

## AEL Series



- CEC 2008 & EISA 2007 Compliant
- Approved as LPS
- China Compulsory Certification (CCC) Qualified
- High Efficiency
- +70 °C Operating Temperature
- Compact Dimensions
- Optional Input Connector

## Specification

## Input

Input Voltage	• 90-264 VAC
Input Frequency	• 47-63 Hz
Input Current	• 0.4 A at 115 VAC
Inrush Current	• 15 A/30 A for 115 VAC/230 VAC, cold start
Earth Leakage Current	• 0.75 mA at 240 VAC
Power Factor	• Meets EN61000-3-2
Input Protection	• Fitted with internal fuse
Standby Power Consumption	• Typically 0.3 W, max 0.5 W

## Output

Output Voltage	• See tables
Minimum Load	• No minimum load required
Hold Up Time	• 5 ms min at full load 110 VAC
Start Up Delay	• 2.0 s at full load 100 VAC
Transient Response	• 2% deviation, recovery to within 1% of nominal in 4 ms for 50% load change
Line Regulation	• See tables
Load Regulation	• See tables
Ripple & Noise	• 1% pk-pk max, 20 MHz BW. See note 3.
Short Circuit Protection	• Trip & restart (Hiccup mode), auto recovery
Temperature Coefficient	• $\pm 0.04\%/^{\circ}\text{C}$

## General

Efficiency	• 85% typical
Isolation	• 3000 VAC Input to Output 1500 VAC Input to Ground 500 VDC Output to Ground
Switching Frequency	• 63 kHz typical
MTBF	• 300 kHrs to MIL-STD-217F

## Environmental

Operating Temperature	• 0 °C to +70 °C, derate from 100% power at +40 °C to 50% power at +70 °C
Storage Temperature	• -40 °C to +85 °C
Cooling	• Convection cooled
Operating Humidity	• 5-95% RH, non-condensing
Operating Altitude	• 3000 m
Shock	• 10 g, 10 ms on 3 axes
Vibration	• 5-100 Hz 2.31 m/s <sup>2</sup> , 20 mins 3 axes

## EMC &amp; Safety

Emissions	• EN55022 FCC Part-15C Level B conducted & radiated
Harmonic Current	• EN61000-3-2 Class A
Voltage Flicker	• EN61000-3-3
ESD Immunity	• EN61000-4-2 Level 3 Perf criteria A
Radiated Immunity	• EN61000-4-3 3 V/m Perf criteria A
EFT/Burst	• EN61000-4-4 Level 2 Perf criteria A
Surge	• EN61000-4-5 Level 3 Perf criteria A
Conducted Immunity	• EN61000-4-6 Level 2 Perf criteria A
Magnetic Field	• EN61000-4-8 1 A/m Perf criteria A
Dips & Interruptions	• EN61000-4-11, 70% $U_T$ for 500 ms, 40% $U_T$ for 100 ms, <5% $U_T$ for 5000 ms Perf criteria A, B, B
Safety Approvals	• EN60950-1:2001, UL/cUL60950-1, Approved as Limited Power Source, CE Mark, China Compulsory Certification (CCC) qualified.

