AEL-5000

交/直流電子負載

特　點

- 定電流、線性定電流、定電阻、定電壓、定功率及整流性負載工作模式
- 頻率範圍 : DC, 40 Hz to 440 Hz
- Turbo模式可在1秒內將電子負載的電流和功率提高2倍
- 八台單相並聯最大功率180 kW, 三相△ 或 Y 接負載, 最大功率540 kW, 三相△ 或 Y 接負載可由主機同步控制
- 拉載與卸載角度控制; 0 to 359度全範圍都可設定
- 支援正半週或負半週抽載
- 支援SCR/TRIAC的電流調變波形，90度前沿及後緣波形
- 選配: GPIB、RS-232、USB、LAN

GW INSTEK
Simply Reliable

AEL-5000 系列

AEL-5002-350-18.75
AEL-5003-350-28
AEL-5004-350-37.5
AEL-5002-425-18.75
AEL-5003-425-28
AEL-5004-425-37.5
AEL-5003-480-18.75
AEL-5004-480-28

AEL-5006-350-56
AEL-5008-350-75
AEL-5006-425-56
AEL-5008-425-75

AEL-5012-350-112.5
AEL-5012-425-112.5

AEL-5015-350-112.5
AEL-5015-425-112.5

AEL-5019-350-112.5
AEL-5019-425-112.5

AEL-5023-350-112.5
AEL-5023-425-112.5

CE RS-232 GPIB USB LAN

MODEL	Power (W)		Current (Ampere)		Voltage (Volt)
	Turbo OFF	Turbo ON	Turbo OFF	Turbo ON	
AEL-5002-350-18.75	1875 W	3750 W (x2)*	18.75 Arms / 56.25 Apeak	37.5 Arms / 56.25 Apeak (x2)*	50 Vrms to 350 Vrms / 500 Vdc
AEL-5003-350-28	2800 W	5600 W (x2)*	28 Arms / 84 Apeak	56 Arms / 84 Apeak (x2)*	
AEL-5004-350-37.5	3750 W	7500 W (x2)*	37.5 Arms / 112.5 Apeak	75.0 Arms / 112.5 Apeak (x2)*	
AEL-5002-425-18.75	1875 W	3750 W (x2)*	1875 Arms / 56.25 Apeak	37.5 Arms / 56.25 Apeak (x2)*	50 Vrms to 425 Vrms / 600 Vdc
AEL-5003-425-28	2800 W	5600 W (x2)*	28 Arms / 84 Apeak	56 Arms / 84 Apeak (x2)*	
AEL-5004-425-37.5	3750 W	7500 W (x2)*	37.5 Arms / 112.5 Apeak	75.0 Arms / 112.5 Apeak (x2)*	
AEL-5006-350-56	5600 W	11200 W (x2)*	56.0 Arms / 168 Apeak	112.0 Arms / 168 Apeak (x2)*	50 Vrms to 350 Vrms / 500 Vdc
AEL-5008-350-75	7500 W	15000 W (x2)*	75.0 Arms / 225 Apeak	150.0 Arms / 225 Apeak (x2)*	
AEL-5012-350-112.5	11250 W	22500 W (x2)*	112.5 Arms / 337.5 Apeak	225 Arms / 337.5 Apeak (x2)*	
AEL-5015-350-112.5	15000 W	30000 W (x2)*	112.5 Arms / 337.5 Apeak	225 Arms / 337.5 Apeak (x2)*	
AEL-5019-350-112.5	18750 W	37500 W (x2)*	112.5 Arms / 337.5 Apeak	225 Arms / 337.5 Apeak (x2)*	
AEL-5023-350-112.5	22500 W	45000 W (x2)*	112.5 Arms / 337.5 Apeak	225 Arms / 337.5 Apeak (x2)*	
AEL-5006-425-56	5600 W	11200 W (x2)*	56.0 Arms / 168 Apeak	112.0 Arms / 168 Apeak (x2)*	50 Vrms to 425 Vrms / 600 Vdc
AEL-5008-425-75	7500 W	15000 W (x2)*	75.0 Arms / 225 Apeak	150.0 Arms / 225 Apeak (x2)*	
AEL-5012-425-112.5	11250 W	22500 W (x2)*	112.5 Arms / 337.5 Apeak	225 Arms / 337.5 Apeak (x2)*	
AEL-5015-425-112.5	15000 W	30000 W (x2)*	112.5 Arms / 337.5 Apeak	225 Arms / 337.5 Apeak (x2)*	
AEL-5019-425-112.5	18750 W	37500 W (x2)*	112.5 Arms / 337.5 Apeak	225 Arms / 337.5 Apeak (x2)*	
AEL-5023-425-112.5	22500 W	45000 W (x2)*	112.5 Arms / 337.5 Apeak	225 Arms / 337.5 Apeak (x2)*	
AEL-5003-480-18.75	2800 W	5600 W (x2)*	18.75 Arms / 56.25 Apeak	37.5 Arms / 56.25 Apeak (x2)*	50 Vrms to 480 Vrms / 700 Vdc
AEL- 5004-480-28	3750 W	7500 W (x2)*	28 Arms / 84 Apeak	56 Arms / 84 Apeak (x2)*	

* Turbo ON 功率與電流提升的倍率

交/直流電子負載

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(V_{THD}, V_H)、電流失真度(I_{THD}, I_H)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。
- 峰值因素範圍：1.414 to 5.0。
- 功率因素範圍：0 to1 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。
- 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。
- 支援拉載與卸載角度控制；拉載卸載角度控制，0 to 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拉載；用來驗證實際電器只有正半周或負半周負載電流時，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 Hz to 440 Hz
- 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(選配)控制介面。
- 最齊全的量測功能

AEL-5000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)。

背　面　介　紹

AEL-5002-350-18.75
AEL-5003-350-28
AEL-5004-350-37.5
AEL-5002-425-18.75
AEL-5003-425-28
AEL-5004-425-37.5
AEL-5003-480-18.75
AEL-5004-480-28

AEL-5006-350-56
AEL-5008-350-75
AEL-5006-425-56
AEL-5008-425-75

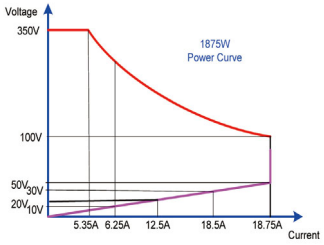
AEL-5012-350-112.5
AEL-5012-425-112.5

AEL-5015-350-112.5
AEL-5015-425-112.5

AEL-5019-350-112.5
AEL-5019-425-112.5

AEL-5023-350-112.5
AEL-5023-425-112.5

功率曲線



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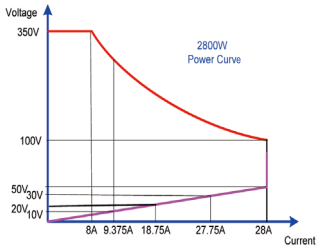

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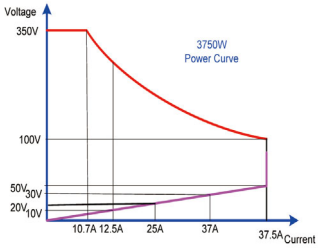

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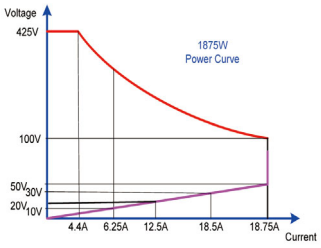

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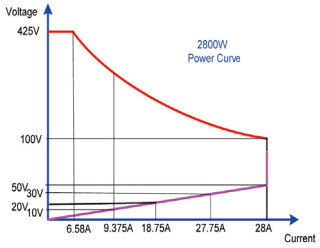

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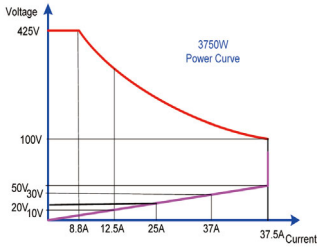

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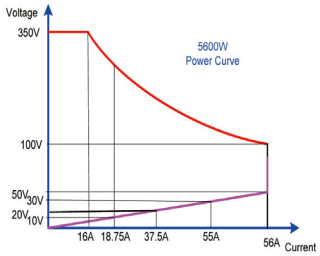

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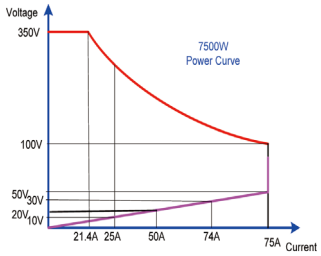

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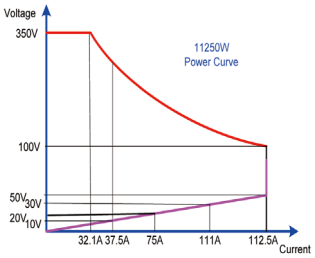
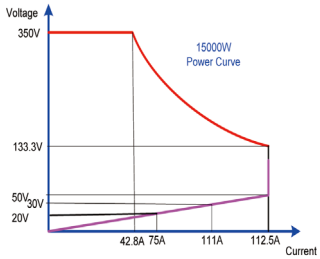


AEL-5012-350-112.5



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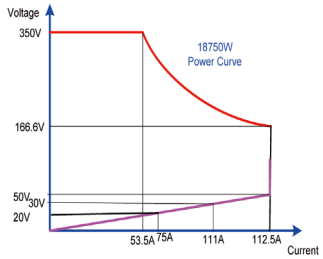
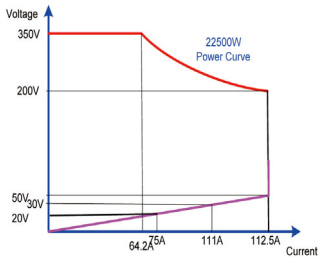


AEL-5019-350-112.5



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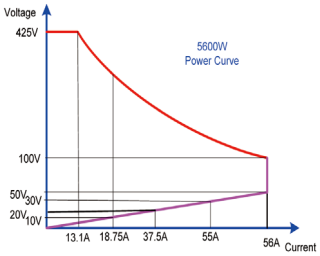

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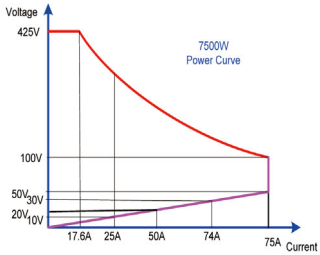

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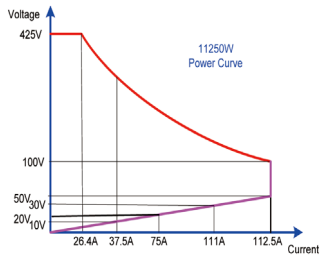

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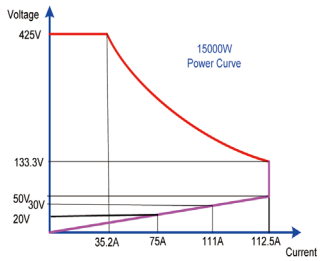

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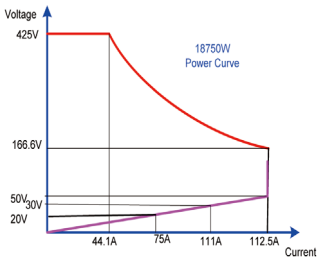

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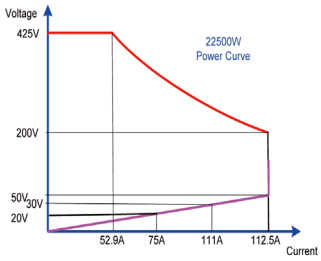

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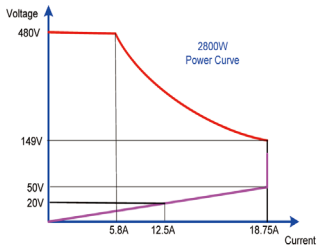
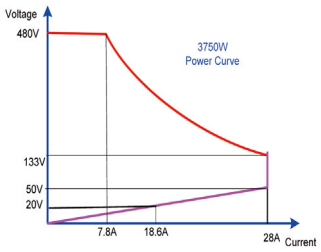


