



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 $^{\circ}\text{C}$

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원문: GW Instek PEL-5000G 데이터시트 · 제조사 원문 자료입니다. 사양은 제조사 사정에 따라 변경될 수 있습니다.

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



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, OSCP and OCPD 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

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2

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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 ~ 6kW			0 ~ 9kW max ^{*1}		
Current	0 ~ 400A			0 ~ 600A max ^{*1}			0 ~ 500A			0 ~ 750A max ^{*1}		
Voltage	0 ~ 150V			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		
Resolution	0.64mA			6.4mA			0.80mA			8.0mA		
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		
Resolution	44μS			6.25μI			56μS			5μI		
Accuracy ^{*3}	± 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						0 ~ 150V					
Resolution	2.5mV						2.5mV					
Accuracy ^{*3}							± 0.05% of (Setting + Range)					
Constant Power Mode												
Range	0 ~ 400W			400 ~ 4kW			0 ~ 500W			500 ~ 5kW		
Resolution	6.4mW			64mW			8mW			80mW		
Accuracy ^{*3}							± 0.2% of (Setting + Range)					
Constant Voltage Mode + Current Limit Mode												
Range	150V			400A			150V			500A		
Resolution	2.5mV			6.4mA			2.5mV			8mA		
Accuracy ^{*3}	± 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		
Resolution	2.5mV			64mW			2.5mV			80mW		
Accuracy ^{*3}	± 0.05% of (Setting + Range)			± 1.0% of (Setting + Range)			± 0.05% of (Setting + Range)			± 1.0% of (Setting + Range)		
Turbo Mode ^{*4}	OFF			ON			OFF			ON		
Short / OCP / OPP Test Function												
Max. Current	400A			600A			500A			750A		
Max. Power	4000W			6000W			5000W			7500W		
Test Accuracy ^{*5}							± 1.0% of (Reading + Range)					
Short Time	100 ~ 1000ms			Continuous			100 ~ 1000ms			Continuous		
Setting, Accuracy				100 ~ 2000ms			Continuous			100 ~ 2000ms		
Short V HI							±5ms					
Short V Lo							Setting range: 0.00V ~ 150.00V / Resolution: 0.0025V					
OCP Time (tstep)	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		
OCP VTH							Setting range: 0.00V ~ 150.00V / Resolution: 0.0025 V					
OPP Time (tstep)	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		
OPP VTH							Setting range: 0.00V ~ 150.00V / Resolution: 0.0025V					
BMS Test Mode ^{*7}												
Max. Current	400A			600A			500A			750A		
Meas. Accuracy ^{*8}							± 1.0% of (Reading + Range)					
Short test Time							0.05ms-10ms / Resolution: 0.01ms					
Meas. Accuracy							±0.01ms					
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		
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		
OCP TSTEP	0.05 ~ 10ms			0.05 ~ 10ms			0.05 ~ 10ms			0.05 ~ 10ms		
Meas. Accuracy	±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: 0.00A ~ 600.00A / Resolution: 9.6mA			Setting range: 0.00A ~ 500.00A / Resolution: 8.0mA			Setting range: 0.00A ~ 750.00A / Resolution: 12mA		
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		
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		
Surge Test Mode												
Surge Current	0 ~ 600A						0 ~ 750A					
Normal Current	0 ~ 300A						0 ~ 375A					
Surge Time	10 ~ 2000ms						10 ~ 2000ms					
Surge Step	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					
Mode CP	Setting range: 0.00W ~ 4000.0W / Resolution: 64.0mW						Setting range: 0.00W ~ 5000.0W / Resolution: 80.0mW					
