

GW Instek

PEL-500 Series DC Electronic Load

New Product Announcement



This document allows GW Instek's partners to quickly grasp product's main features, FAB and ordering

GW INSTEK
Simply Reliable

The PEL-500 series single-channel electronic load has a total of 5 models and provides 0~80V/ 0~500V voltage operating ranges and 250~700W power operating range. The series can be applied to R&D, quality control, ATE system and production test, including voltage source/current source test; switching power supply transient response; constant voltage mode for current limiting test; battery simulation; and battery discharge test.



The PEL-500 series provides a 5-digit digital display of voltage, current and power. Users can monitor the measurement data of the DUT at the same time. In order to facilitate users to evaluate whether the DUT can withstand the overshoot current, the PEL-500 series provides Surge test, which can simulate the boot overshoot current and the transient current from hot plugging. The built-in battery discharge test function can determine the conditions for stopping the discharge according to the test requirements of the DUT, including setting the discharge stop voltage (V_{batt}), discharge capacity (AH, WH) and stop discharge time.

Users can set the loading voltage/unloading voltage of the PEL-500 series for testing according to the characteristics of the DUT. When the output voltage of the DUT rises to the loading voltage value, the loading starts. When the output voltage drops to the unloading voltage, the loading ends. Users can use the GO/NG function to pre-set the judgment conditions according to the function and specifications of the DUT. The PEL-500 series will automatically generate the judgment results according to the set judgment conditions during the test.

Under the safety test requirements of the power supply, the PEL-500 series not only provides the Short test function, but also provides the automatic test function of overcurrent protection/overpower protection to simplify users' complicated manual operation and verify the OCP/OPP of the DUT's action points. The generated measurement results help users confirm whether the actual operating action points of the DUT for OCP/OPP are within the measurement regulations.

In addition to the function of providing load current waveforms to the oscilloscope via the BNC output terminal of Imonitor, the PEL-500 series also provides overvoltage, overcurrent, overpower

and over temperature protection, and reverse polarity detection. When any one of them generates a trigger action, The PEL-500 series will have protective or reminding measures to protect the PEL-500 from damage due to abnormal operating ranges.

Features

<ul style="list-style-type: none"> • 5-digit digital voltage, current and power meter • Simultaneous display of voltage, current, and watts • Short-circuit time can be set during short-circuit test • Automatic test function of overcurrent protection/overpower protection • The battery discharge test function can set the discharge stop voltage (Vbatt), discharge capacity (AH, WH) and stop discharge time. • Surge test can simulate boot overshoot current and transient current from hot plugging. 	<ul style="list-style-type: none"> • Constant current, constant resistance, constant voltage, constant power and Dynamic mode • Overvoltage, overcurrent, over power, over temperature protection and reverse polarity detection • Voltage polarity display can be set to positive value ("+") or negative value ("-") • Communications interface: RS232, USB
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Customers and applications

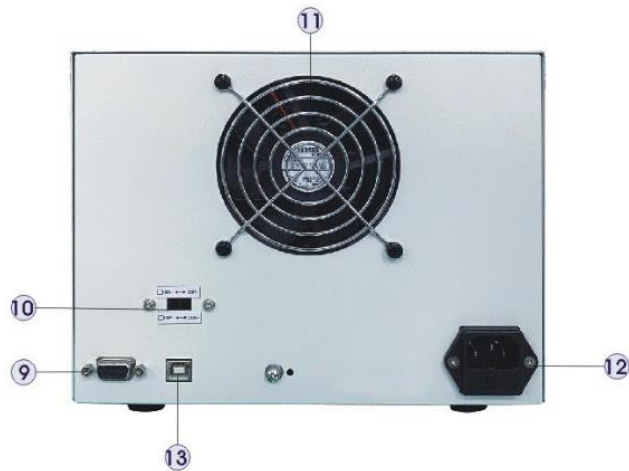
<ul style="list-style-type: none"> • Voltage/current source test • Transient response of switching power supply • Constant voltage mode for current limiting test and battery simulation • Battery discharge • R&D, quality control • ATE system • Production test

