



MP450 / 650 / 1K0

使用手冊

0.簡介.....	1
1.訂購方式.....	1
1.1 編碼說明.....	1
1.2 編碼注意事項.....	1
1.3 標示.....	1
2.機構與輸出端子介紹.....	2
2.1 整機機構.....	2
2.2 輸出模組機構.....	3
3.功能介紹.....	5
3.1 輸入電壓.....	5
3.2 突入電流.....	5
3.3 輸出電壓調整.....	5
3.4 短路及過電流保護.....	5
3.5 過電壓保護.....	5
3.6 過溫度保護.....	5
3.7 風扇故障保護.....	5
3.8 遙測(線壓降補償)-輸出模組.....	5
3.9 輔助電源.....	5
3.10 遙控-全機.....	5
3.11 遙控-輸出模組.....	6
3.12 輸出電壓遙控.....	6
3.13 並聯操作.....	6
3.14 串聯操作.....	7
4.使用注意事項.....	7
4.1 組裝要求.....	7
4.2 裝置方式.....	7
4.3 減額.....	8
5.串並聯配件.....	8
5.1 串聯配件.....	8
5.2 並聯配件.....	9
6.規格書.....	9
6.1 前級(Front End)規格.....	9
6.2 輸出模組規格.....	10



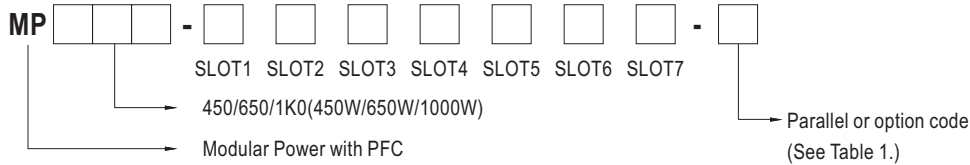
MP450,650,1K0系列使用說明書

0.簡介

Modular系列產品是一採用模組化設計之交換式電源供應器，其可分為前端(Front-End)與輸出模組兩大部份。前端的部份，是利用具有零電壓切換(Zero Voltage Switching)的主動式功因修正技術，將交流電源轉換成高直流電壓(約390VDC)，並可有效抑制諧波干擾。輸出模組的部份則是將前端部份的高直流電壓，利用交換式電源供應器的技術，轉換成各種不同的直流輸出電壓，目前計有75W(MS-75)、150W(MS-150)、210W(MS-210)、300W(MS-300)、360W(MS-360)單組輸出及100W(MD-100)雙組輸出等六類共57種不同輸出模組，可供客戶選擇。

1.訂購方式

1.1 編碼說明



※450W/650W(5SLOT)

※1000W(7SLOT)

Table 1. Parallel code(For MS-210、MS-300、MS-360 only)

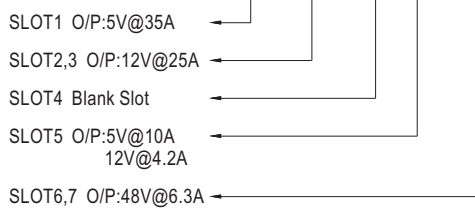
Model	Code	SLOT1	SLOT2	SLOT3	SLOT4	SLOT5	SLOT6	SLOT7
MS-300/360	X						----	----
	1	○	○	○	○	○	----	----
	2		○	○	○	○	----	----
	3			○	○	○	○	----
	4				○	○	○	○
	5	○		○	○	○	○	
MS-210	7	○	○					
	8	○	○	○	○			
	9	○	○	○	○	○		

※Code X,1,2,7,8,9 for MP450, MP650

※Code X,1,2,3,4,5,6,7,8,9 for MP1K0

※Maximum number of units for parallel function : 5 for MS-210, 3 for MS-300/360

Example: MP1K0-1C 2 E # S 2 K



1.2 編碼注意事項

- ◎需串、並聯的輸出模組請規劃於相鄰的位置。
- ◎各輸出模組的實際總使用瓦數須小於前端PFC的額定輸出瓦數。

1.3 標示

- ◎使用時請參考機器正面安規貼紙上的標示，如圖1-1。

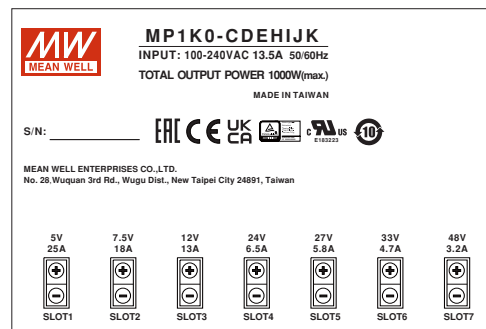
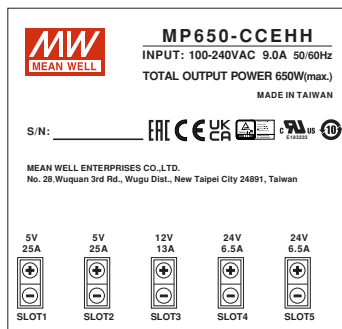
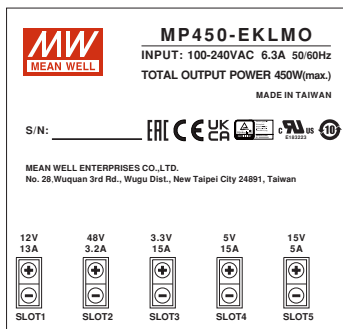
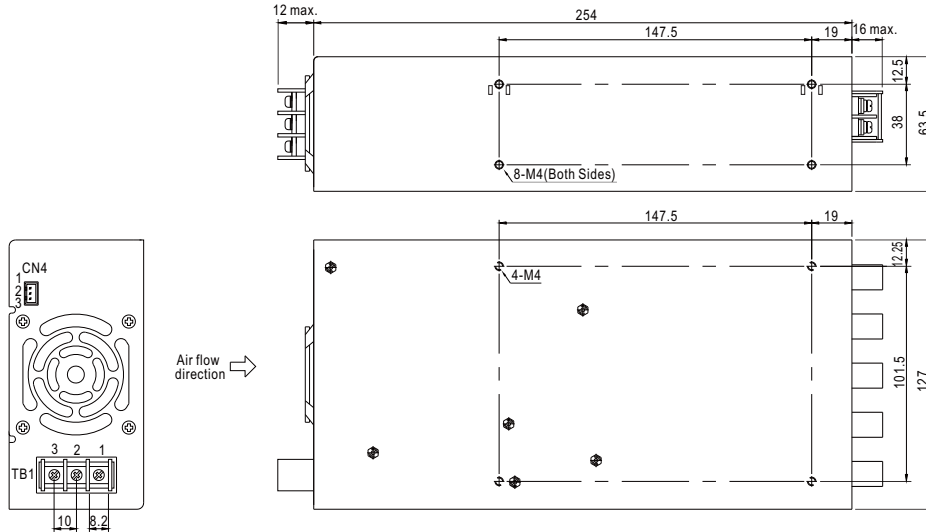


