

3270 系列

交/直流電子負載



AC & DC ELECTRONIC LOAD



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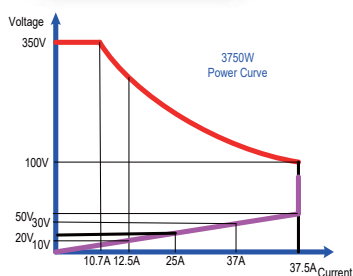
MODEL		3270	3271	3272	3273	3274
Power (W)	Turbo OFF	3750 W	2800W	1875 W	3750 W	2800W
	Turbo ON	7500W (x2)*	5600W (x2)*	3750W (x2)*	7500W (x2)*	5600W (x2)*
Current(Ampere)	Turbo OFF	37.5 Arms / 112.5Apeak	28 Arms / 84Apeak	18.75 Arms / 56.25Apeak	28 Arms / 84Apeak	18.75 Arms / 56.25Apeak
	Turbo ON	75.0Arms/112.5Apeak (x2)*	56Arms/84Apeak (x2)*	37.5Arms/56.25Apeak (x2)*	56Arms/84Apeak (x2)*	37.5Arms/56.25Apeak (x2)*
Voltage(Volt)		50~350Vrms / 500Vdc			50~480Vrms / 700Vdc	

MODEL		32701	32702	32703	32704	32705
Power (W)	Turbo OFF	7500 W	11250W	15000W	18750W	22500W
	Turbo ON	15000W (x2)*	22500W (x2)*	30000W (x2)*	37500W (x2)*	45000W (x2)*
Current(Ampere)	Turbo OFF	75.0 Arms / 225Apeak	112.5 Arms / 337.5Apeak	112.5 Arms / 337.5Apeak	112.5 Arms / 337.5Apeak	112.5 Arms / 337.5Apeak
	Turbo ON	150.0Arms/225Apeak (x2)*	225Arms/337.5Apeak (x2)*	225Arms/337.5Apeak (x2)*	225Arms/337.5Apeak (x2)*	225Arms/337.5Apeak (x2)*
Voltage(Volt)		50~350Vrms / 500Vdc				

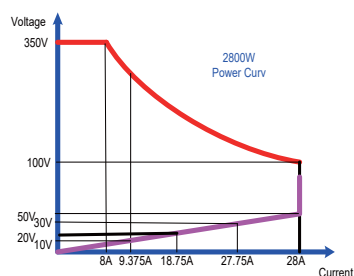
MODEL		32711
Power (W)	Turbo OFF	5600 W
	Turbo ON	11200W (x2)*
Current(Ampere)	Turbo OFF	56.0 Arms / 168Apeak
	Turbo ON	112.0Arms/ 168Apeak (x2)*
Voltage(Volt)		50~350Vrms / 500Vdc

* Turbo ON 功率與電流提升的倍率

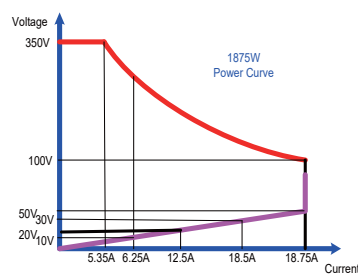
功率曲線



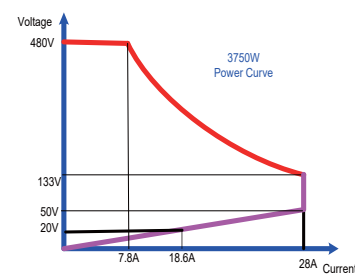
3270 功率曲線圖



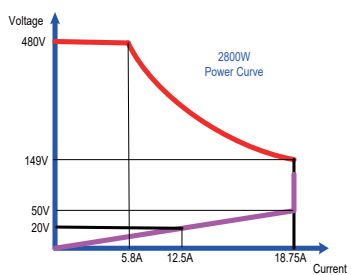
3271 功率曲線圖



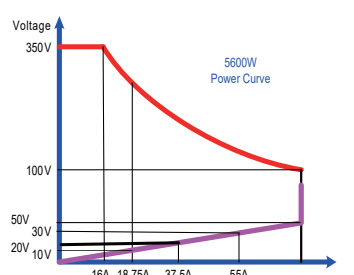
3272 功率曲線圖



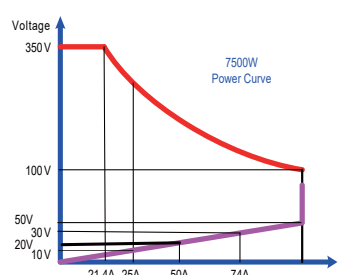
3273 功率曲線圖



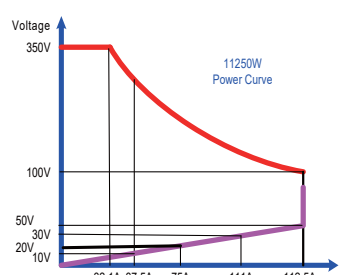
3274 功率曲線圖



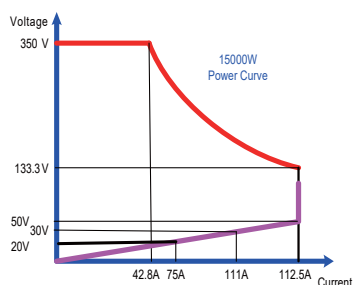
32711 功率曲線圖



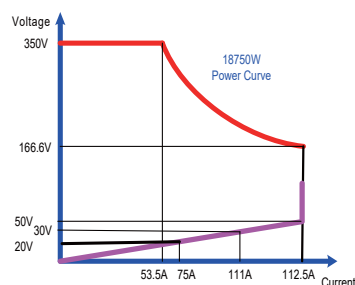
32701 功率曲線圖



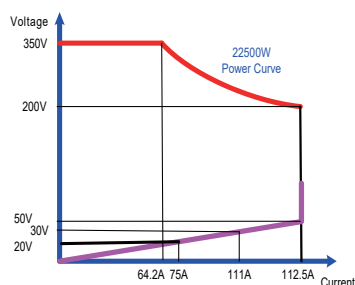
32702 功率曲線圖



32703 功率曲線圖



32704 功率曲線圖



32705 功率曲線圖

特 性

- 四個電錶可同時顯示電壓值 (Vrms, Vpeak, Vmax., Vmin)、電流值(Irms, Ipeak, Imax., Imin.)、瓦特值、伏安值(VA)、頻率值、峰值因素、功率因素、電壓失真度(VTHD, VH)、電流失真度(ITHD, IH)等。
- 交/直流負載具定電流、線性定電流、定電阻、定電壓、定功率及整流性負載等工作模式。
- 選購電壓：425Vrms / 600Vdc (3273 / 3274 除外)
- 峰值因素範圍：1.414~5.0。
- 功率因素範圍：0~1 超前或落後。
- 內建測試模式包括UPS Efficiency, PV Inverter Efficiency, UPS Back-up time, Battery Discharge time, UPS transfer time, Fuse/Breaker Trip/Non-Trip, 短路模擬, OCP, OPP 等測試模式。
- Turbo mode (倍增模式)，能夠在短時間內承受多達2倍電流與功率的電子負載，最適合Fuse / Breaker 及交流電源的短路、OCP、OPP測試。
- 時間量測可應用於電池、UPS、保險絲和斷路器等測試。
- 高達八台的並聯最高可達 90KW及三相△或Y的負載同步控制。
- 支援帶載開機；先設定Load ON 便可支持帶載開機，逆變器或不斷電電源開機時便直接帶著所設定負載電流開機，用來驗證Inverter連接電器時啟動是否穩定。
- 支援抽載與卸載角度控制；吃載卸載角度控制，0-359度全範圍都可設定，用來驗證實際電器插拔時，Inverter輸出電壓暫態反應是否穩定，Overshoot/Undershoot 是否在容許範圍內。
- 支援正半週或負半週抽載；用來驗證實際電器只有正半週或負半週負載電流時，Inverter輸出電壓是否維持穩定。
- 支援SCR/TRIAC的電流調變波形，90度Trailing edge及Leading Edge。
- 支援電源供應器於開機時之電容性負載 (Inrush Current) 與運行中負載突然接入 (Hot Plug-in) 時的瞬間電流 (Surge Current) 測試。
- 頻率範圍：DC, 40~440Hz
- 電壓，電流監控。
- 外部電壓控制定電流、線性定電流、定電阻、定電壓、定功率等工作模式。
- 過電壓警示、過電流、過功率、過溫度保護。
- GPIB、RS-232、USB、LAN 控制介面。
- 最齊全的量測功能

3270 系列交/直流電子負載內建16位元A/D及DSP等精準的量測電路，提供了精確的量測值，量測項目共有電壓均方根值(Vrms)、電流均方根值(Arms)、瓦特值(Watt)、伏安(VA)、波峰因素(CF)、功率因素(PF)、總諧波失真率(THD)、電壓總諧波失真率(VTHD)、電流總諧波失真率(ITHD)、峰值電流(Ipeak)、電流最大值(Amax)、電流最小值(Amin)、電壓最大值(Vmax)、電壓最小值(Vmin)。

除了這些量測功能外，亦提供了時間量測，產品如 UPS、保險絲及斷路器等的跳脫或熔斷時間及 Off-line UPS 的轉換時間(Transfer time)。

訂 購 方 式



選購介面：① GPIB Card ② RS232 Card ③ USB Card ④ LAN Card

選購功能：External programming input *下訂單時需選購，無法出貨後加購 *

- 3270 350V, 37.5A, 3750W
- 3271 350V, 28A, 2800W
- 3272 350V, 18.75A, 1875W
- 3273 480V, 28A, 3750W
- 3274 480V, 18.75A, 2800W