LDoff Voltage(UVP)	Setting range: 0.00V ~ 150.00V / Resolution: 0.0025V						Setting range: 0.00V ~ 150.00V / Resolution: 0.0025V					
STOP TIME	Setting range: 0.01 ~ 99999s / Resolution: 1s						Setting range: 0.01 ~ 99999s / Resolution: 1s					
STOP CAP.AH	Setting range: 0.01 ~ 19999AH / Resolution: 0.1AH						Setting range: 0.01 ~ 19999AH / Resolution: 0.1AH					
STOP CAP.WH	Setting range: 0.01 ~ 19999WH / Resolution: 0.1WH						Setting range: 0.01 ~ 19999WH / Resolution: 0.1WH					
SEC Load Mode (remote 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	0.010~9.999 / 99.99 / 999.9 / 9999ms											
Thick & Flow	0.001 / 0.01 / 0.1 / 1ms											
Resolution	1 μs / 10 μs / 100 μs / 1ms ± 50ppm											
Accuracy												
Slew Rate	0.0256~1.600A / μs			0.2560~16.000A / μs			0.0320~2.000A / μs			0.3200~20.000A / μs		
Resolution	0.0064A / μs			0.064A / μs			0.008A / μs			0.08A / μs		
Min. Rise Time							25 μs (typical)					
Accuracy							± 1% of (Setting) ± 10μs					
Current												
Range	0 ~ 40A			40 ~ 400A			0 ~ 50A			50 ~ 500A		
Resolution	0.64mA			6.4mA			0.8mA			8mA		
Conf Key Parameter												
LDON Voltage							Setting range: 0.25V ~ 62.50V / Resolution: 0.25V					
LDoff Voltage							Setting range: 0.000V ~ 62.50V / Resolution: 0.0025V					
Average Time	0 ~ 64											
CV Res. Speed	1 ~ 4 (Fastest)											
Measurement												
Voltage Read Back Range (S Digital)	0 ~ 15V			15 ~ 150V			0 ~ 15V			15 ~ 150V		
Resolution	0.25mV			2.5mV			0.25mV			2.5mV		
Accuracy							± 0.025% of (Reading + Range)					
Current Read Back Range (S Digital)	0 ~ 40A			40 ~ 400A			0 ~ 50A			50 ~ 500A		
Resolution	0.64mA			6.4mA			0.8mA			8mA		
Accuracy							± 0.05% of (Reading + Range)					
Power Read Back Range (S Digital)	4kW						5kW			6kW		
Resolution							0.01W					
Accuracy ^{*4}							± 0.06% of (Reading + Range)					
General												
Typical Short Resistance	1.8mΩ						1.5mΩ					
Maximum Short Current	400A						500A					
Load ON Voltage							0.25 ~ 62.5V					
Load OFF Voltage							0 ~ 62.5V					
Power Consumption							550VA					
Dimension(H x W x D)							177mm x 440mm x 745mm					
Weight							28kg					
Temperature ^{*5}							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 / Battery Management System Board SHORT, OCP and OCPD 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	0 ~ 600V	0 ~ 600V	0 ~ 600V
Min. Operating Voltage	10V@280A	10V@350A	10V@350A	10V@350A	10V@420A	10V@420A
Protections						
Over Power Protection(OPP)	105%					
Over Current Protection(OCP)	105%					
Over Voltage Protection(OVP)	105%					
Over Temp Protection(OTP)	90°C±5°C					
Constant Current Mode						
Range	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 [*]	± 0.05% of (Setting + Range)					
Constant Resistance Mode						
Range	128610Ω ~ 2.1435Ω	2.1435Ω ~ 0.0357Ω	102880Ω ~ 1.7148Ω	1.7148Ω ~ 0.0285Ω	85740Ω ~ 1.4290Ω	1.4290Ω ~ 0.0218Ω
Resolution	8 μs	35.73μs	10 μs	28.584μs	12 μs	23.82μs
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 [*]	± 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 [*]	± 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 [*]	± 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 [*]	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 [*]	± 1.0% of (Reading + Range)					
Short Time	100 ~ 10000ms	100 ~ 2000ms	100 ~ 10000ms	100 ~ 2000ms	100 ~ 10000ms	100 ~ 2000ms
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: 0.01V					
