†^</sup> or add suffix '-C' to receive the unit with cover fitted. Overall dimensions 90.6 x 142.9 x 39.8 mm.
- Connector kits and cable harnesses available. Consult sales for options.

<sup>†</sup> Available from Farnell. See pages 204-206.

<sup>^</sup> Available from Newark. See pages 207-208.

**Mechanical Details**

All dimensions are in inches (mm).  
Tolerance: 0.02 (0.4) max.  
Weight: 0.5 lbs (240 g) approx.



**Notes**

- Single output model shown, add extra 0.08" (2.0mm) to overall height for multi-output models.
- AC input connector (TB1): Molex 5277-02A or equivalent. Mates with 5196-N housings.
- DC output connector (TB2): Molex 5273 or equivalent, mates with 5195-N and 5239-N housings except JPS130PS03 which has a 6-position terminal screw block: Dinkle part number EHK508V Series accepts 24-12 AWG wire.
- TB3: Molex 5045-02A or equivalent. Single output units - TB3 is remote sense. Multi-output units - TB3 is 12 V, 450 mA fan output.

Models and Ratings

Output Power <sup>(3)</sup>	Output Voltage	Output Current		Ripple & Noise Pk-Pk <sup>(4)</sup>	Model Number
		Convection-cooled	18 CFM		
130 W	5.0 V	20.0 A	26.0 A	50 mV	JPS130PS05-M†^
	12.0 V	9.0 A	10.8 A	120 mV	JPS130PS12-M†^
	15.0 V	7.0 A	8.7 A	120 mV	JPS130PS15-M†^
	24.0 V	4.5 A	5.4 A	200 mV	JPS130PS24-M†^
	28.0 V	3.8 A	4.6 A	200 mV	JPS130PS28-M†^
	48.0 V	2.3 A	2.7 A	200 mV	JPS130PS48-M†^
130 W	5.0 V <sup>(1)</sup>	10.0 A	15.0 A	50 mV	JPS130PT31-M†^
	12.0 V <sup>(2)</sup>	3.0 A	4.1 A	120 mV	
	-12.0 V <sup>(2)</sup>	0.8 A	1.1 A	120 mV	
130 W	5.0 V <sup>(1)</sup>	10.0 A	15.0 A	50 mV	JPS130PT32-M†^
	15.0 V <sup>(2)</sup>	2.5 A	4.1 A	150 mV	
	-15.0 V <sup>(2)</sup>	0.8 A	1.1 A	150 mV	
130 W	5.0 V <sup>(1)</sup>	2.5 A	4.0 A	50 mV	JPS130PT34-M†^
	24.0 V <sup>(2)</sup>	2.8 A	4.0 A	240 mV	
	12.0 V <sup>(2)</sup>	0.7 A	1.0 A	120 mV	

Notes

1. 20% minimum load required on V1 to maintain stated regulation for auxiliary rails.
2. Load regulation of auxiliary rails is defined over the range of 60% of rated output ±40%.
3. Maximum power with 18 CFM of forced air.
4. Ripple and noise measured over 15 MHz bandwidth with a 47 µF electrolytic capacitor and 0.47 µF ceramic capacitor.
5. Covers available, order part number 'JPS130-M COVER'†^ or add suffix '-C' to receive the unit with cover fitted. Overall dimensions 89.5 x 143.0 x 40.0 mm.
6. Connector kits and cable harnesses available. Consult sales for options.

† Available from Farnell. See pages 204-206.

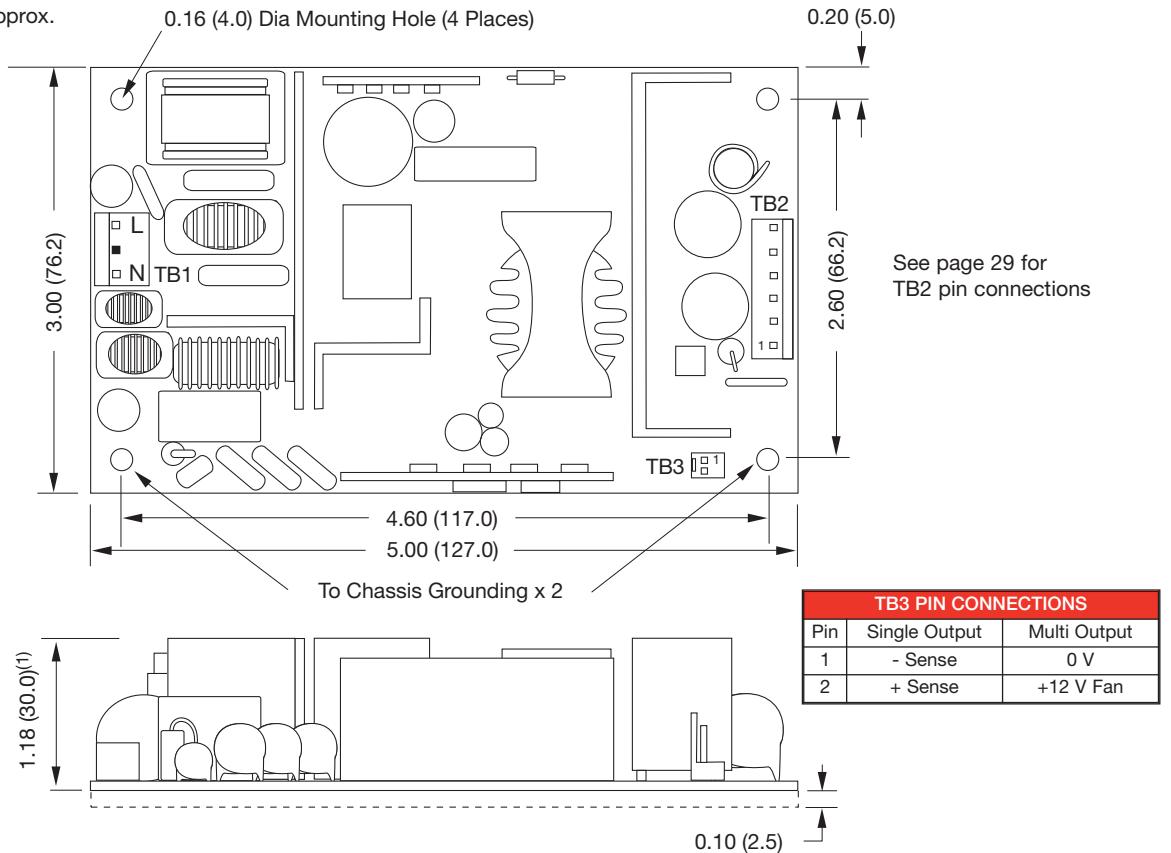
^ Available from Newark. See pages 207-208.