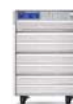
32711
350V, 56A, 5600W



32701
350V, 75A, 7500W



32702
350V, 112.5A, 11250W



32703
350V, 112.5A, 15000W

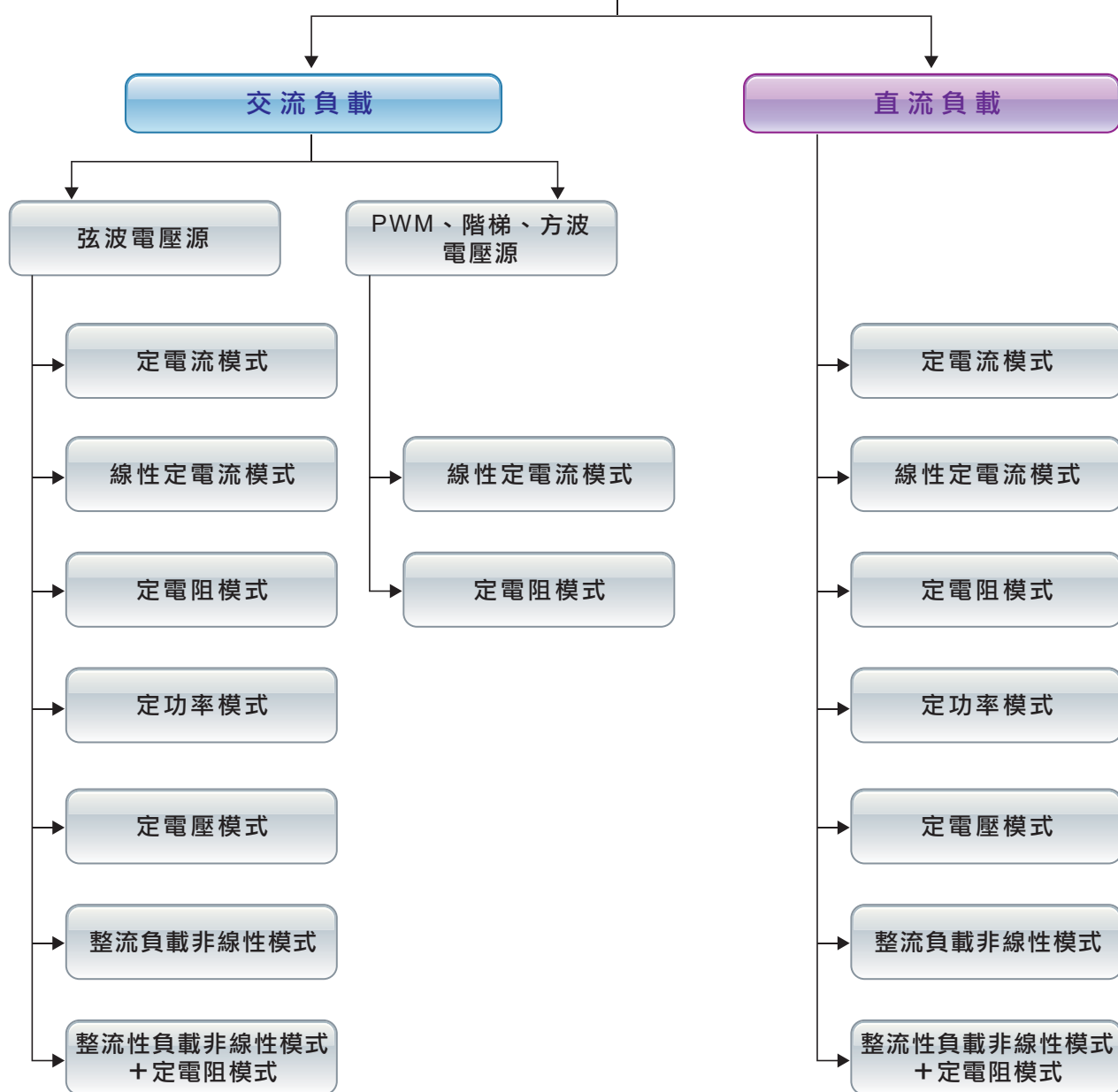


32704
350V, 112.5A, 18750W



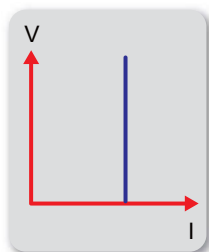
32705
350V, 112.5A, 22500W

Model 3270 系列 操作模式

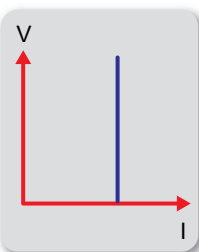


● 交流負載模式

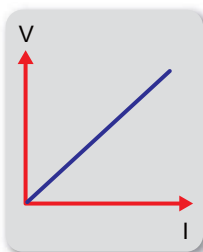
定電流模式



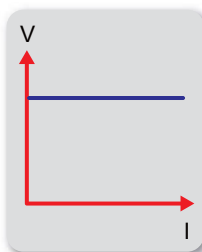
線性定電流模式



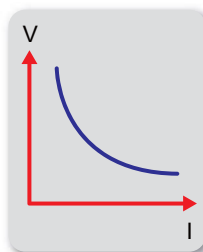
定電阻模式



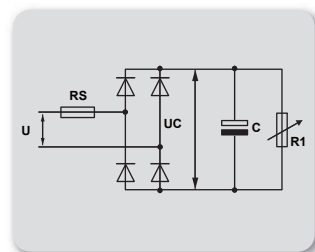
定電壓模式



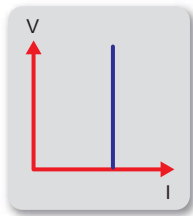
定功率模式



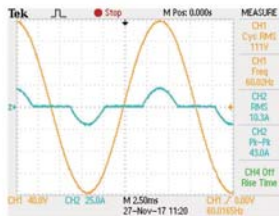
整流性負載模式



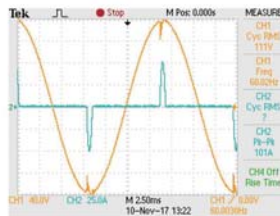
- **定電流模式**：在交流負載的定電流模式，僅適用於弦波電壓源，提供線性負載的CF，PF測試。



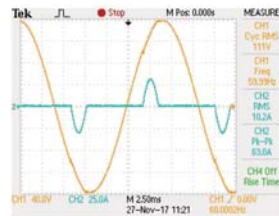
CC mode



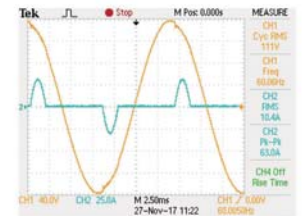
CC mode, CF=2



CC mode, CF=5

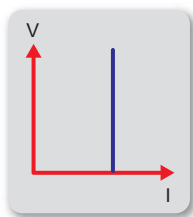


CC mode, PF= +0.5

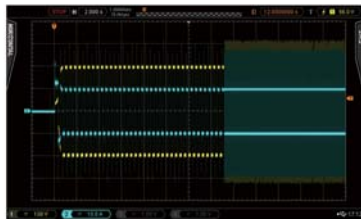


CC mode, PF= -0.5

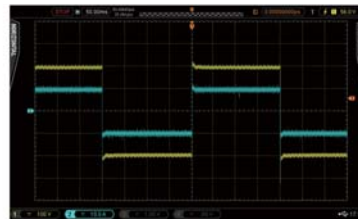
- **線性定電流模式**：可以適用於弦波與非弦波電壓源，如下圖所示的 PWM 變頻驅動器，階梯(Step) 電壓源，及 UPS 弦波變方波，方波變弦波。



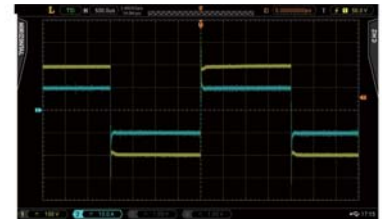
Linear CC mode



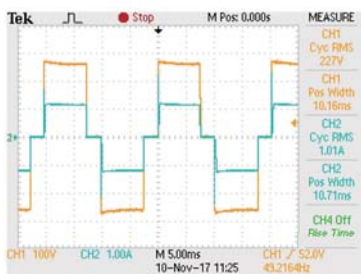
Linear CC mode, PWM 10A 2.5Hz to 250Hz



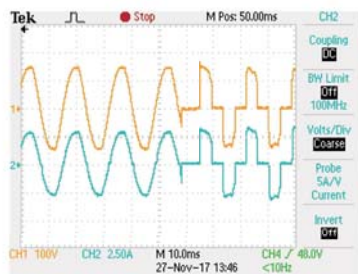
Linear CC mode, PWM 10A 2.5Hz



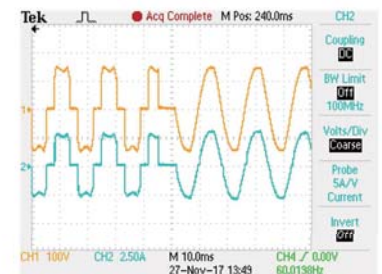
Linear CC mode, PWM 10A 250Hz



Linear CC mode, Step 10A

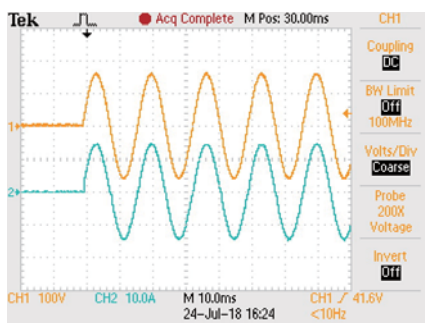


Linear CC mode, UPS Sine to Square waveform

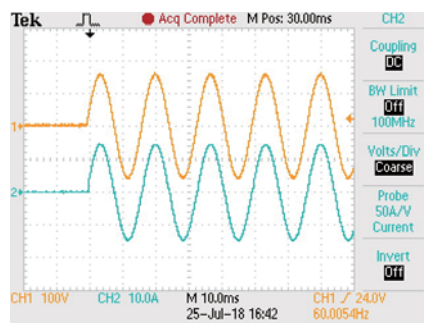


Linear CC mode, UPS Square to Sine waveform

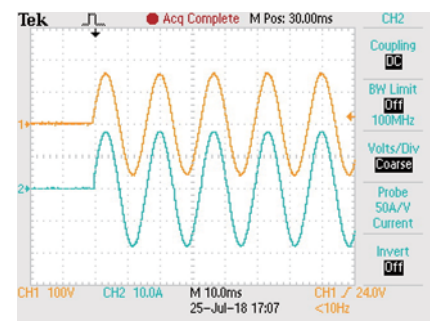
- **支援帶載開機**：模擬待測物直接插入(Plug-in) 抽載；先設定Load ON 便可支持帶載開機，逆變器或不斷電電源開機時便直接帶著所設定負載電流開機，用來驗證Inverter連接電器時啟動是否穩定。



CC 10A 帶載開機

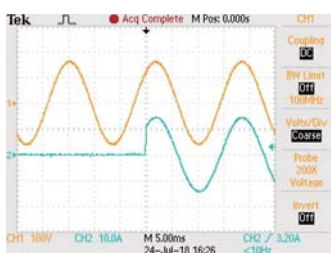


CR 10A 帶載開機

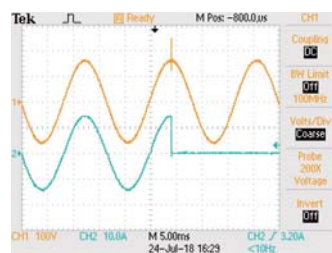


CV 10A 帶載開機

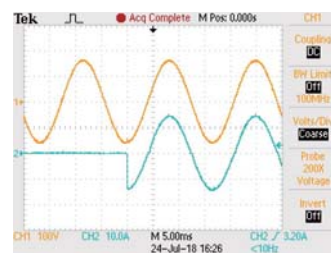
- **支援抽載與卸載角度控制**：吃載卸載角度控制，0-359度全範圍都可設定，用來驗證實際電器插拔時，Inverter 輸出電壓暫態反應是否穩定，Overshoot / Undershoot 是否在容許範圍內。



