



# 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 °C

**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



### 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 <sup>*1</sup>	0 - 4kW	0 - 6kW max. <sup>*1</sup>	0 - 5kW	0 - 7.5kW max. <sup>*1</sup>	0 - 6kW	0 - 9kW max. <sup>*1</sup>
Current	0 - 400A	0 - 600A max. <sup>*1</sup>	0 - 500A	0 - 750A max. <sup>*1</sup>	0 - 600A	0 - 900A max. <sup>*1</sup>
Voltage	0 - 150V		0 - 150V		0 - 150V	
Min. Operating Voltage	0.7V@400A		0.7V@500A		0.7V@600A	
<b>Protections</b>						
Over Power Protection(OPP)	105%					
Over Current Protection(OCP)	104%					
Over Voltage Protection(OVP)	105%					
Over Temp Protection(OTP)	90°C±5°C					
<b>Constant Current Mode</b>						
Range <sup>*2</sup>	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 <sup>*3</sup>	± 0.05% of (Setting + Range)					
<b>Constant Resistance Mode</b>						
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	6.25μS	56μS	5μS	67μS	4.167μS
Accuracy	± 0.1% (Vin / Setting) ± 0.1% I.F.S		± 0.1% (Vin / Setting) ± 0.1% I.F.S		± 0.1% (Vin / Setting) ± 0.1% I.F.S	
<b>Constant Voltage Mode</b>						
Range	0 - 150V					
Resolution	2.5mV					
Accuracy	± 0.05% of (Setting + Range)					
<b>Constant Power Mode</b>						
Range	0 - 400W	400 - 4kW	0 - 500W	500 - 5kW	0 - 600W	600 - 6kW
Resolution	6.4mW	64mW	8mW	80mW	9.6mW	96mW
Accuracy <sup>*4</sup>	± 0.2% of (Setting + Range)					
<b>Constant Voltage Mode + Current Limit Mode</b>						
Range	150V	400A	150V	500A	150V	600A
Resolution	2.5mV	6.4mA	2.5mV	8mA	2.5mV	9.6mA
Accuracy <sup>*4</sup>	± 0.05% of (Setting + Range)		± 1.0% of (Setting + Range)		± 0.05% of (Setting + Range)	
<b>Constant Voltage Mode + Power Limit Mode</b>						
Range	150V	4kW	150V	5kW	150V	6kW
Resolution	2.5mV	64mW	2.5mV	80mW	2.5mV	96mW
Accuracy <sup>*4</sup>	± 0.05% of (Setting + Range)		± 1.0% of (Setting + Range)		± 0.05% of (Setting + Range)	
<b>Turbo Mode<sup>*5</sup></b>						
Short / OCP / OPP Test Function	OFF	ON	OFF	ON	OFF	ON
Max. Current	400A	600A	500A	750A	600A	900A
Max. Power	4000W	6000W	5000W	7500W	6000W	9000W
Test Accuracy <sup>*6</sup>	± 1.0% of (Reading + Range)					
Short Time	100 - 1000ms	100 - 2000ms	100 - 1000ms	100 - 2000ms	100 - 1000ms	100 - 2000ms
Setting, Accuracy	Continuous					
Short V Hi	±5ms					
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: 9.6mA	Setting range: 0.00A - 900.00A / Resolution: 14.4mA
OCP VTH	Setting range: 0.00V - 150.00V / Resolution: 0.0025V					
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					
<b>BMS Test Mode<sup>*7</sup></b>						
Max. Current	400A	600A	500A	750A	600A	900A
Meas. Accuracy <sup>*8</sup>	±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	0.05 - 10ms	0.05 - 10ms	0.05 - 10ms	0.05 - 10ms	0.05 - 10ms
Meas. Accuracy	±0.1ms / ±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	Setting range: 0.00A - 600.00A / Resolution: 9.6mA	Setting range: 0.00A - 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
<b>Surge Test Mode</b>						
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	
<b>Bit test Mode</b>						
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					
<b>SEC Load Mode ( remote only )</b>						
Load mode	CC / CP					
Setting STEP	2 - 16					
Timing	20 - 1000 μs / 2 - 65535ms / 66 - 999sec					
Resolution	10 μs / 1ms / 1sec					
<b>Dynamic Mode</b>						
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	± 0.025% of (Reading + Range)					
