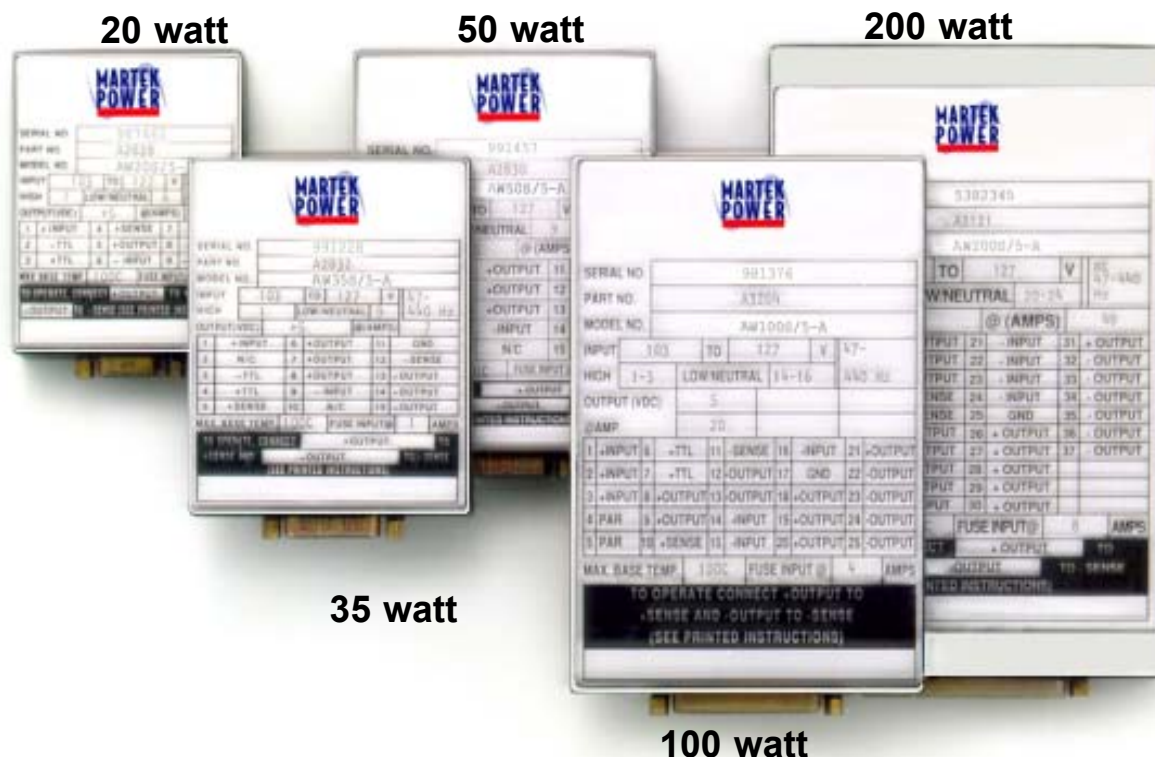


SERIES AW

AC/DC CONVERTERS



The AW series offers a comprehensive line of full military AC-DC/DC-DC power supplies designed for use in airborne, ground fixed and surface ship applications. The AW models employ field proven technology and meet a variety of military specifications for input transient, environmental and EMI compliance.

AC/DC

- **NAVMAT Guidelines**
- **Current Mode Control**
- **Wireless Submodular Construction for High Reliability**
- **Standard Current Limiting**
- **AC-DC or High Voltage DC-DC**

SPECIFICATIONS

INPUT:

103 to 127 Vac; 47-440 Hz Single Phase and 90 to 160 Vdc.

EFFICIENCY:

65% minimum. Typically 70-80% (nominal input, full load, room ambient). For 3.3 and 2.0 Vdc output modules efficiency will be 50-60% typical.

LINE REGULATION:

0.1% or 10 mV, whichever is greater, for each output with input change from low line to high line at constant load.

LOAD REGULATION:

10 mV or 0.1%, whichever is greater. (Each output from no load to full load at constant line).

PARD (NOISE AND RIPPLE):

25 mV rms, 100 mV P-P for 5 V output, 50 mV rms, 200 mV P-P for other voltages; measured at 25 MHz bandwidth over temperature range.

ISOLATION VOLTAGE:

700 Vdc, input to output;
500 Vdc, input to case;
200 Vdc, output to case.

INSULATION RESISTANCE:

50 megohms between input and output, input and case, output and case, when measured at 50 Vdc.

TEMPERATURE RANGE:

Operating: -55°C to +100°C maximum, at center of the baseplate.
Storage: -55°C to +125°C, ambient.

TEMPERATURE COEFFICIENT:

0.01%/°C maximum over entire temperature range.

