3282

功率因素RLC負載





POWER FACTOR RLC LOAD

博計電子股份有限公司

新北市新店區寶中路88號8樓

TEL：886-2-2918-2620　　FAX　：886-2-2912-9870

http：//www.prodigit.com.tw　　E-mail：carry@prodigit.com.tw

3282 功率因素RLC負載





MODEL	3282
Power	1875W / 3700VA
Reactive Power (With Extend OPTION)	C：900 VARmax @ 110V / 60Hz　　L：400 (1200) VARmax @ 110V / 60Hz C：3785 VARmax @ 220V / 60Hz　　L：800 (3200) VARmax @ 220V / 60Hz
Current (Ampere)	18.75 Arms / 46.875 Apeak
Reactive Current (With Extend OPTION)	C：8.6 Amax @ 110V / 60Hz　　L：3.6 (10.8) Amax @ 110V / 60Hz C：17.2 Amax @ 220V / 60Hz　　L：3.6 (14.4) Amax @ 220V / 60Hz
Voltage (Volt)	50~280 Vrms / 400Vdc

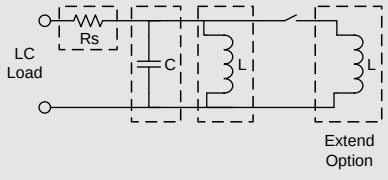
特　性

- 功能強大的PF模式，使用者只要輸入所需電流及PF值，3282 內建的高速控制器即可呈現出所需電流及 PF 數值。
- 四個電錶可同時顯示電壓值(Vrms, Vpeak, Vmax., Vmin)、電流值(Irms, Ipeak, Imax., Imin.)、瓦特值、伏安值(VA)、頻率值、峰值因素、功率因素、電壓失真度(VTHD, VH)、電流失真度(ITHD, IH)等。
- 交/直流負載具定電流、線性定電流、定電阻、定電壓、定功率以上各工作模式皆可加上電感性或電容性負載及整流性負載等工作模式。
- 峰值因素範圍：1.414~5.0。
- 功率因素範圍：0~1 超前或落後。
- 內建測試模式包括UPS Efficiency、PV Inverter Efficiency、UPS Back-up time、Battery Discharge time、UPS transfer time、Fuse / Breaker Trip / Non-Trip、短路模擬、OCP、OPP、PF、INRUS（ Inrush ）、SURGE 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 (37.5A) 與功率 (37.5KW) 的電子負載，最適合Fuse/Breaker及交流電源的短路、OCP、OPP測試。
- 時間量測可應用於電池、UPS、保險絲和斷路器等測試。
- 高達八台的並聯最高可達 15KW及三相△或Y的負載同步控制。
- 針對一般家庭與工業電器設備的電感性或電容負載，需要負載電流落後或超前電壓的各種電器設備，如具有馬達的電扇，壓縮機的冷氣機、電冰箱等，3282 RLC功率因素交流負載能對家庭與工業電器的功率因素負載都能執行模擬，針對太陽能逆變器、電動車逆變器及儲能裝置的併網功能提供了反孤島測試，可各自獨立設定所需實功與電感虛功，電容虛功，3282單機280V / 18.75A容量可達1.875KW/3700VA max，只要將各種電器設備及逆變器的負載參數輸入到3282內，待驗證的Inverter/UPS交流電源輸出連接到3282交流負載，就能夠對於電感性/電容性功率因素負載的各種電器設備進行模擬測試。
- 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。
- 支援抽載與卸載角度控制；吃載卸載角度控制，0-359度全範圍都可設定，用來驗證實際電器插拔時，Inverter輸出電壓暫態反應是否穩定，Overshoot/Undershoot 是否在容許範圍內。
- 支援正半週或負半週抽載；用來驗證實際電器只有正半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, 40~70Hz
- 電壓, 電流監控。
- 外部電壓控制定電流、線性定電流、定電阻、定電壓、定功率等工作模式。
- 過電壓警示、過電流、過功率、過溫度保護。
- GPIB、RS-232、USB、LAN 控制介面。
- 最齊全的量測功能

