ZWS150BP

SPECIFICATIONS

A252-01-01C

	ITEMS / MODEL			ZWS150BP -24	ZWS150BP -36	ZWS150BP -48
1	Nominal Output Voltage		V	24	36	48
2	Average Output Current		A	6.3	4.2	3.2
3	Peak Output Current	(*1)	A	12.6	8.4	6.4
4	Average Output Power		W	151.2	151.2	153.6
5	Peak Output Power	(*1)	W	302.4	302.4	307.2
6	Efficiency (Typ)	100VAC	%	87		
		(*2) 200VAC	%	90		
7	Input Voltage Range	(*3)(*13)	-	85 - 265VAC (47 - 63Hz) or 120 - 370VDC		
8	Input Current (Typ)	(*2)	A	1.9/0.95		
9	Inrush Current (Typ)	(*2)(*4)	-	15A at 100VAC, 30A at 200VAC, Ta=25°C, Cold Start		
10	PFHC		-	Designed to meet IEC61000-3-2		
11	Power Factor (Typ)	(*2)	-	0.98/0.93		
12	Output Voltage Range		V	21.6 - 27.5	32.4 - 39.6	39.6 - 52.8
13	Maximum Ripple & Noise	0≤Ta≤70°C	mV	240	360	480
		(*5) -10≤Ta<0°C	mV	360	540	720
14	Maximum Line Regulation	(*5)(*6)	mV	96	144	192
15	Maximum Load Regulation	(*5)(*7)	mV	192	288	384
16	Temperature Coefficient	(*5)	-	Less than 0.02% / °C		
17	Over Current Protection	(*8)	A	12.66 -	8.44 -	6.43 -
18	Over Voltage Protection	(*9)	V	28.8 - 33.6	41.4 - 48.6	55.2 - 64.8
19	Hold-up Time (Typ)	(*2)	-	20ms		
20	Leakage Current	(*10)	-	Less than 0.5mA. 0.2mA(Typ) at 100VAC / 0.4mA(Typ) at 230VAC		
21	Remote Control		-	Option		
22	Parallel Operation		-	-		
23	Series Operation		-	Possible		
24	Operating Temperature	(*11)	-	Convection : -10 - +70°C (-10 - +50°C:100%, +60°C:75%, +70°C:50%)		
25	Operating Humidity		-	30 - 90%RH (No Condensing)		
26	Storage Temperature		-	-30 - +75°C		
27	Storage Humidity		-	10 - 90%RH (No Condensing)		
28	Cooling		-	Convection Cooling		
29	Withstand Voltage		-	Input - FG : 2kVAC (10mA), Input - Output : 3kVAC (10mA) Output - FG : 500VAC (20mA) for 1min		
30	Isolation Resistance		-	More than 100MΩ at 25°C and 70%RH Output - FG : 500VDC		
31	Vibration		-	At no operating, 10 - 55Hz (Sweep for 1min) 19.6m/s^2 Constant, X,Y,Z 1hour each.		
32	Shock		-	Less than 196.1m/s^2		
33	Safety		-	Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1 (Expire date of 60950-1 : 20/12/2020), EN50178(OV II) Designed to meet DENAN at 100VAC Only.		
34	Conducted Emission	(*12)	-	Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B		
35	Radiated Emission	(*12)	-	Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B		
36	Immunity		-	Designed to meet IEC61000-6-2 IEC61000-4-2, -3, -4, -5, -6, -8, -11		
37	Weight (Typ)		g	360		
38	Size (W x H x D)		mm	75 x 37 x 160 (Refer to Outline Drawing)		

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

=NOTES=

*1. Operating time at peak output is less than 5sec, duty is less than 40%. For details, refer to peak output condition (A252-01-03_). When the peak output more than 5 sec is continued, the output is shut down, manual reset.

*2. At 100VAC/200VAC, Ta=25°C, nominal output voltage and average output power.

*3. For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 100 - 240VAC (50-60Hz).

*4. Not applicable for the inrush current to Noise Filter for less than 0.2ms.

*5. Please refer to Fig. A for measurement of Vo, line & load regulation and ripple voltage.

*6. 90 - 265VAC, constant load.