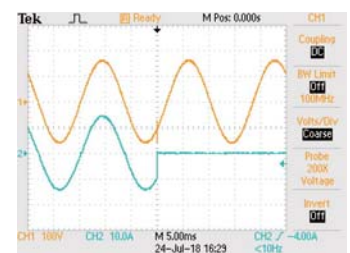
45 度抽載



90 度卸載

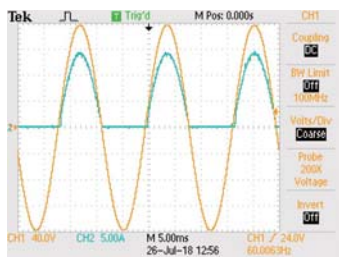


270 度抽載

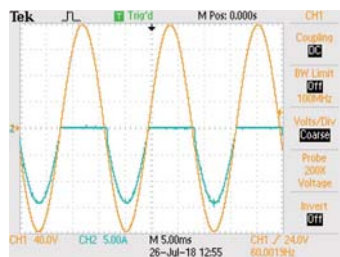


315 度卸載

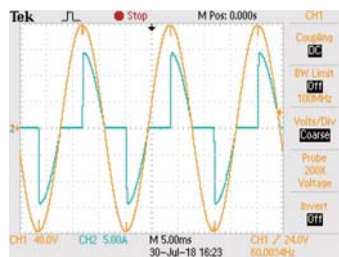
- 支援正半週與負半週抽載及SCR/TRIAC的電流調變波形，90度Trailing edge及Leading Edge；用來驗證實際電器只有正半周或負半周及 SCR/TRIAC負載電流時，Inverter輸出電壓是否維持穩定。



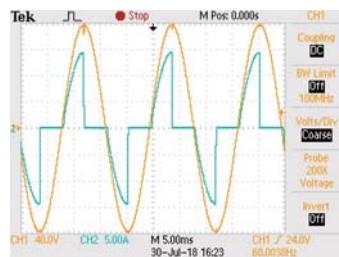
正半週抽載



負半週抽載



90度TRIAC/SCR電流波形Leading edge

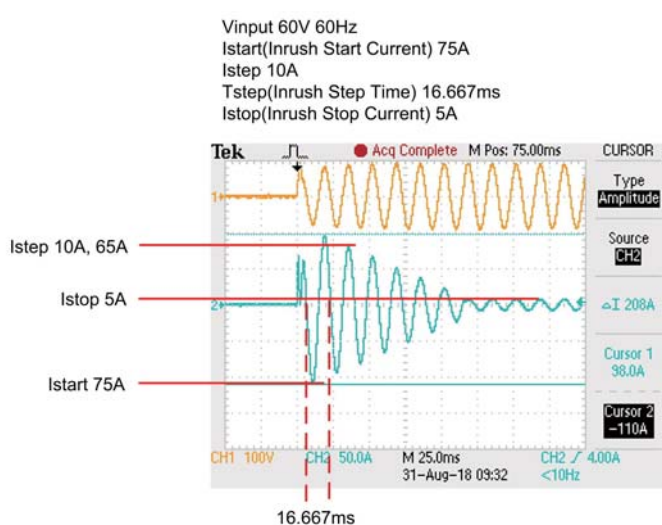
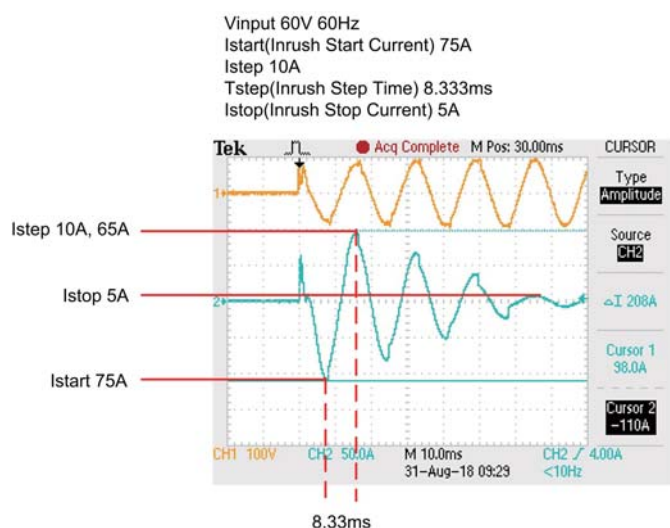


90度電流波形Trailing edge

- 支援電源供應器於開機時之電容性負載（Inrush Current）與運行中負載突然接入（Hot Plug-in）測試用來驗證電器在開機時的瞬間啟動電流（Inrush Current）及電器突然接上（Surge Current）時，Inverter輸出電壓暫態反應是否穩定，如下圖所示。

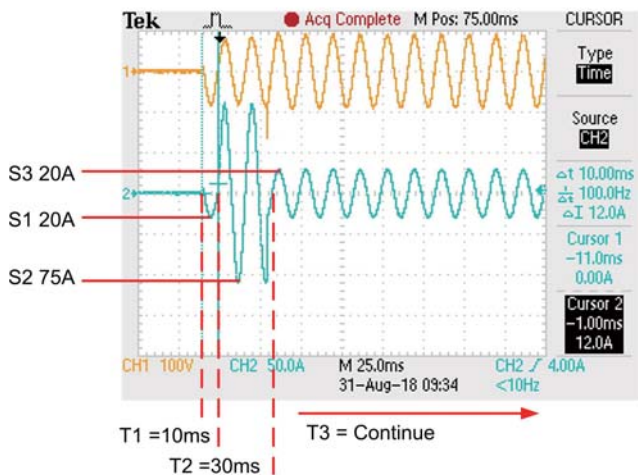
MODEL	3270	3271	3272	3273	3274
Programmable Inrush current simulation: Istart - Istop / Tsep					
Istart, Inrush Start Current	0~75A	0~56A	0~37.5A	0~56A	0~37.5A
Inrush Step time	0.1mS~100mS				
Istop, Inrush stop current	0~37.5A	0~28A	0~18.75A	0~28A	0~18.75A
Programmable Surge current simulation: S1/T1 - S2/T2 - S3/T3					
S1 and S2 Current	0~75A	0~56A	0~37.5A	0~56A	0~37.5A
T1 and T2 Time	0.01S~0.5Sec.				
S3 Current	0~37.5A	0~28A	0~18.75A	0~28A	0~18.75A
T3 Time	0.01S ~ 9.99Sec. Or Cont.				

MODEL	32701	32702	32703	32704	32705	32711
Programmable Inrush current simulation: Istart - Istop / Tsep						
Istart, Inrush Start Current	0~150A	0~225A	0~225A	0~225A	0~225A	0~112.0A
Inrush Step time	0.1mS~100mS					
Istop, Inrush stop current	0~75A	0~112.5A	0~112.5A	0~112.5A	0~112.5A	0~56A
Programmable Surge current simulation: S1/T1 - S2/T2 - S3/T3						
S1 and S2 Current	0~150A	0~225A	0~225A	0~225A	0~225A	0~112.0A
T1 and T2 Time	0.01S~0.5Sec.					
S3 Current	0~75A	0~112.5A	0~112.5A	0~112.5A	0~112.5A	0~56A
T3 Time	0.01S ~ 9.99Sec. Or Cont.					

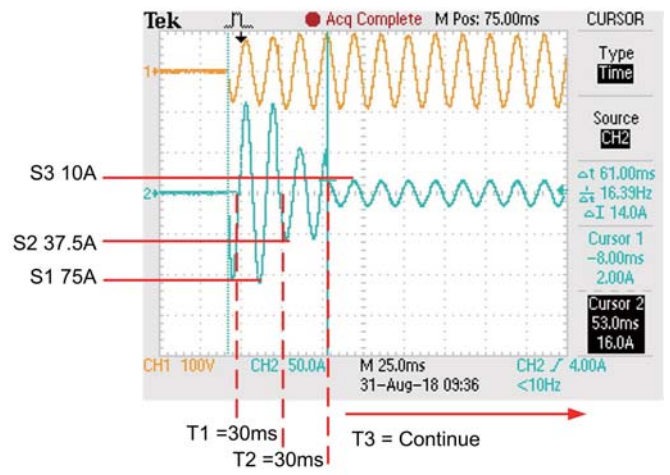


開機時的瞬間啟動電流（Inrush Current）測試

Vinput 60V, 60Hz
 S1(Surge current 1) 20A, T1 (Tstep 1) 0.01 Sec.
 S2(Surge current 2) 75A, T2 (Tstep 2) 0.03 Sec.
 S3(Surge current 3) 20A, T3 (Tstep 3) continue



Vinput 60V, 60Hz
 S1(Surge current 1) 75A, T1 (Tstep 1) 0.03 Sec.
 S2(Surge current 2) 37.5A, T2 (Tstep 2) 0.03 Sec.
 S3(Surge current 3) 10A, T3 (Tstep 3) continue



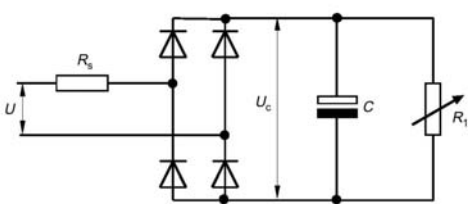
電器突然接上時的瞬間突波電流（Surge Current）測試

交流整流負載模擬符合 IEC62040-3 and IEC61683 測試規範

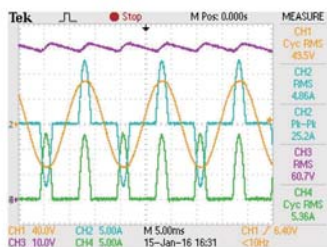
3270系列 AC/DC 電子負載的交流整流模式，完全符合 IEC 對 UPS及 PV Inverter 的測試規範要求，分別是 IEC62040-3 UPS Efficiency Measurement non-Linear and IEC61683 Resistive Plus Non-Linear。

3270系列的交流整流性負載模式，是使用CC+CR負載模式並維持電流的THD 在80%，來模擬實際PV Inverter所連接的電子設備。

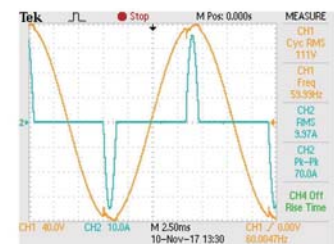
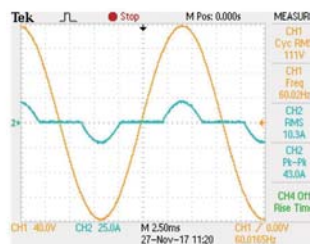
整流性負載模式



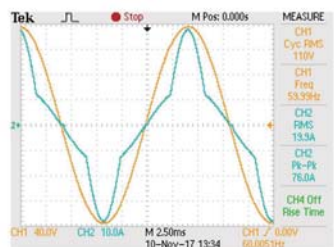
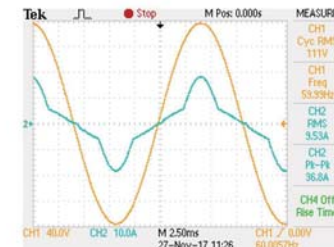
IEC 508/99



