PEL-5000G Series

High Power DC Electronic Load

FEATURES

- 4U/6K High Power Density Design Also for Bench Testing
- Turbo Mode Function, Which Allows 1.5 Times the Rated Power or Current to be Used Within Two Seconds
- Turbo Mode can be Used with OCP/OPP/BMS/Short Mode/ Surge Mode/Hot Plug-In Testing
- High Tolerance to Environmental Temperature, with 4k/5kW Models not Affected by Environmental Temperature in Power Usage
- Can set the Power-on Status Value
- Short Circuit Duration Can be set Within Short Circuit Test
- Voltage Meter Display Can be Configured as Polarity Positive (”+”) or Negative("-")
- Optional Interface : GPIB, RS232, USB, LAN
- Protection function Testing for Battery BMS
- Protection Against V, I, W, and ℃

GW INSTEK
Simply Reliable

High Power DC Electronic Load

	NORMAL MODE	TURBO MODE
PEL-5004G-150-400	150V / 400A / 4000W	150V / 600A / 6000W
PEL-5005G-150-500	150V / 500A / 5000W	150V / 750A / 7500W
PEL-5006G-150-600	150V / 600A / 6000W	150V / 900A / 9000W
PEL-5004G-600-280	600V / 280A / 4000W	600V / 420A / 6000W
PEL-5005G-600-350	600V / 350A / 5000W	600V / 525A / 7500W
PEL-5006G-600-420	600V / 420A / 6000W	600V / 630A / 9000W
PEL-5004G-1200-160	1200V / 160A / 4000W	1200V / 240A / 6000W
PEL-5005G-1200-200	1200V / 200A / 5000W	1200V / 300A / 7500W
PEL-5006G-1200-240	1200V / 240A / 6000W	1200V / 360A / 9000W

PEL-5000G Series

CE RS-232 GPIB USB LAN UKCA

DESCRIPTIONS

- PEL-5000G Series module has its own control and display panel, CC/CR/CV/CP/Dynamic modes, also can be controlled via RS232, Ethernet, USB and GPIB interface
- The new Turbo mode is designed for overload or protection testing, which includes OCP, OPP, Short for AC/DC or DC/DC power source; Over Charge/Discharge and Short for Battery BMS protection; and Blow/Not Blow testing for Fuse, Breaker or PTC Current Protection Components
- Support Short, OCCP and OCDP protection tests for battery BMS protection testing, the peak current before protection and protection response time are measured
- BMS, Fuse, OCP and OPP single-key test functions on the module make test more efficient
- Dynamic can be simulated under CC, CP mode. The current Rise/Fall slew rate can be adjusted individually and there is an external signal input so that load can have a simulated Specific Load Current Waveform
- SHORT duration setting and SHORT_VH, SHORT_VL setting function, also can measure Short Voltage and Current
- Programmable LOAD ON/OFF voltage, GO/NG meter check, Voltage meter display " + " or " – " is selectable and 150 sets Store/Recall larger memory is much advance feature for each different application
- 150 sets test parameter and status storage function can call the storage memory real time in accordance with the auto sequence requirement, at any time to tune out the stored memory for use

APPLICATIONS

- Voltage/Current Source SMPS Transient Response
- Voltage Source Current Limit Testing and Battery Emulation for Charger Testing
- Battery Discharge Capacity
- Lithium battery BMS Charge and Discharge Protection
- R&D, Quality Control
- ATE System
- Production Testing

