3310G 系列

直流電子負載

特　點

- 5位之數位電壓、電流以及功率錶
- 可同時顯示電壓值、電流值、瓦特值
- 大型 LCD Display、可用飛梭旋鈕或按鍵調整設定值
- 不只CC、CR、CP mode具備並聯操作功能，CV mode亦具備並聯操作功能
- 可設定開機狀態值
- 於短路測試時可設定短路時間
- 電壓極性顯示可設成正值（" +" ）或負值（" -" ）
- 支援太陽能板MPPT CC、CR、CV測試
- 內建測試模式包括 Battery Discharge time, BMS, 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BMS、短路、OCP、OPP測試

GW INSTEK
Simply Reliable

3310G 系列 直流電子負載

	Normal mode		Turbo mode
3310G	60V / 30A / 150W	→	60V / 60A / 300W
3311G	60V / 60A / 300W	→	60V / 120A / 600W
3312G	250V / 12A / 300W	→	250V / 24A / 600W
3314G	500V / 12A / 300W	→	500V / 24A / 600W
3315G	60V / 15A / 75W	→	60V / 30A / 150W
3316G	80V / 80A / 400W	→	80V / 160A / 800W
3318G	500V / 20A / 400W	→	500V / 40A / 800W
3317G / 3317G-M	80V / 160A / 800W	→	80V / 320A / 1600W
3319G / 3319G-M	500V / 40A / 800W	→	500V / 80A / 1600W

特　性

- 5位之數位電壓、電流以及功率錶。
- 可同時顯示電壓值、電流值、瓦特值。
- 大型 LCD Display、可用飛梭旋鈕或按鍵調整設定值。
- 不只CC、CR、CP mode具備並聯操作功能，CV mode亦具備並聯操作功能。
- 負載模組須安裝於機框3302G〔單個插槽機框〕3302G/3305G機框提供NTC模擬測試功能（選購）、3305G〔二個插槽機框〕或3300G〔四個插槽機框〕上，且機框上具有150組 儲存/呼叫 記憶。
- 可設定開機狀態值。
- 於短路測試時可設定短路時間。
- 電壓極性顯示可設成正值（"+"）或負值（"－"）。
- 具有同步並聯執行之功能（SYNC. Load on）
- 可選用介面:GPIB、RS232、USB、LAN。
- 支援太陽能板MPPT CC、CR、CV測試
- 提供電池BMS保護板之保護功能測試
- 9923負載電流波形產生器提供電池實際放電電流波形之模擬（選購）
- 內建測試模式包括 Battery Discharge time, BMS, 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BMS、短路、OCP、OPP測試
- 定電流、定電阻、定電壓、定功率、定電流+定電壓、定功率+定電壓、動態及短路模式
- 過電流、功率、溫度保護及過電壓示警

說　明

- 每個3310G系列均有獨立的控制及顯示面板、定電流 / 定電阻 / 定電壓 / 定功率 / 定電流+定電壓 / 定功率+定電壓 / 動態模式，配合3300G機框上的150組 儲存/呼叫 記憶，能有效地控制所有負載的設定，更可透過RS232、Ethernet、USB和GPIB等介面進行遠端控制。
- 獨特的 Turbo 模式專為過載或保護測試而設計，包括 AC/DC 或 DC/DC 電源的過流保護 (OCP)、過功率保護 (OPP)、短路測試；電池 BMS 保護的過充/過放和短路測試；以及保險絲、斷路器或 PTC 電流保護組件的熔斷/不熔斷測試。
- 具備短路測試功能及設定短路時間，並可量測短路電壓及電流。
- 負載上的BMS、熔斷器、OCP和OPP單鍵測試功能使測試更有效率。
- 在定電流及定功率模式下，可做動態負載之模擬，其電流上升、下降斜率均為獨立可調，另具有一外部輸入任意波形之動態負載功能。
- 短路測試時的 SHORT_VH、SHORT_VL 判斷位準設定功能，還可測量短路電壓和電流。
- 可設定的吃載/停止吃載（LOAD ON/OFF）電壓點及良/不良（GO/NG）的比較判斷功能、電壓極性顯示可正可負及150組 儲存/呼叫 記憶，使得負載更適用於各種不同的應用。
- 多達150組測試參數及狀態的儲存功能，讓其可根據自動測試(auto sequence)需求，隨時將儲存記憶調出來任意使用

應　用

- 電壓/電流源測試
- 交換式電源供應器暫態響應
- 定電壓模式供限流測試及模擬電池
- 電池放電容量
- 鋰電池BMS充放電保護
- Fuse , Breaker , PTC規格測試
- 太陽能板MPPT
- 研發、品管
- ATE系統
- 生產測試