圖1-1 標示貼紙

2. 機構與輸出端子介紹

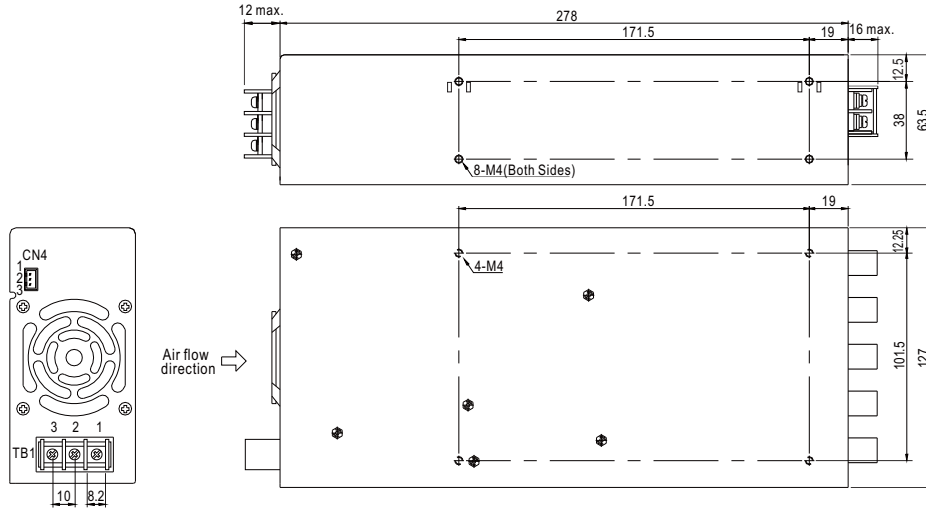
2.1 整機機構

◎MP450

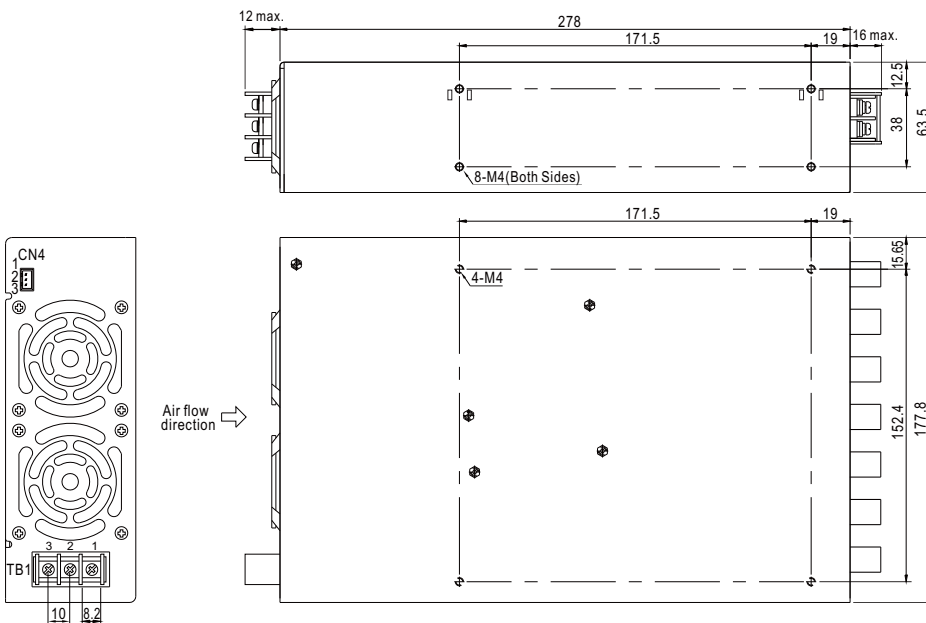


Unit:mm

◎MP650



◎MP1K0



TB1(PFC-450/650/1K0)

Pin No.	Assignment	Screw Size	Maximum mounting torque
1	AC/L	M3.5	18Kgf-cm
2	AC/N		
3	FG ½		

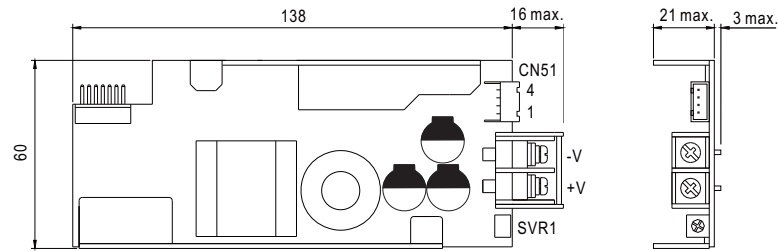
CN4(PFC-450/650/1K0) : JST B3B-XH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	+RC: +Remote ON/OFF	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
2	-RC: -Remote ON/OFF		
3	VCC: 12V/0.1A auxiliary output		

2.2 輸出模組機構

◎MS-75

Unit:mm

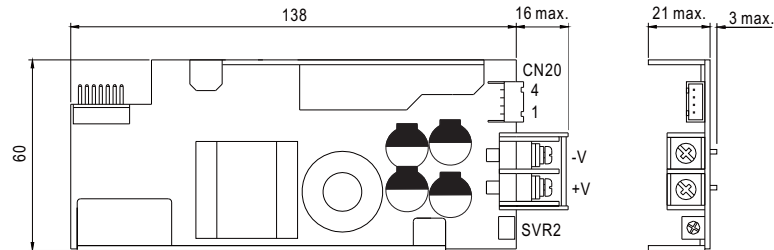


Output Connector(CN51) : JST B4B-XH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	+S: +Remote sense	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
2	-S: -Remote sense		
3	+RC: +Remote ON/OFF		
4	-RC: -Remote ON/OFF		

Assignment	Screw Size	Maximum mounting torque
+V,-V	M4	18Kgf-cm

◎MS-150

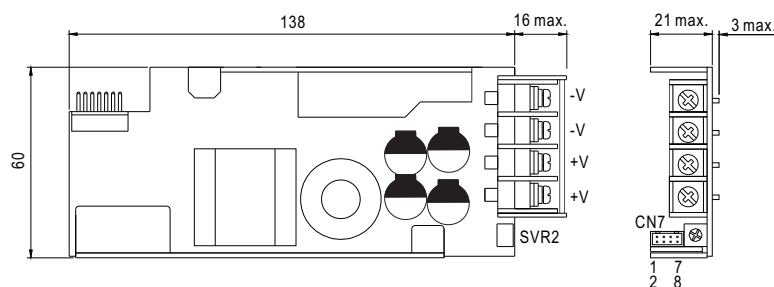


Output Connector(CN20) : JST B4B-XH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	+S: +Remote sense	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
2	-S: -Remote sense		
3	+RC: +Remote ON/OFF		
4	-RC: -Remote ON/OFF		

Assignment	Screw Size	Maximum mounting torque
+V,-V	M4	18Kgf-cm

◎MS-210



Output Connector(CN7) : HRS DF11-8DP-2DS or equivalent

Pin No.	Assignment	Pin No.	Assignment	Mating Housing	Terminal
1	+S: +Remote sense	5	CS: Current sharing	HRS DF11-8DS or equivalent	DRS DF11-**SC or equivalent
2	-S: -Remote sense	6	G: GND		
3	+RC: +Remote ON/OFF	7	ML: Remote margin low control		
4	-RC: -Remote ON/OFF	8	M: Remote margin control		

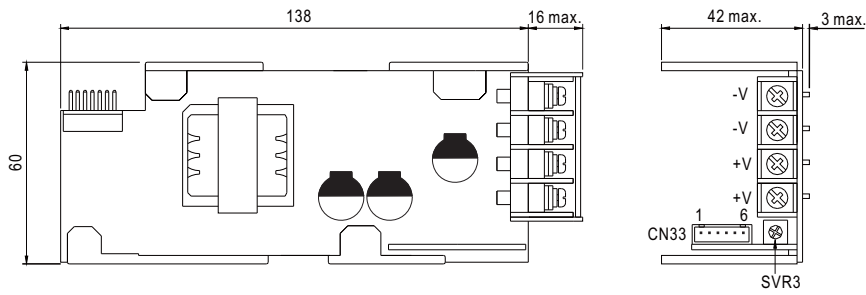
Assignment	Screw Size	Maximum mounting torque
+V,-V	M3.5	12Kgf-cm

NOTE: 1. The voltage difference among each output should be minimized that less than 2% is required.