3282 功率因素 RLC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)。

規　格

MODEL	3282
Power	1875 W / 3700VA*6
Reactive Power (With Extend OPTION) *5	C： 900 VARmax @110V / 60Hz C：3785 VARmax @ 220V / 60Hz L： 400 (1200) VARmax @110V / 60Hz L： 800 (3200) VARmax @ 220V / 60Hz
Current (Ampere)	18.75 Arms / 46.875 Apeak
Reactive Current (With Extend OPTION) *5	C：8.6Amax @110V/60Hz C：17.2Amax @ 220V/60Hz L： 3.6 (10.8) Amax @110V / 60Hz L： 3.6 (14.4) Amax @ 220V / 60Hz
Voltage(Volt)	50 ~ 280Vrms / 400Vdc
FREQUENCY Range	DC, 40~70Hz (CC, CP Mode) , DC~70Hz (LIN, CR, CV Mode)
PROTECTIONS	
Over Power Protection	≒ 1968.75Wrms or Programmable
Over Current Protection	≒ 19.687 Arms or Programmable
Over Voltage Protection	≒ 294 Vrms / 420Vdc
Over Temp. Protection	Yes, 90℃ ± 5℃
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	0.1μF / 0.22μF / 0.47μF / 0.82μF / 1.64μF / 3.3μF 6.6μF / 12.8μF / 25.6μF / 52μF / 104μF
Accuracy	±20% of setting
Inductance	32H / 16H / 8H / 4H / 2H / 1H / 0.5H / 0.25H / 41.6mH(Extend Option)
Accuracy	±20% of setting

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.
MEASUREMENTS		
VOLTAGE READBACK A METER		
Range		400V
Resolution		0.01V
Accuracy		± 0.05% of (reading + range)
Parameter		Vrms, V Max / Min, +/-Vpk

CURRENT READBACK A METER	
Range	9.375Arms / 18.75Arms
Resolution	0.2mA / 0.4mA
Accuracy	± 0.05% 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 (V)	
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	41.6mH
Dimension(H x W x D)	141 x 440 x 250 mm
Weight	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

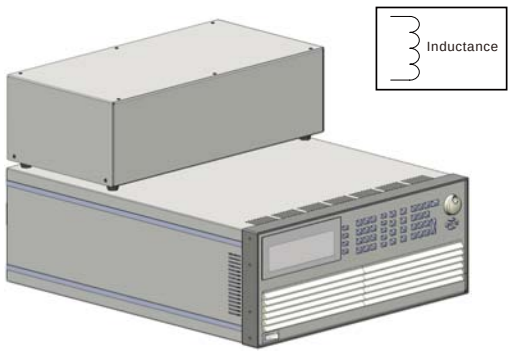
*4 The power factor range is limited on programmed current

*5 Extend PF Range to 3700VA Option (Inductance：41.6mH)

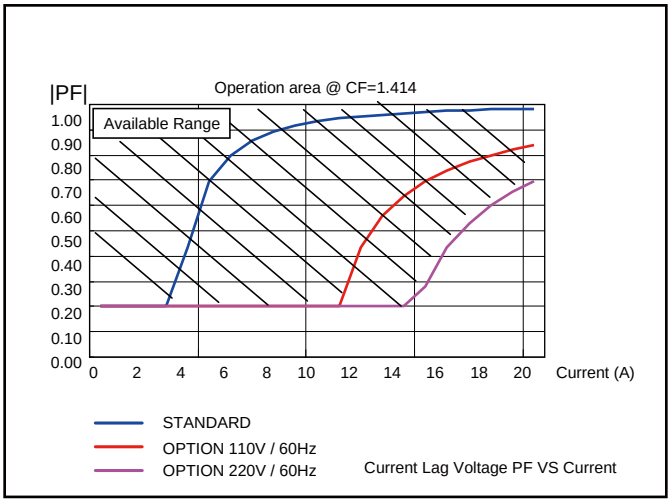
*6 Specifications apply for 220V/60Hz and option inductance

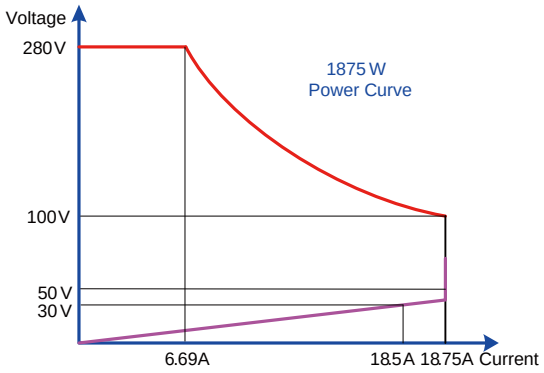
* All specifications apply for 50/60Hz.