Slow 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 ± 10μs					
Current	0 - 40A					
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
<b>Conf Key Parameter</b>						
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)					
<b>Measurement</b>						
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 <sup>*4</sup>	± 0.06% of (Reading + Range)					
<b>General</b>						
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 245mm					
Weight	28kg					
Temperature <sup>*8</sup>	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%F.S  
 Note \*7 : Bms Test function for Battery Management System Board SHORT, OCCP 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-5004C-600-280		PEL-5005C-600-350		PEL-5006C-600-420	
Power <sup>*1</sup>	0 - 4kW		0 - 5kW		0 - 6kW	
Current	0 - 280A		0 - 350A		0 - 420A	
Voltage	0 - 600V		0 - 600V		0 - 600V	
Min. Operating Voltage	10V@280A		10V@350A		10V@420A	
<b>Protections</b>						
Over Power Protection(OPP)			105%			
Over Current Protection(OCP)			104%			
Over Voltage Protection(OVP)			105%			
Over Temp Protection(OTP)			90°C±5°C			
<b>Constant Current Mode</b>						
Range <sup>*2</sup>	0 - 28A		0 - 35A		0 - 42A	
Resolution	0.448mA		0.56mA		0.672mA	
Accuracy <sup>*3</sup>			± 0.05% of (Setting + Range)			
<b>Constant Resistance Mode</b>						
Range	128610Ω - 2.1435Ω		102888Ω - 1.7148Ω		85740Ω - 1.4290Ω	
Resolution	8 μS		10 μS		12 μS	
Accuracy	± 0.1% (Vin / Setting) ± 0.1% I.F.S		± 0.1% (Vin / Setting) ± 0.1% I.F.S		± 0.1% (Vin / Setting) ± 0.1% I.F.S	
<b>Constant Voltage Mode</b>						
Range	0 - 600V		0 - 600V		0 - 600V	
Resolution	10mV		10mV		10mV	
Accuracy			± 0.05% of (Setting + Range)			
<b>Constant Power Mode</b>						
Range	0 - 400W		0 - 500W		0 - 600W	
Resolution	6.4mW		8mW		9.6mW	
Accuracy			± 0.2% of (Setting + Range)			
<b>Constant Voltage Mode + Current Limit Mode</b>						
Range	600V		600V		600V	
Resolution	10mV		10mV		10mV	
Accuracy <sup>*4</sup>	± 0.05% of (Setting + Range)		± 0.05% of (Setting + Range)		± 0.05% of (Setting + Range)	
<b>Constant Voltage Mode + Power Limit Mode</b>						
Range	600V		600V		600V	
Resolution	10mV		10mV		10mV	
Accuracy <sup>*4</sup>	± 0.05% of (Setting + Range)		± 0.05% of (Setting + Range)		± 0.05% of (Setting + Range)	
<b>Turbo Mode<sup>*5</sup></b>						
Short / OCP / OPP Test Function	OFF		OFF		OFF	
Max. Current	280A		350A		420A	
Max. Power	4000W		5000W		6000W	
Test Accuracy <sup>*6</sup>			± 1.0% of (Reading + Range)			
Short Time	100 - 10000ms		100 - 10000ms		100 - 10000ms	
Setting, Accuracy	Continuous		Continuous		Continuous	
Short V Hi			±5ms			
Short V Lo			Setting range: 0.00V - 600.00V / Resolution: 0.01V			
OCP Time (Tstep)	100ms		100ms		100ms	
Setting, Accuracy			±5ms			
OCP ISTAR / ISTEP / ISTOP	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	
OCP VTH	100ms		100ms		100ms	
Setting, Accuracy			±5ms			
OPP PSTAR / PSTEP / PSTOP	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: 96.0mW	
OPP VTH	100ms		100ms		100ms	
Setting, Accuracy			±5ms			
<b>BMS Test Mode<sup>*7</sup></b>						
Max. Current	280A		350A		420A	
Meas. Accuracy <sup>*8</sup>			± 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: 0.16A - 175.00A / Resolution: 5.6mA		Setting range: 0.20A - 210.00A / Resolution: 6.72mA	
OCP ISTAR	Setting range: 0.44A - 280.00A / Resolution: 4.48mA		Setting range: 0.56A - 350.00A / Resolution: 5.6mA		Setting range: 0.67A - 420.00A / Resolution: 6.72mA	
OCP TSTEP	0.05 - 10ms		0.05 - 10ms		0.05 - 10ms	