Mechanical Details

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Tolerance: ± 0.02 (0.4) max.

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Notes

1. Single output model shown, add extra 0.08" (2.0 mm) to overall height for multi-output models.
2. AC input connector (TB1): Molex 5277-02A or equivalent. Mates with 5196-N housings.
3. DC output connector (TB2): Molex 5273 or equivalent. Mates with 5195-N and 5239-N housings.
4. TB3: Molex 5045-02A or equivalent. Single output units - TB3 is remote sense. Multi-output units - TB3 is 12 V, 450 mA fan output.

## Pin Connections

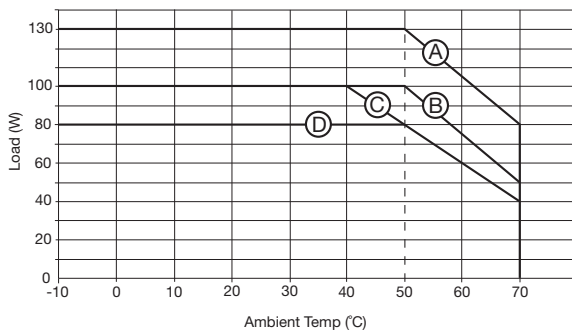
## JPS130/JPS130-M XP

JPS130 PIN CONNECTIONS				
TB2	PS05	PS03, 12, 15, 24, 48	PT31	PT30
1	+V	+V	+5 V	+3.3 V
2	+V	+V	+5 V	+3.3 V
3	+V	+V	+5 V	Return
4	+V	Return	Return	Return
5	Return	Return	Return	Return
6	Return	Return	Return	Return
7	Return		Return	Return
8	Return		+12 V	+5 V
9			-12 V	+5 V
10				+12 V
Type	Molex 5273-08A	Molex 5273-06A	Molex 5273-09A	Molex 5273-10A

JPS130-M PIN CONNECTIONS					
TB2	PS05	PS12, 15, 24, 28, 48	PT31	PT32	PT34
1	Return	Return	-12 V	-15 V	+12 V
2	Return	Return	+12 V	+15 V	+24 V
3	Return	Return	Return	Return	Return
4	Return	+V	Return	Return	Return
5	+V	+V	Return	Return	Return
6	+V	+V	Return	Return	Return
7	+V		+5 V	+5 V	+5 V
8	+V		+5 V	+5 V	+5 V
9			+5 V	+5 V	+5 V
Type	Molex 5273-08A	Molex 5273-06A	Molex 5273-09A		

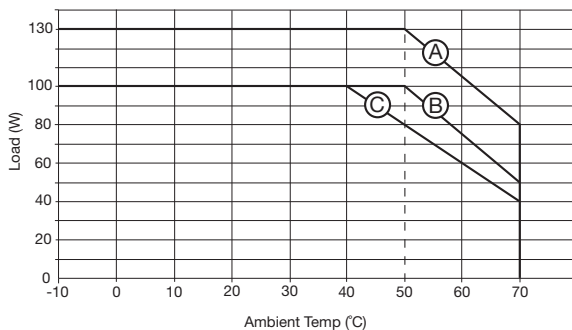
## Derating Curves

### JPS130



- Ⓐ JPS130 with 18 CFM fan (except JPS130PS03).
- Ⓑ JPS130PS12, PS15, PS24 and PS48 with convection cooling. JPS130PS03 with 18 CFM fan.
- Ⓒ JPS130PS05, PT30, PT31, PT32 and PT34 with convection cooling.
- Ⓓ JPS130PS03 with convection cooling.

### JPS130-M



- Ⓐ JPS130-M with 18 CFM fan.
- Ⓑ JPS130PS12-M, PS15-M, PS24-M and PS48-M with convection cooling.
- Ⓒ JPS130PS05-M, PT30-M, PT31-M, PT32-M and PT34-M with convection cooling.