

SPECIFICATIONS

Model	PEL-3021A	PEL-3041A	PEL-3111A	PEL-3211A
Voltage	0 V to 150 V	0 V to 150 V	0 V to 150 V	0 V to 150 V
Current	35 A	70 A	210 A	420 A
Power	175 W	350 W	1050 W	2100 W
Input Resistance	500 kΩ	500 kΩ	500 kΩ	500 kΩ
Min. Operating	0.75 V at 17.5 A 1.5 V at 35 A	0.75 V at 35 A 1.5 V at 70 A	0.75 V at 105 A 1.5 V at 210 A	0.75 V at 210 A 1.5 V at 420 A

CONSTANT CURRENT MODE (CC)

Operating Range	H, M, L	0 A to 35 A	0 A to 3.5 A	0 A to 0.35 A	0 A to 70 A	0 A to 7 A	0 A to 0.7 A	0 A to 210 A	0 A to 21 A	0 A to 2.1 A	0 A to 420 A	0 A to 42 A	N/A
Accuracy of Setting	H, M	$\pm(0.2\% \text{ of set} + 0.1\% \text{ of F.S.}^{*1}) + \text{Vin}^2/500 \text{ k}\Omega$										$\pm(1.2\% \text{ of set} + 1.1\% \text{ of F.S.}^{*1})$	
Accuracy of Setting	L	$\pm(0.2\% \text{ of set} + 0.1\% \text{ of F.S.}) + \text{Vin}^2/500 \text{ k}\Omega$										N/A	
Accuracy of Setting(Parallel)		$\pm(1.2\% \text{ of set} + 1.1\% \text{ of F.S.}^{*3})$										$\pm(1.2\% \text{ of set} + 1.1\% \text{ of F.S.}^{*1})$	
Resolution	H, M, L	1 mA	0.1 mA	0.01 mA	2 mA	0.2 mA	0.02 mA	10 mA	1 mA	0.1 mA			N/A

CONSTANT RESISTANCE MODE (CR)

Operating Range ⁴	Range	H	23.3336 S to 400 μS (42.857 mΩ to 2.5 kΩ)			46.6672 S to 800 μS (21.428 mΩ to 1.25 kΩ)			140.0016 S to 2.4 mS (7.1427 mΩ to 416.6667 Ω)			280.0032 S to 4.8 mS (3.5714 mΩ to 208.3334 Ω)				
			M	2.33336 S to 40 μS (428.566 mΩ to 25 kΩ)			4.6667 S to 80 μS (214.28 mΩ to 12.5 kΩ)			14.0001 S to 242.4 μS (71.427 mΩ to 4.16667 kΩ)			28.00032 S to 484.8 μS (35.7135 mΩ to 2.083334 kΩ)			
				L	0.233336 S to 4 μS (4.28566 Ω to 250 kΩ)			0.46667 S to 8 μS (2.1428 Ω to 125 kΩ)			1.40001 S to 24.24 μS (714.27 mΩ to 41.6667 kΩ)			N/A		
Accuracy of Setting ⁵	H, M	$\pm(0.5\% \text{ of set}^6 + 0.5\% \text{ of F.S.}^{*1}) + \text{Vin}^2/500 \text{ k}\Omega$										$\pm(1.2\% \text{ of set} + 1.1\% \text{ of F.S.}^{*1})$				
Accuracy of Setting ⁵	L	$\pm(0.5\% \text{ of set}^6 + 0.5\% \text{ of F.S.}) + \text{Vin}^2/500 \text{ k}\Omega$										N/A				
Parallel		$\pm(1.2\% \text{ of set} + 1.1\% \text{ of F.S.}^{*3})$										N/A				
Resolution	H, M, L	400 μS	40 μS	4 μS	800 μS	80 μS	8 μS	2.4 ms	240 μS	24 μS			N/A			

CONSTANT VOLTAGE MODE (CV)

Operating Range	Range	H	1.5 V to 150 V									1.5 V to 150 V
			L	1.5 V to 15 V								
Accuracy of Setting ⁷	H, L	$\pm(0.1\% \text{ of set} + 0.1\% \text{ of F.S.})$									N/A	
		H, L	10 mV/1 mV									

CONSTANT POWER MODE (CP)