實際的 V/A 波形



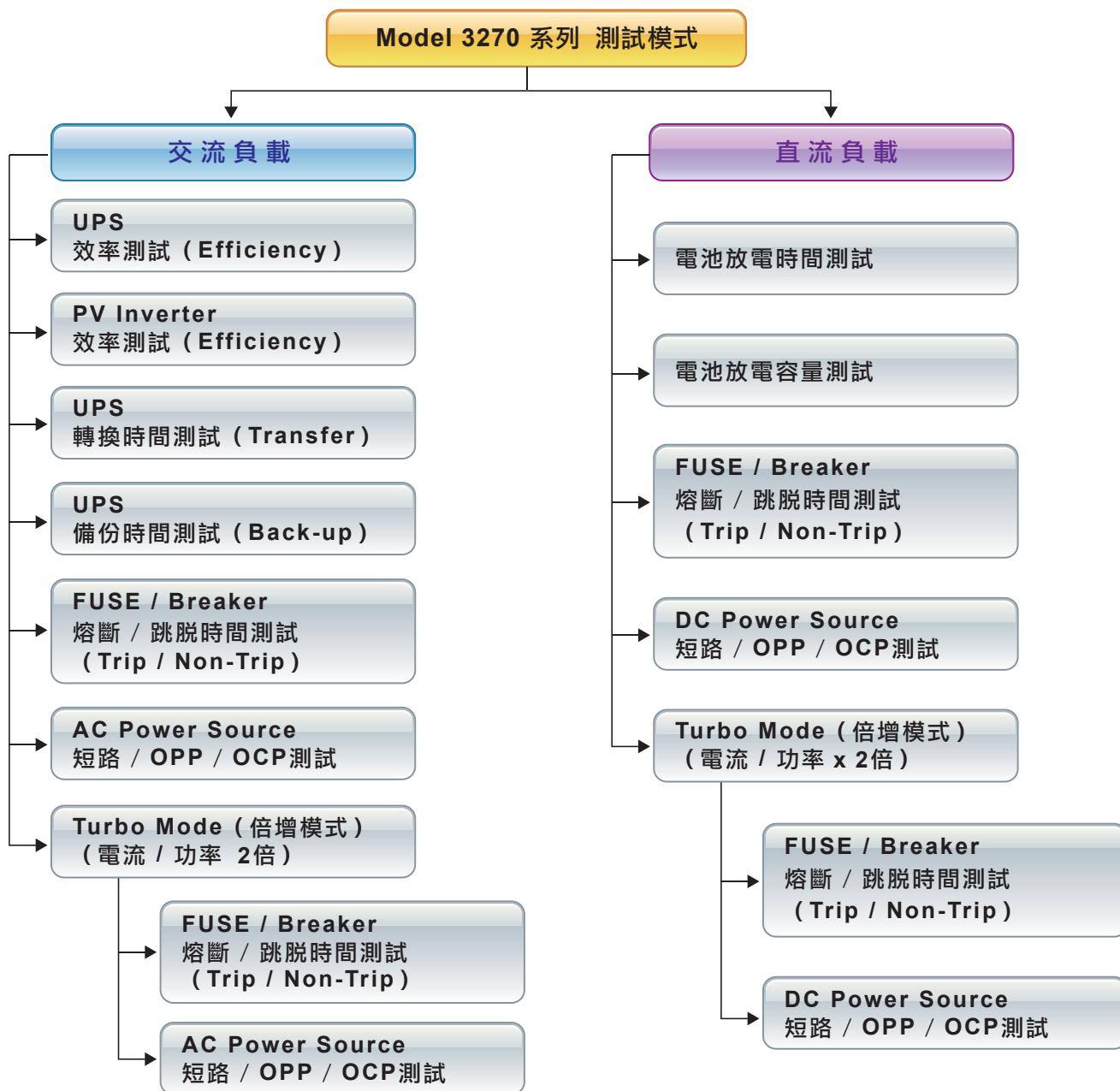
UPS 測試的 Non-Linear CC mode



110V, 5A + 22ohm Test Waveform 110V, 10A + 11ohm Test Waveform
 PV Inverter 測試的 Non-Linear CC + Resistive mode (CC+CR)

3270 負載的各種測試模式

3270 系列AC/DC 電子負載特別內建各種產品所需的測試模式，包括交流部分的UPS, Inverter, Fuse/Breaker, AC Power Source，及直流部份的 Battery, Fuse/Breaker, DC Power Source等，如下圖所示。



電流保護元件測試

電流保護元件包括Fuse 保險絲，Breaker斷路器及新型的PTC Resettable fuse自恢復保險絲等，其作用是當電路電流超過設計的額定值時，也就是負荷超過設計的電流容量時便將電路斷開。以避免發生過熱、甚至著火，起火等危險。上述保護元件中Fuse是一次性使用，Breaker與PTC就可以重覆使用。

電流保護元件的保護電流值與保護反應時間通常是具有乘積的關係，也就是通過電流保護元件的電流愈大，則其保護斷路的反應時間就愈短，這就類似是能量保護元件。

針對這樣的特性，3270系列交直流電子負載特別針對電流保護元件的測試驗證開發出Fuse Test功能，就能夠用一額定電流與功率的電子負載來測試驗證此類保護元件。當 Turbo mode(倍增模式) 設置為 ON 時，在1秒的測試時間內，測試電流可以倍增到最大電流的2倍，以3270為例，最大測試電流可倍增為 75A，也就是使用3270系列的Turbo mode為ON時，於1秒測試時間內就可以達到2台3270系列的測試電流值。



Fuse



Breaker



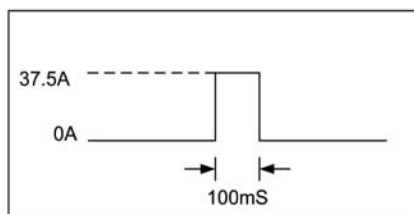
PTC

MODEL		3270	3271	3272	3273	3274
Power (W)		3750 W	2800W	1875 W	3750 W	2800W
Current(Ampere)		37.5 Arms / 112.5Apeak	28 Arms / 84Apeak	18.75 Arms / 56.25Apeak	28 Arms / 84Apeak	18.75 Arms / 56.25Apeak
Voltage(Volt)		50~350Vrms / 500Vdc			50~480Vrms / 700Vdc	
FREQUENCY Range		DC,40~440Hz (CC,CP Mode) , DC~440Hz (LIN,CR,CV Mode)			DC,40~70Hz(CC,CP Mode) , DC~70Hz(LIN,CR,CV Mode)	
Fuse Test mode						
Max. Current	Turbo OFF(CC1~3)	37.5Arms	28.0Arms	18.75Arms	28.0Arms	18.75Arms
	Turbo ON(CC3)					
	Turbo ON(CC1~2)	75.0Arms (x2) ^{*3}	56.0Arms (x2) ^{*3}	37.5Arms (x2) ^{*3}	56.0Arms (x2) ^{*3}	37.5Arms (x2) ^{*3}
Trip & Non-Trip Time	Turbo OFF(Time1~3)	0.01~333.33sec.				
	Turbo ON(Time1~2)	0.01~0.50sec.				
	Turbo ON(Time3)	0.01~600.00sec.				
OFF Time		0.1~999.9 Sec.				
Meas. Accuracy		±0.003 Sec.				
Repeat Cycle		0~99999				
Short/OPP/OCF Test Function						
Short Time	Turbo OFF	0.1S ~ 10Sec. Or Cont.				
	Turbo ON	0.1S ~ 1Sec				
OPP/OCF Step Time	Turbo OFF	100ms				
	Turbo ON	100ms, up to 10 Steps				
OCP Istop	Turbo OFF	37.5Arms	28.0Arms	18.75Arms	28.0Arms	18.75Arms
	Turbo ON	75.0Arms ^{*3}	56.0Arms ^{*3}	37.5Arms ^{*3}	56.0Arms ^{*3}	37.5Arms ^{*3}
OPP Pstop	Turbo OFF	3750W	2800W	1875W	3750W	2800W
	Turbo ON	7500W	5600W	3750W	7500W	5600W

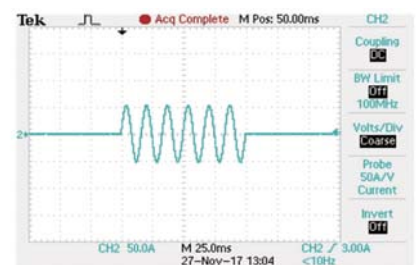
MODEL		32711	32701	32702	32703	32704	32705
Power (W)		5600 W	7500 W	11250W	15000W	18750W	22500W
Current(Ampere)		56 Arms / 168Apeak	75 Arms / 225Apeak	112.5 Arms / 337.5Apeak	112.5 Arms / 337.5Apeak	112.5 Arms / 337.5Apeak	112.5 Arms / 337.5Apeak
Voltage(Volt)		50~350Vrms / 500Vdc					
FREQUENCY Range		DC,40~440Hz (CC,CP Mode) , DC~440Hz (LIN,CR,CV Mode)					
Fuse Test mode							
Max. Current	Turbo OFF(CC1~3)	56Arms	75Arms	112.5Arms	112.5Arms	112.5Arms	112.5Arms
	Turbo ON(CC3)						
	Turbo ON(CC1~2)						
Trip & Non-Trip Time	Turbo OFF(Time1~3)	0.01~333.33sec.					
	Turbo ON(Time1~2)	0.01~0.50sec.					
	Turbo ON(Time3)	0.01~600.00sec.					
OFF Time		0.1~999.9 Sec.					
Meas. Accuracy		±0.003 Sec.					
Repeat Cycle		0~99999					
Short/OPP/OCF Test Function							
Short Time	Turbo OFF	0.1S ~ 10Sec. Or Cont.					
	Turbo ON	0.1S ~ 1Sec					
OPP/OCF Step Time	Turbo OFF	100ms					
	Turbo ON	100ms, up to 10 Steps					
OCF Istop	Turbo OFF	56Arms	75Arms	112.5Arms	112.5Arms	112.5Arms	112.5Arms
	Turbo ON	112Arms	150Arms	225Arms	225Arms	225Arms	225Arms
OPP Pstop	Turbo OFF	5600W	7500W	11250W	15000W	18750W	22500W
	Turbo ON	11200W	15000W	22500W	30000W	37500W	45000W



Turbo OFF, Short 100ms 37.5A 測試結果畫面



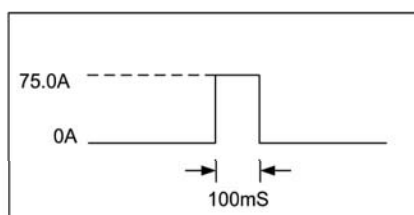
Turbo OFF, Short 100ms 37.5A 設定



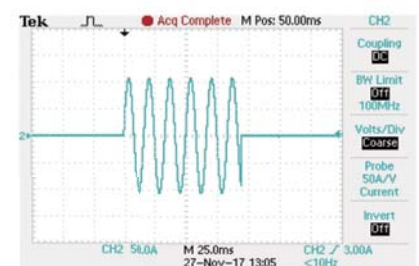
Turbo OFF, Short 100ms 37.5A
實際測試波形



Turbo ON, Short 100ms 75.0A 測試結果畫面



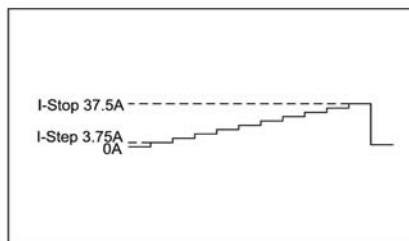
Turbo ON, Short 100ms 75.0A 設定



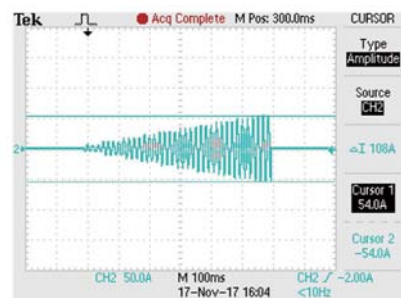
Turbo ON, Short 100ms 75.0A
實際測試波形



Turbo OFF, OCP Istep 3.75 A Istop 37.5A
測試結果畫面



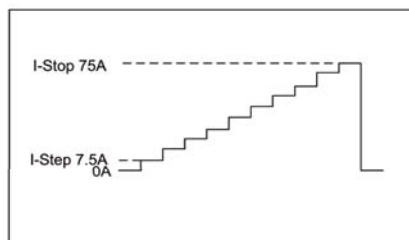
Turbo OFF, OCP Istep 3.75 A Istop 37.5A
設定