SPECIFICATIONS

Model	3310G		3311G		3312G	
Power	150W, 300W max. *1		300W, 600W max. *1		300W, 600W max. *1	
Current	30A, 60A max. *1		60A, 120A max *1		12A, 24A max. *1	
Voltage	60V		60V		250V	
Min. Operating Voltage	0.3V @ 30A		0.3V @ 60A		1V @ 12A	
Protections						
Over Power Protection(OPP)	105%		105%		105%	
Over Current Protection(OCP)	105%		105%		105%	
Over Voltage Protection(OVP)	105%		105%		105%	
Over Temp Protection(OTP)	YES		YES		YES	
Constant Current Mode						
Range *2	0 ~ 3A	0 ~ 30A	0 ~ 6A	0 ~ 60A	0 ~ 1.2A	0 ~ 12A
Resolution	0.05mA	0.5mA	0.1mA	1mA	0.02mA	0.2mA
Accuracy *3	± 0.05% of (setting + Range)					
Constant Resistance Mode						
Range	2 ~120KΩ	0.02Ω ~ 2Ω	1Ω ~ 60 KΩ	0.0083Ω ~ 1Ω	25Ω ~ 1500KΩ	0.08Ω ~ 25Ω
Resolution	0.00833mS	0.033mΩ	0.0166mS	0.0166mΩ	0.00066mS	0.4166mΩ
Accuracy	± 0.2% of (Setting + Range)					
Constant Voltage Mode						
Range	0 ~ 6V	0 ~ 60V	0 ~ 6V	0 ~ 60V	0 ~ 30V	0 ~ 250V
Resolution	0.0001V	0.001V	0.0001V	0.001V	0.001V	0.01V
Accuracy	± 0.025% of (Setting + Range)					
Constant Power Mode						
Range	0 ~ 15W	0 ~ 150W	0 ~ 30W	0 ~ 300W	0 ~ 30W	0 ~ 300W
Resolution	0.00025W	0.0025W	0.0005W	0.005W	0.0005W	0.005W
Accuracy *4	± 0.1% of (Setting + Range)					
Constant Voltage + Current Limit Mode						
Range	60V	30A	60V	60A	250V	12A
Resolution	0.001V	0.5mA	0.001V	1mA	0.01V	0.2mA
Accuracy	± 0.05% of (Setting + Range)	± 1.0% of (Setting + Range)	± 0.05% of (Setting + Range)	± 1.0% of (Setting + Range)	± 0.05% of (Setting + Range)	± 1.0% of (Setting + Range)
Constant Voltage + Power Limit Mode						
Range	60V	150W	60V	300W	250V	300W
Resolution	0.001V	0.0025W	0.001V	0.005W	0.01V	0.005W
Accuracy	± 0.05% of (Setting + Range)	± 1.0% of (Setting + Range)	± 0.05% of (Setting + Range)	± 1.0% of (Setting + Range)	± 0.05% of (Setting + Range)	± 1.0% of (Setting + Range)
Turbo mode*1	OFF	ON	OFF	ON	OFF	ON
Short/OCP/OPP Test Function						
Maximum Current	30A	60A	60A	120A	12A	24A
Meas. Accuracy	± 1.0% of (Reading + Range)					
Short time	100ms~10 Sec. or Continue	100~2000mS	100ms~10 Sec. or Continue	100~2000mS	100ms~10 Sec. or Continue	100~2000mS
Meas. Accuracy	NA	NA	NA	NA	NA	NA
OCP Time (Tstep)	100mS	20mS	100mS	20mS	100mS	20mS
Meas. Accuracy	NA	NA	NA	NA	NA	NA
OPP Time (Tstep)	100mS	20mS	100mS	20mS	100mS	20mS
Meas. Accuracy	NA	NA	NA	NA	NA	NA

BMS Test Mode *5	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON
Short time	100ms~10 Sec. or Continue	0.05mS~10ms	100~1000ms	0.05mS~10ms	100ms~10 Sec. or Continue	0.05mS~10ms	100~1000ms	0.05mS~10ms	100ms~10 Sec. or Continue	0.05mS~10ms	100~1000ms	0.05mS~10ms
Meas. Accuracy	NA	±0.020mS	NA	±0.020mS	NA	±0.020mS	NA	±0.020mS	NA	±0.020mS	NA	±0.020mS
OCP Time (Tstep)	100mS	0.05mS~10mS / 11~1000mS	20mS	0.05mS~10mS / 11~1000mS	100mS	0.05mS~10mS / 11~1000mS	20mS	0.05mS~10mS / 11~1000mS	100mS	0.05mS~10mS / 11~1000mS	20mS	0.05mS~10mS / 11~1000mS
Meas. Accuracy	NA	±0.005mS / ±0.2mS	NA	±0.005mS / ±0.2mS	NA	±0.005mS / ±0.2mS	NA	±0.005mS / ±0.2mS	NA	±0.005mS / ±0.2mS	NA	±0.005mS / ±0.2mS

