

ECM140 Series



- High Efficiency Resonant Topology
- High Power Density 7.2 W/in³
- Convection & Force-cooled Ratings
- Class I & Class II Installations
- Industry Standard 3.0" x 5.0" x 1.30" Format
- 12 V Fan Output as Standard
- 5 V Standby Option
- Remote Sense as Standard
- IT, Industrial & Medical Safety Approvals
- Remote On/Off & Power Good Signals Option

Approved for Class I and Class II applications, the ECM140 range of single output AC-DC, 148 W power supplies feature high power density in an industry standard 3 x 5" (76.2 mm x 127.0 mm) footprint. The 1.30" (33.0 mm) high, 1U compatible high-density power supplies meet EN55032 Level B conducted emissions with leakage currents of 100 μ A at 115 VAC or 215 μ A at 230 VAC. Making these switchers ideal for industrial, IT and medical applications.

The ECM140 series has single output versions from 12 V to 48 VDC, adjustable by $\pm 5\%$. All models include an additional +12V / 0.5 A fan output. They are dual-fused for compliance with IEC60601-1 and efficiency is 88% typical, so minimal excess heat is generated. The ECM140 require only 10 CFM of cooling to deliver a full 148 W of power up to +60 °C and operates at up to +70 °C with derating. The units also supply 120 W when convection-cooled up to +50 °C with operation to +70 °C with derating.

Comprehensive overvoltage, overload and short circuit protection is built in. Optional -A units offer a +5 V / 0.5 A standby rail, an open collector Power OK signal and Remote On/Off function.

Models and Ratings - Convection-cooled

Output Power ⁽¹⁾	Output Voltage V1	Max Output Current V1	Fan Output V2	Standby Supply V3 (optional)	Model Number ^(2,3)
120 W	12.0VDC	10.0 A	12.0 V/0.5 A	5.0 V/0.5 A	ECM140US12
120 W	15.0VDC	8.0 A	12.0 V/0.5 A	5.0 V/0.5 A	ECM140US15
120 W	18.0VDC	6.6 A	12.0 V/0.5 A	5.0 V/0.5 A	ECM140US18
120 W	24.0VDC	5.0 A	12.0 V/0.5 A	5.0 V/0.5 A	ECM140US24
120 W	28.0VDC	4.2 A	12.0 V/0.5 A	5.0 V/0.5 A	ECM140US28
120 W	48.0VDC	2.5 A	12.0 V/0.5 A	5.0 V/0.5 A	ECM140US48

Notes:

1. Convection-cooled, max output power must not exceed 120 W for combined V1, V2, & V3
2. For V3 5 V standby, Power OK & Inhibit, add suffix '-A' to model number.
3. For covered versions, add suffix '-C' to model number or order part no. ECM140 COVER KIT for standalone cover. Not suitable for use in class II installations.

Models and Ratings - Forced-cooled

Output Power ⁽¹⁾	Output Voltage V1	Max Output Current V1	Fan Output V2	Standby Supply V3 (optional)	Model Number ⁽²⁾
148 W	12.0VDC	11.7 A	12.0 V/0.5 A	5.0 V/0.5 A	ECM140US12
148 W	15.0VDC	9.3 A	12.0 V/0.5 A	5.0 V/0.5 A	ECM140US15
148 W	18.0VDC	7.7 A	12.0 V/0.5 A	5.0 V/0.5 A	ECM140US18
148 W	24.0VDC	5.8 A	12.0 V/0.5 A	5.0 V/0.5 A	ECM140US24
148 W	28.0VDC	5.0 A	12.0 V/0.5 A	5.0 V/0.5 A	ECM140US28
148 W	48.0VDC	2.9 A	12.0 V/0.5 A	5.0 V/0.5 A	ECM140US48

Notes:

1. 10 CFM airflow.
2. For V3 5 V standby, Power OK & Inhibit, add suffix '-A' to model number.
3. For cover with Top Fan assembly add '-TF' to model number, e.g. ECM140US12-TF or ECM140US12-ATF.

Input Characteristics

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage - Operating	80	115/230	264	VAC	Derate output power < 90 VAC. See fig. 1. Power OK signal cannot be used <90 VAC.
Input Frequency	47	50/60	400	Hz	Agency approval 47-63 Hz
Power Factor		>0.5			230 VAC, 100% load EN61000-3-2 class A compliant
Input Current - No Load		0.25/0.2		A	115/230 VAC
Input Current - Full Load		2.5/1.3		A	115/230 VAC
Inrush Current			40	A	230 VAC cold start, 25 °C
Earth Leakage Current		100/215	265	µA	115/230 VAC/50 Hz (Typ.), 264 VAC/60 Hz (Max.)
		0.5/1.1		mA	115/230 VAC/400 Hz
Input Protection	T5.0A/250 V internal fuse in both line and neutral				

Output Characteristics

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage - V1	12		48	VDC	See Models and Ratings table
Initial Set Accuracy			±1 ^(V1) , ±5 ^(V2) & ±3 ^(V3)	%	50% load, 115/230 VAC
Output Voltage Adjustment	±5			%	V1 only via potentiometer. See mech. details (P13).
Minimum Load	0 ^(V1 & V3) & 0.1 ^(V2)			A	V2 min load for regulation only when used
Start Up Delay		1.5		s	230 VAC full load (see fig.2)
Hold Up Time	16	20		ms	115 VAC full load (see fig.3 & 4)
Drift			±0.2	%	After 20 min warm up
Line Regulation			±0.5	%	90-264 VAC
Load Regulation			±1 ^(V1) , ±5 ^(V2 & V3)	%	0-100% load. V2 0.1-0.5 A load
Transient Response - V1			4	%	Recovery within 1% in less than 500 µs for a 50-75% and 75-50% load step
Over/Undershoot - V1		5		%	See fig.5
Ripple & Noise			1 ^(V1) & 2 ^(V2 & V3)	% pk-pk	20 MHz bandwidth (see fig.6 & 7)
Overvoltage Protection	115		140	%	Vnom DC. Output 1 only, recycle input to reset
Overload Protection	110		150	% I nom	Output 1 only, auto reset (see fig.8)
Short Circuit Protection					Continuous, trip & restart (hiccup mode) all outputs
Temperature Coefficient			0.05	%/°C	
Overtemperature Protection				°C	Not fitted