

ZWX180/A1

SPECIFICATIONS(1/2)

A234-01-01/A1-B

(This specifications sheet also apply to other option model /A2.)

MODEL			ZWX180/A1				
ITEMS			V1	V2	V3	V4	V5 (5V SB)
1	Nominal Output Voltage	V	+3.3	+5	+12	-12	+5
2	Minimum Output Current	A	0	0	0	0	0
3	Maximum Output Current (Convection)	A	6.0	5.0	6.0	0.2	1.4
4	Maximum Output Power Each CH (Convection)	W	19.8	25.0	72.0	2.4	7.0
5	Total Output Power (Convection)	W	90				
6	Maximum Output Current (Forced Air)	A	8.4	7.0	9.0	0.3	2.0
7	Maximum Output Power Each CH (Forced Air)	W	27.7	35.0	108.0	3.6	10.0
8	Total Output Power (Forced Air)	W	153				
9	Peak Output Current (*1)	A	12.0	10.0	13.0	0.3	2.0
10	Peak Output Power Each CH (*1)	W	39.6	50.0	156.0	3.6	10.0
11	Total Peak Output Power (*1)	W	180				
12	Efficiency (100/200VAC)(Typ) (*2)	-	81%/84%				
13	Input Voltage Range (*4)	-	85-265VAC (47-63Hz)				
14	Input Current (100/200VAC)(Typ) (*2)	-	1.9A/1.0A				
15	Inrush Current (100/200VAC)(Typ) (*5)	-	14A/28A at Cold Start (Ta=25°C)				
16	PFHC	-	Designed to meet IEC61000-3-2				
17	Power Factor (100/200VAC)(Typ) (*2)	-	0.99/0.93				
18	Output Voltage Accuracy	%	±5	±5	±5	±5	±5
19	Output Voltage Range	-	Fixed	Fixed	Fixed	Fixed	Fixed
20	Maximum Ripple & Noise (*3,*6)	-10≤Ta<0°C 0≤Ta≤50°C	mV	160 120	180 150	180 150	160 120
21	Maximum Line Regulation (*3,*6,*7)	mV	20	48	48	20	20
22	Maximum Load Regulation (*3,*6,*8)	mV	100	300	300	100	100
23	Over Current Protection (*9)	A	8.82-	7.35-	9.45-	0.32-	2.1-
24	Over Voltage Protection (*10)	-	V1 : 114%-130%(3.76-4.3V), V2 : 115%-140%(5.74-7V) V3 : 112%-130%(13.4-15.6V)				
25	Hold-up Time (Typ) (*2)	-	20ms at 100VAC				
26	Leakage Current (*3,*11)	-	Less than 0.75mA				
27	Remote Sensing		Possible (V1 only)				
28	ON/OFF Control (PS_ON)	-	TTL compatible (H : Output Inhibit, L : Output Enable) : Designed to meet ATX standard.				
29	Series / Parallel Operation	-	-				
30	Operating Temperature (*12)	-	-10 - +50°C : 100%, 60°C : 60%, 70°C : 20%				
31	Operating Humidity	-	30 - 90%RH (No Dewdrop)				
32	Storage Temperature	-	-30 - +85°C				
33	Storage Humidity	-	10 - 95%RH (No Dewdrop)				
34	Cooling (*12)	-	Convection Cooling / Forced air Cooling (System air Cooling) : 0.85 m ³ /min				
35	Withstand Voltage	-	Input-FG : 2kVAC(20mA), Input-Output : 3kVAC(20mA) Output-FG : 500VAC(100mA) for 1min.				
36	Isolation Resistance	-	More than 100MΩ at 25°C and 70%RH Output-FG : 500VDC				
37	Vibration	-	At no operating 10 - 55Hz(Sweep for 1min) 19.6 m/s ² Constant, X,Y,Z 1hour each.				
38	Shock	-	Less than 392 m/s ² at no operating.				
39	Safety	-	Approved by UL60950-1, CSA60950-1, EN60950-1, EN50178(OV II), Designed to meet Den-an Appendix12 (J60950-1)				
40	Conducted Emission (*3)	-	Designed to meet EN55011/EN55022-B, FCC-ClassB, VCCI-B				
41	Radiated Emission (*3)	-	Designed to meet EN55011/EN55022-B, FCC-ClassB, VCCI-B				

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SPECIFICATIONS(2/2)

A234-01-02/A1

(This specifications sheet also apply to other option model /A2.)