*7. No load-Average load, constant input voltage.

*8. Constant current limit with automatic recovery. Avoid to operate at over load or short circuit condition.

*9. OVP circuit will shut down output, manual reset (Re power on).

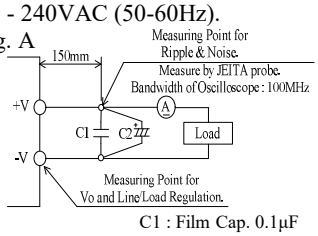
*10. Measured by the each measuring method of UL, CSA, EN and DENAN (at 60Hz), Ta=25°C.

*11. Output Derating - Derating at standard mounting. Refer to output derating curve (A252-01-02_).
- When forced air cooling, refer to forced air cooling specifications (A252-01-04_, A252-01-05_, A252-01-06_).
- Load (%) is percent of average output power or average output current, do not exceed its derating of average load.

*12. At Ta=25°C and average output power.

*13. Output derating needed when input voltage less than 90VAC. Refer to output derating vs. input voltage (A252-01-02_).

Fig. A



C1 : Film Cap. 0.1μF
C2 : Elect. Cap. 100μF

ZWS150BP

OUTPUT DERATING

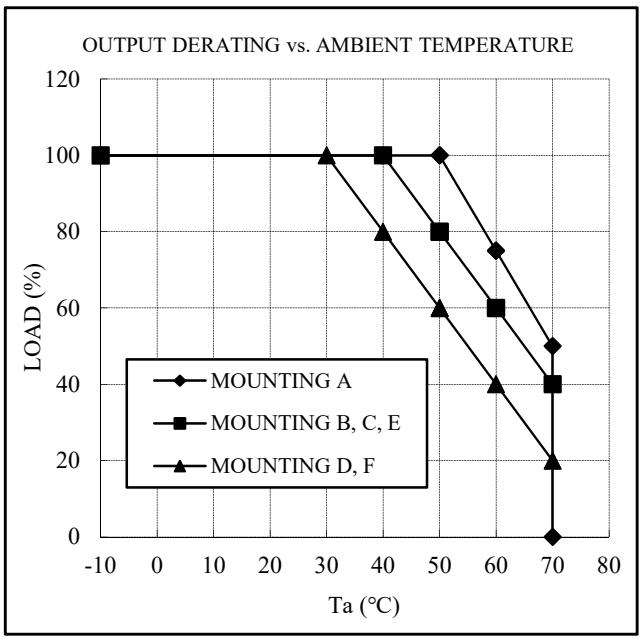
A252-01-02A

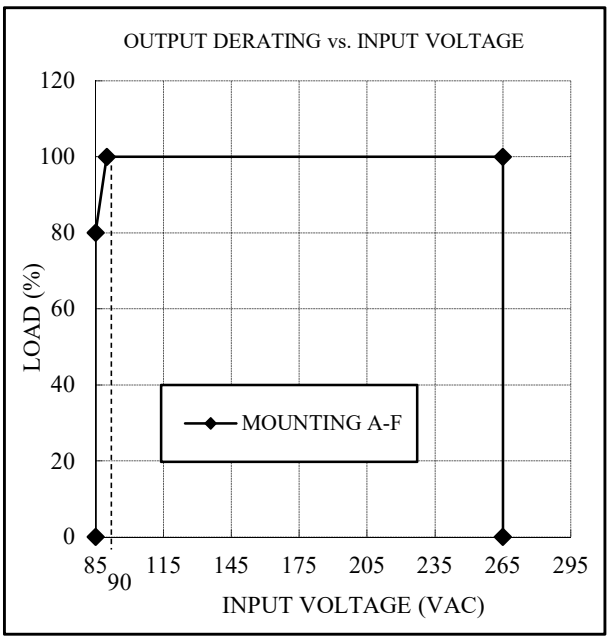
*COOLING : CONVECTION COOLING

Ta (°C)	LOAD (%)		
	MOUNTING A	MOUNTING B,C,E	MOUNTING D,F
-10 - +30	100	100	100
40	100	100	80
50	100	80	60
60	75	60	40
70	50	40	20