Operating Range	Range	H	17.5 W to 175 W			35 W to 350 W			105 W to 1050 W			210 W to 2100 W			
			M	1.75 W to 17.5 W			3.5 W to 35 W			10.5 W to 105 W			21 W to 210 W		
				L	0.175 W to 1.75 W			0.35 W to 3.5 W			1.05 W to 10.5 W			N/A	
Accuracy of Setting ⁸	H, M, L	$\pm(0.6\% \text{ of set} + 1.4\% \text{ of F.S.}^{*3}) + (\text{Vin}^2)/500 \text{ k}\Omega$										N/A			
Resolution	H, M, L	10 mW	1 mW	0.1 mW	10 mW	1 mW	0.1 mW	100 mW	10 mW	1 mW			N/A		

PARALLEL Mode

Capacity		875 W	1750 W	5250 W	PEL-3111A with 4 booster units : Max. 9.45 kW
----------	--	-------	--------	--------	---

SLEW RATE

Operation Mode	Setting Range (CC mode) ¹⁰	Range	H	CC, CR			CC, CR			CC, CR			N/A
				M	2.5 mA/μs to 2.5 A/μs			5 mA/μs to 5 A/μs			16.02 mA/μs to 16.002 A/μs		
Setting Range (CR Mode) ¹⁰	Range	H	250 μA/μs to 250 mA/μs			500 μA/μs to 500 mA/μs			1.602 mA/μs to 1.6002 A/μs			N/A	
			M	25 μA/μs to 25 mA/μs			50 μA/μs to 50 mA/μs			160.2 μA/μs to 160.02 mA/μs			
				L	2.5 μA/μs to 2.5 mA/μs			5 μA/μs to 5 mA/μs			160.2 μA/μs to 160.02 mA/μs		
Accuracy of Setting ⁹	H, M, L	$\pm(10\% \text{ of set} + 5 \mu\text{s})$										N/A	
Resolution (Setting Range) ¹⁰	Range	H	1 mA(250 mA/μs to 2.5 A/μs)			2 mA(500 mA/μs to 5 A/μs)			6 mA(1.6 A/μs to 16 A/μs)			N/A	
			100 μA(25 mA/μs to 250 mA/μs)			200 μA(50 mA/μs to 500 mA/μs)			600 μA(160 mA/μs to 1.6 A/μs)				
			10 μA(2.5 mA/μs to 25 mA/μs)			20 μA(5 mA/μs to 50 mA/μs)			60 μA(16 mA/μs to 160 mA/μs)				
			1 μA(250 μA/μs to 2.5 mA/μs)			2 μA(500 μA/μs to 5 mA/μs)			6 μA(1.6 mA/μs to 16 mA/μs)				
			100 nA(25 μA/μs to 250 μA/μs)			200 nA(50 μA/μs to 500 μA/μs)			600 nA(160 μA/μs to 1.6 mA/μs)				
			10 nA(2.5 μA/μs to 25 μA/μs)			20 nA(5 μA/μs to 50 μA/μs)			60 nA(16 μA/μs to 160 μA/μs)				

METER

Voltmeter		$\pm(0.1\% \text{ of rdg} + 0.1\% \text{ of F.S.})$	
Ammeter	Accuracy	$\pm(0.2\% \text{ of rdg} + 0.3\% \text{ of F.S.}^{*2})$	N/A
Ammeter(Parallel Operation)		$\pm(1.2\% \text{ of rdg} + 1.1\% \text{ of F.S.})$	

DYNAMIC MODE

Operation Mode	CC, CR and CP												
T1 & T2	0.025 ms to 10 ms/Resolution : 1 μs 10 ms to 60 s/Resolution : 1 ms												
Accuracy	$\pm 100 \text{ ppm of setting}$												
Slew Rate (CC Mode)	Range	H	2.5 mA/μs to 2.5 A/μs			5 mA/μs to 5 A/μs			16 mA/μs to 16 A/μs			N/A	
			M	250 μA/μs to 250 mA/μs			500 μA/μs to 500 mA/μs			1.6 mA/μs to 1.6 A/μs			
				L	25 μA/μs to 25 mA/μs			50 μA/μs to 50 mA/μs			160 μA/μs to 160 mA/μs		
Slew Rate (CR Mode)	Range	H	250 μA/μs to 250 mA/μs			500 μA/μs to 500 mA/μs			1.6 mA/μs to 1.6 A/μs			N/A	
			M	25 μA/μs to 25 mA/μs			50 μA/μs to 50 mA/μs			160 μA/μs to 160 mA/μs			
				L	2.5 μA/μs to 2.5 mA/μs			5 μA/μs to 5 mA/μs			16 μA/μs to 16 mA/μs		
Current Accuracy		$\pm 0.4\% \text{ F.S.}$			$\pm 0.4\% \text{ F.S.}$			$\pm 0.4\% \text{ F.S.}$			$\pm(1.2\% \text{ of set} + 1.1\% \text{ of F.S.})$		