ITEMS		MODEL	ZWX180/A1				
			V1	V2	V3	V4	V5 (5V SB)
42	Immunity	-	Designed to meet IEC61000-4-2, -3, -4, -5, -6, -8, -11				
43	Weight (Typ.)	g	750				
44	Size (W x H x D)	mm	99 x 45.5 x 240 (Refer to Outline Drawing)				

*Read instruction manual carefully, before using the power supply unit.

=NOTE=

- *1. Operating time at peak output is less than 5sec.
(Average output power and current are less than Maximum output power and current.)
- *2. At total output power (Forced air) (V1=6.5A, V2=6.5A, V3=7.7A, V4=0.2A, V5=1.0A), Ta=25°C.
- *3. At total output power (Forced air).
- *4. For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 100 - 240VAC (50/60Hz).
- *5. Not applicable for the inrush current to Noise Filter for less than 0.2ms.
- *6. Please refer to Fig. A for measurement of line & load regulation and ripple voltage.
- *7. 85 - 265VAC , constant load.
- *8. No load-Full load, constant input voltage.
- *9. Avoid to operate at overload or short circuit condition for more than 30 seconds.
V1,V2 and V3
: OCP circuit will shut down output except V5 with delay (more than 5s), manual reset (PS_ON reset or re power on.).
V4 : Constant current limit with automatic recovery.
V5 : Constant current limit in conjunction with all output with automatic recovery.
- *10. OVP circuit will shut down output, manual reset (PS_ON reset or re power on.).
- *11. Measured by the each measuring method of UL, CSA, EN and DENAN (at 60Hz), Ta=25°C.
- *12. At forced air cooling, standard mounting. Refer to output derating curve.(A234-01-03/A1-_, A234-01-04/A1-_)

