

ECS Series



- IT & Medical Safety Approvals
- Green Mode, <0.5 W Standby Power
- Convection/Forced-cooled Ratings
- Industry Standard 2" x 4" x 1.25 Package
- Low Leakage Current
- 3 Year Warranty

Specification

Input

Input Voltage	• 80-264 VAC (120-370 VDC), derate output power <90 VAC, see derating curve
Input Frequency	• 47-400 Hz (See note 1)
Input Current	• ECS65: 1.0 A typical at 115 VAC, full load 0.5 A typical at 230 VAC, full load ECS100: 1.5 A typical at 115 VAC, full load 0.9 A typical at 230 VAC, full load
Inrush Current	• 40 A max at 230 VAC, cold start 25 °C
Power Factor	• EN61000-3-2, class A
No Load Input Power	• <0.5 W
Earth Leakage Current	• ECS65: 270 µA at 264 VAC/60 Hz max. ECS100: 230 µA at 264 VAC/60 Hz max.
Input Protection	• Internal T5 A/250 V fuse in line and neutral

Output

Output Voltage	• 12-48 VDC (see tables)
Output Voltage Trim	• ±10%
Initial Set Accuracy	• ±1%
Minimum Load	• No minimum load required
Start Up Delay	• 1 s typical
Start Up Rise Time	• 50 ms
Hold Up Time	• 16/75 ms min at 115/230 VAC
Drift	• ±0.2% after 20 min warm up
Line Regulation	• ±0.5% max
Load Regulation	• ±1%
Over/Undershoot	• 5% typical
Transient Response	• 4% max. deviation, recovery to within 1% in 500 µs for a 50-75-50% load change
Ripple & Noise	• 1% pk-pk V1, 20 MHz bandwidth
Overvoltage Protection	• 115-140% Vnom, recycle input to reset
Overload Protection	• 110-150%
Short Circuit Protection	• Continuous trip and restart (Hiccup mode)
Temperature Coefficient	• 0.05%/°C

General

Efficiency	• 88% typical
Isolation	• 4000 VAC Input to Output, 1500 VAC Input to Ground, 500 VDC Output to Ground
Switching Frequency	• 65 KHz typical
Power Density	• ESC65: 6.7 W/in ³ , ECS100: 10 W/in ³
MTBF	• 834 kHrs to MIL-HDBK-217F at 25 °C, GB 1245 kHrs to Telecordia SR-332 at 25 °C, GB

Environmental

Operating Temperature	• -20 °C to +70 °C derate linearly from +50 °C at 2.5%/°C to 50% load at +70 °C.
Cooling	• ECS65: Convection-cooled ECS100: Convection and fan cooled ratings (see tables)
Operating Humidity	• 95% RH, non-condensing
Storage Temperature	• -40 °C to +85 °C
Operating Altitude	• 3000 m
Shock	• 30 g pk, half sine, 6 axes
Vibration	• 2 g rms, 5 Hz to 500 Hz, 3 axes

EMC & Safety

Low Voltage PSU EMC Emissions	• EN61204-3, high severity level as below • EN55022 level B conducted EN55022 level A radiated
Harmonic Currents	• EN61000-3-2, class A
Voltage Flicker	• EN61000-3-3
Radiated Immunity	• EN61000-4-3, level 3 Perf Criteria A
EFT/Burst	• EN61000-4-4, level 3 Perf Criteria A
Surge	• EN61000-4-5, installation class 3 Perf Criteria A
Conducted Immunity	• EN61000-4-6, level 3 Perf Criteria A
Dips & Interruptions	• EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms, Perf Criteria A, B, B, EN60601-1-2, 30% 500 ms, 60% 100 ms, 100% 10 ms, 100% 5000 ms, Perf Criteria A, A, A, B - 230 VAC. Consult longform datasheet for 115 V operation.
Safety Approvals (Pending)	• IEC60950-1 CB report, CSA 22.2 No. 60950-1, UL60950-1, TUV EN60950-1 IEC60601-1 CB report, CSA 22.2 No. 60601-1, UL60601-1, TUV 60601-1
Equipment Protection Class	• Class I (ECS65), Class I & II (ECS100)

