

Full-Load Current of 100 A at 0.3 V! High Speed-Large Current DC Electronic Load (50 A/µs)

While the PLZ-4WL series succeeds to the superior operability of our conventional model of the PLZ-4W series, the PLZ-4WL series realizes the high speed rise and fall time (slew rate of 50 A/µs.) in the range of low voltage with large current. The PLZ-4WL offers six operation modes, and equips with various features such as sequence operation, switching operation, soft-start function, and time and voltage measurement. The PLZ-4WL applies not only for the conventional load test of the CPU power supply, but also it can be applied to even faster current response test. In addition, the PLZ-4WL is a space-saving design (about 50 % less volume of the conventional model) that can save the facility space of the testing site, and it can be applied for the single cell testing of the large scale rechargeable battery.

Electronic Load PLZ-4WL series

Lineup

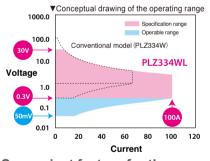
Model	Operation voltage	Current	Power
PLZ164WL	0.3 V to 30 V	50 A	165 W
PLZ334WL	0.3 V 10 30 V	100 A	330 W

■ Interface USB, GPIB, and RS232C are equipped as standard.

Feature/Function

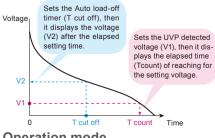
Realizing the low voltage operation

Possible to operate as low as 50 mV by the input voltage. Even below the input voltage of 0.3 V, this product can be used by reducing the current.



Convenient feature for the discharge testing

The Auto load-off timer and the cut-off features can be applied to the discharge capacitance measurement of the rechargeable battery.



Operation mode

Applied to the 6 operating modes (Constant current, Constant resistance, Constant voltage, Constant power, Constant current + Constant voltage, Constant resistance + Constant voltage)

Accurate low-rate discharge by the Low-range (1/100)

Each operation mode of the CC, CR, and CP has 3 ranges (H, M, L). The "L "range employs the scale of 1/100 which covers the range from the small to the large scale of the current.

Current setting resolution of the PLZ334WL

J	
H Range	5mA
M Range	0.5mA
L Range	0. 05mA

Sequence function

The sequence mode can be set in 2 operation modes (Normal and fast mode). The fast mode can be set for the minimum step time of 25 μ s, and it can be synchronized with the external device by using the trigger input/output feature.

External analog control

Not only the external control for the CC, CR, CP, and CV, but also it is capable to superimpose the current by the external input current on the present value of the CC setting. Moreover, it also can turn the LOAD ON/OFF.

Protection features

To ensure the safety, it equips the various protection features and activation of the alarm function. The alarm function can be output to the external source as an alarm output. The fuse is used to cut-off the output for the protection feature of the reverse connection.

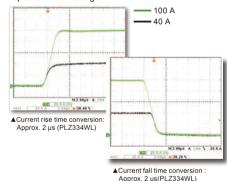
Applications

- Test for the Low Voltage Power Supply of the CPU
- Discharge test for the large current rechargeable battery
- IV characteristic test of the solar battery
- Impedance test for the various type of rechargeable batteries, power supplies
- Test for the relays, switches
- Absorbing the surge of brushless motor
- Test for the prearcing time-current characteristic



Fast Slew rate

Realize the slew rate of 50 A/ $\!\mu s$ at 2.3 V of the load input terminal voltage.



Other features

For the switching operation, set-up memories (100), CC soft-start, slew rate setting (CC), response setting (2 levels for each CV and CR), Current monitor output, remote sensing, and more.

*Master-Slave parallel operation can not be configured on this model.

Option

Low inductance cable [TL01-PLZ(50cm)] [TL02-PLZ(1m)] [TL03-PLZ(2m)]



- Rack mount accessories [KRA150(millimeter size)] [KRA3(inch size)]
- Analog remote control connector kit [OP01-PLZ-4WL]

Aplication Software [Wavy for PLZ-4W] The current waveform can be easily simulated by the PC. The measuring feature enables data logging.