High Power DC Electronic Load

PEL-5004G-150-400

PEL-5005G-150-500

PEL-5006G-150-600

PEL-5004G-600-280

PEL-5005G-600-350

PEL-5006G-600-420

PEL-5004G-1200-160

PEL-5005G-1200-200

PEL-5006G-1200-240

High Power DC Electronic Load

MODEL	PEL-5004G-150-400		PEL-5005G-150-500		PEL-5006G-150-600	
Power*1	0 ~ 4kW	0 ~ 6kW max.*1	0 ~ 5kW	0 ~ 7.5kW max.*1	0 ~ 6kW	0 ~ 9kW max.*1
Current	0 ~ 400A	0 ~ 600A max.*1	0 ~ 500A	0 ~ 750A max.*1	0 ~ 600A	0 ~ 900A max.*1
Voltage	0 ~ 150V		0 ~ 150V		0 ~ 150V	
Min. Operating Voltage	0.7V@400A		0.7V@500A		0.7V@600A	
Protections						
Over Power Protection(OPP)	105%					
Over Current Protection(OCP)	104%					
Over Voltage Protection(OVP)	105%					
Over Temp Protection(OTP)	90°C±5°C					
Constant Current Mode						
Range*2	0 ~ 40A	0 ~ 400A	0 ~ 50A	0 ~ 500A	0 ~ 60A	0 ~ 600A
Resolution	0.64mA	6.4mA	0.80mA	8.0mA	0.96mA	9.6mA
Accuracy*3	± 0.05% of (Setting + Range)					
Constant Resistance Mode						
Range	22.5kΩ ~ 0.375Ω	0.375Ω ~ 0.0018Ω	18kΩ ~ 0.3Ω	0.3Ω ~ 0.0015Ω	15kΩ ~ 0.25Ω	0.25Ω ~ 0.0012Ω
Resolution	44μS	6.25μΩ	56μS	5μΩ	67μS	4.167μΩ
Accuracy	± 0.1%(Vin / Setting)±0.1% IF.S	± 0.1% of (Setting + Range)±0.1% IF.S	± 0.1%(Vin / Setting)±0.1% IF.S	± 0.1% of (Setting + Range)±0.1% IF.S	± 0.1%(Vin / Setting) ±0.1% IF.S	± 0.1% of (Setting + Range) ±0.1% IF.S
Constant Voltage Mode						
Range	0 ~ 150V					
Resolution	2.5mV					
Accuracy	± 0.05% of (Setting + Range)					
Constant Power Mode						
Range	0 ~ 400W	400 ~ 4kW	0 ~ 500W	500 ~ 5kW	0 ~ 600W	600 ~ 6kW
Resolution	6.4mW	64mW	8mW	80mW	9.6mW	96mW
Accuracy*4	± 0.2% of (Setting + Range)					
Constant Voltage Mode + Current Limit Mode						
Range	150V	400A	150V	500A	150V	600A
Resolution	2.5mV	6.4mA	2.5mV	8mA	2.5mV	9.6mA
Accuracy*4	± 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 Mode + Power Limit Mode						
Range	150V	4kW	150V	5kW	150V	6kW
Resolution	2.5mV	64mW	2.5mV	80mW	2.5mV	96mW
Accuracy*4	± 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*5	OFF	ON	OFF	ON	OFF	ON
Short / OCP / OPP Test Function						
Max. Current	400A	600A	500A	750A	600A	900A
Max. Power	4000W	6000W	5000W	7500W	6000W	9000W
Test Accuracy*6	± 1.0% of (Reading + Range)					
Short Time	100 ~ 10000ms Continuous	100 ~ 2000ms	100 ~ 10000ms Continuous	100 ~ 2000ms	100 ~ 10000ms Continuous	100 ~ 2000ms
Setting. Accuracy	±5ms					
Short V Hi	Setting range : 0.00V - 150.00V / Resolution : 0.0025V					
Short V Lo	Setting range : 0.00V - 150.00V / Resolution : 0.0025V					
OCP Time (Tstep)	100ms	20ms	100ms	20ms	100ms	20ms
Setting. Accuracy	±5ms					
OCP ISTAR / ISTEP / ISTOP	Setting range : 0.00A - 400.00A / Resolution : 6.4mA	Setting range : 0.00A - 600.00A / Resolution : 9.6mA	Setting range : 0.00A - 500.00A / Resolution : 8.0mA	Setting range : 0.00A - 750.00A / Resolution : 12mA	Setting range : 0.00A - 600.00A / Resolution : 9.60mA	Setting range : 0.00A - 900.00A / Resolution : 14.4mA
OCP VTH	Setting range : 0.00V - 150.00V / Resolution : 0.0025 V					
OPP Time (Tstep)	100ms	20ms	100ms	20ms	100ms	20ms
Setting. Accuracy	±5ms					
OPP PSTAR / PSTEP / PSTOP	Setting range : 0.00W - 4000.0W / Resolution : 64.0mW	Setting range : 0.00W - 6000.0W / Resolution : 96.0mW	Setting range : 0.00W - 5000.0W / Resolution : 80.0mW	Setting range : 0.00W - 7500.0W / Resolution : 120mW	Setting range : 0.00W - 6000.0W / Resolution : 96mW	Setting range : 0.00W - 9000.0W / Resolution : 144mW
OPP VTH	Setting range : 0.00V - 150.00V / Resolution : 0.0025V					
BMS Test Mode*7						
Max. Current	400A	600A	500A	750A	600A	900A
Meas. Accuracy*6	±3.0% of (Reading + Range)					
Short test Time	0.05ms~10ms / Resolution : 0.01ms					
Meas. Accuracy	±0.02ms					
Setting Accuracy	±0.05ms					
Short ITH	Setting range : 0.19A - 200.00A / Resolution : 6.4mA	Setting range : 0.28A - 300.00A / Resolution : 9.6mA	Setting range : 0.24A - 250.00A / Resolution : 8.0mA	Setting range : 0.36A - 375.00A / Resolution : 12mA	Setting range : 0.28A - 300.00A / Resolution : 9.6mA	Setting range : 0.43A - 450.00A / Resolution : 14.4mA
OCP ISTAR	Setting range : 0.64A - 400.00A / Resolution : 6.4mA	Setting range : 0.96A - 600.00A / Resolution : 9.6mA	Setting range : 0.80A - 500.00A / Resolution : 8.0mA	Setting range : 1.20A - 750.00A / Resolution : 12mA	Setting range : 0.96A - 600.00A / Resolution : 9.6mA	Setting range : 1.44A - 900.00A / Resolution : 14.4mA
OCP TSTEP	0.05 ~ 10ms 11 ~ 1000ms	0.05 ~ 10ms	0.05 ~ 10ms 11 ~ 1000ms	0.05 ~ 10ms	0.05 ~ 10ms 11 ~ 1000ms	0.05 ~ 10ms
Meas. Accuracy	±0.1ms / ±0.5ms	±0.5ms	±0.1ms / ±0.5ms	±0.5ms	±0.1ms / ±0.5ms	±0.5ms
OCP ISTEP	Setting range : 0.00A - 400.00A / Resolution : 6.4mA	Setting range : 6.00A - 600.00A / Resolution : 9.6mA	Setting range : 0.00A - 500.00A / Resolution : 8.0mA	Setting range : 7.50A - 750.00A / Resolution : 12mA	Setting range : 0.00A - 600.00A / Resolution : 9.6mA	Setting range : 9.00A - 900.00A / Resolution : 14.4mA
OCP ISTOP	Setting range : 0.64A - 400.00A / Resolution : 6.4mA	Setting range : 0.96A - 600.00A / Resolution : 9.6mA	Setting range : 0.80A - 500.00A / Resolution : 8.0mA	Setting range : 1.20A - 750.00A / Resolution : 12mA	Setting range : 0.96A - 600.00A / Resolution : 9.6mA	Setting range : 1.44A - 900.00A / Resolution : 14.4mA
OCP ITH	Setting range : 0.19A - 200.00A / Resolution : 6.4mA	Setting range : 0.28A - 300.00A / Resolution : 9.6mA	Setting range : 0.24A - 250.00A / Resolution : 8.0mA	Setting range : 0.36A - 375.00A / Resolution : 12mA	Setting range : 0.28A - 300.00A / Resolution : 9.6mA	Setting range : 0.43A - 450.00A / Resolution : 14.4mA
Surge Test Mode						
Surge Current	0 ~ 600A		0 ~ 750A		0 ~ 900A	
Normal Current	0 ~ 300A		0 ~ 375A		0 ~ 450A	
Surge Time	10 ~ 2000ms		10 ~ 2000ms		10 ~ 2000ms	
Surge Step	1 ~ 5		1 ~ 5		1 ~ 5	
Batt test Mode						
Mode CC	Setting range : 0.00A - 400.00A / Resolution : 6.4mA		Setting range : 0.00A - 500.00A / Resolution : 8.0mA		Setting range : 0.00A - 600.00A / Resolution : 9.6mA	
Mode CP	Setting range : 0.00W - 4000.0W / Resolution : 64.0mW		Setting range : 0.00W - 5000.0W / Resolution : 80.0mW		Setting range : 0.00W - 6000.0W / Resolution : 96mW	
STOP Voltage(UVP)	Setting range : 0.00V - 150.00V / Resolution : 0.0025V					
STOP TIME	Setting range : OFF 1 - 99999s / Resolution : 1s					
STOP CAP.AH	Setting range : OFF 0.1 - 19999AH / Resolution : 0.1AH					
STOP CAP.WH	Setting range : OFF 0.1 - 19999WH / Resolution : 0.1WH					
SEQ Load Mode (remode only)						
Load mode	CC / CP					
Setting STEP	2 ~ 16					
Timing	20 ~ 1000 μs / 2~ 65535ms / 66 ~ 999sec					
Resolution	10 μs / 1ms / 1sec					
Dynamic Mode						
Timing						
Thigh & Tlow	0.010~9.999 / 99.99 / 999.9 / 9999ms					
Resolution	0.001 / 0.01 / 0.1 / 1ms					
Accuracy	1 μs / 10 μs / 100 μs / 1ms + 50ppm					
Slew Rate	0.0256~1.600A / μs	0.2560~16.000A / μs	0.0320~2.000A / μs	0.3200~20.000A / μs	0.0384~2.400A / μs	0.3840~24.000A / μs
Resolution	0.0064A / μs	0.064A / μs	0.008A / μs	0.08A / μs	0.0096A / μs	0.096A / μs
Min. Rise Time	25 μs(typical)					
Accuracy	±(5% of Setting)±10 μs					
Current						
Range	0 ~ 40A	40 ~ 400A	0 ~ 50A	50 ~ 500A	0 ~ 60A	60 ~ 600A
Resolution	0.64mA	6.4mA	0.8mA	8mA	0.96mA	9.6mA
Conf Key Parameter						
LDon Voltage	Setting range : 0.25V - 62.50V / Resolution : 0.25V					
LDoFF Voltage	Setting range : 0.000V - 62.250V / Resolution : 0.0025V					
Average Time	0 ~ 64					
CV Res. Speed	1 ~ 4 (Fastest)					
Measurement						
Voltage Read Back Range (5 Digital)	0 ~ 15V	15 ~ 150V	0 ~ 15V	15 ~ 150V	0 ~ 15V	15 ~ 150V
Resolution	0.25mV	2.5mV	0.25mV	2.5mV	0.25mV	2.5mV
Accuracy	± 0.025% of (Reading + Range)					
Current Read Back Range (5 Digital)	0 ~ 40A	40 ~ 400A	0 ~ 50A	50 ~ 500A	0 ~ 60A	60 ~ 600A
Resolution	0.64mA	6.4mA	0.8mA	8mA	0.96mA	9.6mA
Accuracy	± 0.05% of (Reading + Range)					
Power Read Back Range (5 Digital)	4kW		5kW		6kW	
Resolution	0.01W					
Accuracy*4	± 0.06% of (Reading + Range)					
General						
Typical Short Resistance	1.8mΩ		1.5mΩ		1.2mΩ	
Maximum Short Current	400A		500A		600A	
Load ON Voltage	0.25 ~ 62.5V					
Load OFF Voltage	0 ~ 62.25V					
Power Consumption	550VA					
Dimension(H x W x D)	177mm x 440mm x 745mm					
Weight	28kg					
Temperature*8	0 ~ 40°C					
Safety & EMC	CE					