Fuse Test Mode *6						
Trip & Non-Trip Time	1~5999ms, 6~16383sec	1~2000mS	1~5999ms, 6~16383sec	1~2000mS	1~5999ms, 6~16383sec	1~2000mS
Meas. Accuracy	±0.04mS(<200mS), ±20mS(>200mS)					
Repeat Time	0~255					
Surge Test Mode						
Surge current	0~60A		0~120A		0~24A	
Normal current	0~30A		0~60A		0~12A	
Surge Time	10~2000ms					
Surge Step	1~5					
MPPT Mode						
Algorithm	P & O					
Load mode	CV					
P&O interval	1000ms ~ 60000ms					
Resolution	1000mS					
Dynamic Mode (50KHz)						
Timing						
Thigh & Tlow	0.010~9.999 / 99.99 / 999.9 / 9999mS					
Resolution	0.001 / 0.01 / 0.1 / 1mS					
Slew rate	0.008 ~ 0.5A/uS	0.08 ~ 5A/uS	0.016 ~ 1A/uS	0.16 ~ 10A/uS	0.0008 ~ 0.05A/uS	0.008 ~ 0.5A/uS
Accuracy	± (5% of Setting) ±10uS					
Measurement						
Voltage Read Back						
Range (5 Digital)	6V	60V	6V	60V	30V	250V
Resolution	0.0001V	0.001V	0.0001V	0.001V	0.001V	0.01V
Accuracy	± 0.025% of (Reading + Range)					
Current Read Back						
Range (5 Digital)	3A	30A	6A	60A	1.2A	12A
Resolution	0.0001A	0.001A	0.0001A	0.001A	0.00002A	0.0002A
Accuracy	± 0.05% of (Reading + Range)					
Power Read Back						
Range (5 Digital)	15W	150W	30W	300W	30W	300W
Resolution	0.0001W	0.001W	0.001W	0.01W	0.001W	0.01W
Accuracy *7	± 0.125% of (Reading + Range)					
Current Monitor	FULL SCALE 10V					
Accuracy	0.5% of (Setting + Range)					
Current Programming Input	FULL SCALE 10V					
Programmable Short	BUILT-IN					
Load ON Voltage	0.1 ~ 25V		0.1 ~ 25V		0.2 ~ 50V	
Accuracy	1% of (Setting + Range)					
Load OFF Voltage	0 ~ 25V		0 ~ 25V		0 ~ 50V	
Accuracy	0.025% of (Setting + Range)					
Typical Short Resistance (Cont.)	0.0166 Ω		0.0083 Ω		0.08 Ω	
Max. Short Current (Cont.)	30 A		60A		12A	
Dimension (HxWxD)	143 x 108 x 412 mm		143 x 108 x 412 mm		143 x 108 x 412 mm	

*1 Turbo mode for up to 2X Current rating & Power rating support Fuse, BMS, Short/OCP/OPP test function
*2 The range is automatically or forcing to range II only in CC mode
*3 If the operating current is below range 0.1%, the accuracy specification is 0.1% F.S.
*4 If the operating power below range 2%, the accuracy specification is 0.2% of setting + range.
*5 BMS Test function for Battery Management System Board SHORT, OCCP and OCDP Test
*6 Fuse Test function for Fuse and Breaker test
*7 Power range = Vrange F.S. x Irange F.S.
*8 Operating temperature range is 0~40°C, all specification apply for 25°C±5°C, Except as noted
*9 CC, CV, CP, and DAM have increased accuracy. In the program R2.00 (3310G), R2.00 (3311G), R1.11 (3312G), R1.11 (3314G), R2.00 (3315G) Effective from now on