2. The total output current must not exceed the value determined by the following equation.

$$(\text{Output current at parallel operation}) = (\text{The rated current per unit}) \times (\text{Number of unit}) \times 0.9$$

◎MS-300



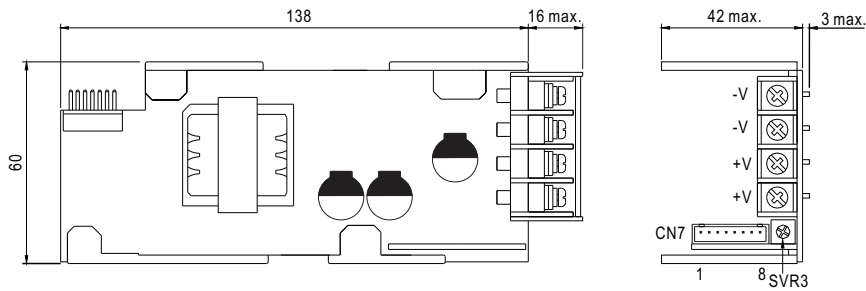
Output Connector(CN33) : JST B6B-XH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	+S: +Remote sense	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
2	-S: -Remote sense		
3	+RC: +Remote ON/OFF		
4	-RC: -Remote ON/OFF		
5	CS: Current sharing		
6	G: GND		

Assignment	Screw Size	Maximum mounting torque
+V,-V	M4	18Kgf-cm

NOTE: 1. The voltage difference among each output should be minimized that less than 2% is required.
 2. The total output current must not exceed the value determined by the following equation.
 (Output current at parallel operation) = (The rated current per unit) × (Number of unit) × 0.9

◎MS-360



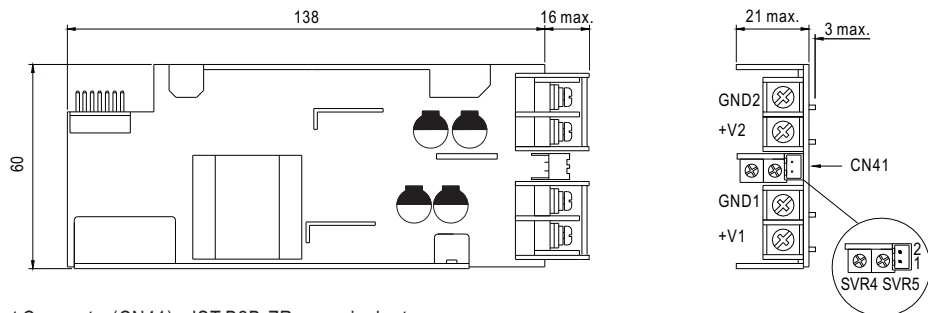
Output Connector(CN7) : JST B8B-XH or equivalent

Pin No.	Assignment	Pin No.	Assignment	Mating Housing	Terminal
1	+S: +Remote sense	5	CS: Current sharing	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
2	-S: -Remote sense	6	G: GND		
3	+RC: +Remote ON/OFF	7	ML: Remote margin low control		
4	-RC: -Remote ON/OFF	8	M: Remote margin control		

Assignment	Screw Size	Maximum mounting torque
+V,-V	M3.5	12Kgf-cm

NOTE: 1. The voltage difference among each output should be minimized that less than 2% is required.
 2. The total output current must not exceed the value determined by the following equation.
 (Output current at parallel operation) = (The rated current per unit) × (Number of unit) × 0.9

◎MD-100



Output Connector(CN41) : JST B2B-ZR or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	+RC	JST ZHR-2 or equivalent	JST SZH-002T-P0.5 or equivalent
2	-RC		

Assignment	Screw Size	Maximum mounting torque
+V,-V	M4	18Kgf-cm

NOTE: 1. Remote ON/OFF of CN4 turn ON/OFF the entire power system
 2. Remote ON/OFF of CN20, CN33, CN41, CN51 turn ON/OFF the individual output module
 3. SVR1~5: DC output voltage adjustment(SVR4 for CH2 of MD-100, SVR5 for CH1 of MD-100)

3.功能介紹

3.1 輸入電壓

- ◎輸入電壓範圍為AC85~264V或DC120~370V。
- ◎輸入電壓範圍必須是在額定範圍，如不是在範圍內操作，可能導致不能工作，功因矯正失效或損壞。
- ◎由於低輸入電壓時效率會稍低，請注意輸入小於AC100V時須減額操作。

3.2 突入電流

- ◎內建突入電流限制電路。
- ◎如在輸入端外加開關控制，開關需能承受突入電流。
- ◎突入電流限制電路是使用熱敏電阻與繼電器，應避免瞬間重覆開關機而導致突入電流上升。建議開機後需待10秒後再開機較恰當。

3.3 輸出電壓調整

- ◎每一模組的輸出端均有可變電阻可以微調輸出電壓，順時針方向可使輸出電壓升高。
- ◎輸出電壓調高時，注意負載電流需適當的減低，不可超出最大輸出功率。

3.4 短路及過電流保護

- ◎每一輸出模組均內建有短路及過電流保護功能，當負載電流超過116%額定電流時保護線路即會動作。當過載或短路狀況解除後，電源供應器可自動回復正常工作狀態。(MS-75/150/210/300/360為定電流模式，MD-100為截止模式)。

3.5 過電壓保護

- ◎每一組輸出電壓均內建有過壓保護電路。
- ◎過電壓保護電路的動作點，隨不同的輸出模組有所不同，請參考規格書。
- ◎當過電壓保護電路動作時，需將AC電源關閉約10秒後再開機。

3.6 過溫度保護

- ◎內建2組過溫度保護偵測線路，當內部溫度超過設定值時會將所有的輸出模組關閉。此時需將AC電源關閉，排除可能導致過熱的因素後，使電源供應器回復正常溫度(約需數十分鐘)再開機。

3.7 風扇故障保護

- ◎內建風扇故障保護線路，當風扇停止運轉(扇葉鎖住，斷線或與連接器脫落等)時，會將所有的輸出模組關閉，此時需將AC電源關閉，送修更換新的風扇後再使用。

3.8 遙測(線壓降補償)-輸出模組

- ◎MS-75,MS-150,MS-210,MS-300,MS-360等模組內建遙測電路。
- ◎使用遙測功能時，必須使用絞線(避免受干擾)連接到負載端(如圖3-1)。
- ◎如不使用此功能時，可以不連接或將+S與+V短路，-S與-V短路。
- ◎+V，-V與負載之連線，必須使用足夠的耐電流線，壓降必須小於0.5V，且需牢固的連接，如有脫落，可能導致電源供應器故障。
- ◎如偵測線較長，需如圖3-1所示加裝C1,C2,C3。
- ◎當使用遙測功能時，因線的阻抗和負載電流大小不一，輸出電壓可能會不穩定，可如圖3-1所示，加裝C1,C2,C3和R1，以增加輸出電壓的穩定性，詳 規格請洽詢MEANWELL。

