

# DC Electronic Loads PEL SERIES

150W/200V/30A

## PEL151-201

Minimum 0 Volt Operating Model

## PEL151-201V1

150W/500V/7.5A

## PEL151-501

300W/200V/60A

## PEL301-201

Minimum 0 Volt Operating Model

## PEL301-201V1

300W/500V/15A

## PEL301-501

600W/200V/120A

## PEL601-201

Minimum 0 Volt Operating Model

## PEL601-201V1

600W/500V/30A

## PEL601-501

1000W/200V/200A

## PEL102-201

Minimum 0 Volt Operating Model

## PEL102-201V1

1000W/500V/50A

## PEL102-501

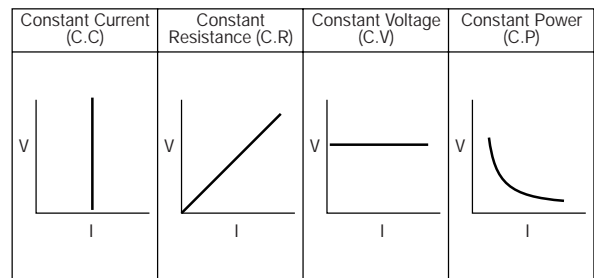
### OUTLINE

The PEL series are DC electronic loads which are ideal in aging, characteristic analysis and product life testing applications including switching power supplies and batteries.

A sophisticated program function enables high speed response and load characteristic simulation.

A minimum operating voltage down to 0V is a standard feature of the V1 versions.

#### Basic Applications



(PEL151-201, PEL301-201, PEL601-201, PEL102-201)

## FEATURES

The maximum application voltage is 200V or 500V, the input power is 150, 300, 600 or 1000W.

The input current is 30A for 150W, 60A for 300W, 120A for 600W or 200A for 1000W.

### High-speed response

SW (switching) operation is available in the CC or CR discharging mode. It features the maximum response of 10  $\mu$ s (in the CC discharging mode).

### 100 sequence memory

Storing on panel in the memory facilitates easy sequence operation.

### External control

Every model allows analog control according to external voltage (0 to 10V) and external resistance (0 to 10k $\Omega$ ).

### GP-IB interface

Every model has the general purpose interface bus GP-IB as the standard feature.

### Master slave parallel operation

A maximum of five units can be connected in the parallel master slave operation mode.

### Various protective functions

Three protective functions are available: UVP (Under Voltage Protection), OCP (Over Current Protection) and OPP (Over Power Protection).

Six alarm functions are available: RCP (Reverse Connection Protection) alarm, OPP (Over Power Protection) alarm, OVP (Over Voltage Protection) alarm, OCP (Over Current Protection) alarm, OHP (Over Heat Protection) alarm and UVP (Under Voltage Protection) alarm.

### Software start function

The current rise time of the load side can be adjusted according to the rise time of the output voltage, when test the rise time of switching power supply.

## MAIN APPLICATIONS

Load test of DC power supply.

Electrical discharge test of battery (include solar battery).

Electrical discharge test of fuel cell.

Electrical discharge test of capacitor.

Load test of battery for electric vehicle.

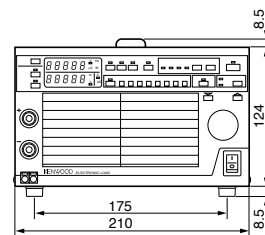
Interception and fusion test of breaker and fuse.

Characteristic test of power transistor.

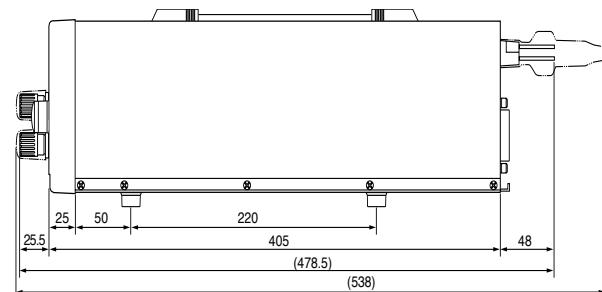
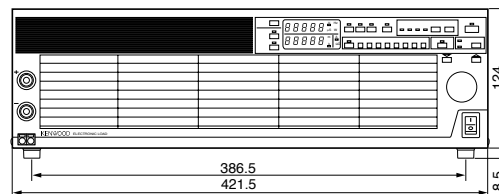
## Others