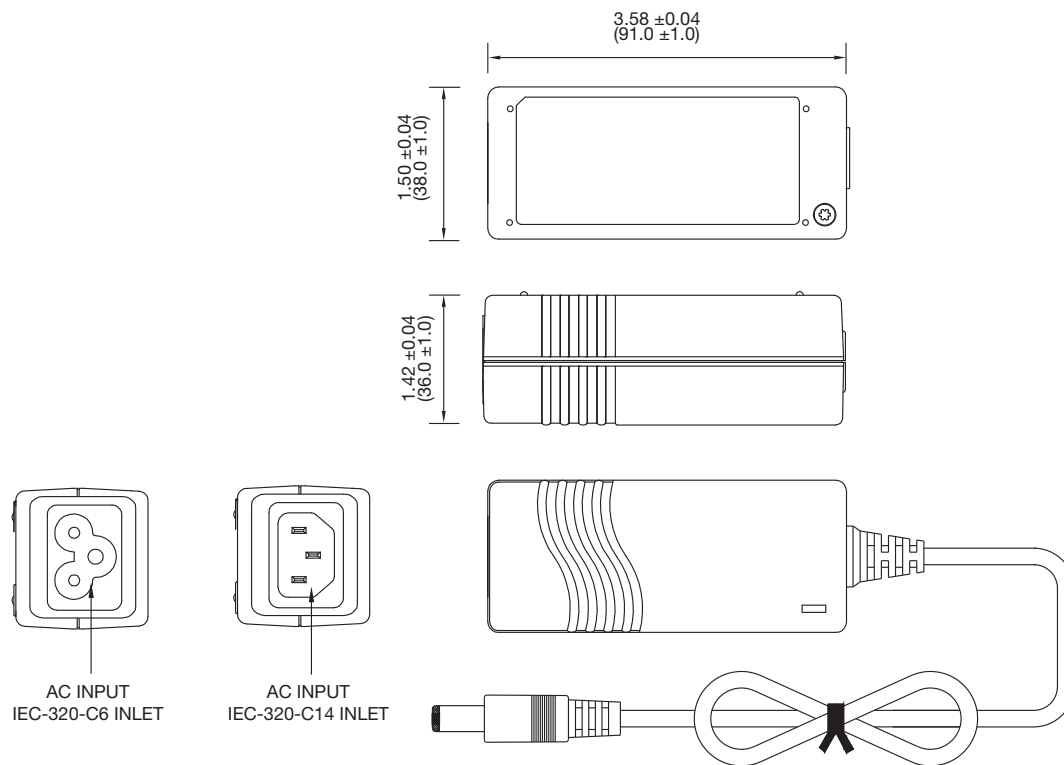
## Models and Ratings

Max Output Power	Output Voltage <sup>(9)</sup>	Output Current	Total Regulation <sup>(2)</sup>	Model Number <sup>(1)</sup>
8 W	3.3 VDC	2.50 A	7%	AEL15US03
12 W	5 VDC	2.40 A	7%	AEL15US05
15 W	8 VDC	1.87 A	5%	AEL15US08
	9 VDC	1.66 A	5%	AEL15US09
	12 VDC	1.25 A	5%	AEL15US12
	15 VDC	1.00 A	5%	AEL15US15
	18 VDC	0.83 A	5%	AEL15US18
	24 VDC	0.62 A	5%	AEL15US24
	30 VDC	0.50 A	5%	AEL15US30
	36 VDC	0.42 A	3%	AEL15US36
	48 VDC	0.31 A	3%	AEL15US48

### Notes

- Standard input connector is IEC320-C14 Inlet. For optional IEC320-C6 Inlet, add suffix "C6" to model number e.g. AEL15US12C6.
- Total regulation includes initial set accuracy, line regulation, load regulation and temperature coefficient.
- Measured at 25 °C
- Other output voltages available, contact sales for details.

## Mechanical Details



### Notes

- All dimensions are shown in inches (mm). Tolerance  $\pm 0.04$  ( $\pm 1.0$ ) max.
- Output connector: is 0.22 (5.5) outer diameter barrel, 0.10 (2.5) inner diameter barrel with centre positive (+) and outer shell negative (-). Length is 0.433 (11.0).
- Output cable length is 48" (1220mm) approx.
- Weight is 0.36 lbs (165 g)
- For European mains lead order part: EU-MAINS-IEC or EU-MAINS-5 for C6 version.
- For UK mains lead order part: UK-MAINS-IEC or UK-MAINS-5 for C6 version.
- For US mains lead order part: US-MAINS-IEC or US-MAINS-5 for C6 version.

