

Full-Load Current of 100A at 0.3V!

High Speed-Large Current DC Electronic Load (50A/µs)

While the PLZ-4WL series succeeds to the superior operability of our conventional model of the PLZ4W series, the PLZ4WL series realizes the high speed rise and fall time (slew rate of 50A/µs.) in the range of low voltage with large current. The PLZ4WL offers six operation modes, and equips with various features such as sequence operation, switching operation, soft-start function, and time and voltage measurement. The PLZ4WL 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 PLZ4WL 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

Model	Operation voltage	Current	Power
PLZ164WL	0.3V to 30V	50A	165W
PLZ334WL	0.37 10 307	100A	330W

■ Interface USB, GPIB, and RS-232C are equipped as standard.

Applications

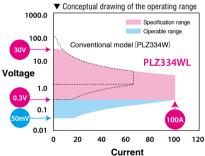
- Test for the Low Voltage Power Supply of the CPU
- Discharge test for the large current rechargeable battery
- IV characteristic test of the solar battery
- Impedance test for the various type of rechargeable batteries, power supplies
- Test for the relays, switches
- Absorbing the surge of brushless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



Feature/Function

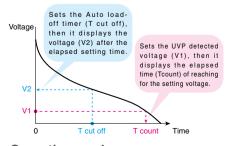
Realizing the low voltage operation

Possible to operate as low as 50mV by the input voltage. Even below the input voltage of 0.3V, 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

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 25µs, 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.

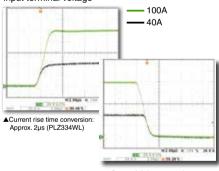
Protection features

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.

Fast Slew rate

Realize the slew rate of 50A/µs at 2.3V of the load input terminal voltage



Approx. 2us(PLZ334WL)

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

[TL01-PLZ(50cm)] [TL02-PLZ(1m)]

[TL03-PLZ(2m)]

■ Low inductance cable ■ Rack mount accessories [KRA150(millimeter size)] [KRA3(inch size)]





▲ Low inductance cable

The current waveform can be easily simulated by the PC. The measuring feature enables data logging.