Product appearance

Front panel



Rear panel



Front panel	Rear panel
1. LCD multi-function display	9. RS-232 port
2. Operation function keys	10. Alternate input switch
3. Test function keys	11. Heat sink fan
4. Knob	12. AC input socket
5. Load input	13. USB port
6. V-sense terminals	
7. Imonitor output	
8. Power switch	

Important information for product ordering

Important product schedule announcement

NPI release and global market launch day (Jan 29th, 2021)

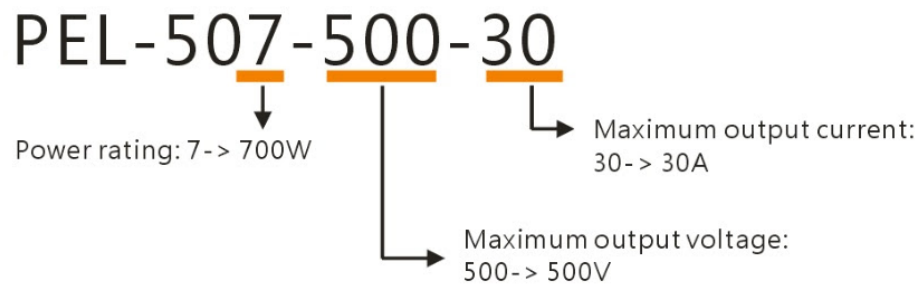
Service policy

1. PEL-500 series DC electronic load carries one-year warranty.
2. Please contact the customer service department of Good Will Instrument for maintenance related information

Ordering information

Model	Voltage(V)	Current(A)	Power(W)	Product name
PEL-503-80-50	80	50	250	DC electronic load
PEL-504-80-70	80	70	350	DC electronic load
PEL-504-500-15	500	15	350	DC electronic load
PEL-507-80-140	80	140	700	DC electronic load
PEL-507-500-30	500	30	700	DC electronic load

Regarding the product delivery date, please contact the sales representative for your region.



Optional accessories

NA

Optional accessories (factory installation)

NA

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Detailed description of product features

Surge function

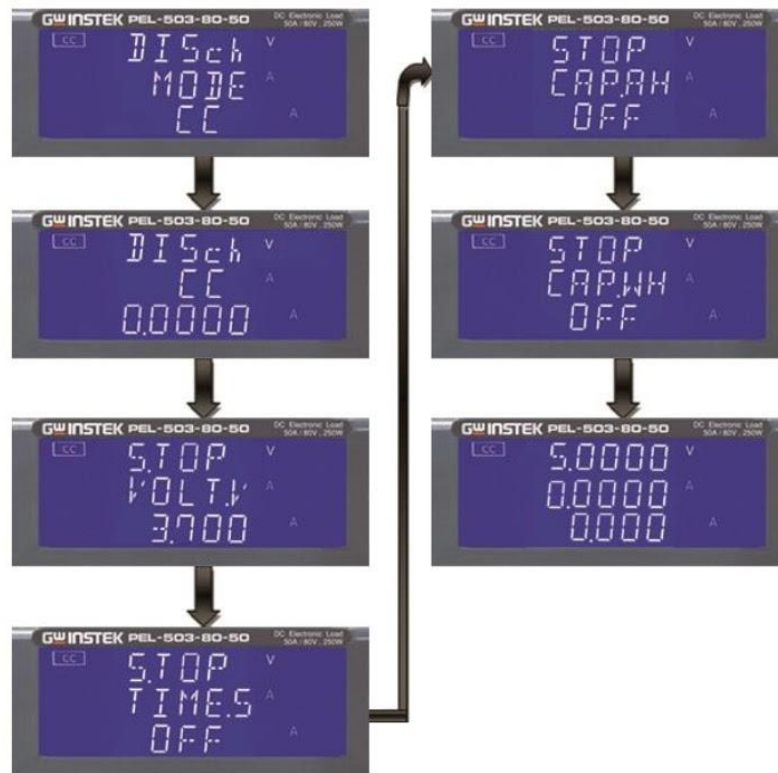
The Surge function allows users to set Surge current, Normal current, Surge Time and Surge STEP according to test requirements. Surge current and Normal current can be set from 0.000A to 50.400A, Surge Time can be set from 10 to 1000ms, and Surge STEP can be set from 1 to 5.