Note *1 : The power rating specifications at ambient temperature = 25˚C
Note *2 : The range is automatically or forcing to range II only in CC mode
Note *3 : If the operating current is below range 0.1%, the accuracy specification is 0.1% F.S.
Note *4 : Power range = Vrange x Irange
Note *5 : Turbo mode for up to 1.5X Current rating & Power rating support Surge, Bms, Short /OCP /OPP test function
Note *6 : The best accuracy of OCP /OPP test is Istep /Pstep=1%FS
Note *7 : Bms Test function for Battery Management System Board SHORT, OCCP and OCDP Test
Note *8 : Operating temperature range is 0~40˚C, All specifications apply for 25˚C±5˚C, Except as noted

High Power DC Electronic Load

MODEL	PEL-5004G-600-280		PEL-5005G-600-350		PEL-5006G-600-420	
Power[*1]	0 ~ 4kW	0 ~ 6kW max.[*1]	0 ~ 5kW	0 ~ 7.5kW max.[*1]	0 ~ 6kW	0 ~ 9kW max.[*1]
Current	0 ~ 280A	0 ~ 420A max.[*1]	0 ~ 350A	0 ~ 525A max.[*1]	0 ~ 420A	0 ~ 630A max.[*1]
Voltage	0 ~ 600V		0 ~ 600V		0 ~ 600V	
Min. Operating Voltage	10V@280A		10V@350A		10V@420A	
Protections						
Over Power Protection(OPP)	105%					
Over Current Protection(OCP)	104%					
Over Voltage Protection(OVP)	105%					
Over Temp Protection(OTP)	90°C±5°C					
Constant Current Mode						
Range[*2]	0 ~ 28A	0 ~ 280A	0 ~ 35A	0 ~ 350A	0 ~ 42A	0 ~ 420A
Resolution	0.448mA	4.48mA	0.56mA	5.6mA	0.672mA	6.72mA
Accuracy[*3]	± 0.05% of (Setting + Range)					
Constant Resistance Mode						
Range	128610Ω ~ 2.1435Ω	2.1435Ω ~ 0.0357Ω	102888Ω ~ 1.7148Ω	1.7148Ω ~ 0.0285Ω	85740Ω ~ 1.4290Ω	1.4290Ω ~ 0.0238Ω
Resolution	8 µS	35.73µΩ	10 µS	28.584µΩ	12 µS	23.82µΩ
Accuracy	± 0.1%(Vin / Setting)±0.1% IF.S.	± 0.1% of (Setting + Range)±0.1% IF.S	± 0.1%(Vin / Setting)±0.1% IF.S.	± 0.1% of (Setting + Range)±0.1% IF.S	± 0.1%(Vin / Setting) ±0.1% IF.S	± 0.1% of (Setting + Range) ±0.1% IF.S
Constant Voltage Mode						
Range	0 ~ 600V					
Resolution	10mV					
Accuracy	± 0.05% of (Setting + Range)					
Constant Power Mode						
Range	0 ~ 400W	400 ~ 4kW	0~500W	500~5kW	0~600W	600~6kW
Resolution	6.4mW	64mW	8mW	80mW	9.6mW	96mW
Accuracy[*4]	± 0.2% of (Setting + Range)					
Constant Voltage Mode + Current Limit Mode						
Range	600V	280A	600V	350A	600V	420A
Resolution	10mV	4.48mA	10mV	5.6mA	10mV	6.72mA
Accuracy[*4]	± 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 Mode + Power Limit Mode						
Range	600V	4kW	600V	5kW	600V	6kW
Resolution	10mV	64mW	10mV	80mW	10mV	96mW
Accuracy[*4]	± 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[*5]	OFF	ON	OFF	ON	OFF	ON
Short / OCP / OPP Test Function						
Max. Current	280A	420A	350A	525A	420A	630A
Max. Power	4000W	6000W	5000W	7500W	6000W	9000W
Test Accuracy[*6]	± 1.0% of (Reading + Range)					
Short Time	100 ~ 10000ms	100 ~ 2000ms	100 ~ 10000ms	100 ~ 2000ms	100 ~ 10000ms	100 ~ 2000ms
	Continuous		Continuous		Continuous	
Setting. Accuracy	±5ms					
Short V Hi	Setting range : 0.00V - 600.00V / Resolution : 0.01V					
Short V Lo	Setting range : 0.00V - 600.00V / Resolution : 0.01V					
OCP Time (Tstep)	100ms	20ms	100ms	20ms	100ms	20ms
Setting. Accuracy	±5ms					
OCP ISTAR / ISTEP / ISTOP	Setting range : 0.00A - 280.00A / Resolution : 4.48mA	Setting range : 0.00A - 420.00A / Resolution : 6.72mA	Setting range : 0.00A - 350.00A / Resolution : 5.6mA	Setting range : 0.00A - 525.00A / Resolution : 8.4mA	Setting range : 0.00A - 420.00A / Resolution : 6.72mA	Setting range : 0.00A - 630.00A / Resolution : 10.08mA
OCP VTH	Setting range : 0.00V - 600.00V / Resolution : 0.01 V					
OPP Time(Tstep)	100ms	20ms	100ms	20ms	100ms	20ms
Setting. Accuracy	±5ms					
OPP PSTAR / PSTEP / PSTOP	Setting range : 0.00W - 4000.0W / Resolution : 64.0mW	Setting range : 0.00W - 6000.0W / Resolution : 96.0mW	Setting range : 0.00W - 5000.0W / Resolution : 80.0mW	Setting range : 0.00W - 7500.0W / Resolution : 120mW	Setting range : 0.00W - 6000.0W / Resolution : 96mW	Setting range : 0.00W - 9000.0W / Resolution : 144mW
OPP VTH	Setting range : 0.00V - 600.00V / Resolution : 0.01V					
BMS Test Mode*7						
Max. Current	280A	420A	350A	525A	420A	630A
Meas. Accuracy[*6]	±3.0% of (Reading + Range)					
Short test Time	0.05ms~10ms / Resolution : 0.01ms					
Meas. Accuracy	±0.02ms					
Setting Accuracy	±0.05ms					
Short ITH	Setting range : 0.13A - 140.00A / Resolution : 4.48mA	Setting range : 0.20A - 210.00A / Resolution : 6.72mA	Setting range : 0.16A - 175.00A / Resolution : 5.6mA	Setting range : 0.25A - 262.50A / Resolution : 8.4mA	Setting range : 0.20A - 210.00A / Resolution : 6.72mA	Setting range : 0.30A - 315.0 A / Resolution : 10.08mA