Notes

1. Safety approvals cover frequency 47-63 Hz.

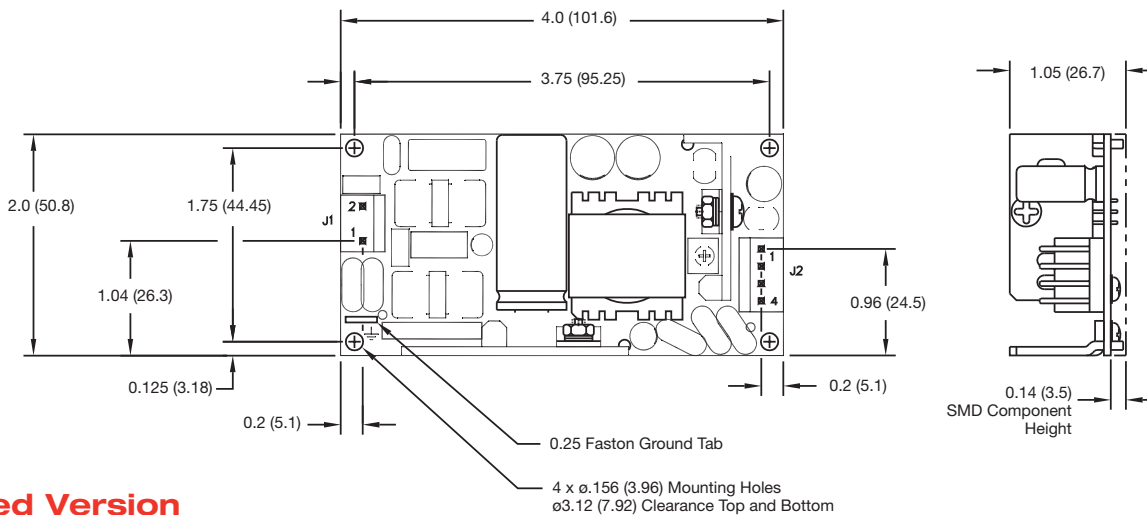
Models and Ratings

Output Power (Convection Cooled)	Output Voltage V1	Max Output Current	Model Number ⁽¹⁾
65 W	12.0 VDC	5.4 A	ECS65US12
65 W	15.0 VDC	4.3 A	ECS65US15
65 W	24.0 VDC	2.7 A	ECS65US24
65 W	28.0 VDC	2.3 A	ECS65US28
65 W	48.0 VDC	1.4 A	ECS65US48

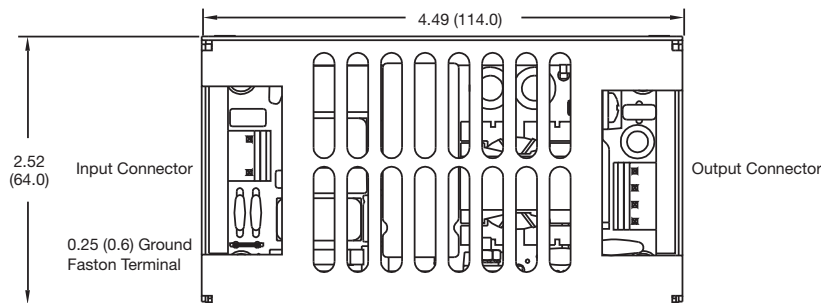
Notes

1. For covered versions, add suffix '-C' to model number or order part no. ECM40/60 COVER KIT for standalone cover. Derate output by 20% with cover.

Mechanical Details



Covered Version



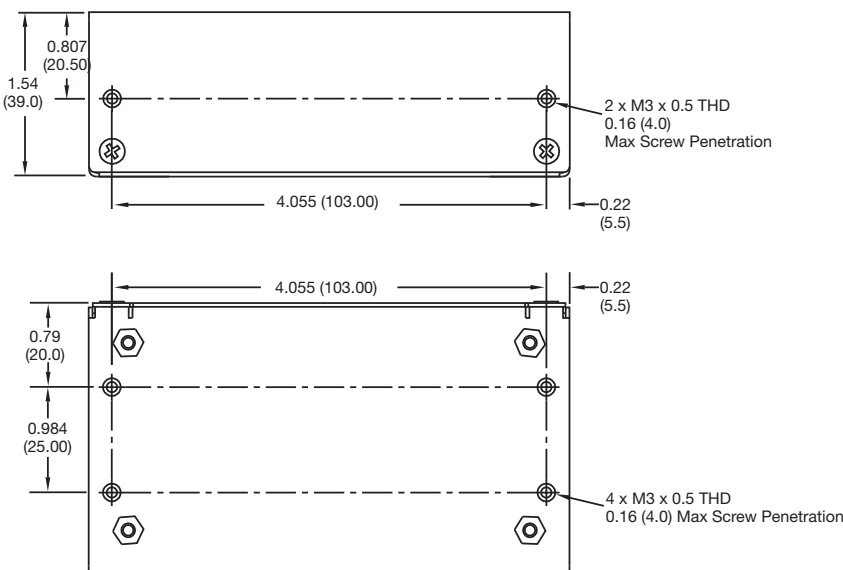
Input Connector J1	
Molex PN 09-65-2038	
Pin 1	Line
Pin 2	Neutral
0.25" Faston	Earth