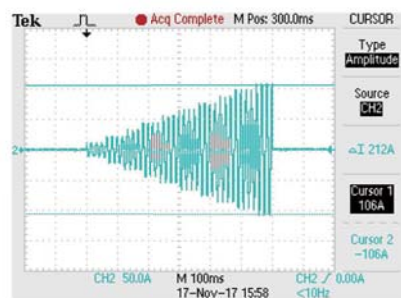
Turbo OFF, OCP Istep 3.75 A Istop 37.5A
實際測試波形



Turbo ON, OCP Istep 7.5 A Istop 75A
測試結果畫面



Turbo ON, OCP Istep 7.5 A Istop 75.0A
設定



Turbo ON, OCP Istep 7.5 A Istop 75.0A
實際測試波形

Fuse Test基本上分為Trip（熔斷）與Non-Trip（沒有熔斷）2種。

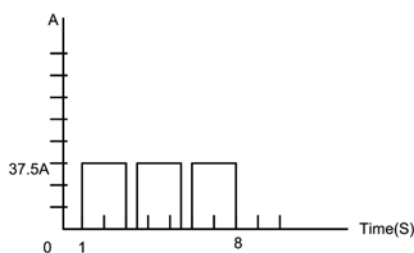
Fuse Test設定參數包括測試電流（Istart），測試時間（Time），測試重覆次數REPEAT TIME等。

在Trip熔斷測試下，是用來測試電流過大異常發生時必須能夠提供斷路的保護能力，表示電流保護元件需熔斷的動作，因此測試電流需要大於熔斷的電流規格，當3270系列電子負載偵測到電壓低於1.0V，LCD就顯示Repeat次數及電流保護元件的熔斷時間 XXXX.X sec.。

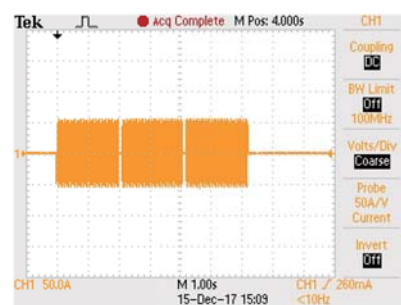
在Non-Trip測試下，表示電流保護元件需達到不熔斷的動作，因此測試電流需要低於熔斷的電流規格，用來驗證在正常電流範圍內就必須不熔斷，當3270系列電子負載在測試時間（Pulse Time）與重覆Repeat次數結束後都沒熔斷，LCD顯示Repeat次數的資訊。



Turbo : OFF, Fuse mode 測試結果畫面



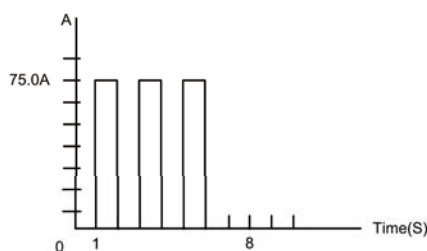
設定：Turbo : OFF, Fuse ON,
CC pulse 37.5A, 2S, 測試3次



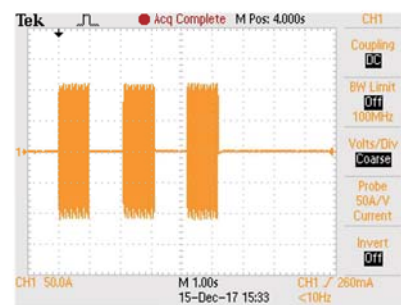
Turbo : OFF, Fuse ON,
CC pulse 37.5A, 2S, 測試3次實際測試波形



Turbo : ON, Fuse mode 測試結果畫面



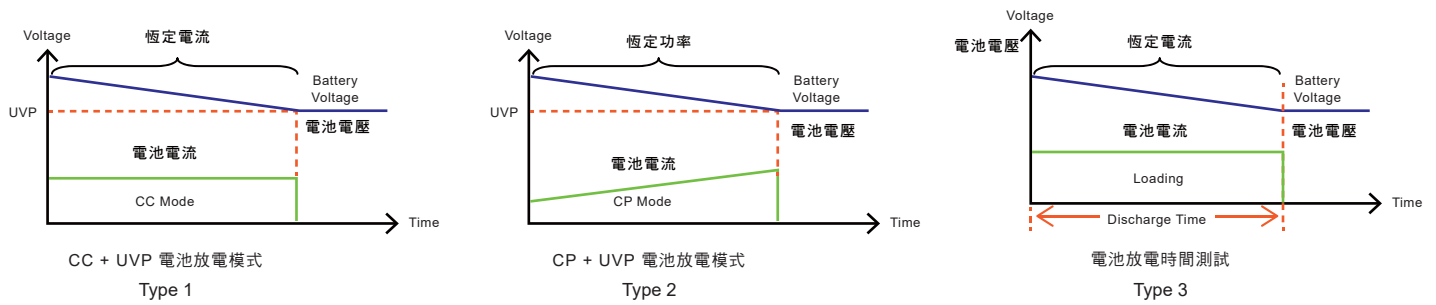
設定：Turbo : ON, Fuse ON,
CC pulse 75.0A, 1S, 測試3次



Turbo : ON, Fuse ON,
CC pulse 75A, 1S, 測試3次實際測試波形

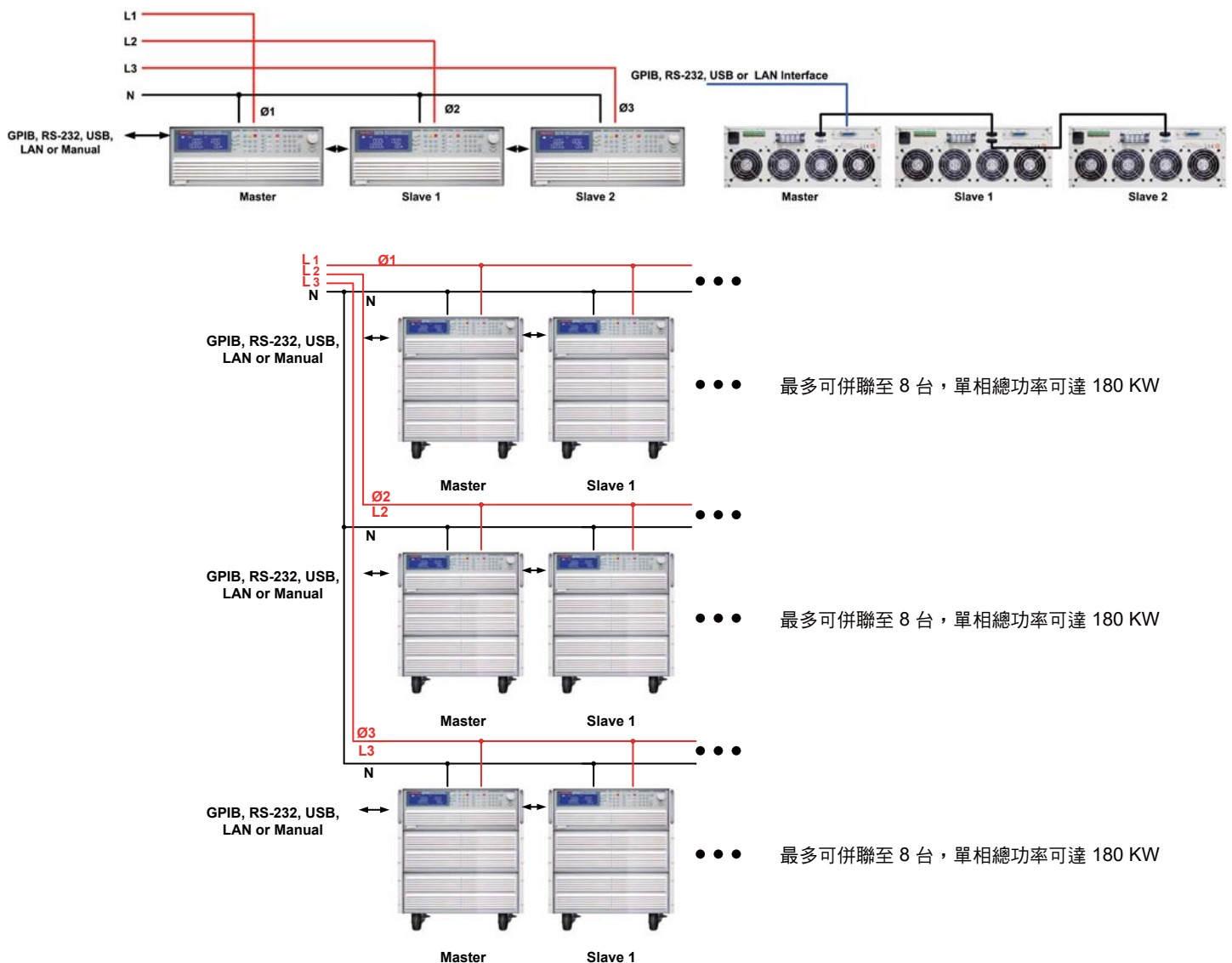
電池測試功能

3270系列負載新增TYPE1~TYPE3共二種電池放電測試，可以依需要選擇適當的電池測試模式，測試結果可以直接在LCD顯示器上顯示電池的AH容量、放電後的電壓值、放電的累計時間等數據。