OCP ISTAR	Setting range : 0.44A - 280.00A / Resolution : 4.48mA	Setting range : 0.67A - 420.00A / Resolution : 6.72mA	Setting range : 0.56A - 350.00A / Resolution : 5.6mA	Setting range : 0.84A - 525.00A / Resolution : 8.4mA	Setting range : 0.67A - 420.00A / Resolution : 6.72mA	Setting range : 1.00A - 630.00A / Resolution : 10.08mA
OCP TSTEP	0.05 ~ 10ms	0.05 ~ 10ms	0.05 ~ 10ms	0.05 ~ 10ms	0.05 ~ 10ms	0.05 ~ 10ms
	11 ~ 1000ms		11 ~ 1000ms		11 ~ 1000ms	
Meas. Accuracy	±0.1ms / ±0.5ms	±0.5ms	±0.1ms / ±0.5ms	±0.5ms	±0.1ms / ±0.5ms	±0.5ms
OCP ISTEP	Setting range : 0.00A - 280.00A / Resolution : 4.48mA	Setting range : 4.20A - 420.00A / Resolution : 6.72mA	Setting range : 0.00A - 350.00A / Resolution : 5.6mA	Setting range : 5.25A - 525.00A / Resolution : 8.4mA	Setting range : 0.00A - 420.00A / Resolution : 6.72mA	Setting range : 6.30A - 630.00A / Resolution : 10.08mA
OCP ISTOP	Setting range : 0.44A - 280.00A / Resolution : 4.48mA	Setting range : 0.67A - 420.00A / Resolution : 6.72mA	Setting range : 0.56A - 350.00A / Resolution : 5.6mA	Setting range : 0.84A - 525.00A / Resolution : 8.4mA	Setting range : 0.67A - 420.00A / Resolution : 6.72mA	Setting range : 1.00A - 630.00A / Resolution : 10.08mA
OCP ITH	Setting range : 0.13A - 140.00A / Resolution : 4.48mA	Setting range : 0.20A - 210.00A / Resolution : 6.72mA	Setting range : 0.16A - 175.00A / Resolution : 5.6mA	Setting range : 0.25A - 262.50A / Resolution : 8.4mA	Setting range : 0.20A - 210.00A / Resolution : 6.72mA	Setting range : 0.30A - 315.00A / Resolution : 10.08mA
Surge Test Mode						
Surge Current	0 ~ 420A		0 ~ 525A		0 ~ 630A	
Normal Current	0 ~ 210A		0 ~ 262.5A		0 ~ 315A	
Surge Time	10 ~ 2000ms		10 ~ 2000ms		10 ~ 2000ms	
Surge Step	1 ~ 5		1 ~ 5		1 ~ 5	
Batt test Mode						
Mode CC	Setting range : 0.00A - 280.00A / Resolution : 4.48mA		Setting range : 0.00A - 350.00A / Resolution : 5.6mA		Setting range : 0.00A - 420.00A / Resolution : 6.72mA	
Mode CP	Setting range : 0.00W - 4000.0W / Resolution : 64.0mW		Setting range : 0.00W - 5000.0W / Resolution : 80.0mW		Setting range : 0.00W - 6000.0W / Resolution : 96mW	
STOP Voltage (UVP)	Setting range : 0.00V - 600.00V / Resolution : 0.01V					
STOP TIME	Setting range : OFF 1 - 99999s / Resolution : 1s					
STOP CAP.AH	Setting range : OFF 0.1 - 19999AH / Resolution : 0.1AH					
STOP CAP.WH	Setting range : OFF 0.1 - 19999WH / Resolution : 0.1WH					
SEQ Load Mode (remode only)						
Load Mode	CC / CP					
Setting STEP	2 ~ 16					
Timing	20 ~ 1000 µs / 2~ 65535ms / 66 ~ 999sec					
Resolution	10 µs / 1ms / 1sec					
Dynamic Mode						
Timing						
Thigh & Tlow	0.010~9.999 / 99.99 / 999.9 / 9999ms					
Resolution	0.001 / 0.01 / 0.1 / 1ms					
Accuracy	1 µs / 10 µs / 100 µs / 1ms + 50ppm					
Slew Rate	0.01792~1.120A / µs	0.1792~11.200A / µs	0.0224~1.400A / µs	0.2240~14.00A / µs	0.02688~1.680A / µs	0.2688~16.800A / µs
Resolution	0.00448A / µs	0.0448A / µs	0.0056A / µs	0.056A / µs	0.00672A / µs	0.0672A / µs
Min. Rise Time	25 µs(typical)					
Accuracy	±(5% of Setting)±10 µs					
Current						
Range	0 ~ 28A	28 ~ 280A	0 ~ 35A	35 ~ 350A	0 ~ 42A	42 ~ 420A
Resolution	0.45mA	4.48mA	0.56mA	5.6mA	0.67mA	6.72mA
Conf Key Parameter						
LDon Voltage	Setting range : 0.4V - 100.0V / Resolution : 0.4V					
LDoFF Voltage	Setting range : 0.000V - 99.60V / Resolution : 0. 01V					
Average Time	0 ~ 64					
CV Res. Speed	1 ~ 4 (Fastest)					
Measurement						
Voltage Read Back Range (5 Digital)	0 ~ 60V	60~ 600V	0 ~ 60V	60 ~ 600V	0 ~ 60V	60 ~ 600V
Resolution	1.00mV	10.0mV	1.00mV	10.0mV	1.00mV	10.0mV
Accuracy	± 0.025% of (Reading + Range)					
Current Read Back Range (5 Digital)	0 ~ 28A	28 ~ 280A	0 ~ 35A	35 ~ 350A	0 ~ 42A	42 ~ 420A
Resolution	0.448mA	4.48mA	0.56mA	5.6mA	0.672mA	6.72mA
Accuracy	± 0.05% of (Reading + Range)					
Power Read Back Range (5 Digital)	4kW		5kW		6kW	
Resolution	0.01W					
Accuracy[*4]	± 0.06% of (Reading + Range)					
General						
Typical Short Resistance	35.73mΩ		28.584mΩ		23.82mΩ	
Maximum Short Current	280A		350A		420A	
Load ON Voltage	0.4 ~ 100V					
Load OFF Voltage	0 ~ 99.6V					
Power Consumption	550VA					
Dimension(H x W x D)	177mm x 440mm x 745mm					
Weight	29kg					
Temperature[*8]	0 ~ 40°C					
Safety & EMC	CE					