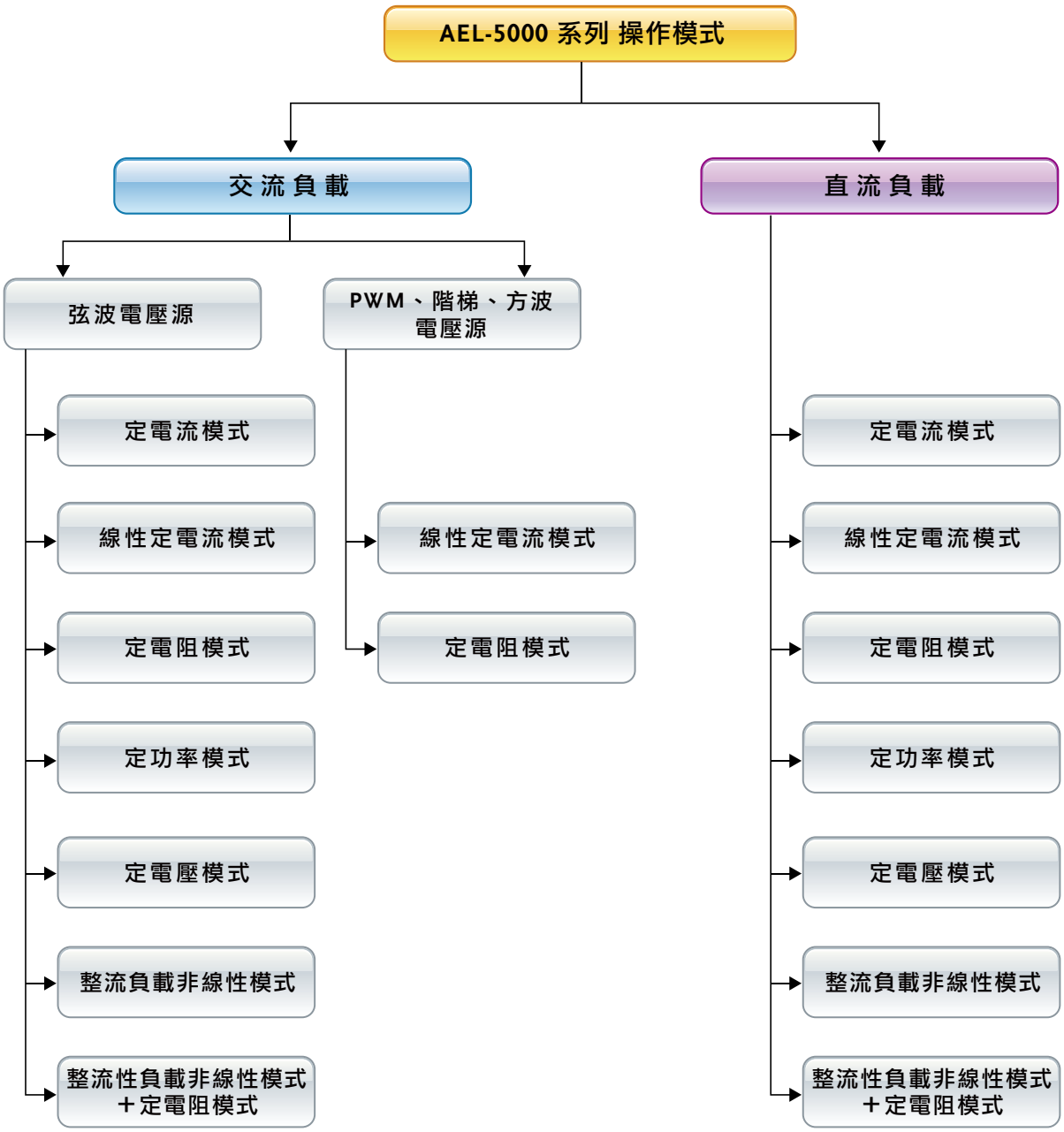
AEL-5003-480-18.75



AEL-5004-480-28

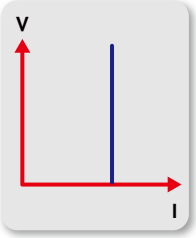
交/直流電子負載

完整的交流及直流負載模式

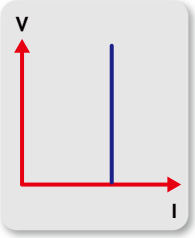


交流負載模式

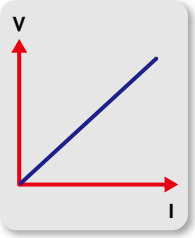
定電流模式



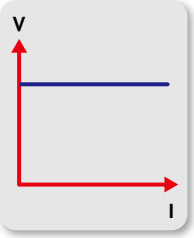
線性定電流模式



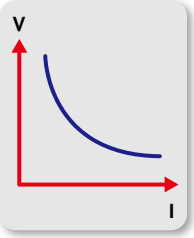
定電阻模式



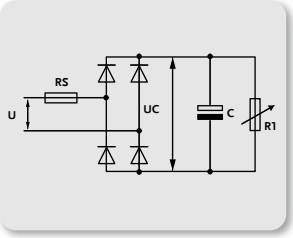
定電壓模式



定功率模式



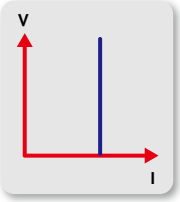
整流性負載模式



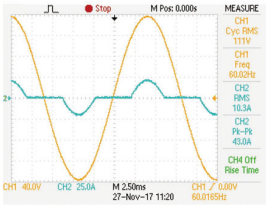
交/直流電子負載

交流負載模式

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



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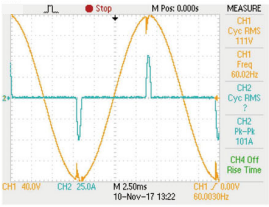
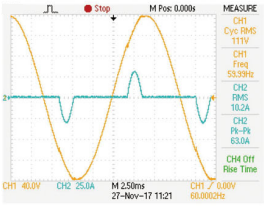
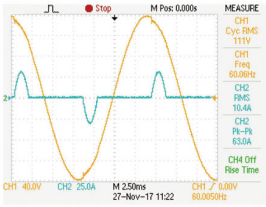


CC mode, CF = 5

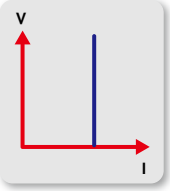


CC mode, CF = +0.5

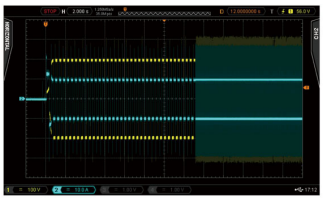


CC mode, CF = -0.5

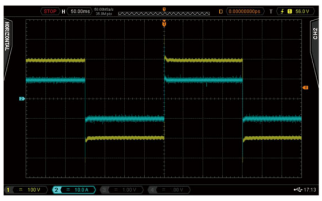
線性定電流模式：可以適用於弦波與非弦波電壓源，如下圖所示的 PWM 變頻驅動器，階梯(Step)電壓源，及 UPS 弦波變方波，方波變弦波。



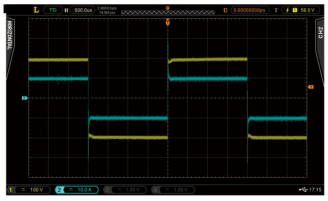
Linear CC mode



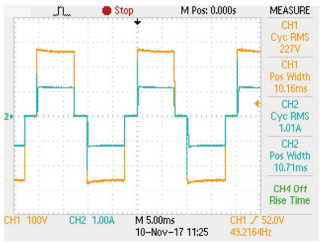
Linear CC Mode, PWM 10 A 2.5 Hz to 250 Hz



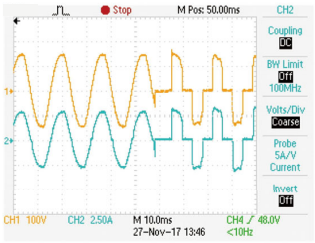
Linear CC Mode, PWM 10 A 2.5 Hz



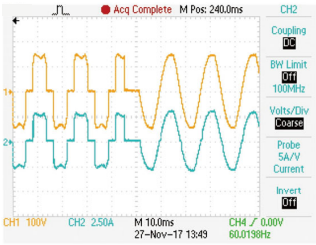
Linear CC Mode, PWM 10 A 250 Hz



Linear CC Mode, Step 10 A

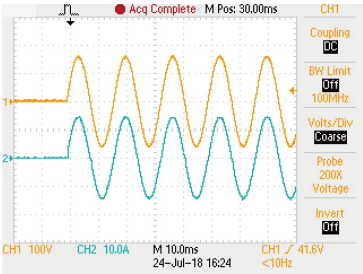


Linear CC mode, UPS Sine to Square Waveform

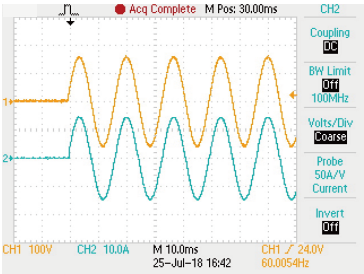


Linear CC mode, UPS Sine to Square Waveform

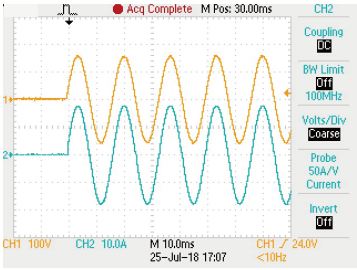
支援帶載開機：模擬待測物直接插入(Plug-in)拉載；先設定 Load ON 便可支持帶載開機，逆變器或不斷電電源開機時便直接帶著所設定負載電流開機，用來驗證 Inverter 連接電器時啟動是否穩定。



CC 10 A 帶載開機



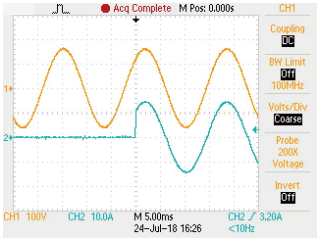
CR 10 A 帶載開機



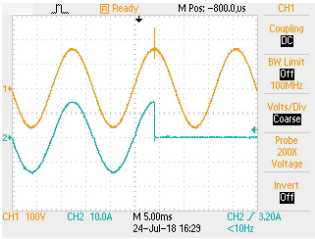
CV 10 A 帶載開機

交/直流電子負載

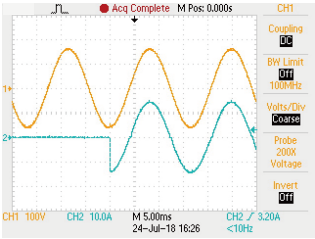
支援拉載與卸載角度控制：拉載卸載角度控制，0 to 359度全範圍都可設定，用來驗證實際電器插拔時，Inverter輸出電壓暫態反應是否穩定，Overshoot / Undershoot 是否在容許範圍內。



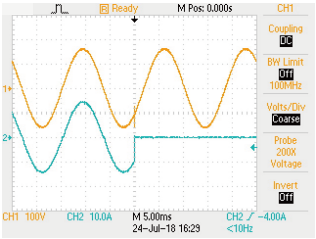
45 度抽載



90 度卸載

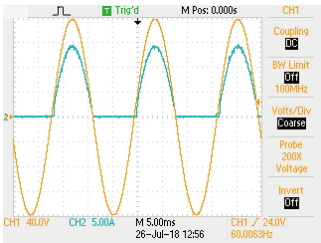


270 度抽載

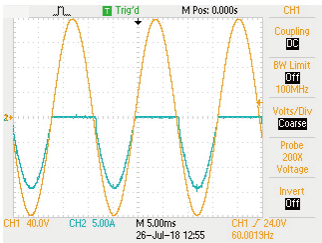


315 度卸載

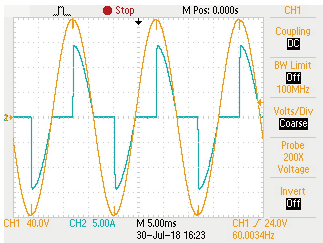
支援正半週與負半週拉載及SCR/TRIAC的電流調變波形，90度Trailing edge及Leading Edge；用來驗證實際電器只有正半周或負半周及 SCR/TRIAC負載電流時，Inverter輸出電壓是否維持穩定。



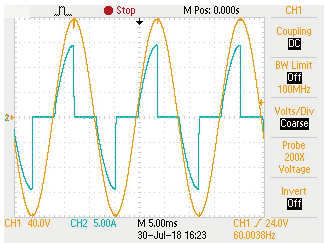
正半週抽載



負半週抽載

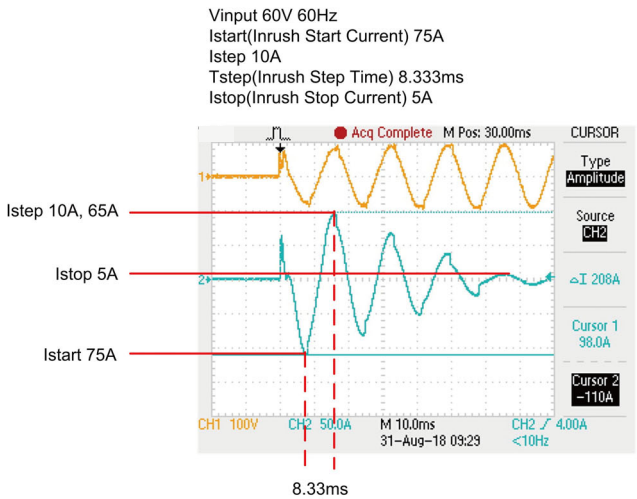


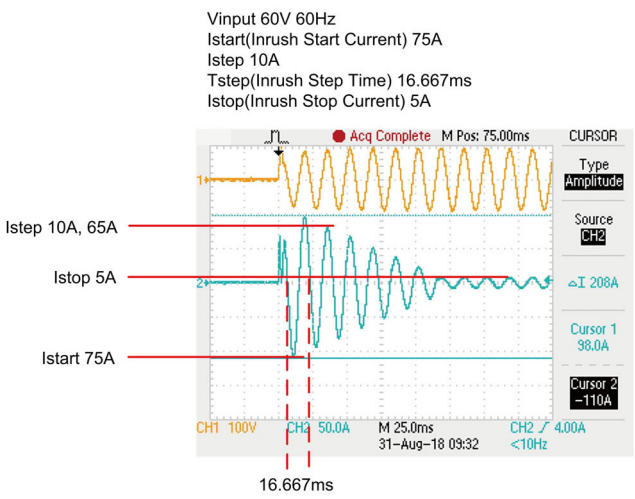
90度TRIAC/SCR電流波形Leading edge



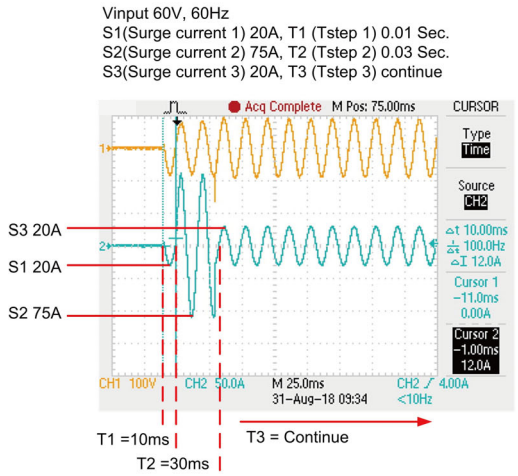
90度電流波形Trailing edge

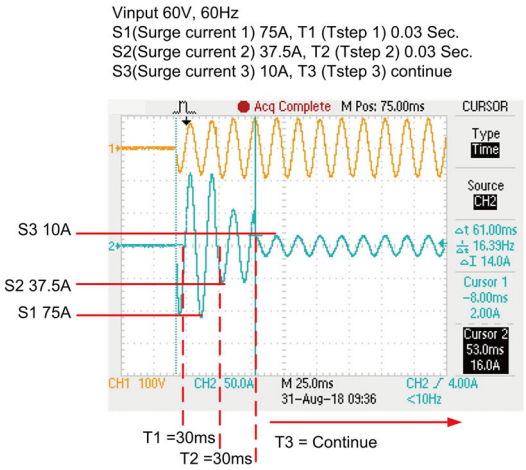
支援電源供應器於開機時之電容性負載(Inrush Current)與運行中負載突然接入(Hot Plug-in)測試用來驗證電器在開機時的瞬間啟動電流(Inrush Current)及電器突然接上(Surge Current)時，Inverter輸出電壓暫態反應是否穩定，如下圖所示。





