Programmable D.C. Electronic Load





The PEL-2004A and PEL-2002A are multiple channel, programmable DC electronic loads with a modularized structure. The PEL-2000A Series is designed to meet the continuing shift toward high speed operation in today's semiconductor market. As the power supply units, DC-DC converters, and batteries that drive semiconductor circuits need to follow this shift, power supply design, quality inspection and characteristic certification using high-speed performance loads have become necessary. The PEL-2000A Series includes two types of mainframes and 4 types of load modules to accommodate users' requirements in a flexible manner. Any load module combination can be used with a mainframe to tailor a test system based on the number of channels, and the maximum load power, voltage and current of each channel. Multiple loads can be connected in parallel to provide a higher-power load to test higher power supply outputs. This flexibility significantly reduces the investment needed for future projects that have differed power requirements.

PEL-2004A is a 4-slot mainframe with a master control unit to hold 4 load modules, while PEL-2002A is a 2-slot mainframe with master control unit to hold 2 load modules. When PEL-2004A is configured with 4 load modules rated at 350W each, the PEL-2000A series is able to sink up to 1.4kVA of power.

For higher load capacities, mainframes can be linked together in parallel with standard MIL 20-pin connectors. A maximum of 5 mainframes, including one master and 4 slaves can be chained together to create a total load capacity of 7kW for high current and high power applications. Using 4 dual channel load modules, PEL-2004A is able to test 8 power supply outputs simultaneously.

The Sequence function allows each channel to change its load sink according to a predefined sequence at a rate of up to $100\mu s$ per step. Each sequence is able to run concurrently, under the control of one clock. This is one of the most powerful features of the PEL-2000A Series as it is able to realistically simulate a multi-output power supply load. Under Dynamic mode, the load current or load resistance pulses between two preset levels at a pre-defined speed up to $25\mu s$ per step. This is often used as the standard test procedure to verify the response of a power supply to quick load changes. Most remarkably, multiple load channels can be connected in parallel to run Dynamic tests synchronously under a single clock. This Parallel Dynamic functionality gives the flexibility to perform dynamic tests for a high-power power supply without the need of another high-power load.

The PEL-2000A Series includes a number of protection modes: Over Current Protection (OCP), Over Voltage Protection (OVP), Over Power Protection (OPP), Reverse Voltage Protection (RVP), and Under Voltage Protection (UVP). The protection modes are useful to protect both the load modules and the DUT(s). A buzzer can be set for when a protection setting has been tripped. When a protection mode has been tripped, the load unit will display an alarm and stop sinking current/ voltage. When a load unit is operating in CR or CV mode, the unit may need Over Current Protection to prevent excessive current being sunk. Over Current Protection stops the load from sinking more current than its recommended limit and prevents the load from burn-out damage. Over Voltage Protection is used to limit the amount of voltage sunk. If the OVP trips, the PEL-Series load will stop sinking voltage. Over Power Protection is used when the input power exceeds the specifications of the load. When OPP is tripped, the power will cease to be sunk. Reverse Voltage Protection prevents reverse voltage damage to the PEL-2000A Series up to the specified rating. When Reverse Voltage Protection has been tripped, an alarm tone will sound until the reverse voltage is removed. Under Voltage Protection will turn off the load when the voltage drops below a set limit.

The Go/NoGo function is available to monitor test results all the time. When a test result goes beyond a preset limit range, a "No Go" indication will be shown on the display and a "No Go" signal can be sent out through the D-SUB interface for external device control. This Go/NoGo function is available for CC mode, CV mode and CR mode. Under "Program" mode, 12 programs each containing 10 panel-setup memories, can be edited to create work routines for repetitive tests. After a program has been executed, the results of all test steps, along with the Go/NoGo judgments, will be shown on the screen. For external control and system configuration, the PEL series has USB and RS232 interfaces as standard and GPIB as an option. The LabView driver and Data Logging PC software are both supported for all the available interfaces. Each channel has an analog control/monitoring connector on the rear panel to externally turn a load on/off and to externally monitor load input current and voltage.