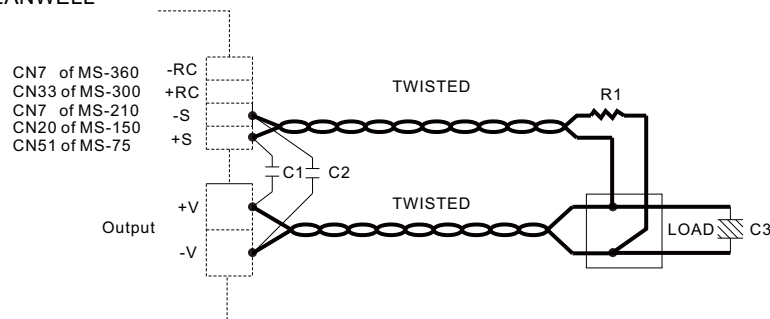


圖3-1 使用遙測功能時之配線圖

3.9 輔助電源

- ◎內建12V/0.1A之輔助電源輸出，可配合遙控電路作整機或個別模組之ON/OFF控制，接線圖請參考圖3-2，圖3-3。

3.10 遙控-全機

- ◎內建遙控整機ON/OFF電路。
- ◎遙控線路+RC、-RC與輸入、輸出回路有電性隔離。
- ◎當+RC、-RC施加電壓4~12V或開路時，電源供應器無電壓輸出;施加低於0.8V或短路時則有輸出(注意:CN4上的+RC、-RC間未插上短路connector時整機會無輸出)。
- ◎可配合內建輔助電源或外接開關作ON/OFF控制，接線方式如圖3-2所示。

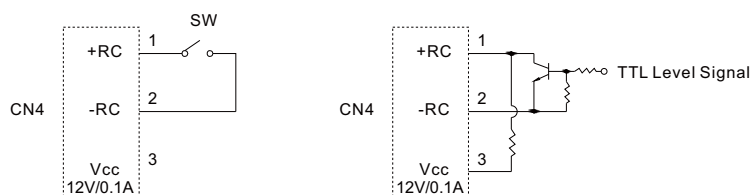


圖3-2 整機遙控功能接線圖

3.11 遙控-輸出模組

- ◎每一輸出模組均內建遙控電路，故每一模組均可獨立遙控ON/OFF。
- ◎遙控線路+RC、-RC與輸入、輸出回路有電性隔離。
- ◎當+RC、-RC施加4~12V時，該模組無電壓輸出；施加低於0.8V或開路時則有輸出。
- ◎可配合輔助電源作ON/OFF控制，接線方式如圖3-3所示。

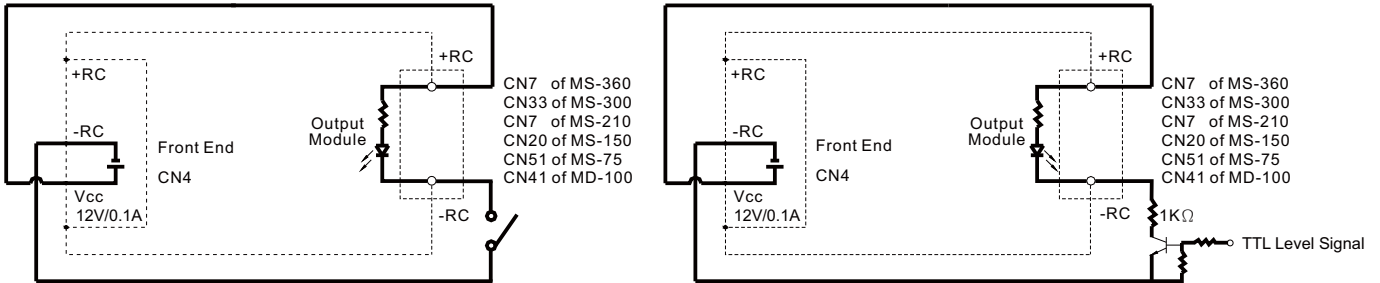
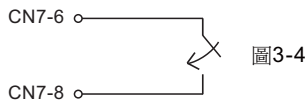


圖3-3 模組遙控功能接線圖

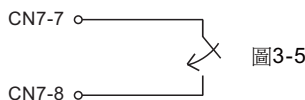
3.12 輸出電壓遙控

- ◎假設無法透過內置的電位器調整輸出電壓，可依下列設置微調MS-210和MS-360之輸出電壓。

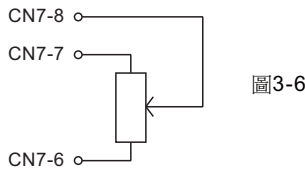
(1)連接CN7-6 PIN腳及CN7-8 PIN腳可以提升輸出電壓(約為5%額定電壓)。



(2)連接CN7-7 PIN腳及CN7-8 PIN腳可以降低輸出電壓(約為5%額定電壓)。



(3)使用一額外100KΩ之電位器連接至CN7-6~CN7-8之間，可以調整輸出電壓至+/- 5%範圍(例：-3%,+2.5%等)。



註：當模組間採並聯連接時，無法使用輸出電壓遙控功能。

3.13 並聯操作

- ◎MS-210,MS-300及MS-360系列可以並聯操作。
- ◎並聯操作時，必須是相同的輸出電壓模組且在同一台電源供應器內的相鄰位置。
- ◎並聯工作時其總和輸出電流以90%計算

例如:MP650-2C2CO-1

並聯碼1，代表SLOT1,2與SLOT3,4為並聯操作，且因SLOT1,2與SLOT3,4

選擇MS-300-2C(5V/50A)，則最大輸出電流為(50A+50A)×0.9=90A

- ◎並聯前請先將輸出電壓調至所要的電壓值，並儘可能的減少兩模組間的電壓差;建議每一台輸出電壓誤差不超過2%。
- ◎並聯工作前，需先完成並聯連接再開機，不適合熱插式開機。
- ◎並聯工作時，應先在每一模組的輸出端並聯後再連接到負載，不要個別連接到負載，建議配線如圖3-4所示。
- ◎並聯時需將控制訊號之+S，-S，CS，G一併並聯，如圖3-7所示。