開機時的瞬間啟動電流 (Inrush Current) 測試



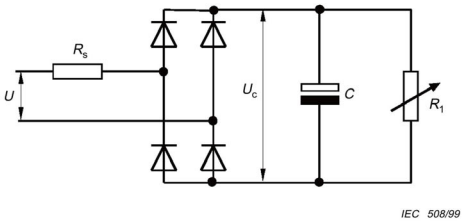


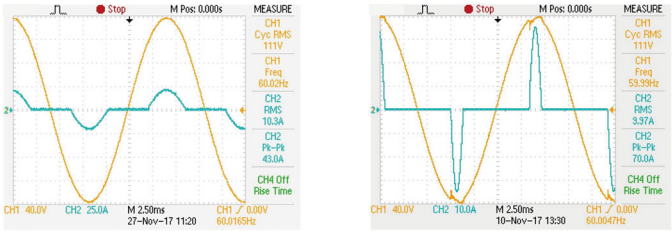
電器突然接上時的瞬間突波電流(Surge Current)測試

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

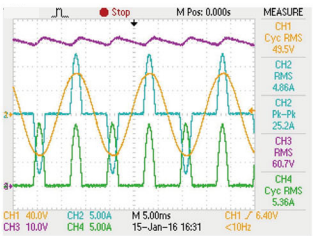
AEL-5000系列 AC/DC 電子負載的交流整流模式，完全符合 IEC 對 UPS及 PV Inverter 的測試規範要求，分別是 IEC62040-3 UPS Efficiency Measurement non-Linear and IEC61683 Resistive Plus Non-Linear。
AEL-5000系列的交流整流性負載模式，是使用CC+CR負載模式並維持電流的THD 在80 %，來模擬實際PV Inverter 所連接的電子設備。

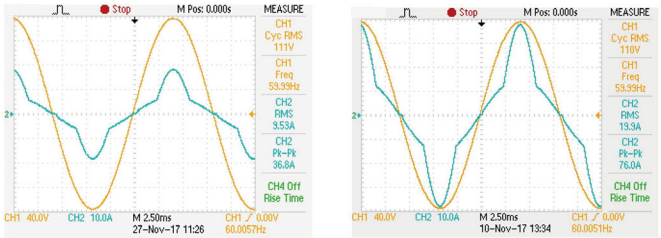
整流性負測試





UPS測試的Non-Linear CC mode





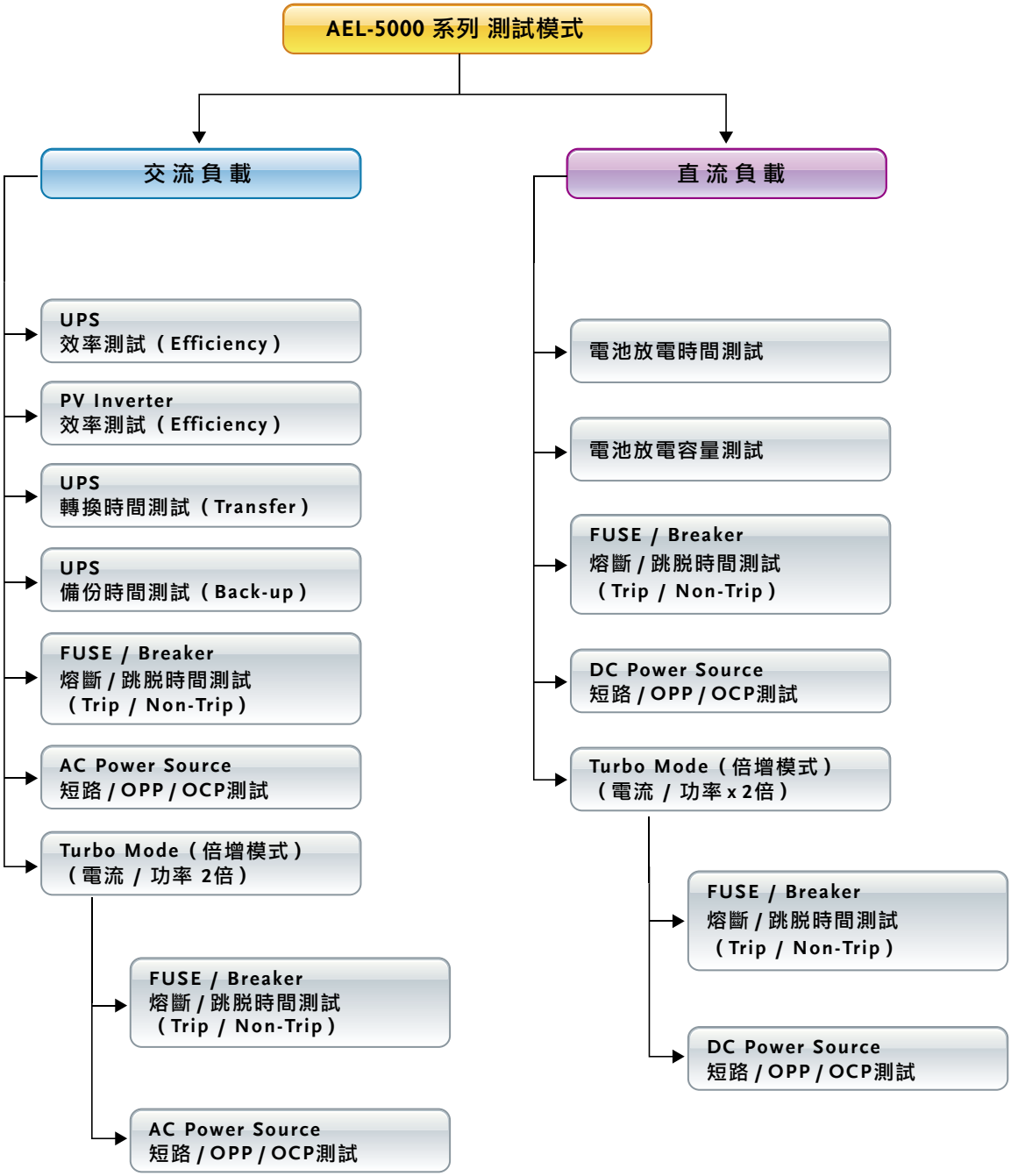
實際的V/A波形

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

交/直流電子負載

AEL-5000負載的各種測試模式

AEL-5000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。

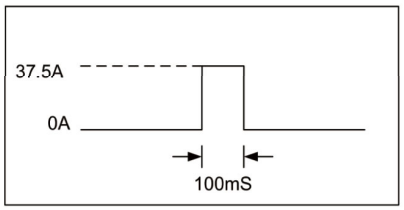
針對這樣的特性，AEL-5000系列交直流電子負載特別針對電流保護元件的測試驗證開發出Fuse Test功能，就能夠用一額定電流與功率的電子負載來測試驗證此類保護元件。當 Turbo mode(倍增模式)設置為 ON 時，在1秒的測試時間內，測試電流可以倍增到最大電流的2倍，以AEL-5000為例，最大測試電流可倍增為 75A，也就是使用AEL-5000系列的Turbo mode為ON時，於1秒測試時間內就可以達到2台AEL-5000系列的測試電流值。

Fuse

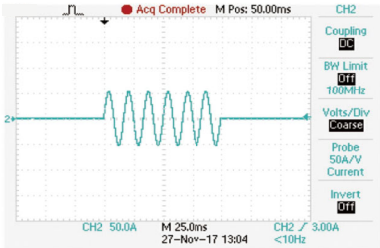
Breaker

PTC

Turbo OFF, Short 10 0ms 37.5 A 測試結果畫面

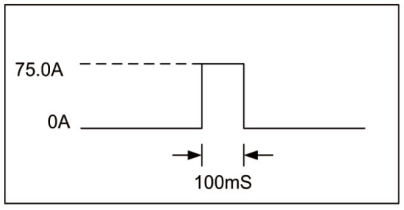


Turbo OFF, Short 100 ms 37.5 A 設定

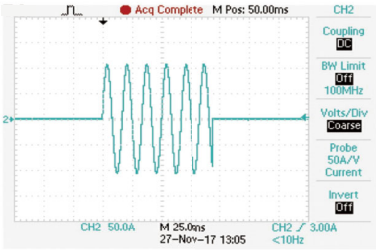


Turbo OFF, Short 100 ms 37.5 A
實際測試波形

Turbo ON, Short 100ms 75.0 A 測試結果畫面

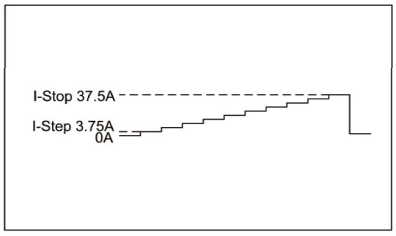


Turbo ON, Short 100 ms 75.0 A 設定

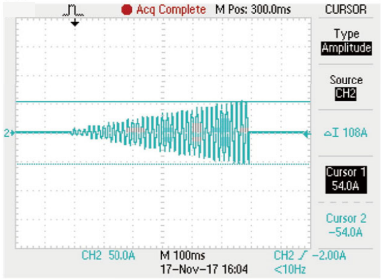


Turbo ON, Short 100 ms 75.0 A
實際測試波形

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

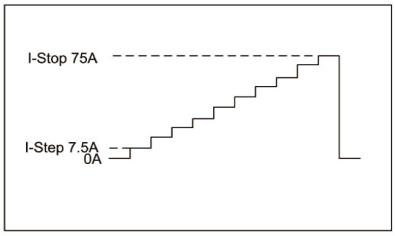


Turbo OFF, OCP Istep 3.75 A Istop 37.5 A
設定

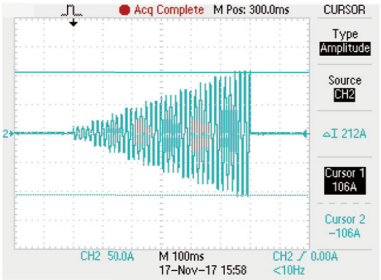


Turbo OFF, OCP Istep 3.75 A Istop 37.5 A
實際測試波形

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



Turbo ON, OCP Istep 7.5 A Istop 75.0 A
設定



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

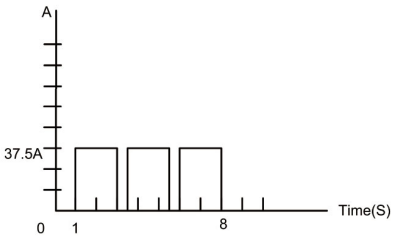
Fuse Test基本上分為Trip（熔斷）與Non-Trip（沒有熔斷）2種。

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

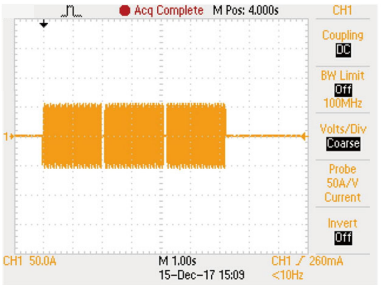
在Trip熔斷測試下，是用來測試電流過大異常發生時必須能夠提供斷路的保護能力，表示電流保護元件需熔斷的動作，因此測試電流需要大於熔斷的電流規格，當AEL-5000系列電子負載偵測到電壓低於1.0 V，LCD就顯示Repeat次數及電流保護元件的熔斷時間 XXXX.X sec.。

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AEL-5000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

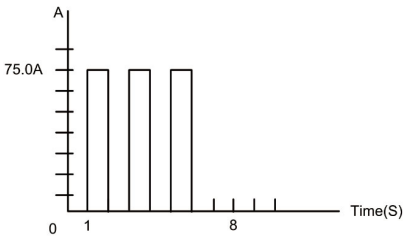


設定 : Turbo : OFF, Fuse ON,
CC pulse 37.5A, 2s，測試3次

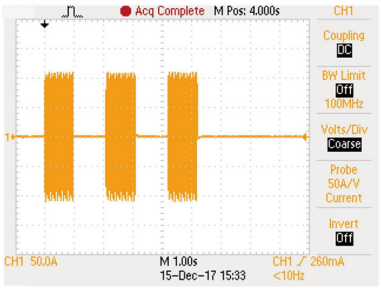


Turbo : OFF, Fuse ON,
CC pulse 37.5A, 2s，測試3次實際測試波形

Turbo : ON, Fuse mode 測試結果畫面



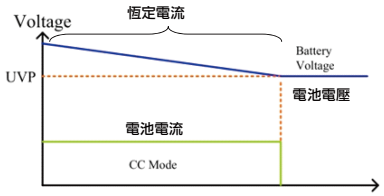
設定 : Turbo : ON, Fuse ON,
CC pulse 75.0A, 1s，測試3次