Specifications

Model			PLZ164WL 0.3 V to 30 V	PLZ334WL	
	Operating voltage (DC)		Minimum operating voltage for the switching mode (includes the value		
Ratings			of voltage drop generated by the inductance component of wirings) increases approximately 40 mV per 1 A/ μ s of the slew rate setting.		
	Current		50 A	100 A	
	Power		165 W	330 W	
	Minimum start voltag		50 mV (typ)	0.4 to 100.4	
	Operating range	М	0 A to 50 A 0 A to 5 A	0 A to 100 A 0 A to 10 A	
	Operating range	L	0 A to 500 mA	0 A to 1 A	
		Н	0 A to 52.5 A	0 A to 105 A	
	Setting range	М	0 A to 5.25 A	0 A to 10.5 A	
Constant		L	0 A to 525 mA	0 A to 1.05 A	
current (CC) mode		н	2 mA	5 mA	
	Resolution	М	0.2 mA	0.5 mA	
		L	0.02 mA	0.05 mA	
	Accuracy of setting		±(0.2 % of set + 0.1 % of f.s.*2) + Vin/150 kΩ *3		
	Input voltage variation *4		±(0.1 % of set + 0.02 % of f.s.*2)		
	Ripple	rms *5 p-p *6	4 mA 40 mA	8 mA 80 mA	
			165 S to 3 mS	330 S to 6 mS	
		н	(6.06 mΩ to 333 Ω)	(3.03 mΩ to 166.7 Ω)	
	Operating range	м	16.5 S to 300 µS	33.3 S to 600 µS	
	Operating range		(60.6 mΩ to 3.33 kΩ)	(30.3 mΩ to 1.667 kΩ)	
		L	1.65 S to 30 μS (606 mΩ to 33.3 kΩ)	3.3 S to 60 μS (303 mΩ to 16.67 kΩ)	
			173.25 S to 0 S	346.5 S to 0 S	
Constant		н	(5.77 mΩ to OPEN)	(2.886 mΩ to OPEN)	
esistance CR) mode	Setting range	м	17.325 S to 0 S	34.65 S to 0 S	
Git) mode	- s		(57.7 mΩ to OPEN)	(28.86 mΩ to OPEN)	
		L	1.7325 S to 0 S (577 mΩ to OPEN)	3.465 S to 0 S (288.6 mΩ to OPEN)	
		н	3 mS	6 mS	
	Resolution	M	300 µS	600 µS	
		L	30 µS	60 µS	
	Accuracy of setting	*7	±(0.5 % of set *8 + 0.5 % of f.s.*2) + Vin/150kΩ		
	Operating range	Н	0.3 V to 30 V		
	Operating range	L	0.3 V to 4 V		
.	Setting range		0 V to 31.5 V		
Constant voltage (CV)	Cetting runge	L	0 V to 4.2 V		
mode	Resolution		2 mV		
	LL		200 µV		
	Accuracy of setting		±(0.1 % of set + 0.1 % of f.s.)		
	Input current variation *9		12 mV 16.5 W to 165 W	33 W to 330 W	
	Operating range	M	1.65 W to 16.5 W	3.3 W to 33 W	
	oporating range	L	0.165 W to 1.65 W	0.33 W to 3.3 W	
		Н	0 W to 173.25 W	0 W to 346.5 W	
