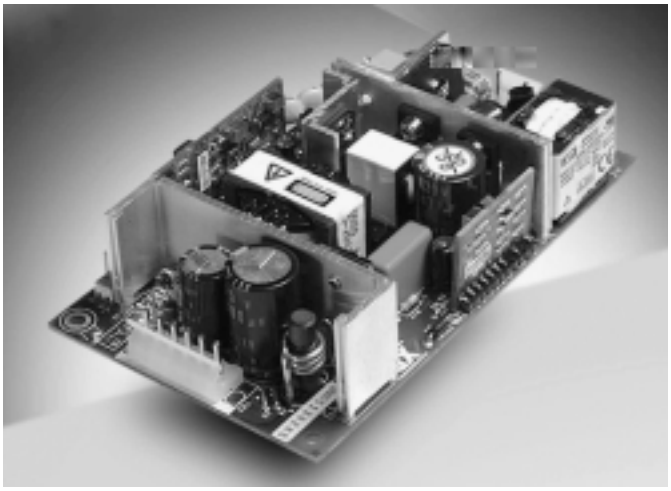
AC-DC Medical

130 Watts
ECM130 Series

THE XPERTS IN POWER



- Medical Approvals
- Up to 90% Efficiency
- Zero Voltage Switching Technology
- Small Size, High Power Density
- 100 W Convection Cooled
- Single & Multiple Outputs

Specification

Input

Input Voltage	•	*90-264 VAC (127-370 VDC)*
Input Frequency	•	*47-63 Hz*
Input Current	•	*2 A max at 115 VAC, 1 A max at 230 VAC*
Inrush Current	•	*30 A max at 115 VAC, 60 A max at 230 VAC*
Power Factor	•	*0.9 typical*
Earth Leakage Current	•	*250 µA at 240 VAC*
Input Protection	•	*Internal 3.15 A/250 V fitted to live & neutral*

Output

Output Voltage	•	*See Table*
Output Voltage Adjustment	•	*±10% single output models, ±5% V1 of multi output models, auxiliary voltages will track by the same percentage*
Minimum Load	•	*No minimum load required (Note 1)*
Start Up Rise Time	•	*<20 ms max*
Hold Up Time	•	*20 ms typical at 115 VAC*
Initial Set Accuracy	•	*V1 ±1%, V2 & V3 ±5%, measured at 60% load*
Line Regulation	•	*±0.5%, for nominal line ±10%*
Load Regulation	•	*±1%, ±5% for all secondary outputs on multiple output models (Note 2)*
Transient Response	•	*4% max deviation, 500 µs recovery time for a 25% load change*
Ripple & Noise	•	*±1% max pk-pk (Note 3)*
Overvoltage Protection	•	*115% to 140% output V1, recycle input to reset*
Overcurrent Protection	•	*120-150% on all outputs, foldback with auto recovery*
Temperature Coefficient	•	*0.05%/°C*
Remote Sense	•	*Single output models only, compensates for 0.5 V lead drop*

General

Efficiency (Typical)	•	*Up to 90%, nominal line full load*
Isolation	•	*4000 VAC Input to Output 1500 VAC Input to Ground 500 VAC Output to Ground*
Switching Frequency	•	*120 KHz fixed ±10% for both active PFC and main switch*
Power Density	•	*6.7 W/in³*
MTBF	•	*250,000 hrs min to MIL-HDBK-217F*

Environmental

Operating Temperature	•	*0 °C to +70 °C See Derating Curve Full power to +50 °C*
Storage Temp	•	*-20 °C to +85 °C*
Cooling	•	*130 W with 18 CFM airflow 100 W with convection cooling*
Operating Altitude	•	*3000 m*
Operating Humidity	•	*5-95% RH, non-condensing*

EMC & Safety

Safety Approvals	•	*UL2601-1, CSA C22.2 No 601.1 EN60601-1, CE Mark LVD*
Emissions	•	*EN55011 Class B and FCC 20780 Level B conducted*
ESD Susceptibility	•	*EN61000-4-2 Level 3, Perf Criteria A*
Radiated Susceptibility	•	*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-- 4 ria A*

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OUTPUT VOLTAGE & CURRENT RATINGS — ECM130