Output Connector J2	
Molex PN 09-65-2048	
Pin 1	+V1
Pin 2	+V1
Pin 3	RTN
Pin 4	RTN

J1 mates with Molex Housing PN 09-50-1031, J2 mates with Molex Housing PN 09-50-1041 and both with Molex Series 5194 Crimp Terminals

Notes

- All dimensions in inches (mm). Tolerance .xx = ±0.02 (0.50); .xxx = ±0.01 (0.25)
- Weight: 0.386 lbs (175 g)

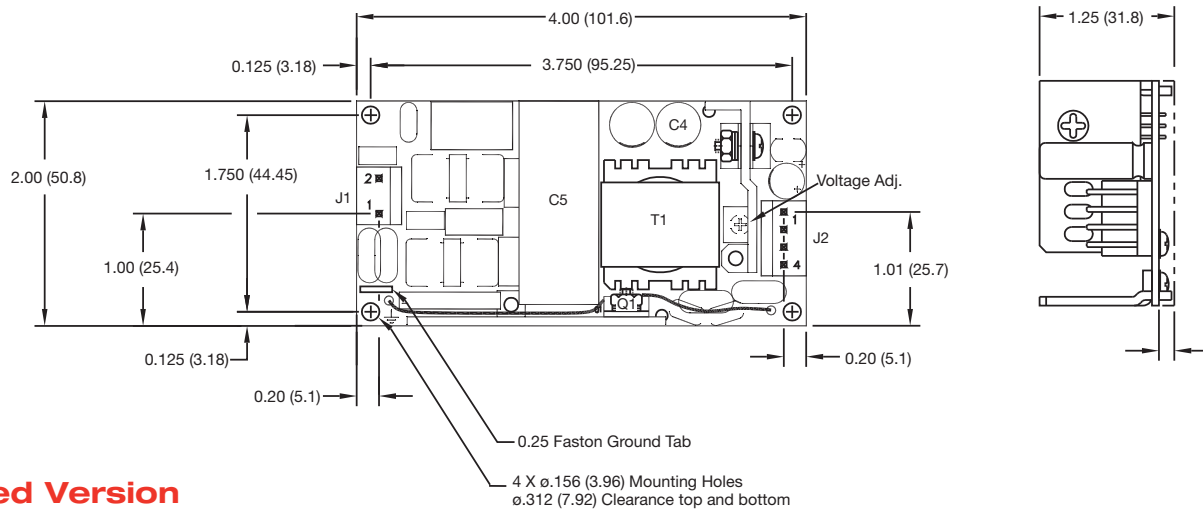


Output Power		Output Voltage V1	Max Output Current	Model Number ⁽¹⁾
Forced Cooled (10 CFM)	Convection Cooled			
100 W	80 W	12.0 VDC	8.3 A	ECS100US12
100 W	80 W	15.0 VDC	6.7 A	ECS100US15
100 W	80 W	24.0 VDC	4.2 A	ECS100US24
100 W	80 W	28.0 VDC	3.6 A	ECS100US28
100 W	80 W	48.0 VDC	2.1 A	ECS100US48