SPECIFICATIONS

Model	3314G		3315G	
Power	300W, 600W max. *1		75W, 150W max. *1	
Current	12A / 24A max. *1		15A / 30A max. *1	
Voltage	500V		60V	
Min. Operating Voltage	6V @ 12A		0.25V @ 15A	
Protections				
Over Power Protection(OPP)	105%		105%	
Over Current Protection(OCP)	105%		105%	
Over Voltage Protection(OVP)	105%		105%	
Over Temp Protection(OTP)	YES		YES	
Constant Current Mode				
Range *2	0 ~ 1.2A	0 ~ 12A	0 ~ 1.5A	0 ~ 15A
Resolution	0.02mA	0.2mA	0.0254mA	0.25mA
Accuracy *3	± 0.05% of (setting + Range)			
Constant Resistance Mode				
Range	50 ~ 3000KΩ	0.5Ω ~ 50Ω	4Ω ~ 240 KΩ	0.02Ω ~ 4Ω
Resolution	0.000333mS	0.8333mΩ	0.04166mS	0.0666mΩ
Accuracy	± 0.2% of (Setting + Range)			
Constant Voltage Mode				
Range	0 ~ 60V	0 ~ 500V	0 ~ 6V	0 ~ 60V
Resolution	0.001V	0.01V	0.0001V	0.001V
Accuracy	± 0.025% of (Setting + Range)			
Constant Power Mode				
Range	0 ~ 30W	0 ~ 300W	0 ~ 7.5W	0 ~ 75W
Resolution	0.001W	0.01W	0.000125W	0.00125W
Accuracy *4	± 0.1% of (Setting + Range)			
Constant Voltage + Current Limit Mode				
Range	500V	12A	60V	15A
Resolution	0.01V	0.2mA	0.001V	0.25mA
Accuracy	± 0.05% of (Setting + Range)	± 1.0% of (Setting + Range)	± 0.05% of (Setting + Range)	± 1.0% of (Setting + Range)
Constant Voltage + Power Limit Mode				
Range	500V	300W	60V	75W
Resolution	0.01V	0.01W	0.001V	0.00125W
Accuracy	± 0.05% of (Setting + Range)	± 1.0% of (Setting + Range)	± 0.05% of (Setting + Range)	± 1.0% of (Setting + Range)
Turbo mode *1	OFF	ON	OFF	ON
Short/OCP/OPP Test Function				
Maximum Current	12A	24A	15A	30A
Meas. Accuracy	± 1.0% of (Reading + Range)			
Short Time	100ms~10 Sec.	100~2000mS	100ms~10 Sec.	100~2000mS
Meas. Accuracy	NA	NA	NA	NA
OCP Time(Tstep)	100mS	20mS	100mS	20mS
Meas. Accuracy	NA	NA	NA	NA
OCP Time(Tstep)	100mS	20mS	100mS	20mS
Meas. Accuracy	NA	NA	NA	NA

BMS Test Mode *5	OFF	ON	OFF	ON	OFF	ON	OFF	ON
Short Time	100ms~10 Sec. or Continue	0.05mS ~ 10mS	100~1000ms	0.05mS ~ 10mS	100ms~10 Sec. or Continue	0.05mS ~ 10mS	100~1000ms	0.05mS ~ 10mS
Meas. Accuracy	NA	±0.020mS	NA	±0.020mS	NA	±0.020mS	NA	±0.020mS
OCP Time(Tstep)	100mS	0.05mS~10mS / 11~1000mS	20mS	0.05mS~10mS / 11~1000mS	100mS	0.05mS~10mS / 11~1000mS	20mS	0.05mS~10mS / 11~1000mS
Meas. Accuracy	NA	±0.005mS / ±0.2mS	NA	±0.005mS / ±0.2mS	NA	±0.005mS / ±0.2mS	NA	±0.005mS / ±0.2mS

Fuse Test Mode *6				
Trip & Non-Trip Time	1~5999ms, 6~16383sec	1~2000mS	1~5999ms, 6~16383sec	1~2000mS
Meas. Accuracy	±0.04mS(<200mS), ±20mS(>200mS)			
Repeat Time	0~255			
Surge Test Mode				
Surge current	0~24A		0~30A	
Normal current	0~12A		0~15A	
Surge Time	10~2000ms			
Surge Step	1~5			
MPPT Mode				
Algorithm	P & O			
Load mode	CV			
P&O interval	1000ms ~ 60000ms			
Resolution	1000mS			
Dynamic Mode (50KHz)				
Timing				
Thigh & Tlow	0.010~9.999 / 99.99 / 999.9 / 9999mS			
Resolution	0.001 / 0.01 / 0.1 / 1mS			
Slew rate	0.0008 ~ 0.05A/uS	0.008 ~ 0.5A/uS	0.004 ~ 0.25A/uS	0.04 ~2.5A/uS
Accuracy	± (5% of Setting) ±10uS			
Measurement				
Voltage Read Back				
Range (5 Digital)	60V	600V	6V	60V
Resolution	0.001V	0.01V	0.0001V	0.001V
Accuracy	± 0.025% of (Reading + Range)			
Current Read Back				
Range (5 Digital)	1.2A	30A	1.5A	15A
Resolution	0.0001A	0.001A	0.00001A	0.001A
Accuracy	± 0.05% of (Reading + Range)			
Power Read Back				
Range (5 Digital)	30W	300W	7.5W	75W
Resolution	0.0001A	0.001A	0.0001W	0.001W
Accuracy *7	± 0.1% of (Reading + Range)			
Current Monitor	FULL SCALE 10V			
Accuracy	0.5% of (Setting + Range)			
Current Programming Input	FULL SCALE 10V			
Programmable Short	BUILT-IN			
Load ON Voltage	0.4 ~ 100V		0.1 ~ 25V	
Accuracy	1% of (Setting + Range)			
Load OFF Voltage	0 ~ 100V		0 ~ 25V	
Accuracy	0.025% of (Setting + Range)			
Typical Short Resistance	0.5 Ω		0.02Ω	
Maximum Short Current	12A		15A	
Dimension(HxWxD)	143 x 108 x 412 mm		143 x 108 x 412 mm	