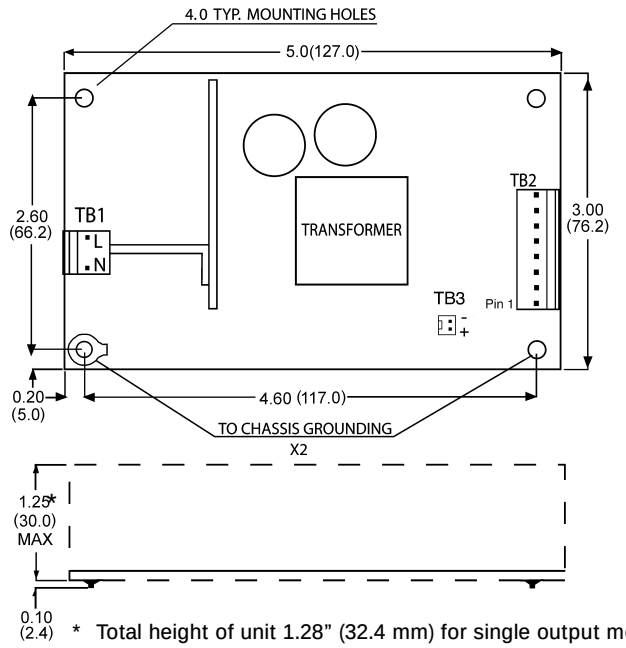
Output Power	Output Voltage	Output Current		Ripple & Noise	Model Number
		Convection Cooled	Max 18 CFM	Pk-Pk[3]	
130 W	+5.0 V	20.0 A	26.00 A	50 mV	ECM130PS05*
130 W	+12.0 V	9.0 A	10.80 A	120 mV	ECM130PS12*
130 W	+15.0 V	7.0 A	8.70 A	120 mV	ECM130PS15*
130 W	+24.0 V	4.5 A	5.40 A	200 mV	ECM130PS24*
130 W	+28.0 V	3.8 A	5.40 A	100 mV	ECM130PS28*
130 W	+48.0 V	2.1 A	4.65 A	200 mV	ECM130PS48*
130 W	+5.0 V [1] +12.0 V [2] -12.0 V [2]	10.0 A 3.0 A 0.8 A	15.00 A 4.10 A 1.10 A	50 mV 100 mV 100 mV	ECM130PT31*
130 W	+5.0 V [1] +15.0 V [2] -15.0 V [2]	10.0 A 2.5 A 0.8 A	15.00 A 4.10 A 1.10 A	50 mV 50 mV 100 mV	ECM130PT32*
130 W	+5.0 V [1] +24.0 V [2] +12.0 V [2]	2.5 A 2.8 A 0.7 A	4.00 A 4.00 A 1.00 A	50 mV 200 mV 120 mV	ECM130PT34

Notes

1. *20% minimum load required on V1 to maintain stated regulation for auxiliary rails.*
2. *Load regulation of auxilary rails is defined over the range of 60% of rated output ±40%.*
3. *Ripple & noise is measured by using 15 MHz bandwidth, each output terminated with a 0.47 µF capacitor and a 47 µF electrolytic capacitor at rated load and nominal line.*
4. *Covers available, order part number ECM130 COVER* or add suffix '-C' to receive unit with cover with fitted.*

* *Also available from Farnell InOne, see pages 350 & 351.*

Mechanical Details

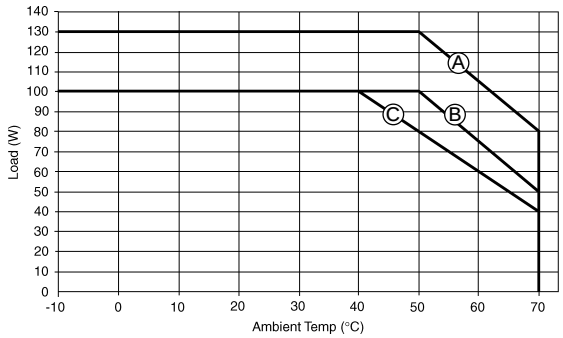


Notes:
1. Dimensions in inches (mm). Tolerance is ± 0.3 mm.
2. AC input connector (TB1): Molex 5277-02A or equivalent.
3. DC output connector (TB2): Molex 5273 or equivalent.
4. TB3 : Molex 5045-02A or equivalent.
   Single output units - TB3 is remote sense.
   Triple output units - TB3 is 12 V, 450 mA fan output.
5. Mating connector kits available order part number:
   ECM130PS CONKIT* for single output models,
   ECM130PT CONKIT* for multi output models.
6. Mating loom kits with 300 mm wire available order part number :
   ECM130 LOOM.

TB2	Models				
Pins	PS05	PS12, 15, 24, 28, 48	PT31	PT32	PT34
1	RET	RET	-12 V	-15 V	+12 V
2	RET	RET	+12 V	+15 V	+24 V
3	RET	RET	RET	RET	RET
4	RET	+V	RET	RET	RET
5	+V	+V	RET	RET	RET
6	+V	+V	RET	RET	RET
7	+V	No Pin	+5 V	+5 V	+5 V
8	+V	No Pin	+5 V	+5 V	+5 V
9	No Pin	No Pin	+5 V	+5 V	+5 V

* Total height of unit 1.28" (32.4 mm) for single output models, 1.35" (34.4 mm) for triple output models.

Derating Curve



Ⓐ ECM130 with 18 CFM fan.

Ⓑ ECM130PS12, PS15, PS24, PS48 with convection cooling.

Ⓒ ECM130PS05, PT31, PT32,PT34 with convection cooling.