PEL-2000A Series

FEATURES

- * Sequence Function to do High Speed Load Simulations
- * Flexible Configuration with Mainframes and Plug-in Modules
- * Multiple Independent Load Inputs up to 8 Channels in a Mainframe
- * Parallel Connection of Inputs for Higher Load Capacity
- * Program Mode to Create Work Routines for Repetitive Tests
- * OPP/OCP/OVP/OTP/RVP/UVP Protections
- * External Channel Control/Monitoring via Analog Control Connector
- * Multiple-Interface USB Device/Host, RS-232C, and GPIB (Optional)



Rear Panel





99 Washington Street Melrose, MA 02176 Phone 781-665-1400 Toll Free 1-800-517-8431

SPECIFICATIONS	DEI -1	2020A		PEL-2030A	
CHANNEL	L/R	L/R	Left	Right	Right
RANGE	Low	High	N/A	Low	High
POWER CURRENT	100W 0~2A	100W 0~20A	30W 0~5A	250W 0~4A	250W 0~40A
VOLTAGE	0~80V	0~80V	1~80V	1~80V	1~80V
MIN.OPERATING VOLTAGE(DC)	0.4V at 2A 0.2V at 1A	0.8V at 20A 0.4V at 10A	0.8V at 5A 0.4V at 2.5A	0.4V at 4A 0.2V at 2A	0.8V at 40A 0.4V at 20A
(Typ.) STATIC MODE	U.ZV at IA	0.4V at 10A	0.4V at 2.3A	U.ZV at ZA	0.4V at 20A
CONSTANT CURRENT MODE	1240201	20022120	22 222	25 70	20 52%
Operating Range Setting Range	0~2A 0~2.04A	0~20A 0~20.4A	0~5A 0~5.1A	0~4A 0~4.08A	0~40A 0~40.8A
Resolution	0.1mA	1mA	0.125mA	0.1mA	1mA
Accuracy	±(0.1%set +	±(0.1%set +	±(0.1%set +	±(0.1%set +	±(0.1%set +
CONSTANT RESISTANCE MORE	0.1%F.S.)	0.2%F.S.)	0.1%F.S.)	0.1%F.S.)	0.2%F.S.)
CONSTANT RESISTANCE MODE Operating Range	0.075Ω~300Ω	2(100W/16V)	0.3Ω~1.2KΩ(30W/16V)	0.0375Ω~150Ω	
Satting Dance	3.75Ω~15K(1		15Ω~60K(30W/80V) 0.3Ω~1.2KΩ(30W/16V)	1.875Ω~7.5K(25	
Setting Range	3.75Ω~15K(1	2(100W/16V) 00W/80V)	15Ω~60K(30W/80V)	0.0375Ω~150Ω 1.875Ω~7.5K(25	
Resolution	0.333mS(100		83.333 (30W/16V)	0.666mS(250W	
Accuracy	6.667μS(100\ 300Ω: ±(0.2%		1.666μS(30W/80V) 13.333μS(250W/80V) 1.2KΩ:±(0.2%set+0.1S) 150Ω:±(0.2%set+0.1S)		
(with≥ 2.5V at input)	15KΩ: ±(0.1%		60KΩ:±(0.1%set+0.01S)		
CONSTANT VOLTAGE+CONSTANT CURRENT MOD	E 1~80∨				
Operating Range Setting Range	0~81.6V				
Resolution	2mV	0.10/55)			
Accuracy Current Setting Pange	±(0.05%set +	U. 1%F.S.)	0~5A	0~40A	
Current Setting Range Resolution	1mA		0.125mA	1mA	
Accuracy	±(0.1%set + 0	0.2%F.S)	i i	\$16	
CONSTANT POWER MODE Operating Range*	1~10W	1~100W	1~30W	1~25W	1~250W
Setting Range	0~10.2W	0~102W	0~30.6W	0~25.5W	0~255W
Resolution	1mW +(0.5%set +	10mW +(0.5%set +	1mW ±(0.5%set +	1mW ±(0.5%set +	10mW ±(0.5%set +
Accuracy	±(0.5%set + 0.5%F.S)	±(0.5%set + 0.5%F.S)	±(0.5%set + 0.5%F.S)	0.5%F.S)	0.5%F.S)
DYNAMIC MODE					
T1&T2	0.025mS~10r		0.025mS~10mS/Res:	1 µ S	
Accuracy	10mS~30S/R 1μS/1mS ± 1		10mS~30S/Res:1mS 1μS/1mS ± 100ppm		
	IF ST THIS Z T	ооррии	1#3/11113 ± 100pp111		
CONSTANT CURRENT MODE Slew Rate (±10%set+15µS)	0.32~80mA/μS	3.2~800mA/μS		0.64~160mA/μS	6.4~1600mA/µ