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 [*]						
Max. Current	280A	420A	350A	525A	420A	630A
Meas. Accuracy [*]	±3.0% of (Reading + Range)					
Short test time	0.05ms~10ms / Resolution: 0.01ms					
Meas. Accuracy	±0.05ms					
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 ~ 315.0A / 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
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: 0.20A ~ 420.00A / Resolution: 6.72mA	Setting range: 0.00A ~ 350.00A / Resolution: 5.6mA	Setting range: 0.25A ~ 525.00A / Resolution: 8.4mA	Setting range: 0.00A ~ 420.00A / Resolution: 6.72mA	Setting range: 0.30A ~ 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 ~ 210A	0 ~ 35A	0 ~ 262.5A	0 ~ 420A	0 ~ 315A
Normal Current	0 ~ 210A	0 ~ 105A	0 ~ 17.5A	0 ~ 131.25A	0 ~ 210A	0 ~ 157.5A
Surge Time	10 ~ 2000ms	10 ~ 2000ms	10 ~ 2000ms	10 ~ 2000ms	10 ~ 2000ms	10 ~ 2000ms
Surge Step	1 ~ 5	1 ~ 5	1 ~ 5	1 ~ 5	1 ~ 5	1 ~ 5
Batt test Mode						
Mode CC	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
Mode CP	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
STOP Voltage (LVP)	Setting range: 0.00V ~ 600.00V / Resolution: 0.01V	Setting range: 0.00V ~ 600.00V / Resolution: 0.01V	Setting range: 0.00V ~ 600.00V / Resolution: 0.01V	Setting range: 0.00V ~ 600.00V / Resolution: 0.01V	Setting range: 0.00V ~ 600.00V / Resolution: 0.01V	Setting range: 0.00V ~ 600.00V / Resolution: 0.01V
STOP TIME	Setting range: 0.01 ~ 99999 / Resolution: 1s	Setting range: 0.01 ~ 99999 / Resolution: 1s	Setting range: 0.01 ~ 99999 / Resolution: 1s	Setting range: 0.01 ~ 99999 / Resolution: 1s	Setting range: 0.01 ~ 99999 / Resolution: 1s	Setting range: 0.01 ~ 99999 / Resolution: 1s
STOP CAP.AH	Setting range: OFF 0.1 ~ 199999AH / Resolution: 0.1AH	Setting range: OFF 0.1 ~ 199999AH / Resolution: 0.1AH	Setting range: OFF 0.1 ~ 199999AH / Resolution: 0.1AH	Setting range: OFF 0.1 ~ 199999AH / Resolution: 0.1AH	Setting range: OFF 0.1 ~ 199999AH / Resolution: 0.1AH	Setting range: OFF 0.1 ~ 199999AH / Resolution: 0.1AH
STOP CAP.WH	Setting range: OFF 0.1 ~ 199999WH / Resolution: 0.1WH	Setting range: OFF 0.1 ~ 199999WH / Resolution: 0.1WH	Setting range: OFF 0.1 ~ 199999WH / Resolution: 0.1WH	Setting range: OFF 0.1 ~ 199999WH / Resolution: 0.1WH	Setting range: OFF 0.1 ~ 199999WH / Resolution: 0.1WH	Setting range: OFF 0.1 ~ 199999WH / Resolution: 0.1WH
SEC Load Mode (remote only)						
Load Mode	CC / CP					
Setting STEP	2 ~ 16					
Accuracy	± 0.025% of (Reading + Range)					
Timing	20 ~ 1000 μs / 2 ~ 65535ms / 66 ~ 999sec					
Resolution	10 μs / 1ms / 1sec					
Dynamic Mode						
Timing	0.010 ~ 999 / 99.99 / 999.9 / 9999ms					
Thigh & Tlow	0.001 / 0.01 / 0.1 / 1ms					
Resolution	1 μs / 10 μs / 100 μs / 1ms ~ 500ms					
Accuracy	± 0.05%					
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	± 1% 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
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
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	4kW	5kW	5kW	6kW
Resolution	0.01W	0.01W	0.01W	0.01W	0.01W	0.01W
Accuracy	± 0.06% of (Reading + Range)					
General						
Typical Short Resistance	35.73mΩ					
Maximum Short Current	280A					
Load ON Voltage	350A					
Load OFF Voltage	0.4 ~ 100V					
Power Consumption	350VA					
Dimension(H x W x D)	177mm x 440mm x 745mm					
Weight	25kg					
Temperature [*]	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 range

