Series AM30EW-NZ

30 Watt | DC-DC Converter

Picture coming soon

FEATURES:

- Efficiency up to 90%
- Ultra-wide 4:1 Input range
- No-load consumption ≤0.14W
- Operating Temperature: -40°C to +75°C
- Input under voltage lockout
- On/Off Remote Control
- Over Voltage Protection
- I/Output Isolation 1500VDC
- Over Current protection
- Continuous Short Circuit protection

Models
Single output

Model	Input Voltage (V)	Max Input current Full/No load (mA)	Output Voltage (V)	Output Current max (A)	Isolation (VDC)	Max Capacitive Load(uF)	Efficiency (%)
AM30EW-2403S-NZ	9-36*	993/80	3.3	6	1500	10000	85
AM30EW-2405S-NZ	9-36*	1453/80	5	6	1500	10000	88
AM30EW-2409S-NZ	9-36*	1420/9	9	3.33	1500	4700	88
AM30EW-2412S-NZ	9-36*	1420/9	12	2.5	1500	2700	90
AM30EW-2415S-NZ	9-36*	1420/9	15	2	1500	1680	90
AM30EW-2424S-NZ	9-36*	1420/9	24	1.25	1500	680	90
AM30EW-4803S-NZ	18-75	485/23	3.3	6	1500	10000	87
AM30EW-4805S-NZ	18-75	726/25	5	6	1500	10000	88
AM30EW-4812S-NZ	18-75	718/8	12	2.5	1500	2700	89
AM30EW-4815S-NZ	18-75	718/8	15	2	1500	1680	89
AM30EW-4824S-NZ	18-75	718/8	24	1.25	1500	680	89

*At Input range 9-18VDC output power will be rated at 80%.

Add suffix "-K" for optional heat sink.

NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	24 48	9-36 18-75		VDC
Filter		π(Pi) Network		
Startup time		10		ms
Absolute Maximum Rating (1sec max)	24 48		-0.7-50 -0.7-100	VDC
On/Off control	ON – open or 3.5-12VDC ; OFF – short to –Vin or 0-1.2VDC, Idle current: 5 - 8mA			
Input under voltage lockout	24 48		5.5-6.5 14-15.5	VDC
Input reflected current		40		mA

Isolation Specifications

Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec, 1mA	1500		VDC
Resistance	500VDC Isolation	>1000		MOhm
Capacitance	I/O 100KHz/0.1V	2000		pF

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±1	±3	%
Over voltage protection	Zener Diode Clamp	110	160	%
Over current protection		110	190	% of Io
Short Circuit protection	Continuous, hiccup			
Short circuit restart	Auto-Recovery			
Line voltage regulation	Full load, LL-HL	±0.2	±0.5	% of Vin
Load voltage regulation	0% to 100% load	±0.5	±1	%
Temperature coefficient			±0.03	%/°C
Ripple & Noise	20MHz Bandwidth, 5% to 100% load		100	mV p-p
Voltage adjustment range			±10	%
Transient recovery time	25% load step change		500	µS
Transient recovery deviation	25% load step change: 3.3, 5, ±5Vout 25% load step change: others	±5 ±3	±8 ±5	%

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	300		KHz
Operating temperature	See derating curve	-40 to +75		°C
Storage temperature	-55 to +105			°C
Maximum case temperature			100	°C
Cooling	Free air convection			
Humidity			95	% RH
Case material		Aluminum Alloy		
Weight		26 without heat sink/ 34 with heat sink		g
Dimensions (L x W x H)	Without heatsink With heatsink	2 x 1 x 0.47 inches 50.8 x 25.4 x 11.8 mm 2 x 1 x 0.64 inches 50.8 x 25.4 x 16.3 mm		
MTBF	>1,000,000 hours (MIL-HDBK -217F, Ground Benign, t=+25°C)			
Maximum soldering temperature	1.5mm from case for 10 sec		300	°C

Environment Specification

Test	Parameters	Conditions
Vibration	Test mode	10-55Hz
	Acceleration	10g, 30min, every axis tested