Specifications

	tions			
model			PLZ164WL	PLZ334WL
	Operating voltage (DC)		0.3V to 30V Minimum operating voltage for the Switching mode(includes the value of voltage drop generated by the inductance component of wirings)	
Rating			increases approximately 40mV per 50A	1A/μs of the slew rate setting.
	Current		165W	330W
	Minimum start voltage *1		50mV(typ)	1
		Н	0A to 50A	0A to 100A
	Operating range	М	0A to 5A	0A to 10A
		L	0A to 500mA	0A to 1A
	0	Н	0A to 52.5A	0A to 105A
	Setting range	M L	0A to 5.25A 0A to 525mA	0A to 10.5A 0A to 1.05A
Constant Current		Н	2mA	5mA
(CC) mode	Resolution	м	0.2mA	0.5mA
		L	0.02mA	0.05mA
	Accuracy of setting	H,M,L	±(0.2% of set + 0.1% of f.s.*2) + 1	/in/150k*3
	Input voltage variation *4 H,M,L		±(0.1% of set + 0.02% of f.s.*2)	
	Ripple	rms *5	4mA	8mA
		p-p *6	40mA	80mA
		н	165S to 3mS	330S to 6mS
			(6.06mΩ to 333Ω) 16.5S to 300μS	(3.03mΩ to 166.7Ω) 33.3S to 600μS
	Operating range	М	(60.6mΩ to 3.33kΩ)	(30.3mΩ to 1.667kΩ)
			1.65S to 30µS	3.3S to 60µS
		L	(606mΩ to 33.3kΩ)	$(303m\Omega$ to $16.67k\Omega)$
		н	173.25S to 0S	346.5S to 0S
Constant Resistance		<u> </u>	(5.77mΩ to OPEN)	(2.886mΩ to OPEN)
(CR) mode	Setting range	М	17.325S to 0S	34.65S to 0S
	J J.		(57.7mΩ to OPEN)	(28.86mΩ to OPEN)
		L	1.7325S to 0S	3.465S to 0S
		Н	(577mΩ to OPEN) 3mS	(288.6mΩ to OPEN) 6mS
	Resolution	м	300µS	600µS
		L	30µS	60µS
	Accuracy of setting *7	H,M,L	±(0.5% of set *8 + 0.5% of f.s.*2)	
	Operating range	Н	0.3V to 30V	
	Operating range	L	0.3V to 4V	
	Setting range	Н	0V to 31.5V	
Constant Voltage	L		0V to 4.2V	
(CV) mode	Resolution H		2mV	
	L		200µV	
	Accuracy of setting Input current variation *9		±(0.1% of set + 0.1% of f.s.)	
	Input current variation '9		16.5W to 165W 33W to 330W	
	Operating range	М	1.65W to 16.5W	3.3W to 33W
		L	0.165W to 1.65W	0.33W to 3.3W
		Н	0W to 173.25W	0W to 346.5W
Constant Power	Setting range	М	0W to 17.325W	0W to 34.65W
(CP) mode				
(CP) mode		L	0W to 1.7325W	0W to 3.465W
(CP) mode		Н	10mW	20mW
(CP) mode	Resolution	H M	10mW 1mW	20mW 2mW
(CP) mode		H M L	10mW 1mW 0.1mW	20mW
(CP) mode	Accuracy of setting	H M L H,M,L	10mW 1mW 0.1mW ±(2.5% of f.s. *2)	20mW 2mW
(CP) mode		H M L	10mW 1mW 0.1mW	20mW 2mW
	Accuracy of setting	H M L H,M,L	10mW 1mW 0.1mW ±(2.5% of f.s. *2) 0.000V to 30.000V	20mW 2mW
	Accuracy of setting Display Accuracy	H M L H,M,L	10mW 1mW 0.1mW ±(2.5% of f.s. *2) 0.000V to 30.000V 0.000V to 4.0000V	20mW 2mW
Voltmeter	Accuracy of setting Display Accuracy Display	H M L H,M,L H	10mW 1mW 0.1mW ±(2.5% of f.s. *2) 0.000V to 30.000V 0.0000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.00mA to 500.00mA	20mW 2mW 0.2mW
	Accuracy of setting Display Accuracy	H M L H,M,L H L	10mW 0.1mW 0.1mW 42(.5% of f.s. *2) 0.000V to 30.000V 0.0000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.00mA to 500.00mA ± (0.2% of rdg + 0.3% of f.s.)	20mW 2mW 0.2mW 0.00A to 100.00A 0.000A to 1.0000A
Voltmeter	Accuracy of setting Display Accuracy Display Accuracy Accuracy	H M L H,M,L H L	10mW 0.1mW 0.1mW ±(2.5% of f.s. *2) 0.000V to 30.000V 0.0000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W	20mW 2mW 0.2mW 0.00A to 100.00A 0.000A to 1.0000A 0.000W to 330.00W
Voltmeter	Accuracy of setting Display Accuracy Display	H M L H,M,L H L H,M L	10mW 0.1mW ±(2.5% of f.s.*2) 0.000V to 30.000V 0.000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.00mA to 500.00mA ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 165.00W	20mW 2mW 0.2mW 0.00A to 100.00A 0.000A to 1.0000A 0.000W to 330.00W 0.000W to 30.000W
Voltmeter	Accuracy of setting Display Accuracy Display Accuracy Display Display	H M L H,M,L H L	10mW 1mW 4(2.5% of f.s.*2) 0.000V to 30.000V 0.000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 15.000W 0.000W to 15.000W	20mW 2mW 0.2mW 0.00A to 100.00A 0.000A to 1.0000A 0.000W to 330.00W