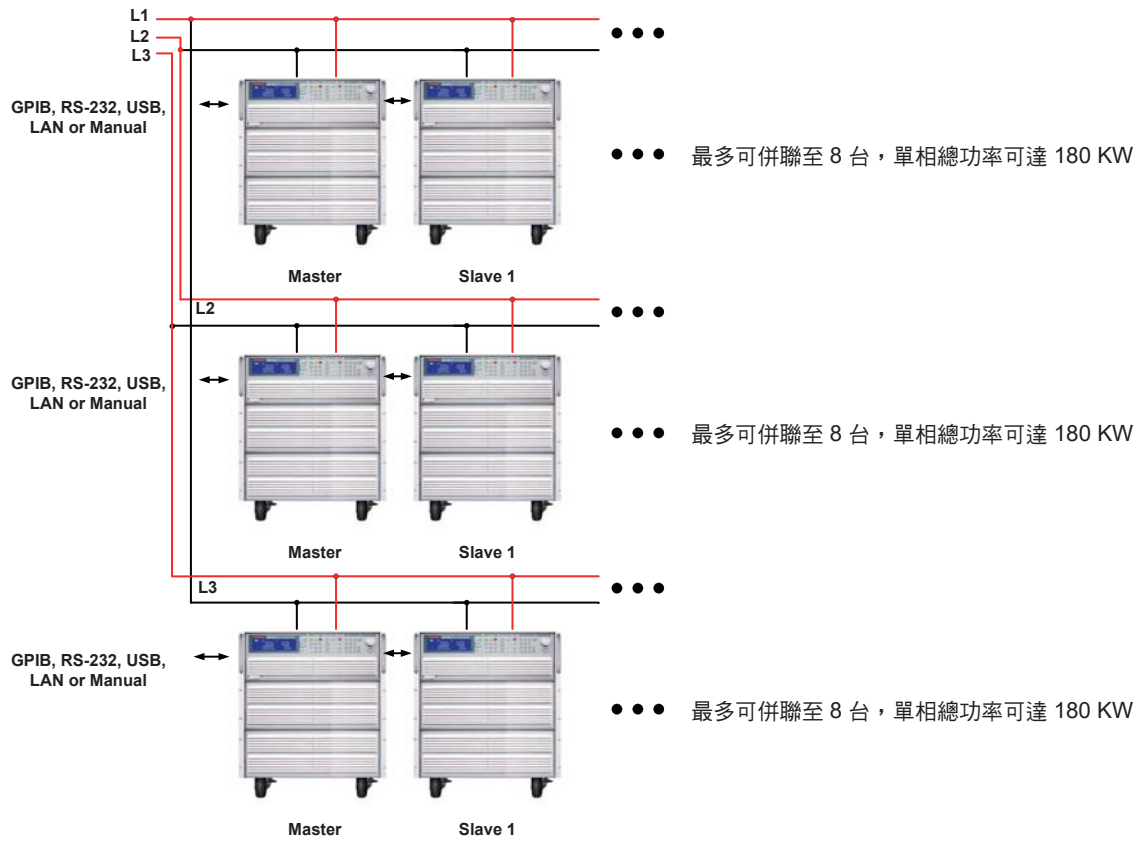
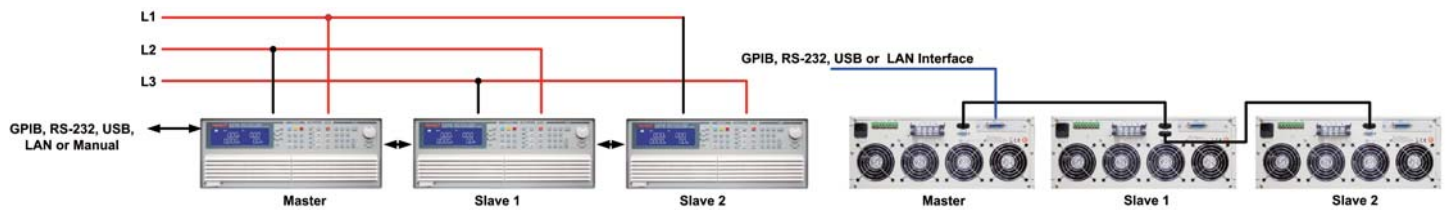


並聯及三相控制

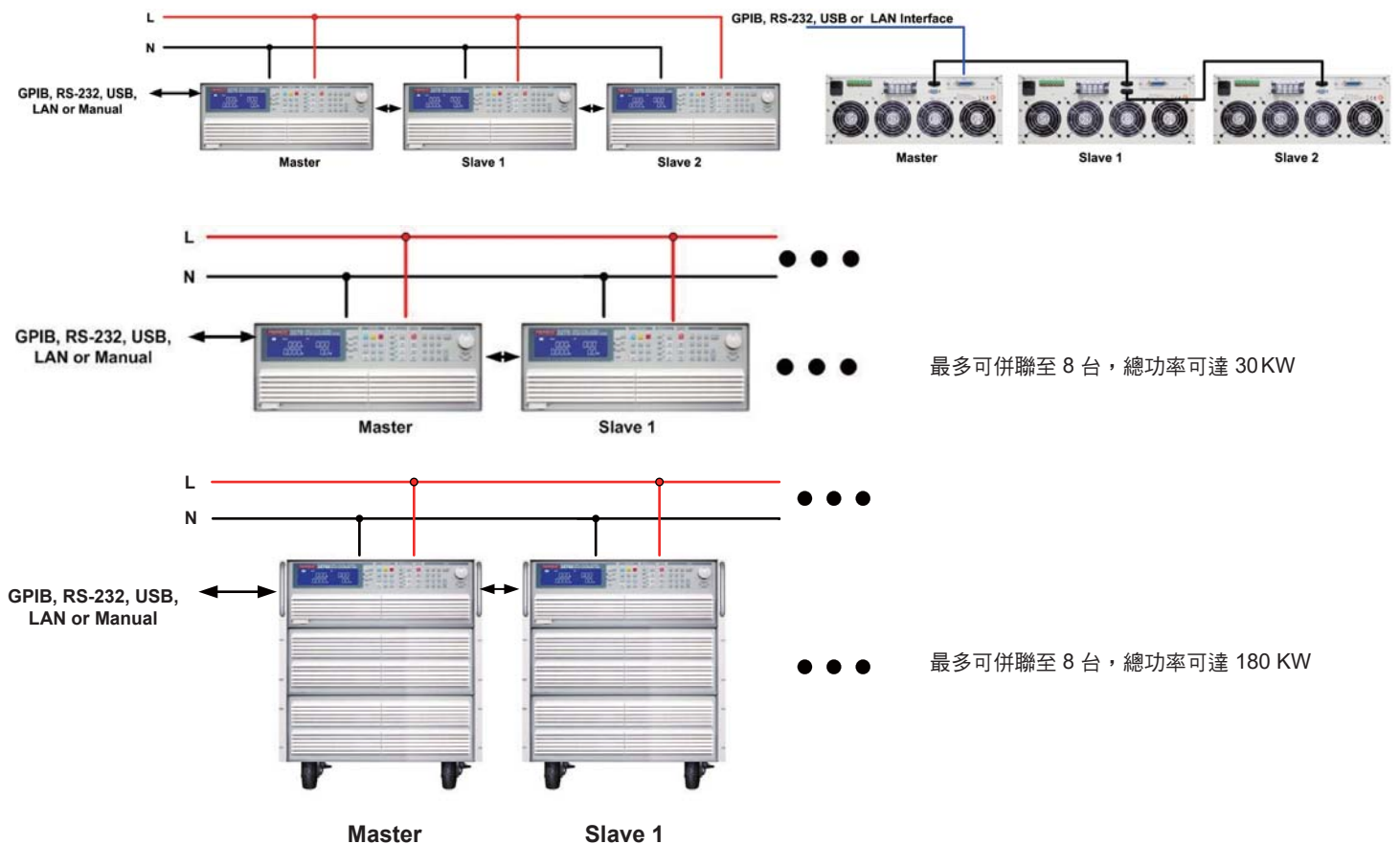
3270 系列負載提供多台並聯、三相應用功能，讓使用者能夠進行更大功率或三相交流電源的測試應用，這樣可以更靈活、更彈性的使用3270系列交流電子負載，以節省成本。在並聯/三相的操作上，使用者如同操作單機一樣，只要對 Master進行操作即可，Slave1 及 Slave2 會自動進行該相的吃載及量測。並聯及三相的連接如下圖所示。



最大單相功率可達180KW，3相總功率達 540 KW 之 3 相 Y 連接



最大單相功率可達180KW，3相總功率達 540 KW 之3相 △ 連接



並聯連接



1	LCD 多功能顯示器 四個電錶可同時顯示電壓值 (Vrms, Vpeak, Vmax., Vmin)、電流值 (Irms, Ipeak, Imax., Imin.)、瓦特值、伏安值(VA)、頻率值、峰值因素、功率因素、電壓諧波失真度(VTHD, VH)、電流諧波失真度(ITHD, IH)等。	4 波形庫按鍵 可快速設定 CF $\sqrt{2}$ / 2 / 2.5 / 3 / 3.5, +/- PF0.6 / 0.7 / 0.8 / 0.9 / 1.0, FREQ Auto / 50Hz / 60Hz / 400Hz。
2	電錶切換鍵 V/A/W 鍵可設定顯示 Rms/Peak/Max/Min, Meter鍵可選擇 PF/CF/FREQ, 可切換顯示WATT/VA/VAR鍵, THD 鍵選擇顯示 THD	5 測試功能鍵 可選擇 Short / OPP / OCP /Non-L / NL-CR /Fuse / Batt(Battery Discharge) / Trans (UPTransfer time) 等測試功能。
3	操作功能鍵 Mode, Preset ON/OFF, Load ON/OFF, Sense ON/OFF, Level A/B, Config, Limit, Recall, Store, SEQ, Local, System 等操作功能鍵。	6 數字按鍵區
		7 設定旋鈕
		8 電源開關
		9 游標與設定按鍵



10	交流電源輸入連接器	13 主從控制連接器
11	Vmonitor、Imonitor、Analog input、SYNC input 輸入端子	Master：上端或下端連接至下一台 Slave：上端連接至前一台，下端連接至下一台
12	Vload, Vsense 輸入端子	14 通訊界面 (GPIB、RS-232、USB、LAN)

選購電壓：425Vrms / 600Vdc (3273 / 3274 除外)