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 OCCPD Test

Note *8 : Operating temperature range is 0~40 °C, All specifications apply for 25 °C±5 °C, Except as noted

원문: GW Instek PEL-5000G 데이터시트 · 제조사 원문 자료입니다. 사양은 제조사 사정에 따라 변경될 수 있습니다.

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	0 ~ 1200V	0 ~ 1200V	0 ~ 1200V
Min. Operating Voltage	15V@100A	15V@100A	15V@200A	15V@200A	15V@240A	15V@240A
Protections						
Over Power Protection(OPP)				105%		
Over Current Protection(OCP)				104%		
Over Voltage Protection(OVP)				105%		
Over Temp Protection(OTP)				90℃±3℃		
Constant Current Mode						
Range ^{*2}	0 ~ 16A	0 ~ 160A	0 ~ 20A	0 ~ 200A	0 ~ 24A	0 ~ 240A
Resolution	0.25mA	2.5mA	0.32mA	3.2mA	0.384mA	3.84mA
Accuracy ^{*3}			± 0.05% of (Setting + Range)			
Constant Resistance Mode						
Range	450(Ω) ~ 7.5Ω	7.5Ω ~ 0.0937Ω	360(Ω) ~ 6Ω	6Ω ~ 0.075Ω	300(Ω) ~ 5Ω	5Ω ~ 0.0625Ω
Resolution	2.2 μS	125μΩ	2.8 μS	100μΩ	2.3 μS	83.3μΩ
Accuracy ^{*4}	± 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.	
Constant Voltage Mode						
Range			0~1200V			
Resolution			20mV			
Accuracy ^{*5}			± 0.05% of (Setting + Range)			
Constant Power Mode						
Range	0 ~ 400W	400 ~ 4kW	0 ~ 500W	500 ~ 5W	0 ~ 600W	600 ~ 6kW
Resolution	6.4mW	64mW	8mW	80mW	9.6mW	96mW
Accuracy ^{*6}			± 0.2% of (Setting + Range)			
Constant Voltage Mode + Current Limit Mode						
Range	1200V	160A	1200V	200A	1200V	240A
Resolution	20mV	2.5mA	20mV	3.2mA	20mV	3.84mA
Accuracy ^{*7}	± 0.05% of (Setting + Range)		± 0.05% of (Setting + Range)		± 0.05% of (Setting + Range)	
Constant Voltage Mode + Power Limit Mode						
Range	1200V	4kW	1200V	5kW	1200V	6kW
Resolution	20mV	64mW	20mV	80mW	20mV	96mW
Accuracy ^{*8}	± 0.05% of (Setting + Range)		± 0.05% of (Setting + Range)		± 0.05% of (Setting + Range)	
Turbo Mode ^{*9}						
Short / OCP / OPP Test Function	OFF	ON	OFF	ON	OFF	ON
Short / ISTAR / ISTEP / ISTOP						
Max. Current	160A	240A	200A	300A	240A	360A
Max. Power	4000W	6000W	5000W	7500W	6000W	9000W
Test Accuracy ^{*10}			± 1.0% of (Reading + Range)			
Short Time	100 ~ 10000ms	100 ~ 2000ms	100 ~ 10000ms	100 ~ 2000ms	100 ~ 10000ms	100 ~ 2000ms
Setting, Accuracy	Continuous		Continuous		Continuous	
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						
BMS Test Mode ^{*11}						
Max. Current	160A	240A	200A	300A	240A	360A
Meas. Accuracy ^{*12}			±3.0% of (Reading + Range)			
Short test Time			0.05ms~10ms / Resolution: 0.01ms			
Meas. Accuracy			±0.05ms			
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
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	
Test 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 (LVP)			Setting range: 0.00V ~ 1200.00V / Resolution: 0.02V			
STOP TIME			Setting range: OFF 1 ~ 99999 / 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 (remote 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			0.010~9.999 / 99.99 / 999.9 / 9999ms			
Thigh & Tlow			0.001 / 0.01 / 0.1 / 1ms			
Resolution			1 μs / 10 μs / 100 μs / 1ms + 50ppm			
Accuracy			25 μs (typical)			
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			±(5% of Setting)±10 μs			
Current			28A			
Range	0 ~ 16A	16 ~ 160A	0 ~ 20A	20 ~ 200A	0 ~ 24A	24 ~ 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 ~ 24			
CV Res. Speed			1 ~ 4 (Fastest)			
Measurement						
Voltage Read Back	Range (S Digital)	0 ~ 120V	120 ~ 1200V	0 ~ 120V	120 ~ 1200V	0 ~ 120V
Resolution		2.00mV	20.0mV	2.00mV	20.0mV	20.0mV
Accuracy ^{*13}			± 0.025% of (Reading + Range)			
Current Read Back	Range (S Digital)	0 ~ 16A	16 ~ 160A	0 ~ 20A	20 ~ 200A	0 ~ 24A
Resolution		0.25mA	2.5mA	0.32mA	3.2mA	0.38mA
Accuracy ^{*14}			± 0.05% of (Reading + Range)			
Power Read Back	Range (S Digital)	4kW		5kW		6kW
Resolution				0.01W		
Accuracy ^{*15}			± 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 ^{*16}				0 ~ 40℃		
Efficiency & EMI				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

