Provisional Edition

Multifunctional Electronic Load PLZ-4W SERIES

NEW

Capable to work with constant-current, constant-resistance, constant-voltage, constant-power, and combination of constant-current + constant-voltage, constant-resistance + constant-voltage mode
Rise time: 10μs (which converts to rise and fall times) high-speed response
Possible to perform actual Load simulation by sequence control function
0V input operating voltage type is available (PLZ164WA, PLZ664WA)
Achieving a large capacity system using the booster unit (PLZ1004W)

KIKUSUI

ISO 14001
ISO 9001:2000
JQA-EM1176
JQA-1100
Oscilloscopes
Withstanding Voltage Testers
Power Supply Equipment

Suitable design for fuel cell, faster speed and lower voltage testing application of various devices!

Multifunctional Electronic Load NEW

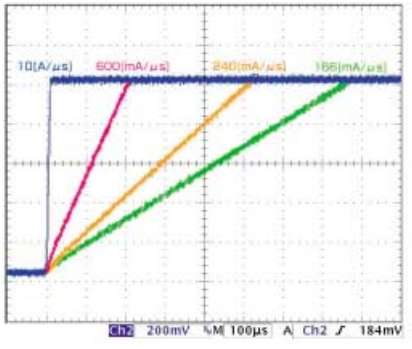
PLZ-4W SERIES

- Capable to work with constant-current, constant-resistance, constant-voltage, constant-power, and combination of constant-current + constant-voltage, constant-resistance + constant-voltage mode
- 0V input operating voltage is available (PLZ164WA, PLZ664WA)
- For transient switching operations, it is possible to set a slew rate (A/μs).
- Various circuit protection functions [overvoltage(OVP), overcurrent(OCP), overpower(OVP), overheat(OHP), under voltage(UVP), Reverse connection(REV)]

■ High-speed response and variable slew-rate

The Electronic Load has been lately required to apply faster response to comply with such latest DC/DC converters with high-speed, high-speed performance.

With PLZ-4W series, a faster response of rise/fall time as calculated conversion value with 10μs is made possible, enabling a transient response test for the direct current and accurate reproduction of a simulation waveform as a dummy load. In addition, instead of the conventional rise/fall time settings, it also can be set with a slew rate (A/μs). As for the setting value, it can be varied continuously, and be possible to optimize transient control for voltage drops due to wiring inductance, constant-voltage power supply, etc., when the load current is switched on.



▲ A current waveform shifting by variable slew-rate

■ 0V input

The 164WA and 664WA of PLZ-4W series permit a load input up to the rated current even when the Input Voltage is set for 0V. This is an absolute required specification for single cell tests of the fuel cells. Also, because of the low power consumption and scaling down of semi-conductor processes, semi-conductor devices are experiencing further voltage reductions. The Load can meet with these applications of power evaluation test.

■ Higher-precision

Higher precision is offered for current settings. Resolutions in micro currents are ensured by 3-range configuration. (Resolving power 10μA set with L range of PLZ164W and 164WA is possible) Further, each display for the voltmeter, ammeter, and wattmeter now uses a 5-digit display.

■ Sequence function

Sequence patterns set as you requested can be saved in the built-in memory. In the sequence program, 10 normal sequences and 1 first sequence can be saved. 256 steps of normal sequences, and 1024 steps of the first sequence can be saved in each program.

Simple editing is possible using the large liquid crystal display (LCD).

■ Convenient function for discharging test of cells

The PLZ4W can measure the time from load-on to load-off. When combined with under voltage protection (UVP) function, the time from when the battery discharge is started until the battery voltage falls to the cutoff voltage can be measured. Also, you can set the timer so it will load-off automatically after a specified time elapses from load-on mode. Once this timer is set, the input voltage value immediately before load-off is displayed, so it is possible to measure the closed circuit voltage after a specified time elapses from the start of discharging battery.