規 格

MODEL	3270	3271	3272	3273	3274
Power (W)	3750 W	2800W	1875 W	3750 W	2800W
Current(Ampere)	37.5 Arms / 112.5Apeak	28 Arms / 84Apeak	18.75 Arms / 56.25Apeak	28 Arms / 84Apeak	18.75 Arms / 56.25Apeak
Voltage(Volt)	50~350Vrms / 500Vdc			50~480Vrms / 700Vdc	
FREQUENCY Range	DC,40~440Hz (CC,CP Mode) , DC~440Hz (LIN,CR,CV Mode)			DC,40~70Hz(CC,CP Mode) , DC~70Hz(LIN,CR,CV Mode)	
DC Section					
Current Range	37.5 A	28 A	18.75 A	28 A	18.75 A
Voltage Range	5~500V			5~700V	
Min. operating voltage	5V				
Slew Rate	50μs				
Operating Mode	CC , CR , Linear CC , CP , CV , DC Rectified , DC Rectified+CR				
Test Function	Battery , FUSE/Breaker , OPP/OCP/Short				
PROTECTIONS					
Over Power Protection	≒ 3937.5Wrms or Programmable	≒ 2940Wrms or Programmable	≒ 1968.75Wrms or Programmable	≒ 3937.5 Wrms or Programmable	≒ 2940 Wrms or Programmable
Over Current Protection	≒ 39.375Arms or Programmable	≒ 29.4Arms or Programmable	≒ 19.687Arms or Programmable	≒ 29.4 Arms or Programmab	≒ 19.687 Arms or Programmable
Over Vlotage Protection	≒ 367.5 Vrms / 525Vdc			≒ 504Vrms / 735Vdc	
Over Temp. Protection	Yes				
OPERATION MODE					
Constant Current Mode for Sine-Wave					
Range	0 ~ 37.5A	0 ~ 28A	0 ~ 18.75A	0 ~ 28A	0 ~ 18.75A
Resolution	0.625mA / 16bits	0.5mA / 16bits	0.3125mA / 16bits	0.5mA / 16bits	0.3125mA / 16bits
Accuracy	± (0.1% of setting + 0.2% of range) @ 50/60Hz				
Linear Constant Current Mode for Sine-Wave, Square-Wave or Quasi-Square Wave, PWM Wave					
Range	0~37.5A	0 ~ 28A	0 ~ 18.75A	0~28A	0 ~ 18.75A
Resolution	0.625mA / 16bits	0.5mA / 16bits	0.3125mA / 16bits	0.5mA / 16bits	0.3125mA / 16bits
Accuracy	± (0.1% of setting + 0.2% of range) @ 50/60Hz				
Constant Resistance Mode					
Range	1.6 ohm ~ 32K ohm	2.0 ohm ~ 40K ohm	3.2 ohm ~ 64K ohm	2.5 ohm ~ 50K ohm	4 ohm ~ 80K ohm
Resolution *1	0.010416mS / 16bits	0.0083333mS / 16bits	0.0052083mS / 16bits	0.006666mS / 16bits	0.004166mS / 16bits
Accuracy	±0.2% of (setting + range) @ 50/60Hz				
Constant Voltage Mode					
Range	0 ~ 500V			0 ~ 700V	
Resolution	0.1V			0.0125V	
Accuracy	±(0.1% of setting + 0.1% of range)				
Constant Power Mode					
Range	3750W	2800W	1875W	3750W	2800W
Resolution	0.1W	0.1W	0.1W	0.1W	0.1W
Accuracy *4	±0.5% of (setting + range) @ 50/60Hz				
CREST FACTOR (CC & CP MODE ONLY)					
Range	√2~5				
Resolution	0.1				
Accuracy	(0.5% / Irms) + 1%F.S.				
POWER FACTOR (CC & CP MODE ONLY)					
Range	0~1 Lag or Lead				
Resolution	0.01				
Accuracy	1%F.S.				
TEST MODE					
UPS Efficient Measurement	Non-Linear Mode				
Operating Frequency	Auto ; 40 ~ 440Hz			Auto ; 40 ~ 70Hz	
Current Range	0 ~ 37.5A	0 ~ 28A	0 ~ 18.75A	0 ~ 28A	0 ~ 18.75A
PF Range	0~1				
MEASURING EFFICIENCY FOR PV SYSTEMS, POWER CONDITIONERS for THD 80%	Resistive + Non-Linear Mode				
Operating Frequency	Auto ; 40 ~ 440Hz			Auto ; 40 ~ 70Hz	
Current Range	0 ~ 37.5A	0 ~ 28A	0 ~ 18.75A	0 ~ 28A	0 ~ 18.75A
Resistive Range	1.6 ohm ~ 32K ohm	2.0 ohm ~ 40K ohm	3.2 ohm ~ 64K ohm	2.5 ohm ~ 50K ohm	4 ohm ~ 80K ohm
UPS Back-Up function(CC,LIN,CR,CP)					
VTH	0 ~ 500V			0 ~ 700V	
UPS Back-Up Time	1 ~ 99999 Sec. (>27H)				
Battery Discharge function(CC,LIN,CR,CP)					
VTH	0 ~ 500V			0 ~ 700V	
Battery Discharge Time	1 ~ 99999 Sec. (>27H)				
UPS Transfer Time					
Current Range	0 ~ 37.5A	0 ~ 28A	0 ~ 18.75A	0 ~ 28A	0 ~ 18.75A
VTH	2.5V				
Time range	0.15mS ~ 999.99mS				

規 格

MODEL		3270	3271	3272	3273	3274
Fuse Test mode						
Max. Current	Turbo OFF(CC1~3)	37.5Arms	28.0Arms	18.75Arms	28.0Arms	18.75Arms
	Turbo ON(CC3)					
	Turbo ON(CC1~2)	75.0Arms (x2) *3	56.0Arms (x2) *3	37.5Arms (x2) *3	56.0Arms (x2) *3	37.5Arms (x2) *3
Trip & Non-Trip Time	Turbo OFF(Time1~3)	0.01~333.33sec.				
	Turbo ON(Time1~2)					
	Turbo ON(Time3)	0.01~600.00sec.				
OFF Time		0.1~999.9 Sec.				
Meas. Accuracy		±0.003 Sec.				
Repeat Cycle		0~99999				
Short/OPP/OCF Test Function						
Short Time	Turbo OFF	0.1S ~ 10Sec. Or Cont.				
	Turbo ON					
OPP/OCF Step Time	Turbo OFF	100ms				
	Turbo ON	100ms, up to 10 Steps				
OCP Istop	Turbo OFF	37.5Arms	28.0Arms	18.75Arms	28.0Arms	18.75Arms
	Turbo ON	75.0Arms *3	56.0Arms *3	37.5Arms *3	56.0Arms *3	37.5Arms *3
OPP Pstop	Turbo OFF	3750W	2800W	1875W	3750W	2800W
	Turbo ON	7500W	5600W	3750W	7500W	5600W
Programmable Inrush current simulation: Istart - Istop / Tsep						
Istart, Inrush Start Current		0~75A	0~56A	0~37.5A	0~56A	0~37.5A
Inrush Step time		0.1mS~100mS				
Istop, Inrush stop current		0~37.5A	0~28A	0~18.75A	0~28A	0~18.75A
Programmable Surge current simulation: S1/T1 - S2/T2 - S3/T3						
S1 and S2 Current		0~75A	0~56A	0~37.5A	0~56A	0~37.5A
T1 and T2 Time		0.01S~0.5Sec.				
S3 Current		0~37.5A	0~28A	0~18.75A	0~28A	0~18.75A
T3 Time		0.01S ~ 9.99Sec. Or Cont.				
MEASUREMENTS						
VOLTAGE READBACK V METER						
Range		500V			700V	
Resolution		0.01V			0.0125V	
Accuracy		± 0.05% of (reading + range)				
Parameter		Vrms, V Max / Min, +/-Vpk				
CURRENT READBACK A METER						
Range		18.75Arms / 37.5Arms	14Arms / 28Arms	9.375Arms / 18.75Arms	14Arms / 28Arms	9.375Arms / 18.75Arms
Resolution		0.4mA / 0.8mA	0.3mA / 0.6mA	0.2mA / 0.4mA	0.3mA / 0.6mA	0.2mA / 0.4mA
Accuracy		±0.05% of (reading + range) @ 50/60Hz , ±0.2% of (reading + range)				
Parameter		Irms,I Max / Min,+ / -Ipk				
WATT READBACK W METER						
Range		3750W	2800W	1875W	3750W	2800W
Resolution		0.0625W	0.05W	0.03125W	0.0625W	0.05W
Accuracy		±0.5% of (reading + range)				
VA METER		Vrms×Arms Correspond To Vrms and Arms				
Power Factor METER						
Range		+/- 0.000~1.000				
Accuracy		± (0.002 ± (0.001 / PF) * F)				
Frequency METER (Hz)						
Range		DC,40~440Hz			DC,40~70Hz	
Accuracy		0.1%				
Other Parameter METER						
VA, VAR, CF_I, Ipeak, Imax., Imin. Vmax., Vmin., IHD, VHD, ITHD, VTHD						
OTHERS						
Start up loading		Yes , Power on loading during Inverter / UPS start up				
Load ON / OFF Angle		0 ~ 359 degree can be programmed for the angle of load ON and load OFF loading				
Half cycle and SCR/TRIAC loading		Postive or Negative half cycle, 90° Trailing edge or Leading edge current waveform can be programmed				
Master/Slave (3 Phase Application)		Yes, 1 master and upto 7 slave units				
External programming input		F.S / 10Vdc, Resulotion 0.1V				
External SYNC input		TTL				
Vmonitor (Isolated)		±500V / ±10V			±700V / ±10V	
Imonitor (Isolated)		±112.5Apk / ±10Vpk	±84Apk / ±10Vpk	±56.25Apk / ±10Vpk	±84Apk / ±10Vpk	±56.25Apk / ±10Vpk
Interface (OPTION)		GPIB ; RS-232 ; LAN ; USB				
MAX. Power consumption			150VA			
Operation Temperature *2		0 ~ 40 °C				
Current of input impedance (mA) @50/60Hz ; @400Hz		~ V*0.6 ; ~ V*4.4	~ V*0.45 ; ~ V*3.3	~ V*0.3 ; ~ V*2.2	~ V*0.4 ; ~ V*2.95	~ V*0.3 ; ~ V*2.2
Dimension (H x W x D)		177 x 440 x 558 mm				
Weight		33.5Kg	27.5Kg	21.5Kg	33.5Kg	27.5Kg

輸入電源：100~230 Vac +/- 10% , 50/60Hz
冷卻方式：智慧型風扇冷卻

註*1：ms (millisiemens) is the unit of conductance(G), one siemens equal to 1/Ω

註*2：操作溫度範圍為0~40℃，規格適用於25℃±5℃，除非另有說明

註*3：2倍額定電流和功率的Turbo mode操作模式，主要應用於保險絲(Fuse)、Short / OCP / OPP的測試

註*4：該規格適用於電流小於20Arms

選購電壓：425Vrms / 600Vdc (3273 / 3274 除外)