Surge current setting

Battery discharge test function

The battery discharge test function can determine the conditions to stop the discharge according to the test requirements of the DUT, including setting the stop discharge voltage (V_{batt}), discharge capacity (AH, WH) and stop discharge time.



Battery discharge setting processes

GO/NG function

The GO/NG function is applied to monitor the test result. When the test result exceeds the preset upper/lower limit, the front panel display screen will display NG. Otherwise, GO is displayed. The GO/NG function can edit the working procedures of the test in CC mode/CR mode/CV mode/CP mode. After the test procedures are executed, the test result will be displayed on the front panel display screen, which is represented by GO or NG.

Product comparison

Feature, Advantage and Benefit

Features	Advantages	Customers' Benefits
Display voltage value, current value, watt value at the same time	5-digit digital voltage, current and power meter	Provide users with the measurement data of the DUT to be monitored at the same time.
Short test function	During the Short test, if the DC POWER SUPPLY output voltage range is between short V-high and short V-low, the display will display "PASS"; otherwise, the display will display "FAIL". The short circuit time can be set during the Short test.	Under the safety requirements of the power supply, the protection of Short is an essential function. PEL-500 provides a fully automated Short test function to simplify the users' complicated manual operation.
OCB test function	During the OCP test, if the DC POWER SUPPLY output current reaches the upper limit, whether the OCP value (overcurrent protection) of the DC POWER SUPPLY from the test is within the upper and lower current limits I _{Hi} and I _{Lo} set by LIMIT; if the OCP value is within the upper and lower limits, The lower 5-digit display will display "PASS", otherwise it will display "FAIL".	Under the safety requirements of the power supply, OCP protection is a necessary function. PEL-500 provides fully automated OCP test function to simplify the users' complicated manual operation.
OPP test function	During OPP test, if the output power of DC POWER SUPPLY reaches the upper limit, whether the OPP value (over power protection) of the DC POWER SUPPLY from the test is within the upper and lower power limits W _{Hi} and W _{Lo} set by LIMIT; if the OPP value is within the upper and lower limits, The lower 5-digit display will display "PASS", otherwise it will display "FAIL".	Under the safety requirements of the power supply, OPP protection is a necessary function. PEL-500 provides fully automated OPP test function to simplify the users' complicated manual operation.
Battery discharge test function	It has settings for test conditions for discharge stop voltage (Vbatt), discharge capacity (AH, WH), and stop discharge time.	The battery test verification process is often repeated tests. PEL-500 allows users to set test conditions according to the requirements of the test conditions of the DUT. After completion, it can perform automatic test verification repeatedly.
Surge test function	The Surge test function provides test function settings for Surge Current, Normal Current, Surge Time, and Surge STEP.	Power supply must be able to withstand the overshoot current. PEL-500 provides Surge test for the DUT, which can simulate the boot overshoot current and the transient current of hot plugging.
Protective function	PEL-500 is equipped with overvoltage, overcurrent, overpower, over temperature protection and reverse polarity detection function.	PEL-500 has five self-protection functions. When any one of them generates a trigger action, PEL-500 will respond appropriately to protect PEL-500 from damage due to abnormal operating range.
Imonitor current monitoring output	The analog signal output by Imonitor is proportional to the load current flowing through the electronic load. The full scale of Imonitor signal is 10V.	Imonitor is mainly designed as a BNC output terminal to facilitate connection to an oscilloscope to observe the waveform of the load current.
Loading voltage/unloading voltage (LDon/LDoff) function	The voltage action points of loading voltage/unloading voltage (LDon/LDoff) can be set separately	After the output voltage of the DUT rises to the loading voltage, loading can be performed, and when the output voltage drops to the unloading voltage, loading ends. Users can set the loading voltage value and the unloading voltage value according to the characteristics of the DUT to meet the needs of normal testing.
GO/NG function	GO/NG comparison judgment function can be set	Users can pre-set the judgment conditions according to the function and specifications of the DUT, and PEL-500 will automatically generate the judgment results according to the set judgment conditions during the test.