PROTECTION FUNCTION

Functions	Overvoltage protection(OVP), Overcurrent protection(OCP), Overpower protection(OPP), Overheat protection(OTP), Undervoltage protection(UVP), Reverse voltage protection(RVP)
-----------	--

GENERAL

Input Range	90 Vac to 132 Vac/180 Vac to 250 Vac Single-phase; 47 Hz to 63 Hz			
Power(Max.)	90 VA	110 VA	190 VA	230 VA
Interface	Standard : USB, RS-232/RS-485, LAN. Optional : GPIB			N/A
Dimensions (W x H x D)	213.8 mm x 124 mm x 400.5 mm	213.8 mm x 124 mm x 400.5 mm	427.8 mm x 124 mm x 400.5 mm	427.7 mm x 127.8 mm x 553.5 mm
Weight	Approximate 6 kg	Approximate 7 kg	Approximate 17 kg	Approximate 23 kg

*1 Full scale of H range .
 *2 Vin: input terminal voltage of electronic load .
 *3 M range applies to the full scale of H range .
 *4 Siemens[S] = Input current[A] / Input voltage[V] = 1/resistance[Ω]
 *5 Converted value at the input current. At the sensing point during remote sensing under the operating range of the input voltage. operation.
 *6 set = Vin/Rset .
 *7 At the sensing point during remote sensing under the operating range of the input voltage. It is also applied for the condition of the parallel operation.
 *8 It is not applied for the condition of the parallel operation.
 *9 Time to reach from 10 % to 90 % when the current is varied from 2 % to 100 % (20 % to 100 % in M range) of the rated current.
 *10. Minimum setting range and resolution will change in parallel (Detail please reference user manual)