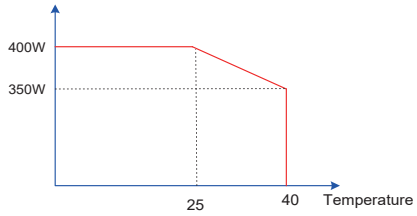
*1 Turbo mode for up to 2X Current rating & Power rating support Fuse, BMS, Short/OCP/OPP test function
*2 The range is automatically or forcing to range II only in CC mode
*3 If the operating current is below range 0.1%, the accuracy specification is 0.1% F.S.
*4 If the operating power below range 2%, the accuracy specification is 0.2% of setting + range.
*5 BMS Test function for Battery Management System Board SHORT, OCCP and OCDP Test
*6 Fuse Test function for Fuse and Breaker test
*7 Power range = Vrange F.S. x Irange F.S.
*8 Operating temperature range is 0~40°C, all specification apply for 25°C±5°C, Except as noted
*9 CC, CV, CP, and DAM have increased accuracy. In the program R2.00 (3310G), R2.00 (3311G), R1.11 (3312G), R1.11 (3314G), R2.00 (3315G) Effective from now on

SPECIFICATIONS

Model		3316G		3318G	
Power		400W, 800W max. *1		400W, 800W max. *1	
Current		80A /160A max. *1		20A / 40A max. *1	
Voltage		80V		500V	
Min. Operating Voltage		0.8V @ 80A		4V 20A	
Protections					
Over Power Protection(OPP)		105%		105%	
Over Current Protection(OCP)		105%		105%	
Over Voltage Protection(OVP)		105%		105%	
Over Temp Protection(OTP)		YES		YES	
Constant Current Mode					
Range *2		0 ~ 8.04A	0 ~ 80A	0 ~ 2.04A	0 ~20A
Resolution		0.134mA	1.34mA	0.034mA	0.34mA
Accuracy *3		± 0.05% of (setting + Range)			
Constant Resistance Mode					
Range		1Ω~ 60KΩ	0.0083Ω ~ 1Ω	30Ω~ 1800KΩ	0.3Ω ~ 30Ω
Resolution		0.0166mS	0.0166mΩ	0.000555mS	0.5mΩ
Accuracy		± 0.2% of (Setting + Range)			
Constant Voltage Mode					
Range		0 ~ 8.04V	0 ~ 80V	60V	500V
Resolution		0.000134V	0.00134V	0.001V	0.01V
Accuracy		± 0.025% of (Setting + Range)			
Constant Power Mode					
Range		0 ~ 40.02W	0 ~ 400W	0 ~ 40.02W	0 ~ 400W
Resolution		0.667mW	6.67mW	0.667mW	6.67mW
Accuracy *4		± 0.1% of (Setting + Range)			
Constant Voltage + Current Limit Mode					
Range		80V	80A	500V	20A
Resolution		0.00134V	1.34mA	0.01V	0.34mA
Accuracy		± 0.05% of (Setting + Range	± 1.0% of (Setting + Range)	± 0.05% of (Setting + Range	± 1.0% of (Setting + Range)
Constant Voltage + Power Limit Mode					
Range		80V	400W	500V	400W
Resolution		0.00134V	6.67mW	0.01V	6.67mW
Accuracy		± 0.05% of (Setting + Range	± 1.0% of (Setting + Range)	± 0.05% of (Setting + Range	± 1.0% of (Setting + Range)
Maximum Current	Turbo OFF	80A		20A	
	Turbo ON *1	160A		40A	
Meas. Accuracy		± 3.0% of (Reading + Range)			
Short/OCP/OPP Test Function					
Short Time	Turbo OFF	100ms~10 Sec. or Continue			
	Turbo ON *1	100~2000mS			
Meas. Accuracy		NA			
OCP Time(Tstep)	Turbo OFF	100mS			
	Turbo ON *1	20mS			
Meas. Accuracy		NA			
OPP Time(Tstep)	Turbo OFF	100mS			
	Turbo ON *1	20mS			
Meas. Accuracy		NA			
BMS Test Mode *5					
Short Time	Turbo OFF	0.05mS ~ 10mS			
	Turbo ON *1	0.05mS ~ 10mS			
Meas. Accuracy		±0.005mS			
OCP Time(Tstep)	Turbo OFF	0.05mS~10ms / 11~1000ms			
	Turbo ON *1	0.05mS~10ms / 11~1000ms			
Meas. Accuracy		±0.005mS / ±0.2mS			
Fuse Test Mode *6					
Trip & Non-Trip Time	Turbo OFF	r1 : 1~5999ms, r2 : 6~16383sec			
	Turbo ON *1	1~2000mS			
Meas. Accuracy		r1 : ±0.2mS(<200mS), ±20mS(>200mS), r2 : ±0.5S			
Repeat Cycle		0~255			
Surge Test Mode					
Surge current		0~160A		0~40A	
Normal current		0~80A		0~20A	
Surge Time		10~2000ms			
Surge Step		1~5			
MPPT Mode					
Algorithm		P&O			
Load mode		CV			
P&O interval		1000ms ~ 60000ms			
Resolution		1000ms			
Dynamic Mode (50KHz)					
Timing					
Thigh & Tlow		0.010~9.999 / 99.99 / 999.9 / 9999mS			
Resolution		0.001 / 0.01 / 0.1 / 1mS			
Slew rate		5.4 ~ 337.5mA/us	54~ 3375mA/us	1.28 ~ 80mA/us	12.8 ~ 800mA/us
Accuracy		± (5% of Setting) ±10uS			