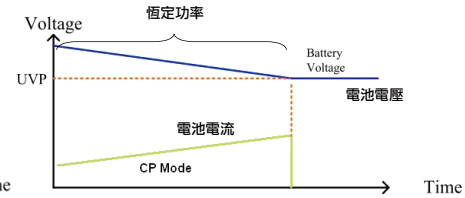
Turbo : ON, Fuse ON,
CC pulse 75A, 1s，測試3次實際測試波形

電池測試功能

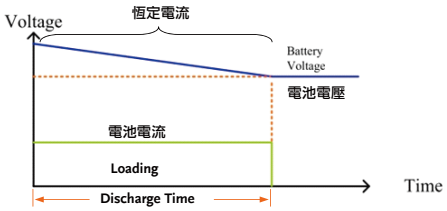
AEL-5000系列負載新增TYPE1 to TYPE3共二種電池放電測試，可以依需要選擇適當的電池測試模式，測試結果可以直接在LCD顯示器上顯示電池的AH容量、放電後的電壓值、放電的累計時間等數據。



CC + UVP 電池放電模式
Type 1



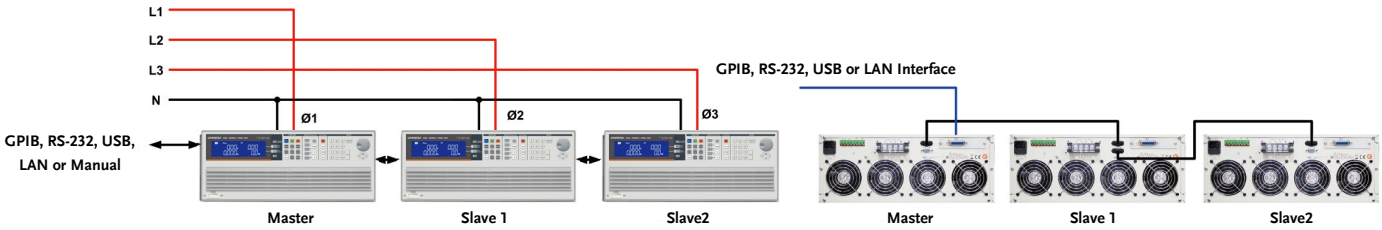
CP + UVP 電池放電模式
Type 2

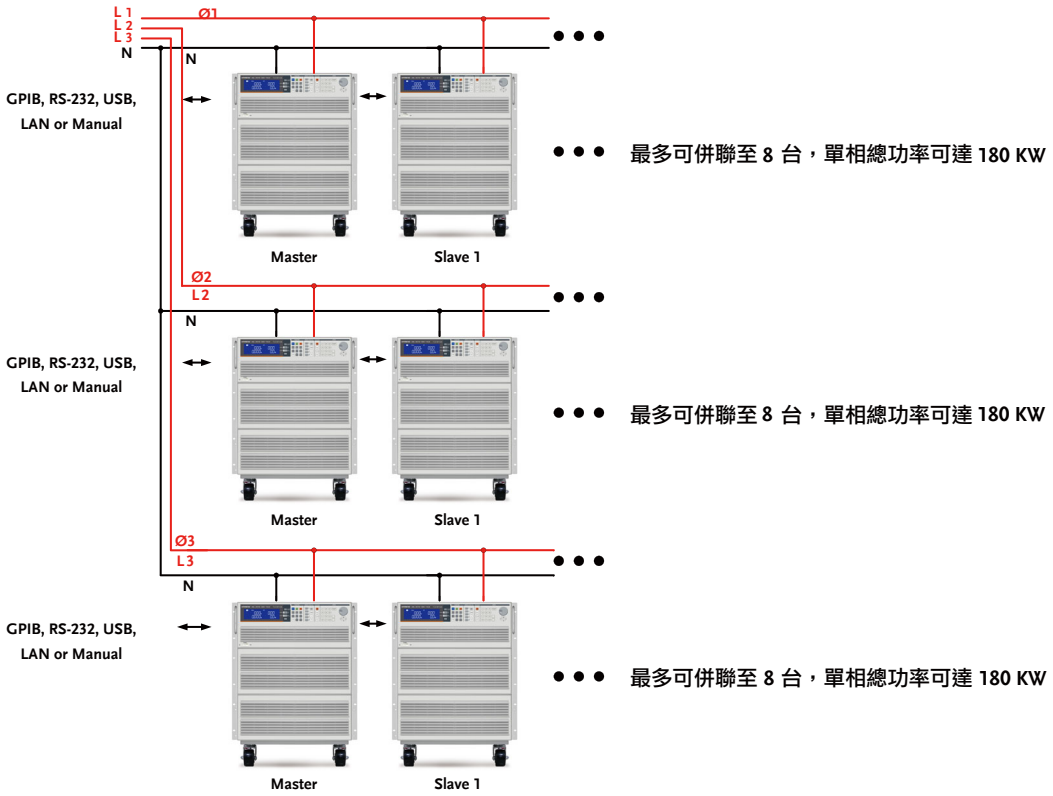


電池放電時間測試
Type 3

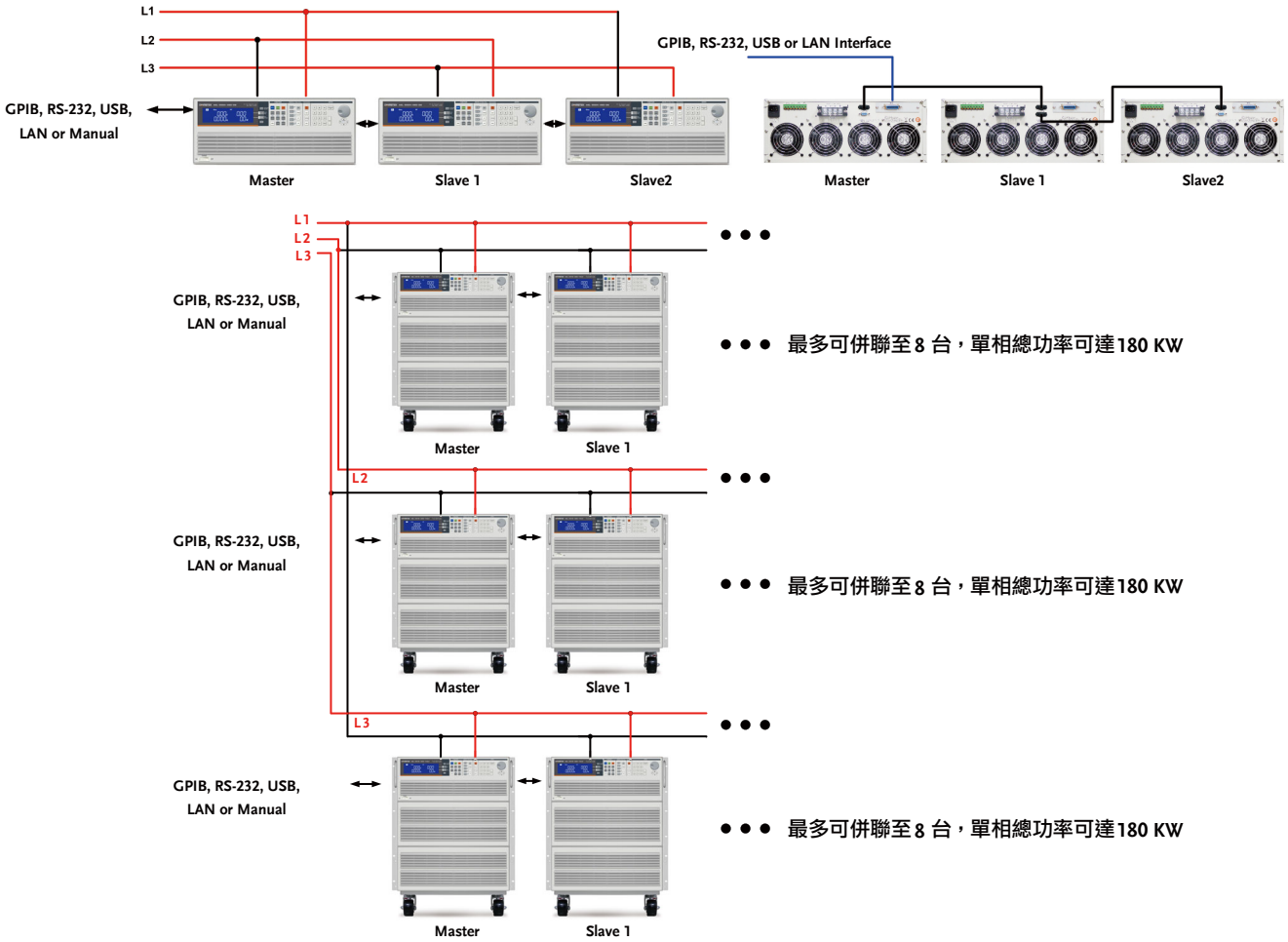
並聯及三相控制

AEL-5000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AEL-5000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。

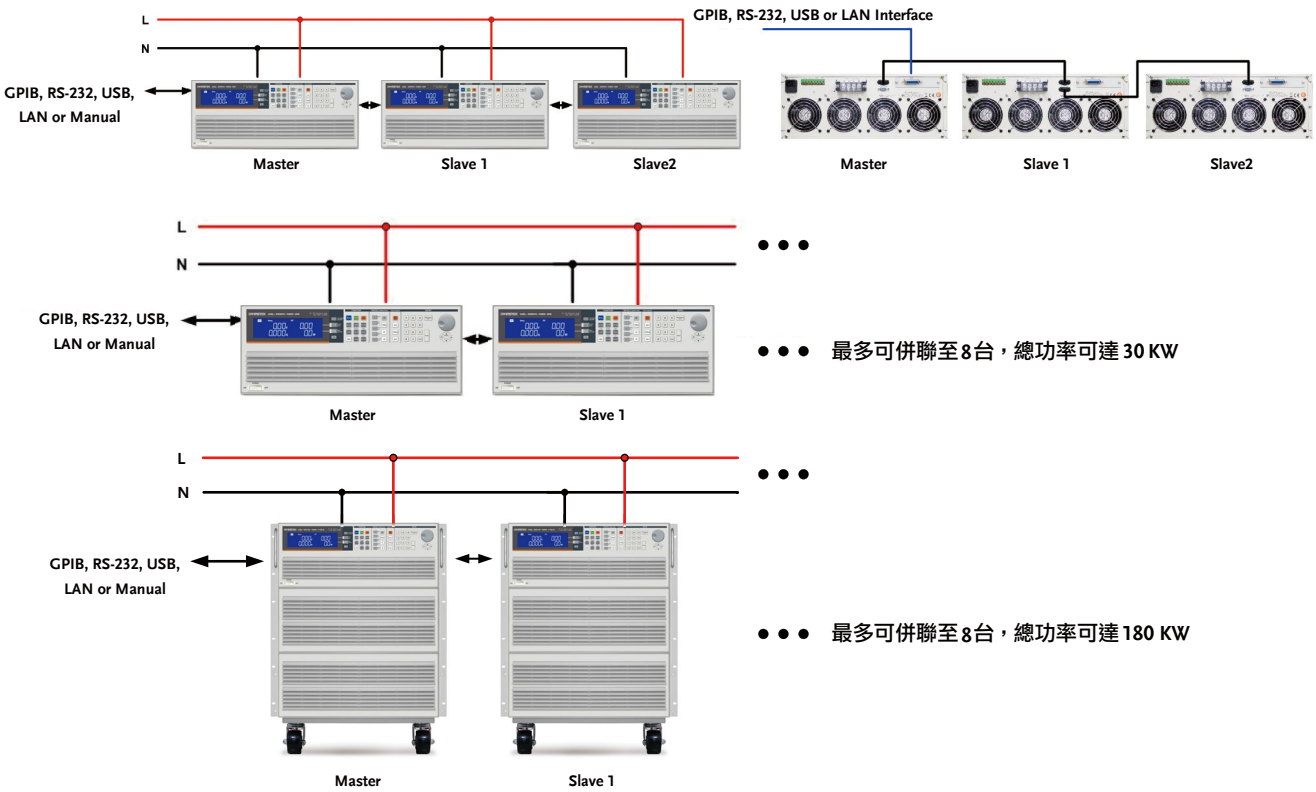




最大單相功率可達 180 kW，3 相總功率達 540 kW 之 3 相 Y 連接



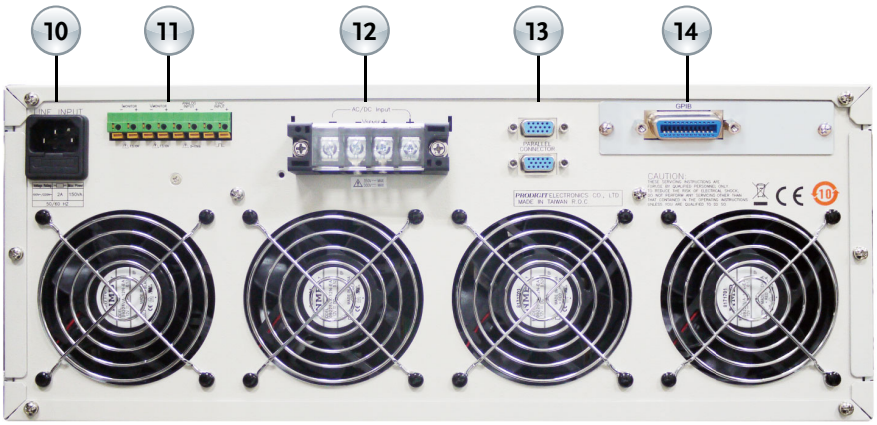
最大單相功率可達 180kW，3 相總功率達 540kW 之 3 相 △ 連接



並聯連接

面板說明

1	LCD 多功能顯示器 四個電錶可同時顯示電壓 (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 √2 / 2 / 2.5 / 3 / 3.5，+/- PF0.6 / 0.7 / 0.8 / 0.9 / 1.0， FREQ Auto / 50 Hz/ 60 Hz / 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 (UPStransfer 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 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
11	Vmonitor、Imonitor、Analog input、SYNC input 輸入端子		
12	Vload, Vsense 輸入端子	14	通訊界面 (GPIB、RS-232、USB、LAN)

