3282

功率因素RLC负载

POWER FACTOR RLC LOAD

PRODIGIT
INSTRUMENT PROFESSIONAL

博计电子股份有限公司

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3282 功率因素RLC负载

特　性

- 四个电表可同时显示电压值（Vrms, Vpeak, Vmax., Vmin）、电流值（Irms, Ipeak, Imax., Imin.）、瓦特值、伏安值（VA）、频率值、峰值因素、功率因素、电压失真度（VTHD, VH）、电流失真度（ITHD, IH）等。
- 交/直流负载具有定电流、线性定电流、定电阻、定电压、定功率等工作模式，皆可以再加上电感性或电容性负载。
- 内建测试模式包括UPS Efficiency、PV Inverter Efficiency、UPS Back-up time、Battery Discharge time、UPS transfer time、Fuse/Breaker Trip/Non-Trip、短路模拟、OCP、 OPP、PF、INRUS(Inrush)、SURGE 等测试模式。
- 在测试模式下具备Turbo mode（倍增模式）能力，可以在1秒内承受多达2倍电流（37.5A）与功率（37.5KW）的电子负载，最适合Fuse/Breaker及交流电源的短路、OCP、OPP测试，还具备时间量测功能，可显示电池、UPS、保险丝和断路器等测试的动作反应时间。
- 内建Master/Slave同步控制能力，高达八台的并联最高可达 15KW / 15KVAR及三相▵或Y的负载，除了Master/Slave外也可以个别单机并联连接来扩充功率规格，功率规格可以依需要再增加。
- 支援带载开机；先设定Load ON 便可支持带载开机，逆变器或不断电电源等UUT开机时便直接带着所设定负载电流开机，用来验证Inverter连接电器时启动是否稳定。
- 支援抽载与卸载角度控制；吃载卸载角度控制，0-359度全范围都可设定，用来验证实际电器插拔时，Inverter输出电压暂态反应是否稳定，Overshoot/Undershoot 是否在容许范围内。
- 支援正半周或负半周抽载；用来验证实际电器只有正半周或负半周负载电流时，Inverter输出电压是否维持稳定。
- 支援SCR/TRIAC的电流调变波形，90度Trailing edge及Leading Edge。
- 支援电源供应器于开机时之电容性负载（Inrush Current）与运行中负载突然接入（Hot Plug-in）时的瞬间电流（Surge Current）测试。
- 频率范围 : DC, 40~70Hz
- 过电压警示、过电流、过功率、过温度保护。
- GPIB、RS-232、USB、LAN 控制介面。
- **最齐全的量测功能**

  3282 功率因素 RLC 负载内建16位元 A/D 及 DSP 等精准的量测电路，提供了精确的量测值，量测项目共有电压均方根值（Vrms）、电流均方根值（Arms）、瓦特值（Watt）、伏安（VA）、波峰因素（CF）、功率因素（PF）、总谐波失真率（THD）、电压总谐波失真率（VTHD）、电流总谐波失真率（ITHD）、峰值电流（Ipeak）、电流最大值（Amax）、电流最小值（Amin）、电压最大值（Vmax）、电压最小值（Vmin）。

  除了这些量测功能外，亦提供了时间量测，产品如 UPS、保险丝及断路器等的跳脱或熔断时间及 Off-line UPS 的转换时间（Transfer time）。

Applications for 3282 Power Factor Load

Power Factor Load for Sine-Wave Source

Linear R.L.C. Load

CC, CR, CV, CP, Linear CC

CC Setting 10.000A

CR Setting 6400.0ohm

CV Setting 100.00V

CP Setting 1000.0W

LIN CC Setting 10.000A

R + L

Loading + Inductor OFF

Loading + Inductor 32.000H

R + C

Loading + Capacitor OFF

Loading + Capacitor 104.00uF

Non-Linear Rectifier Load

CC mode Crest Factor

Crest Factor Setting 1.4=1.414

Crest Factor Setting 5.0

CC mode Power Factor

Power Factor Setting 0.1

Power Factor Setting 1.0

Inverter CC + CR

Test Item, Press Item to Non-Linear + CR test Press Start to test

Press Setting To setting CC current loading

Press Setting To setting CR resistance loading, and than press setting again to finished setting

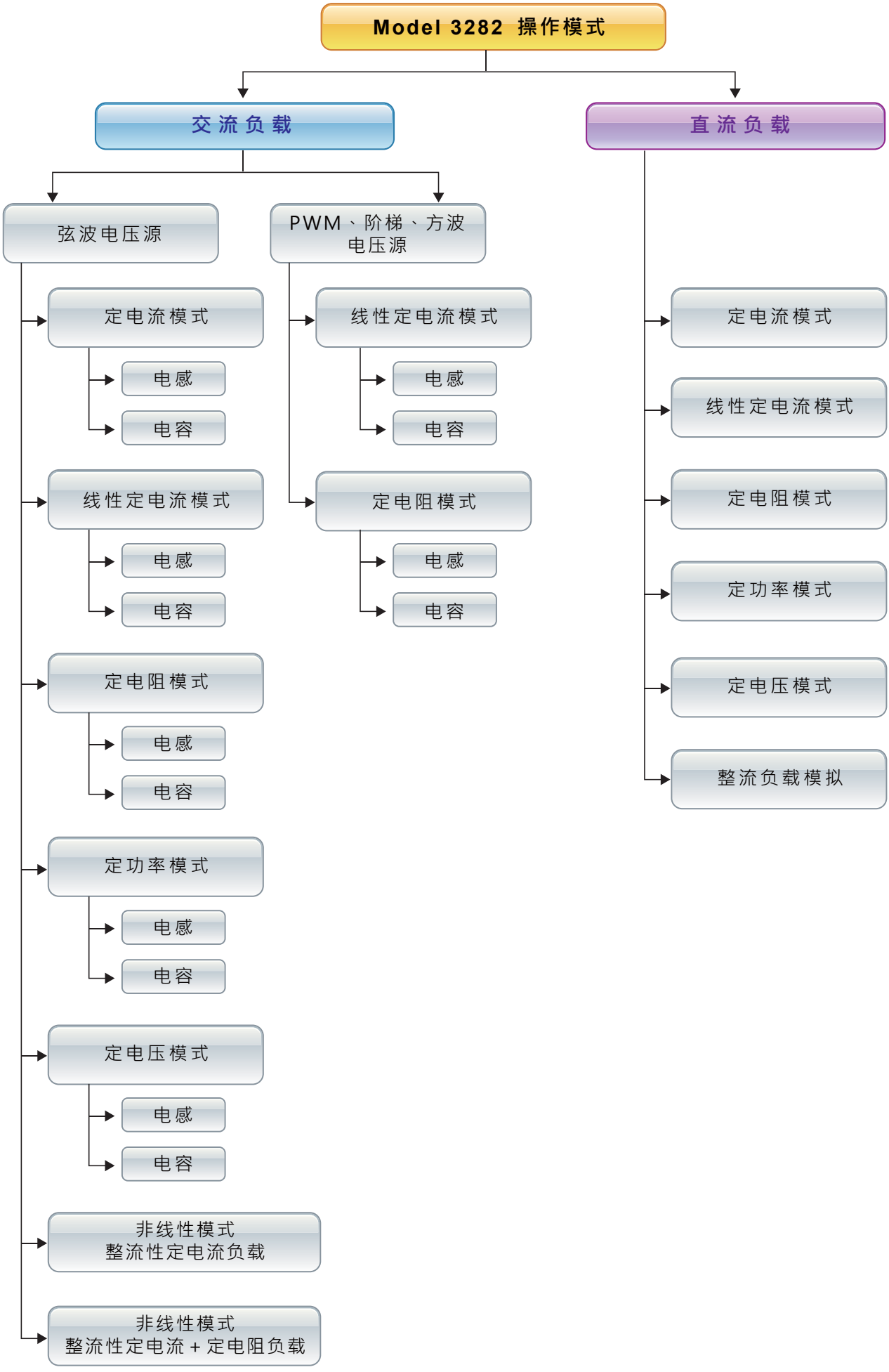
UPS

Test Item, Press Item to Non-Linear test Press Start to test

Press Setting To setting CC current loading

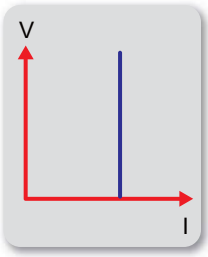
Press Setting To setting Power Factor than press setting again to finished setting

完整的交流及直流负载模式

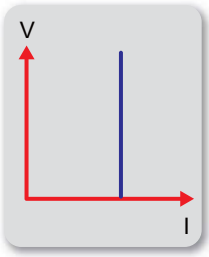


• 交流负载模式

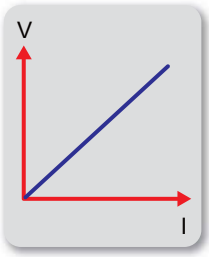
定电流模式



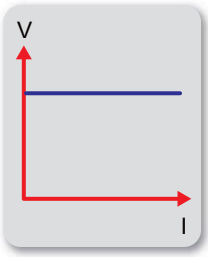
线性定电流模式



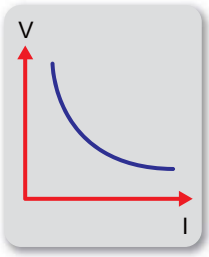
定电阻模式



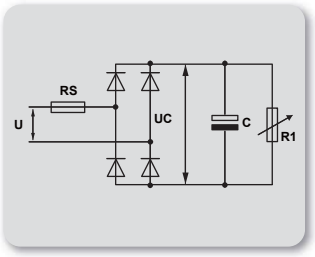
定电压模式



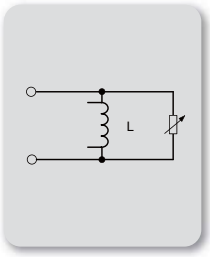
定功率模式



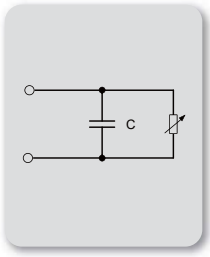
非线性整流模式



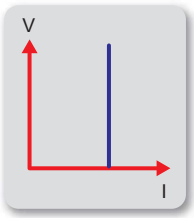
电感性负载模式



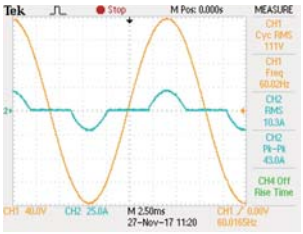
电容性负载模式



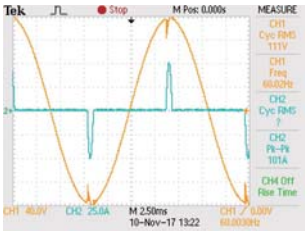
• 定电流模式：在交流负载的定电流模式，仅适用于弦波电压源，提供线性负载的**CF**，**PF**(模拟)测试。