■ GPIB, RS-232C, USB as standard equipment

The system comes with interfaces GPIB, RS-232C and USB as standard equipment. Also, GPIB complies with SCPI (standard commands for programmable instruments) as well as 488.2

■ PLZ-4W SERIES LINE-UP

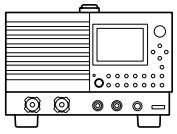
Model	Max Operating Current	Operating voltage (DC)	Power	Type
PLZ164W	33A	1.5 to 150V	165W	I
PLZ334W	66A	1.5 to 150V	330W	I
PLZ1004W	200A	1.5 to 150V	1000W	II
PLZ164WA	33A	0 to 150V	165W	I
PLZ664WA	132A	0 to 150V	660W	II
PLZ2004WB*	400A	1.5 to 150V	2000W	

*For the PLZ1004W only. It cannot be connected and used with any other model.

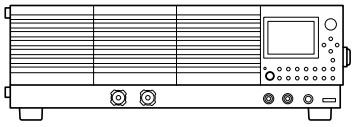
■ External Dimesions (MAX)

Type I : 214W x 124H (155) x 400D (470)mm
Type II : 429.5W (455) x 128H (150) x 400D (470)mm

Type I



Type II

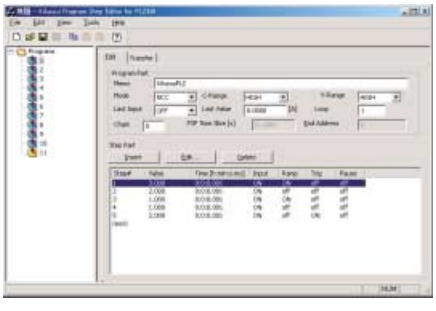


■ Other functions

The PLZ-4W Series has equipped with all the same functions of its former type of the PLZ-3W Series, such as the Soft-start Function, Lock Function, Short Function, ABC Memory Function, Set-up Memory Function, Switching Functions, etc.

■ Sample program

We have prepared a sample program for the PLZ-4W Series at our website (www.kikusui.co.jp) (Free-down load service). In these sample programs, you can download the Utility software [MEMcopy] to read, or save the set-up memory content from media such as floppy disc, the Sequence Editing software [StepEdit], and the Visual Basic applications such as measured data collection and GUI remote control, and their source code [VB Sample].
Even if you don't have the expensive GPIB card or the programming skills, you can start measuring easily by installing these software and USB drivers in a Windows PC (compatible with Windows 98 or later) with USB mounted, and link the main body of the PLZ-4W series via a USB cable.

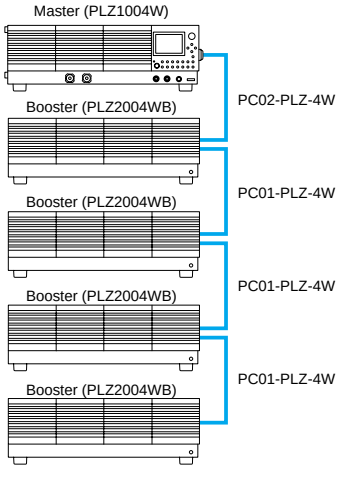


▲ Application Software

■ Booster unit

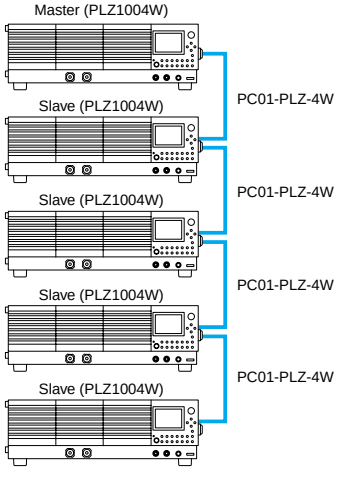
To achieve a large capacity system at low cost, the PLZ1004W has an expandable option PLZ2004WB* as a booster unit. Using 1 PLZ1004W as a master unit, a maximum of 4 booster units can be parallel connected. (Max. 9kW, 1800A)

*PLZ2004WB(Booster unit) can be used for the PLZ1004W only. It cannot be connected and used with any other model.