SPECIFICATIONS

Model	PEL-3021AH			PEL-3041AH			PEL-3111AH			PEL-3211AH			
Voltage	0 V to 800 V			0 V to 800 V			0 V to 800 V			0 V to 800 V			
Current	8.75 A			17.5 A			52.5 A			105 A			
Power	175 W			350 W			1050 W			2100 W			
Input Resistance	3.24 MΩ			3.24 MΩ			3.24 MΩ			3.24 MΩ			
Min. Operating	5 V at 8.75 A 2.5 V at 4.375 A			5 V at 17.5 A 2.5 V at 8.75 A			5 V at 52.5 A 2.5 V at 26.25 A			5 V at 105 A 2.5 V at 52.5 A			
CONSTANT CURRENT MODE (CC)													
Operating Range	H, M, L	0 A to 8.75 A	0 A to 8.75 mA	0 A to 87.5 mA	0 A to 17.5 A	0 A to 1.75 A	0 A to 175 mA	0 A to 52.5 A	0 A to 5.25 A	0 A to 525 mA	0 A to 105 A	0 A to 10.5 A	0 A to 1.05 A
Accuracy of Setting	H, M	$\pm(0.2\% \text{ of set} + 0.1\% \text{ of F.S.}^{*1}) + \text{Vin}^{*2}/3.24 \text{ M}\Omega$											
Accuracy of Setting	L	$\pm(0.2\% \text{ of set} + 0.1\% \text{ of F.S.}) + \text{Vin}^{*2}/3.24 \text{ M}\Omega$											
Accuracy of Setting(Parallel)	$\pm(1.2\% \text{ of set} + 1.1\% \text{ of F.S.}^{*3})$												
Resolution	H, M, L	300 μA	30 μA	3 μA	0.6 mA	60 μA	6 μA	2 mA	200 μA	20 μA	N/A		
CONSTANT RESISTANCE MODE (CR)													
Operating Range ⁴	Range	H	1.75 S to 30 μS (571 mΩ to 33.3 kΩ)			3.5 S to 60 μS (285 mΩ to 16.6 kΩ)			10.5 S to 180 μS (95.2 mΩ to 5.55 kΩ)			21 S to 360 μS (47.6 mΩ to 2.777 kΩ)	
		M	175 mS to 3 μS (5.71 Ω to 333 kΩ)			350 mS to 6 μS (2.85 Ω to 166 kΩ)			1.05 S to 18 μS (95.2 mΩ to 55.5 kΩ)			2.1 S to 36 μS (47.6 mΩ to 27.77 kΩ)	
	Range	L	17.5 mS to 0.3 μS (57.1 Ω to 3.33 MΩ)			35 mS to 0.6 μS (28.5 Ω to 1.66 MΩ)			105 mS to 1.8 μS (9.52 Ω to 555 kΩ)			210 mS to 3.6 μS (4.762 Ω to 277.7 kΩ)	
		M											
Accuracy of Setting ⁵	H, M	$\pm(0.5\% \text{ of set}^{*6} + 0.5\% \text{ of F.S.}^{*1}) + \text{Vin}^{*2}/3.24 \text{ M}\Omega$											
Accuracy of Setting ⁵	L	$\pm(0.5\% \text{ of set}^{*6} + 0.5\% \text{ of F.S.}) + \text{Vin}^{*2}/3.24 \text{ M}\Omega$											
Parallel	$\pm(1.2\% \text{ of set} + 1.1\% \text{ of F.S.}^{*3})$												
Resolution	H, M, L	30 μS	3 μS	0.3 μS	60 μS	6 μS	0.6 μS	180 μS	18 μS	1.8 μS	N/A		
CONSTANT VOLTAGE MODE (CV)													
Operating Range	Range	H	5 V to 800 V									5 V to 800 V	
		L	5 V to 80 V									5 V to 80 V	
Accuracy of Setting ⁷	H, L	$\pm(0.2\% \text{ of set} + 0.2\% \text{ of F.S.})$									N/A		
	H, L	20 mV/2 mV									N/A		
CONSTANT POWER MODE (CP)													
Operating Range	Range	H	17.5 W to 175 W			35 W to 350 W			105 W to 1050 W			210 W to 2100 W	
		M	1.75 W to 17.5 W			3.5 W to 35 W			10.5 W to 105 W			21 W to 210 W	
		L	0.175 W to 1.75 W			0.35 W to 3.5 W			1.05 W to 10.5 W			N/A	
Accuracy of Setting ⁸	H, M, L	$\pm(0.6\% \text{ of set} + 1.4\% \text{ of F.S.}^{*3}) + (\text{Vin}^{*2})/3.24 \text{ M}\Omega$											
Resolution	H, M, L	10 mW	1 mW	0.1 mW	10 mW	1 mW	0.1 mW	100 mW	10 mW	1 mW	N/A		
PARALLEL Mode													
Capacity		875 W			1750 W			5250 W			PEL-3111AH with 4 booster units : Max. 9.45 kW		
SLEW RATE													
Operation Mode		CC, CR			CC, CR			CC, CR			N/A		
Setting Range (CC mode) ¹⁰	Range	H	0.14 mA/μs to 140 mA/μs			0.28 mA/μs to 280 mA/μs			0.84 mA/μs to 840 mA/μs			N/A	
		M	14 μA/μs to 14 mA/μs			28 μA/μs to 28 mA/μs			84 μA/μs to 84 mA/μs			N/A	
		L	1.4 μA/μs to 1.4 mA/μs			2.8 μA/μs to 2.8 mA/μs			8.4 μA/μs to 8.4 mA/μs			N/A	
Setting Range (CR Mode) ¹⁰	Range	H	14 μA/μs to 14 mA/μs			28 μA/μs to 28 mA/μs			84 μA/μs to 84 mA/μs			N/A	
		M	1.4 μA/μs to 1.4 mA/μs			2.8 μA/μs to 2.8 mA/μs			8.4 μA/μs to 8.4 mA/μs			N/A	