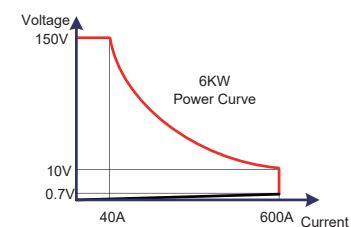
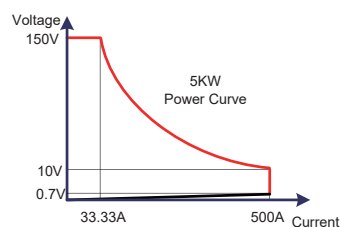
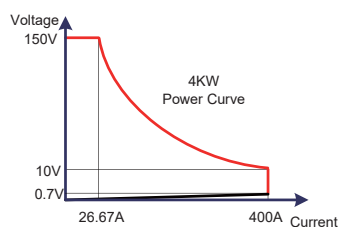
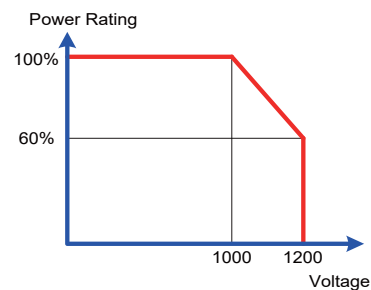
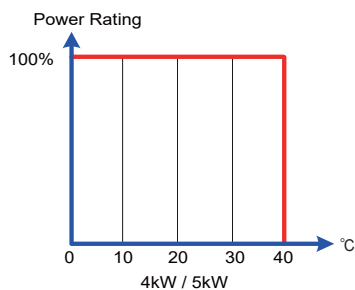
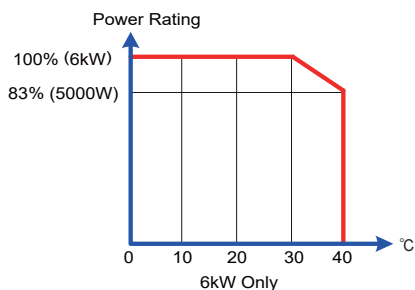
Note *6 : The best accuracy of OCP /OPP test is Istep /Pstep=1%F.S