* All specifications subject to change without notice.

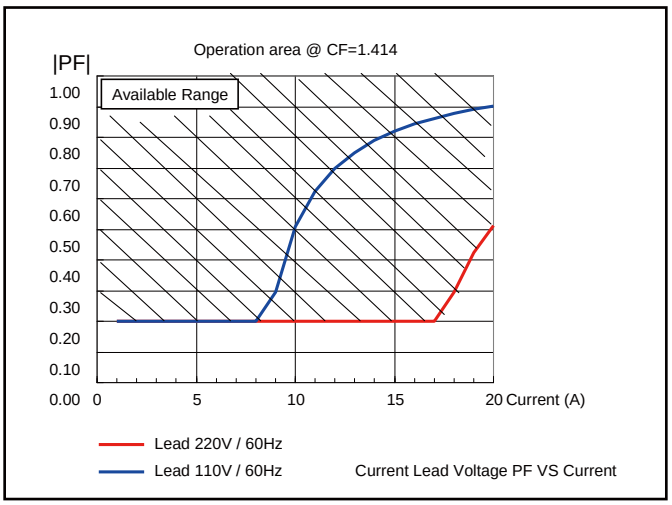


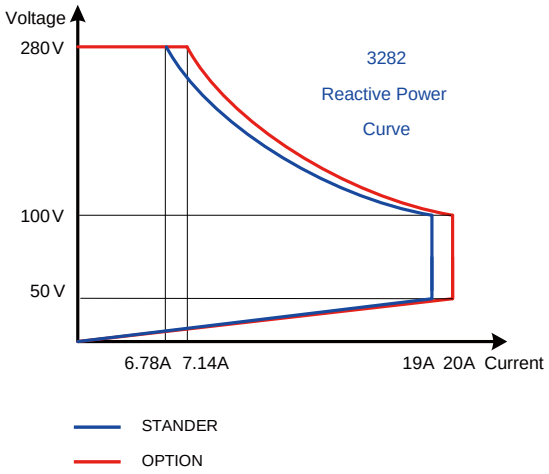
Extend PF Range Option

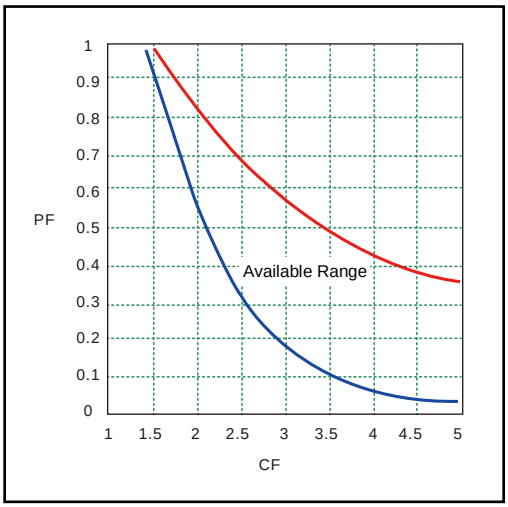




3282 功率曲線圖

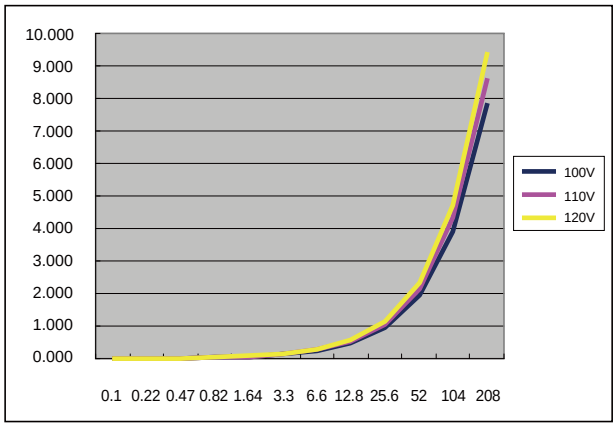


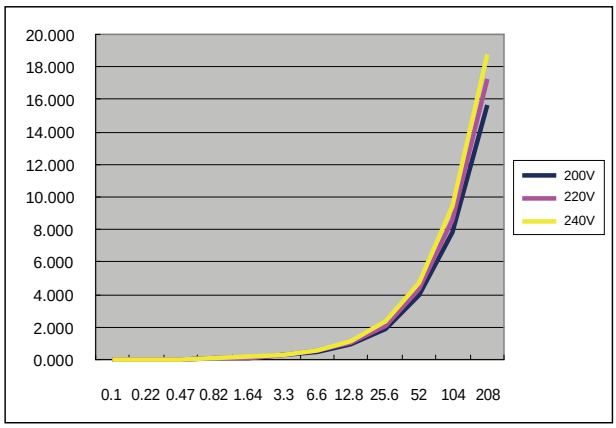




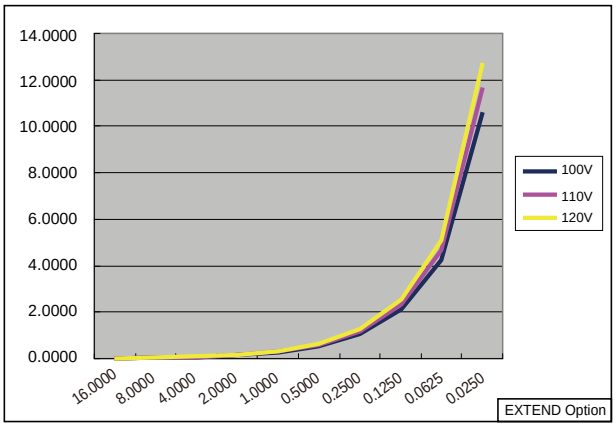