INPUT TRANSIENT PROTECTION:

Unit will provide normal regulated output and withstand 180 Vac for 0.1 second, in accordance with MIL-STD-704A (under AC input operating mode).

LOAD TRANSIENT RECOVERY:

Output voltage returns to regulation limits within 0.5 millisecond after 50% change in load current.

LOAD TRANSIENT OVERTHOOT:

0.5V from nominal voltage set point.

SHORT CIRCUIT PROTECTION:

Outputs are independently protected against a short circuit of any duration and automatically restore to normal when overload is removed.

REMOTE SENSING:

Compensates for up to 0.5 volt drop in output leads. Sense pins must be tied local (at connector) or remote (at lead) for proper operation.

REMOTE INHIBIT:

Provides for remote turn on/off with TTL logic signal. Application of TTL Signal (logic 1) will inhibit the output. 10 mA required current (@ 5 Vdc).

PARALLELEABILITY:

The 100 watt and 200 watt units allows for multiple unit current sharing without the need for external components, via a single pin connection on each unit.

ELECTROMAGNETIC INTERFERENCE:

Units, when tested in accordance with MIL-STD-462, meets the majority of the requirements of MIL-STD-461C for conducted and radiated, emission and susceptibility, for Class A1, A2 and A3 equipment for input power leads. For further details regarding levels and extent of compliance in each class, or requirement, consult factory. Certified test reports available upon request.

SWITCHING FREQUENCY:

160 kHz to 200 Hz fixed

RELIABILITY:

The Mean Time Between Failure (MTBF) is calculated per MIL-HDBK-217E at 50°C baseplate temperature with maximum operating input voltage and maximum rated output power. The MTBF for AW200S at ground benign environment is 199,209 hours. With the -ER option, MTBF was calculated to be 288,278 hours at ground benign. The standard AW200S at ground benign and naval sheltered is 100,000 and 15,000 hours respectively. Please consult factory for additional environments and models.

ENVIRONMENT:

Units met MIL-STD-810D, altitude, shock, acceleration, vibration and MIL-S-901C high-impact shock requirements. For information, please consult factory. Certified test reports available upon request.

Hook Up:

Via D-Subminiature Connectors, M24308/24 type.

OPTIONS

The following standard options are available on the AW Series power supplies.

Enhanced Reliability:

ER Option provides increased reliability by using higher levels of military grade components (to order, add “-ER” after model number, i.e., AW200S/15-A-ER).

Ruggedized:

Ruggedized option available, please contact factory for details.

Environmental Stress Screening:

Environmental Stress Screening (ESS) including random vibration and thermal cycling (per the NAVMAT guidelines) is available. Consult factory for details.

SINGLE OUTPUT

Nominal Output Voltage	Output Current (Amps)	Weight ¹ (Oz.)	Weight ¹ (Grams)	Model Number
2.0	20.00	21	600	AW100S/2.0-A
	40.00	32	900	AW200S/2.0-A
3.3	20.00	21	600	AW100S/3.3-A
	40.00	32	900	AW200S/3.3-A
5	4.00	7	200	AW20S/5-A
	7.00	9	255	AW35S/5-A
	10.00	12	325	AW50S/5-A
	20.00	21	600	AW100S/5-A
5.2	40.00	32	900	AW200S/5-A
	3.85	7	200	AW20S/5.2-A
	6.73	9	255	AW35S/5.2-A
	9.62	12	325	AW50S/5.2-A
	19.23	21	600	AW100S/5.2-A
12	38.46	32	900	AW200S/5.2-A
	1.66	7	200	AW20S/12-A
	2.91	9	255	AW35S/12-A
	4.16	12	325	AW50S/12-A
	8.33	21	600	AW100S/12-A
	16.67	32	900	AW200S/12-A

Nominal Output Voltage	Output Current (Amps)	Weight ¹ (Oz.)	Weight ¹ (Grams)	Model Number
15	1.33	7	200	AW20S/15-A
	2.33	9	255	AW35S/15-A
	3.33	12	325	AW50S/15-A
	6.66	21	600	AW100S/15-A
24	13.33	32	900	AW200S/15-A
	.83	7	200	AW20S/24-A
	1.45	9	255	AW35S/24-A
	2.08	12	325	AW50S/24-A
	4.16	21	600	AW100S/24-A
28	8.33	32	900	AW200S/24-A
	.71	7	200	AW20S/28-A
	1.25	9	255	AW35S/28-A
	1.78	12	325	AW50S/28-A
	3.57	21	600	AW100S/28-A
	7.14	32	900	AW200S/28-A