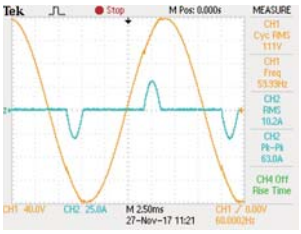
CC mode



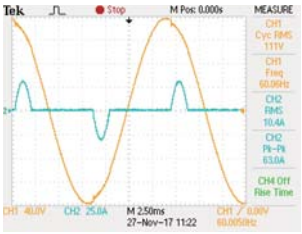
CC mode, CF=2



CC mode, CF=5

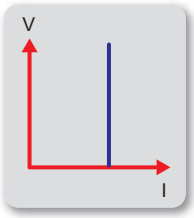


CC mode, PF= +0.5

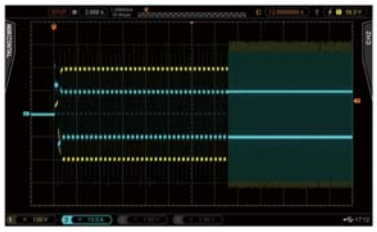


CC mode, PF= -0.5

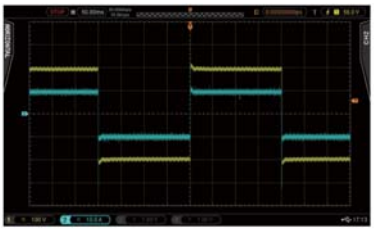
• 线性定电流模式：可以适用于弦波与非弦波电压源，如下图所示的 PWM 变频驱动器，阶梯(Step)电压源，及 UPS 弦波变方波，方波变弦波。



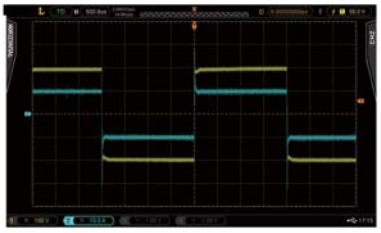
Linear CC mode



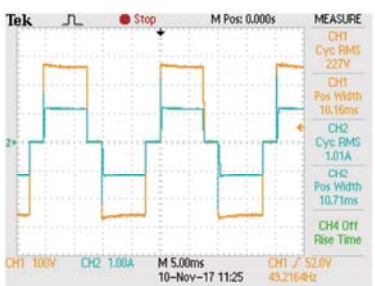
Linear CC mode, PWM 10A 2.5Hz to 250Hz



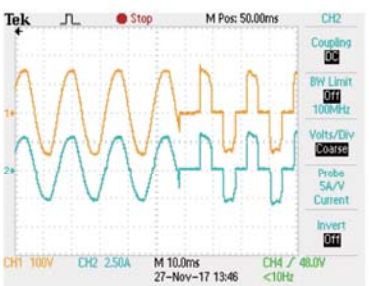
Linear CC mode, PWM 10A 2.5Hz



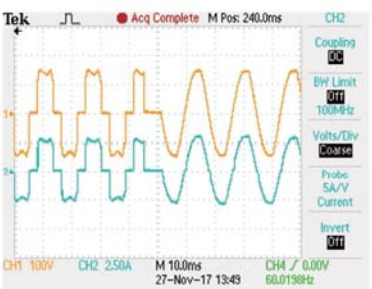
Linear CC mode, PWM 10A 250Hz



Linear CC mode, Step 10A



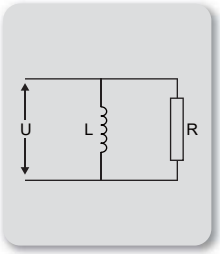
Linear CC mode, UPS Sine to Square waveform



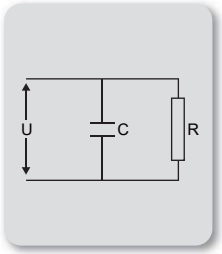
Linear CC mode, UPS Square to Sine waveform

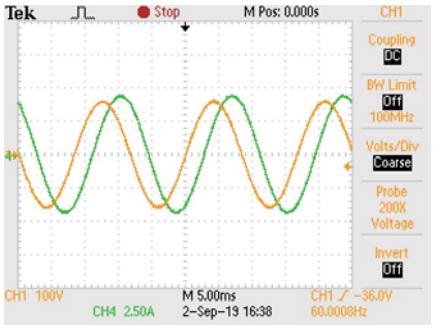
- **定电流 + 电感性，电容性负载**

加电感模式

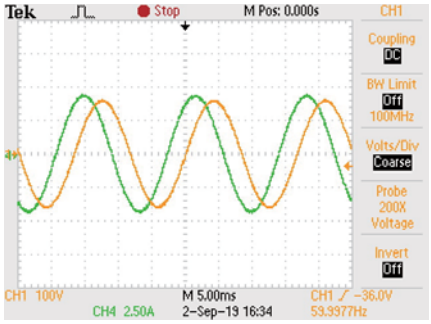


加电容模式



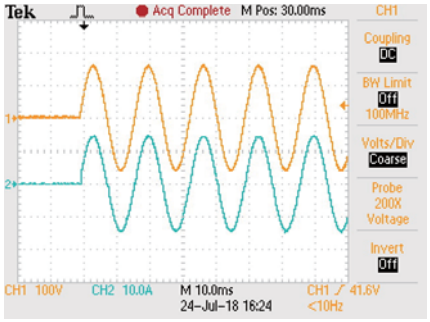


电感性负载 **PF -0.5**

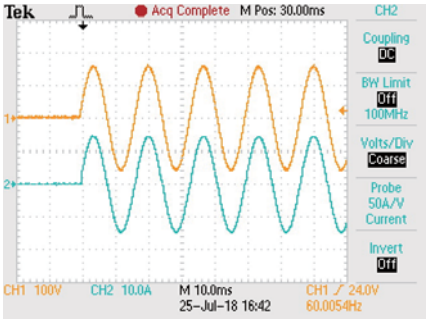


电容性负载 **PF +0.5**

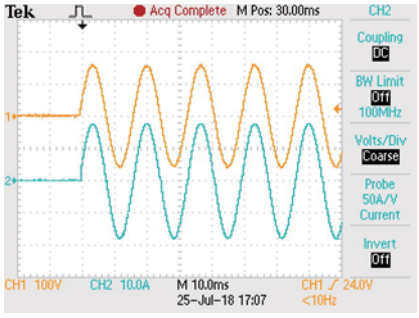
- **支援带载开机：模拟待测物直接插入(Plug-in) 抽载；先设定Load ON 便可支持带载开机，逆变器或不断电电源开机时便直接带着所设定负载电流开机，用来验证Inverter连接电器时启动是否稳定。**



CC 10A 带载开机

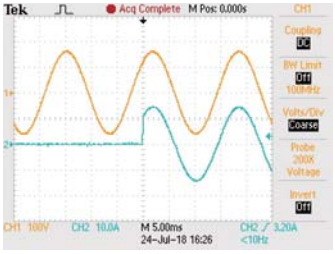


CR 10A 带载开机

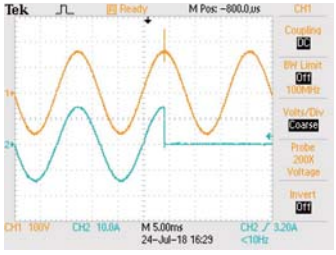


CV 10A 带载开机

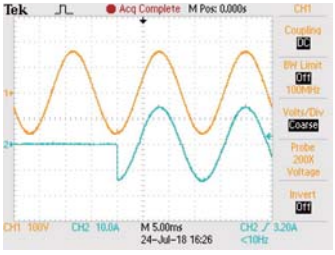
- **支援抽载与卸载角度控制：吃载卸载角度控制，0-359度全范围都可设定，用来验证实际电器插拔时，Inverter输出电压暂态反应是否稳定，Overshoot / Undershoot 是否在容许范围内。。**



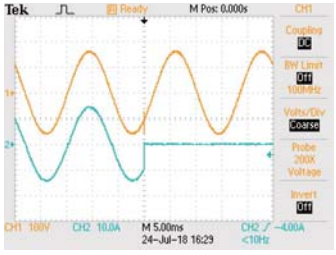
45 度抽载



90 度卸载

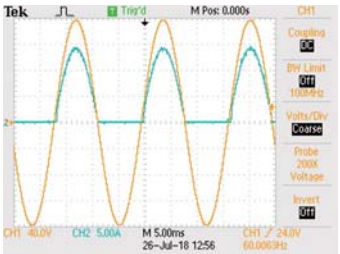


270 度抽载

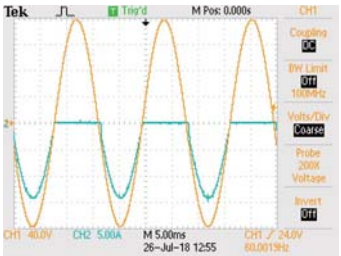


315 度卸载

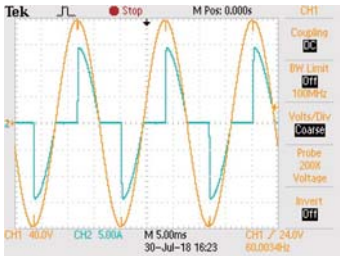
- **支援正半周与负半周抽载及SCR/TRIAC的电流调变波形，90度Trailing edge及Leading Edge；用来验证实际电器只有正半周或负半周及 SCR/TRIAC负载电流时，Inverter输出电压是否维持稳定。**