■ Parallel operation

Under parallel operation, the same model can be parallel connected to a maximum of 5 units when booster unit is not used,
(Max. 5kW, 1000A)



PC01-PLZ-4W:The cable for Boosters and Master/Slave units.
PC02-PLZ-4W:The cable for between Master unit and Booster unit.

■ Specifications (Provisional Edition)

Model			PLZ164W	PLZ334W	PLZ1004W	PLZ164WA	PLZ664WA
Rating							
Operating voltage (DC)			1.5 V to 150 V (*1)			0 V to 150 V (*2)	
Current			33 A	66 A	200 A	33 A	132 A
Power			165 W	330 W	1000 W	165 W	660 W
CC mode							
Operating range	Range	H	0 A to 33 A	0 A to 66 A	0 A to 200 A	0 A to 33 A	0 A to 132 A
		M	0 A to 3.3 A	0 A to 6.6 A	0 A to 20 A	0 A to 3.3 A	0 A to 13.2 A
		L	0 A to 330 mA	0 A to 660 mA	0 A to 2 A	0 A to 330 mA	0 A to 1.32 A
Resolution	Range	H	1 mA	2 mA	10 mA	1 mA	10 mA
		M	0.1 mA	0.2 mA	1 mA	0.1 mA	1 mA
		L	0.01 mA	0.02 mA	0.1 mA	0.01 mA	0.1 mA
CR mode							
Operating range (*3)	Range	H	22 S to 400 µS (45.455 mΩ to 2.5 kΩ)	44 S to 800 µS (22.727 mΩ to 1.25 kΩ)	133.3 S to 2.424 mS (7.5 mΩ to 412.5Ω)	22 S to 400 µS (45.455 mΩ to 2.5 kΩ)	88 S to 1.6 mS (11.363 mΩ to 625Ω)
		M	2.2 S to 40 µS (454.55 mΩ to 25 kΩ)	4.4 S to 80 µS (227.27 mΩ to 12.5 kΩ)	13.33 S to 242.4 µS (75 mΩ to 4.125 kΩ)	2.2 S to 40 µS (454.55 mΩ to 25 kΩ)	8.8 S to 160 µS (113.63 mΩ to 6.25 kΩ)
		L	0.22 S to 4 µS (4.545 5 Ω to 250 kΩ)	0.44 S to 8 µS (2.272 7 Ω to 125 kΩ)	1.333 S to 24.24 µS (750 mΩ to 41.25 kΩ)	0.22 S to 4 µS (4.545 5 Ω to 250 kΩ)	0.88 S to 16 µS (1.136 3 m Ω to 62.5 kΩ)
Resolution	Range	H	400 µS	800 µS	2.424 mS	400 µS	1.6 mS
		M	40 µS	80 µS	242.4 µS	40 µS	160 µS
		L	4 µS	8 µS	24.24 µS	4 µS	16 µS
CV mode							
Operating range (DC)	Range	H	1.5 V to 150 V			0 V to 150 V	
		L	1.5 V to 15 V			0 V to 15 V	
Resolution	Range	H	10 mV				
		L	1 mV				
CP mode							
Operating range	Range	H	16.5 W to 165 W	33 W to 330 W	100 W to 1 000 W	16.5 W to 165 W	66 W to 660 W
		M	1.65 W to 16.5 W	3.3 W to 33 W	10 W to 100 W	1.65 W to 16.5 W	6.6 W to 66 W
		L	0.165 W to 1.65 W	0.33 W to 3.3 W	1 W to 10 W	0.165 W to 1.65 W	0.66 W to 6.6 W
Resolution	Range	H	10 mW	10 mW	100 mW	10 mW	20 mW
		M	1 mW	1 mW	10 mW	1 mW	2 mW
		L	0.1 mW	0.1 mW	1 mW	0.1 mW	0.2 mW
Voltmeter							
Display	Range	H, M	0.00 V to 150.00 V				
		L	0.000 V to 15.000 V				
Ammeter							
Display	Range	H, M	0.000 A to 33.000 A	0.000 A to 66.000 A	0.00 A to 200.00 A	0.000 A to 33.000 A	0.00 A to 132.00 A
		L	0.00 A to 330.00 mA	0.00 A to 660.00 mA	0.000 0 A to 2.000 0 A	0.00 A to 330.00 mA	0.000 A to 1.320 0 A
Wattmeter							
Display (*4)	Range	H, M	0.00 W to 165.00 W	0.00 W to 330.00 W	0.00 W to 1 000.00 W	0.00 W to 165.00 W	0.00 W to 660.00 W