## AEL Series



- CEC 2008 & EISA 2007 Compliant
- Approved as LPS
- China Compulsory Certification (CCC) Qualified
- Up to 88% Efficiency
- +70 °C Operating Temperature
- Compact Dimensions
- 20 W Optional Class II Insulation

## Specification

## Input

Input Voltage	• 90-264 VAC
Input Frequency	• 47-63 Hz
Input Current	• 0.4 A max AEL20 1.0 A max AEL40 1.6 A max AEL60
Inrush Current	• 15 A/30 A for 115 VAC/230 VAC, cold start
Earth Leakage Current	• 0.75 mA at 240 VAC (except C2 version)
Power Factor	• Meets EN61000-3-2
Input Protection	• Fitted with internal fuse, 1 A AEL20, 2 A AEL40/60
Standby Power Consumption	• Typically 0.3 W, max 0.5 W

## Output

Output Voltage	• See tables
Minimum Load	• No minimum load required
Hold Up Time	• 12 ms min AEL20, 16 ms AEL40/60, at full load 110 VAC
Start Up Delay	• 0.5 s AEL20/40, 2.0 s AEL60, at full load 100 VAC
Transient Response	• 2% deviation, recovery to within 1% of nominal in 500 µs for 50% load change
Line Regulation	• See tables
Load Regulation	• See tables
Ripple & Noise	• 1% pk-pk max, 20 MHz BW
Overvoltage Protection	• 112-132%
Overload Protection	• 110-150%
Short Circuit Protection	• Trip & restart (Hiccup mode), auto recovery
Temperature Coefficient	• ±0.04%/°C

## General

Efficiency	• 85% typical AEL20/40, 88% typical AEL60
Isolation	• 3000 VAC Input to Output 1500 VAC Input to Ground (not C2 version) 500 VDC Output to Ground (not C2 version)
Switching Frequency MTBF	• 63 kHz typical • 300 kHrs AEL20, 200 kHrs AEL40, 130 kHrs AEL60 to MIL-STD-217F

## Environmental

Operating Temperature	• 0 °C to +70 °C, derate from 100% power at +40 °C to 50% power at +70 °C
Storage Temperature	• -40 °C to +85 °C
Cooling	• Convection cooled
Operating Humidity	• 5-95% RH, non-condensing
Operating Altitude	• 3000 m
Shock	• 10 g, 10 ms on 3 axes
Vibration	• 5-100 Hz 2.31 m/s <sup>2</sup> , 20 mins 3 axes

## EMC &amp; Safety

Emissions	• EN55022 FCC Part-15C Level B conducted & radiated
Harmonic Current	• EN61000-3-2 Class A
Voltage Flicker	• EN61000-3-3
ESD Immunity	• EN61000-4-2 Level 3 Perf criteria A
Radiated Immunity	• EN61000-4-3 3 V/m Perf criteria A
EFT/Burst	• EN61000-4-4 Level 2 Perf criteria A
Surge	• EN61000-4-5 Level 3 Perf criteria A
Conducted Immunity	• EN61000-4-6 Level 2 Perf criteria A
Magnetic Field	• EN61000-4-8 1 A/m Perf criteria A
Dips & Interruptions	• EN61000-4-11, 70% U <sub>r</sub> for 500 ms, 40% U <sub>r</sub> for 100 ms, <5% U <sub>r</sub> for 5000 ms Perf criteria A, B, B
Safety Approvals	• EN60950-1:2001, UL/cUL60950-1, Approved as Limited Power Source, CE Mark, China Compulsory Certification (CCC) qualified.