Note *1 : The power rating specifications at ambient temperature = 25°C
Note *2 : The range is automatically or forcing to range II only in CC mode
Note *3 : If the operating current is below range 0.3%, the accuracy specification is 0.1% F.S.
Note *4 : Power range = Vrange x Irange
Note *5 : Turbo mode for up to 1.5X Current rating & Power rating support Surge, Bms, Short /OCP /OPP test function
Note *6 : The best accuracy of OCP /OPP test is Istep /Pstep=1%FS
Note *7 : Bms Test function for Battery Management System Board SHORT, OCCP and OCDP Test
Note *8 : Operating temperature range is 0~40°C, All specifications apply for 25°C±5°C, Except as noted

High Power DC Electronic Load

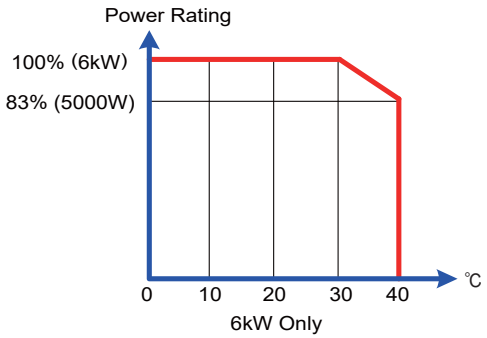
MODEL	PEL-5004G-1200-160		PEL-5005G-1200-200		PEL-5006G-1200-240	
Power*1	0 ~ 4kW	0 ~ 6kW max.*1	0 ~ 5kW	0 ~ 7.5kW max.*1	0 ~ 6kW	0 ~ 9kW max.*1
Current	0 ~ 160A	0 ~ 240A max.*1	0 ~ 200A	0 ~ 300A max.*1	0 ~ 240A	0 ~ 360A max.*1
Voltage	0 ~ 1200V		0 ~ 1200V		0 ~ 1200V	
Min. Operating Voltage	15V@100A		15V@200A		15V@240A	
Protections						
Over Power Protection(OPP)	105%					
Over Current Protection(OCP)	104%					
Over Voltage Protection(OVP)	105%					
Over Temp Protection(OTP)	90°C±5°C					
Constant Current Mode						
Range*2	0 ~ 16A	0 ~ 160A	0 ~ 20A	0 ~ 200A	0 ~ 24A	0 ~ 240A
Resolution	0.256mA	2.56mA	0.32mA	3.2mA	0.384mA	3.84mA
Accuracy*3	± 0.05% of (Setting + Range)					
Constant Resistance Mode						
Range	450kΩ ~ 7.5Ω	7.5Ω ~ 0.0937Ω	360kΩ ~ 6Ω	6Ω ~ 0.075Ω	300kΩ ~ 5Ω	5Ω ~ 0.0625Ω
Resolution	2.2 µS	125µΩ	2.8 µS	100µΩ	3.3 µS	83.34µΩ
Accuracy	± 0.1%(Vin / Setting)±0.1% IF.S.	± 0.1% of (Setting + Range)±0.1% IF.S	± 0.1%(Vin / Setting)±0.1% IF.S.	± 0.1% of (Setting + Range)±0.1% IF.S	± 0.1%(Vin / Setting) ±0.1% IF.S	± 0.1% of (Setting + Range) ±0.1% IF.S
Constant Voltage Mode						
Range	0~1200V					
Resolution	20mV					
Accuracy	± 0.05% of (Setting + Range)					
Constant Power Mode						
Range	0 ~ 400W	400 ~ 4kW	0~500W	500~5kW	0~600W	600~6kW
Resolution	6.4mW	64mW	8mW	80mW	9.6mW	96mW
Accuracy*4	± 0.2% of (Setting + Range)					
Constant Voltage Mode + Current Limit Mode						
Range	1200V	160A	1200V	200A	1200V	240A
Resolution	20mV	2.56mA	20mV	3.2mA	20mV	3.84mA
Accuracy*4	± 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 Mode + Power Limit Mode						
Range	1200V	4kW	1200V	5kW	1200V	6kW
Resolution	20mV	64mW	20mV	80mW	20mV	96mW
Accuracy*4	± 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 *5	**OFF**	**ON**	**OFF**	**ON**	**OFF**	**ON**
Short / OCP / OPP Test Function						
Max. Current	160A	240A	200A	300A	240A	360A
Max. Power	4000W	6000W	5000W	7500W	6000W	9000W
Test Accuracy*6	± 1.0% of (Reading + Range)					
Short Time	100 ~ 10000ms	100 ~ 2000ms	100 ~ 10000ms	100 ~ 2000ms	100 ~ 10000ms	100 ~ 2000ms
	Continuous		Continuous		Continuous	
Setting. Accuracy	±5ms					
Short V Hi	Setting range : 0.25V - 1200.0V / Resolution : 0.02V					
Short V Lo	Setting range : 0.000V - 1200.0V / Resolution : 0.02V					
OCP Time(Tstep)	100ms	20ms	100ms	20ms	100ms	20ms
Setting. Accuracy	±5ms					
OCP ISTAR / ISTEP / ISTOP	Setting range : 0.00A - 160.00A / Resolution : 2.56mA	Setting range : 0.00A - 240.00A / Resolution : 3.84mA	Setting range : 0.00A - 200.00A / Resolution : 3.2mA	Setting range : 0.00A - 300.00A / Resolution : 4.8mA	Setting range : 0.00A - 240.00A / Resolution : 3.84mA	Setting range : 0.00A - 360.00A / Resolution : 5.76mA
OCP VTH	Setting range : 0.00V - 1200.00V / Resolution : 0.02V					
OPP Time(Tstep)	100ms	20ms	100ms	20ms	100ms	20ms
Setting. Accuracy	±5ms					
OPP PSTAR / PSTEP / PSTOP	Setting range : 0.00W - 4000.0W / Resolution : 64.0mW	Setting range : 0.00W - 6000.0W / Resolution : 96.0mW	Setting range : 0.00W - 5000.0W / Resolution : 80.0mW	Setting range : 0.00W - 7500.0W / Resolution : 120mW	Setting range : 0.00W - 6000.0W / Resolution : 96mW	Setting range : 0.00W - 9000.0W / Resolution : 144mW
OPP VTH	Setting range : 0.00V - 1200.00V / Resolution : 0.02V					
BMS Test Mode*7						
Max. Current	160A	240A	200A	300A	240A	360A
Meas. Accuracy*6	±3.0% of (Reading + Range)					
Short test Time	0.05ms~10ms / Resolution : 0.01ms					
Meas. Accuracy	±0.02ms					
Setting Accuracy	±0.05ms					
Short ITH	Setting range : 0.07A - 80.00A / Resolution : 2.56mA	Setting range : 0.11A - 120.00A / Resolution : 3.84mA	Setting range : 0.09A - 100.00A / Resolution : 3.2mA	Setting range : 0.14A - 150.00A / Resolution : 4.8mA	Setting range : 0.11A - 120.00A / Resolution : 3.84mA	Setting range : 0.17A - 180.00A / Resolution : 5.76mA