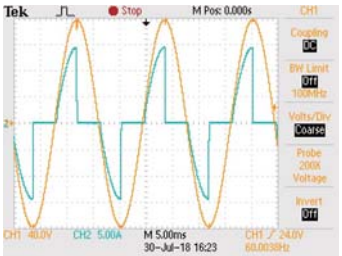
正半周抽载



负半周抽载



90度TRIAC/SCR电流波形Leading edge

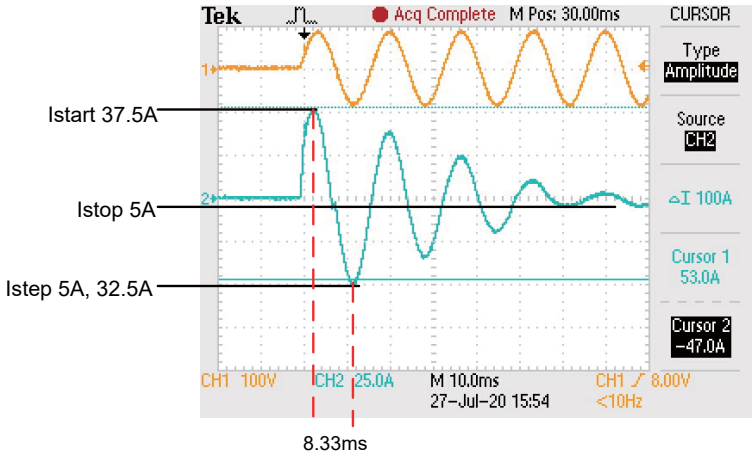


90度电流波形Trailing edge

- 支援电源供应器于开机时之电容性负载(Inrush Current) 与运行中负载突然接入(Hot Plug-in) 测试用来验证电器在开机时的瞬间启动电流(Inrush Current) 及电器突然接上(Surge Current)时，Inverter 输出电压暂态反应是否稳定，如下图所示。

MODEL	3282
Programmable Inrush current simulation: Istart - Istop / Tsep	
Istart, Inrush Start Current	0~37.5A
Inrush Step time	0.1mS~100mS
Istop, Inrush stop current	0~18.75A
Programmable Surge current simulation: S1/T1 - S2/T2 - S3/T3	
S1 and S2 Current	0~37.5A
T1 and T2 Time	0.01S~0.5Sec.
S3 Current	0~18.75A
T3 Time	0.01S ~ 9.99Sec. Or Cont.

Vinput 60V 60Hz
ISTAR (Inrush Start Current) 37.5A
ISTEP (Inrush Step Current) 5A
TIME (Inrush Step Time) 8.33ms
ISTOP (Inrush Stop Current) 5A



Press “Item”
to INRUS (Inrush Test)
Press START to start testing

Press “Setting”
to setting frequency 60Hz

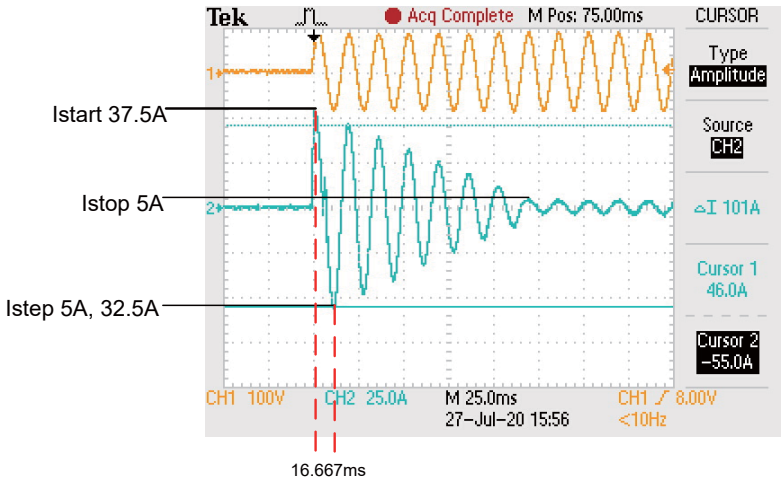
Press “Setting”
to setting Istart 37.5A

Press “Setting”
to setting Istep 5 A

Press “Setting”
to setting step time 8.33ms

Press “Setting” to setting Istop 5A
Press “Setting” again to finish the parameter setting

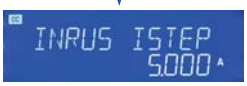
Vinput 60V 60Hz
ISTAR (Inrush Start Current) 37.5A
ISTEP (Inrush Step Current) 5A
TIME (Inrush Step Time) 16.667ms
ISTOP (Inrush Stop Current) 5A



Press “Item”
to INRUS (Inrush Test)
Press START to start testing

Press “Setting”
to setting frequency 60Hz

Press “Setting”
to setting Istart 37.5A



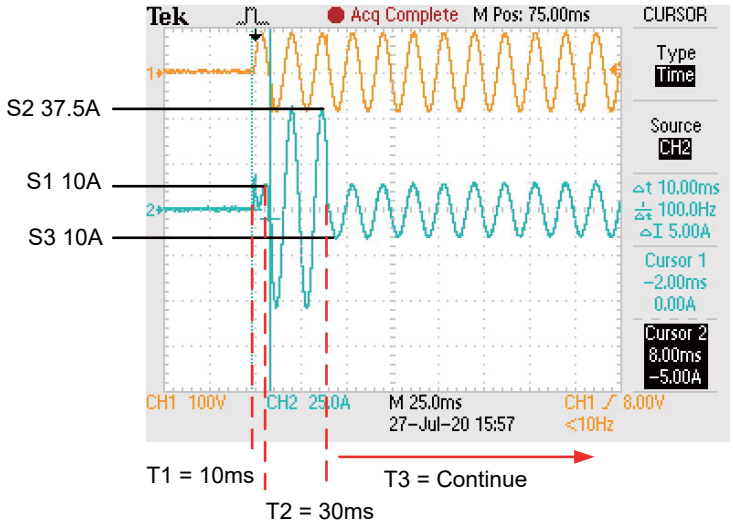
Press “Setting”
to setting Istep 5A

Press “Setting”
to setting step time 16.667ms

Press “Setting” to setting Istop 5A
Press “Setting” again to finish the parameter setting

开机时的瞬间启动电流 (Inrush Current) 测试

Vinput 60V 60Hz
S1 (Surge Current 1) 10A, T1(Tstep 1) 0.01 Sec.
S2 (Surge Current 2) 37.5A, T2(Tstep 2) 0.03 Sec.
S3 (Surge Current 3) 10A, T3(Tstep 3) Continue



Press "Item"
to SURGE (Surge Test)
Press START to start testing

Press "Setting"
to setting frequency 60Hz

Press "Setting"
to setting S1 current 10A

Press "Setting"
to setting Tstep 1 0.01 sec.

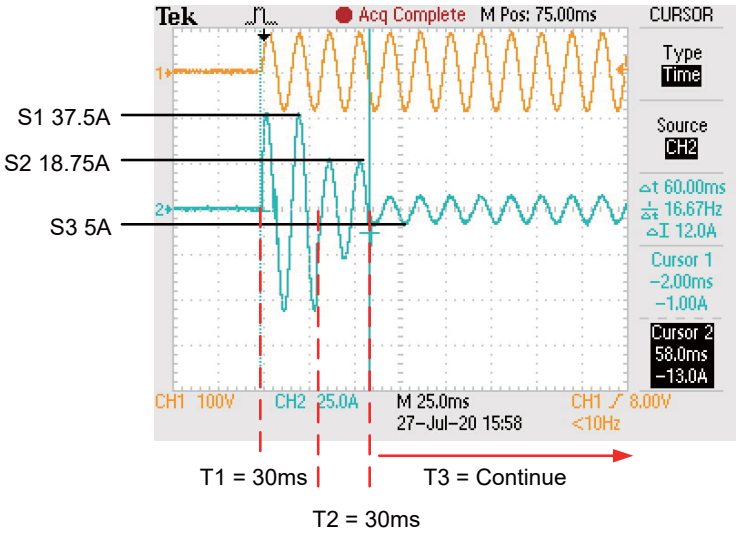
Press "Setting"
to setting S2 current 37.5A

Press "Setting"
to setting Tstep 2 0.03 sec.

Press "Setting"
to setting S3 current 10A

Press "Setting" to setting Tstep 3
Press "Setting" again to finish
the parameter setting

Vinput 60V 60Hz
S1 (Surge Current 1) 37.5A, T1(Tstep 1) 0.03 Sec.
S2 (Surge Current 2) 18.75A, T2(Tstep 2) 0.03 Sec.
S3 (Surge Current 3) 5A, T3(Tstep 3) Continue



Press "Item"
to SURGE (Surge Test)
Press START to start testing

Press "Setting"
to setting frequency 60Hz

Press "Setting"
to setting S1 current 37.5A

Press "Setting"
to setting Tstep 1 0.03 sec.

Press "Setting"
to setting S2 current 18.75A

Press "Setting"
to setting Tstep 2 0.03 sec.