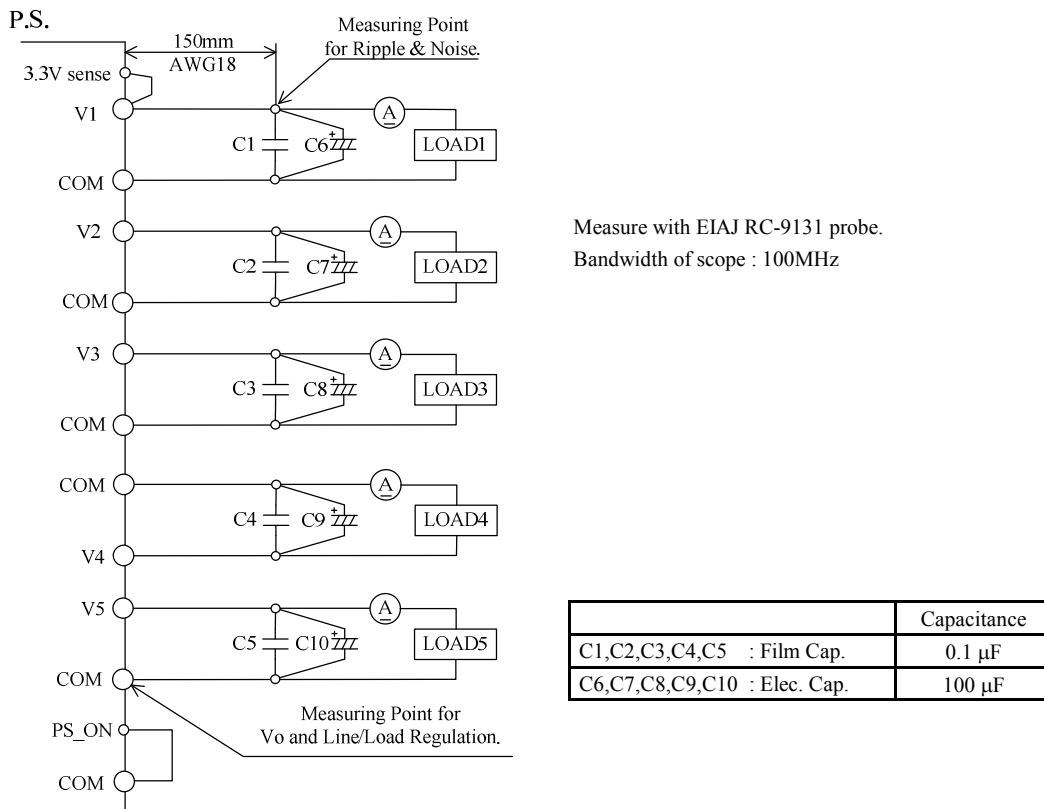


Fig.A

ZWX180/A1

OUTPUT DERATING

A234-01-03/A1-A

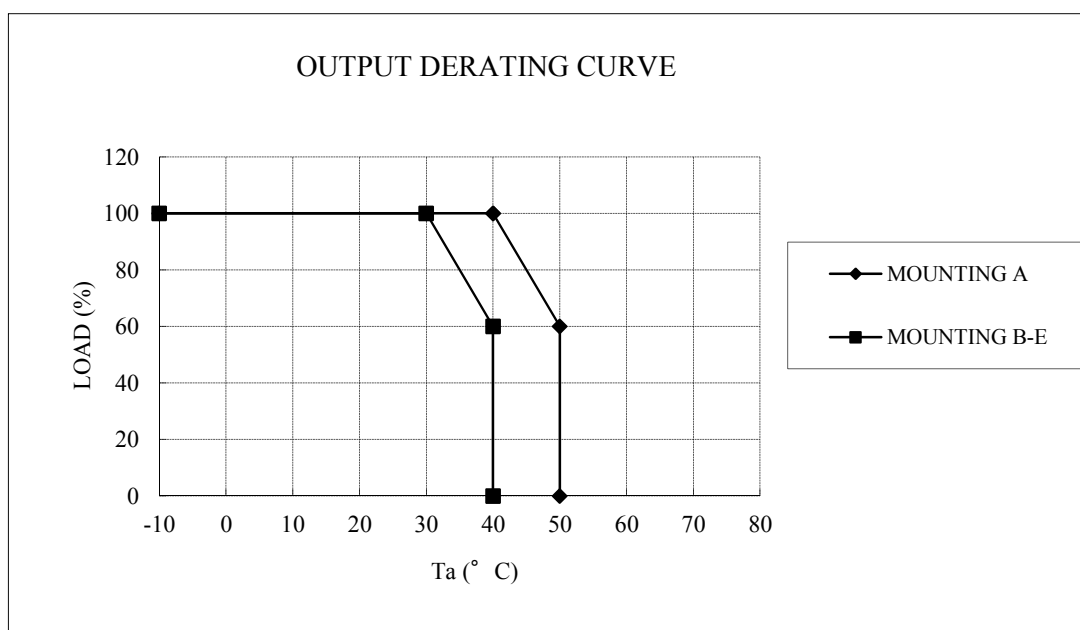
(This specifications sheet also apply to other option model /A2.)

*COOLING : CONVECTION COOLING

Ta (°C)	LOAD (%)	LOAD (%)
	MOUNTING A	MOUNTING B-E
-10 - +30	100	100
40	100	60
50	60	-

Load (%) is percent of total output power (Convection) : 90W max.

Also apply Load(%) to maximum output current (Convection) and combined maximum output power (Convection).



* PEAK OUTPUT CURRENT DOES NOT NEED DERATING.