Slew Rate Resolution Slew Rate Accuracy of Setting	0.32mA/μS ±(10%+15μs)	3.2mA/µS ±(10%+15µs)	0.8mA/µS +(10%+15µs)	0.64mA/μS ±(10%+15μs)	6.4mA/µS ±(10%+15µs
Current Settong Range Current Resolution	0~2A	0~20A	0~5A	0~4A	0~40A
Current Accuracy	0.1mA ±0.4% F.S.	1mA ±0.4% F.S.	0.125mA ±0.4%F.S.	0.1mA ±0.4%F.S.	1mA ±0.4%F.S.
CONSTANT RESISTANCE MODE	100000 NH 100 W	DOMESTIC TOTAL	MERCHANISCO - MANAGE	NATIONAL ALEGANOMERS AND MADES	55 W FERNON 5670
Slew Rate Slew Rate Resolution	0.32~80mA/µS 0.32mA/µS	3.2~800mA/μS 3.2mA/μS	0.8~200mA/μS 0.8mA/μS	0.64~160mA/µS 0.64mA/µS	6.4~1600mA/ 6.4mA/µS
Slew Rate Accuracy of setting			±(10%+15µs)	±(10%+15µs)	±(10%+15µs
Resistance Setting Range			$0.3\Omega \sim 1.2 \text{K}\Omega (30\text{W}/16\text{V})$	0.0375Ω~150KΩ	
Resistance Resolution	3.75Ω~15K(1 0.333mS(100		15Ω~60K(30W/80V) 83.333mS(30W/16V)	1.875Ω~7.5K(25 0.666mS(250W	
Resistance Resolution	6.667µS(100\	W/80V)	1.666µS(30W/80V) 13.333µS(250W/80V)		
Resistance Resolution Resistance Accuracy	$300\Omega:\pm(0.5\%)$ 15KΩ:±(0.5%)		1.2K Ω :±(0.5%set+0.1S) 60K Ω :±(0.5%set+0.01S)	150Ω:±(0.5%se 7.5KΩ:±(0.5%se	
MEASUREMENT	1		001.22.2 (010703001101010)	7.10.100.2	
VOLTAGE READBACK					
Range Resolution	0~16V 0.32mV	0~80V 1.6mV	0~16V,0~80V 0.32mV,1.6mV	0~16V 0.32mV	0~80V 1.6mV
Accuracy	1 7000000000000000000000000000000000000	+ 0.025%F.S.)		IDEACH CONTRACTOR	Lizitzensen
CURRENT READBACK	5 18	9 989	8 83	15 70	e uev
Range Resolution	0~2A 0.04mA	0~20A 0.4mA	0~5A 0.1mA	0~4A 0.08mA	0~40A 0.8mA
Accuracy	±(0.05%set +	I Section and the section is		3.331101	V.V.III.
POWER READBACK					
Range	0~10W	0~100W	0~30W	0~25W	0~250W
Accuracy PROTECTION	±(0.1%set + 0	J.1%F.S. ')	*1	: Power F.S.=Vrange	e F.S. x Irange F.
OVER POWER PROTECTION	7		Was ramanasan		
Range	1~102W		1~30.6W	1~255W	
Resolution Accuracy	0.5W ±(2%set+0.25	%F.S.)	0.15W ±(2%set+0.25%F.S.)	1.25W ±(2%set+0.25%F	.S.)
OVER CURRENT PROTECTION	200 0	()	Session 55 1950	FED C	76
Range Resolution	0~20.4A 0.05A		0~5.1A 0.0125A	0~40.8A 0.1A	
Accuracy	±(2%set+0.25	%F.S.)	±(2%set+0.25%F.S.)	±(2%set+0.25%F	.S.)
OVER VOLTAGE PROTECTION Range	1~81.6V		1-81.6V 1-81.6V		
Resolution	0.2V ±(2%set+0.25%F.S.)		0.2V 0.2V		C)
Accuracy Over Temperature Protection	±(2%set+0.25° =85°C	/or.3.)	±(2%set+0.25%F.S.) ≒85°C	±(2%set+0.25%F ≒85°C	.3.)
RATED POWER PROTECTION Value	110W		33W	275W	
Accuracy	±(2%set)		±(2%set)	±(2%set)	
GENERAL			to the same of the	4	
SHORT CIRCUIT			L. P. F. (F. A.		
Current(CC) Voltage(CV)	⇒2.2/2A 0V	⇒22/20A 0V	⇒5.5/5A 0V	≒4.4/4A 0V	⇒44/40A 0V
Resistance(CR)	≒3.75Ω	≒0.075Ω	$=15\Omega$, $=0.3\Omega$	≒1.875Ω	≒0.0375Ω
INPUT RESISTANCE(LOAD OFF)	2000	82			
	500KΩ(Typic				
POWER SOURCE	AC100V ~ 230V ± 10%; 50Hz / 60Hz ± 2Hz				
	Approx. 3.8 kg 272(W) x 200(H) x 581(D) mm; Approx. 16.1kg(full modules)				
WEIGHT DIMENSIONS & WEIGHT(PEL-2002A)			mm : Approx 16 1kg/fir	ll modules)	