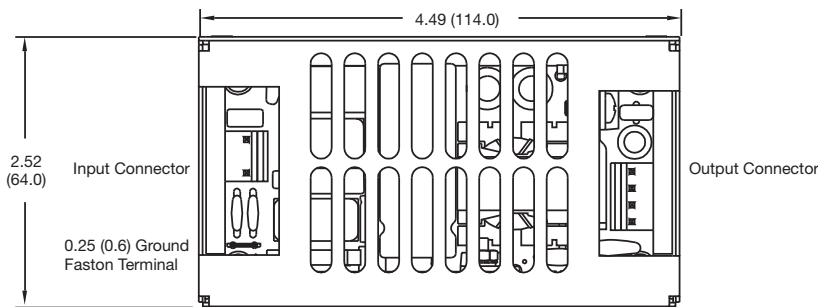
Notes

1. For covered versions, add suffix '-C' to model number or order part no. ECM40/60 COVER KIT for standalone cover. Not suitable for use in class II installations, derate output by 20% with cover.

Mechanical Details



Covered Version



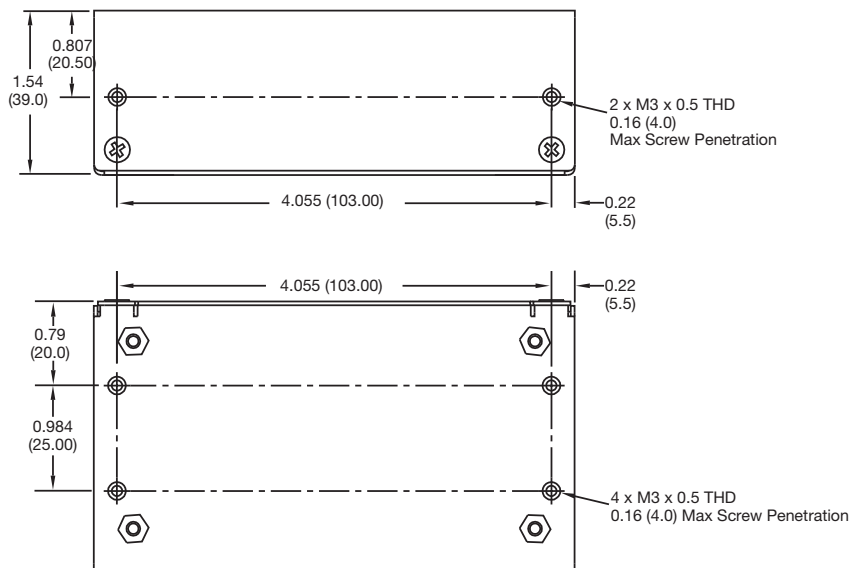
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Molex PN 09-65-2038	
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Pin 2	Neutral
0.25" Faston	Earth

Output Connector J2	
Molex PN 09-65-2048	
Pin 1	+V1
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Pin 3	RTN
Pin 4	RTN

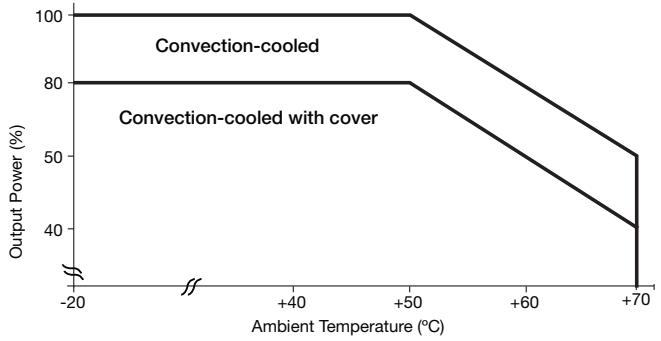
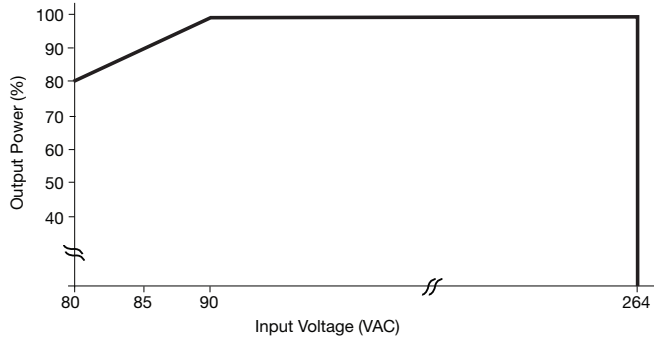
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Derating Curve - 65 W



Derating Curve - 100 W