### CASE DIMENSIONS

PEL151-201/PEL151-201V1/PEL151-501/PEL301-201/  
PEL301-201V1/PEL301-501

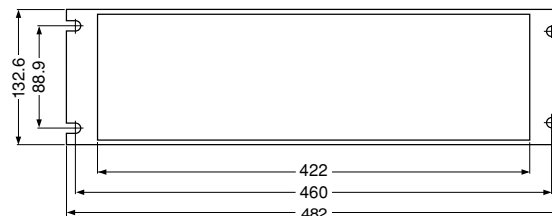


PEL601-201/PEL601-201V1/PEL601-501/PEL102-201/  
PEL102-201V1/PEL102-501



### RACK MOUNT ADAPTER

RK-605E (EIA)



### BLANK PANEL

RB-600A (1/2 rack width)

# DC ELECTRONIC LOADS

## SPECIFICATIONS

Model		PEL151-201	PEL301-201
Input Power		0 ~ 150 W	0 ~ 300 W
Input Voltage Range		CR Mode:0-200V, CC/CP/CV Mode:1.5 ~ 200V	
Input Current Range (Front/Rear Terminal)		0 ~ 30 A / 0 ~ 30 A	0 ~ 30 A / 0 ~ 60 A
Constant Current Mode	Range/Resolution	H Range: 30 A: 0 ~ 30 A / 1 mA 150 W max L Range: 0.3 A: 0 ~ 0.3 A / 10 $\mu$ A 1.5 W max	H Range: 60 A: 0 ~ 60 A / 2 mA 300 W max L Range: 0.6 A: 0 ~ 0.6 A / 20 $\mu$ A 3 W max
	Accuracy	$\pm 0.2\%$ of SET $\pm 0.3\%$ of FS (0-40°C)	
	Ripple Noise (1MHz)	H Range 10 mA rms / L Range 1 mA rms	
	Stability	$\pm 0.1\%$ of FS (typ)	
Constant Resistance Mode	Range	H Range: OPEN, 1.5 k $\Omega$ ~ 50m $\Omega$ L Range: OPEN, 150 k $\Omega$ ~ 5 $\Omega$	H Range: OPEN, 750 $\Omega$ ~ 25 m $\Omega$ L Range: OPEN, 75 k $\Omega$ ~ 2.5 $\Omega$
	Resolution	H Range: 0.66ms / L Range:6.6 $\mu$ s	
	Accuracy (23°C $\pm 5^\circ$ C)	H Range: $\pm 0.5\%$ of SET $\pm 0.15A + V_{in}/R_{in}$ L Range: $\pm 0.5\%$ of SET $\pm 1.5mA + V_{in}/R_{in}$	
	Ripple Noise (1MHz)	H Range: 10m A rms / L Range: 1m A rms	
	Temperature Factor	1000PPM/°C (Vin=5V)	
Constant Voltage Mode	20V Range/200V Range	1.5 ~ 20V/15 ~ 200V (CC+CV Mode, CR+CV Mode)	
	Accuracy/Resolution/ Minimum Operating Current	$\pm 0.1\%$ of SET $\pm 0.1\%$ of FS (0-40°C) / 20V Range: 1mV, 200V Range: 10mV / 1% of Constant Current	
Constant Power Mode	Operating Range/Resolution	H Range:3 ~ 150 W / 5m W L Range: 0.03 ~ 1.5 W / 50 $\mu$ W	H Range: 6 ~ 300W / 10 mW L Range: 0.06 ~ 3W / 100 $\mu$ W
	Accuracy (23°C $\pm 5^\circ$ C)	$\pm 0.4\%$ SET $\pm 1.6\%$ FS $\pm V_{in} \times V_{in} / R_{in}$ (Vin x Vin / Rin for Current L Range) (TEMP factor: 1000PPM/ °C (Vin=5V))	
	Ripple Noise (1MHz)	H Range : 10 mA rms / L Range : 1 mA rms	
Short Mode	Setting Current Value	0.3/30 A (V1 model CC0V: 18A)	0.6/60 A (V1 model CC0V: 18A)
SW Mode (Preset A B)	Frequency/Accuracy	1 Hz-10kHz / $\pm 1.5\%$ SET	
	DUTY/Setting Accuracy /Resolution	5%-95% / $\pm 1.5\%$ SET / 1% STEP	
Through Rate Tr/Tf (1% 100%)	Operating Mode	CC, CR	
	Setting Range	CC:10 / 20 / 50 / 100 / 200 / 500 / 1000 / 2000 $\mu$ s, CR:OFF / 200 / 500 / 1000 / 2000 $\mu$ s	
	Setting Accuracy	H : 10, 20 $\mu$ s :5 $\mu$ s : $\pm 10\mu$ s, L:10, 20 $\mu$ s : $\pm 10\mu$ s, H : 50-2000 $\mu$ s : $\pm 20\%$ , L : 50-2000 $\mu$ s : $\pm 30\%$	
Soft Start	Operating Mode	CC	
	Setting Range/Accuracy	0.1 / 1 / 2 / 5 / 10 / 20 / 50 / 100ms / $\pm 30\%$ of set+100 $\mu$ s	
Remote Sensing		2.5 V par One Way	
External Control	Voltage	0 ~ 10 V (Offset gain Adjustable at Rear Panel. ) It takes approx. 1 Second for Settings at CR Mode	
	Resistance	0 ~ 10 k $\Omega$ (It takes approx. 1 Second for Settings)	
	Others	LOAD ON/OFF, EXT SW	
Series/Parallel (Master/Slave Operation)	Connecting Capability	Maximum 4 of Slave Units plus 1 Master Unit	