		L	0.14 μA/μs to 140 μA/μs			0.28 μA/μs to 280 μA/μs			0.84 μA/μs to 840 μA/μs			N/A	
Accuracy of Setting ⁹	H, M, L	$\pm(10\% \text{ of set} + 25\%)$											
Resolution (Setting Range) ¹⁰			50 μA(14 mA/μs to 140 mA/μs)			100 μA(28 mA/μs to 280 mA/μs)			300 μA(84 mA/μs to 0.84 A/μs)			N/A	
			5 μA(1.4 mA/μs to 14 mA/μs)			10 μA(2.8 mA/μs to 28 mA/μs)			30 μA(8.4 mA/μs to 84 mA/μs)			N/A	
			0.5 μA(140 μA/μs to 1.4 mA/μs)			1 μA(280 μA/μs to 2.8 mA/μs)			3 μA(840 μA/μs to 8.4 mA/μs)			N/A	
			50 nA(14 μA/μs to 140 μA/μs)			0.1 μA(28 μA/μs to 280 μA/μs)			0.3 μA(84 μA/μs to 840 μA/μs)			N/A	
			5 nA(1.4 μA/μs to 14 μA/μs)			10 nA(2.8 μA/μs to 28 μA/μs)			30 nA(8.4 μA/μs to 84 μA/μs)			N/A	
			0.5 nA(0.14 μA/μs to 1.4 μA/μs)			1 nA(0.28 μA/μs to 2.8 μA/μs)			3 nA(0.84 μA/μs to 8.4 μA/μs)			N/A	
METER													
Voltmeter		$\pm(0.1\% \text{ of rdg} + 0.1\% \text{ of F.S.})$											
Ammeter	Accuracy	$\pm(0.2\% \text{ of rdg} + 0.3\% \text{ of F.S.}^{*3})$											
Ammeter(Parallel Operation)		$\pm(1.2\% \text{ of rdg} + 1.1\% \text{ of F.S.})$											
DYNAMIC MODE													
Operation Mode		CC, CR and CP											
T1 & T2		0.025 ms to 10 ms/Resolution : 1 μs 10 ms to 60 s/Resolution : 1 ms											
Accuracy		$\pm 100 \text{ ppm of setting}$											
Slew Rate (CC Mode)	Range	H	0.14 mA/μs to 140 mA/μs			0.28 mA/μs to 280 mA/μs			0.84 mA/μs to 840 mA/μs			N/A	
		M	14 μA/μs to 14 mA/μs			28 μA/μs to 28 mA/μs			84 μA/μs to 84 mA/μs			N/A	
		L	1.4 μA/μs to 1.4 mA/μs			2.8 μA/μs to 2.8 mA/μs			8.4 μA/μs to 8.4 mA/μs			N/A	
Slew Rate (CR Mode)	Range	H	14 μA/μs to 14 mA/μs			28 μA/μs to 28 mA/μs			84 μA/μs to 84 mA/μs			N/A	
		M	1.4 μA/μs to 1.4 mA/μs			2.8 μA/μs to 2.8 mA/μs			8.4 μA/μs to 8.4 mA/μs			N/A	
		L	0.14 μA/μs to 140 μA/μs			0.28 μA/μs to 280 μA/μs			0.84 μA/μs to 840 μA/μs			N/A	
Current Accuracy		$\pm 0.4\% \text{ F.S.}$			$\pm 0.4\% \text{ F.S.}$			$\pm 0.4\% \text{ F.S.}$			$\pm(1.2\% \text{ of set} + 1.1\% \text{ of F.S.})$		
PROTECTION FUNCTION													
Functions		Overvoltage protection(OVP), Overcurrent protection(OCP), Overpower protection(OPP), Overheat protection(OTP), Undervoltage protection(UVP), Reverse voltage protection(RVP)											
GENERAL													
Input Range		90 Vac to 132 Vac/180 Vac to 250 Vac Single-phase; 47 Hz to 63 Hz											
Power(Max.)		90 VA			110 VA			190 VA			230 VA		
Interface		Standard : USB, RS-232/RS-485, LAN, Optional : GPIB											
Dimensions (W x H x D)		213.8 mm x 124 mm x 400.5 mm			213.8 mm x 124 mm x 400.5 mm			427.8 mm x 124 mm x 400.5 mm			427.7 mm x 127.8 mm x 553.5 mm		
Weight		Approximate 9 kg			Approximate 10 kg			Approximate 20 kg			Approximate 28 kg		

*1 Full scale of H range .

*2 Vin: input terminal voltage of electronic load .

*3 M range applies to the full scale of H range .

*4 Siemens[S] = Input current[A] / Input voltage[V] = 1/resistance[Ω]

*5 Converted value at the input current. At the sensing point during remote sensing under the operating range of the input voltage. operation.

*6 set = Vin/Rset .

*7 At the sensing point during remote sensing under the operating range of the input voltage. It is also applied for the condition of the parallel operation.

*8 It is not applied for the condition of the parallel operation.

*9 Time to reach from 10 % to 90 % when the current is varied from 2 % to 100 % (20 % to 100 % in M range) of the rated current.

*10. Minimum setting range and resolution will change in parallel (Detail please reference user manual)