Rectified Load CF VS. PF Range

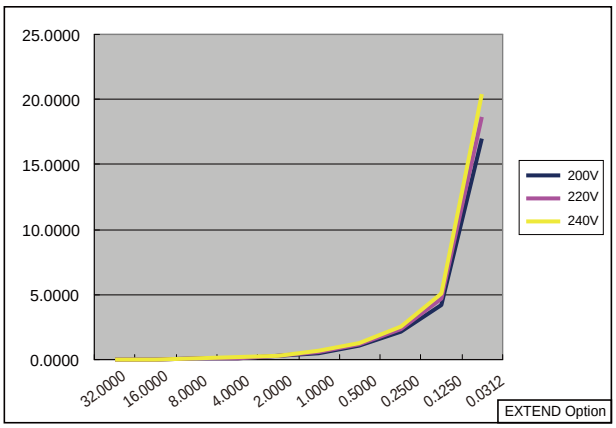
60Hz Current(A) VS. Capacitor(uF)



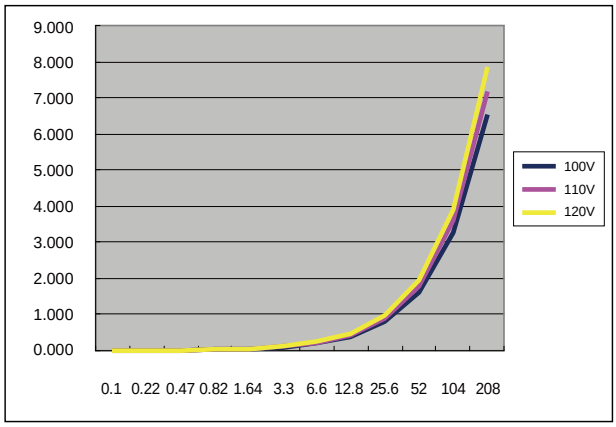


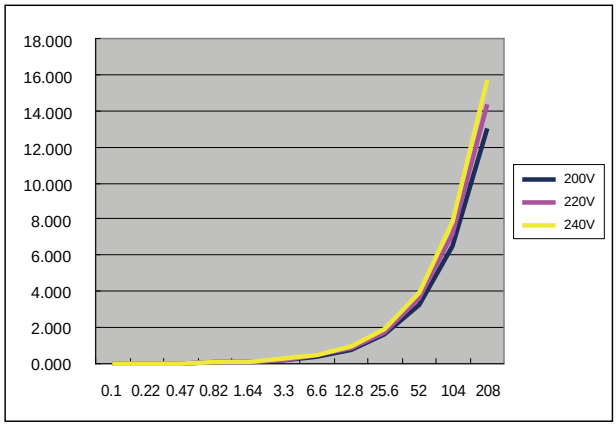
60Hz Current(A) VS. Inductance(H)





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





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