Press "Setting"
to setting S3 current 5A

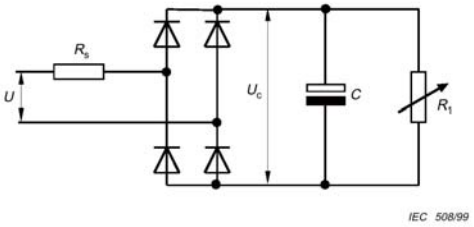
Press "Setting" to setting Tstep 3
Press "Setting" again to finish
the parameter setting

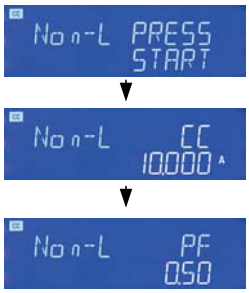
电器突然接上时的瞬间突波电流(Surge Current)测试

交流整流负载模拟符合 IEC62040-3 and IEC61683 测试规范

3280系列 AC/DC 电子负载的交流整流模式，完全符合 IEC 对 UPS及 PV Inverter 的测试规范要求，分别是 IEC62040-3 UPS Efficiency Measurement non-Linear and IEC61683 Resistive Plus Non-Linear。
3280系列的交流整流性负载模式，是使用CC+CR负载模式并维持电流的THD 在80%，来模拟实际PV Inverter 所连接的电子设备。

Rectified loads mode

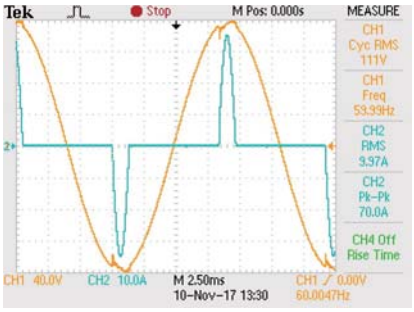




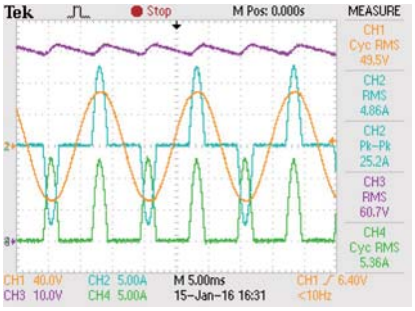
Press Test Item to Non-L mode, Prees START to Start test

Press Setting to setting CC current value

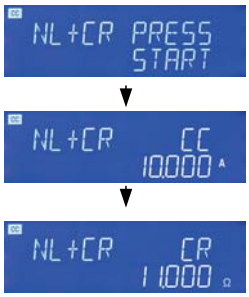
Press Setting to setting PF, Press Setting to finish the parameter setting.



UPS Non-Linear CC mode Test waveform



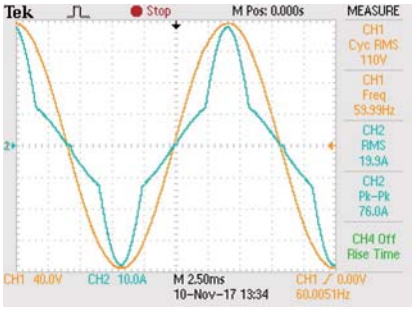
Actual Voltage/Current Waveform



Press Test Item to NL+CR mode, Prees START to Start test

Press Setting to setting CC current value

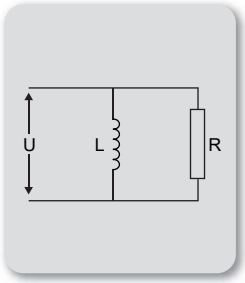
Press Setting to setting CR value, Press Setting to finish the parameter setting.



110V, 10A + 11ohm Test Waveform

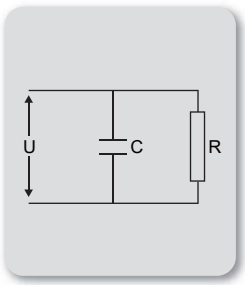
PV Inverter Non-Linear CC + Resistive mode(CC+CR) Testing Waveform

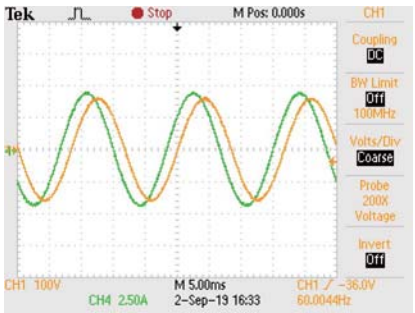
Load 2A, PF -0.8



电感性负载 **PF -0.8**

Load 2A, PF +0.8

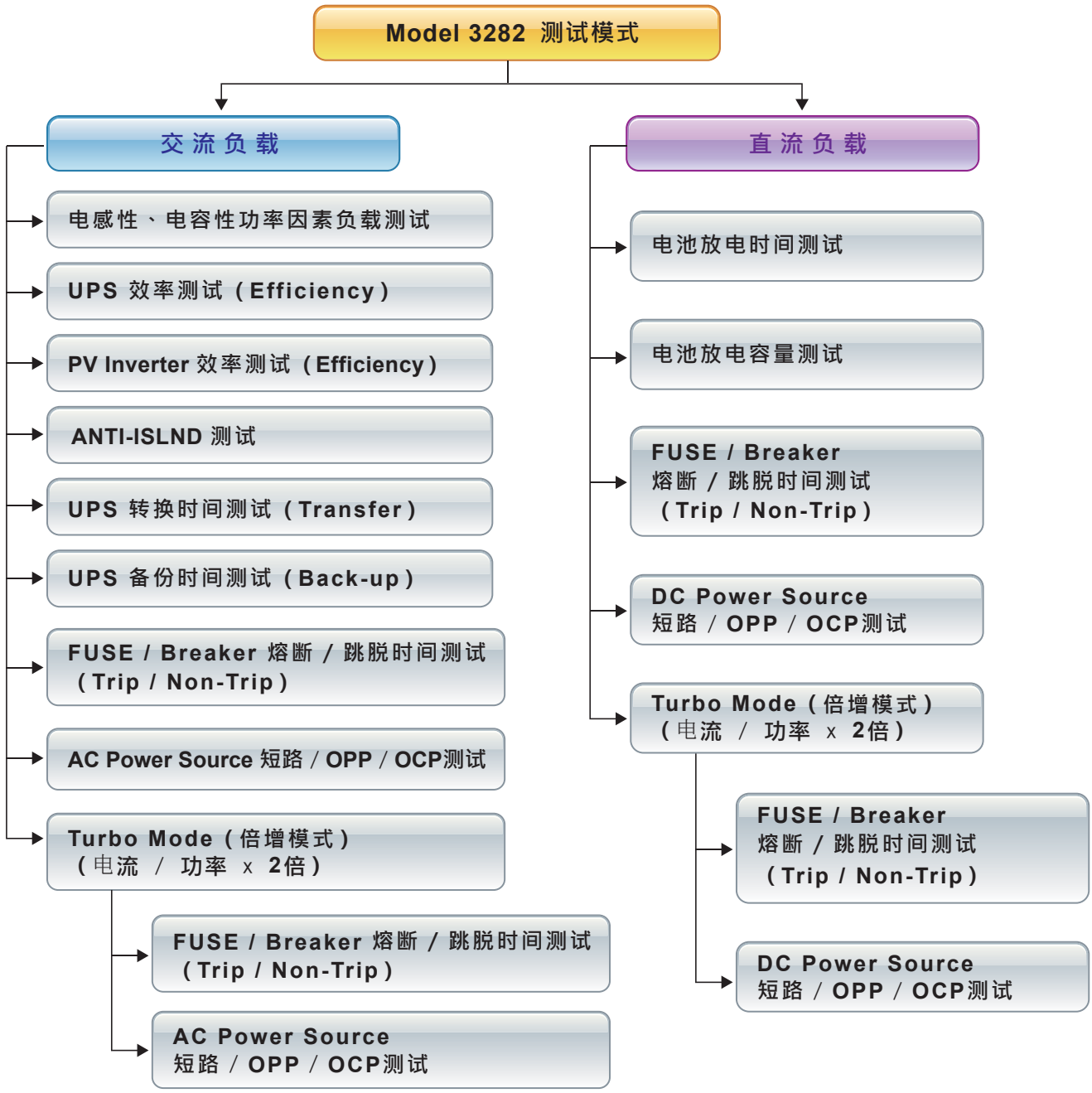




电容性负载 **PF +0.8**

3282 负载的各种测试模式

3282 AC/DC 电子负载特别内建各种产品所需的测试模式，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，如下图所示。



电流保护元件测试

电流保护元件包括Fuse 保险丝， Breaker断路器及新型的PTC Resettable fuse自恢复保险丝等，其作用是当电路电流超过设计的额定值时，也就是负荷超过设计的电流容量时便将电路断开。以避免发生过热、甚至着火，起火等危险。上述保护元件中Fuse是一次性使用，Breaker与PTC就可以重覆使用。

电流保护元件的保护电流值与保护反应时间通常是具有乘积的关系，也就是通过电流保护元件的电流愈大，则其保护断路的反应时间就愈短，这就类似是能量保护元件。

针对这样的特性，3282系列交直流电子负载特别针对电流保护元件的测试验证开发出Fuse Test功能，就能够用一额定电流与功率的电子负载来测试验证此类保护元件(如图b)。当 Turbo mode(倍增模式) 设置为 ON 时，在1秒的测试时间内，测试电流可以倍增到最大电流的2倍，以3282为例，最大测试电流可倍增为37.5A(如图d)，也就是使用3282系列的Turbo mode为ON时，于1秒测试时间内就可以达到2台3282系列的测试电流值。

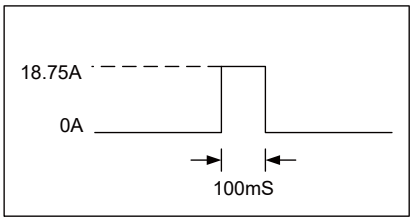

Fuse


Breaker

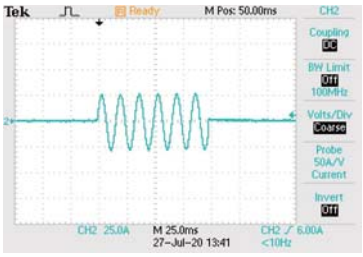

PTC

MODEL		3282
Fuse Test mode		
Max. Current	Turbo OFF	18.75Arms
	Turbo ON	37.5Arms (x2)
Trip & Non-Trip Time	Turbo OFF	0.1~9999.9sec.
	Turbo ON	0.1~1.0sec.
Meas. Accuracy		±0.003 Sec.
Repeat Cycle		0~255
Short / OPP / OCP Test Function		
Short Time	Turbo OFF	0.1S ~ 10Sec. Or Cont.
	Turbo ON	0.1S ~ 1Sec
OPP / OCP Step Time	Turbo OFF	100ms
	Turbo ON	100ms, up to 10 Steps
OCP Istop	Turbo OFF	18.75Arms
	Turbo ON	37.5Arms
OPP Pstop	Turbo OFF	1875W
	Turbo ON	3750W