OCP ISTAR	Setting range : 0.25A - 160.00A / Resolution : 2.56mA	Setting range : 0..38A - 240.00A / Resolution : 3.84mA	Setting range : 0.32A - 200.00A / Resolution : 3.2mA	Setting range : 0..48A - 300.00A / Resolution : 4.8mA	Setting range : 0.38A - 240.00A / Resolution : 3.84mA	Setting range : 0..57A - 360.00A / Resolution : 5.76mA
OCP TSTEP	0.05 ~ 10ms	0.05 ~ 10ms	0.05 ~ 10ms	0.05 ~ 10ms	0.05 ~ 10ms	0.05 ~ 10ms
	11 ~ 1000ms		11 ~ 1000ms		11 ~ 1000ms	
Meas. Accuracy	±0.1ms / ±0.5ms	±0.5ms	±0.1ms / ±0.5ms	±0.5ms	±0.1ms / ±0.5ms	±0.5ms
OCP ISTEP	Setting range : 0.00A - 160.00A / Resolution : 2.56mA	Setting range : 2.40A - 240.00A / Resolution : 3.84mA	Setting range : 0.00A - 200.00A / Resolution : 3.2mA	Setting range : 3.00A - 300.00A / Resolution : 4.8mA	Setting range : 0.00A - 240.00A / Resolution : 3.84mA	Setting range : 3.60A - 360.00A / Resolution : 5.76mA
OCP ISTOP	Setting range : 0.25A - 160.00A / Resolution : 2.56mA	Setting range : 0.38A - 240.00A / Resolution : 3.84mA	Setting range : 0.32A - 200.00A / Resolution : 3.2mA	Setting range : 0.48A - 300.00A / Resolution : 4.8mA	Setting range : 0.38A - 240.00A / Resolution : 3.84mA	Setting range : 0.57A - 360.00A / Resolution : 5.76mA
OCP ITH	Setting range : 0.07A - 80.00A / Resolution : 2.56mA	Setting range : 0.11A - 120.00A / Resolution : 3.84mA	Setting range : 0.09A - 100.00A / Resolution : 3.2mA	Setting range : 0.14A - 150.00A / Resolution : 4.8mA	Setting range : 0.11A - 120.00A / Resolution : 3.84mA	Setting range : 0.17A - 180.00A / Resolution : 5.76mA
Surge Test Mode						
Surge Current	0 ~ 240A		0 ~ 300A		0 ~ 360A	
Normal Current	0 ~ 120A		0 ~ 150A		0 ~ 180A	
Surge Time	10 ~ 2000ms		10 ~ 2000ms		10 ~ 2000ms	
Surge Step	1 ~ 5		1 ~ 5		1 ~ 5	
Batt test Mode						
Mode CC	Setting range : 0.00A - 160.00A / Resolution : 2.56mA		Setting range : 0.00A -200.00A / Resolution : 3.2mA		Setting range : 0.00A - 240.00A / Resolution : 3.84mA	
Mode CP	Setting range : 0.00W - 4000.0W / Resolution : 64.0mW		Setting range : 0.00W - 5000.0W / Resolution : 80.0mW		Setting range : 0.00W - 6000.0W / Resolution : 96mW	
STOP Voltage (UVP)	Setting range : 0.00V - 1200.00V / Resolution : 0.02V					
STOP TIME	Setting range : OFF 1 - 99999s / Resolution : 1s					
STOP CAP.AH	Setting range : OFF 0.1 - 19999AH / Resolution : 0.1AH					
STOP CAP.WH	Setting range : OFF 0.1 - 19999WH / Resolution : 0.1WH					
SEQ Load Mode (remode only)						
Load Mode	CC / CP					
Setting STEP	2 ~ 16					
Timing	20 ~ 1000 µs / 2~ 65535ms / 66 ~ 999sec					
Resolution	10 µs / 1ms / 1sec					
Dynamic Mode						
Timing						
Thigh & Tlow	0.010~9.999 / 99.99 / 999.9 / 9999ms					
Resolution	0.001 / 0.01 / 0.1 / 1ms					
Accuracy	1 µs / 10 µs / 100 µs / 1ms + 50ppm					
Slew Rate	0.01024 ~ 0.640A / µs	0.1024 ~ 6.400A / µs	0.0128~0.800A / µs	0.1280~8.000A / µs	0.01536~0.960A / µs	0.1536~9.600A / µs
Resolution	0.00256A / µs	0.0256A / µs	0.0032A / µs	0.032A / µs	0.00384A / µs	0.0384A / µs
Min. Rise Time	25 µs(typical)					
Accuracy	±(5% of Setting)±10 µs					
Current						
Range	0 ~ 16A	16 ~ 160A	0 ~ 20A	20 ~ 200A	0 ~ 24A	42 ~ 240A
Resolution	0.26mA	2.56mA	0.32mA	3.2mA	0.38mA	3.84mA
Conf Key Parameter						
LDon Voltage	Setting range : 1V - 250.0V / Resolution : 1V					
LDoFF Voltage	Setting range : 0.000V - 249.0V / Resolution : 0.02V					
Average Time	0 ~ 64					
CV Res. Speed	1 ~ 4 (Fastest)					
Measurement						
Voltage Read Back Range (5 Digital)	0 ~ 120V	120 ~ 1200V	0 ~ 120V	120 ~ 1200V	0 ~ 120V	120 ~ 1200V
Resolution	2.00mV	20.0mV	2.00mV	20.0mV	2.00mV	20.0mV
Accuracy	± 0.025% of (Reading + Range)					
Current Read Back Range (5 Digital)	0 ~ 16A	16 ~ 160A	0 ~ 20A	20 ~ 200A	0 ~ 24A	24 ~ 240A
Resolution	0.256mA	2.56mA	0.32mA	3.2mA	0.384mA	3.84mA
Accuracy	± 0.05% of (Reading + Range)					
Power Read Back Range (5 Digital)	4kW		5kW		6kW	
Resolution	0.01W					
Accuracy*4	± 0.06% of (Reading + Range)					
General						
Typical Short Resistance	93.75mΩ		75mΩ		62.505mΩ	
Maximum Short Current	160A		200A		240A	
Load ON Voltage	1 ~ 250V					
Load OFF Voltage	0 ~ 249V					
Power Consumption	550VA					
Dimension(H x W x D)	177mm x 440mm x 745mm					
Weight	29kg					
Temperature*8	0 ~ 40°C					
Safety & EMC	CE					