Set Point Accuracy: 50 mV or 0.5% whichever is greater

DUAL OUTPUT*

Nominal Output Voltage	Output Current (Amps)	Weight ¹ (Oz.)	Weight ¹ (Grams)	Model Number
±5 ²	1.46	9.25	260	AW35D/5-A
	2.08	11.75	330	AW50D/5-A
±12	1.46	9.25	260	AW35D/12-A
	2.08	11.75	330	AW50D/12-A
±15	1.17	9.25	260	AW35D/15-A
	1.67	11.75	330	AW50D/15-A

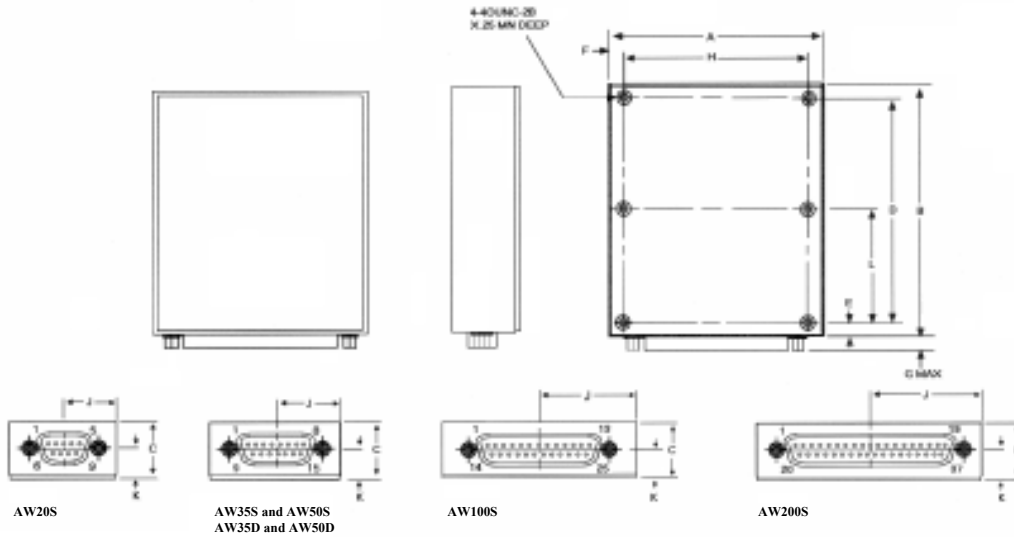
Set Point Accuracy: 50 mV or 0.5% whichever is greater

*Each output is independent and isolated; outputs may be connected in a positive or negative configuration. Both outputs can be used as positive or negative. These also can be used in the ± dual output configuration. Lastly these outputs can be tied in series for higher output voltages.

¹Maximum weight

²Maximum output power for the AW Dual ±5 is 21 watts, or 10.5 watts per channel

CASE DRAWINGS



DIMENSIONS

	Model	A	B	C	D	E	F	G	H	J	K	L
Inches	AW20S	2.50	3.00	.85	2.600	.20	.20	.25	2.100	1.25	.46	N/A
		63.5	76.2	21.6	66.04	4.6	4.6	6.4	53.34	31.8	11.7	
	AW35S AW35D	3.00	3.50	.85	3.100	.20	.20	.25	2.600	1.50	.46	N/A
		76.2	88.9	21.6	78.74	5.1	5.1	6.4	66.04	38.1	11.7	
	AW50S AW50D	3.25	4.00	.85	3.600	.20	.20	.25	2.850	1.63	.46	N/A
		82.6	101.6	21.6	91.44	5.1	5.1	6.4	72.39	41.4	11.7	
	AW100S	3.75	5.25	.85	4.850	.20	.20	.25	3.350	1.87	.46	2.425
		95.3	133.4	21.6	123.19	5.1	5.1	6.4	85.09	47.5	11.7	61.60
	AW200S	4.50	6.50	.85	6.100	.20	.20	.25	4.100	2.25	.46	3.050
		114.30	165.10	21.6	154.94	5.1	5.1	6.4	104.14	57.15	11.7	77.47

Tolerances: inches - x.xx = ±0.015
 . xx = ±0.03
 mm - .xx = ±0.4
 . x = ±0.8

Material: Base - Aluminum 5052-H32
 Case - 26 Gauge Steel (cold rolled).
 Case Finish - Nickel Plating

Mounting: Standard: 4-40 THD inserts 1/4" min. depth are provided in baseplate.
 Steel 4-40 bolts American Standard, unified national coarse series, slotted studs are supplied with each unit.

Metric: M2.5 inserts. To order insert an "I" after the "A" in the model number, i.e. AB35D/I2-AI.

* Number of mounting holes: 6 places for the 200 watt model, 4 places for all other models.