Turbo OFF, Short 100mS 18.75A
Test result

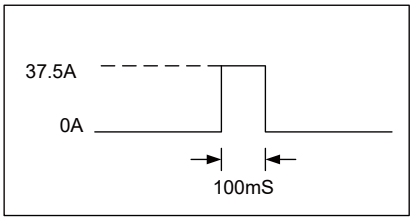


Turbo OFF, Short 100mS 18.75A Setting

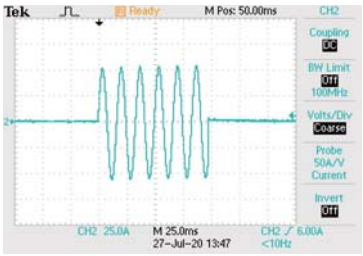


Turbo OFF, Short 100mS 18.75A
Test waveform

Turbo ON, Short 100mS 37.5A
Test result

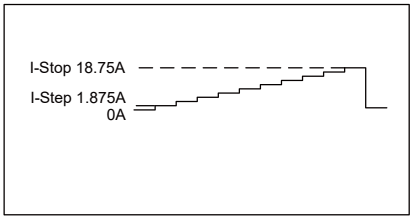


Turbo ON, Short 100mS 37.5A Setting

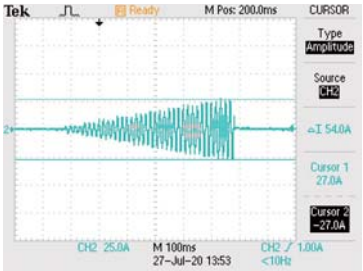


Turbo ON, Short 100mS 37.5 A
Test waveform

Turbo OFF, OCP Istep 1.875A Istop 18.75A
Test result

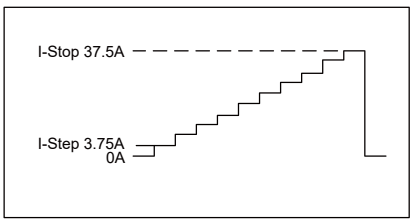


Turbo OFF, OCP Istep 1.875A Istop 18.75A Setting

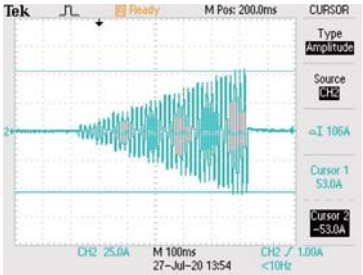


Turbo OFF, OCP Istep 1.875A Istop 18.75A
Test waveform

Turbo ON, OCP Istep 3.75 A Istop 37.5A
Test result



Turbo ON, OCP Istep 3.75 A Istop 37.5A Setting



Turbo ON, OCP Istep 3.75 A Istop 37.5 A
Test waveform

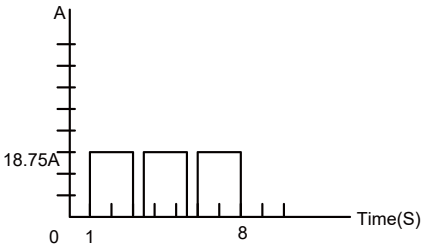
Fuse Test基本上分为Trip（熔断）与Non-Trip（没有熔断）2种。

Fuse Test设定参来包括测试电流（Istart），测试时间（Time），测试重覆次数REPEAT TIME等。

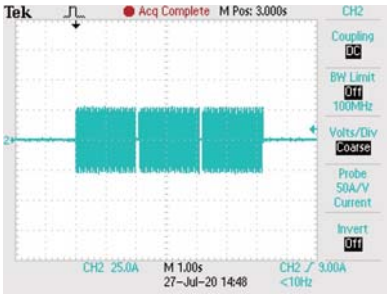
在Trip熔断测试下，是用来测试电流过大异常发生时必须能够提供断路的保护能力，表示电流保护元件需熔断的动作，因此测试电流需要大于熔断的电流规格，当3282系列电子负载侦测到电压低于1.0V，LCD就显示Repeat次数及电流保护元件的熔断时间 XXXX.X sec.。

在Non-Trip测试下，表示电流保护元件需达到不熔断的动作，因此测试电流需要低于熔断的电流规格，用来验证在正常电流范围内就必须不熔断，当3282系列电子负载在测试时间（Pulse Time）与重覆Repeat次数结束后都没熔断，LCD显示Repeat次数的资讯。

Turbo : OFF, Fuse mode Test result

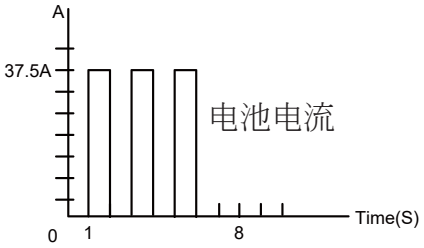


Setting : Turbo : OFF, Fuse ON,
CC pulse 18.75A, 2S, test 3 times

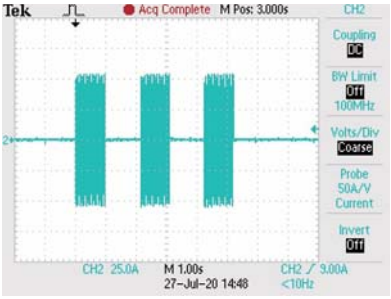


Turbo : OFF, Fuse ON,
CC pulse 18.75A, 2S, test 3 times waveform

Turbo : ON, Fuse mode Test result



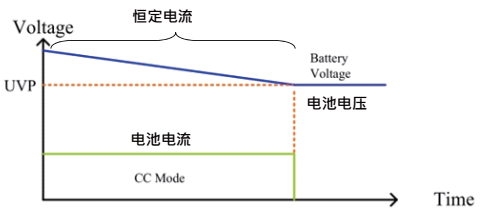
Setting : Turbo : ON, Fuse ON,
CC pulse 37.5A, 1S, test 3 times



Turbo : ON, Fuse ON,
CC pulse 37.5A, 1S, test 3 times waveform

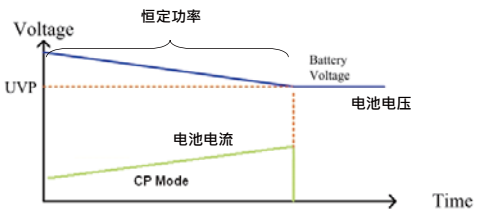
电池测试功能

3282系列负载新增TYPE1~TYPE3共二种电池放电测试，可以依需要选择适当的电池测试模式，测试结果可以直接在LCD显示器上显示电池的AH容量、放电后的电压值、放电的累计时间等数据。



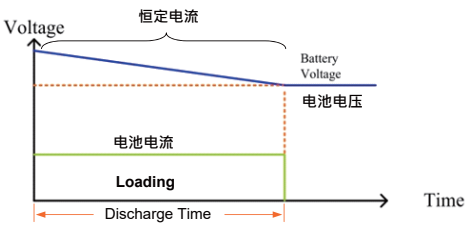
CC + UVP 电池放电模式

Type 1



CP + UVP 电池放电模式

Type 2

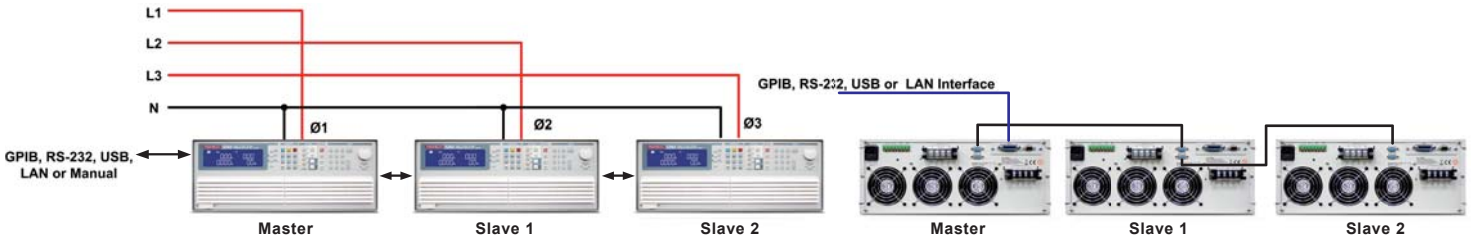


电池放电时间测试

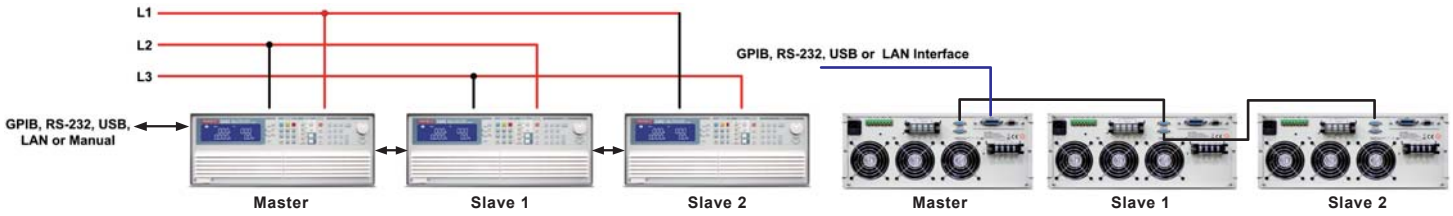
Type 3

并联及三相控制

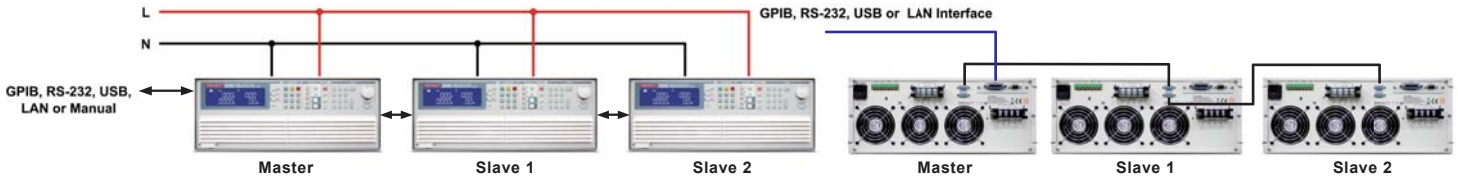
3282 系列负载提供多台并联、三相应用功能，让使用者能够进行更大功率或三相交流电源的测试应用，这样可以更灵活、更弹性的使用3282系列交流电子负载，以节省成本。在并联/三相的操作上，使用者如同操作单机一样，只要对 Master进行操作即可，Slave1 及 Slave2 会自动进行该相的吃载及量测。
并联及三相的连接如下图所示。