SPECIFICATIONS	PEL-2	040A	PEL-	2041A
CHANNEL	One channel	One channel	One channel	One channel
RANGE	Low	High	Low	High
POWER	350W 0~7A	350W 0~70A	350W 0~1A	350W 0~10A
CURRENT VOLTAGE	0~80V	0~80V	0~500V	0~10A 0~500V
MIN.OPERATING VOLTAGE(DC)	0.4V at 7A	0.8V at 70A	0.4V at 1A	0.8V at 10A
(Typ.)	0.2V at 3.5A	0.4V at 35A	0.2V at 0.5A	0.4V at 5A
STATIC MODE CONSTANT CURRENT MODE				Fr
Operating Range	0~7A	0~70A	0~1A	0~10A
Setting Range Resolution	0~7.14A 0.2mA	0~71.4A	0~1.02A 0.05mA	0~10.2A 0.5mA
Accuracy		2mA ±(0.1%set+0.2%F.S.		A VERTICAL PROPERTY OF THE PRO
CONSTANT RESISTANCE MODE				(1.11.2)
Operating Range	0.025Ω~100Ω(350		1.25Ω~5KΩ(350W	
Setting Range	1.25Ω~5K(350W/3 0.025Ω~100Ω(350		50Ω~200K(350W/ 1.25Ω~5Ω(350W/	
	1.25Ω~5K(350W/		50Ω~200K(350W/	500V)
Resolution	1mS(350W/16V) 20μS(350W/80V)		20μS (350W/125V) 0.5μS (350W/500V)	
Accuracy	100Ω: ±(0.2%set+	-0.1S)	5KΩ:±(0.2%set+0.	
(with≥ 2.5V at input)	5KΩ: ±(0.1%set+0).01Sj	200KΩ:±(0.1%set+0.	
CONSTANT VOLTAGE+CONSTANT CURRENT MOD			2 5 5001/	24
Operating Range Setting Range	1~80V 0~81.6V		2.5~500V 0~510V	
Resolution	2mV		10mV	AMRC-X
Accuracy	±(0.05%set + 0.19	%F.S.)	±(0.05%set + 0.1%	oF.S.)
Current Setting Range Resolution	0~70A 2mA		0~10A 0.5mA	
Accuracy	±(0.1%set + 0.2%	F.S)	Total Control	
CONSTANT POWER MODE	7.05.94	3 35004	3 3 2 2 2 2 2	3 25000
Operating Range* Setting Range	1~35W 0~35.7W	1~350W 0~357W	1~35W 0~35.7W	1~350W 0~357W
Resolution	1mW	10mW	1mW	10mW
Accuracy	±(0.5%set+0.5%F,S)	±(0.5%set+0.5%F.S	±(0.5%set+0.2%F.S)	±(0.5%set+0.5%l
DYNAMIC MODE	0.005		0.005	avvia a se
T1&T2	0.025mS~10mS/R 10mS~30S/Res:1r		0.025mS~10mS/Re 10mS~30S/Res:1m	
Accuracy	1μS/1mS±100ppn		1μS/1mS±100ppm	
CONSTANT CURRENT MODE		725272 937252535526	29325 5083 233 327	-0150, 040604 VolVo -051
Slew Rate (±10%set+15µS) Slew Rate Resolution	0.001~0.28A/µS 0.001A/µS	0.01~2.8A/μS 0.01A/μS	0.16~40mA/µS	1.6~400mA/μS
Slew Rate Accuracy of Setting	±(10%+15μs) 0~7A	±(10%+15μs) 0~70A	0.16mA/μS ±(10%+15μs) 0~1A	1.6mA/μS ±(10%+15μs) 0~10A
Current Settong Range Current Resolution	0~7A 0.2mA	0~70A 2mA		
Current Accuracy	±0.4% F.S.	±0.4% F.S.	0.05mA ±0.4%F.S.	0.5mA ±0.4%F.S.
CONSTANT RESISTANCE MODE	PAGE AT STATE OF THE SECOND STATE OF THE SECON	CONTRACT I SOCIATION POTON	Manager arms managers	UNITADAS PORSENERS ANTONOS
Slew Rate Slew Rate Resolution	0.001~0.28A/μS 0.001A/μS	0.01~2.8A/μS 0.01A/μS	0.16~40mA/µS 0.16mA/µS	1.6~400mA/µS 1.6mA/µS
Slew Rate Resolution Slew Rate Accuracy of setting	±(10%+15µs)	±(10%+15µs)	±(10%+15µs)	±(10%+15µs)
Resistance Setting Range	$0.025\Omega \sim 100\Omega(350)$	OW/16V)	1.25Ω~5KΩ(350W	
Resistance Resolution	1.25Ω~5K(350W/3 1mS(350W/16V)	80V)	50Ω~200K(350W/ 20μS(350W/125V)	500V)
	20µS(350W/80V)	norasno-casan	0.5µS(350W/500V	
Resistance Resolution Resistance Accuracy	100Ω:±(0.5%set + 5KΩ:±(0.5%set +		$5K\Omega:\pm(0.5\%\text{set} + 0.5\%\text{set})$ 200K $\Omega:\pm(0.5\%\text{set})$).02S) + 0.005S)
MEASUREMENT			1	
VOLTAGE READBACK				
Range Resolution	0~16V 0.32mV	0~80V 1.6mV	0~125V 2.5mV	0~500V 10mV
Accuracy	±(0.025%set + 0.0	T CONTROL OF LAW	2.31114	TOTTY
CURRENT READBACK	_(0.023/0361 + 0.0			
Range	0~7A	0~70A	0~1A	0~10A
Resolution	0.14mA	1.4mA	0.02mA	0.2mA
Accuracy POWER READBACK	±(0.05%set + 0.05	70F.3.)	The table to table t	Turne sources
Range	0~35W	0~350W	0~35W	0~350W
CHENTER CONTROL OF THE CONTROL OF TH	±(0.1%set + 0.1%	F.S.*1)	*1 : Power F.S.=V	range F.S. x Irange F