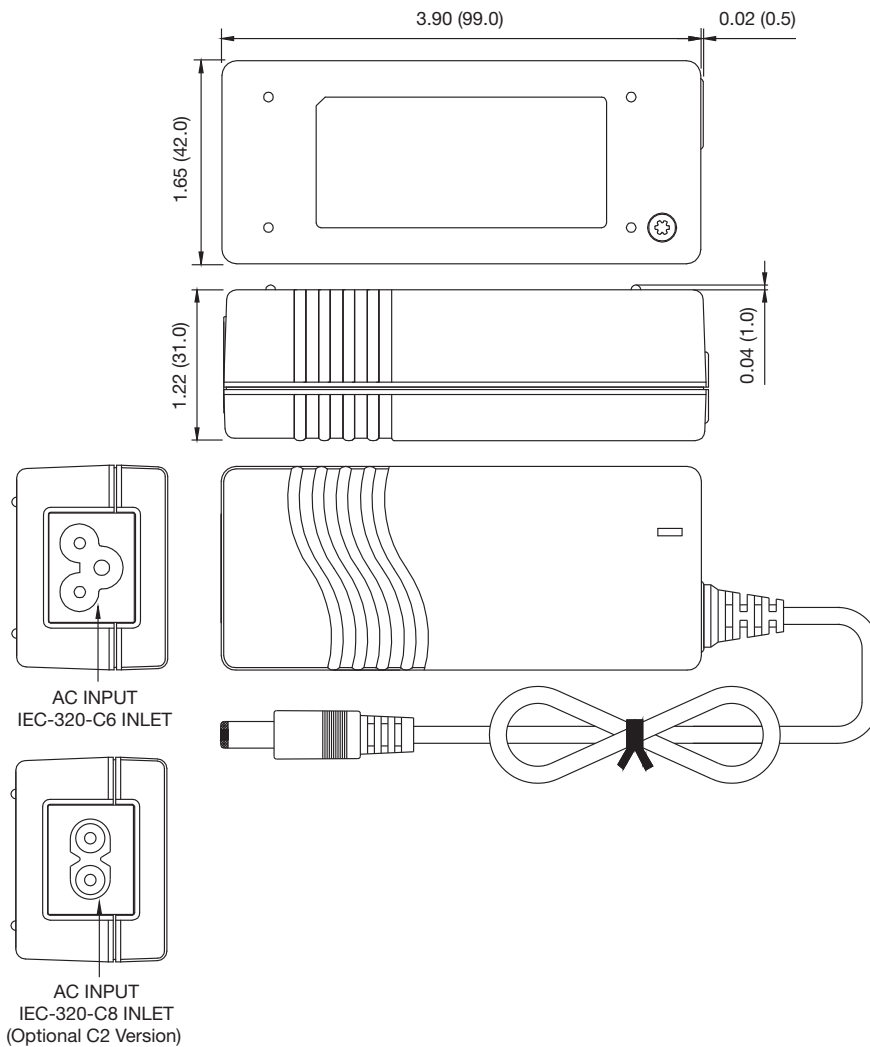
## Models and Ratings

Max Output Power	Output Voltage <sup>(3)</sup>	Output Current	Total Regulation <sup>(2)</sup>	Model Number <sup>(1)</sup>
15 W	5 VDC	3.00 A	5%	AEL20US05
20 W	12 VDC	1.67 A	4%	AEL20US12
	15 VDC	1.33 A	4%	AEL20US15
	24 VDC	0.83 A	3%	AEL20US24
	30 VDC	0.67 A	3%	AEL20US30
	48 VDC	0.42 A	3%	AEL20US48

### Notes

1. For optional Class II version on AEL20 models only, add suffix 'C2' to model number e.g. AEL20US12C2.
2. Total regulation includes initial set accuracy, line regulation, load regulation and temperature coefficient.
3. Other output voltages available, contact sales for details.

## Mechanical Details



### Notes

1. All dimensions are shown in inches (mm). Tolerance  $\pm 0.04$  ( $\pm 1.0$ ) max.
2. Output connector: is 0.22 (5.5) outer diameter barrel, 0.10 (2.5) inner diameter barrel with centre positive (+) and outer shell negative (-). Length is 0.433 (11.0).
3. Output cable length is 48" (1220mm) approx.
4. Weight is 0.37 lbs (170 g)
5. For European mains lead order part: EU-MAINS-C5 for AEL20, EU-MAINS-8 for AEL20 Class II.
6. For UK mains lead order part: UK-MAINS-5 for AEL20, UK-MAINS-8 for AEL20 Class II.
7. For US mains lead order part: US-MAINS-5 for AEL20, US-MAINS-8 for AEL20 Class II.