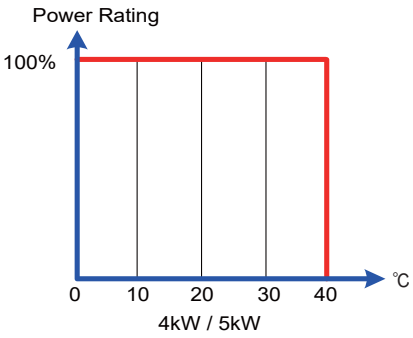
Note *1 : The power rating specifications at ambient temperature = 25°C
Note *2 : The range is automatically or forcing to range II only in CC mode
Note *3 : If the operating current is below range 0.1%, the accuracy specification is 0.1% F.S.
Note *4 : Power range = Vrange x Irange

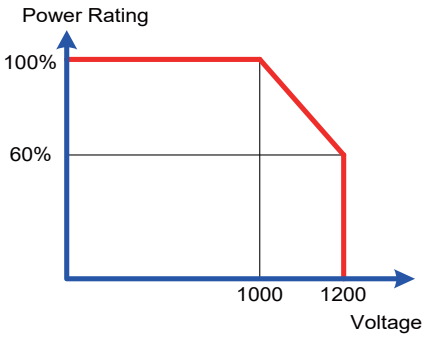
Note *5 : Turbo mode for up to 1.5X Current rating & Power rating support Surge, Bms, Short /OCP /OPP test function
Note *6 : The best accuracy of OCP /OPP test is Istep /Pstep=1%FS
Note *7 : Bms Test function for Battery Management System Board SHORT, OCCP and OCDP Test
Note *8 : Operating temperature range is 0~40°C, All specifications apply for 25°C±5°C, Except as noted