	Added Current Display	Total Value of Slave Unit(s) and Master Unit are Displayed at Master Unit Display. Over Write : 2 times/Sec	
	Resolution (L Range/H Range)	0.1 $\times$ N / 10 $\times$ N (mA) N: Parallel Unit Numbers.	0.2 $\times$ N / 20 $\times$ N (mA) N: Parallel Unit Numbers.
Current Monitor Out	Linearity	$\pm 1\%$ FS	
DC Current Measurement	Range/ (Resolution)	0.3 / 30 A / (0.1/10 mA)	0.6/60 A / (0.1/10 mA)
	Accuracy/Repeat	$\pm 0.2\%$ of rdg $\pm 0.3\%$ of FS (0-40°C) / 2 Times/Sec	
DC Voltage Measurement	Range/Resolution	0 ~ 20 V / 1 mV, 20 ~ 210 V / 10 mV (Auto Range, Hysteresis at 18 /20 V)	
	Accuracy/Repeat/ Temperature Factor	20V Range : $\pm 0.03\%$ of rdg $\pm 0.06\%$ of FS, 200V Range : $\pm 0.03\%$ of rdg $\pm 0.03\%$ of FS (18-28 °C) / 2 Times/Sec / $\pm 0.003\%$ of rdg $\pm 0.003\%$ of FS/ °C	
		1.5, 150 W / 1, 100 mW (Voltage $\times$ Current)	3, 300 W / 1, 100 mW (Voltage $\times$ Current)
Power Measurement	Range/Resolution	1.5, 150 W / 1, 100 mW (Voltage $\times$ Current)	3, 300 W / 1, 100 mW (Voltage $\times$ Current)
UVP (Under Voltage )	Range/Resolution	OFF, -0.5 ~ 20 V/20 mV	
OPP (Over Power)	Range/Resolution	H Range: 15 ~ 165W/1W / L Range: 0.15 ~ 1.65W/10mW	H Range: 30 ~ 330W/2W / L Range: 0.3 ~ 3.3W/20mW
OCV (Over Current)	Setting Range/Resolution	H Range: 3 ~ 33A/150mA / L Range: 0.03 ~ 0.33A/1.5mA	H: 6 ~ 66A/300mA / L: 0.06 ~ 0.66A/3mA
Protection	Over Voltage	Cut Load Off about 230V	
	Over Current, Over Power	Automatic Resume After 3 Sec of Load Off	
	Reversed Connection	Terminate by Parasitic FET	
	Over Heating	Cut Load Off at 110 °C at Inside Heat Sink	
Sequence Memory	Step/Time/Resolution	100 / 50 $\mu$ s ~ 99h59m59.999995 s, PAUSE, PASS / 50 $\mu$ s, Cycle: 1 ~ 255	
	Items	Discharge Mode Pre-set A, B and C Value, Pre-set A, B and C Switch Selection, Discharge Mode, SHORT Mode ON/OFF, LOAD ON/OFF, UVP Setting value, OCP Setting value, OPP Setting Value, Soft Start Setting Value, Tr/Tf Setting value, SW Frequency, SW DUTY, CV RANGE, Current RANGE, External Control Mode (PASS at Auto Sequence Mode)	
Environmental Request	Temperature/Humidity	0 ~ 40°C / 20 ~ 85 %RH	
	Power Source	AC90 ~ 132 V / AC180 ~ 250V, 48 ~ 63 Hz	
	Power Consumption	Less than 75 VA	Less Than 77 VA
	Isolation	Primary to Body : 1500 VAC 1 Minute, Primary to Secondary : 2300 VAC 1 Minute	
	Isolation Resistance	Primary to Body, Primary to Secondary : 500 VDC More Than 10 M $\Omega$ , Secondary to Body : 250 VDC More Than 5M $\Omega$	
	Cooling Method	Cooling Fan	
	Dimensions (Maximum)	W $\times$ H $\times$ D: 210 (210) $\times$ 124 (141) $\times$ 405 (538) (mm)	
	Weight	Approx. 6 kg	Approx. 7 kg
<b>CC Zero Volts Discharge Mode (V1 Version for CC0V)</b>		<b>PEL151-201V1</b>	<b>PEL301-201V1</b>
Terminal		Front Terminal for CC0V Discharge Mode	
Input Current Range		0 ~ 18 A	
Constant Current Mode (H Range Only)	Range/Constant Resolution	0-18 A/1 mA 100 W max	0-18 A/2 mA 200 W max
	Ripple Noise (1MHz)	20m A rms	
Through Tr/Tf	Constant Range	CC : 500 / 1000 / 2000 $\mu$ s	
Environmental Request	Power Consumption	Less Than 250 VA	Less Than 250 VA