Meas. Accuracy	± 0.1ms / ± 0.5ms		± 0.1ms / ± 0.5ms		± 0.1ms / ± 0.5ms	
OCP ISTEP	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	
OCP ISTOP	Setting range: 0.44A - 280.00A / Resolution: 4.48mA		Setting range: 0.56A - 350.00A / Resolution: 5.6mA		Setting range: 0.67A - 420.00A / Resolution: 6.72mA	
OCP ITH	Setting range: 0.13A - 140.00A / Resolution: 4.48mA		Setting range: 0.16A - 175.00A / Resolution: 5.6mA		Setting range: 0.20A - 210.00A / Resolution: 6.72mA	
<b>Surge Test Mode</b>						
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	
<b>Batt test Mode</b>						
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: 96.0mW	
STOP Voltage (LVP)			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			
<b>SEQ Load Mode (remode only)</b>						
Load Mode			CC / CP			
Setting STEP			2 - 16			
Timing			20 - 1000 μs / 2 - 65355ms / 66 - 999sec			
Resolution			10 μs / 1ms / 1sec			
<b>Dynamic Mode</b>						
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			± 0.025% of (Reading + Range)			
Slew Rate	0.01792 - 1.120A / μs		0.1792 - 11.200A / μs		0.02688 - 1.680A / μs	
Resolution	0.00448A / μs		0.0448A / μs		0.00672A / μs	
Min. Rise Time			25 μs (typical)			
Accuracy			± (5% of Setting) ± 10 μs			
<b>Current</b>						
Range	0 - 28A		0 - 35A		0 - 42A	
Resolution	0.45mA		0.56mA		0.67mA	
<b>Conf Key Parameter</b>						
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)			
<b>Measurement</b>						
Voltage Read Back Range (5 Digital)	0 - 60V		0 - 60V		0 - 60V	
Resolution	1.00mV		1.00mV		1.00mV	
Accuracy			± 0.025% of (Reading + Range)			
Current Read Back Range (5 Digital)	0 - 28A		0 - 35A		0 - 42A	
Resolution	0.448mA		0.56mA		0.672mA	
Accuracy			± 0.05% of (Reading + Range)			
Power Read Back Range (5 Digital)	4kW		5kW		6kW	
Resolution			0.01W			
Accuracy <sup>*4</sup>			± 0.06% of (Reading + Range)			
<b>General</b>						
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 <sup>*8</sup>			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 OCDD 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-5004C-1200-160		PEL-5005C-1200-200		PEL-5006C-1200-240	
Power <sup>*1</sup>	0 - 4kW	0 - 6kW max <sup>(1)</sup>	0 - 5kW	0 - 7.5kW max <sup>(1)</sup>	0 - 6kW	0 - 9kW max <sup>(1)</sup>
Current	0 - 160A	0 - 240A max <sup>(1)</sup>	0 - 200A	0 - 300A max <sup>(1)</sup>	0 - 240A	0 - 360A max <sup>(1)</sup>
Voltage	0 - 1200V		0 - 1200V		0 - 1200V	
Min. Operating Voltage	15V@100A		15V@200A		15V@240A	
<b>Protections</b>						
Over Power Protection(OPP)			105%			
Over Current Protection(OCP)			104%			
Over Voltage Protection(OVP)			105%			
Over Temp Protection(OTP)			90°C±5°C			
<b>Constant Current Mode</b>						
Range <sup>2</sup>	0 - 16A	0 - 160A	0 - 20A	0 - 200A	0 - 24A	0 - 240A
Resolution	2.2µs	125µA	0.32mA	3.2mA	0.384mA	3.84mA
Accuracy <sup>3</sup>	± 0.03% of (Setting + Range)					
<b>Constant Resistance Mode</b>						
Range	450kΩ - 7.5Ω	7.5Ω - 0.0937Ω	360kΩ - 6Ω	60 - 0.075Ω	300kΩ - 5Ω	5Ω - 0.0625Ω
Resolution	2.2µs	125µs	3µs	100µs	3.3µs	83.34µs
Accuracy	± 0.1% (Vin / Setting) ± 0.1% I.F.S. ± 0.1% of (Setting + Range) ± 0.1% I.F.S. ± 0.1% of (Setting + Range) ± 0.1% I.F.S. ± 0.1% of (Setting + Range) ± 0.1% I.F.S. ± 0.1% of (Setting + Range) ± 0.1% I.F.S.					
<b>Constant Voltage Mode</b>						
Range	0 - 1200V					
Resolution	20mV					
Accuracy	± 0.03% of (Setting + Range)					
<b>Constant Power Mode</b>						
Range	0 - 400W	400 - 4kW	0 - 500W	500 - 5kW	0 - 600W	600 - 6kW