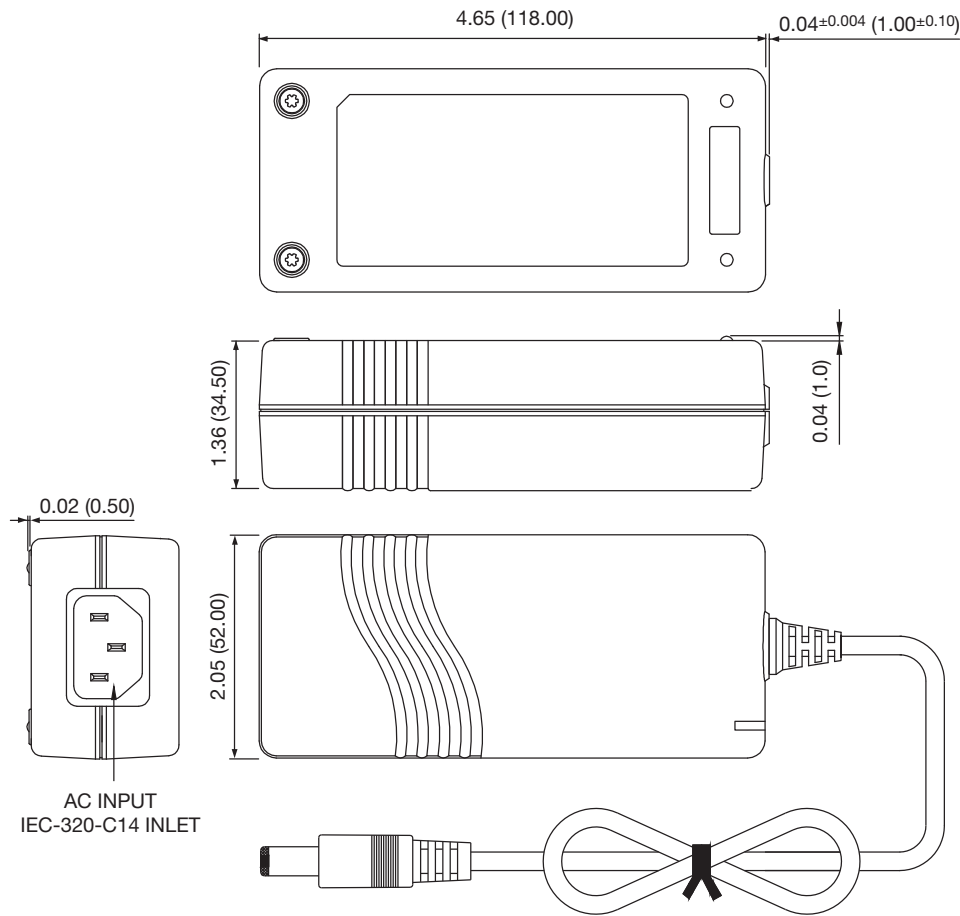
Models and Ratings

Max Output Power	Output Voltage <sup>(2)</sup>	Output Current	Total Regulation <sup>(1)</sup>	Model Number
25 W	5 VDC	5.00 A	7%	AEL40US05
35 W	8 VDC	4.37 A	5%	AEL40US08
	9 VDC	3.88 A	5%	AEL40US09
40 W	12 VDC	3.33 A	5%	AEL40US12
	15 VDC	2.67 A	5%	AEL40US15
	18 VDC	2.22 A	5%	AEL40US18
	24 VDC	1.67 A	3%	AEL40US24
	36 VDC	1.11 A	3%	AEL40US36
	48 VDC	0.83 A	3%	AEL40US48

Notes

1. Total regulation includes initial set accuracy, line regulation, load regulation and temperature coefficient.
2. Other output voltages available, contact sales for details.

Mechanical Details



Notes

1. All dimensions are shown in inches (mm). Tolerance  $\pm 0.04$  ( $\pm 1.0$ ) max.
2. Output connector: is 0.22 (5.5) outer diameter barrel, 0.10 (2.5) inner diameter barrel with centre positive (+) and outer shell negative (-). Length is 0.433 (11.0).
3. Output cable length is 48" (1220mm) approx.
4. Weight is 0.70 lbs (300 g).
5. For European mains lead order part: EU-MAINS-IEC.
6. For UK mains lead order part: UK-MAINS-IEC.
7. For US mains lead order part: US-MAINS-IEC.

