PEL-2000 Series

CE RS-232 GPIB USB

- **10 sets of Preset Memory**
- **Parallel Operation for Increased Capacity**
- **Sequence Function to Enable Load Simulations**
- **External Waveform Control Functions**
- **High Precision and High Resolution**
- **Variable Slew Rate**
- **Multi-Channel System up to 8 Channel Outputs**
- **Parallel Operation for Increased Capacity**
- **Sequence Function to Enable Load Simulations**
- **External Waveform Control Functions**
- **Delay Control**
- **OPP/OCP/OVP/OTP Protection all Level Could be Change**
- **Multi-Interface USB Device/Host, RS-232C, GPIB (Optional)**
- **120 Sets Setup Memory**

In high volume manufacturing requires optimization of test system throughput, to maximize production volume without increasing floor space. The PEL-2000 Series electronic loads can help you in a number of ways to achieve this goal.

The PEL-2000 Series that the current trend in semiconductors is towards lower voltages and higher speeds. This trend places similar demands on both the components of semiconductor power units, such as switching power supplies, batteries and DC/DC converters, and also on the electronic loads used for testing. The advent of an electronic load system that satisfies all these needs has been long awaited. The PEL-2000 Series of compact and high-performance modular electronic loads is capable of operating in CC/CR/CV mode. The load system consists of load modules and a main frame. The load modules are inserted into the main frame that also serves as a master unit. The PEL-2002 frame can accommodate up to two load modules, while the PEL-2004 frame can accommodate up to four. The PEL-2000 Series it has including variable slew rate, a switching function, 10 preset memory function, 120 sets setup memories, and a sequence function. For communication, the system is provided with USB and RS-232C interfaces as standard otherwise it also has optional GPIB Interface. Both of RS-232C and GPIB those interfaces support IEEE 488.2 as well as the Standard Commands for Programmable Instruments (SCPI) commands, developed for testing and measuring instruments.

Programmable delay allows for either simultaneous or sequential load changes: This is the most efficient way to conduct testing of multiple output DC power supplies, simulating real-life loading patterns, with a minimum of programming commands.

Increase System Flexibility for future requirements that the most of power supply and battery charger test systems designed today need to test a variety of products and assemblies. In the future, additional products or assemblies may be needed. A flexible family of electronic loads makes present system design and future growth much easier.

When customer were testing high current power supplies that electronic load modules can be operated in parallel to provide addition current sinking capability. There are also have analog control programming and monitoring ports for those applications that utilize as standard interfaces, require custom waveforms, or utilize process control signals.

For a CV power supply, measurement of the output voltage and input voltage should be made after the load is varied from the minimum to the full current rating of the power supply under test. Measurement of the AC input voltage is necessary to ensure that the output voltage change is a result of only the load change, and not from a change in the ac input. To decrease the test time when test throughput is a concern, a regulated AC source providing a predetermined AC input level and frequency can be utilized. This will eliminate the need for the ac input voltage measurement. The output voltage should be allowed the specified settling time before measurements are taken. An electronic load selected for this test must be capable of operating in CC or CR mode, and must have input ratings (voltage, current, and power) sufficient to accommodate the maximum ratings of the power supply under test.

- **R & D Design and Verification for :**
  Switching Power Supply、Server Power、AC/DC Adaptor、AC/DC Power Module、Power IC、DC/DC Power Module、Fuse、Battery、Automotive Wire、Switch/Relay

- **Laboratories and Educational Facilities**

- **Product Testing and Quality Assurance**

GWINSTEK

SPECIFICATIONS

	PEL-2020		PEL-2030			PEL-2040		PEL-2041	
CHANEL	L/R	L/R	Left	Right	Right	–	–	–	–
RANGE	Low	High	N/A	Low	High	Low	High	Low	High
POWER	100W	100W	30W	250W	250W	350W	350W	350W	350W
CURRENT	0~2A	0~20A	0~5A	0~4A	0~40A	0~7A	0~70A	0~1A	0~10A
VOLTAGE	1~80V	1~80V	1~80V	1~80V	1~80V	1~80V	1~80V	2.5~500V	2.5~500V
MIN.OPERATING VOLTAGE(dc)	1.0V at 2A	1.0V at 20A	1.0V at 5A	1.0V at 4A	1.0V at 40A	1.0V at 7A	1V at 70A	2.5V at 1A	2.5V at 10A