規　格

		AEL-5002-350-18.75	AEL-5003-350-28	AEL-5004-350-37.5	AEL-5002-425-18.75	AEL-5003-425-28	AEL-5004-425-3 7.5
Power (W)		1875 W	2800 W	3750 W	1875 W	2800 W	3750 W
Current (Ampere)		18.75 Arms/56.25 Apeak	28 Arms / 84 Apeak	37.5 Arms / 112.5 Apeak	18.75 Arms/ 56.25 Apeak	28 Arms/ 84 Apeak	37.5 Arms / 112.5 Apeak
Voltage (Volt)		50 Vrms to 350 Vrms / 500 Vdc			50 Vrms to 425 Vrms / 600 Vdc		
FREQUENCY Range		DC,40 Hz to 440 Hz(CC,CP Mode), DC to 440 Hz(LIN,CR,CV Mode)			DC,40 Hz to 440 Hz(CC,CP Mode), DC to 440 Hz(LIN,CR,CV Mode)		
PROTECTIONS							
Over Power Protection		1968.75 Wrms or Programmable	2940 Wrms or Programmable	3937.5 Wrms or Programmable	1968.75 Wrms or Programmable	2940 Wrms or Programmable	3937.5 Wrms or Programmable
Over Current Protection		19.687 Arms or Programmable	29.40 Arms or Programmable	39.375 Arms or Programmable	19.687 Arms or Programmable	29.40 Arms or Programmable	39.375 Arms or Programmable
Over Vlotage Protection		367.5 Vrms / 525 Vdc			446.25 Vrms/630 Vdc		
Over Temp. Protection		Yes			Yes		
OPERATION MODE							
Constant Current Mode for Sine-Wave							
Range		0 A to 18.75 A	0 A to 28 A	0 A to 37.5 A	0 A to 18.75 A	0 A to 28 A	0 A to 37.5 A
Resolution		0.3125 mA / 16 bits	0.5 mA / 16 bits	0.625 mA / 16 bits	0.3125 mA / 16 bits	0.5 mA / 16 bits	0.625 mA / 16 bits
Accuracy		±(0.1 % of setting + 0.2 % of range) @ 50/60 Hz, ±0.5 % of (setting + range) @ DC and 400 Hz			±(0.1 % of setting + 0.2 % of range) @ 50/60 Hz, ±0.5 % of (setting + range) @ DC and 400 Hz		
Linear ConstantCurrent Mode for Sine-Wave, Square-Wave or Quasi-Square Wave, PWM Wave							
Range		0 A to 18.75 A	0 A to 28 A	0 A to 37.5 A	0 A to 18.75 A	0 A to 28 A	0 A to 37.5 A
Resolution		0.3125 mA/ 16 bits	0.5 mA / 16 bits	0.625 mA/ 16 bits	0.3125 mA / 16 bits	0.5 mA / 16 bits	0.625 mA / 16 bits
Accuracy		±(0.1 % of setting + 0.2 % of range) @ 50/60 Hz, ±0.5 % of (setting + range) @ DC and 400 Hz			±(0.1 % of setting + 0.2 % of range) @ 50/60 Hz, ±0.5 % of (setting + range) @ DC and 400 Hz		
Constant Resistance Mode							
Range		3.2 ohm to 64 kohm	2.0 ohm to 40 kohm	1.6 ohm to 32 kohm	3.2 ohm to 64 kohm	2.0 ohm to 40 kohm	1.6 ohm to 32 kohm
Resolution *1		0.0052083 mS / 16 bits	0.0083333 mS / 16 bits	0.010416 mS / 16 bits	0.0052083 mS / 16 bits	0.0083333 mS / 16 bits	0.010416 mS / 16 bits
Accuracy		±0.2 % of (setting+ range) @ 50/60 Hz, ±(0.5 % of setting + 2 % of range) @ DC and 400 Hz			±0.2 % of (setting + range) @ 50/60 Hz, ±(0.5 % of setting + 2 % of range) @ DC and 400 Hz		
Constant Voltage Mode							
Range		50 Vrms to 350 Vrms / 500 Vdc			50 Vrms to 425 Vrms / 600 Vdc		
Resolution		0.01 V			0.1 V		
Accuracy		±(0.1 % of setting + 0.1 % of range)			±(0.1 % of setting + 0.1 % of range)		
Constant Power Mode							
Range		1875 W	2800 W	3750 W	1875 W	2800 W	3750 W
Resolution		0.1 W	0.1 W	0.1 W	0.1 W	0.1 W	0.1 W
Accuracy*4		±0.5 % of (setting+ range) @ 50/60 Hz, ±2 % of (setting+ range)			±0.5 % of (setting+ range) @ 50/60 Hz, ±2 % of (setting+ range)		
CREST FACTOR (CC & CP MODE ONLY)							
Range		√2 to 5			√2 to 5		
Resolution		0.1			0.1		
Accuracy		(0.5 % / Irms) + 1 % FS			(0.5 % / Irms) + 1 % FS		
POWER FACTOR (CC&CP MODE ONLY)							
Range		0 to 1 Lag or Lead			0 to 1 Lag or Lead		
Resolution		0.01			0.01		
Accuracy		1 % FS			1 % FS		
TEST MODE							
UPS Efficient Measurement		Non-Linear Mode			Non-Linear Mode		
Operating Frequency		Auto, 40 Hz to 440 Hz			Auto, 40 Hz to 440 Hz		
Current Range		0 A to 18.75 A	0 A to 28 A	0 A to 37.5 A	0 A to 18.75 A	0 A to 28 A	0 A to 37.5 A
PF Range		0 to 1			0 to 1		
Measuring Efficiency for PV Systems, Power Conditioners for THD 80 %		Resistive + Non-Linear Mode			Resistive + Non-Linear Mode		
Operating Frequency		Auto, 40 Hz to 440 Hz			Auto, 40 Hz to 440 Hz		
Current Range		0 A to 18.75 A	0 A to 28 A	0 A to 37.5 A	0 A to 18.75 A	0 A to 28 A	0 A to 37.5 A
Resistive Range		3.2 ohm to 64 kohm	2.0 ohm to 40 kohm	1.6 ohm to 32 kohm	3.2 ohm to 64 kohm	2.0 ohm to 40 kohm	1.6 ohm to 32 kohm
UPS Back-Up Function (CC,LIN,CR,CP)							
UVP (VTH)		0 V to 500 V			0 V to 600 V		
UPS Back-Up Time		1 Sec to 99999 Sec (>27 H)			1 Sec to 99999 Sec (>27 H)		
Battery Discharge Function (CC,LIN,CR,CP)							
UVP (VTH)		50 Vrms to 350 Vrms / 500 Vdc			50 V rms to 425 Vrms / 600 Vdc		
Battery Discharge Time		1 Sec to 99999 Sec (>27 H)			1 Sec to 99999 Sec (>27 H)		
UPS Transfer Time							
Current Range		0 A to 18.75 A	0 A to 28 A	0 A to 37.5 A	0 A to 18.75 A	0 A to 28 A	0 A to 37.5 A
UVP (VTH)		2.5 V			2.5 V		
Time Range		0.15 mS to 999.99 mS			0.15 mS to 999.99 mS		
Fuse Test Mode							
Max. Current	Turbo OFF (CC1 to 3)	18.75 Arms	28.0 Arms	37.5 Arms	18.75 Arms	28.0 Arms	37.5 Arms
	Turbo ON (CC3)						
	Turbo OFF (CC1 to 2)	37.5 Arms (x2) *3	56.0 Arms (x2) *3	75.0 Arms (x2) *3	37.5 Arms (x2) *3	56.0 Arms (x2) *3	75.0 Arms (x2) *3
Trip & Non-Trip Time	Turbo OFF (Time1 to 3)	0.01 Sec to 333.33 Sec			0.01 Sec to 333.33 Sec		
	Turbo ON (Time1 to 2)	0.01 Sec to 0.50 Sec			0.01 Sec to 0.50 Sec		
	Turbo ON (Time3)	0.01 Sec to 600.00 Sec			0.01 Sec to 600.00 Sec		
OFF Time		0.1 Sec to 999.9 Sec			0.1 Sec to 999.9 Sec		
Meas. Accuracy		±0.003 Sec			±0.003 Sec		
Repeat Cycle		0 to 99999			0 to 99999		
Short/OPP/OCP Test Function							
ShortTime	Turbo OFF	0.1 Sec to 10 Sec or Cont.			0.1 Sec to 10 Sec or Cont.		
	Turbo ON	0.1 Sec to 1 Sec			0.1 Sec to 1 Sec		
OPP/OCP Step Time	Turbo OFF	100 ms			100 ms		
	Turbo ON	100 ms, up to 10 Steps			100 ms, up to 10 Steps		
OCP Istop	Turbo OFF	18.75 Arms	28.0 Arms	37.5 Arms	18.75 Arms	28.0 Arms	37.5 Arms
	Turbo ON	37.5 Arms	56.0 Arms	75.0 Arms	37.5 Arms	56.0 Arms	75.0 Arms
OPP Pstop	Turbo OFF	1875 W	2800 W	3750 W	1875 W	2800 W	3750 W
	Turbo ON	3750 W	5600 W	7500 W	3750 W	5600 W	7500 W

規　格

	AEL-5002-350-18.75	AEL-5003-350-28	AEL-5004-350-37.5	AEL-5002-425-18.75	AEL-5003-425-28	AEL-5004-425-3 7.5
Programmable Inrush Current Simulation: Istart- Istop/ Tsep						
Istart, Inrush Start Current	0 A to 37.5 A	0 A to 56 A	0 A to 75 A	0 A to 37.5 A	0 A to 56 A	0 A to 75A
Inrush Step Time	0.1 ms to 100 ms			0.1 ms to 100 ms		
Istop, Inrush Stop Current	0 A to 18.75 A	0 A to 28 A	0 A to 37.5 A	0 A to 18.75 A	0 A to 28 A	0 A to 37.5 A
Programmable Surge current simulation: S1/T1 - S2/T2 - S3/T3						
S1 and S2 Current	0 A to 37.5 A	0 A to 56 A	0 A to 75 A	0 A to 37.5 A	0 A to 56 A	0 A to 75 A
T1 and T2 Time	0.01 Sec to 0.5 Sec			0.01 Sec to 0.5 Sec		
S3 Current	0 A to 18.75 A	0 A to 28 A	0 A to 37.5 A	0 A to 18.75 A	0 A to 28 A	0 A to 37.5 A
T3 Time	0.01 Sec to 9.99 Sec or Cont.			0.01 Sec to 9.99 Sec or Cont.		
MEASUREMENTS						
VOLTAGE READBACK V METER						
Range	500 V			600 V		
Resolution	0.01 V			0.01 V		
Accuracy	±0.05 % of (reading + range)			±0.05 % of(reading + range)		
Parameter	Vrms,V Max/Min,± Vpk			Vrms,V Max/Min,± Vpk		
CURRENT READBACK A METER						
Range	9.375 Arms/18.75 Arms	14 Arms/28 Arms	18.75 Arms/37.5 Arms	9.375 Arms/ 18.75 Arms	14 Arms/28 Arms	18.75 Arms/37.5 Arms
Resolution	0.2 mA/0.4 mA	0.3 mA/0.6 mA	0.4 mA/0.8 mA	0.2 mA/0.4 mA	0.3 mA/0.6 mA	0.4 mA/0.8 mA
Accuracy	±0.05 % of (reading + range) @ 50/60 Hz			±0.05 % of (reading + range) @ 50/60 Hz		
Parameter	Irms, I Max/Min, ± Ipk			Irms, I Max/Min, ± Ipk		
WATT READBACK W METER						
Range	1875 W	2800 W	3750 W	1875 W	2800 W	3750 W
Resolution	0.03125 W	0.05 W	0.0625 W	0.03125 W	0.05 W	0.0625 W
Accuracy *4	±0.5 % of (reading+ range) @ 50/60 Hz, ±2 % of (reading+ range)			±5 % of (reading+ range) @ 50/60 Hz, ±2 % of (reading+ range)		
VA METER	VrmsxArms Correspond To Vrms and Arms			VrmsxArms Correspond To Vrms and Arms		
POWER FACTOR METER						
Range	± 0.000 to 1.000			± 0. 000 to 1.000		
Accuracy	±(0.002±(0.001/PF) x F)			±(0.002±(0.001/PF) x F)		
Frequency M ETER (Hz)						
Range	DC,40 Hz to 440 Hz			DC,40 Hz to 440 Hz		
Accuracy	0.1 %			0.1 %		
Other Parameter METER						
VA, VAR, CF_I,Ipeak, Imax, Imin Vmax, Vmin, IHD, VHD, ITHD, VTHD						
OTHERS						
Startup Loading	Yes, Power on loading during Inverter / UPS startup			Yes, Power on loading during Inverter/ UPS start up		
Load ON / OFF Angle	0 to 359 degree can be programmed for the angle of load ON and load OFF loading			0 to 359 degree can be programmed for the angle of load ON and load OFF loading		
Half Cycle and SCR/TRIAC Loading	Positive or Negative half cycle, 90° Trailing edge or Leading edge current waveform can be programmed			Positive 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 units			Yes, 1 master and upto 7 slave units		
External Programming Input (Option)	FS /10 Vdc, Resulotion 0.1 V			FS / 10 Vdc, Resulotion 0.1 V		
External SYNC Input	TTL			TTL		
Vmonitor (Isolated)	±500 V / ± 10V			±600 V /± 10 V		
Imonitor (Isolated)	±56.25 Apk / ±10 Vpk	±84 Apk / ±10 Vpk	±112.5 Apk / ±10 Vpk	±56.25 Apk / ±10 Vpk	±84 Apk / ±10 Vpk	±112.5 Apk /± 10 Vpk
Interface (Option)	GPIB, RS-232, LAN, USB			GPIB, RS-232, LAN, USB		
MAX. Power Consumption	150 VA			150 VA		
Operation Temperature *2	0 °C to 40 °C			0 °C to 40 °C		
Current of Input Impedance (mA) @ 50/60 Hz, @ 400 Hz	~V x 0.3, ~V x 2.2	~V x 0.45, ~V x 3.3	~V x 0.6, ~V x 4.4	~V x 0.3, ~V x 2.2	~V x 0.45,~V x 3.3	~V x 0.6,~V x 4.4
Dimension (H x W x D)	177 mm x 440 mm x 558 mm			177 mm x 440 mm x 558 mm		
Weight	21.5 kg	27.5 kg	33.5 kg	21.5 kg	27.5 kg	33.5 kg