*COOLING : CONVECTION / FORCED AIR COOLING

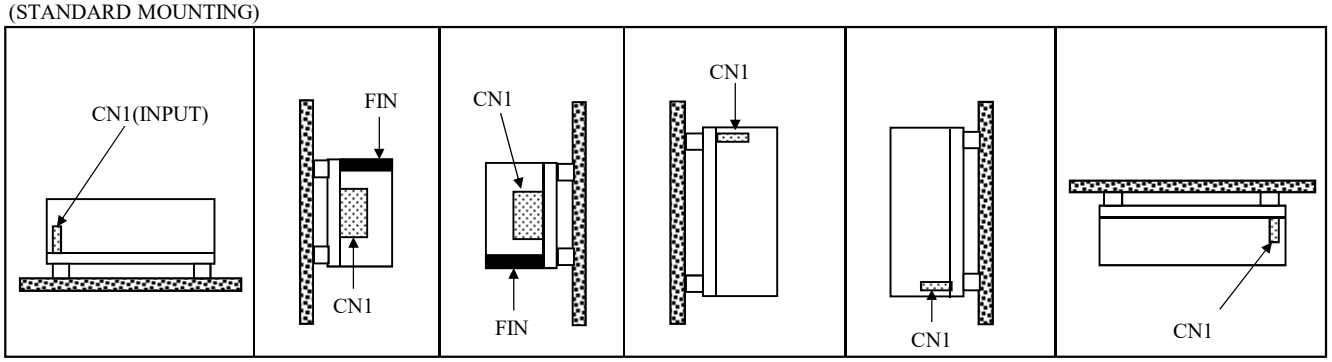
INPUT VOLTAGE (VAC)	LOAD (%)
	MOUNTING A-F
85	80
90 - 265	100





MOUNTING A | MOUNTING B | MOUNTING C | MOUNTING D | MOUNTING E | MOUNTING F

(STANDARD MOUNTING)



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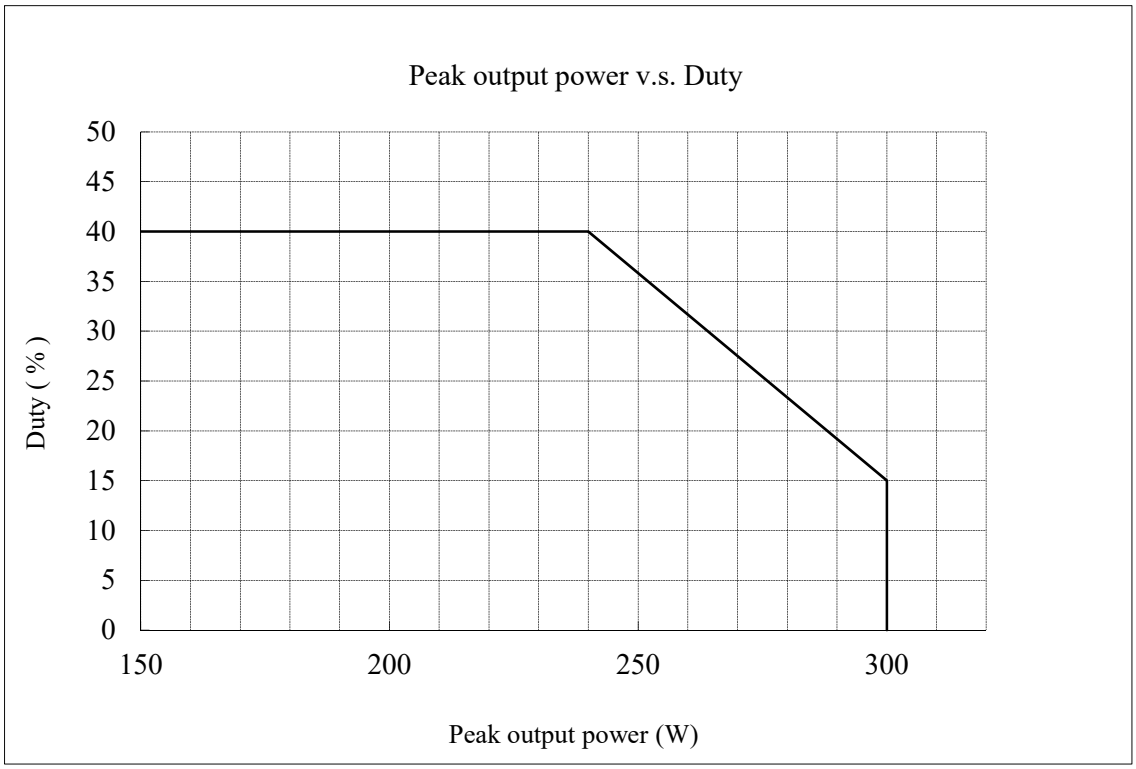
PEAK OUTPUT CONDITION