Measurement				
Voltage Read Back				
Range (5 Digital)	8.04V	80V	60V	500V
Resolution	0.000134V	0.00134V	0.001V	0.01V
Accuracy	± 0.025% of (Reading + Range)			
Current Read Back				
Range (5 Digital)	8.04A	80A	2.1A	20A
Resolution	0.000134A	0.00134A	0.000034A	0.00034A
Accuracy	± 0.05% of (Reading + Range)			
Power Read Back				
Range (5 Digital)	400W		400W	
Resolution	0.01W		0.01W	
Accuracy *7	± 0.1% of (Reading + Range)			
Current Monitor	FULL SCALE 10V			
Accuracy	0.5% of (Setting + Range)			
Current Programming Input	FULL SCALE 10V			
Programmable Short	BUILT-IN			
Load ON Voltage	0.1 ~ 25V		0.4 ~ 100V	
Accuracy	1% of (Setting + Range)			
Load OFF Voltage	0 ~ 24.866V		0 ~ 99V	
Accuracy	0.025% of (Setting + Range)			
Typical Short Resistance	0.009Ω		0.15Ω	
Maximum Short Current	80A		20A	
Dimension(HxWxD)	143 x 108 x 412 mm		143 x 108 x 412 mm	
Operating Temperature * 8	0 ~ 40 ℃			

*1 Turbo mode for up to 2X Current rating & Power rating rating support Fuse, BMS, Short/OCP/OPP test function
*2 The range is automatically or forcing to range II only in CC mode
*3 If the operating current is below range 0.1%, the accuracy specification is 0.1% F.S.
*4 If the operating power below range 2%, the accuracy specification is 0.2% of setting + range.
*5 BMS Test for Battery Management System Board SHORT and OCCP, OCDP Test
*6 Fuse Test function for Fuse, Breaker test
*7 Power range = Vrange F.S. x Irange F.S.
*8 Operating temperature range is 0~40℃, all specification apply for 25℃±5℃, Except as noted
*9 CC, CV, CP, and DAM have increased accuracy. In the program R1.07 (3316G), R1.09 (3317G), R1.06 (3318G), R1.07 (3319G) Effective from now on