Voltmeter Ammeter Wattmeter	Accuracy of setting Display Accuracy Display Accuracy Accuracy	H M L H,M,L H L H,M L	10mW 0.1mW ±(2.5% of f.s.*2) 0.000V to 30.000V 0.000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.00mA to 500.00mA ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 165.00W	20mW 2mW 0.2mW 0.00A to 100.00A 0.000A to 1.0000A 0.000W to 330.00W 0.000W to 30.000W
Voltmeter Ammeter Wattmeter	Accuracy of setting Display Accuracy Display Accuracy Display Accuracy Display Operation mode	H M L H,M,L H L H,M L	10mW 0.1mW 4.(2.5% of f.s. "2) 0.000V to 30.000V 0.0000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.00mA to 500.00mA ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 15.000W 0.000W to 1.6500W	20mW 2mW 0.2mW 0.00A to 100.00A 0.000A to 1.0000A 0.000W to 330.00W 0.000W to 30.000W
Voltmeter Ammeter Wattmeter	Accuracy of setting Display Accuracy Display Accuracy Display Accuracy Display Operation mode Selectable frequency range	H M L H,M,L H L L L L L L L L L L L L L L L L L L	10mW 0.1mW 0.1mW 4(2.5% of f.s. *2) 0.000V to 30.000V 0.000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.00mA to 500.00mA ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 15.000W 0.000W to 1.500	20mW 2mW 0.2mW 0.00A to 100.00A 0.000A to 1.0000A 0.000W to 330.00W 0.000W to 30.000W
Voltmeter Ammeter Wattmeter	Accuracy of setting Display Accuracy Display Accuracy Display Accuracy Display Selectable frequency range Duty cycle setting	H M L H,M,L H L L L L L L L L L L L L L L L L L L	10mW 0.1mW 0.1mW (2.5% of f.s. *2) 0.000V to 30.000V 0.0000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 165.00W 0.000W to 15.000W 0.000W to 15.000W 1.5000W 0.000W to 15.000W	20mW 2mW 0.2mW 0.00A to 100.00A 0.000A to 1.0000A 0.000W to 330.00W 0.000W to 30.000W
Voltmeter Ammeter Wattmeter Switching mode	Accuracy of setting Display Accuracy Display Accuracy Display Accuracy Display Selectable frequency range Duty cycle setting	H M L H,M,L H L L H,M L L L 116 L 11	10mW 1nmW 0.1mW 4(2.5% of f.s. *2) 0.000V to 30.000V 0.0000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.000A to 50.000A 0.00mA to 500.00mA ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 16.500W 0.000W to 1.5500W CC/CR mode 1hz to 50kHz 5% to 95% 1% step *10 ±(0.5% of set) 2.5mA/μs to 25A/μs	20mW 2mW 0.2mW 0.00A to 100.00A 0.000A to 1.0000A 0.000W to 330.00W 0.000W to 330.00W 0.000W to 3.3000W 5mA/μs to 50A/μs 500μΑ/μs to 5A/μs
Voltmeter Ammeter Wattmeter Switching mode	Accuracy of setting Display Accuracy Display Accuracy Display Accuracy Display Operation mode Selectable frequency range Duty cycle setting Accuracy of frequency settir Selectable range (CC)	H M L H,M,L H L L 115 L 116 L	10mW 0.1mW 0.1mW 4(2.5% of f.s. *2) 0.000V to 30.000V 0.000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 15.000W 0.000W to 15.000W 0.000W to 1.5000W CC/CR mode 1Hz to 50kHz 5% to 95% 1% step *10 ±(0.5% of set) 2.5mA/µs to 2.5A/µs 250µA/µs to 2.5A/µs	20mW 2mW 0.2mW 0.00A to 100.00A 0.000A to 1.0000A 0.000W to 330.00W 0.000W to 330.00W 0.000W to 3.3000W
Voltmeter Ammeter Wattmeter Switching mode	Accuracy of setting Display Accuracy Display Accuracy Display Accuracy Display Operation mode Selectable frequency range Duty cycle setting Accuracy of frequency settin Selectable range (CC) Accuracy of setting *11	H M L H,M,L H L L H,M L L L 116 L 11	10mW 0.1mW 0.1mW (2.5% of f.s. *2) 0.000V to 30.000V 0.000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.00mA to 500.00mA ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 15.000W 0.000W to 1.6500W 0.00	20mW 2mW 0.2mW 0.00A to 100.00A 0.000A to 1.0000A 0.000W to 330.00W 0.000W to 330.00W 0.000W to 3.3000W 5mA/μs to 50A/μs 500μΑ/μs to 5A/μs