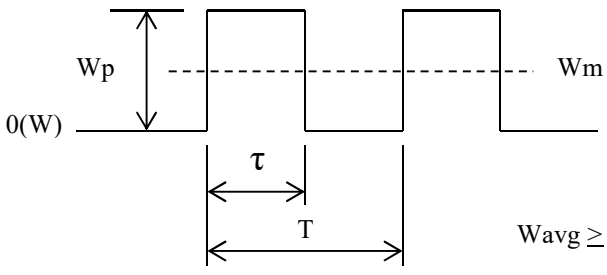
A252-01-03



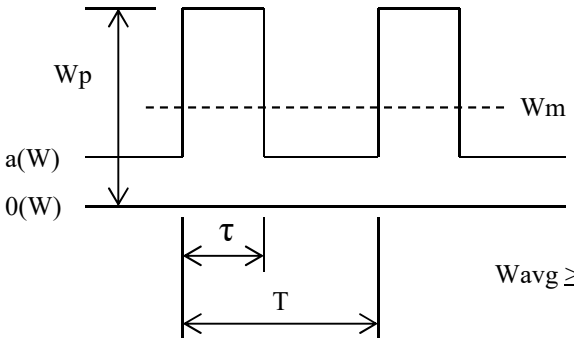
Peak output power

Use this product so that relationship among Duty, average output power (Wm) and peak output power (Wp) satisfy conditions defined by expression below.
This product must be used less than average output power of specification (Wavg).
Also operating duration at peak output power should be less than 5 sec.

$$Duty = \frac{\tau}{T} \times 100 \qquad \tau \leq 5 \text{ (sec)}$$



$$Wavg \geq Wm = \frac{Wp \times \tau}{T}$$



$$Wavg \geq Wm = \frac{(Wp-a) \times \tau}{T} + a$$

Wp	:	Peak output power (W)
Wavg	:	Average 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)
Duty	:	The duty is pulse width of peak output power of one period (%)