Accuracy	±(0.1%set + 0.1%	100		
Accuracy PROTECTION	±(0.1%set + 0.1%		T.	
Accuracy PROTECTION OVER POWER PROTECTION	The contribution of		1~357W	
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution	1~357W 1.75W	St.	1.75W	a
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy	1~357W	St.		
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION Range	1~357W 1.75W ±(2%set+0.25%F.S.	St.	1.75W ±(2%set+0.25%F.S.) 0~10.2A	
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION Range Resolution	1~357W 1.75W ±(2%set+0.25%F.S. 0~71.4A 0.175A)	1.75W ±(2%set+0.25%F.S.) 0~10.2A 0.025A	
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION OVER CURRENT PROTECTION OVER CURACY OVER VOLTAGE PROTECTION	1~357W 1.75W ±(2%set+0.25%F.S. 0~71.4A 0.175A ±(2%set+0.25%F.S.)	1.75W ±(2%set+0.25%F.S.) 0~10.2A 0.025A ±(2%set+0.25%F.S.)	
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION Range Resolution Accuracy OVER VOLTAGE PROTECTION Range	1~357W 1.75W ±(2%set+0.25%F.S. 0~71.4A 0.175A ±(2%set+0.25%F.S.)	1.75W ±(2%set+0.25%F.S.) 0~10.2A 0.025A ±(2%set+0.25%F.S.) 1~510V	
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION Range Resolution Accuracy OVER VOLTAGE PROTECTION Range Resolution Accuracy OVER VOLTAGE PROTECTION Range Resolution Accuracy Accuracy	1~357W 1.75W ±(2%set+0.25%F.S. 0~71.4A 0.175A ±(2%set+0.25%F.S. 1~81.6V 0.2V ±(2%set+0.25%F.S.)	1.75W ±(2%set+0.25%F.S.) 0~10.2A 0.025A ±(2%set+0.25%F.S.) 1~510V 1.25V ±(2%set+0.25%F.S.)	
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION Range Resolution Accuracy OVER VOLTAGE PROTECTION Range Resolution Accuracy OVER VOLTAGE PROTECTION CONTRACTOR OF THE PROTECTIO	1~357W 1.75W ±(2%set+0.25%F.S. 0~71.4A 0.175A ±(2%set+0.25%F.S. 1~81.6V 0.2V)	1.75W ±(2%set+0.25%F.S.) 0~10.2A 0.025A ±(2%set+0.25%F.S.) 1~510V 1.25V	
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION Range Resolution Accuracy OVER VOLTAGE PROTECTION Range Resolution Accuracy Over Temperature Protection RATED POWER PROTECTION	1~357W 1.75W ±(2%set+0.25%F.S. 0~71.4A 0.175A ±(2%set+0.25%F.S. 1~81.6V 0.2V ±(2%set+0.25%F.S.)	1.75W ±(2%set+0.25%F.S.) 0~10.2A 0.025A ±(2%set+0.25%F.S.) 1~510V 1.25V ±(2%set+0.25%F.S.)	
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION Range Resolution Accuracy OVER VOLTAGE PROTECTION Range Resolution Accuracy Over Temperature Protection Value Accuracy	1~357W 1.75W ±(2%set+0.25%F.S. 0~71.4A 0.175A ±(2%set+0.25%F.S. 1~81.6V 0.2V ±(2%set+0.25%F.S. = 85°C)	1.75W ±(2%set+0.25%F.S.) 0~10.2A 0.025A ±(2%set+0.25%F.S.) 1~510V 1.25V ±(2%set+0.25%F.S.) = 85°C	
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION Range Resolution Accuracy OVER VOLTAGE PROTECTION Range Resolution Accuracy Over Temperature Protection RATED POWER PROTECTION Value Accuracy GENERAL	1~357W 1.75W ±(2%set+0.25%F.S. 0~71.4A 0.175A ±(2%set+0.25%F.S. 1~81.6V 0.2V ±(2%set+0.25%F.S. = 85°C 385W)	1.75W ±(2%set+0.25%F.S.) 0~10.2A 0.025A ±(2%set+0.25%F.S.) 1~510V 1.25V ±(2%set+0.25%F.S.) ÷85°C 385W	
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION Range Resolution Accuracy OVER VOLTAGE PROTECTION Range Resolution Accuracy Over Temperature Protection RATED POWER PROTECTION Value Accuracy GENERAL SHORT CIRCUIT	1~357W 1.75W ±(2%set+0.25%F.S. 0~71.4A 0.175A ±(2%set+0.25%F.S. 1~81.6V 0.2V ±(2%set+0.25%F.S. = 85°C 385W ±(2%set))	1.75W ±(2%set+0.25%F.S.) 0~10.2A 0.025A ±(2%set+0.25%F.S.) 1~510V 1.25V ±(2%set+0.25%F.S.) ÷ 85°C 385W ±(2%set)	