Voltmeter Ammeter Wattmeter Switching mode	Accuracy of setting Display Accuracy Display Accuracy Display Accuracy Display Operation mode Selectable frequency range Duty cycle setting Accuracy of frequency settin Selectable range (CC) Accuracy of setting *11 Operation mode	H M L H,M,L H L L H,M L L L 116 L 11	10mW 1mW 0.1mW 4:(2.5% of f.s. *2) 0.000V to 30.000V 0.0000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.00mA to 500.00mA ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 165.00W 0.000W to 15.000W 0.0000W to 15.000W 0.000W to 25.00W 0.000W to 30.00W 0.000W t	20mW 2mW 0.2mW 0.2mW 0.00A to 100.00A 0.000A to 1.0000A 0.000W to 330.00W 0.000W to 33.000W 0.000W to 3.3000W 0.000W to 50.00W 500μΑ/μs to 50Α/μs 500μΑ/μs to 50Λμs 50μΑ/μs to 500mA/μs
Voltmeter Ammeter Wattmeter Switching mode	Accuracy of setting Display Accuracy Display Accuracy Display Accuracy Display Operation mode Selectable frequency range Duty cycle setting Accuracy of frequency settin Selectable range (CC) Accuracy of setting *11	H M L H,M,L H L L H,M L L L 116 L 11	10mW 1mW 0.1mW 0.1mW 4(2.5% of f.s. "2) 0.000V to 30.000V 0.0000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.00mA to 500.00mA ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 165.00W 0.000W to 15.000W 0.000W to 15.500W CC/CR mode 1hz to 50kHz 5% to 95% 1% step *10 ±(0.5% of set) 2.5mA/μs to 25A/μs 25μΑ/μs to 25A/μs 25μΑ/μs to 25A/μs 25μΑ/μs to 25DmA/μs ±(10% of set + 0.8μs) CC mode Off, 100μs, 200μs, 500μs, 1000μs, 1000μs	20mW 2mW 0.2mW 0.2mW 0.00A to 100.00A 0.000A to 1.0000A 0.000W to 330.00W 0.000W to 33.000W 0.000W to 3.3000W 0.000W to 5.3000W 5mA/μs to 50A/μs 500μA/μs to 5A/μs 50μA/μs to 500mA/μs
Voltmeter Ammeter Wattmeter Switching mode Slew rate	Accuracy of setting Display Accuracy Display Accuracy Display Accuracy Display Operation mode Selectable frequency range Duty cycle setting Accuracy of frequency settin Selectable range (CC) Accuracy of setting 111 Operation mode Selectable time range *12 Accuracy of setting	H M L H,M,L H L L H,M L L L 116 L 11	10mW 1mW 0.1mW 0.1mW 4(2.5% of f.s. *2) 0.000V to 30.000V 0.000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.000A to 50.000A ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 15.000W 0.000W to 1.5000W 0	20mW 2mW 0.2mW 0.2mW 0.00A to 100.00A 0.000A to 1.0000A 0.000W to 330.00W 0.000W to 33.000W 0.000W to 3.3000W 0.000W to 5.3000W 5mA/μs to 50A/μs 500μA/μs to 5A/μs 50μA/μs to 500mA/μs
Voltmeter Ammeter Wattmeter Switching mode Slew rate Soft start Response	Accuracy of setting Display Accuracy Display Accuracy Display Accuracy Display Operation mode Selectable frequency range Duty cycle setting Accuracy of frequency settin Selectable range (CC) Accuracy of setting *11	H M L H,M,L H L L H,M L L H,M L L L L L L L L L L L L L L L L L L L	10mW 1mW 0.1mW 0.1mW 4(2.5% of f.s. "2) 0.000V to 30.000V 0.0000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.00mA to 500.00mA ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 165.00W 0.000W to 15.000W 0.000W to 15.500W CC/CR mode 1hz to 50kHz 5% to 95% 1% step *10 ±(0.5% of set) 2.5mA/μs to 25A/μs 25μΑ/μs to 25A/μs 25μΑ/μs to 25A/μs 25μΑ/μs to 25DmA/μs ±(10% of set + 0.8μs) CC mode Off, 100μs, 200μs, 500μs, 1000μs, 1000μs	20mW 2mW 0.2mW 0.2mW 0.000A to 100.00A 0.000A to 1.0000A 0.000W to 330.00W 0.000W to 33.000W 0.000W to 3.3000W 0.000W to 50.000W 5mA/μs to 50A/μs 500μA/μs to 5A/μs 50μA/μs to 500mA/μs
Voltmeter Ammeter Wattmeter	Accuracy of setting Display Accuracy Display Accuracy Display Accuracy Display Operation mode Selectable frequency range Duty cycle setting Accuracy of frequency setting Accuracy of setting *11 Operation mode Selectable time range *12 Accuracy of setting Response speed	H M L L H,M,L H L L L L L L L L L L L L L L L L L L	10mW 0.1mW 0.1mW 0.1mW (2.5% of f.s. *2) 0.000V to 30.000V 0.000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.000A to 50.000A ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 15.000W 0.2C/CR mode 1Hz to 50kHz 5% to 95% 1% step *10 ±(0.5% of set) 2.5mΔ/μs to 2.5Δ/μs 250μΔ/μs to 2.5Δ/μs 25μΔ/μs to 2.5Δ/μs 25μΔ/μs to 2.5Δ/μs 25μΔ/μs to 2.5Δ/μs 25μΔ/μs to 2.5Δ/μs	20mW 2mW 0.2mW 0.2mW 0.2mW 0.000A to 100.00A 0.0000A to 1.0000A 0.000W to 330.00W 0.000W to 330.00W 0.000W to 3.3000W 0.000W to 50.00W 500μΑ/μs to 50Α/μs 500μΑ/μs to 5Α/μs 50μΑ/μs to 500mA/μs s, 2ms, 5ms, 10ms, 20ms