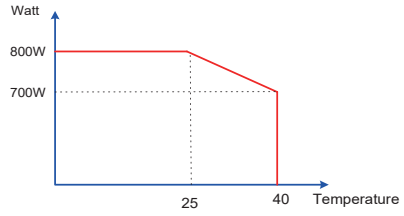


SPECIFICATIONS

Model		3317G		3319G	
Power		800W,1600W max. *1		800W, 1600W max. *1	
Current		160A /320A max. *1		40A / 80A max. *1	
Voltage		80V		500V	
Min. Operating Voltage		1.0V @ 160A		4V 40A	
Protections					
Over Power Protection(OPP)		105%		105%	
Over Current Protection(OCP)		105%		105%	
Over Voltage Protection(OVP)		105%		105%	
Over Temp Protection(OTP)		YES		YES	
Constant Current Mode					
Range *2		0 ~ 16.02A	0 ~ 160A	0 ~ 4.02A	0 ~ 40A
Resolution		0.267mA	26.7mA	0.067mA	0.67mA
Accuracy *3		± 0.05% of (setting + Range)			
Constant Resistance Mode					
Range		0.5Ω~ 30KΩ	0.00416Ω ~ 0.5Ω	15Ω~ 900KΩ	0.15Ω ~ 15Ω
Resolution		0.0166mS	0.0083mΩ	0.00111mS	0.25mΩ
Accuracy		± 0.2% of (Setting + Range)			
Constant Voltage Mode					
Range		0 ~ 8.04V	0 ~ 80V	0 ~ 60V	0 ~ 500V
Resolution		0.000134V	0.00134V	0.001V	0.01V
Accuracy		± 0.025% of (Setting + Range)			
Constant Power Mode					
Range		0 ~ 80.04W	0 ~ 800W	0 ~ 80.04W	0 ~ 800W
Resolution		1.334mW	13.34mW	1.334mW	13.34mW
Accuracy *4		± 0.1% of (Setting + Range)			
Constant Voltage + Current Limit Mode					
Range		80V	160A	500V	40A
Resolution		0.00134V	2.67mA	0.01V	0.67mA
Accuracy		± 0.05% of (Setting + Range	± 1.0% of (Setting + Range)	± 0.05% of (Setting + Range	± 1.0% of (Setting + Range)
Constant Voltage + Power Limit Mode					
Range		80V	800W	500V	800W
Resolution		0.00134V	13.34mW	0.01V	13.34mW
Accuracy		± 0.05% of (Setting + Range	± 1.0% of (Setting + Range)	± 0.05% of (Setting + Range	± 1.0% of (Setting + Range)
Maximum Current	Turbo OFF	160A		40A	
	Turbo ON *1	320A		80A	
Meas. Accuracy		± 3.0% of (Reading + Range)			
Short/OCP/OPP Test Function					
Short Time	Turbo OFF	100ms~10 Sec. or Continue			
	Turbo ON *1	100~2000ms			
Meas. Accuracy		NA			
OCP Time(Tstep)	Turbo OFF	100mS			
	Turbo ON *1	20mS			
Meas. Accuracy		NA			
OPP Time(Tstep)	Turbo OFF	100mS			
	Turbo ON *1	20mS			
Meas. Accuracy		NA			
BMS Test Mode *5					
Short Time	Turbo OFF	0.05mS ~ 10mS			
	Turbo ON *1	0.05mS ~ 10mS			
Meas. Accuracy		±0.005mS			
OCP Time(Tstep)	Turbo OFF	0.05mS~10ms / 11~1000ms			
	Turbo ON *1	0.05mS~10ms / 11~1000ms			
Meas. Accuracy		±0.005mS / ±0.2mS			
Fuse Test Mode *6					
Trip & Non-Trip Time	Turbo OFF	r1 : 1~5999ms, r2 : 6~16383sec			
	Turbo ON *1	1~2000mS			
Meas. Accuracy		r1 : ±0.2mS(<200mS), ±20mS(>200mS), r2 : ±0.5S			
Repeat Cycle		0~255			
Surge Test Mode					
Surge current		0~320A		0~80A	
Normal current		0~160A		0~40A	
Surge Time		10~2000ms			
Surge Step		1~5			
MPPT Mode					
Algorithm		P&O			
Load mode		CV			
P&O interval		1000ms ~ 60000ms			
Resolution		1000ms			
Dynamic Mode (50KHz)					
Timing					
Thigh & Tlow		0.010~9.999 / 99.99 / 999.9 / 9999mS			
Resolution		0.001 / 0.01 / 0.1 / 1mS			
Slew rate		10.8 ~ 675mA/us	10.8 ~ 6750mA/us	2.56 ~ 160mA/us	25.6 ~ 1600mA/us
Accuracy		± (5% of Setting) ±10uS			