Constant	Setting range	М	0 W to 17.325 W	0 W to 34.65 W	
power (CP) mode		L	0 W to 1.7325 W	0 W to 3.465 W	
		н	10 mW	20 mW	
	Resolution	М	1 mW	2 mW	
		L	0.1 mW	0.2 mW	
	Accuracy of setting		±(2.5 % of f.s.*2)		
	Display	Н	0.000 V to 30.000 V		
Voltmeter		L	0.0000 V to 4.0000 V	55 a)	
	Accuracy	н	±(0.1 % of reading + 0.1 % o		
	Display	M	0.000 A to 50.000 A 0.000 A to 5.000 A	0.00 A to 100.00 A 0.000 A to 10.000 A	
Ammeter	Display	I.	0.000 A to 5.000 A 0.00 mA to 500.00 mA	0.000 A to 10.000 A 0.0000 A to 1.0000 A	
	Accuracy		±(0.2 % of reading + 0.3 % c		
	···· · ,	H,M	0.00 W to 165.00 W	0.00 W to 330.00 W	
Wattmeter	Display	L *15	0.000 W to 15.000 W	0.000 W to 30.000 W	
		L *16	0.0000 W to 1.6500 W	0.0000 W to 3.3000 W	
	Operation mode		CC/CR mode		
Switching	Selectable frequenc	y range	1 Hz to 50 kHz		
node	Duty cycle setting		5 % to 95 % in 1 % steps *10		
	Accuracy of frequency setting		±(0.5 % of set)		
	Selectable range	Н	2.5 mA/µs to 25 A/µs	5 mA/µs to 50 A/µs	
Slew rate	(CC)	M	250 µA/µs to 2.5 A/µs	500 µA/µs to 5 A/µs	
	Accuracy of anti-	L	25 µA/µs to 250 mA/µs	50 µA/µs to 500 mA/µs	
	Accuracy of setting *11 Operation mode		±(10 % of set + 0.8 μs) CC mode		
Soft start	Selectable times *12		OFF, 100 µs, 200 µs, 500 µs, 1 ms, 2 ms, 5 ms, 10 ms, or 20 ms		
Son Stant	Time accuracy		±(30 % of set +10 μs)		
	Response speed		±(30 % of set +10 µs) NORMAL, FAST		
Response	Voltage that can be compensated		3 V for a single line		
	Overvoltage protection (OVP)		Turns off the load at 115 % of the rated voltage		
	Overcurrent protection (OCP)		Setting range 10 % to 110 % of the rated current. Load off or limit selectabl		
Response Remote sensing		on (OCP)	Setting range 10 % to 110 % of	the rated current. Load on or minit selectable	
Remote sensing Protection				the rated power. Load off or limit selectable	
Remote sensing Protection	Overcurrent protecti	on (OPP)	Setting range 10 % to 110 % of		
	Overcurrent protecti Overpower protection	n (OPP) (OHP)	Setting range 10 % to 110 % of Turns off the load when the	the rated power. Load off or limit selectab	