Feature comparison

Brand	GW	RIGOL	Chroma
Model	PEL-503-80-50	DL3021A	63003-150-40
INPUT RATINGS			
Power(Watt)	250 W	200W	250W
Current(Ampere)	50 A	40A	40A
Voltage(Volt)	80 V	150V	150V
Min. Operating Voltage	1.0V @ 50A	1.0V @ 40A	3V @ 40A
PROTECTIONS			
Over Power Protection(OPP)	YES	YES	YES
Over Current Protection(OCP)	YES	YES	YES
Over Voltage Protection(OVP)	YES	YES	YES
Over Temp. Protection(OTP)	YES	YES	YES
Operation Mode			
CC MODE	2 Range	2 Range	3 Range
	YES	YES	YES
CR MODE	2 Range	2 Range	3 Range
	Yes	YES	YES
CV MODE	2 Range	2 Range	3 Range
	YES	YES	YES
CP MODE	2 Range	1 Range	3 Range
	YES	YES	YES
Dynamic Operation	2 Range	1 Range	3 Range
	YES	YES	YES
Measurement			
5 1/2 DVM	2 Range	1 Range	3 Range
	YES	YES	YES
5 1/2 DAM	2 Range	1 Range	3 Range
	YES	YES	YES
Surge Test			
Surge & Normal current	YES	NO	CZ MODE
Surge time	YES	NO	CZ MODE
Surge step	YES	NO	CZ MODE
Battery Discharge Test			
UVP	YES	NA	YES
Time	YES	NA	YES
Capacity	YES	NA	YES
Others			
Max. short Current	50A	40A	40A
Interface(Standard)	USB/RS232	LAN/RS232/USB	USB
Interface(Option)	--	GPIB	Ethernet / GPIB
Dimension(HxWxD)	205 x 123 x 477mm	239 x 157 x 442 mm	88 x 215 x 354 mm
Weight	3.7Kg	7.58Kg	6Kg

Specifications

Model	PEL-503-80-50	PEL-504-80-70	PEL-504-500-15	PEL-507-80-140	PEL-507-500-30	
INPUT RATINGS						
Power(Watt)	250 W	350 W	350 W	700 W	700 W	
Current(Ampere)	50 A	70 A	15 A	140 A	30 A	
Voltage(Volt)	80 V	80 V	500 V	80 V	500 V	
Min. Operating Voltage	1.0V @ 50A	1.2V @ 70A	6V @ 15A	0.9V @ 140A	3V @ 30A	
PROTECTIONS						
Over Power Protection(OPP)	≈262.5W	≈367.5W	≈367.5W	≈735W	≈735W	
Over Current Protection(OCP)	≈52.5A	≈73.5A	≈15.75A	≈147A	≈31.5A	
Over Voltage Protection(OVP)	≈84V	≈84V	≈525V	≈84V	≈525V	
Over Temp. Protection(OTP)	YES	YES	YES	YES	YES	
CC Mode						
Range	0~5.04~50.4A	0~7.02~70.2A	0~1.5~15A	0~14.04~140.4A	0~3~30A	
Resolution	0.084mA/84mA	0.117mA/1.17mA	0.025mA/0.25mA	0.234mA/2.34mA	0.05mA/0.5mA	
Accuracy	±0.1% of (setting+range)					
CR Mode						
Range	0.016~1.6~96000Ω	0.0114~1.14~68400Ω	0.4~40~2400000Ω	0.0057~0.57~34200Ω	0.2~20~1200000Ω	
Resolution	26.666μΩ/0.010416mS	19μΩ/0.014619mS	666.667μΩ/0.416μS	9.5μΩ/29.239μS	333.334μΩ/0.833μS	
Accuracy	±0.2% of (setting+range)					
CV Mode						
Range	0~8.1~81V	0~8.1~81V	0~60~500V	0~8.1~81V	0~60~500V	
Resolution	0.135mV/1.35mV	0.135mV/1.35mV	1mV/10mV	0.135mV/1.35mV	1mV/10mV	
Accuracy	±0.05% of (setting+range)					
CP Mode						
Range	0~25.02~250.2W (Imax=r1.5A, r2:50A)	0~35.04~350.4W (Imax=r1.7A, r2:70A)	0~35.04~350.4W (Imax=r1:1.5A, r2:15A)	0~70.02~700.2W (Imax=r1:14A, r2:140A)	0~70.02~700.2W (Imax=r1:3A, r2:30A)	
Resolution	0.417mW/417mW	0.584mW/5.84mW	0.584mW/5.84mW	1.167mW/11.67mW	1.17mW/117mW	
Accuracy	±0.5% of (setting+range)					
Dynamic Mode						
THIGH/TLOW	10μS to 9.999 Sec					
Resolution	0.001/0.01/0.1/1mS					
Slew rate	L	0.032~2A/μs	0.0464~2.90A/μs	1~62.5mA/μs	0.0096~0.6A/μs	2~125mA/μs
	H	3.2~200mA/μs	4.64~290mA/μs	10~625mA/μs	0.096~6A/μs	20~1250mA/μs
Accuracy	±5%±10μs					
Measurement						
Voltage Read Back	Range (5 Digital)	0~8.1~81V	0~8.1~81V	0~60~500V	0~8.1~81V	0~60~500V
	Resolution	0.135mV/1.35mV	0.135mV/1.35mV	1mV/10mV	0.135mV/1.35mV	1mV/10mV
	Accuracy	±0.025% of (reading+range)				
Current Read (5 Digital)	Range	0~5.04~50.4A	0~7.02~70.2A	0~1.5~15A	0~14.04~140.4A	0~3~30A