MOUNTING A

MOUNTING B

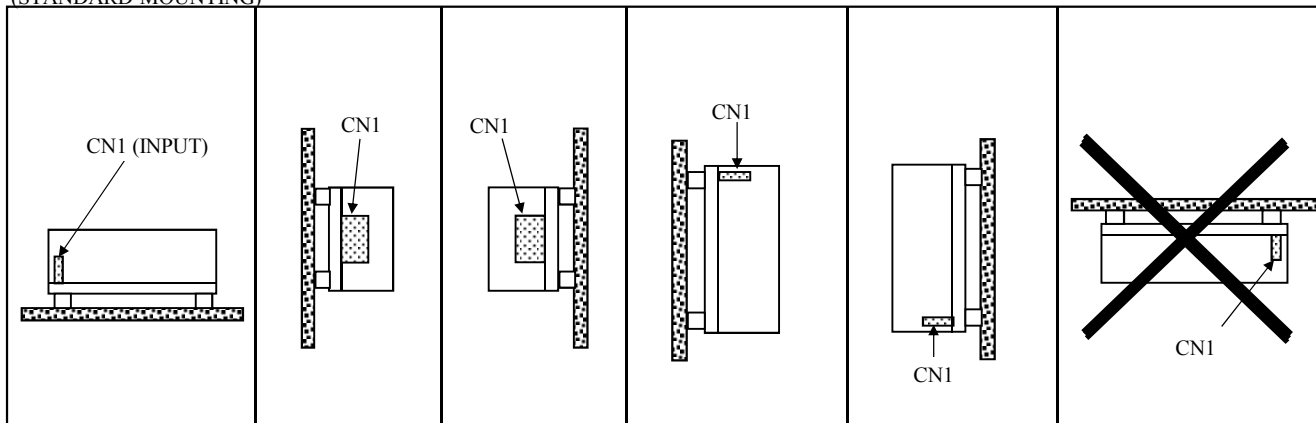
MOUNTING C

MOUNTING D

MOUNTING E

DON'T USE

(STANDARD MOUNTING)



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OUTPUT DERATING

A234-01-04/A1-A

(This specifications sheet also apply to other option model /A2.)

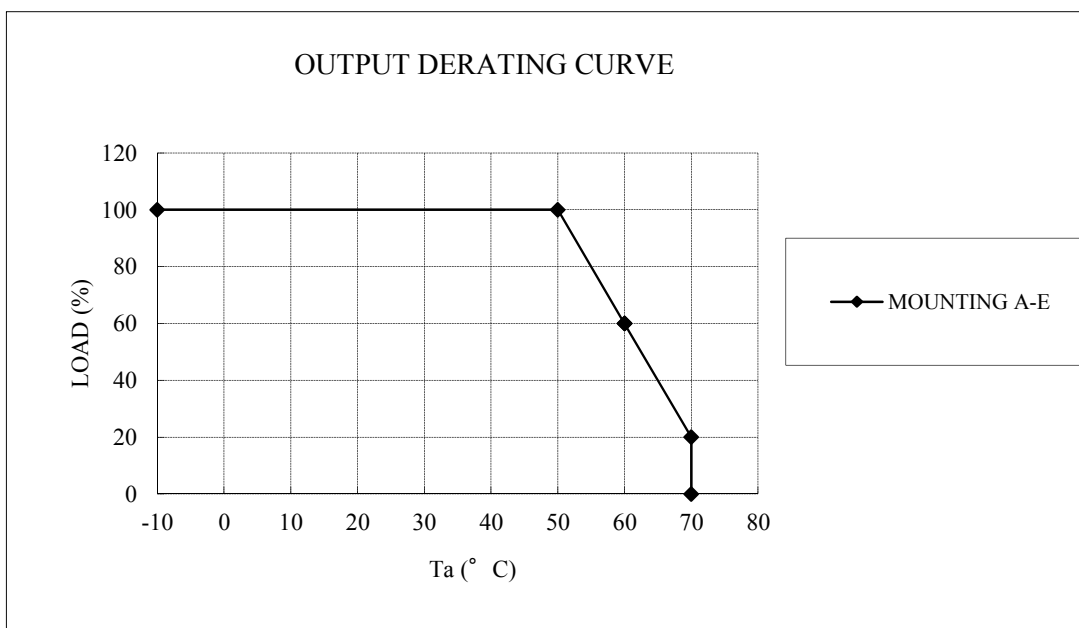
*COOLING : FORCED AIR COOLING

Ta (°C)	LOAD (%)
	MOUNTING A-E
-10 - +50	100
60	60
70	20

Load (%) is percent of total output power (Forced air) : 153W max.

Also apply Load(%) to maximum output current (Forced air) and combined maximum output power (Forced air).

Air flow $\geq 0.85\text{m}^3/\text{min}$: Air must flow through component side.



* PEAK OUTPUT CURRENT DOES NOT NEED DERATING.