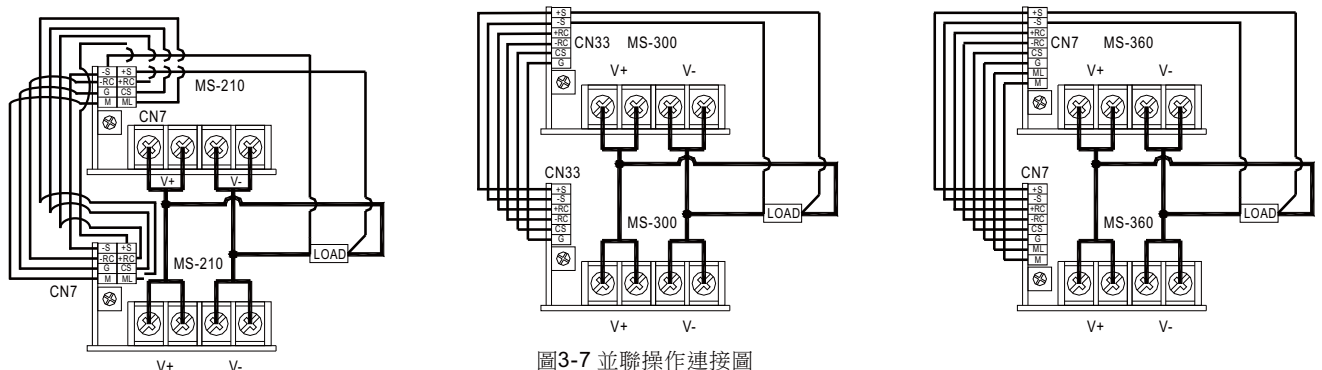


圖3-7 並聯操作連接圖

3.14 串聯操作

- ◎MS-75,MS-150,MS-210,MS-300,MS-360等模組，可串聯使用以獲取較高的輸出電壓。
- ◎串聯使用請以相同瓦數的模組為原則，並應置於相鄰的位置。
- ◎串聯操作時的輸出電流，不可超出所串聯模組中最小的額定輸出電流。
- ◎串聯工作時，其輸出電壓於開機時可能有階梯上升之現象。
- ◎串聯後的輸出電壓應小於60V[安規IEC60950-1 SELV(Safety Extra Low Voltage)之要求]。

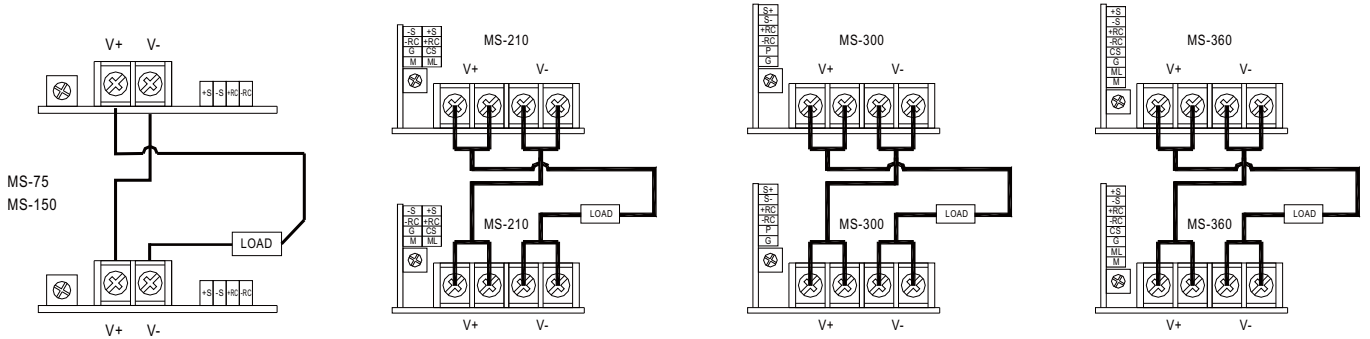


圖3-8 串聯操作連接圖

4. 使用注意事項

4.1 組裝要求

- ◎基於安全考量，組裝工作需在具備安規機構認證的工廠中進行，並需經過明緯的授權許可才得進行組裝。

4.2 裝置方式

- ◎輸出模組與前端PFC板的組裝方式如圖4-1所示。

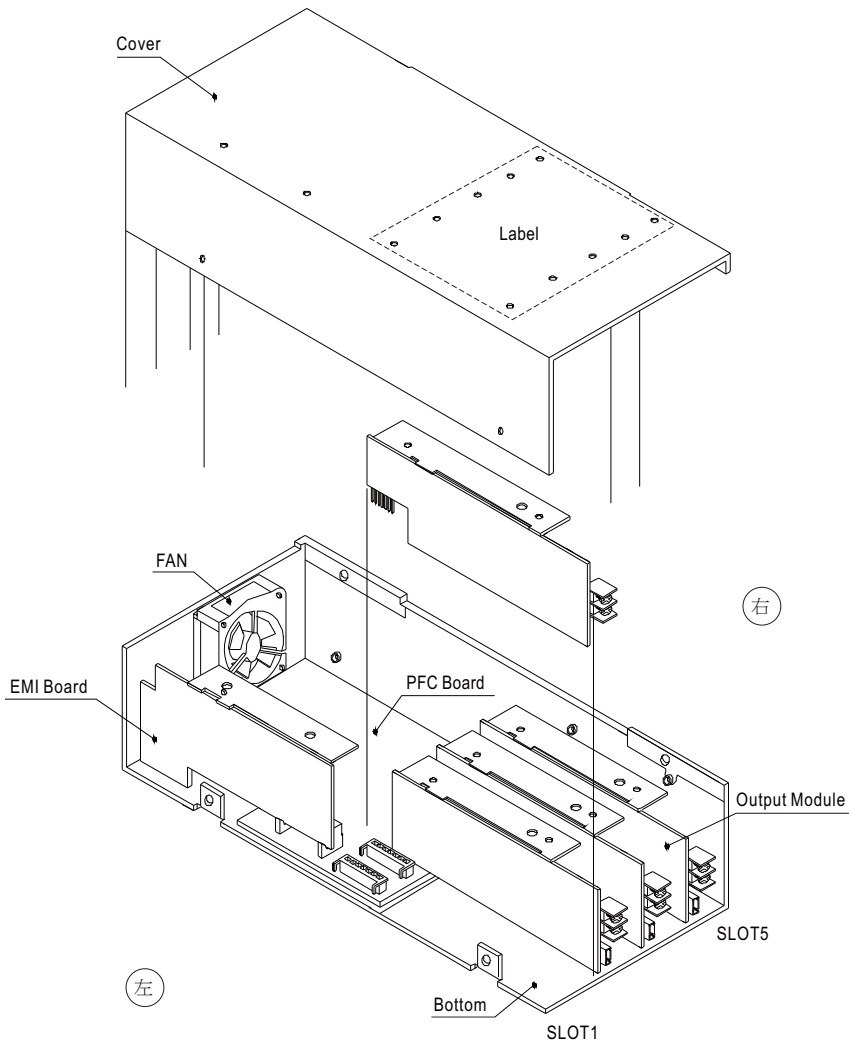


圖4-1 系統組裝圖

- ◎此為內建風扇強制散熱機型，不可妨害其出入通風孔，影響熱散量，建議出入風口10公分內不應有妨害通風的障礙物。
- ◎固定電源供應器時需考量其重量，建議裝置方式如圖4-2所示。

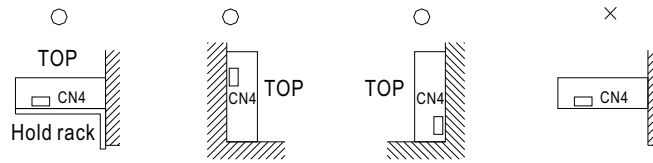


圖4-2 電源供應器固定方式

- ◎固定螺絲的長度L由電源供應器外殼之外側量起，必須小於6mm，如圖4-3所示

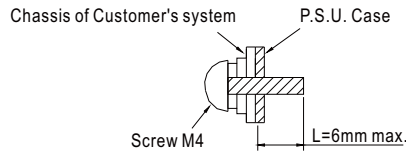


圖4-3 固定螺絲

4.3 減額

- ◎Modular系列是由輸出模組所組成，工作時必須確認每一輸出模組都能符合其電氣規格，並注意總輸出功率必須小於最大額定輸出功率。
- ◎工作環溫高與輸入AC電源電壓低時，均需減額。圖4-4分別為MP450,MP650,和MP1K0的減額曲線圖。