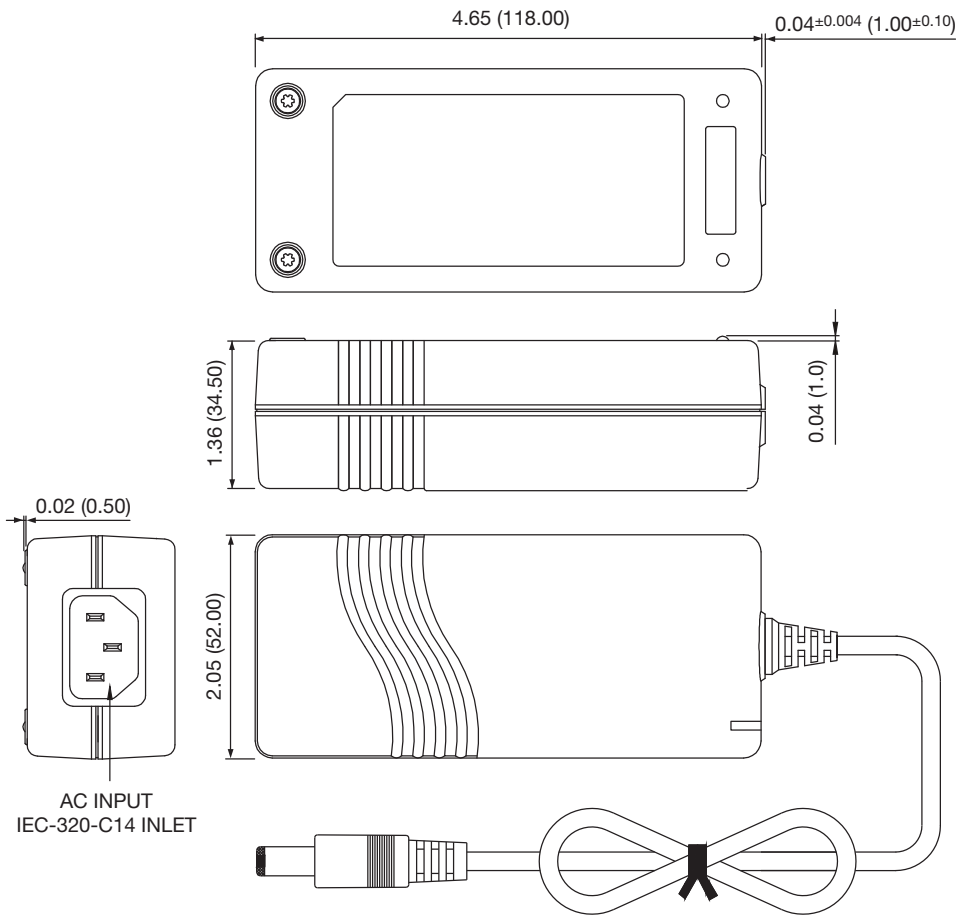
**Models and Ratings**

Max Output Power	Output Voltage <sup>(2)</sup>	Output Current	Total Regulation <sup>(1)</sup>	Model Number
57 W	12 VDC	4.75 A	5%	AEL60US12
63 W	15 VDC	4.20 A	5%	AEL60US15
	18 VDC	3.50 A	5%	AEL60US18
	24 VDC	2.63 A	5%	AEL60US24
	30 VDC	2.15 A	5%	AEL60US30
	36 VDC	1.75 A	3%	AEL60US36
	48 VDC	1.31 A	3%	AEL60US48

**Notes**

1. Total regulation includes initial set accuracy, line regulation, load regulation and temperature coefficient.
2. Other output voltages available, contact sales for details.

**Mechanical Details**



**Notes**

1. All dimensions are shown in inches (mm). Tolerance ±0.04 (±1.0) max.
2. Output connector: is 0.22 (5.5) outer diameter barrel, 0.10 (2.5) inner diameter barrel with centre positive (+) and outer shell negative (-). Length is 0.433 (11.0).
3. Output cable length is 48" (1220mm) approx.
4. Weight 0.70 lbs (300 g).
5. For European mains lead order part: EU-MAINS-IEC.
6. For UK mains lead order part: UK-MAINS-IEC.
7. For US mains lead order part: US-MAINS-IEC.