MOUNTING A

MOUNTING B

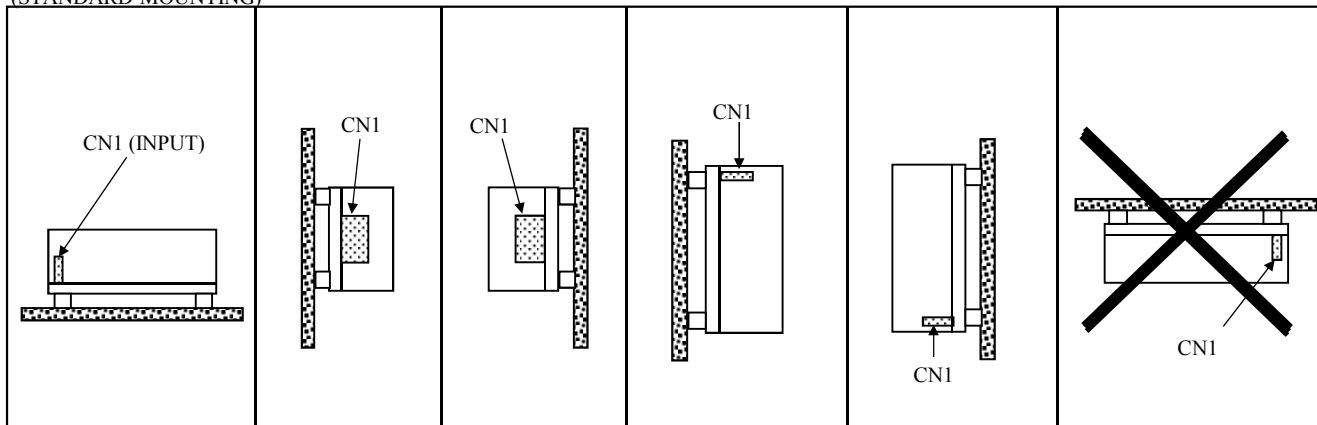
MOUNTING C

MOUNTING D

MOUNTING E

DON'T USE

(STANDARD MOUNTING)

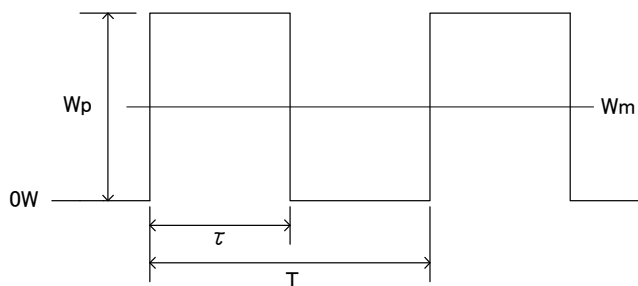


Peak Output Power Condition

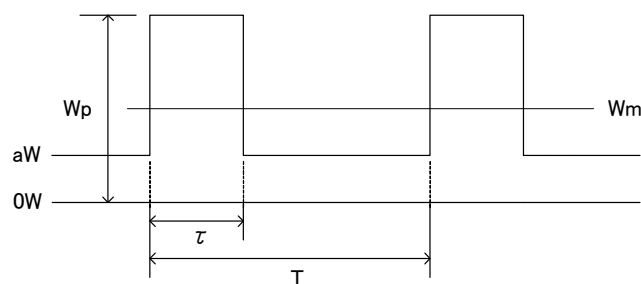
A234-01-05/A1

(This specifications sheet also apply to option model /A2.)

Relation between peak output current and peak output power (Wp) must satisfy formulas below.
 The mean output power during peak output (Wm) have to be less than total output power specified in the spec sheet (Wavg) in both cases for forced air cooling and convection cooling.
 Also operating time at peak output current (τ) should be less than 5sec.
 (Forced Air Cooling : Duty $\leq$ 50%, Convection Cooling : Duty $\leq$ 10%)



$$W_{avg} \geq W_m = \frac{W_p \times \tau}{T}$$



$$W_{avg} \geq W_m = \frac{(W_p - a) \times \tau}{T} + a$$

$$\text{Duty} = \frac{\tau}{T} \times 100 (\%)$$

- Wp : Peak output power (W)
- Wavg : Total output power of Specification (W)
- Wm : Average output power (W)
- τ : Pulse width of peak output power (sec)
- (Operating time at peak output)
- T : Period (sec)