*1 ms (millisiemens) is the unit of conductance(G), one siemens equal to 1/Ω
*2 Operating temperature range is 0 °C to 40 °C, all specification apply for 25 °C±5 °C, Except as noted
*3 Turbo mode for up to 2X Current rating & Power rating support Fuse, Short/OCP/OPP test function
*4 The specification apply for current less than 20 Arms
* All specifications apply for 50/60 Hz.
* All specifications subject to change
Input AC Power : 100 Vac to 230 Vac ± 10 %, 50/60 Hz
Cooling : Advanced Fan Cooled

規　格

		AEL-5006-350-56	AEL-5008-350-75	AEL-5012-350-112.5	AEL-5015-350-112.5	AEL-5019-350-112.5	AEL-5023-350-112.5
Power (W)		5600 W	7500 W	11250 W	15000 W	18750 W	22500 W
Current (Ampere)		56 Arms/ 168 Apeak	75 Arms / 225 Apeak	112.5 Arms/ 337.5 Apeak	112.5 Arms/ 337.5 Apeak	112.5 Arms/ 337.5 Apeak	112.5 Arms/ 337.5 Apeak
Voltage (Volt)		50 Vrms to 350 Vrms / 500 Vdc					
FREQUENCY Range		DC,40 Hz to 440 Hz(CC,CP Mode), DC to 440 Hz(LIN,CR,CV Mode)					
PROTECTIONS							
Over Power Protection		5880 Wrms or Programmable	7875 Wrms or Programmable	11812.5 Wrms or Programmable	15750 Wrms or Programmable	19687.5 Wrms or Programmable	23625 Wrms or Programmable
Over CurrentProtection		58.8 Arms, 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/525 Vdc					
Over Temp. Protection		Yes					
OPERATION MODE							
Constant Current Mode for Sine-Wave							
Range		0 A to 56 A	0 A to 75 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A
Resolution		1 mA / 16 bits	1.25 mA / 16 bits	1.875 mA / 16 bits	1.875 mA / 16 bits	1.875 mA / 16 bits	1.875 mA / 16 bits
Accuracy		±(0.1 % of setting + 0.2 % of range) @ 50/60 Hz, ±0.5 % of (setting + range) @ DC and 400 Hz					
Linear ConstantCurrent Mode for Sine-Wave, Square-Wave or Quasi-Square Wave, PWM Wave							
Range		0 A to 56 A	0 A to 75 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A
Resolution		1 mA / 16 bits	1.25 mA / 16 bits	1.875 mA / 16 bits	1.875 mA / 16 bits	1.875 mA / 16 bits	1.875 mA / 16 bits
Accuracy		±(0.1 % of setting + 0.2 % of range) @ 50/60 Hz ±0.5 % of (setting + range) @ DC and 400 Hz					
Constant Resistance Mode							
Range		1 ohm to 20 kohm	0.8 ohm to 16 kohm	0.533 ohm to 10.666 kohm	0.533 ohm to 10.666 kohm	0.533 ohm to 10.666 kohm	0.533 ohm to 10.666 kohm
Resolution *1		0.016666 mS / 16 bits	0.020832 mS / 16 bits	0.031248 mS / 16 bits	0.031248 mS / 16 bits	0.031248 mS / 16 bits	0.031248 mS / 16 bits
Accuracy		±0.2 % of (setting+ range) @ 50/60 Hz, ±(0.5 % of setting + 2 % of range) @ DC and 400 Hz					
Constant Voltage Mode							
Range		50 Vrms to 350 Vrms / 500 Vdc					
Resolution		0.1 V					
Accuracy		±0.2 % of (setting + range) @ 50/60 Hz					
Constant Power Mode							
Range		5600 W	7500 W	11250 W	15000 W	18750 W	22500 W
Resolution		0.1 W	0.1 W	1 W	1 W	1 W	1 W
Accuracy *4		±0.5 % of (setting+ range) @ 50/60 Hz, ±2 % of (setting+ range)					
CREST FACTOR (CC & CP MODE ONLY)							
Range		√2 to 5					
Resolution		0.1					
Accuracy		(0.5 % / Irms)+ 1 % FS					
POWER FACTOR (CC&CP MODE ONLY)							
Range		0 to 1 Lag or Lead					
Resolution		0.01					
Accuracy		1 % F S					
TEST MODE							
UPS Efficient Measurement		Non-Linear Mode					
Operating Frequency		Auto, 40 Hz to 440 Hz					
CurrentRange		0 A to 56 A	0 A to 75 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A
PF Range		0 to 1					
Measuring Efficiency for PV Systems, Power Conditioners for THD 80 %		Resistive + Non-Linear Mode					
Operating Frequency		Auto, 40 Hz to 440 Hz					
Current Range		0 A to 56 A	0 A to 75 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A
Resistive Range		1 ohm to 20 kohm	0.8 ohm to 16 kohm	0.533 ohm to 10.666 kohm	0.533 ohm to 10.666 kohm	0.533 ohm to 10.666 kohm	0.533 ohm to 10.666 kohm
UPS Back-Up Function (CC,LIN,CR,CP)							
UVP (VTH)		50 Vrms to 350 Vrms / 500 Vdc					
UPS Back-Up Time		1 Sec to 99999 Sec (>27 H)					
Battery Discharge Function (CC,LIN,CR,CP)							
UVP (VTH)		50 Vrms to 350 Vrms / 500 Vdc					
Battery Discharge Time		1 Sec to 99999 Sec (>27 H)					
UPS Transfer Time							
Current Range		0 A to 56 A	0 A to 75 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A
UVP (VTH)		2.5 V					
Time Range		0.15 ms to 999.99 ms					
Fuse Test Mode							
Max. Current	Turbo OFF (CC1 to 3)	56 Arms	75 Arms	112.5 Arms	112.5 Arms	112.5 Arms	112.5 Arms
	Turbo ON (CC3)						
	Turbo ON (CC1 to 2)	112 Arms (x2) *3	150 Arms (x2) *3	225 Arms (x2) *3	225 Arms (x2) *3	225 Arms (x2) *3	225 Arms (x2) *3
Trip & Non-Trip Time	Turbo OFF (Time1 to 3)	0.01 Sec to 333.33 Sec					
	Turbo ON (Time1 to 2)	0.01 Sec to 0.50 Sec					
	Turbo ON (Time3)	0.01 Sec to 600.00 Sec					
OFF Time		0.1 Sec to 999.9 Sec					
Meas. Accuracy		±0.003 Sec					
RepeatCycle		0 to 99999					
Short/OPP/OCP Test Function							
ShortTime	Turbo OFF	0.1 Sec to 10 Sec or Cont.					
	Turbo ON	0.1 Sec to 1 Sec					
OPP/OCP Step	Turbo OFF	100 ms					
	Turbo ON	100 ms, up to 10 Steps					
OCP Istop	Turbo OFF	56 Arms	75 Arms	112.5 Arms	112.5 Arms	112.5 Arms	112.5 Arms
	Turbo ON	112 Arms	150 Arms	225 Arms	225 Arms	225 Arms	225 Arms
OPP Pstop	Turbo OFF	5600 W	7500 W	11250 W	15000 W	18750 W	22500 W
	Turbo ON	11200 W	15000 W	22500 W	30000 W	37500 W	45000 W

規　格

	AEL-5006-350-56	AEL-5008-350-75	AEL-5012-350-112.5	AEL-5015-350-112.5	AEL-5019-350-112.5	AEL-5023-350-112.5
Programmable Inrush Current Simulation: Istart- Istop/ Tsep						
Istart,Inrush Start Current	0 A to 112 A	0 A to 150 A	0 A to 225 A	0 A to 225 A	0 A to 225 A	0 A to 225 A
Inrush Step Time	0.1 ms to 100 ms					
Istop,Inrush Stop Current	0 A to 56 A	0 A to 75 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A
Programmable Surge Current Simulation S1/T1 - S2/T2 - S3/T3						
S1 and S2 Current	0 A to 112 A	0 A to 150 A	0 A to 225 A	0 A to 225 A	0 A to 225 A	0 A to 225 A
T1 and T2 Time	0.01 Sec to 0.5 Sec					
S3 Current	0 A to 56 A	0 A to 75 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A
T3 Time	0.01 Sec to 9.99 Sec or Cont.					
MEASUREMENTS						
VOLTAGE READBACK V METER						
Range	500 V					
Resolution	0.01 V					
Accuracy	±0.05 % of (reading + range)					
Parameter	Vrms,V Max/Min, ±Vpk					
CURRENT READBACK A METER						
Range	28 Arms/56 Arms	37.5 Arms/75 Arms	56.25 Arms/112.5 Arms	56.25 Arms/112.5 Arms	56.25 Arms/112.5 Arms	56.25 Arms/112.5 Arms
Resolution	0.6 mA/1.2 mA	0.8 mA/1.6 mA	1.2 mA/2.4 mA	1.2 mA/2.4 mA	1.2 mA/2.4 mA	1.2 mA/2.4 mA
Accuracy	±0.1 % of (reading + range) @ 50/60 Hz					
Parameter	Irms,I Max/Min,± Ipk					
WATT READBACK W METER						
Range	5600 W	7500 W	11250 W	15000 W	18750 W	22500 W
Resolution	0.1 W	0.125 W	0.1875 W	0.25 W	0.3125 W	0.375 W
Accuracy *4	± 0.5 % of (reading+ range) @ 50/60 Hz ± 2 % of (reading+ range)					
VA METER	VrmsxArms Correspond To Vrms and Arms					
POWER FACTOR METER						
Range	± 0.000 to 1.000					
Accuracy	±(0.002±(0.001/PF) x F)					
Frequency M ETER (Hz)						
Range	DC, 40 Hz to 440 Hz					
Accuracy	0.1 %					
Other Parameter METER						
VA, VAR, CF I, Ipeak, Imax, Imin Vmax, Vmin, IHD, VHD, ITHD, VTHD						
OTHERS						
Startup Loading	Yes, Power on loading during Inverter/ UPS startup					
Load ON / OFF Angle	0 to 359 degree can be programmed for the angle of load ON and load OFF loading					
Half Cycle and SCR/TRIAC Loading	Positive or Negative half cycle, 90° Trailing edge or Leading edge current waveform can be programmed					
Master/Slave (3 Phase or Parallel	Yes,1 master and upto 7 slave unit					
External Programming Input (Option)	FS / 10 Vdc, Resulotion 0.1 V					
External SYNC Input	TTL					
Vmonitor (Isolated)	± 500 V /± 10 V					
Imonitor (Isolated)	± 168 Apk / ± 10 Vpk	± 225 Apk / ± 10 Vpk	± 337.5 Apk / ± 10 Vpk	± 337.5 Apk / ± 10 Vpk	± 337.5 Apk / ± 10 Vpk	± 337.5 Apk / ± 10 Vpk
Interface (Option)	GPIB, RS-232, LAN, USB					
MAX. Power Consumption	270 VA	270 VA	390 VA	510 VA	630 VA	750 VA
Operation Temperature *2	0 °C to 40 °C					
Current of Input Impedance (mA) @ 50/60 Hz, @ 400 Hz	~V x 0.9, ~V x 6.6	~V x 1.2, ~V x 8.8	~V x 1.8, ~V x 13.2	~V x 2.4, ~V x 17.6	~V x 3.0, ~V x 22	~V x 3.6, ~V x 26.4
Dimension (H x W x D)	458 mm x 480 mm x 590 mm	458 mm x 480 mm x 590 mm	636 mm x 480 mm x 590 mm	814 mm x 480 mm x 590 mm	1283 mm x 600 mm x 600 mm	1283 mm x 600 mm x 600 mm
Weight	58 kg	70 kg	105 kg	740 kg	260 kg	295 kg

*1 ms (millisiemens) is the unit of conductance(G), one siemens equal to 1/Ω
*2 Operating temperature range is 0 °C to 40 °C, all specification apply for 25 °C±5 °C, Except as noted
*3 Turbo mode for up to 2X Current rating & Power rating support Fuse, Short/OCP/OPP test function
*4 The specification apply for current less than 20 Arms
* All specifications apply for 50/60 Hz.
* All specifications subject to change
Input AC Power : 100 Vac to 230 Vac ± 10 %, 50/60 Hz
Cooling : Advanced Fan Cooled