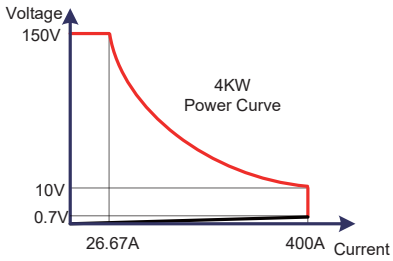
High Power DC Electronic Load

Power Curve

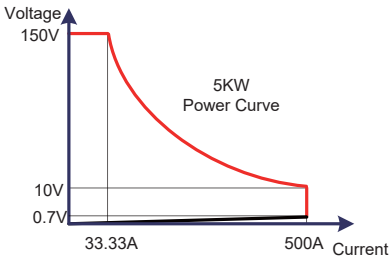




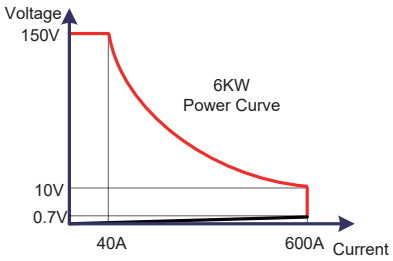




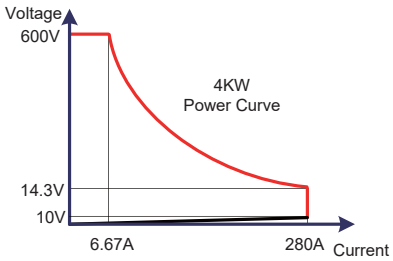
PEL-5004G-150-400



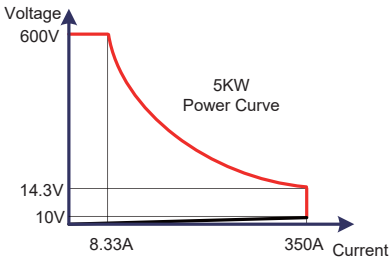
PEL-5005G-150-500



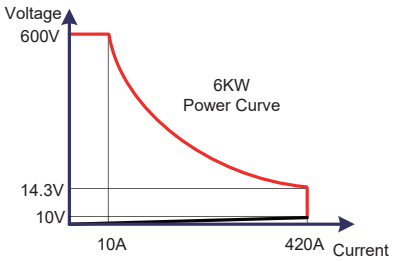
PEL-5006G-150-600



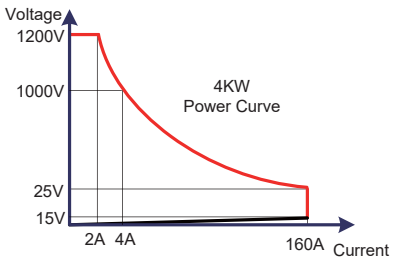
PEL-5004G-600-280



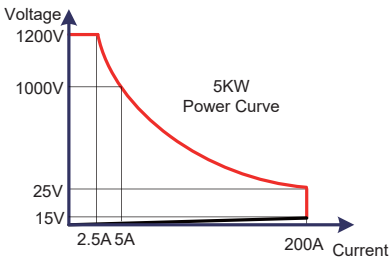
PEL-5005G-600-350



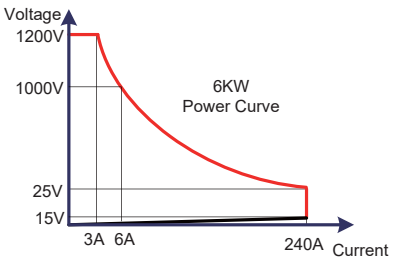
PEL-5006G-600-420



PEL-5004G-1200-160

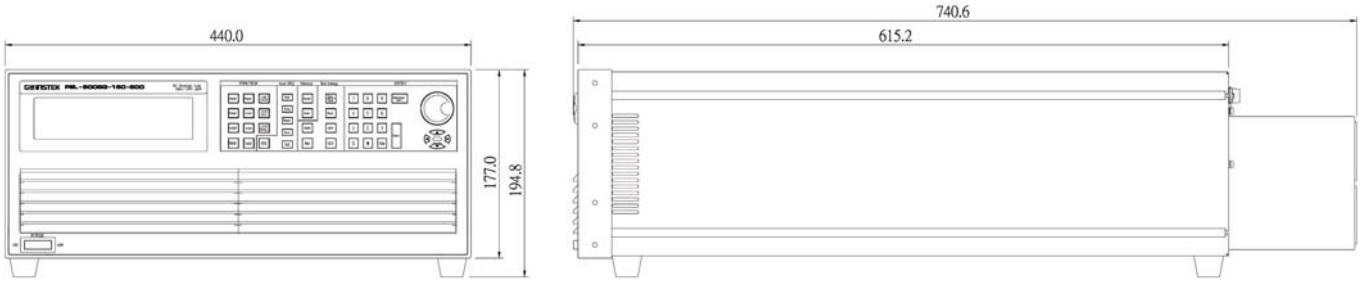


PEL-5005G-1200-200



PEL-5006G-1200-240

EXTERNAL DIMENSIONS



PEL-022
GPIB Card

PEL-023
RS-232 Card

PEL-024
LAN Card

PEL-025
USB Card

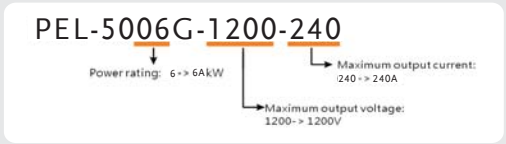
PEL-028
Handles

PEL-031
Rack Mount Kit

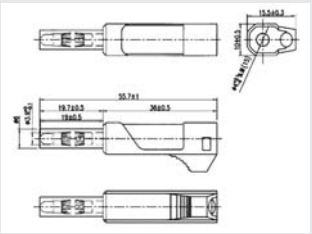
PEL-032
9923 Current Waveform Generator + RS232 Interface

ORDERING INFORMATION

PEL-5004G-150-400	150V/400A/4000W High Power DC Electronic Load
PEL-5005G-150-500	150V/500A/5000W High Power DC Electronic Load
PEL-5006G-150-600	150V/600A/6000W High Power DC Electronic Load
PEL-5004G-600-280	600V/280A/4000W High Power DC Electronic Load
PEL-5005G-600-350	600V/350A/5000W High Power DC Electronic Load
PEL-5006G-600-420	600V/420A/6000W High Power DC Electronic Load
PEL-5004G-1200-160	1200V/160A/4000W High Power DC Electronic Load
PEL-5005G-1200-200	1200V/200A/5000W High Power DC Electronic Load
PEL-5006G-1200-240	1200V/240A/6000W High Power DC Electronic Load



STANDARD ACCESSORIES
PEL-5000G Series operation manual
BANANA PLUGS : Please refer to Fig.1 x 1
BNC – BNC CABLE : BNC to BNC CABLE, 1m x 1
HD-DSUB : 15PIN Parallel wire Parallel Wire x 1
PEL-028 HANDLES, U-shaped Handle (fixed to the bracket)
PEL-031 Rack Mount Kit For PEL-5000G



OPTIONAL ACCESSORIES

PEL-022	GPIB Card	**PEL-025**	USB Card	**GTL-246**	USB Cable, USB 2.0, A-B Type, 1200mm
PEL-023	RS-232 Card	**PEL-030**	GPIB+RS-232 Card	**GTL-248**	GPIB Cable, Double Shielded, 2000mm
PEL-024	LAN Card	**PEL-032**	9923 Current Waveform Generator + RS232 Interface	**GTL-250**	GPIB Cable, Double Shielded, 600mm

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