**PEL SERIES**

PEL601-201		PEL102-201	
0 ~ 600 W		0 ~ 1000 W	
0 ~ 30 A / 0 ~ 120 A		0 ~ 30 A / 0 ~ 200 A	
H Range: 120 A: 0 ~ 120 A / 4mA 600W max L Range: 1.2 A: 0 ~ 1.2 A / 40µA 6 W max		H Range: 200 A: 0 ~ 200 A / 5 mA 1000W max L Range: 2 A: 0 ~ 2 A / 50 µA 10 W max	
H Range: 20mA rms / L Range: 2mA rms ±0.25% of FS (typ)		H Range: 30mA rms / L Range: 3mA rms ±0.35% of FS (typ)	
H Range: OPEN, 375 Ω ~ 12.5 mΩ L Range: OPEN, 37.5 kΩ ~ 1.25 Ω		H Range: OPEN, 250 Ω ~ 8.3 mΩ L Range: OPEN, 25 kΩ ~ 833 mΩ	
H Range: 2.66 ms / L Range: 26.6 µs		H Range: 4 ms / L Range: 40 µs	
H Range: ±0.5% of SET ±0.6 A + Vin/Rin L Range: ±0.5% of SET ±6 mA + Vin/Rin		H Range: ±0.5% of SET ±0.9 A + Vin/Rin L Range: ±0.5% of SET ±9 mA + Vin/Rin	
H Range: 20m A rms / L Range: 2m A rms		H Range: 30 mA rms / L Range: 3 mA rms	
H Range: 6 ~ 600 W / 20m W L Range: 0.12 ~ 6 W / 200 µW		H Range: 10 ~ 1000 W / 25 mW L Range: 0.2 ~ 10 W / 250 µW	
H Range : 20 mA rms / L Range : 2 mA rms 1.2/120 A (V1 model CC0V: 18A)		H Range : 30 mA rms / L Range : 3 mA rms 2/200 A ( V1 model CC0V: 18A)	
0.4 × N / 40 × N (mA) N: Parallel Unit Numbers.		0.6 × N / 60 × N (mA) N: Parallel Unit Numbers.	
1.2 / 120A / (0.1/10mA)		2/200A / (0.1/10mA)	
6, 600 W / 1, 100 mW (Voltage × Current)		10, 1000 W / 1, 100 mW (Voltage × Current)	
H Range: 60 ~ 660 W/4 W / L Range: 0.6 ~ 6.6 W/40 mW H Range: 12 ~ 132 A/600 mA / L Range: 0.12 ~ 1.32 A/6 mA		H Range: 100 ~ 1100 W/8 W, L Range: 1 ~ 11 W/80 mW H Range: 20~220 A/1 A / L: 0.2-2.2 A/10 mA	
Less than 84 VA		Less Than 100 VA	
W × H × D: 421.5 (421.5) × 124 (132.5) × 405 (538) (mm) Approx. 11 kg		Approx. 13 kg	
<b>PEL601-201V1</b>		<b>PEL102-201V1</b>	
0 ~ 18 A/2m A 400 W max 30m A rms		0 ~ 18 A/2 m A 600 W max	
Less Than 250 VA		Less Than 265 VA	