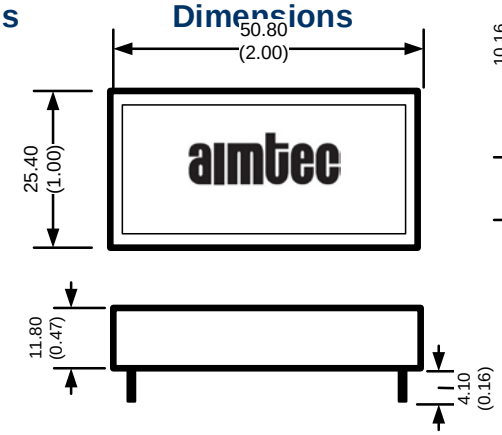
Safety Specifications

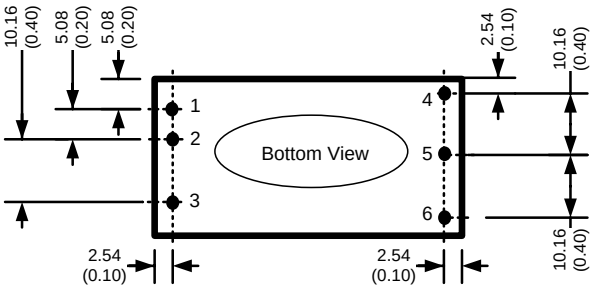
Parameters	
Standards	IEC/EN/UL 60950-1
	Meet EN 55022, Class B, with external filter & EN 55024: 2010 IEC 61000-4-2, Contact ±4KV, Criteria B IEC 61000-4-3, 10V/m, Criteria A IEC 61000-4-4, ±2KV, Criteria B, with external filter IEC 61000-4-5, ±2KV, Criteria B, with external filter IEC 61000-4-6, 3Vrms, Criteria A IEC 61000-4-29, 0-70%, Criteria B

Pin Out Specifications

Pin	Single
1	+Vin
2	-Vin
3	On/Off Control
4	+Vout
5	-Vout
6	Trim

Dimensions



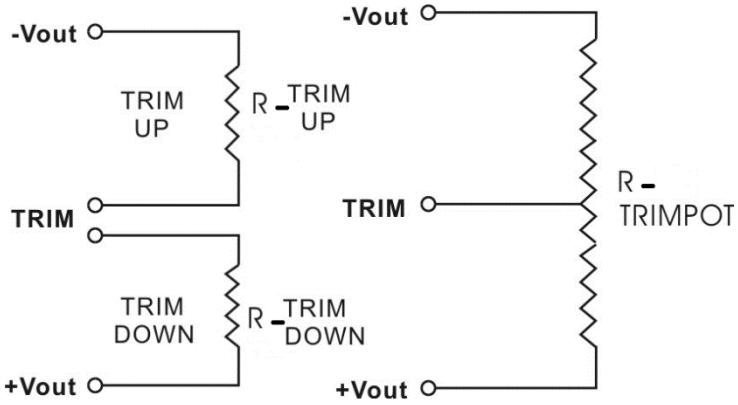


Notes:
All dimensions are typical in millimeters (inches).
Pin Pitch Tolerance ±0.10 (±0.004)
Case Tolerance ±0.50 (±0.02)

Trimming

Output voltage can be externally trimmed by utilizing the methods as shown below

Fixed Resistor



Variable Potentiometer

Leave open if not used.

AM30EW-xx03S-NZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	3.27	3.23	3.2	3.17	3.14	3.1	3.07	3.04	3	2.97
Rt down (KΩ)	124.138	73.217	53.983	41.497	32.737	24.449	19.839	16.148	12.236	9.856
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	3.33	3.37	3.4	3.43	3.47	3.5	3.53	3.56	3.6	3.63
Rt up (KΩ)	-556.59	194.738	89.364	55.050	34.131	25.350	19.357	15.006	10.773	8.367

AM20EW-xx05S-NZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	4.95	4.9	4.85	4.8	4.75	4.7	4.65	4.6	4.55	4.5
Rt down (KΩ)	105.180	52.153	31.996	21.377	14.822	10.372	7.154	4.719	2.811	1.276
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	5.05	5.1	5.15	5.2	5.25	5.3	5.35	5.4	5.45	5.5
Rt up (KΩ)	176.356	71.279	41.973	28.200	20.197	14.967	11.281	8.543	6.430	4.749

AM20EW-xx09S-NZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	8.91	8.82	8.73	8.64	8.55	8.46	8.37	8.28	8.19	8.1
Rt down (KΩ)	375.532	207.429	139.156	102.145	78.924	62.996	51.392	42.562	35.616	30.011
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	9.09	9.18	9.27	9.36	9.45	9.54	9.63	9.72	9.81	9.9
Rt up (KΩ)	314.531	112.638	64.147	42.357	29.974	21.989	16.412	12.296	9.134	6.628

AM20EW-xx12S-NZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	11.88	11.76	11.64	11.52	11.4	11.28	11.16	11.04	10.92	10.8
Rt down (KΩ)	496.091	301.451	212.527	161.585	128.573	105.441	88.332	75.163	64.715	56.223
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	12.12	12.24	12.36	12.48	12.6	12.72	12.84	12.96	13.08	13.2
Rt up (KΩ)	706.435	158.920	83.878	54.074	38.076	28.095	21.274	16.316	12.551	9.594