## AEL80 Series



- CEC 2008 & EISA 2007 Compliant
- China Compulsory Certification (CCC) Qualified
- Output Voltages from 12 to 48 VDC
- High Efficiency
- +70 °C Operating Temperature
- Compact Dimensions

## Specification

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### Input

Input Voltage	• 90-264 VAC
Input Frequency	• 47-63 Hz
Input Current	• 1.1 A max
Inrush Current	• 15 A/30 A for 115 VAC/230 VAC, cold start
Earth Leakage Current	• 0.75 mA at 240 VAC
Power Factor	• Meets EN61000-3-2
Input Protection	• Fitted with internal fuse
Standby Power Consumption	• Typically 0.3 W, max 0.5 W

### Output

Output Voltage	• See tables
Minimum Load	• No minimum load required
Hold Up Time	• 16 ms min at full load 110 VAC
Start Up Delay	• 2.0 s at full load 100 VAC
Transient Response	• 2% deviation, recovery to within 1% of nominal in 500 $\mu$ s for 50% load change
Line Regulation	• See tables
Load Regulation	• See tables
Ripple & Noise	• 1% pk-pk max, 20 MHz BW
Overvoltage Protection	• 112-132%
Overload Protection	• 110-150%
Short Circuit Protection	• Trip & restart (Hiccup mode), auto recovery
Temperature Coefficient	• $\pm 0.04\%/^{\circ}\text{C}$

### General

Efficiency	• 85% minimum
Isolation	• 3000 VAC Input to Output 1500 VAC Input to Ground 500 VDC Output to Ground
Switching Frequency	• 63 kHz typical
MTBF	• 300 kHrs to MIL-STD-217F

### Environmental

Operating Temperature	• 0 °C to +70 °C, derate from 100% power at +40 °C to 50% power at +70 °C
Storage Temperature	• -40 °C to +85 °C
Cooling	• Convection cooled
Operating Humidity	• 5-95% RH, non-condensing
Operating Altitude	• 3000 m
Shock	• 10 g, 10 ms on 3 axes
Vibration	• 5-100 Hz 2.31 m/s <sup>2</sup> , 20 mins 3 axes

### EMC & Safety

Emissions	• EN55022 FCC Part-15C Level B conducted & radiated
Harmonic Current	• EN61000-3-2 Class A
Voltage Flicker	• EN61000-3-3
ESD Immunity	• EN61000-4-2 Level 3 Perf criteria A
Radiated Immunity	• EN61000-4-3 3 V/m Perf criteria A
EFT/Burst	• EN61000-4-4 Level 2 Perf criteria A
Surge	• EN61000-4-5 Level 3 Perf criteria A
Conducted Immunity	• EN61000-4-6 Level 2 Perf criteria A
Magnetic Field	• EN61000-4-8 1 A/m Perf criteria A
Dips & Interruptions	• EN61000-4-11, 70% $U_T$ for 500 ms, 40% $U_T$ for 100 ms, <5% $U_T$ for 5000 ms Perf criteria A, B, B
Safety Approvals	• EN60950-1:2001, UL/cUL60950-1, China Compulsory Certification (CCC) qualified, CE Mark.