Resolution	6.4mW	64mW	8mW	80mW	9.6mW	96mW
Accuracy <sup>4</sup>	± 0.2% of (Setting + Range)					
<b>Constant Voltage Mode + Current Limit Mode</b>						
Range	1200V	160A	1200V	200A	1200V	240A
Resolution	20mV	2.56mA	20mV	3.2mA	20mV	3.84mA
Accuracy <sup>4</sup>	± 0.05% of (Setting + Range)					
<b>Constant Voltage Mode + Power Limit Mode</b>						
Range	1200V	4kW	1200V	5kW	1200V	6kW
Resolution	20mV	64mW	20mV	80mW	20mV	96mW
Accuracy <sup>4</sup>	± 0.05% of (Setting + Range)					
<b>Turbo Mode<sup>5</sup></b>						
Short / OCP / OPP Test Function	OFF	ON	OFF	ON	OFF	ON
Max. Current	160A	240A	200A	300A	240A	360A
Max. Power	4000W	6000W	5000W	7500W	6000W	9000W
Test Accuracy <sup>6</sup>	± 1.0% of (Reading + Range)					
Short Time	100 - 10000ms	100 - 2000ms	100 - 10000ms	100 - 2000ms	100 - 10000ms	100 - 2000ms
Setting, Accuracy	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 ITH	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					
<b>BMS Test Mode<sup>7</sup></b>						
Max. Current	160A	240A	200A	300A	240A	360A
Meas. Accuracy <sup>8</sup>	± 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
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: 0.240A - 240.00A / Resolution: 3.84mA	Setting range: 0.00A - 200.00A / Resolution: 3.2mA	Setting range: 0.300A - 300.00A / Resolution: 4.8mA	Setting range: 0.00A - 240.00A / Resolution: 3.84mA	Setting range: 0.360A - 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
<b>Surge Test Mode</b>						
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	
<b>Batt test Mode</b>						
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		Setting range: 0.00V - 1200.00V / Resolution: 0.02V		Setting range: 0.00V - 1200.00V / Resolution: 0.02V	
STOP TIME	Setting range: OFF 1 - 99999s / Resolution: 1s		Setting range: OFF 1 - 99999s / Resolution: 1s		Setting range: OFF 1 - 99999s / Resolution: 1s	
STOP CAP.AH	Setting range: OFF 0.1 - 19999AH / Resolution: 0.1AH		Setting range: OFF 0.1 - 19999AH / Resolution: 0.1AH		Setting range: OFF 0.1 - 19999AH / Resolution: 0.1AH	
STOP CAP.WH	Setting range: OFF 0.1 - 19999WH / Resolution: 0.1WH		Setting range: OFF 0.1 - 19999WH / Resolution: 0.1WH		Setting range: OFF 0.1 - 19999WH / Resolution: 0.1WH	
<b>SEQ Load Mode (remode only)</b>						
Load Mode	CC / CP					
Setting STEP	2 - 16					
Timing	20 - 1000µs / 2 - 65535ms / 66 - 999sec					
Resolution	10µs / 1ms / 1sec					
<b>Dynamic Mode</b>						
Timing	0.010 - 9.999 / 99.99 / 999.9 / 9999ms					
Thigh & Tlow	0.001 / 0.01 / 0.1 / 1ms					
Resolution	1µs / 10µs / 100µs / 1ms ± 50ppm					
Accuracy	± 5% of (Setting) ± 10µs					
Slow 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	25µs (typical)					
Current	± 5% of (Setting) ± 10µs					
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
<b>Conf Key Parameter</b>						
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)					
<b>Measurement</b>						
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		0.01W		0.01W	
Accuracy	± 0.06% of (Reading + Range)					
<b>General</b>						
Typical Short Resistance	93.75mΩ		75mΩ		62.505mΩ	
Maximum Short Current	160A		200A		240A	
Load ON Voltage	1 - 250V		1 - 250V		1 - 250V	
Load OFF Voltage	0 - 249V		0 - 249V		0 - 249V	
Power Consumption	550VA		550VA		550VA	
Dimension(H x W x D)	177mm x 440mm x 745mm		177mm x 440mm x 745mm		177mm x 440mm x 745mm	
Weight	29kg		29kg		29kg	
Temperature <sup>8</sup>	0 - 40°C		0 - 40°C		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