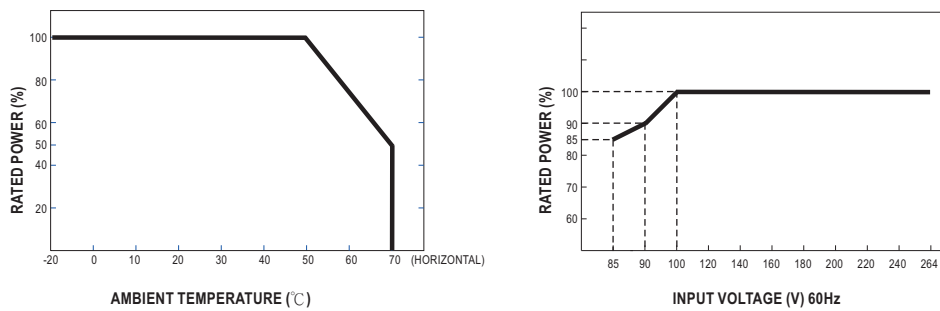


圖4-4 Modular系列減額曲線

5. 串並聯配件

5.1 串聯配件

Series Connection Accessory	
FAS-001 (For 1-slot modules: MS-75/150, MD-100)	
FAS-002 (For 2-slot modules: MS-300)	
FAS-003 (For 1-slot modules: MS-210)	
FAS-004 (For 2-slot modules: MS-360)	

5.2 並聯配件

Parallel Connection Accessory			
FAP-001 (For MS-300, 2 units)		FAP-005 (For MS-210, 4 units)	
FAP-002 (For MS-300, 3 units)		FAP-006 (For MS-210, 5 units)	
FAP-003 (For MS-210, 2 units)		FAP-007 (For MS-360, 2 units)	
FAP-004 (For MS-210, 3 units)		FAP-008 (For MS-360, 3 units)	

6.規格書

6.1 前級規格

MODEL	PFC-450	PFC-650	PFC-1000
INPUT	VOLTAGE RANGE		85 ~ 264VAC 120 ~ 370VDC
	FREQUENCY RANGE		47 ~ 63Hz
	POWER FACTOR		PF>0.95/230VAC PF>0.98/115VAC at full load
	EFFICIENCY	Note.1	82.5% typ. 84% typ. 84% typ.
	AC CURRENT	6.3A/115VAC 3.2A/230VAC	9A/115VAC 4.5A/230VAC 13.5A/115VAC 6.7A/230VAC
	INRUSH CURRENT	25A/115VAC 40A/230VAC	30A/115VAC 50A/230VAC 20A/115VAC 40A/230VAC
	LEAKAGE CURRENT	<1.5mA/240VAC	
OUTPUT	TOTAL OUTPUT POWER	450W max. 650W max.	1000W max.
PROTECTION	OVER TEMPERATURE	Shut down o/p voltage, recovers automatically after temperature goes down	
	FAN ALARM	Output shutdown when FAN is malfunction	
FUNCTION	REMOTE CONTROL	RC+/RC-: 0 ~ 0.8V or Short, Power ON RC+/RC-: 4 ~ 12V or Open, Power OFF	
	AUXILIARY POWER(AUX)	12V@0.1A(only for Remote ON/OFF Control)	
ENVIRONMENT	WORKING TEMP.	-20 ~ +70°C (Refer to "Derating Curve")	
	WORKING HUMIDITY	20 ~ 90% RH non-condensing	
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH non-condensing	
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)	
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes	
SAFETY & EMC (Note 5)	SAFETY STANDARDS	UL62368-1, TUV BS EN/EN62368-1, EAC TP TC 004 approved	
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC	
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH	
	EMC EMISSION	Compliance to BS EN/EN55032 (CISPR32) Class B, BS EN/EN61000-3-2,-3, EAC TP TC 020	
	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55035, BS EN/EN61000-6-1, light industry level, criteria A, EAC TP TC 020	
OTHERS	MTBF	2257.3K hrs min. Telcordia SR-332 (Bellcore); 225.9K hrs min. MIL-HDBK-217F (25°C) (450W) 2135.5K hrs min. Telcordia SR-332 (Bellcore); 292K hrs min. MIL-HDBK-217F (25°C) (650W) 1793K hrs min. Telcordia SR-332 (Bellcore); 239.8K hrs min. MIL-HDBK-217F (25°C) (1000W)	
	DIMENSION	254*127*63.5mm (L*W*H)	278*177.8*63.5mm (L*W*H)
	PACKING	1.8Kg(typ.); 6pcs / 11.8Kg / 1.25CUFT	2.16Kg(typ.); 6pcs / 14Kg / 1.34CUFT

6.2 輸出模組規格

■ 1 SLOT Single output (150W) MS-150

OUTPUT (MS-150)	OUTPUT VOLTAGE CODE	MS-150A	MS-150B	MS-150C	MS-150D	MS-150E	MS-150F	MS-150G	MS-150H	MS-150I	MS-150J	MS-150K	
	DC VOLTAGE	2V	3.3V	5V	7.5V	12V	15V	18V	24V	27V	33V	48V	
	RATED CURRENT	25A	25A	25A	18A	13A	10A	8.5A	6.5A	5.8A	4.7A	3.2A	
	CURRENT RANGE	0 ~ 25A	0 ~ 25A	0 ~ 25A	0 ~ 18A	0 ~ 13A	0 ~ 10A	0 ~ 8.5A	0 ~ 6.5A	0 ~ 5.8A	0 ~ 4.7A	0 ~ 3.2A	
	PEAK LOAD <small>Note.4</small>	30A	30A	30A	20.7A	15A	11.5A	9.8A	7.5A	6.7A	5.4A	3.68A	
	RATED POWER	50W	82.5W	125W	135W	156W	150W	153W	156W	156.6W	155.1W	153.6W	
	RIPPLE & NOISE (max.) <small>Note.2</small>	50mVp-p	80mVp-p	80mVp-p	100mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p	250mVp-p	250mVp-p	
	VOLTAGE ADJ. RANGE	1.6 ~ 2.6V	2.6 ~ 4V	4 ~ 6V	6 ~ 9V	9 ~ 13.2V	13.2 ~ 16.8V	16.8 ~ 20V	20 ~ 26.4V	25 ~ 31V	30 ~ 40V	40 ~ 53V	
	VOLTAGE TOLERANCE <small>Note.3</small>	±3.0%	±2.0%	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.3%	±0.3%	±0.3%	±0.2%	±0.2%	±0.2%	±0.2%	
LOAD REGULATION	±2.0%	±1.0%	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%		
SETUP, RISE, HOLD UP TIME	1500ms, 50ms, 20ms at full load												
PROTECTION	OVERLOAD	121 ~ 150% rated output power				116 ~ 150% rated output power							
	OVER VOLTAGE	2.7 ~ 4V	4.1 ~ 5V	6.1 ~ 7.5V	9.1 ~ 11.2V	13.3 ~ 18V	16.9 ~ 22V	20.1 ~ 26V	26.5 ~ 35V	31.1 ~ 39V	40.1 ~ 48V	53.1 ~ 60V	
FUNCTION	REMOTE INHIBIT CONTROL	RC+/RC-: 0 ~ 0.8V or OPEN, POWER ON						RC+/RC-: 4 ~ 12V POWER OFF					