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION Range Resolution Accuracy OVER VOLTAGE PROTECTION Range Resolution Accuracy Over Temperature Protection RATED POWER PROTECTION Value Accuracy GENERAL	1~357W 1.75W ±(2%set+0.25%F.S. 0~71.4A 0.175A ±(2%set+0.25%F.S. 1~81.6V 0.2V ±(2%set+0.25%F.S. = 85°C 385W)	1.75W ±(2%set+0.25%F.S.) 0~10.2A 0.025A ±(2%set+0.25%F.S.) 1~510V 1.25V ±(2%set+0.25%F.S.) ÷85°C 385W	
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION Range Resolution Accuracy OVER VOLTAGE PROTECTION Range Resolution Accuracy OVER VOLTAGE PROTECTION Range Resolution Accuracy Over Temperature Protection RATED POWER PROTECTION Value Accuracy GENERAL SHORT CIRCUIT Current(CC)	1~357W 1.75W ±(2%set+0.25%F.S. 0~71.4A 0.175A ±(2%set+0.25%F.S. 1~81.6V 0.2V ±(2%set+0.25%F.S. = 85°C 385W ±(2%set)))) ⇒77/70A	1.75W ±(2%set+0.25%F.S.) 0~10.2A 0.025A ±(2%set+0.25%F.S.) 1~510V 1.25V ±(2%set+0.25%F.S.) =85°C 385W ±(2%set)	≒11/10A
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION Range Resolution Accuracy OVER VOLTAGE PROTECTION Range Resolution Accuracy Over Temperature Protection RATED POWER PROTECTION Value Accuracy GENERAL SHORT CIRCUIT Current(CC) Voltage(CV)	1~357W 1.75W ±(2%set+0.25%F.S. 0~71.4A 0.175A ±(2%set+0.25%F.S. 1~81.6V 0.2V ±(2%set+0.25%F.S. = 85°C 385W ±(2%set)))) ⇒77/70A ov	1.75W ±(2%set+0.25%F.S.) 0~10.2A 0.025A ±(2%set+0.25%F.S.) 1~510V 1.25V ±(2%set+0.25%F.S.) =85°C 385W ±(2%set)	⇒11/10A ov
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION Range Resolution Accuracy OVER VOLTAGE PROTECTION Range Resolution Accuracy Over Temperature Protection RATED POWER PROTECTION Value Accuracy GENERAL SHORT CIRCUIT Current(CC) Voltage(CV) Resistance(CR)	1~357W 1.75W ±(2%set+0.25%F.S. 0~71.4A 0.175A ±(2%set+0.25%F.S. 1~81.6V 0.2V ±(2%set+0.25%F.S. = 85°C 385W ±(2%set) =7.7/7A 0V =1.25Ω 500ΚΩ(Typical)))) =77/70A ον =0.025Ω	1.75W ±(2%set+0.25%F.S.) 0~10.2A 0.025A ±(2%set+0.25%F.S.) 1~510V 1.25V ±(2%set+0.25%F.S.) =85°C 385W ±(2%set) =1.1/1A 0V =15Ω,=50Ω	⇒11/10A ov
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION Range Resolution Accuracy OVER VOLTAGE PROTECTION Range Resolution Accuracy Over Temperature Protection RATED POWER PROTECTION Value Accuracy GENERAL SHORT CIRCUIT Current(CC) Voltage(CV) Resistance(CR) INPUT RESISTANCE(LOAD OFF)	1~357W 1.75W ±(2%set+0.25%F.S. 0~71.4A 0.175A ±(2%set+0.25%F.S. 1~81.6V 0.2V ±(2%set+0.25%F.S. = 85°C 385W ±(2%set) =7.7/7A 0V =1.25Ω 500ΚΩ(Typical) AC100V ~ 230V ±))) ⇒77/70A ov	1.75W ±(2%set+0.25%F.S.) 0~10.2A 0.025A ±(2%set+0.25%F.S.) 1~510V 1.25V ±(2%set+0.25%F.S.) =85°C 385W ±(2%set) =1.1/1A 0V =15Ω,=50Ω	⇒11/10A ov
Accuracy PROTECTION OVER POWER PROTECTION Range Resolution Accuracy OVER CURRENT PROTECTION Range Resolution Accuracy OVER VOLTAGE PROTECTION Range Resolution Accuracy Over Temperature Protection RATED POWER PROTECTION Value Accuracy GENERAL SHORT CIRCUIT Current(CC) Voltage(CV) Resistance(CR)	1~357W 1.75W ±(2%set+0.25%F.S. 0~71.4A 0.175A ±(2%set+0.25%F.S. 1~81.6V 0.2V ±(2%set+0.25%F.S. = 85°C 385W ±(2%set) = 7.7/7A 0V = 1.25Ω 500KΩ(Typical) AC100V ~ 230V ± Approx. 3.8 kg) (=77/70A 0V =0.025Ω 10%; 50Hz / 60Hz	1.75W ±(2%set+0.25%F.S.) 0~10.2A 0.025A ±(2%set+0.25%F.S.) 1~510V 1.25V ±(2%set+0.25%F.S.) =85°C 385W ±(2%set) =1.1/1A 0V =15Ω,=50Ω	⇒11/10A 0V ⇒1.25Ω