# DC ELECTRONIC LOADS

Model		PEL151-501	PEL301-501
Input Power		0 ~ 150 W	0 ~ 300 W
Input Voltage Range		CR Mode:0-500V, CC/CP/CV Mode:5 ~ 500V	
Input Current Range (Front/Rear Terminal)		0 ~ 7.5 A / 0 ~ 7.5 A	0 ~ 15 A / 0 ~ 15 A
Constant Current Mode	Range/Resolution	H Range: 7.5 A: 0 ~ 7.5 A / 1 mA / 150 W max. L Range: 75 mA: 0 ~ 75 mA / 2.5 $\mu$ A / 15 W max.	H Range: 15 A: 0 ~ 15 A / 2 mA / 300 W max. L Range: 150 mA: 0 ~ 150 mA / 5 $\mu$ A / 3 W max.
	Accuracy	$\pm$ 0.2% of SET $\pm$ 0.3% of FS (0-40°C)	
	Ripple Noise (1MHz)	H Range 3 mA rms / L Range 0.5 mA rms	H Range: 5 mA rms / L Range: 0.5 mA rms
	Stability	$\pm$ 0.1% of FS (typ)	
Constant Resistance Mode	Range	H Range: OPEN, 20 k $\Omega$ ~ 0.6667 m $\Omega$ L Range: OPEN, 2 M $\Omega$ ~ 66.67 $\Omega$	H Range: OPEN, 10 k $\Omega$ ~ 0.3333 $\Omega$ L Range: OPEN, 1 M $\Omega$ ~ 33.33 $\Omega$
	Resolution	H Range: 50 $\mu$ s / L Range:0.5 $\mu$ s	H Range: 100 $\mu$ s / L Range: 1 $\mu$ s
	Accuracy (23°C $\pm$ 5°C)	H Range: $\pm$ 0.5% of SET $\pm$ 37.5 mA + Vin/Rin L Range: $\pm$ 0.5% of SET $\pm$ 0.375 mA + Vin/Rin	H Range: $\pm$ 0.5% of SET $\pm$ 75 mA + Vin/Rin L Range: $\pm$ 0.5% of SET $\pm$ 0.75 mA + Vin/Rin
	Ripple Noise (1MHz)	H Range: 3 mA rms / L Range: 0.5 mA rms	H Range: 5 mA rms / L Range: 0.5 mA rms
	Temperature Factor	1000PPM/°C (Vin=20 V)	
Constant Voltage Mode	50V Range/500V Range	5 ~ 50 V/40 ~ 500 V (CC+CV Mode, CR+CV Mode)	
	Accuracy/Resolution/ Minimum Operating Current	$\pm$ 0.1% of SET $\pm$ 0.1% of FS (0-40°C) / 50 V Range: 1 mV, 500 V Range: 10m V / 1% of Constant Current	
Constant Power Mode	Operating Range/Resolution	H Range: 1.5 ~ 150 W / 5 m W L Range: 0.03 ~ 1.5 W / 50 $\mu$ W	H Range: 3 ~ 300 W / 10 mW L Range: 0.06 ~ 3 W / 100 $\mu$ W
	Accuracy (23°C $\pm$ 5°C)	$\pm$ 0.4% SET $\pm$ 1.6% FS $\pm$ Vin x Vin / Rin (Vin x Vin / Rin for Current L Range) (TEMP factor: 1000PPM/°C (Vin=20 V))	
	Ripple Noise (1MHz)	H Range : 3 mA rms / L Range : 0.5 mA rms	H Range: 5 mA rms / L Range: 0.5 mA rms
Short Mode	Setting Current Value	0.075/7.5 A	0.15/15 A
SW Mode (Preset A B)	Frequency/Accuracy	1 Hz-10kHz / $\pm$ 1.5% SET	
	DUTY/Setting Accuracy /Resolution	5%-95% / $\pm$ 1.5% of SET / 1% STEP	
Through Rate Tr/Tf (1% 100%)	Operating Mode	CC, CR	
	Setting Range	CC:10 / 20 / 50 / 100 / 200 / 500 / 1000 / 2000 $\mu$ s, CR:OFF / 200 / 500 / 1000 / 2000 $\mu$ s	
	Setting Accuracy	H : 10, 20 $\mu$ s :5 $\mu$ s : $\pm$ 10 $\mu$ s, L:10, 20 $\mu$ s : $\pm$ 10 $\mu$ s, H : 50-2000 $\mu$ s : $\pm$ 20 %, L : 50-2000 $\mu$ s : $\pm$ 30 %	
Soft Start	Operating Mode	CC	
	Setting Range/Accuracy	0.1 / 1 / 2 / 5 / 10 / 20 / 50 / 100ms / $\pm$ 30 % of set+100 $\mu$ s	
Remote Sensing		2.5 V par One Way	