		Operation modes	PLZ164WL CC, CR, CV, and CP	PLZ334WL		
		Maximum number of steps				
	Normal	Ctop overvier time	1 ms to 999 h 59 min			
	sequence		1 ms for 1 ms to 1 min, 100 ms for	or 1 min to 1 h 1 s for 1 h to 10 h		
Sequence function		Time resolution	10 s for 10 h to 100 h, 1 min for 1			
lunction		Operation modes	CC and CR			
	Fast	Maximum number of steps	s 1024			
	sequence	Step execution time	25 µs to 100 ms			
		Time resolution	25 µs for 25 µs to 100 µs, 100 µs for 100 µs to 100 ms			
Other	Elapsed time display		Measures the time from load on to load off. Can be turned on and off. Measures from 1 s up to 999 h 59 min 59 s.			
functions	Auto load	-off timer	Automatically turns off the load after a specified time elapses. an be set to off or a time within the range of 1 s to 999 h 59 min 59			
	J1 conne	ctor	26-pin MIL connector			
	Lo	ad on/off control input	Turn on the load with a high (or low) CMOS level signal			
	Lo	ad on status output	On when the load is on (open collector output from a photocouple			
	Range switch input		Switch ranges L, M, and H using a 2-bit signal			
	Range status output		Outputs range L, M, or H using a 2-bit signal (open collector output from a photocoupler)			
	Trigger input		Clear the sequence operation pause with a high CMOS level signal whose duration is 10 µs or longer			
	Alarm input		Activate the alarm with a low CMOS level signal			
		arm release input	Release the alarm with a low CM	-		
			On when OVP, OCP, OPP, OHP, UV	P, or REV is activated or when an		
		arm status output	external alarm input is applied (open	collector output from a photocouple		
	Sh	nort signal output	Relay contact output (30 Vdc/1 A	,		
Input /Output		ternel veltere enstaal	Voltages in the range of 0 V to 10 V			
signal		c, CR, and CP mode)	rated current (CC mode) or rated po of 0 V to 10 V correspond to the range			
		2, 21, 21, and 01 mode)		of 0 V to 10 V correspond to the range of resistance values from the maximum resistance value to the minimum resistance value (CR mode		
		ternal voltage control	Voltages in the range of 0 V to 10 V	correspond to the range of voltage		
	- <u>-</u>	V mode)	from 0 % of the rated voltage to 100	-		
		ternal voltage control		Superimpose the current on the CC mode panel/remote setting by applyin		
		uperimposing in CC ode)	an external voltage of -10 V to 10 V (CC mode). 0 V corresponds to 0 % of the current setting and 10 V corresponds to 100 % of the current setting.			
		urrent monitor output	10 V for f.s (H or L range), 1 V fo	· · · · · · · · · · · · · · · · · · ·		
		el BNC connector				
			Trigger output: Approx. 4.5 V, pu	lse width: Approx, 2 us, output		
	TE	RIG OUT	impedance: Approx. 500 Ω			
	TRIGOUT		Outputs a (low level) pulse during sequence operation and			
			switching operation. Current monitor output. 1 V for f.s (H or L range),			
<u> </u>			0.1 V for f.s (M range)			
Communication function	GPIB, RS	232C, and USB interfac	ces are equipped as standard.			
	Input voltage range		100 Vac to 240 Vac (90 Vac to 250 Vac), single phase, continuou			
	Input frequency range		47 Hz to 63 Hz			
	Power consumption		95 VA max			
	Inrush current *13		65 Amax			
	Operating temperature range		0 °C to 40 °C (32 °F to 104 °F)			
	Operating	g humidity range	20 %rh to 85%rh (no condensation)			
	Storage t	emperature range	-20 °C to 70 °C (-4 °F to 158 °F)			
	Stora '	numidity range	90 %rh or less (no condensation)		
			±500 V			
	Isolation	1				
		Primary - input termina	I 500 Vdc, 30 MΩ or more (ambier			
	Isolation	Primary - input termina Primary - chassis	I 500 Vdc, 30 MΩ or more (ambien 500 Vdc, 30 MΩ or more (ambien	nt humidity of 70 %rh or less)		
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	Isolation Insulation resistance	Primary - input termina Primary - chassis Input terminal- chassis	$\begin{tabular}{l l l l l l l l l l l l l l l l l l l $	nt humidity of 70 %rh or less) nt humidity of 70 %rh or less) r 1 minute r 1 minute		
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General Specifications	Isolation Insulation resistance Withstand voltage	Primary - input termina Primary - chassis Input terminal- chassis Primary - input termina Primary - chassis	500 Vdc, 30 MΩ or more (ambie) 500 Vdc, 30 MΩ or more (ambie) 500 Vdc, 30 MΩ or more (ambie) 10 No abnormalities at 1500 Vac fo No abnormalities at 1500 Vac fo Power cord(1 pc.(with plug, leng cover(1 pc.). Set of screws for the load	nt humidity of 70 %rh or less) nt humidity of 70 %rh or less) 1 minute r 1 minute le load input terminal cover(2 nput terminal(2 sets), Chassis c), Setup Guide(1 pc.(Japanes sh:1pc., Japanese:1pc.)		
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