STATIC MODE

	PEL-2020		PEL-2030			PEL-2040		PEL-2041	
CONSTANT CURRENT MODE									
Range	0~2A	0~20A	0~5A	0~4A	0~40A	0~7A	0~70A	0~1A	0~10A
Resolution	0.5mA	5mA	1.25mA	1mA	10mA	1mA	10mA	0.2mA	2mA
Accuracy	±(0.1%set + 0.1%F.S.)	±(0.1%set + 0.1%F.S.)	±(0.1%set + 0.1%F.S.)	±(0.1%set + 0.1%F.S.)	±(0.1%set + 0.2%F.S.)	±(0.1%set + 0.1%F.S.)	±(0.1%set + 0.2%F.S.)	±(0.1%set + 0.1%F.S.)	±(0.1%set + 0.2%F.S.)
CONSTANT RESISTANCE MODE									
Range	0.075Ω~300Ω (100W/16V) 3.75Ω~15K (100W/80V)		0.3Ω~1.2KΩ (30W/16V) 15Ω~60K (30W/80V)	0.0375Ω~150Ω (250W/16V) 1.875Ω~7.5K (250W/80V)		0.025Ω~100Ω (350W/16V) 1.25Ω~5K (350W/80V)		1.25Ω~5KΩ (350W/125V) 50Ω~200K (350W/500V)	
Resolution	12bits		12bits	12bits		12bits		12bits	
Accuracy	300Ω: ±(0.2%set+0.1℧) 15KΩ: ±(0.1%set+0.02℧) With≥ 2.5V at input		12KΩ±(0.2%set+0.1℧) 60KΩ: ±(0.1%set+0.01℧) With≥ 2.5V at input	150Ω ±(0.2%set+0.1℧) 7.5KΩ:±(0.1%set+0.02℧) With≥ 2.5V at input		100Ω:±(0.2%set+0.1℧) 5KΩ: ±(0.1%set+0.02℧) With≥ 2.5V at input		5KΩ:±(0.2%set+0.02℧) 200KΩ: ±(0.1%set+0.01℧) With≥5V at input	
CONSTANT VOLTAGE MODE									
Range	1~80V		1~80V			1~80V		2.5~500V	
Resolution	20mV		20mV			20mV		100mV	
Accuracy	±(0.05%set+0.1%F.S.)		±(0.05%set+0.1%F.S.)			±(0.05%set+0.1%F.S.)		±(0.05%set+0.1%F.S.)	

DYNAMIC MODE

	PEL-2020		PEL-2030			PEL-2040		PEL-2041	
CONSTANT CURRENT MODE									
T1&T2	0.025mS~10mS/Res:1μS 1mS ~ 30S / Res : 1mS		0.025mS~10mS/Res:1μS 1mS ~ 30S / Res : 1mS			0.025mS~10mS/Res:1μS 1mS ~ 30S / Res : 1mS		0.025mS~10mS/Res:1μS 1mS ~ 30S / Res : 1mS	
Accuracy	1μS / 1mS ±100ppm		1μS / 1mS + 100ppm			1μS / 1mS ±100ppm		1μS / 1mS ±100ppm	
Slew Rate(±10%set+15μS)	0.32~80mA/μS	3.2~800mA/μS	0.8~200mA/μS	0.64~160mA/μS	6.4~1600mA/μS	0.001~0.28A/μS	0.01 ~ 2.8A/μS	0.16~40mA/μS	1.6~400mA/μS
Slew Rate Resolution	0.32mA/μS	3.2mA/μS	0.8mA/μS	0.64mA/μS	6.4mA/μS	0.001A/μS	0.01A/μS	0.16mA/μS	1.6mA/μS
Current	0~2A	0~20A	0~5A	0~4A	0~40A	0~7A	0~70A	0~1A	0~10A
Current Resolution	0.5mA	5mA	1.25mA	1mA	10mA	1mA	10mA	0.2mA	2mA
Current Accuracy	±0.4% F.S.	±0.4% F.S.	±0.4%F.S.	±0.4%F.S.	±0.4%F.S.	±0.4%F.S.	±0.4%F.S.	±0.4%F.S.	±0.4%F.S.