External Control	Voltage	0 ~ 10 V (Offset gain Adjustable at Rear Panel. ) It takes approx. 1 Second for Settings at CR Mode	
	Resistance	0 ~ 10 k $\Omega$ (It takes approx. 1 Second for Settings)	
	Others	LOAD ON/OFF, EXT SW	
Series/Parallel (Master/Slave Operation)	Connecting Capability	Maximum 4 of Slave Units plus 1 Master Unit	
	Added Current Display	Total Value of Slave Unit(s) and Master Unit are Displayed at Master Unit Display. Over Write : 2 times/Sec	
	Resolution (L Range/H Range)	2 x N (mA) N: Parallel Unit Numbers.	
Current Monitor Out	Linearity	$\pm$ 1% FS	
DC Current Measurement	Range/ (Resolution)	0.075 / 7.5 A / (0.02 mA/2 mA)	0.15/15 A/(0.02 mA/2 mA)
	Accuracy/Repeat	$\pm$ 0.2% of rdg $\pm$ 0.3% of FS (0-40°C) / 2 Times/Sec	
DC Voltage Measurement	Range/Resolution	0 ~ 50 V/1 mV, 40 ~ 525 V/10 mV (Auto Range, Hysteresis at 40/50 V)	
	Accuracy/Repeat/ Temperature Factor	50 V Range : $\pm$ 0.03 % of rdg $\pm$ 0.06% of FS, 500 V Range : $\pm$ 0.03% of rdg $\pm$ 0.03% of FS (18-28 °C) / 2 Times/Sec / $\pm$ 0.003 % of rdg $\pm$ 0.003 % of FS/ °C	
	Power Measurement	Range/Resolution	1.5, 150 W / 1, 100 mW (Voltage x Current)
UVP (Under Voltage )	Range/Resolution	OFF, -0.5 ~ 50 V/100 mV	
OPP (Over Power)	Range/Resolution	H Range: 15 ~ 165W/1W / L Range: 0.15 ~ 1.65W/10mW	H Range: 30 ~ 330W/2W / L Range: 0.3 ~ 3.3W/20mW
OCV (Over Current)	Setting Range/Resolution	H Range: 0.75 ~ 8.25 A/37.5 mA L Range: 7.5 ~ 82.5 A/0.375 mA	H Range: 1.5 ~ 16.5 A/75 mA L Range: 15 ~ 165 mA/0.75 mA
Protection	Over Voltage	Cut Load Off about 575 V	
	Over Current, Over Power	Automatic Resume After 3 Sec of Load Off	
	Reversed Connection	Terminate by Parasitic FET	
	Over Heating	Cut Load Off at 110 °C at Inside Heat Sink	
Sequence Memory	Step/Time/Resolution	100 / 50 $\mu$ s ~ 99h59m59.99995 s, PAUSE, PASS / 50 $\mu$ s, Cycle: 1 ~ 255	
	Items	Discharge Mode Pre-set A, B and C Value, Pre-set A, B and C Switch Selection, Discharge Mode, SHORT Mode ON/OFF, LOAD ON/OFF, UVP Setting value, OCP Setting value, OPP Setting value, Soft Start Setting Value, Tr/Tf Setting value, SW Frequency, SW DUTY, CV RANGE, Current RANGE, External Control Mode (PASS at Auto Sequence Mode)	
Environmental Request	Temperature/Humidity	0 ~ 40°C / 20 ~ 85 %RH	
	Power Source	AC90 ~ 132 V / AC180 ~ 250V, 48 ~ 63 Hz	
	Power Consumption	Less than 120 VA	Less Than 130 VA
	Isolation	Primary to Body : 1500 VAC 1 Minute, Primary to Secondary : 2300 VAC 1 Minute	
	Isolation Resistance	Primary to Body, Primary to Secondary : 500 VDC More Than 10 M $\Omega$ , Secondary to Body : 500 VDC More Than 5M $\Omega$	
	Cooling Method	Cooling Fan	
	Dimensions (Maximum)	W x H x D: 210 (210) x 124 (141) x 405 (538) (mm)	
Weight	Approx. 6 kg	Approx. 7 kg	