PIN DESIGNATIONS

Model:	AW20S	
Connector:	DEMME9PF	
Mate:	DEMM9S	

1. +Input	4. +Sense ²	7. Ground
2. -TTL	5. +Output	8. -Sense ²
3. +TTL	6. -Input	9. -Output

Model:	AW35S and AW50S	
Connector:	DAMME15PF	
Mate:	DAMM15S	

1. +Input	6. +Output	11. Ground
2. N/C	7. +Output	12. -Sense ²
3. -TTL	8. +Output	13. -Output
4. +TTL	9. -Input	14. -Output
5. +Sense ²	10. N/C	15. -Output

Model:	AW35D and AW50D	
Connector:	DAMME15PF	
Mate:	DAMM15S	

1. +Input	6. +Output 1	11. Ground
2. N/C	7. +Sense 2 ²	12. -Sense 1
3. -TTL	8. +Output 2	13. -Output 1
4. +TTL	9. -Input	14. -Sense 2 ²
5. +Sense 1 ²	10. N/C	15. -Output 2

Model:	AW100S	
Connector:	DBMME25PF	
Mate:	DBMM25S	

1. +Input	10. +Sense ²	18. +Output
2. +Input	11. -Sense ²	19. +Output
3. +Input	12. -Output	20. +Output
4. Parallel ¹	13. -Output	21. +Output
5. Parallel ¹	14. -Input	22. -Output
6. +TTL	15. -Input	23. -Output
7. -TTL	16. -Input	24. -Output
8. +Output	17. Ground	25. -Output
9. +Output		

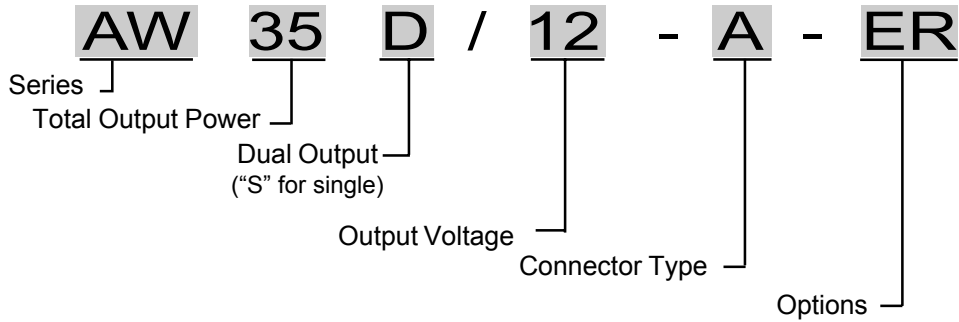
Model:	AW200S		
Connector:	DCMME37PF		
Mate:	DCMM37S		

1. +Input	11. +Output	20. -Input	29. +Output
2. +Input	12. +Output	21. -Input	30. +Output
3. +Input	13. +Output	22. -Input	31. +Output
4. +Input	14. +Sense ²	23. -Input	32. -Output
5. +Input	15. -Sense ²	24. -Input	33. -Output
6. Parallel ¹	16. -Output	25. Ground	34. -Output
7. Parallel ¹	17. -Output	26. +Output	35. -Output
8. +TTL	18. -Output	27. +Output	36. -Output
9. -TTL	19. -Output	28. +Output	37. -Output
10. +Output			

¹Parallel pins are internally connected and redundant. Either pin can be used for single pin parallelability or either pin can be left open and unused.

²Sense pins must be tied either local (at connector) or remote (at load) for proper operation.

How To ORDER



INPUT CURRENT

(Typical Amps)

Model	Output Load	Low Line	High Line
AW20S	50%	0.27	0.22
	100%	0.50	0.40
AW35S	50%	0.47	0.38
	100%	0.87	0.71
AW35D	50%	0.50	0.40
	100%	0.90	0.75
AW50S	50%	0.67	0.55
	100%	1.24	1.00
AW50D	50%	0.70	0.60
	100%	1.30	1.05
AW100S	50%	1.35	1.10
	100%	2.50	2.00
AW200S	50%	2.70	2.19
	100%	5.00	4.00

Input Fuse: To protect your power supply source and the Abbott convertor always insert a fuse between the source and the module's "high" input pin(s). Bus fuse type MDX or equivalent slow blow is recommended. Fuse value is indicated on label of module; typically 2 times low line current value at full load (100%).

SERIES RW

AC/DC CONVERTERS



The “-R” (**Ruggedized**) Version of the A Series is the same as the Standard version except it uses industrial grade plastic cased TO-220 type diodes and transistors in place of metal ones for cost savings. All other components including the control IC and the input capacitors are identical. The “-R” version has MTBF numbers 5-10% lower than the Standard version (per Mil-HDBK-217). No dimensions or electrical specifications will be changed. The operating temperature range remains at -55 to 100°C. The internal EMI filter is optional.

Refer to AW Series manual for detail specifications.