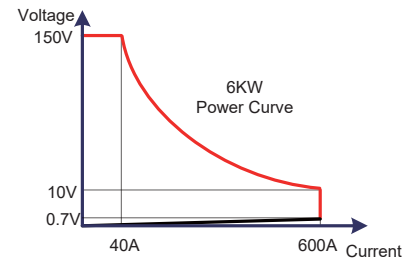
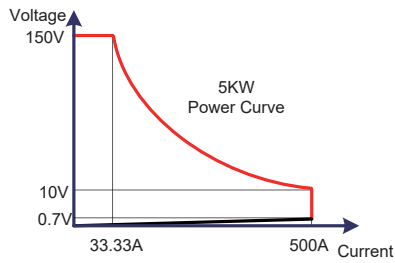
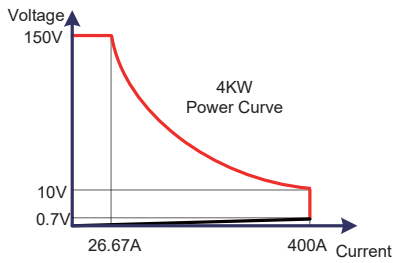
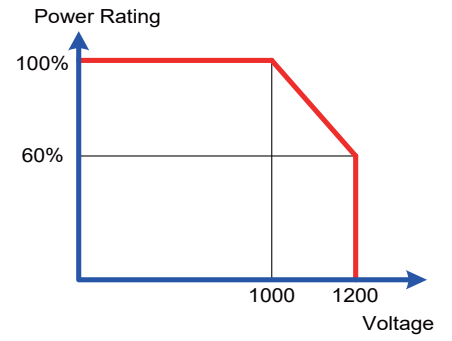
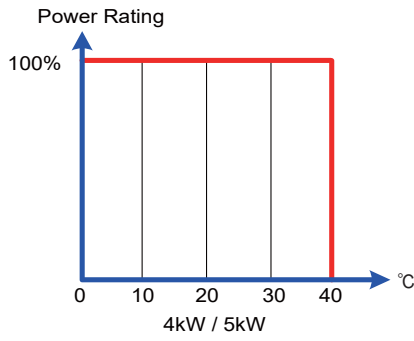
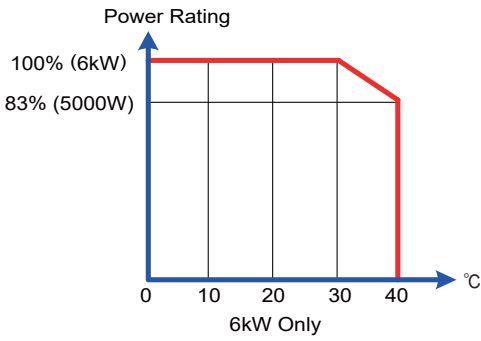
Note \*6 : The best accuracy of OCP /OPP test is Istep /Pstep=1%F.S