Note *7 : Bms Test function for Battery Management System Board SHORT, OCP and OCPD 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

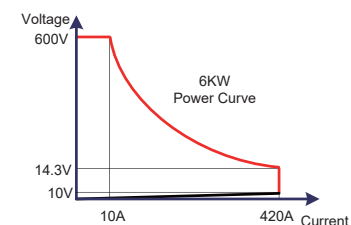
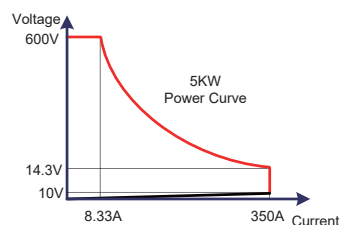
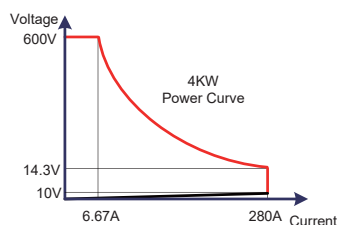
Power Curve



PEL-5004G-150-400

PEL-5005G-150-500

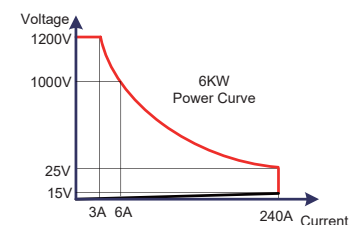
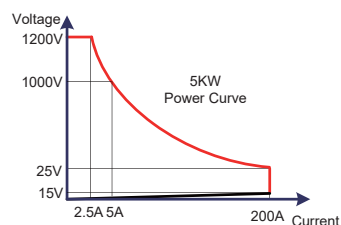
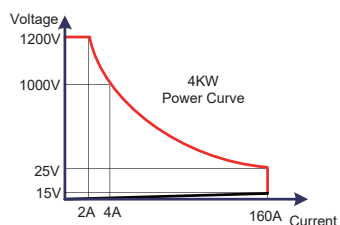
PEL-5006G-150-600



PEL-5004G-600-280

PEL-5005G-600-350

PEL-5006G-600-420

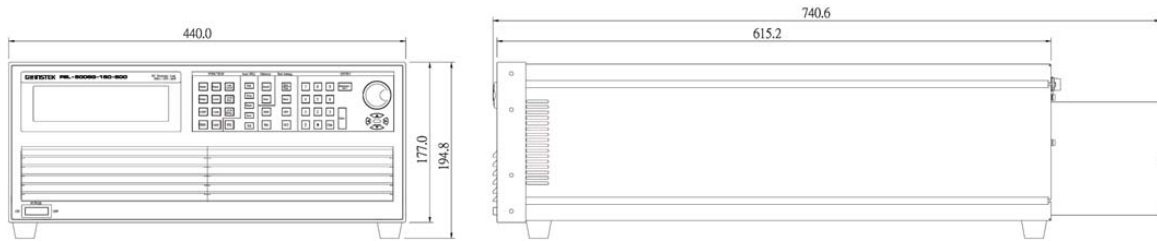


PEL-5004G-1200-160

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

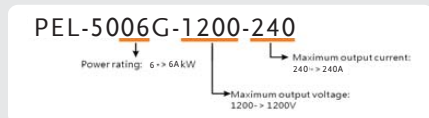
PEL-031
Rack Mount Kit

PEL-032
9923 Current Waveform
Generator + RS232 Interface



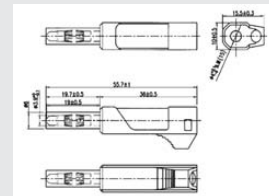
ORDERING INFORMATION

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.

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