■ 1 SLOT Single output (210W) MS-210

OUTPUT (MS-210)	OUTPUT VOLTAGE CODE	MS-210-1A	MS-210-1B	MS-210-1C	MS-210-1D	MS-210-1E	MS-210-1F	MS-210-1G	MS-210-1H	MS-210-1I	MS-210-1J	MS-210-1K	
	DC VOLTAGE	2V	3.3V	5V	7.5V	12V	15V	18V	24V	27V	33V	48V	
	RATED CURRENT	35A	35A	35A	28A	17.5A	14A	11.6A	8.75A	7.8A	6.4A	4.4A	
	CURRENT RANGE	0 ~ 35A	0 ~ 35A	0 ~ 35A	0 ~ 28A	0 ~ 17.5A	0 ~ 14A	0 ~ 11.6A	0 ~ 8.75A	0 ~ 7.8A	0 ~ 6.4A	0 ~ 4.4A	
	PEAK LOAD <small>Note.4</small>	38.5A	38.5A	38.5A	32.2A	20.1A	16.1A	13.4A	10.1A	9A	7.4A	5.1A	
	RATED POWER	70W	115.5W	175W	210W	210W	210W	208.8W	210W	210.6W	211.2W	211.2W	
	RIPPLE & NOISE (max.) <small>Note.2</small>	50mVp-p	80mVp-p	80mVp-p	100mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p	250mVp-p	250mVp-p	
	VOLTAGE ADJ. RANGE	1.6 ~ 2.6V	2.6 ~ 4V	4 ~ 6V	6 ~ 9V	9 ~ 13.2V	13.2 ~ 16.8V	16.8 ~ 20V	20 ~ 26.4V	25 ~ 31V	30 ~ 40V	40 ~ 53V	
	VOLTAGE TOLERANCE <small>Note.3</small>	±3.0%	±2.0%	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.3%	±0.3%	±0.3%	±0.2%	±0.2%	±0.2%	±0.2%	
LOAD REGULATION	±2.0%	±1.5%	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%		
SETUP, RISE, HOLD UP TIME	1500ms, 50ms, 20ms at full load												
PROTECTION	OVERLOAD	110 ~ 135% rated output power				116 ~ 150% rated output power							
	OVER VOLTAGE	2.7 ~ 4V	4.1 ~ 5V	6.1 ~ 7.5V	9.1 ~ 11.2V	13.3 ~ 18V	16.9 ~ 22V	20.1 ~ 26V	26.5 ~ 35V	31.1 ~ 39V	40.1 ~ 48V	53.1 ~ 60V	
FUNCTION	REMOTE INHIBIT CONTROL	RC+/RC-: 0 ~ 0.8V or OPEN, POWER ON						RC+/RC-: 4 ~ 12V POWER OFF					

■ 2 SLOT Single output (300W) MS-300

OUTPUT (MS-300)	OUTPUT VOLTAGE CODE	MS-300-2A	MS-300-2B	MS-300-2C	MS-300-2D	MS-300-2E	MS-300-2F	MS-300-2G	MS-300-2H	MS-300-2I	MS-300-2J	MS-300-2K	
	DC VOLTAGE	2V	3.3V	5V	7.5V	12V	15V	18V	24V	27V	33V	48V	
	RATED CURRENT	50A	50A	50A	40A	25A	20A	16.7A	12.5A	11.2A	9.1A	6.3A	
	CURRENT RANGE	0 ~ 50A	0 ~ 50A	0 ~ 50A	0 ~ 40A	0 ~ 25A	0 ~ 20A	0 ~ 16.7A	0 ~ 12.5A	0 ~ 11.2A	0 ~ 9.1A	0 ~ 6.3A	
	PEAK LOAD <small>Note.4</small>	57.5A	57.5A	57.5A	46A	29A	23A	19.2A	14.4A	12.9A	10.5A	7.2A	
	RATED POWER	100W	165W	250W	300W	300W	300W	300.6W	300W	302.4W	300.3W	302.4W	
	RIPPLE & NOISE (max.) <small>Note.2</small>	80mVp-p	80mVp-p	80mVp-p	100mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p	250mVp-p	300mVp-p	
	VOLTAGE ADJ. RANGE	1.6 ~ 2.6V	2.6 ~ 4V	4 ~ 6V	6 ~ 9V	9 ~ 13.2V	13.2 ~ 16.8V	16.8 ~ 20V	20 ~ 26.4V	25 ~ 31V	30 ~ 40V	40 ~ 53V	
	VOLTAGE TOLERANCE <small>Note.3</small>	±3.0%	±2.0%	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.3%	±0.3%	±0.3%	±0.2%	±0.2%	±0.2%	±0.2%	
LOAD REGULATION	±2.0%	±1.0%	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%	±1.0%	±1.0%	±1.0%	±1.0%		
SETUP, RISE, HOLD UP TIME	1500ms, 50ms, 20ms at full load												
PROTECTION	OVERLOAD	116 ~ 150% rated output power											
	OVER VOLTAGE	3 ~ 4V	4.1 ~ 5V	6.1 ~ 7.5V	9.1 ~ 11.2V	13.3 ~ 18V	16.9 ~ 22V	20.1 ~ 26V	26.5 ~ 35V	31.1 ~ 39V	40.1 ~ 48V	53.1 ~ 60V	
FUNCTION	REMOTE INHIBIT CONTROL	RC+/RC-: 0 ~ 0.8V or OPEN, POWER ON						RC+/RC-: 4 ~ 12V POWER OFF					

■ 2 SLOT Single output (360W) MS-360

OUTPUT (MS-360)	OUTPUT VOLTAGE CODE	MS-360-3A	MS-360-3B	MS-360-3C	MS-360-3D	MS-360-3E	MS-360-3F	MS-360-3G	MS-360-3H	MS-360-3I	MS-360-3J	MS-360-3K
	DC VOLTAGE	2V	3.3V	5V	7.5V	12V	15V	18V	24V	27V	33V	48V
	RATED CURRENT	60A	60A	60A	48A	30A	24A	20A	15A	13.4A	11A	7.5A
	CURRENT RANGE	0 ~ 60A	0 ~ 60A	0 ~ 60A	0 ~ 48A	0 ~ 30A	0 ~ 24A	0 ~ 20A	0 ~ 15A	0 ~ 13.4A	0 ~ 11A	0 ~ 7.5A
	PEAK LOAD <small>Note.4</small>	69A	69A	69A	55.2A	34.5A	27.6A	23A	17.3A	15.5A	12.7A	8.7A
	RATED POWER	120W	198W	300W	360W	360W	360W	360W	360W	361.8W	363W	360W
	RIPPLE & NOISE (max.) <small>Note.2</small>	80mVp-p	100mVp-p	100mVp-p	100mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p	250mVp-p	300mVp-p
	VOLTAGE ADJ. RANGE	1.6 ~ 2.6V	2.6 ~ 4V	4 ~ 6V	6 ~ 9V	9 ~ 13.2V	13.2 ~ 16.8V	16.8 ~ 20V	20 ~ 26.4V	25 ~ 31V	30 ~ 40V	40 ~ 53V
	VOLTAGE TOLERANCE <small>Note.3</small>	±3.0%	±2.0%	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.3%	±0.3%	±0.3%	±0.2%	±0.2%	±0.2%	±0.2%
	LOAD REGULATION	±2.0%	±1.5%	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%	±1.0%	±1.0%	±1.0%	±1.0%
	SETUP, RISE, HOLD UP TIME	1500ms, 50ms, 20ms at full load										
	PROTECTION	OVERLOAD	116 ~ 150% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed									
OVER VOLTAGE		3 ~ 4V	4.1 ~ 5V	6.1 ~ 7.5V	9.1 ~ 11.2V	13.3 ~ 18V	16.9 ~ 22V	20.1 ~ 26V	26.5 ~ 35V	31.1 ~ 39V	40.1 ~ 48V	53.1 ~ 60V
		Protection type : Shut down o/p voltage, re-power on to recover										
FUNCTION	REMOTE INHIBIT CONTROL	RC+/RC-: 0 ~ 0.8V or OPEN, POWER ON RC+/RC-: 4 ~ 12V POWER OFF										