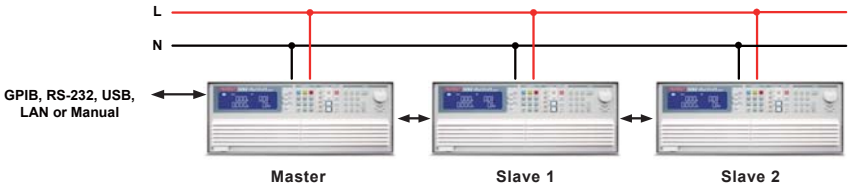


最大单相功率可达15KW，3相总功率达 45KW 之 3 相 Y 连接



最大单相功率可达15KW，3相总功率达 45KW 之3 相 △ 连接





· · · 最多可并联至 **8** 台，总功率可达 **15KW**

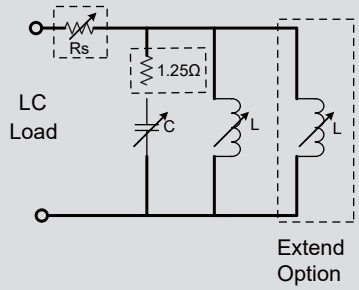
并联连接

面板说明

1	**LCD 多功能显示器** 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、電壓失真度(VTHD, VH)、電流失真度(ITHD, IH)等。	4	**波形库按键** 可快速設定 CF √2 / 2 / 2.5 / 3 / 3.5，+/- PF 0.6 / 0.7 / 0.8 / 0.9 / 1.0，FREQ Auto / DC / 50Hz / 60Hz，L (Inductance)、C(Capacitance) 設定及快速數值設定 L/C(8H / 3.3F, 4H / 6.6uF, 2H / 12.8uF, 1H / 25.6uH, 0.5H / 52uF)。
2	**电表切换键HD** 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	**测试功能键** 可選擇PF / Short / OPP / OCP / Non-L / NL-CR / Fuse / Batt (Battery Discharge) / Trans (UPS transfer time) / INRUS(Inrush) , SURGE 等測試功能。
3	**操作功能键** 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	**数字按键区**
		7	**设定旋钮**
		8	**电源开关**
		9	**游标与设定按键**

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)**
15	**PF Extended Device Connector (for Option PF extended)**		

規　格			
MODEL		**3282**	**3282 + Option : Extend PF**
Power		1875 W / 3700VA	
Reactive Power	Capacitance	C：650 VARmax @ 100V/50Hz C：900 VARmax @ 110V/60Hz C：3150 VARmax @ 220V/50Hz C：3785 VARmax @ 220V/60Hz	C：650 VARmax @ 100V/50Hz C：900 VARmax @ 110V/60Hz C：3150 VARmax @ 220V/50Hz C：3785 VARmax @ 220V/60Hz
	Inductance	L：400 VARmax @ 100V/50Hz L：400 VARmax @ 110V/60Hz L：880 VARmax @ 220V/50Hz L：800 VARmax @ 220V/60Hz	L：1200 VARmax @ 100V/50Hz L：1200 VARmax @ 110V/60Hz L： 3520 VARmax @ 220V/50Hz L： 3200 VARmax @ 220V/60Hz
Resistive Current (Ampere)		18.75 Arms / 46.875 Apeak	
Reactive Current	Capacitance	C：6.5 Amax @ 100V/50Hz C：8.6 Amax @ 110V/60Hz C：14.3 Amax @ 220V/50Hz C：17.2 Amax @ 220V/60Hz	C：6.5 Amax @ 100V/50Hz C：8.6 Amax @ 110V/60Hz C：14.3 Amax @ 220V/50Hz C：17.2 Amax @ 220V/60Hz
	Inductance	L：4 Amax @ 100V/50Hz L：3.6 Amax @ 110V/60Hz L：4 Amax @ 220V/50Hz L：3.6 Amax @ 220V/60Hz	L：12 Amax @ 100V/50Hz L：10.8 Amax @ 110V/60Hz L：16 Amax @ 220V/50Hz L：14.4 Amax @ 220V/60Hz
Voltage (Volt)		50~280Vrms / 400Vdcmax	
FREQUENCY Range		DC, 40~70Hz (CC, CP Mode) DC~70Hz (LIN, CR, CV Mode)	
PROTECTIONS			
Over Power Protection		≒ 1968.75 Wrms or Programmable	
Over Current Protection		≒ 19.687 Arms or Programmable	
Over Voltage Protection		≒ 294 Vrms / 420Vdc	
Over Temp. Protection		Yes	
OPERATION MODE			
Constant Current Mode for Sine-Wave			
Range		0 ~ 18.75A	
Resolution		0.3125mA / 16bits	
Accuracy		± (0.1% of setting + 0.2% of range)	
Linear Constant Current Mode for Sine-Wave, Square-Wave or Quasi-Square Wave, PWM Wave			
Range		0 ~ 18.75A	
Resolution		0.3125mA / 16bits	
Accuracy		± (0.1% of setting + 0.2% of range)	
Constant Resistance Mode			
Range		3.2 ohm ~ 64K ohm	
Resolution*1		0.0052083mS / 16bits	
Accuracy		±0.2% of (setting + range)	
Constant Voltage Mode			
Range		50 ~ 280Vrms / 400Vdc	
Resolution		0.1V	
Accuracy		± (0.1% of setting + 0.1% of range)	
Constant Power Mode			
Range		0 ~ 1875W	
Resolution		0.1W	
Accuracy		± (0.1% of setting + 0.1% of range)	
RECTIFIER LOAD CREST FACTOR (CC & CP MODE ONLY)			
Range		√2 ~ 5	
Resolution		0.1	
Accuracy		(0.5% / Irms) + 1%F.S.	
RECTIFIER LOAD POWER FACTOR (CC & CP MODE ONLY)			
Range*4		0 ~ 1 Lag or Lead	
Resolution		0.01	
Accuracy		1% F.S.	

Plus LC Mode			
	**RS**	0Ω / 4.5Ω / 9Ω	
	Accuracy	±5% of setting	
	Capacitor	0，0.1uF ~ 207.55uF (0.1uF / 0.22uF / 0.47uF / 0.82uF / 1.64uF / 3.3uF / 6.6uF / 12.8uF / 25.6uF / 52uF / 104uF)	
	Accuracy	(±20% of setting) ±20mA	
	Inductance	0，40H ~ 0.156H (40H / 20H / 10H / 5H / 2.5H / 1.25H / 0.625H / 0.312H)	0，40H ~ 0.039H (40H / 20H / 10H / 5H / 2.5H / 1.25H / 0.625H / 0.312H / 156mH / 78mH / 156mH / 78mH)
	Accuracy	(±20% of setting) ±20mA	

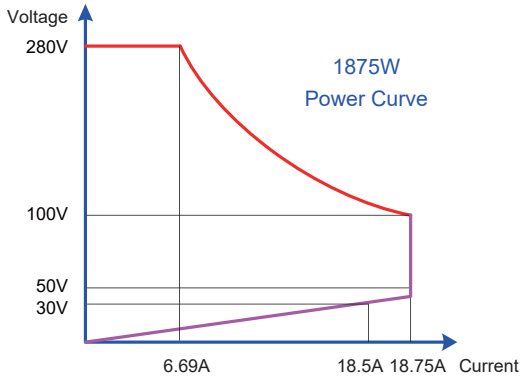
TEST MODE		
RLC LOAD SINE-WAVE POWER FACTOR(CF=√2)		
Current Range		0 ~ 18.75A
Resolution		0.3125mA / 16bits
PF Range		+/- 0.000 ~ 1.000
UPS Efficient Measurement		Non-Linear Mode
Operating Frequency		Auto ; 40 ~ 70Hz
Current Range		0 ~ 18.75A
PF Range		0~1
MEASURING EFFICIENCY FOR PV SYSTEMS, POWER CONDITIONERS for THD 80%		Resistive + Non-Linear Mode
Operating Frequency		Auto ; 40 ~ 70Hz
Current Range		0 ~ 18.75A
Resistive Range		3.2 ohm ~ 64K ohm
UPS Back-Up function(CC, LIN, CR, CP)		
UVP (V_{TH})		50 ~ 280Vrms / 400Vdc
UPS Back-Up Time		1 ~ 99999 Sec. (>27H)
Battery Discharge function(CC, LIN, CR, CP)		
UVP (V_{TH})		50 ~ 280Vrms / 400Vdc
Battery Discharge Time		1 ~ 99999 Sec. (>27H)
UPS Transfer Time		
Current Range		0 ~ 18.75A
UVP (V_{TH})		2.5V
Time range		0.15mS ~ 999.99mS
Fuse Test mode		
Max. Current	**Turbo OFF**	18.75Arms
	Turbo ON	37.5Arms (x2) *3
Trip & Non-Trip Time	**Turbo OFF**	0.1~9999.9sec.
	Turbo ON	0.1 ~ 1.0sec.
Meas. Accuracy		±0.003 Sec.
Repeat Cycle		0~255
Short / OPP / OCP Test Function		
Short Time	**Turbo OFF**	0.1S ~ 10Sec. Or Cont.
	Turbo ON	0.1S ~ 1Sec
OPP/OCP Step Time	**Turbo OFF**	100ms
	Turbo ON	100ms, up to 10 Steps
OCP Istop	**Turbo OFF**	18.75Arms
	Turbo ON	37.5Arms
OPP Pstop	**Turbo OFF**	1875W
	Turbo ON	3750W
Programmable Inrush current simulation: Istart - Istop / Tsep		
Istart, Inrush Start Current		0 ~ 37.5A
Inrush Step time		0.1mS ~ 100mS
Istop, Inrush stop current		0 ~ 18.75A