PEL-2020A Dual Channel Module, (0~80V, 0~20A, 100W) x 2 PEL-2030A Dual Channel Module, (1~80V, 0~5A, 30W)+(1~80V, 0~40A, 250W) PEL-2040A Single Channel Module, (0~80V, 0~70A, 350W) PEL-2041A Single Channel Module, (0~500V, 0~10A, 350W) PEL-2004A 4-Slot Programmable D.C. Electronic Load Mainframe PEL-2002A 2-Slot Programmable D.C. Electronic Load Mainframe ACCESSORIES PEL-2002A/2004A User Manual x1, Power Cord x1 PEL-2002A/2030A/2040A/2041A GTL-120 Test Lead x 1, GTL-121 Sense Lead x 1 PEL-003 x 3 (PEL-2004A); PEL-003 x 1 (PEL-2002A)

PEL-001 GPIB Card PEL-002 PEL-2000A Series Rack Mount Kit PEL-003 Penel Cover GTL-251 GPIB-USB-HS (High Speed) GTL-248 GPIB Cable (2m) GTL-249 Frame Link Cable GTL-240 USB Cable, USB 2.0 A-B TYPE CABLE, 4P GTL-232 RS-232C Cable, 9-pin, F-F Type, null modem. 2000mm	OPTION	NAL ACCESSORIES
PEL-003 Panel Cover GTL-251 CPIB-USB-HS (High Speed) GTL-248 CPIB Cable (2m) GTL-249 Frame Link Cable GTL-246 USB Cable, USB 2.0 A-B TYPE CABLE, 4P GTL-232 RS-232C Cable, 9-pin, F-F Type,	PEL-001	GPIB Card
GTL-251 GPIB-USB-HS (High Speed) GTL-248 GPIB Cable (2m) GTL-249 Frame Link Cable GTL-246 USB Cable, USB 2.0 A-B TYPE CABLE, 4P GTL-232 RS-232C Cable, 9-pin, F-F Type,	PEL-002	PEL-2000A Series Rack Mount Kit
GTL-249 Frame Link Cable GTL-246 USB Cable, USB 2.0 A-B TYPE CABLE, 4P GTL-232 RS-232C Cable, 9-pin, F-F Type,	PEL-003	Panel Cover
GTL-249 Frame Link Cable GTL-246 USB Cable, USB 2.0 A-B TYPE CABLE, 4P GTL-232 RS-232C Cable, 9-pin, F-F Type,	GTL-251	GPIB-USB-HS(High Speed)
GTL-246 USB Cable, USB 2.0 A-B TYPE CABLE, 4P GTL-232 RS-232C Cable, 9-pin, F-F Type,		
GTL-232 RS-232C Cable, 9-pin, F-F Type,	GTL-249	Frame Link Cable
	GTL-232	RS-232C Cable, 9-pin, F-F Type,
,		,