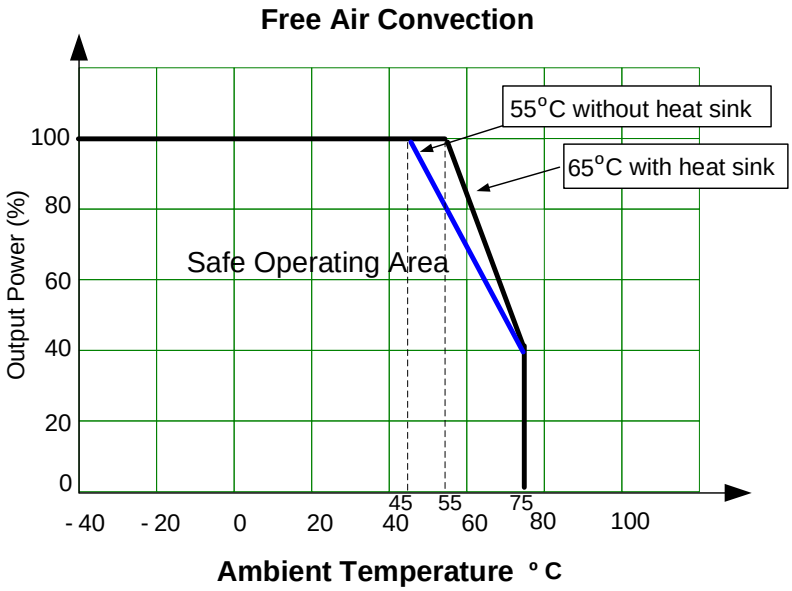
AM20EW-xx15S-NZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	14.85	14.7	14.55	14.4	14.25	14.1	13.95	13.8	13.65	13.5
Rt down (KΩ)	634.883	400.637	288.513	222.758	179.536	148.959	126.187	108.568	94.532	83.086
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	15.15	15.3	15.45	15.6	15.75	15.9	16.05	16.2	16.35	16.5
Rt up (KΩ)	1460.098	192.573	96.641	61.354	43.016	31.781	24.191	18.720	14.590	11.361

AM20EW-xx24S-NZ, xx=24 or 48

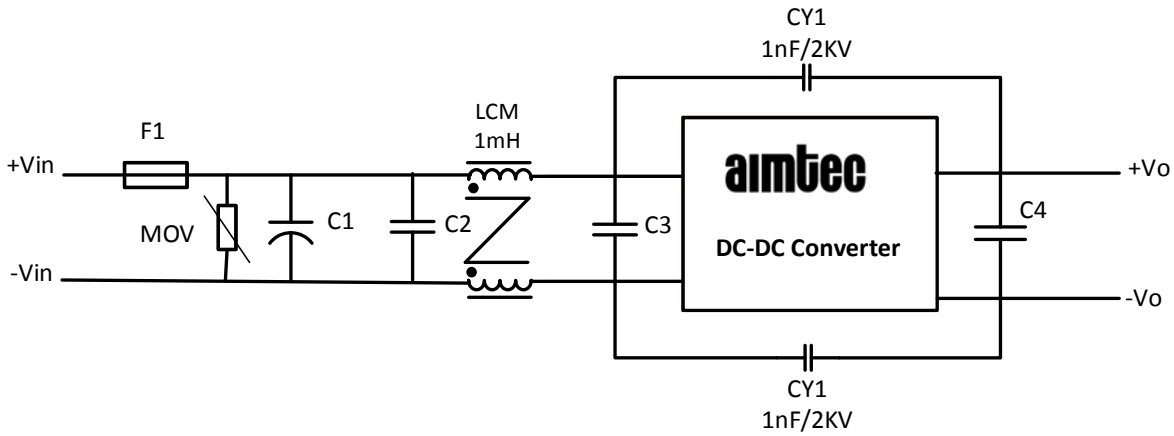
Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	23.76	23.52	23.28	23.04	22.8	22.56	22.32	22.08	21.84	21.6
Rt down (KΩ)	1038.047	638.015	455.256	350.553	282.702	235.158	199.992	172.928	151.453	134
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	24.24	24.48	24.72	24.96	25.2	25.44	25.68	25.92	26.16	26.4
Rt up (KΩ)	816.889	179.913	94.338	60.463	42.306	30.987	23.256	17.640	13.375	10.027

Derating



NOTE: With operations at 12V nominal input (9-18VDC) the output power will be rated at 80% only.

EMC recommended filter



Model	MOV	C1	C2 & C3	C4
24 Vin	S14K35	330 µF / 50V	4.7 µF / 50V	220µF for 3.3, 5 & 9 V output 100 µF for 12, 15 & 24 V output
48 Vin	S14K60	330 µF / 100V	2.2 µF / 100V	