規　格

		AEL-5006-425-56	AEL-5008-42.5-7.5	AEL-5012-425-112.5	AEL-5015-425-112.5	AEL-5019-425-112.5	AEL-5023-425-112.5
Power (W)		5600 W	7500 W	11250 W	15000 W	18750 W	22500 W
Current (Ampere)		56 Arms/ 168 Apeak	75 Arms / 225 Apeak	112.5 Arms/ 337.5 Apeak	112.5 Arms/ 337.5 Apeak	112.5 Arms/ 337.5 Apeak	112.5 Arms/ 337.5 Apeak
Voltage (Volt)		50 Vrms to 425 Vrms / 600 Vdc					
FREQUENCY Range		DC,40 Hz to 440 Hz(CC,CP Mode), DC to 440 Hz(LIN,CR,CV Mode)					
PROTECTIONS							
Over Power Protection		5880 Wrms or Programmable	7875 Wrms or Programmable	11812.5 Wrms or Programmable	15750 Wrms or Programmable	19687.5 Wrms or Programmable	23625 Wrms or Programmable
Over Current Protection		58.8 Arms, 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		446.25 Vrms/630 Vdc					
Over Temp.Protection		Yes					
OPERATION MODE							
Constant Current Mode for Sine-Wave							
Range		0 A to 56 A	0 A to 75 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A
Resolution		1 mA/ 16 bits	1.25 mA/ 16 bits	1.875 mA / 16 bits	1.875 mA / 16 bits	1.875 mA / 16 bits	1.875 mA / 16 bits
Accuracy		±(0.1 % of setting + 0.2 % of range) @ 50/60 Hz,±0.5 % of (setting + range) @ DC and 400 Hz					
Linear ConstantCurrent Mode for Sine-Wave, Square-Wave or Quasi-Square Wave, PWM Wave							
Range		0 A to 56 A	0 A to 75 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A
Resolution		1 mA/ 16 bits	1.25 mA/ 16 bits	1.875 mA / 16 bits	1.875 mA / 16 bits	1.875 mA / 16 bits	1.875 mA / 16 bits
Accuracy		±(0.1 % of setting + 0.2 % of range) @ 50/60 Hz ±0.5 % of (setting + range) @ DC and 400 Hz					
Constant Resistance Mode							
Range		1 ohm to 20 kohm	0.8 ohm to 16 kohm	0.533 ohm to 10.666 kohm	0.533 ohm to 10.666 kohm	0.533 ohm to 10.666 kohm	0.533 ohm to 10.666 kohm
Resolution*1		0.016666 mS / 16 bits	0.020832 mS / 16 bits	0.031248 mS / 16 bits	0.031248 mS / 16 bits	0.031248 mS / 16 bits	0.031248 mS / 16 bits
Accuracy		±0.2 % of (setting+ range) @ 50/60 Hz,±(0.5 % of setting + 2 % of range) @ DC and 400 Hz					
Constant Voltage Mode							
Range		50 Vrms to 425 Vrms / 600 Vdc					
Resolution		0.1 V					
Accuracy		±0.2 % of (setting + range) @ 50/60 Hz					
Constant Power Mode							
Range		5600 W	7500 W	11250 W	15000 W	18750 W	22500 W
Resolution		0.1 W	0.1 W	1 W	1 W	1 W	1 W
Accuracy *4		±0.5 % of (setting+ range) @ 50/60 Hz,±2 % of (setting+ range)					
CREST FACTOR (CC & CP MODE ONLY)							
Range		√2 to 5					
Resolution		0.1					
Accuracy		(0.5 % / Irms)+ 1 % FS					
POWER FACTOR (CC&CP MODE ONLY)							
Range		0 to 1 Lag or Lead					
Resolution		0.01					
Accuracy		1 % FS					
TEST MODE							
UPS Efficient Measurement		Non-Linear Mode					
Operating Frequency		Auto, 40 Hz to 440 Hz					
Current Range		0 A to 56 A	0 A to 75 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A
PF Range		0 to 1					
Measuring Efficiency for PV Systems, Power Conditionersfor THD 80 %		Resistive+ Non-Linear Mode					
Operating Frequency		Auto, 40 Hz to 440 Hz					
Current Range		0 A to 56 A	0 A to 75 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A
Resistive Range		1 ohm to 20 kohm	0.8 ohm to 16 kohm	0.533 ohm to 10.666 kohm	0.533 ohm to 10.666 kohm	0.533 ohm to 10.666 kohm	0.533 ohm to 10.666 kohm
UPS Back-Up Function (CC,LIN,CR,CP)							
UVP (VTH)		50 Vrms to 425 Vrms / 600 Vdc					
UPS Back-Up Time		1 Sec to 99999 Sec (>27 H)					
Battery Discharge Function (CC,LIN,CR,CP)							
UVP (VTH)		50 Vrms to 425 Vrms / 600 Vdc					
Battery Discharge Time		1 Sec to 99999 Sec (>27 H)					
UPS Transfer Time							
Current Range		0 A to 56 A	0 A to 75 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A
UVP (VTH)		2.5 V					
Time Range		0.15 ms to 999.99 ms					
Fuse Test Mode							
Max. Current	Turbo OFF (CC1 to 3)	56 Arms	75 Arms	112.5 Arms	112.5 Arms	112.5 Arms	112.5 Arms
	Turbo ON (CC3)						
	Turbo ON (CC1 to 2)	112 Arms (x2) *3	150 Arms (x2) *3	225 Arms (x2) *3	225 Arms (x2) *3	225 Arms (x2) *3	225 Arms (x2) *3
Trip & Non-Trip Time	Turbo OFF (Time1)	0.01 Sec to 333.33 Sec					
	Turbo ON (Time1 to 2)	0.01 Sec to 0.50 Sec					
	Turbo ON (Time3)	0.01 Sec to 600.00 Sec					
OFF Time		0.1 Sec to 999.9 Sec					
Meas. Accuracy		± 0.003 Sec					
RepeatCycle		0 to 99999					
Short/OPP/OCP Test Function							
ShortTime	Turbo OFF	0.1 Sec to 10 Sec or Cont.					
	Turbo ON	0.1 Sec to 1 Sec					
OPP/OCP Step Time	Turbo OFF	100 ms					
	Turbo ON	100 ms, up to 10 Steps					
OCP Istop	Turbo OFF	56 Arms	75 Arms	112.5 Arms	112 5Arms	112 5Arms	112 5Arms
	Turbo ON	112 Arms	150 Arms	225 Arms	225 Arms	225 Arms	225 Arms
OPP Pstop	Turbo OFF	5600 W	7500 W	11250 W	15000 W	18750 W	22500 W
	Turbo ON	11200 W	15000 W	22500 W	30000 W	37500 W	45000 W

規　格

	AEL-5006-425-56	AEL-5008-42.5-7.5	AEL-5012-425-112.5	AEL-5015-425-112.5	AEL-5019-425-112.5	AEL-5023-425-112.5
Programmable Inrush Current Simulation: Istart- Istop/ Tsep						
Istart,Inrush	0 A to 112 A	0 A to 150 A	0 A to 225 A	0 A to 225 A	0 A to 225 A	0 A to 225 A
Inrush Step Time	0.1 ms to 100 ms					
Istop,Inrush Stop Current	0 A to 56 A	0 A to 75 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A
Programmable Surge Current Simulation S1/T1 - S2/T2 - S3/T3						
S1 and S2 Current	0 A to 112 A	0 A to 150 A	0 A to 225 A	0 A to 225 A	0 A to 225 A	0 A to 225 A
T1 and T2 Time	0.01 Sec to 0.5 Sec					
S3 Current	0 A to 56 A	0 A to 75 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A	0 A to 112.5 A
T3 Time	0.01 Sec to 9.99 Sec or Cont.					
MEASUREMENTS						
VOLTAGE READBACK V METER						
Range	600 V					
Resolution	0.01 V					
Accuracy	±0.05 % of (reading + range)					
Parameter	Vrms,V Max/Min, ±Vpk					
CURRENT READBACK A METER						
Range	28 Arms/56 Arms	37.5 Arms/75 Arms	56.25 Arms/112.5 Arms	56.25 Arms/112.5 Arms	56.25 Arms/112.5 Arms	56.25 Arms/112.5 Arms
Resolution	0.6 mA/1.2 mA	0.8 mA/1.6 mA	1.2 mA/2.4 mA	1.2 mA/2.4 mA	1.2 mA/2.4 mA	1.2 mA/2.4 mA
Accuracy	± 0.1 % of (reading + range)@ 50/60 Hz					
Parameter	Irms,I Max/Min, ±Ipk					
WATT READBACK W METER						
Range	5600 W	7500 W	11250 W	15000 W	18750 W	22500 W
Resolution	0.1 W	0.125 W	0.1875 W	0.25 W	0.3125 W	0.375 W
Accuracy *4	± 0.5 % of (reading+ range) @ 50/60 Hz ± 2 % of (reading+ range)					
VA METER						
POWER FACTOR METER						
Range	± 0.000 to 1.000					
Accuracy	±(0.002±(0.001/PF) x F)					
Frequency M ETER (Hz)						
Range	DC,40 Hz to 440 Hz					
Accuracy	0.1 %					
Other Parameter METER						
VA, VAR, CF_I, Ipeak, Imax, Imin Vmax, Vmin, IHD, VHD, ITHD, VTHD						
OTHERS						
Startup Loading	Yes, Power on loading during Inverter / UPS startup					
Load ON / OFF Angle	0 to 359 degree can be programmed for the angle o fload ON and load OFF loading					
Half Cycle and SCR/TRIAC Loading	Positive or Negative half cycle, 90° Trailing edge or Leading edge current waveform can be programmed					
Master/Slave (3 Phase or Parallel	Yes, 1 master and upto 7 slave unit					
External Programming Input (Option)	FS / 10 Vdc, Resulotion 0.1 V					
External SYNC Input	TTL					
Vmonitor (Isolated)	±600 V ｜± 10 V					
Imonitor (Isolated)	± 168 Apk / ± 10 Vpk	± 225 Apk / ± 10 Vpk	± 337.5 Apk / ± 10 Vpk	± 337.5 Apk / ± 10 Vpk	± 337.5 Apk / ± 10 Vpk	± 337.5 Apk / ± 10 Vpk
Interface (Option)	GPIB, RS-232, LAN, USB					
MAX. Power Consumption	270 VA	270 VA	390 VA	510 VA	630 VA	750 VA
Operation Temperature *2	0 °C to 40 °C					
Current of Input Impedance (mA) @ 50/60 Hz, @ 400 Hz	~V x 0.9,~V x 6.6	~V x 1.2, ~V x 8.8	~V x 1.8, ~V x 13.2	~V x 2.4, ~V x 17.6	~V x 3.0, ~V x 22	~V x 3.6, ~V x 26.4
Dimension (H x W x D)	458 mm x 480 mm x 590 mm	458 mm x 480 mm x 590 mm	636 mm x 480 mm x 590 mm	814 mm x 480 mm x 590 mm	1283 mm x 600 mm x 600 mm	1283 mm x 600 mm x 600 mm
Weight	58 kg	70 kg	105 kg	140 kg	260 kg	295 kg

*1 ms (millisiemens) is the unit of conductance(G), one siemens equal to 1/Ω
*2 Operating temperature range is 0 °C to 40 °C, all specification apply for 25 °C±5 °C, Except as noted
*3 Turbo mode for up to 2X Current rating & Power rating support Fuse, Short/OCP/OPP test function
*4 The specification apply for current less than 20 Arms
* All specifications apply for 50/60 Hz.
* All specifications subject to change
Input AC Power : 100 Vac to 230 Vac ± 10 %, 50/60 Hz
Cooling : Advanced Fan Cooled