		L (*5)	0.000 W to 49.50 0 W	0.000 W to 99.000 W	0.00 W to 300.00 W	0.000 W to 49.50 0 W	0.000 W to 198.00 W
		L (*6)	0.000 0 W to 1.650 0 W	0.000 0 W to 3.300 0 W	0.000 W to 10.000 W	0.000 0 W to 1.650 0 W	0.000 0 W to 6.600 0 W
Slew rate							
Selectable range (*7)	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	2.5 mA/ µs to 2.5 A/ µs	10 mA/ µs to 10 A/ µs
		M	250 µA/ µs to 250 mA/ µs	500 µA/ µs to 500 mA/ µs	1.6 mA/ µs to 1.6 A/ µs	250 µA/ µs to 250 mA/ µs	1 mA/ µs to 1 A/ µs
		L	25 µA/ µs to 25 mA/ µs	50 µA/ µs to 50 mA/ µs	160 µA/ µs to 160 mA/ µs	25 µA/ µs to 25 mA/ µs	100 µA/ µs to 100 mA/ µs
Resolution (*8)			100 nA, 1 µA, 10 µA 100 µA, 1 mA	200 nA, 2 µA, 20 µA 200 µA, 2 mA	400 nA, 4 µA, 40 µA 400 µA, 4 mA	100 nA, 1 µA, 10 µA 100 µA, 1 mA	400 nA, 4 µA, 40 µA 400 µA, 4 mA
Switching mode							
Operation mode			CC and CR				
Selectable frequency range			1 Hz to 20 kHz				
Soft start							
Operation mode			CC and CR				
Selectable time range			1, 2, 5, 10, 20, 50, 100, or 200 ms				
Protection function							
			Overvoltage protection (OVP), Overcurrent protection (OCP), Overpower protection (OPP) Overheat protection (OHP), Undervoltage protection (UVP), Reverse connection protection (REV)				
Interface							
			GPIB (488.2), RS-232C, USB (2.0)				
AC input							
Input voltage range			100 VAC to 240 VAC Single phase, continuous			100 VAC to 120 VAC/200 VAC to 240 VAC Single phase	
Input frequency range			47 Hz to 63 Hz				
Power consumption			80 VA max	90 VA max	160 VA max	450 VA max	1500 VA max
Weight							
			Approx. 7 kg	Approx. 8 kg	Approx. 15 kg	Approx. 7.5 kg	Approx. 16 kg

*1 The minimum operating voltage (including the voltage drop due to the wire inductance component) in switchingmode increases by 0.15 V per 1 A/µs at slew rate settings greater than 5 A/µs.

*2 The minimum operating voltage (including the voltage drop due to the wire inductance component) in switchingmode increases by 0.3 V per 1 A/µs at slew rate settings greater than 5 A/µs.

*3 Conductance [S] = Input current [A]/input voltage [V] = 1/resistance [Ω]

*4 Displays the product of the voltmeter reading and ammeter reading.

*5 In a mode other the CP mode

*6 In CP mode

*7 In CC mode. The maximum rate of each range is 1/10th the value in CR mode.

*8 It shall be determined by setting value of slew rate.

KIKUSUI ELECTRONICS CORP.

1-1-3,HIGASHIYAMATA,TSUZUKI-KU,YOKOHAMA, 224-0023, JAPAN

TEL:(045)593-7570, Fax:(045)593-7571

Internet:http://www.kikusui.co.jp/

●Distributor:

Printed in Japan Issue:Jun.2003 2003062KPEC11