Back	Resolution	0.084mA/84mA		0.117mA/1.17mA		0.025mA/0.25mA		0.234mA/2.34mA		0.05mA/ 0.5mA		
	Accuracy	±0.1% of (reading + range)										
Power Read Back	Range (5 Digital)	25W	250W	35W	350W	35W	350W	70W	700W	70W	700W	
	Resolution	0.001W	0.01W	0.001W	0.01W	0.001W	0.01W	0.001W	0.01W	0.001W	0.01W	
	Accuracy	±0.1% of (reading + range)										
Surge Test												
Surge & Normal current	0~50A			0~70A			0~15A		0~140A		0~30A	
Surge time	10~1000ms			10~1000ms			10~1000ms		10~1000ms		10~1000ms	
Surge step	1~5			1~5			1~5		1~5		1~5	
Battery Discharge Test												
UVP	0~81V			0~81V			0~500V		0~81V		0~500V	
Time	1~99999 Sec			1~99999 Sec			1~99999 Sec		1~99999 Sec		1~99999 Sec	
Capacity	0.1~19999.9AH/0.1~19999.9WH											
Others												
Load ON Voltage	0.1~25V				0.4~100V			0.1~25V		0.4~100V		
Accuracy	1% of (setting + range)											
Load OFF Voltage	0~25V				0~100V			0~25V		0~100V		
Accuracy	0.05% of (setting + range)											
Imonitor (Non-isolated)	5.04 A/V			7.02 A/V			1.5 A/V		14.04 A/V		3 A/V	
Current Monitor	Full scale: 10V											
Accuracy	0.5% of (setting + range)											
Typical Short Resistance	0.018Ω			0.0169Ω			0.367Ω		0.0053Ω		0.087Ω	
Max. short Current	50A			70A			15A		140A		30A	
Power input	115/230 Vac±10%, 50/60Hz											
Interface (Standard)	USB/RS232											
Power Consumption	40 VA						60 VA					
Dimension (HxWxD)	205 x 123 x 477mm			205 x 123 x 477mm			205 x 123 x 477mm		205 x 231 x 480mm		205 x 231 x 480mm	
Weight	5.3Kg			5.3Kg			5.3Kg		10.3Kg		10.3kg	

Should you have any questions on the PEL-500 series announcement, please don't hesitate to contact US.

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