Measurement				
Voltage Read Back				
Range (5 Digital)	8.04V	80V	60V	500V
Resolution	0.000134V	0.00134V	0.001V	0.01V
Accuracy	± 0.025% of (Reading + Range)			
Current Read Back				
Range (5 Digital)	16.02A	160A	4.02A	40A
Resolution	0.000267A	0.00267A	0.000067A	0.00067A
Accuracy	± 0.05% of (Reading + Range)			
Power Read Back				
Range (5 Digital)	800W		800W	
Resolution	0.01W		0.01W	
Accuracy *7	± 0.1% of (Reading + Range)			
Current Monitor	FULL SCALE 10V			
Accuracy	0.5% of (Setting + Range)			
Current Programming Input	FULL SCALE 10V			
Programmable Short	BUILT-IN			
Load ON Voltage	0.1 ~ 25V		0.4 ~ 100V	
Accuracy	1% of (Setting + Range)			
Load OFF Voltage	0 ~ 24.866V		0 ~ 99V	
Accuracy	0.025% of (Setting + Range)			
Typical Short Resistance	0.006Ω		0.15Ω	
Maximum Short Current	160A		40A	
Dimension(HxWxD)	143 x 216 x 412 mm		143 x 216 x 412 mm	
Operating Temperature * 8	0 ~ 40 ℃			

*1 Turbo mode for up to 2X Current rating & Power rating support Fuse, BMS, Short/OCP/OPP test function
*2 The range is automatically or forcing to range II only in CC mode
*3 If the operating current is below range 0.1%, the accuracy specification is 0.1% F.S.
*4 If the operating power below range 2%, the accuracy specification is 0.2% of setting + range.
*5 BMS Test for Battery Management System Board SHORT and OCCP, OCDP Test
*6 Fuse Test function for Fuse, Breaker test
*7 Power range = Vrange F.S. x Irange F.S.
*8 Operating temperature range is 0~40℃, all specification apply for 25℃±5℃, Except as noted
*9 CC, CV, CP, and DAM have increased accuracy. In the program R1.07 (3316G), R1.09 (3317G), R1.06 (3318G), R1.07 (3319G) Effective from now on



購 買 資 訊

		Normal mode*	Turbo mode*
3310G	直流電子負載模組	60 V / 30 A / 150 W	60 V / 30 A / 300 W
3311G	直流電子負載模組	60 V / 60 A / 300 W	60 V / 120 A / 600 W
3312G	直流電子負載模組	250 V / 12 A / 300 W	250 V / 24 A / 600 W
3314G	直流電子負載模組	500 V / 12 A / 300 W	500 V / 24 A / 600 W
3315G	直流電子負載模組	60 V / 15 A / 75 W	60 V / 30 A / 150 W
3316G	直流電子負載模組	80 V / 80 A / 400 W	80 V / 160 A / 800 W
3318G	直流電子負載模組	500 V / 20 A / 400 W	500 V / 40 A / 800 W

3.7kg
W=108mm
H=143mm
D=412mm

		Normal mode*	Turbo mode*
3317G	直流電子負載模組	80 V / 160 A / 800 W	80 V / 320 A / 1600 W
3317G-M	直流電子負載模組	80 V / 160 A / 800 W	80 V / 320 A / 1600 W
3319G	直流電子負載模組	500 V / 40 A / 800 W	500 V / 80 A / 1600 W
3319G-M	直流電子負載模組	500 V / 40 A / 800 W	500 V / 80 A / 1600 W

3317G

3319G

3317G-M

3319G-M

3317G-M / **3319G-M**
可選購電子負載機框

3305G（二個插槽機框）可安裝一台
3300G（四個插槽機框）可安裝二台

3302G（單個插槽機框）

5.5kg
W=160mm
H=177mm
D=452mm

3305G（二個插槽機框）

7.5kg
W=269mm
H=177mm
D=452mm

3300G（四個插槽機框）

9.3kg
W=440mm
H=177mm
D=445mm

GPIB+RS232 介面

RS232 介面

GPIB 介面

USB 介面

LAN 介面

OPTIONAL ACCESSORIES

GPIB+RS232 介面
RS232 介面
GPIB 介面
USB 介面
LAN 介面

遙控器 9933
NTC 選購功能：10 KΩ 模擬電阻（100 Ω to 500 KΩ）
NTC 選購功能：100 KΩ 模擬電阻（1 KΩ to 5 MΩ）

GPIB 纜線長度 1 米
GPIB 纜線長度 2 米
USB TYPE A to TYPE B 連接電纜線長度 1.8 米

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

規格若有局部變更，恕不另行通知！ 3310G_BH1_C_20260123

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