■ 1 SLOT Single output (75W) MS-75

OUTPUT (MS-75)	OUTPUT VOLTAGE CODE	MS-75L	MS-75M	MS-75N	MS-75O	MS-75P	MS-75Q
	DC VOLTAGE	3.3V	5V	12V	15V	24V	48V
	RATED CURRENT	15A	15A	6.3A	5A	3.2A	1.6A
	CURRENT RANGE	0 ~ 15A	0 ~ 15A	0 ~ 6.3A	0 ~ 5A	0 ~ 3.2A	0 ~ 1.6A
	PEAK LOAD <small>Note.4</small>	17.3A	17.3A	7.3A	5.8A	3.7A	1.8A
	RATED POWER	49.5W	75W	75.6W	75W	76.8W	76.8W
	RIPPLE & NOISE (max.) <small>Note.2</small>	80mVp-p	80mVp-p	150mVp-p	150mVp-p	150mVp-p	250mVp-p
	VOLTAGE ADJ. RANGE	2.6 ~ 4V	4 ~ 6V	9 ~ 13.2V	13.2 ~ 16.8V	20 ~ 26.4V	40 ~ 53V
	VOLTAGE TOLERANCE <small>Note.3</small>	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%	±0.3%	±0.3%	±0.2%	±0.2%
LOAD REGULATION	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	
SETUP, RISE, HOLD UP TIME	1500ms, 50ms, 20ms at full load						
PROTECTION	OVERLOAD	116 ~ 150% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed					
	OVER VOLTAGE	4.1 ~ 5V	6.1 ~ 7.5V	13.3 ~ 18V	16.9 ~ 22V	26.5 ~ 35V	53.1 ~ 60V
		Protection type : Shut down o/p voltage, re-power on to recover					
FUNCTION	REMOTE INHIBIT CONTROL	RC+/RC-: 0 ~ 0.8V or OPEN, POWER ON RC+/RC-: 4 ~ 12V POWER OFF					

■ 1 SLOT Isolated Dual output (100W) MD-100

OUTPUT (MD-100)	OUTPUT VOLTAGE CODE	MD-100R		MD-100S		MD-100T		MD-100U		MD-100V		MD-100W		MD-100X		
	DC VOLTAGE	5V	5V	5V	12V	5V	15V	24V	5V	24V	12V	12V	12V	12V	15V	15V
	RATED CURRENT	10A	8A	10A	4.2A	10A	3.4A	2.5A	8A	2.5A	3.4A	5A	3.4A	4A	2.7A	
	CURRENT RANGE	2 ~ 10A	0 ~ 8A	2 ~ 10A	0 ~ 5.8A	2 ~ 10A	0 ~ 4.7A	0.5 ~ 3A	0 ~ 10A	0.6 ~ 3A	0 ~ 4.7A	1 ~ 5A	0 ~ 5.8A	1 ~ 4.7A	0 ~ 4.7A	
	RATED POWER <small>Note.6</small>	90W		100.4W		101W		100W		100.8W		100.8W		100.5W		
	RIPPLE & NOISE (max.) <small>Note.2</small>	100mVp-p	100mVp-p	100mVp-p	150mVp-p	100mVp-p	150mVp-p	200mVp-p	100mVp-p	240mVp-p	120mVp-p	120mVp-p	120mVp-p	150mVp-p	150mVp-p	
	VOLTAGE ADJ. RANGE	4.75 ~ 5.5V	4.75 ~ 5.5V	4.75 ~ 5.5V	11.4 ~ 13.2V	4.75 ~ 5.5V	14.2 ~ 16.5V	22.8 ~ 26.4V	4.75 ~ 5.5V	22.8 ~ 26.4V	11.4 ~ 13.2V	11.4 ~ 13.2V	11.4 ~ 13.2V	14.2 ~ 16.5V	14.2 ~ 16.5V	
	VOLTAGE TOLERANCE <small>Note.3</small>	±3.0%	±3.0%	±3.0%	±3.0%	±3.0%	±3.0%	±3.0%	±3.0%	±2.0%	±3.0%	±2.0%	±3.0%	±2.0%	±3.0%	
	LINE REGULATION	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±0.5%	±1.0%	±0.5%	±1.0%	±0.5%	±1.0%	
	LOAD REGULATION	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	±1.0%	±2.0%	±1.0%	±2.0%	±1.0%	±2.0%	
	SETUP, RISE, HOLD UP TIME	1500ms, 50ms, 20ms at full load														
	PROTECTION	OVERLOAD	105 ~ 150% rated output power Protection type : Shut down o/p voltage, re-power on to recover													
		OVER VOLTAGE	5.6 ~ 7.2V	5.6 ~ 7.2V	5.6 ~ 7.2V	13.3 ~ 17V	5.6 ~ 7.2V	16.6 ~ 22V	26.5 ~ 34V	5.6 ~ 7.2V	26.5 ~ 34V	13.3 ~ 17V	13.3 ~ 17V	13.3 ~ 17V	16.6 ~ 22V	16.6 ~ 22V
		Protection type : Shut down o/p voltage, re-power on to recover														
FUNCTION	REMOTE INHIBIT CONTROL	RC+/RC-: 0 ~ 0.8V or OPEN, POWER ON RC+/RC-: 4 ~ 12V POWER OFF														

- NOTE**
- MP450: The value changed by installing different output modules. The efficiency in specification means output modules are composed by following modules. 5V(Voltage code C)*1, 12V(Voltage code E)*1, 24V(Voltage code H)*1, 5V(Voltage code M)*1.
 - MP650: The value changed by installing different output modules. The efficiency in specification means output modules are composed by following modules. 5V(Voltage code C)*2, 12V(Voltage code E)*1, 24V(Voltage code H)*2.
 - MP1K0: The value changed by installing different output modules. The efficiency in specification means output modules are composed by following modules. 5V(Voltage code C)*2, 12V(Voltage code E)*2, 24V(Voltage code H)*3.
- The hold-up time of above combination is 20ms(typ.)
- Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
 - Tolerance : includes set up tolerance, line regulation and load regulation.
 - 35% Duty cycle maximum within every 10 seconds. Average output power should not exceed the rated power.
 - The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 720mm*360mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on https://www.meanwell.com/Upload/PDF/EMI_statement_cn.pdf)
 - If the output voltage adjust to higher level, the rated current should be derated to meet the total rated power for both outputs.(For MD-100 only).
 - The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).
- ※ Product Liability Disclaimer : For detailed information, please refer to <https://www.meanwell.com/serviceDisclaimer.aspx>