ZWS150BP

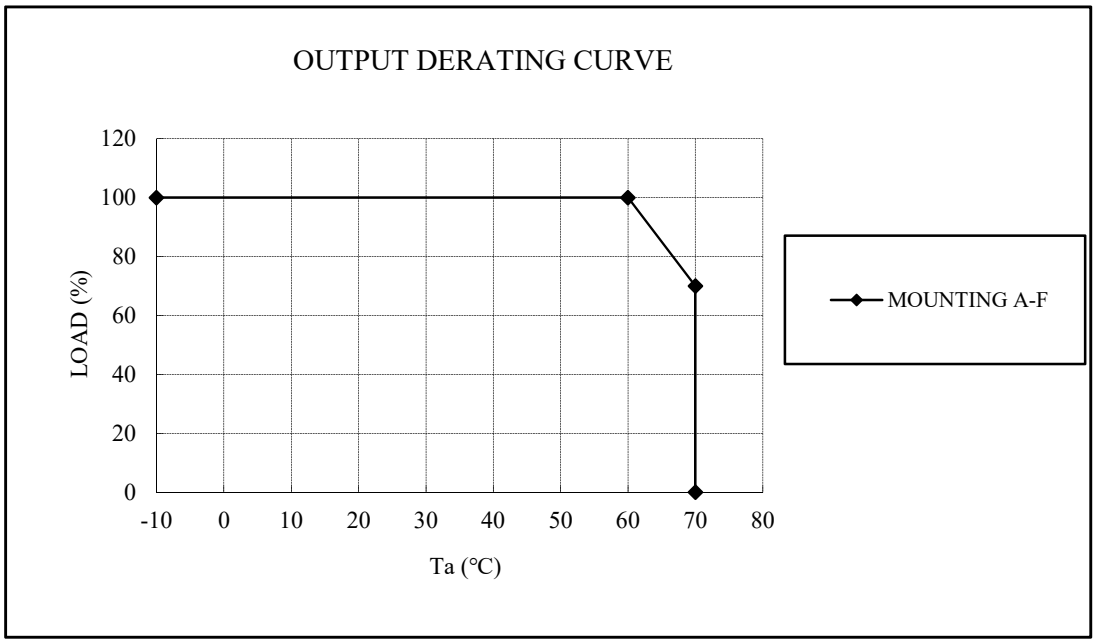
OUTPUT DERATING

A252-01-04

*COOLING : FORCED AIR COOLING

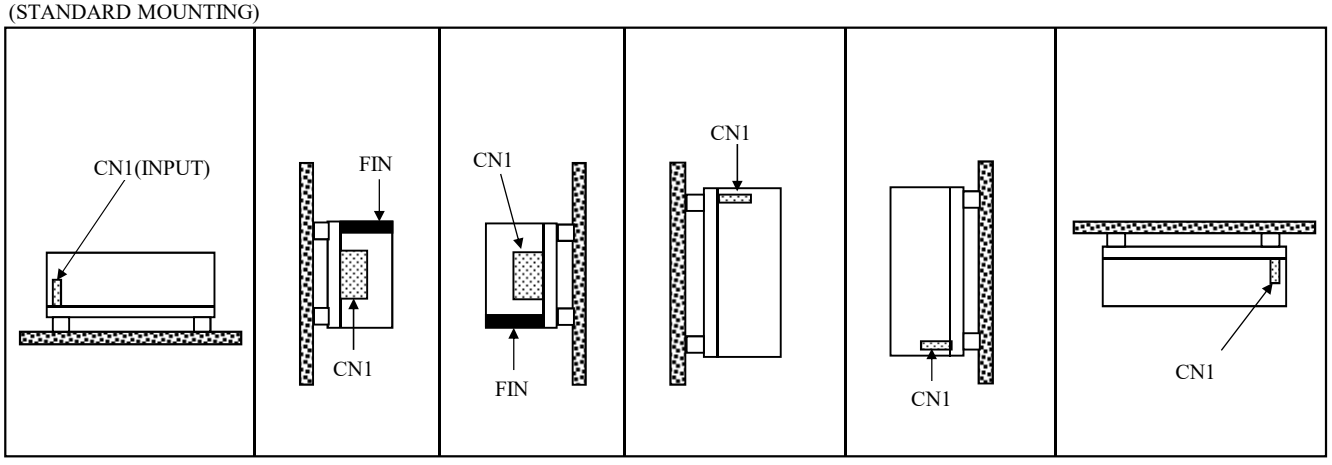
Ta (°C)	LOAD (%)
	MOUNTING A-F
-10 - +60	100
70	70

Air velocity ≧ 0.7m/s : Air must flow through component side.



MOUNTING A | MOUNTING B | MOUNTING C | MOUNTING D | MOUNTING E | MOUNTING F

(STANDARD MOUNTING)



ZWS150BP

SPECIFICATIONS (FORCED AIR COOLING)

A252-01-05A

	ITEMS / MODEL			ZWS150BP -24	ZWS150BP -36	ZWS150BP -48
1	Nominal Output Voltage		V	24	36	48
2	Average Output Current		A	8.4	5.6	4.3
3	Peak Output Current	(*1)	A	12.6	8.4	6.4
4	Average Output Power		W	201.6	201.6	206.4
5	Peak Output Power	(*1)	W	302.4	302.4	307.2
6	Efficiency (Typ)	100VAC	%	86		
	(*2)	200VAC	%	89		
7	Input Voltage Range	(*3)(*4)	-	85 - 265VAC (47 - 63Hz) or 120 - 370VDC		
8	Input Current (Typ)	(*2)	A	2.5/1.3		
9	Hold-up Time (Typ)	(*2)	-	16ms(typ) at 100VAC & Rated O/P Power, 20ms(typ) at 100VAC & 75% Load		
10	Operating Temperature	(*5)	-	-10 - +70°C (-10 - +60°C:100%, +70°C:70%)		
11	Cooling	(*6)	-	Forced Air Cooling		
12	Conducted Emission	(*7)	-	Designed to meet EN55011/EN55032-A, FCC-A, VCCI-A		
13	Radiated Emission	(*7)	-	Designed to meet EN55011/EN55032-A, FCC-A, VCCI-A		

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

*For other specification items, refer to specifications(A252-01-01_).