MEASUREMENT

	PEL-2020		PEL-2030			PEL-2040		PEL-2041	
VOLTAGE READBACK									
Range	0~16V	0~80V	0~16V,0~80V	0~16V	0~80V	0~16V	0~80V	0~125V	0~500V
Resolution	0.5mV	2.5mV	0.5mV,2.5mV	0.5mV	2.5mV	0.5mV	2.5mV	4mV	16mV
Accuracy	±(0.05%set +0.05%F.S.)	±(0.05%set +0.05%F.S.)	±(0.05%set +0.05%F.S.)	±(0.05%set +0.05%F.S.)	±(0.05%set +0.05%F.S.)	±(0.05%set +0.05%F.S.)	±(0.05%set +0.05%F.S.)	±(0.05%set +0.05%F.S.)	±(0.05%set +0.05%F.S.)
CURRENT READBACK									
Range	0~2A	0~20A	0~5A	0~4A	0~40A	0~7A	0~70A	0~1A	0~10A
Resolution	0.0625mA	0.625mA	0.15625mA	0.125mA	1.25mA	0.175mA	1.75mA	0.032mA	0.32mA
Accuracy	±(0.1%set +0.1%F.S.)	±(0.1%set +0.1%F.S.)	±(0.1%set +0.1% F.S.)	±(0.1%set +0.1% F.S.)	±(0.1%set +0.1% F.S.)	±(0.1%set +0.1%F.S.)	±(0.1%set +0.1%F.S.)	±(0.1%set +0.1%F.S.)	±(0.1%set +0.1%F.S.)

PROTECTIVE

	PEL-2020		PEL-2030			PEL-2040		PEL-2041	
Over Power Protection (±2%set+0.25%F.S.)									
Range	1~102W		1~30.6W	1~255W		1~357W		1~357W	
Resolution	0.5W		0.15W	1.25W		1.75W		1.75W	
Over Current Protection (±2%set+0.25%F.S.)									
Range	0~20.4A		0~5.1A	0~40.8A		0~71.4A		0~10.2A	
Resolution	0.05A		0.0125A	0.1A		0.175A		0.025A	
Over Voltage Protection (±2%set+0.25%F.S.)									
Range	1~81.6V		1~81.6V	1~81.6V		1~81.6V		1~510V	
Resolution	0.2V		0.2V	0.2V		0.2V		1.25V	
Over Temperature Protection	≒85℃		≒85℃	≒85℃		≒85℃		≒85℃	
Rated Power Protection (±2%set)									
Value	110W		33W	275W		385W		385W	

GENERAL

	PEL-2020		PEL-2030			PEL-2040		PEL-2041	
SHORT CIRCUIT									
Current(CC)	≒2.2/2A	≒22/20A	≒5.5/5A	≒4.4/4A	≒44/40A	≒7.7/7A	≒77/70A	≒1.1/1A	≒11/10A
Voltage(CV)	0V	0V	0V	0V	0V	0V	0V	0V	0V
Resistance(CR)	≒3.75Ω	≒0.075Ω	≒15Ω,≒0.3Ω	≒1.875Ω	≒0.0375Ω	≒1.25Ω	≒0.025Ω	≒50Ω	≒1.25Ω
INPUT RESISTANCE(LOAD OFF)	800KΩ (Typical)		800KΩ (Typical)			800KΩ (Typical)		800KΩ (Typical)	
WEIGHT	Approx. 3.8 kg								
DIMENSIONS & WEIGHT(PEL-2002)	272 mm (W) X 200 mm (H) X 581 mm (D) ; Approx. 16.1kg(full modules)								
DIMENSIONS & WEIGHT(PEL-2004)	435 mm (W) X 200 mm (H) X 581 mm (D) ; Approx. 24.8kg(full modules)								

Specifications subject to change without notice.   EL-2000GD1DH

ORDERING INFORMATION

PEL-2002   Mainframe For Two Load Module
PEL-2004   Mainframe For Four Load Module
PEL-2020   Programmable D.C. Electronic Load Module
PEL-2030   Programmable D.C. Electronic Load Module
PEL-2040   Programmable D.C. Electronic Load Module
PEL-2041   Programmable D.C. Electronic Load Module

Note : Load module can't be used without mainframe

ACCESSORIES

PEL-2002/2004
User manual x1, Power cord x1
PEL-2020/2030/2040/2041
GTL-120 Test lead x 1 , GTL-121 Sense lead x 1

OPTIONAL ASSESSORIES

PEL-001	GPIB card	**PEL-003**	Panel cover	**GTL-248**	GPIB cable
PEL-002	PEL-2004 Rack mount kit	**GTL-246**	USB cable	**GTL-249**	Frame link cable

GW INSTEK