規 格

MODEL	32711	32701	32702	32703	32704	32705
Power (W)	5600 W	7500 W	11250W	15000W	18750W	22500W
Current(Ampere)	56 Arms / 168Apeak	75 Arms / 225Apeak	112.5 Arms / 337.5Apeak	112.5 Arms / 337.5Apeak	112.5 Arms / 337.5Apeak	112.5 Arms / 337.5Apeak
Voltage(Volt)	50~350Vrms / 500Vdc					
FREQUENCY Range	DC,40~440Hz (CC,CP Mode) , DC~440Hz (LIN,CR,CV Mode)					
DC Section						
Current Range	56 A	75 A	112.5 A	112.5 A	112.5 A	112.5 A
Voltage Range	5~500V					
Min. operating voltage	5V					
Slew Rate	50μs					
Operating Mode	CC , CR , Linear CC , CP , CV , DC Rectified , DC Rectified+CR					
Test Function	Battery , FUSE/Breaker , OPP/OCP/Short					
PROTECTIONS						
Over Power Protection	≧ 5880Wrms or Programmable	≧ 7875Wrms or Programmable	≧ 11812.5Wrms or Programmable	≧ 15750Wrms or Programmable	≧ 19687.5Wrms or Programmable	≧ 23625Wrms or Programmable
Over Current Protection	≧ 58.8Arms, or Programmable	≧ 78.75 Arms, or Programmable	≧ 118.125 Arms or Programmable	≧ 118.125 Arms or Programmable	≧ 118.125 Arms or Programmable	≧ 118.125 Arms or Programmable
Over Vlotage Protection	≧ 367.5 Vrms / 525Vdc					
Over Temp. Protection	Yes					
OPERATION MODE						
Constant Current Mode for Sine-Wave						
Range	0~56A	0~75A	0~112.5A	0~112.5A	0~112.5A	0~112.5A
Resolution	1mA/16bits	1.25mA/16bits	1.875mA/16bits	1.875mA/16bits	1.875mA/16bits	1.875mA/16bits
Accuracy	± (0.1% of setting + 0.2% of range) @ 50/60Hz					
Linear Constant Current Mode for Sine-Wave, Square-Wave or Quasi-Square Wave, PWM Wave						
Range	0~56A	0~75A	0~112.5A	0~112.5A	0~112.5A	0~112.5A
Resolution	1mA/16bits	1.25mA/16bits	1.875mA/16bits	1.875mA/16bits	1.875mA/16bits	1.875mA/16bits
Accuracy	± (0.1% of setting + 0.2% of range) @ 50/60Hz					
Constant Resistance Mode						
Range	1 ohm~20K ohm	0.8 ohm~16K ohm	0.533 ohm~10.666K ohm	0.533 ohm~10.666K ohm	0.533 ohm~10.666K ohm	0.533 ohm~10.666K ohm
Resolution *1	0.016666mS/16bits	0.020832mS/16bits	0.031248mS/16bits	0.031248mS/16bits	0.031248mS/16bits	0.031248mS/16bits
Accuracy	±0.2% of (setting + range) @ 50/60Hz					
Constant Voltage Mode						
Range	0 ~ 500V					
Resolution	0.1V					
Accuracy	±0.2% of (setting + range) @ 50/60Hz					
Constant Power Mode						
Range	5600W	7500W	11250W	15000W	18750W	22500W
Resolution	0.1W	0.1W	1W	1W	1W	1W
Accuracy	±0.5% of (setting + range) @ 50/60Hz					
CREST FACTOR (CC & CP MODE ONLY)						
Range	√2~5					
Resolution	0.1					
Accuracy	(0.5% / Irms) + 1%F.S.					
POWER FACTOR (CC & CP MODE ONLY)						
Range	0~1 Lag or Lead					
Resolution	0.01					
Accuracy	1%F.S.					
TEST MODE						
UPS Efficient Measurement	Non-Linear Mode					
Operating Frequency	Auto ; 40 ~ 440Hz					
Current Range	0~56A	0~75A	0~112.5A	0~112.5A	0~112.5A	0~112.5A
PF Range	0~1					
MEASURING EFFICIENCY FOR PV SYSTEMS, POWER CONDITIONERS for THD 80%	Resistive + Non-Linear Mode					
	Auto ; 40 ~ 440Hz					
Current Range	0~56A	0~75A	0~112.5A	0~112.5A	0~112.5A	0~112.5A
Resistive Range	1 ohm~20K ohm	0.8 ohm~16K ohm	0.533 ohm~10.666 Kohm	0.533 ohm~10.666 Kohm	0.533 ohm~10.666 Kohm	0.533 ohm~10.666 Kohm
UPS Back-Up function(CC,LIN,CR,CP)						
VTH	0 ~ 500V					
UPS Back-Up Time	1 ~ 99999 Sec. (>27H)					
Battery Discharge function(CC,LIN,CR,CP)						
VTH	0 ~ 500V					
Battery Discharge Time	1 ~ 99999 Sec. (>27H)					
UPS Transfer Time						
Current Range	0~56A	0~75A	0~112.5A	0~112.5A	0~112.5A	0~112.5A
VTH	2.5V					
Time range	0.15mS ~ 999.99mS					

規 格													
MODEL	32711		32701		32702		32703		32704		32705		
Fuse Test mode													
Max. Current	Turbo OFF(CC1~3)	56Arms		75Arms		112.5Arms		112.5Arms		112.5Arms		112.5Arms	
	Turbo ON(CC3)												
	Turbo ON(CC1~2)	112Arms (x2) *3		150Arms (x2) *3		225Arms (x2) *3		225Arms (x2) *3		225Arms (x2) *3		225Arms (x2) *3	
Trip & Non-Trip Time	Turbo OFF(Time1~3)	0.01~333.33sec.											
	Turbo ON(Time1~2)	0.01~0.50sec.											
	Turbo ON(Time3)	0.01~600.00sec.											
OFF Time		0.1~999.9 Sec.											
Meas. Accuracy		±0.003 Sec.											
Repeat Cycle		0~99999											
Short/OPP/OCF Test Function													
Short Time	Turbo OFF	0.1S ~ 10Sec. Or Cont.											
	Turbo ON	0.1S ~ 1Sec											
OPP/OCF Step Time	Turbo OFF	100ms											
	Turbo ON	100ms, up to 10 Steps											
OCP Istop	Turbo OFF	56Arms	75Arms	112.5Arms	112.5Arms	112.5Arms	112.5Arms	112.5Arms	112.5Arms	112.5Arms	112.5Arms	112.5Arms	
	Turbo ON	112Arms	150Arms	225Arms	225Arms	225Arms	225Arms	225Arms	225Arms	225Arms	225Arms	225Arms	
OPP Pstop	Turbo OFF	5600W	7500W	11250W	15000W	18750W	18750W	18750W	18750W	18750W	22500W	22500W	
	Turbo ON	11200W	15000W	22500W	30000W	37500W	37500W	37500W	37500W	37500W	45000W	45000W	
Programmable Inrush current simulation: Istart - Istop / Tsep													
Istart, Inrush Start Current		0~112A	0~150A	0~225A	0~225A	0~225A	0~225A	0~225A	0~225A	0~225A	0~225A	0~225A	
Inrush Step time		0.1mS~100mS											
Istop, Inrush stop current		0~56A	0~75A	0~112.5A	0~112.5A	0~112.5A	0~112.5A	0~112.5A	0~112.5A	0~112.5A	0~112.5A	0~112.5A	
Programmable Surge current simulation: S1/T1 - S2/T2 - S3/T3													
S1 and S2 Current		0~112A	0~150A	0~225A	0~225A	0~225A	0~225A	0~225A	0~225A	0~225A	0~225A	0~225A	
T1 and T2 Time		0.01S~0.5Sec.											
S3 Current		0~56A	0~75A	0~112.5A	0~112.5A	0~112.5A	0~112.5A	0~112.5A	0~112.5A	0~112.5A	0~112.5A	0~112.5A	
T3 Time		0.01S ~ 9.99Sec. Or Cont.											
MEASUREMENTS													
VOLTAGE READBACK V METER													
Range		500V											
Resolution		0.01V											
Accuracy		±0.05% of (reading + range)											
Parameter		Vrms,V Max/Min,+/-Vpk											
CURRENT READBACK A METER													
Range		28Arms / 56Arms	37.5Arms / 75Arms	56.25Arms / 112.5Arms	56.25Arms / 112.5Arms	56.25Arms / 112.5Arms	56.25Arms / 112.5Arms	56.25Arms / 112.5Arms	56.25Arms / 112.5Arms	56.25Arms / 112.5Arms	56.25Arms / 112.5Arms	56.25Arms / 112.5Arms	
Resolution		0.6mA / 1.2mA	0.8mA / 1.6mA	1.2mA / 2.4mA	1.2mA / 2.4mA	1.2mA / 2.4mA	1.2mA / 2.4mA	1.2mA / 2.4mA	1.2mA / 2.4mA	1.2mA / 2.4mA	1.2mA / 2.4mA	1.2mA / 2.4mA	
Accuracy		±0.1% of (reading + range) @ 50/60Hz											
Parameter		Irms,I Max/Min,+/-Ipk											
WATT READBACK W METER													
Range		5600W	7500W	11250W	15000W	18750W	18750W	18750W	18750W	18750W	22500W	22500W	
Resolution		0.1W	0.125W	0.1875W	0.25W	0.3125W	0.3125W	0.3125W	0.3125W	0.3125W	0.375W	0.375W	
Accuracy		±0.5% of (reading + range) @ 50/60Hz											
VA METER		Vrms×Arms Correspond To Vrms and Arms											
Power Factor METER													
Range		+/- 0.000~1.000											
Accuracy		± (0.002 ± (0.001 / PF) * F)											
Frequency METER (Hz)													
Range		DC,40~440Hz											
Accuracy		0.1%											
Other Parameter METER													
VA, VAR, CF_I, Ipeak, Imax., Imin., Vmax., Vmin., IHD, VHD, ITHD, VTHD													
OTHERS													
Start up loading		Yes , Power on loading during Inverter / UPS start up											
Load ON / OFF Angle		0 ~ 359 degree can be programmed for the angle of load ON and load OFF loading											
Half cycle and SCR/TRIAC loading		Postive or Negative half cycle, 90° Trailing edge or Leading edge current waveform can be programmed											
Master/Slave (3 phase or Parallel application)		Yes, 1 master and upto 7 slave unit											
External programming input		F.S / 10Vdc, Resulotion 0.1V											
External SYNC input		TTL											
Vmonitor (Isolated)		±500V / ±10V											
Imonitor (Isolated)		±168Apk / ±10Vpk	±225Apk / ±10Vpk	±337.5Apk / ±10Vpk	±337.5Apk / ±10Vpk	±337.5Apk / ±10Vpk	±337.5Apk / ±10Vpk	±337.5Apk / ±10Vpk	±337.5Apk / ±10Vpk	±337.5Apk / ±10Vpk	±337.5Apk / ±10Vpk	±337.5Apk / ±10Vpk	
Interface (OPTION)		GPIOB : RS-232 : LAN : USB											
MAX. Power consumption		270VA	270VA	390VA	510VA	630VA	630VA	630VA	630VA	630VA	750VA	750VA	
Operation Temperature*2		0 ~ 40 °C											
Current of input impedance (mA) @ 50/60Hz ; @400Hz		~ V*0.9 ; ~ V*6.6	~ V*1.2 ; ~ V*8.8	~ V*1.8 ; ~ V*13.2	~ V*2.4 ; ~ V*17.6	~ V*3.0 ; ~ V*22	~ V*3.0 ; ~ V*22	~ V*3.0 ; ~ V*22	~ V*3.0 ; ~ V*22	~ V*3.0 ; ~ V*22	~ V*3.6 ; ~ V*26.4	~ V*3.6 ; ~ V*26.4	
Dimension(H x W x D)		458 x 480 x 593 mm	458 x 480 x 593 mm	636 x 480 x 593 mm	814 x 480 x 593 mm	1285 x 600 x 600 mm	1285 x 600 x 600 mm	1285 x 600 x 600 mm	1285 x 600 x 600 mm	1285 x 600 x 600 mm	1285 x 600 x 600 mm	1285 x 600 x 600 mm	
HxWxD(Not included wheels)		355 x 480 x 593 mm	355 x 480 x 593 mm	533 x 480 x 593 mm	711 x 480 x 593 mm	1182 x 600 x 600 mm	1182 x 600 x 600 mm	1182 x 600 x 600 mm	1182 x 600 x 600 mm	1182 x 600 x 600 mm	1182 x 600 x 600 mm	1182 x 600 x 600 mm	
Weight		58 kg	70 kg	105kg	140kg	260kg	260kg	260kg	260kg	260kg	295kg	295kg	

輸入電源：100~230 Vac +/- 10% , 50/60Hz
冷卻方式：智慧型風扇冷卻

註*1：ms (millisiemens) is the unit of conductance(G), one siemens equal to 1/Ω
註*2：操作溫度範圍為0~40℃，規格適用於25℃±5℃，除非另有說明
註*3：2倍額定電流和功率的Turbo mode操作模式，主要應用於保險絲(Fuse)、Short / OCP / OPP的測試
註*4：該規格適用於電流小於20Arms