規　格

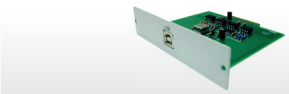
		AEL-5003-480-18.75	AEL-5004-480-28
Power (W)		2800 W	3750 W
Current (Ampere)		18.75 Arms / 56.25 Apeak	28 Arms / 84 Apeak
Voltage (Volt)		50 Vrms to 480 Vrms / 700 Vdc	
FREQUENCY Range		DC,40 Hz to 70 Hz(CC,CP Mode), DC to 70 Hz(LIN,CR,CV Mode)	
PROTECTIONS			
Over Power Protection		2940 Wrms or Programmable	3937.5 Wrms or Programmable
Over Current Protection		19.687 Arms or Programmable	29.4 Arms or Programmable
Over Vlotage Protection		504 Vrms / 735 Vdc	
Over Temp.Protection		Yes	
OPERATION MODE			
Constant Current Mode for Sine-Wave			
Range		0 A to 18.75 A	0 A to 28 A
Resolution		0.3725 mA / 16 bits	0.5 mA / 16 bits
Accuracy		±(0.1 % of setting + 0.2 % of range) @ 50/60 Hz, ±0.5 % of (setting + range) @ DC and 400 Hz	
Linear Constant Current Mode for Sine-Wave, Square-Wave or Quasi-Square Wave, PWM Wave			
Range		0 A to 18.75 A	0 A to 28 A
Resolution		0.3125 mA/ 16 bits	0.5 mA/ 16 bits
Accuracy		±(0.1 % of setting + 0.2 % of range) @ 50/60 Hz, ±0.5 % of (setting + range) @ DC and 400 Hz	
Constant Resistance Mode			
Range		4 ohm to 80 Kohm	2.5 ohm to 50 Kohm
Resolution *1		0.004166 mS / 16 bits	0.006666 mS / 16 bits
Accuracy		±2 % of (setting + range) @ 50/60 Hz, ±(0.5 % of setting + 2 % of range) @ DC and 400 Hz	
Constant Voltage Mode			
Range		50 Vrms to 480 Vrms / 700 Vdc	
Resolution		0.0125 V	
Accuracy		±(0.1 % of setting + 0.1 % of range)	
Constant Power Mode			
Range		2800 W	3750 W
Resolution		0.1 W	0.1 W
Accuracy *4		±0.5% of (setting+ range) @ 50/60 Hz,±2 % of (setting+ range)	
CREST FACTOR (CC & CP MODE ONLY)			
Range		√2 to 5	
Resolution		0.1	
Accuracy		(0.5 % /Irms) +1 % FS	
POWER FACTOR (CC&CP MODE ONLY)			
Range		0 to 1 Lag or Lead	
Resolution		0.01	
Accuracy		1 % FS	
TEST MODE			
UPS Efficient Measurement		Non-Linear Mode	
Operating Frequency		Auto, 40 Hz to 70 Hz	
CurrentRange		0 A to 18.75 A	0 A to 28 A
PF Range		0 to 1	
Measuring Efficiency For PV Systems, Power Conditionersfor THD 80 %		Resistive+ Non-Linear Mode	
Operating Frequency		Auto, 40 Hz to 70 Hz	
CurrentRange		0 A to 18.75 A	0 A to 28 A
Resistive Range		4 ohm to 80 Kohm	2.5 ohm to 50 Kohm
UPS Back-Up Function (CC,LIN,CR,CP)			
UVP (VTH)		50 Vrms to 480 Vrms / 700 Vdc	
UPS Back-Up Time		1 Sec to 99999 Sec (>27 H)	
Battery Discharge Function (CC,LIN,CR,CP)			
UVP (VTH)		50 Vrms to 480 Vrms / 700 Vdc	
BatteryDischarge Time		1 Sec to 99999 Sec (>27 H)	
UPS Transfer Time			
CurrentRange		0 A to 18.75 A	0 A to 28 A
UVP (VTH)		2.5 V	
Time Range		0.15 ms to 999.99 ms	
Fuse Test Mode			
Max. Current	Turbo OFF (CC1 to 3)	18 75Arms	28 Arms
	Turbo ON (CC3)		
	Turbo ON (CC1 to 2)	37.5 Arms (x2) *3	56.0 Arms (x2) *3
Trip & Non-Trip Time	Turbo OFF (Time1 to 3)	0.01 Sec to 333.33 Sec	
	Turbo ON (Time1 to 2)	0.01 Sec to 0.50 Sec	
	Turbo ON (Time3)	0.01 Sec to 600.00 Sec	
OFF Time		0.1 Sec to 999.9 Sec	
Meas. Accuracy		± 0.003 Sec	
RepeatCycle		0 to 99999	
Short/OPP/OCP Test Function			
ShortTime	Turbo OFF	0.1 Sec to 10 Sec or Cont.	
	Turbo ON	0.1 Sec to 1 Sec	
OPP/OCP Step Time	Turbo OFF	100 ms	
	Turbo ON	100 ms, upto 10 Steps	
OCP Istop	Turbo OFF	18.75 Arms	28.0 Arms
	Turbo ON	37.5 Arms	56.0 Arms
OPP Pstop	Turbo OFF	2800 W	3750 W
	Turbo ON	5600 W	7500 W

PEL-022 GPIB Card

PEL-023 RS-232 Card

PEL-024 LAN Card

PEL-025 USB Card



PEL-028 **HANDLES, U-shaped handle (for AEL-5006/5008/5012/5015)**

PEL-029 HANDLES Rack Accessories (for AEL-5002/5003/5004)

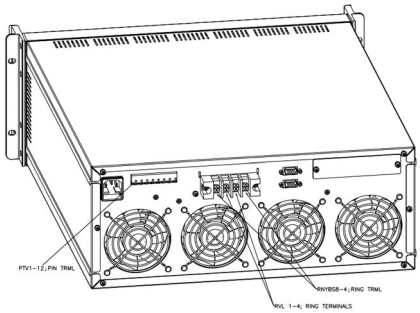
交/直流電子負載

規　格

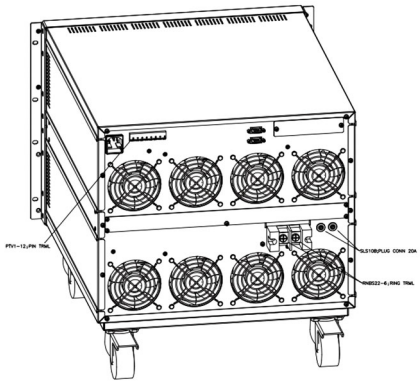
	AEL-5003-480-18.75	AEL-5004-480-28
Programmable Inrush Current Simulation: Istart-Istop/ Tsep		
Istart, Inrush StartCurrent	0 A to 37.5 A	0 A to 56 A
Inrush Step Time	0.1 ms to 100 ms	
Istop, Inrush Stop Current	0 A to 18.75 A	0 A to 28 A
Programmable Surge Current Simulation S1/T1 - S2/T2 - S3/T3		
Sl and S2 Current	0 A to 37.5 A	0 A to 56 A
Tl and T2 Time	0.01 Sec to 0.5 Sec	
S3 Current	0 A to 18.75 A	0 A to 28 A
T3 Time	0.01 Sec to 9.99 Sec or Cont.	
MEASUREMENTS		
VOLTAGE READBACK V METER		
Range	700 V	
Resolution	0.0125 V	
Accuracy	± 0.05 % of (reading + range)	
Parameter	Vrms,V Max/Min, ±Vpk	
CURRENT READBACK A METER		
Range	9.375 Arms/18.75 Arms	14 Arms/28 Arms
Resolution	0.2 mA/0.4 mA	0.3 mA/0.6 mA
Accuracy	± 0.05 % of (reading + range) @ 50/60 Hz	
Parameter	Irms, I Max/Min, ±Ipk	
WATT READBACK W METER		
Range	2800 W	3750 W
Resolution	0.05 W	0.0625 W
Accuracy ✲4	±0.5 % of (reading+ range) @ 50/60 Hz, ±2 % of (reading+ range)	
VA METER	Vrmsx Arms Correspond To Vrms and Arms	
POWER FACTOR METER		
Range	± 0.000 to 1.000	
Accuracy	±(0.002±(0.001/PF) x F)	
Frequency M ETER (Hz)		
Range	DC,40 Hz to 70 Hz	
Accuracy	0.1 %	
Other Parameter METER		
VA, VAR, CF_I, Ipeak, Imax, Imin Vmax, Vmin, IHD, VHD, ITHD, VTHD		
OTHERS		
Startup Loading	Yes, Power on loading during Inverter / UPS startup	
Load ON / OFF Angle	0 to 359 degree can be programmed for the angle of load ON and load OFF loading	
Half Cycle and SCR/TRIAC Loading	Positive or Negative half cycle, 90° Trailing edge or Leading edge current waveform can be programmed	
Master/Slave (3 Phase or Parallel	Yes, 1 master and upto 7 slave units	
External Programming Input (Option)	FS / 10 Vdc, Resulotion 0.1 V	
External SYNC Input	TTL	
Vmonitor (Isolated)	± 700 V /± 10 V	
Imonitor (Isolated)	± 56.25 Apk / ± 10 Vpk	± 84 Apk / ± 10 Vpk
Interface (Option)	GPIB, RS-232, LAN, USB	
MAX. Power Consumption	150 VA	
Operation Temperature ✲2	0 °C to 40 °C	
Current of Input Impedance (mA) @ 50/60 Hz, @ 400 Hz	~V x 0.3, ~V x 2.2	~V x 0.4, ~V x 2.95
Dimension (H x W x D)	177 mm x 440 mm x 558 mm	177 mm x 440 mm x 558 mm
Weight	27.5 kg	33.5 kg

*1 ms (millisiemens) is the unit of conductance(G), one siemens equal to 1/Ω
*2 Operating temperature range is 0 ℃ to 40 ℃, all specification apply for 25 ℃±5 ℃, Except as noted
*3 Turbo mode for up to 2X Current rating & Power rating support Fuse, Short/OCP/OPP test function
*4 The specification apply for current less than 20 Arms
* All specifications apply for 50/60 Hz.
* All specifications subject to change without notice.
Input AC Power : 100 Vac to 230 Vac ± 10 %, 50/60 Hz
Cooling : Advanced Fan Cooled

STANDARD ACCESSORIES
HD-DSUB : 15pin MALE to MALE 150cm x 1
PTV1-12 PIN TRML : Please refer to Fig.1 x 6



AEL-5002-xxx-18.75/AEL-5003-xxx-28/AEL-5004-xxx-37.5
PVL 1-4 RING TERMINALS : Please refer to Fig.4 x 2
RNYBS8-4 RING TRML : Please refer to Fig.5 x 2



AEL-5006-xxx-56/AEL-5008-xxx-78/AEL-5012-xxx-112.5/
AEL-5015-xxx-112.5/AEL-5019-xxx-112.5/AEL-5023-xxx/112.5
SLS10B RED PLUG CONN 20A RED : Please refer to Fig.2;
The terminal is used for Vsense x 1
SLS10B BLK PLUG CONN 20A BLK : Please refer to Fig.2;
The terminal is used for Vsense x 1
RNB S22-6 RING TRML, #4 : Please refer to Fig.3 x 2

Fig. 1

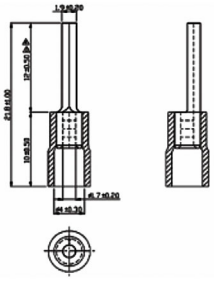


Fig. 2

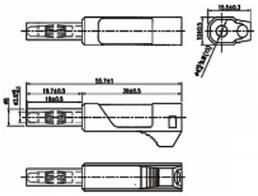


Fig. 3

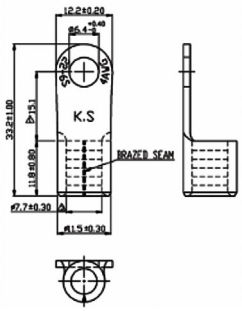


Fig. 4

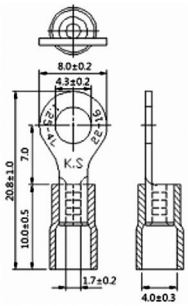
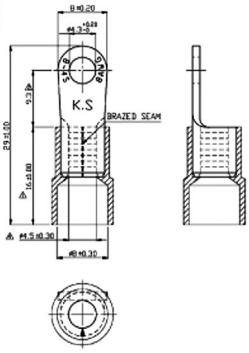


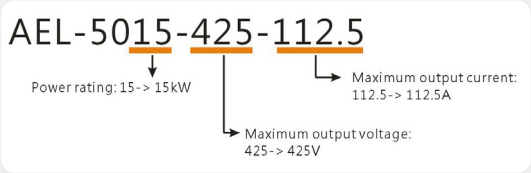
Fig. 5



交/直流電子負載

訂 購 資 訊

AEL-5002-350-18.75	350 V / 18.75 A / 1875 W	交/直流電子負載
AEL-5003-350-28	350 V / 28 A / 2800 W	交/直流電子負載
AEL-5004-350-37.5	350 V / 37.5 A / 3750 W	交/直流電子負載
AEL-5006-350-56	350 V / 56 A / 5600 W	交/直流電子負載
AEL-5008-350-75	350 V / 75 A / 7500 W	交/直流電子負載
AEL-5012-350-112.5	350 V / 112.5 A / 11250 W	交/直流電子負載
AEL-5015-350-112.5	350 V / 112.5 A / 15000 W	交/直流電子負載
AEL-5019-350-112.5	350 V / 112.5 A / 18750 W	交/直流電子負載
AEL-5023-350-112.5	350 V / 112.5 A / 22500 W	交/直流電子負載
AEL-5002-425-18.75	425 V / 18.75 A / 1875 W	交/直流電子負載
AEL-5003-425-28	425 V / 28 A / 2800 W	交/直流電子負載
AEL-5004-425-37.5	425 V / 37.5 A / 3750 W	交/直流電子負載
AEL-5006-425-56	425 V / 56 A / 5600 W	交/直流電子負載
AEL-5008-425-75	425 V / 75 A / 7500 W	交/直流電子負載
AEL-5012-425-112.5	425 V / 112.5 A / 11250 W	交/直流電子負載
AEL-5015-425-112.5	425 V / 112.5 A / 15000 W	交/直流電子負載
AEL-5019-425-112.5	425 V / 112.5 A / 18750 W	交/直流電子負載
AEL-5023-425-112.5	425 V / 112.5 A / 22500 W	交/直流電子負載
AEL-5003-480-18.75	480 V / 18.75 A / 2800 W	交/直流電子負載
AEL-5004-480-28	480 V / 28 A / 3750 W	交/直流電子負載



選 購 介 面

PEL-022 GPIB Card
PEL-023 RS-232 Card
PEL-024 LAN Card
PEL-025 USB Card
PEL-028 HANDLES, U-shaped handle(fixed to the bracket)(for AEL-5006/5008/5012/5015)
PEL-029 HANDLES Rack Accessories(for AEL-5002/5003/5004)
PEL-030 GPIB+RS-232 Card

GTL-246 USB Cable, USB 2.0, A-B Type, 1200 mm
GTL-248 GPIB Cable, Double Shielded, 2000 mm
GTL-250 GPIB Cable, Double Shielded, 600 mm

Note: * Regarding the product delivery date, please contact your regional sales representative.

Specifications subject to change without notice.

AEL-5000CD2BH_202507

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