Specifications subject to change without notice.

EL-2000AGD1DH

MODULARIZED STRUCTURE/PROGRAM & INTERFACE

Modularized Structure

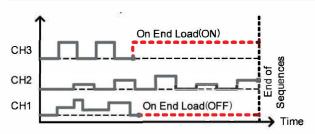
PEL-2004A is a 4-slot mainframe with a master control unit made to hold 4 load modules, and PEL-2002A is a 2-slot mainframe with a master control unit made to hold 2 load modules. The modularized structure of the PEL-2000A Series allows any combination of mainframe and load module (PEL-2020A, PEL-2030A, PEL-2040A, PEL-2041A) to be integrated into a custom-tailored system.

Multiple loads within the same mainframe can be connected in parallel to perform both static and dynamic tests. This flexibility makes the PEL-2000A Series a very cost-effective instrument for testing a broad range of power supply outputs.

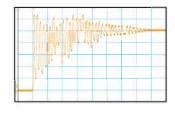
Program & Interface

The PEL-2000A Series supports a total of 12 different programs and 10 sequences to each program. With a total of up to 120 different configurations. For external control and system configuration, the PEL-Series has USB and RS-232 interfaces as standard and GPIB as an option. The LabView driver and Data Logging PC software are supported for all the interfaces available. Each channel has an analog control/monitoring connector to externally turn a load on/off and to externally monitor load input current and voltage.

AUTOMATICALLY SEQUENCE FUNCTION



Sequence - On End Load



The figure above shows the current waveform of a simulation using the sequence function.

The Sequence function allows each channel to change its load sink according to a predefined sequence at a rate of up to $100\mu s$ per step. Each sequence is able to run concurrently, under the control of one clock. This is one of the most powerful features of the PEL-2000A Series as it is able to realistically simulate a multi-output power supply load. Under Dynamic mode, the load current or load resistance pulses between two preset levels at a pre-defined speed up to $25\mu s$ per step. This is often used as the standard test procedure to verify the response of a power supply to quick load changes.

The picture above is an example of a sequence used as a load profile for a single output switching power supply. A load profile is programmed to simulate the current drawn of a power supply load.

By using a current probe to acquire a current waveform, PEL-2000A is able to evaluate the performance of a power supply based on the load sequence that is programmed. An oscilloscope is then used to display the result.

Test Equipment Depot - 800.517.8431 - 99 Washington Street Melrose, MA 02176 - TestEquipmentDepot.com