=NOTES=

*1. Operating time at peak output is less than 5sec, duty is less than 40%. For details, refer to peak output condition (A252-01-03_). When the peak output more than 5 sec is continued, the output is shut down, manual reset.

*2. At 100VAC/200VAC, Ta=25°C, nominal output voltage and average output power.

*3. For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 100 - 240VAC (50-60Hz).

*4. Output derating needed when input voltage less than 90VAC. Refer to output derating vs. input voltage (A252-01-02_).

*5. Output Derating - Derating at standard mounting. Refer to output derating curve (A252-01-06_).
- Load (%) is percent of average output power or average output current, do not exceed its derating of average load.

*6. Forced air cooling with air velocity more than 1.5m/s (measured at component side of PCB, air must flow through component side)

*7. At Ta=25°C and average output power.

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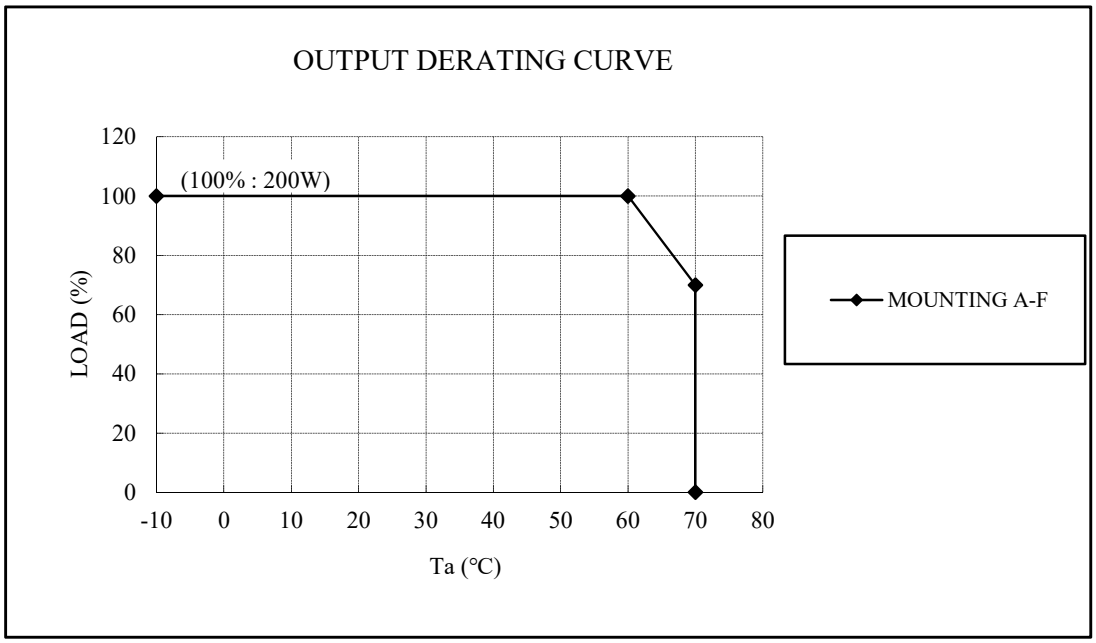
OUTPUT DERATING

A252-01-06

*AVERAGE OUTPUT POWER : 200W
*COOLING : FORCED AIR COOLING

Ta (°C)	LOAD (%)
	MOUNTING A-F
-10 - +60	100
70	70

Air velocity ≧ 1.5m/s : Air must flow through component side.



MOUNTING A | MOUNTING B | MOUNTING C | MOUNTING D | MOUNTING E | MOUNTING F

(STANDARD MOUNTING)