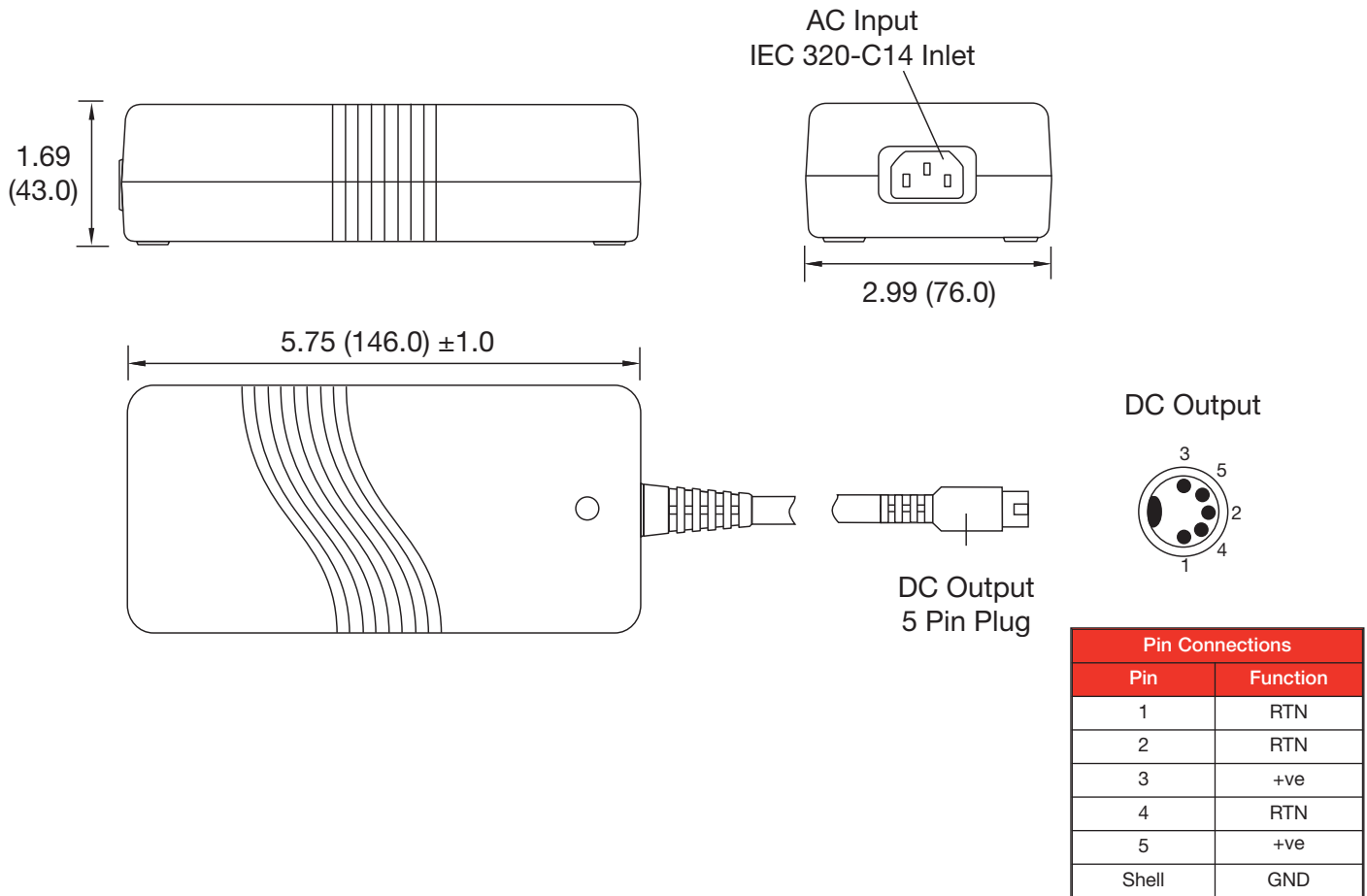
## Models and Ratings

Max Output Power	Output Voltage <sup>(2)</sup>	Output Current	Total Regulation <sup>(1)</sup>	Model Number
80 W	12 VDC	6.66 A	5%	AEL80US12
	15 VDC	5.38 A	5%	AEL80US15
	18 VDC	4.44 A	5%	AEL80US18
	24 VDC	3.33 A	5%	AEL80US24
	30 VDC	2.66 A	5%	AEL80US30
	36 VDC	2.22 A	5%	AEL80US36
	48 VDC	1.66 A	5%	AEL80US48

### Notes

1. Total regulation includes initial set accuracy, line regulation, load regulation and temperature coefficient.
2. Other output voltages available, contact sales for details.

## Mechanical Details



### Notes

1. All dimensions are shown in inches (mm). Tolerance  $\pm 0.04$  ( $\pm 1.0$ ) max.
2. Output connector: 5 pin 180° DIN
3. Output cable length is 48" (1220mm) approx.
4. Weight is 1.5 lbs (700 g)
5. For European mains lead order part: EU-MAINS-IEC.
6. For UK mains lead order part: UK-MAINS-IEC.
7. For US mains lead order part: US-MAINS-IEC.