Programmable Surge current simulation: S1/T1 - S2/T2 - S3/T3		
S1 and S2 Current	0 ~ 37.5A	
T1 and T2 Time	0.01S ~ 0.5Sec.	
S3 Current	0 ~ 18.75A	
T3 Time	0.01S ~ 9.99Sec. Or Cont.	
Anti-Islanding		
Type	PQ / RLC	
Q	1875 Var	
Accuracy	±5% of setting	
Capacitor	0，0.1uF ~ 207.55uF (0.1uF / 0.22uF / 0.47uF / 0.82uF / 1.64uF / 3.3uF / 6.6uF / 12.8uF / 25.6uF / 52uF / 104uF)	
Accuracy	(±20% of setting) ± 20mA	
Inductance	0，40H ~ 0.156H (40H / 20H / 10H / 5H / 2.5H / 1.25H / 0.625H / 0.312H)	0，40H ~ 0.039H (40H / 20H / 10H / 5H / 2.5H / 1.25H / 0.625H / 0.312H / 156mH / 78mH)
Accuracy	(±20% of setting) ± 20mA	
MEASUREMENTS		
VOLTAGE READBACK V METER		
Range	400V	
Resolution	0.01V	
Accuracy	± 0.05% of (reading + range)	
Parameter	Vrms, V Max / Min, +/-Vpk	
CURRENT READBACK A METER		
Range	18.75Arms	
Resolution	1mA	
Accuracy	± 0.5% of (reading + range)	
Parameter	Irms, I Max / Min, +/-Ipk	
WATT READBACK W METER		
Range	1875W	
Resolution	0.03125W	
Accuracy	± 0.1% 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 ~ 70Hz	
Accuracy	0.1%	
Other Parameter METER		
VA, VAR, CF_I, Ipeak, Imax., Imin. Vmax., Vmin., I_{HD} , V_{HD} , I_{THD} , V_{THD}		
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 units	
External programming input (OPTION)	F.S / 10Vdc, Resulotion 0.1V	
External SYNC input	TTL	
Vmonitor (Isolated)	± 500V / ±10V	
Imonitor (Isolated)	± 56.25Apk / ±10Vpk	
Interface (OPTION)	GPIB；RS-232；LAN；USB	
MAX. Power consumption	150VA	
Operation Temperature *2	0 ~ 40℃	

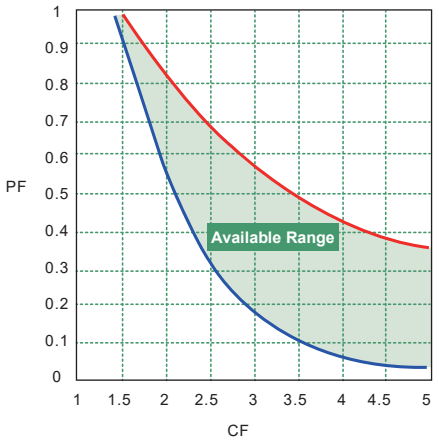
Current of input impedance(mA)	~V x 0.3	
Dimension(H x W x D)	177 x 440 x 558 mm	
Weight	42Kg	
OPTION		
Extend PF inductance to 3700VA	NA	52mH
Dimension(H x W x D)	NA	141 x 440 x 250 mm
Weight	NA	34Kg

*1 ms (millisiemens) is the unit of conductance(G), one siemens equal to 1/Ω
*2 Operating temperature range is 0~40℃, 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 power factor range is limited on programmed current
*5 Extend PF Range Option (Inductance：52mH)

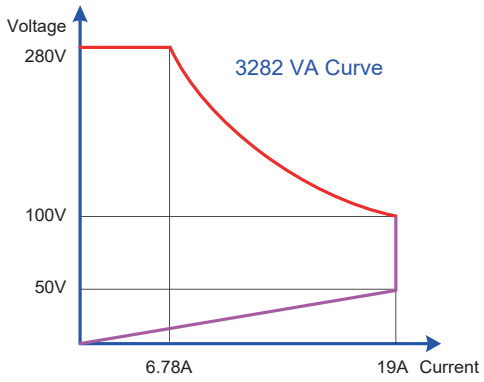
* All specifications apply for 50/60Hz.
* All specifications subject to change without notice.



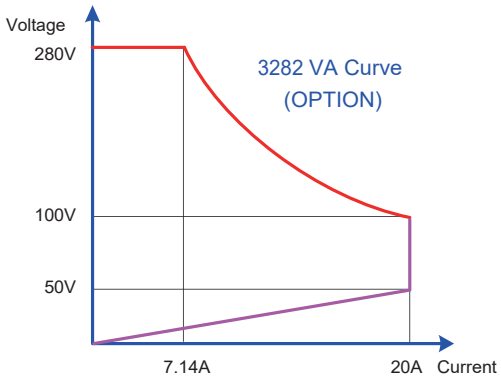
3282 Power Curve



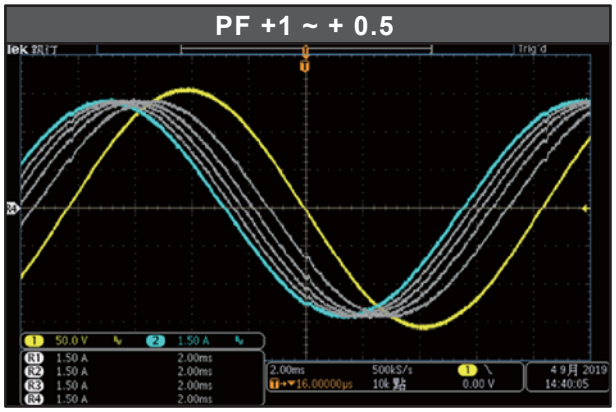
Rectified Load CF VS. PF Range

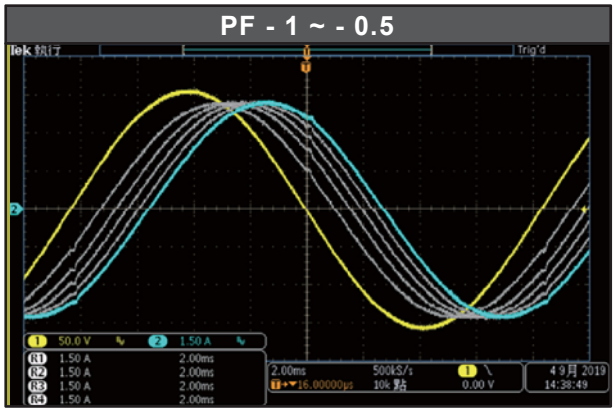


3282 VA Curve



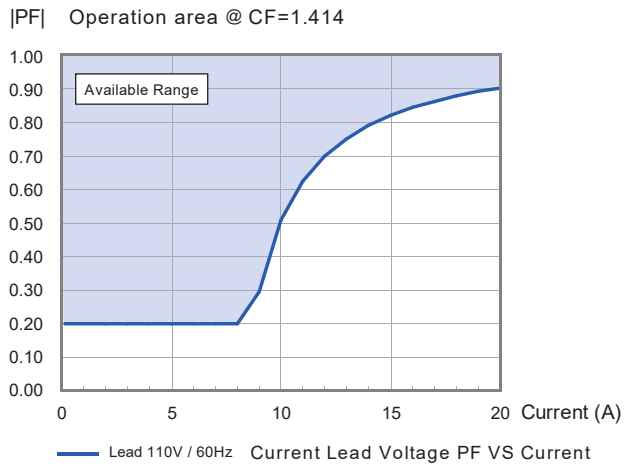
3282 VA Curve (OPTION)