Note \*7 : Bms Test function for Battery Management System Board SHORT, OCCP and OCSD 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

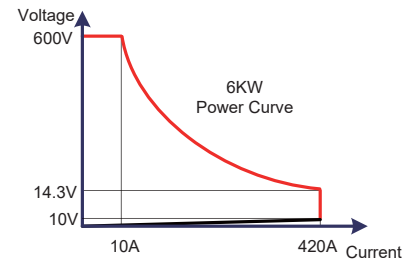
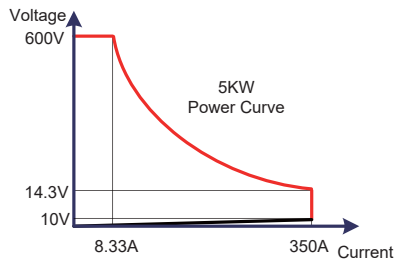
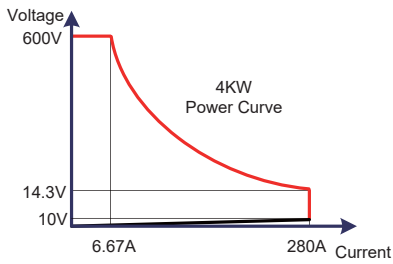
## Power Curve



PEL-5004G-150-400

PEL-5005G-150-500

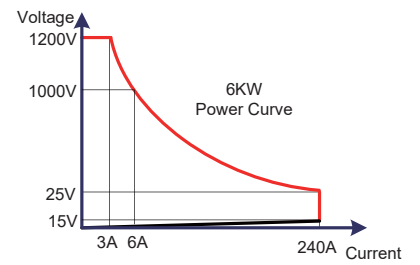
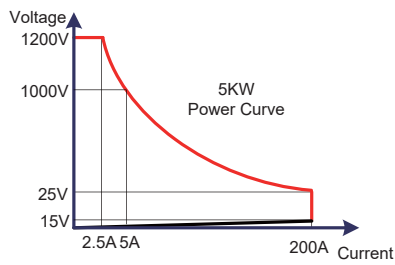
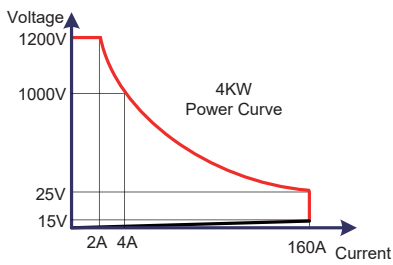
PEL-5006G-150-600



PEL-5004G-600-280

PEL-5005G-600-350

PEL-5006G-600-420

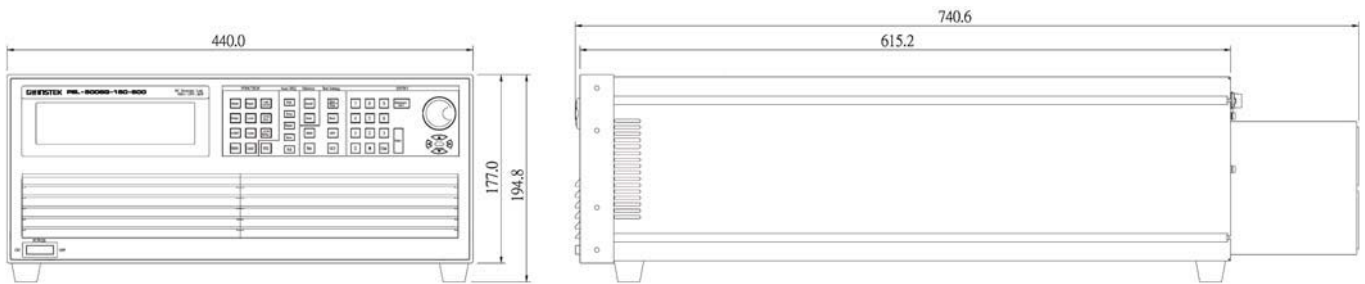


PEL-5004G-1200-160

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**

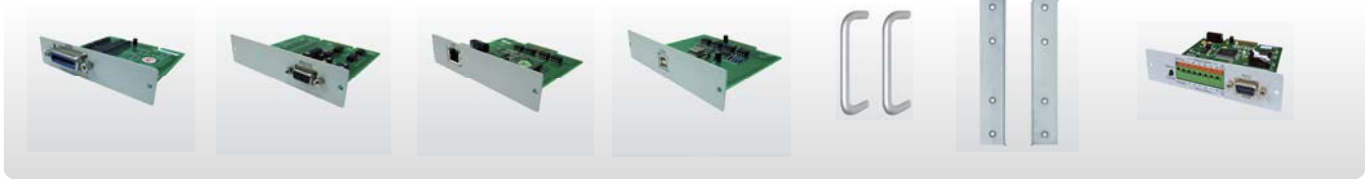
Handles

**PEL-031**

Rack Mount Kit

**PEL-032**

9923 Current Waveform Generator + RS232 Interface



## ORDERING INFORMATION

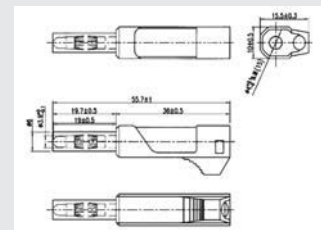
<b>PEL-5004G-150-400</b>	150V/400A/4000W High Power DC Electronic Load
<b>PEL-5005G-150-500</b>	150V/500A/5000W High Power DC Electronic Load
<b>PEL-5006G-150-600</b>	150V/600A/6000W High Power DC Electronic Load
<b>PEL-5004G-600-280</b>	600V/280A/4000W High Power DC Electronic Load
<b>PEL-5005G-600-350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

**PEL-5006G-1200-240**

Power rating: 6 → 6kW  
 Maximum output current: 240 → 240A  
 Maximum output voltage: 1200 → 1200V

### 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

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

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