PEL SERIES

PEL601-501		PEL102-501	
0 ~ 600 W		0 ~ 1000 W	
0 ~ 30 A / 0 ~ 30 A		0 ~ 30 A / 0 ~ 50 A	
H Range: 30 A: 0 ~ 30 A / 4 mA / 600 W max. L Range: 300 mA: 0 ~ 300 mA / 10 $\mu$ A / 6 W max.		H Range: 50 A: 0 ~ 50 A / 5 mA / 1000 W max. L Range: 500 mA: 0 ~ 500 mA / 20 $\mu$ A / 10 W max.	
H Range: 5 mA rms / L Range: 0.5 mA rms		H Range: 10 mA rms / L Range: 1 mA rms	
H Range: OPEN, 5 k $\Omega$ ~ 166.67 m $\Omega$ L Range: OPEN, 500 k $\Omega$ ~ 16.667 $\Omega$		H Range: OPEN, 3.3333 k $\Omega$ ~ 111.11 m $\Omega$ L Range: OPEN, 333 k $\Omega$ ~ 11.111 $\Omega$	
H Range: 200 $\mu$ s / L Range: 2 $\mu$ s		H Range: 300 $\mu$ s / L Range: 3 $\mu$ s	
H Range: $\pm$ 0.5% of SET $\pm$ 0.25 A + Vin/Rin L Range: $\pm$ 0.5% of SET $\pm$ 1.5 mA + Vin/Rin		H Range: $\pm$ 0.5% of SET $\pm$ 0.25 A + Vin/Rin L Range: $\pm$ 0.5% of SET $\pm$ 2.5 mA + Vin/Rin	
H Range: 5 mA rms / L Range: 0.5 mA rms		H Range: 10 mA rms / L Range: 1 mA rms	
H Range: 6 ~ 600 W / 20m W L Range: 0.12 ~ 6 W / 200 $\mu$ W		H Range: 10 ~ 1000 W / 25 mW L Range: 0.2 ~ 10 W / 250 $\mu$ W	
H Range : 5 mA rms / L Range : 0.5 mA rms 0.3/30 A		H Range : 10 mA rms / L Range : 1 mA rms 0.5/50 A	
0.3 / 30 A / (0.02 mA/2 mA)		0.5/50 A / (0.02 mA/2 mA)	
6, 600 W / 1, 100 mW (Voltage $\times$ Current)		10, 1000 W / 1, 100 mW (Voltage $\times$ Current)	
H Range: 60 ~ 660 W/4 W / L Range: 0.6 ~ 6.6 W/40 mW H Range: 3 ~ 33 A/150 mA L Range: 0.03 ~ 0.33 A/1.5 mA		H Range: 100 ~ 1100 W/5 W, L Range: 1 ~ 11 W/50 mW H Range: 5 ~ 55 A/250 mA L Range: 0.05 ~ 0.55 A/2.5 mA	
Less than 147 VA		Less Than 169 VA	
W $\times$ H $\times$ D: 421.5 (421.5) $\times$ 124 (132.5) $\times$ 405 (538) (mm) Approx. 11 kg		Approx. 13 kg	