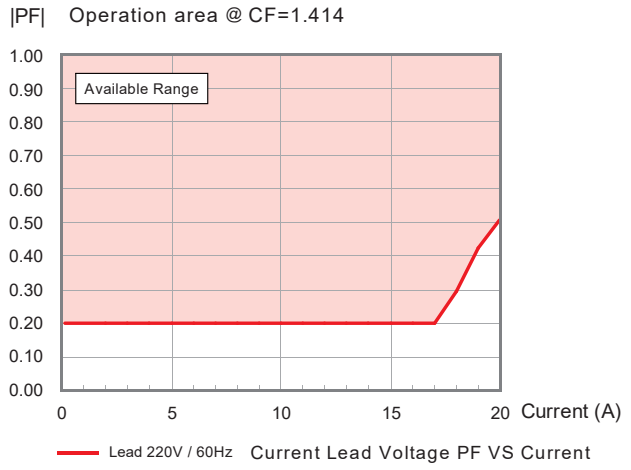


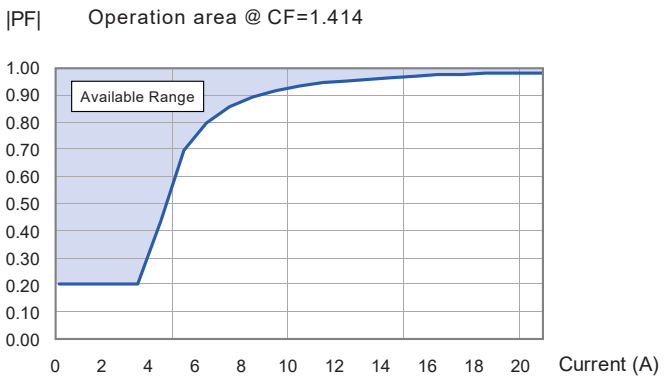


Yellow : Voltage waveform
Gray, Blue : Current waveform

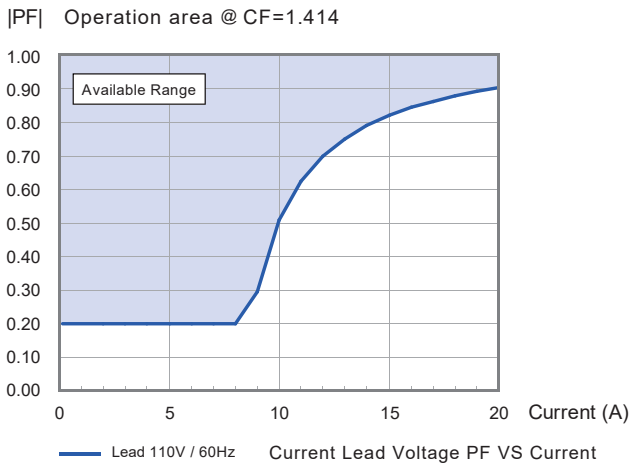
3282

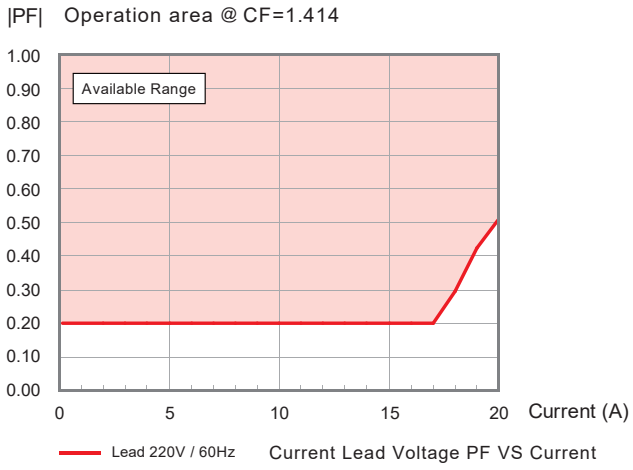


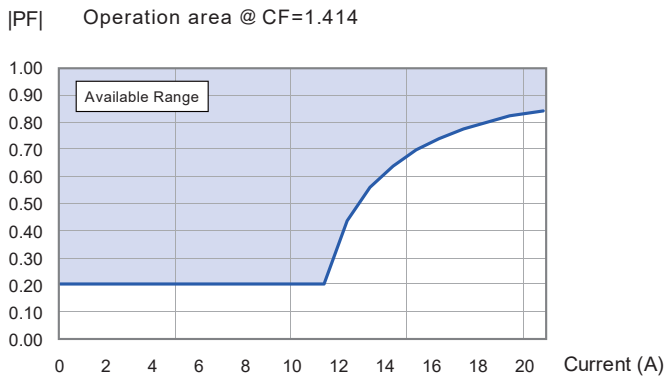


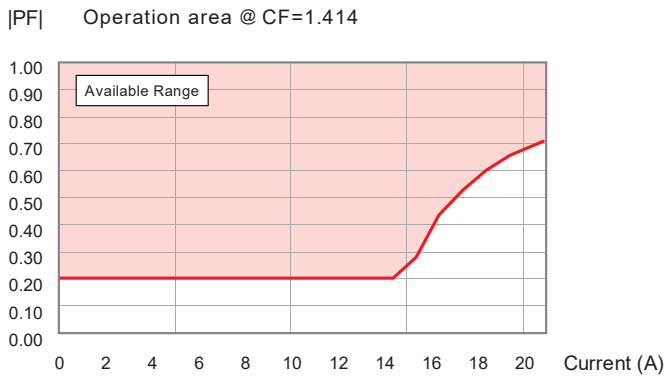


3282 + Option : Extend PF



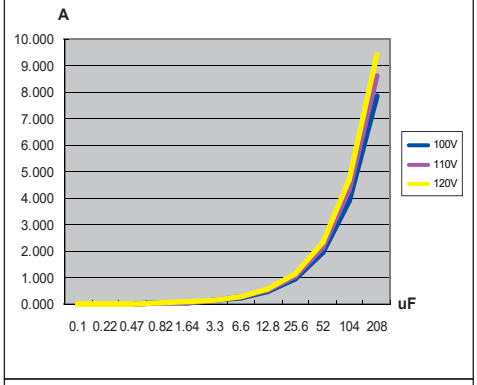


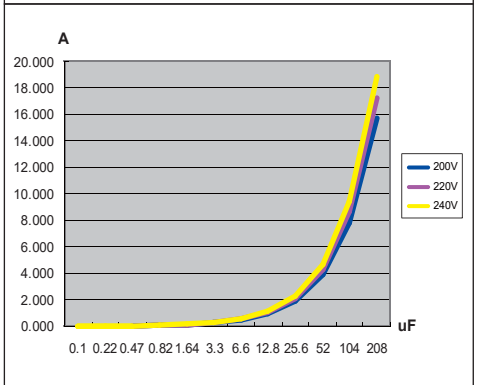




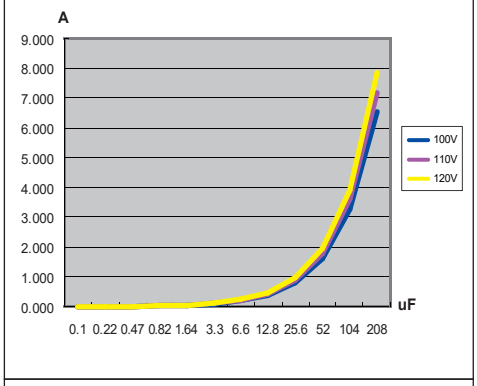
CAPACITOR

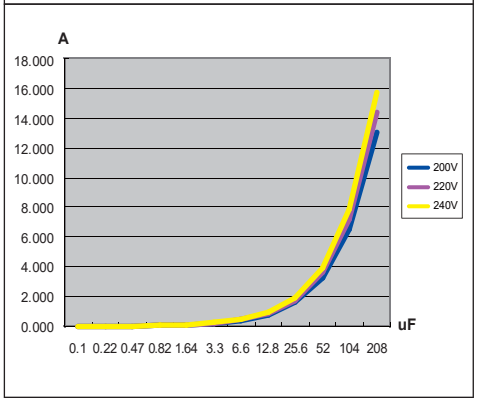
60Hz Current (A) VS. Capacitor (uF)





50Hz Current(A) VS. Capacitor(uF)

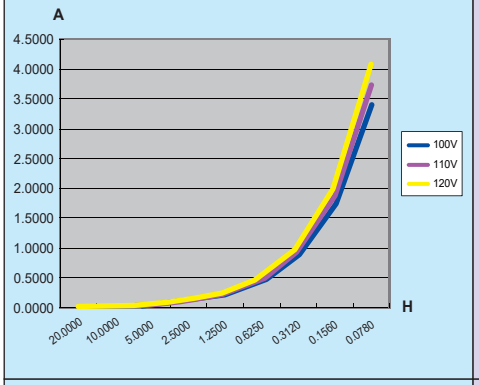


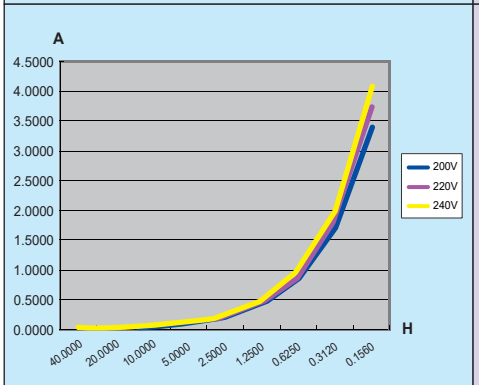


INDUCTANCE

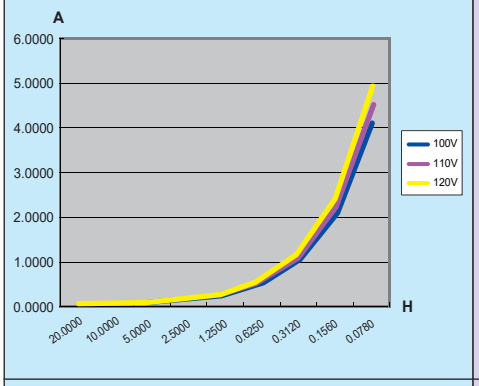
3282

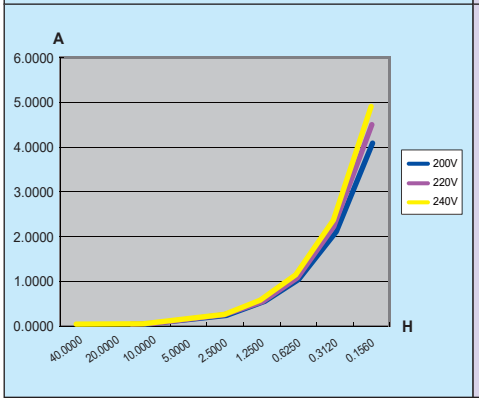
60Hz Current (A) VS. Inductance (H)





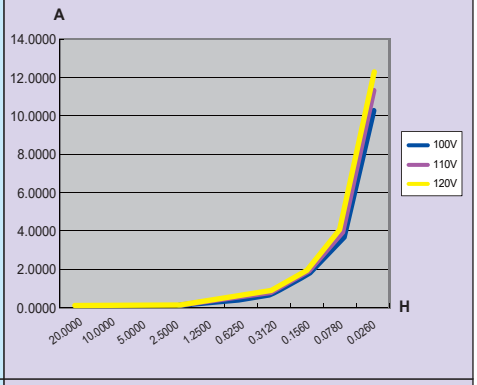
50Hz Current (A) VS. Inductance (H)

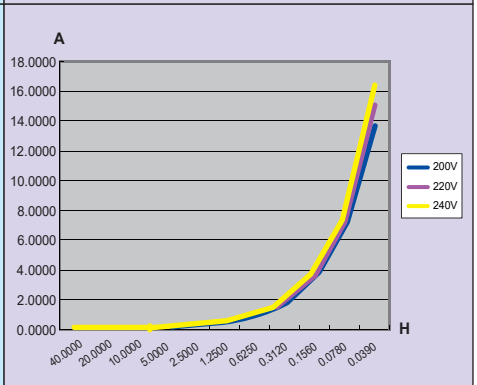




3282 + Option : Extend PF

60Hz Current (A) VS. Inductance (H) EXTEND OPTION





50Hz Current (A) VS. Inductance (H) EXTEND OPTION