Voltmeter Ammeter Wattmeter Switching mode Slew rate Soft start Response	Accuracy of setting Display Accuracy Display Accuracy Display Operation mode Selectable frequency range Duty cycle setting Accuracy of frequency settin Selectable range (CC) Accuracy of setting *11 Operation mode Selectable time range *12 Accuracy of setting Response speed Sensing voltage that can be of	H M L L H,M,L H L L H,M L L H,M L L H,M L L H,M L L L L 15 L 16 L 16 L 16 L L 1	10mW 1mW 0.1mW 4:(2.5% of f.s. *2) 0.000V to 30.000V 0.0000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.000A to 50.000A 0.00MA to 500.00MA ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 15.000W 0.00	20mW 2mW 0.2mW 0.2mW 0.2mW 0.000A to 100.00A 0.0000A to 1.0000A 0.000W to 330.00W 0.000W to 330.00W 0.000W to 3.3000W 5mA/µs to 50A/µs 500µA/µs to 5A/µs 500µA/µs to 500mA/µs s, 2ms, 5ms, 10ms, 20ms
Voltmeter Ammeter Wattmeter Switching mode Slew rate Soft start Response	Accuracy of setting Display Accuracy Display Accuracy Display Operation mode Selectable frequency range Duty cycle setting Accuracy of frequency setting Accuracy of frequency setting Accuracy of setting *11 Operation mode Selectable time range *12 Accuracy of setting Response speed Sensing voltage that can be of Overvoltage protection (OVf	H M L H,M,L H L L H,M L L L L L L L L L L L L L L L L L L L	10mW 1mW 0.1mW 0.1mW 0.1mW 0.1mW 0.1mW 0.000V to 30.000V 0.000V to 4.0000V 0.000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.000A to 50.000A ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 15.000W 0.000W to 15.000W 0.000W to 15.000W 0.000W to 1.6500W 0	20mW 2mW 0.2mW 0.2mW 0.2mW 0.000A to 100.00A 0.0000A to 1.0000A 0.000W to 330.00W 0.000W to 33.000W 0.000W to 33.000W 0.000W to 50.00W 500µA/µs to 500µA/µs 500µA/µs to 500mA/µs s, 2ms, 5ms, 10ms, 20ms rated voltage e rated current
Voltmeter Ammeter Wattmeter Switching mode Slew rate Soft start Response Remote sensing	Accuracy of setting Display Accuracy Display Accuracy Display Accuracy Display Operation mode Selectable frequency range Duty cycle setting Accuracy of frequency setting Accuracy of setting 111 Operation mode Selectable imperange *12 Accuracy of setting *11 Accuracy of setting *10 Departion mode Selectable time range *12 Accuracy of setting Response speed Sensing voltage that can be of Overvoltage protection (OVI) Overcurrent protection (OCI)	H M L H,M,L H L L H,M L L L L L L L L L L L L L L L L L L L	10mW 1mW 0.1mW 0.1mW 0.1mW 0.1mW 0.1mW 0.000V to 30.000V 0.0000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.00mA to 500.00mA ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 165.00W 0.000W to 15.00W 0.000W to 15.50W CC/CR mode 11Hz to 50kHz 5% to 95% 1 % step *10 ±(0.5% of set) 2.5mA/μs to 25A/μs 25μA/μs to 25A/μs 25μA/μs to 250mA/μs ±(10% of set + 0.8μs) CC mode 0ff, 100μs, 200μs, 500μs, 1000μs ±(30% of set + 10μs) NORMAL, FAST 3 V for a single line Turns off the load at 115 % of the Setting range 10% to 110% of the Load off or limit selectable Setting range 10% to 110% of the	20mW 2mW 0.2mW 0.2mW 0.2mW 0.2mW 0.2mW 0.2mW 0.2000A to 100.000A 0.0000A to 1.0000A 0.000W to 330.00W 0.000W to 330.00W 0.000W to 3.3000W 500µA/µs to 500µA/µs to 500µA/µs to 500µA/µs to 500mA/µs 500µA/µs to 50
Voltmeter Ammeter Wattmeter Switching mode Slew rate Soft start Response Remote sensing	Accuracy of setting Display Accuracy Display Accuracy Display Accuracy Display Operation mode Selectable frequency range Duty cycle setting Accuracy of frequency setting Accuracy of setting 11 Operation mode Selectable range (CC) Accuracy of setting 111 Operation mode Selectable time range 112 Accuracy of setting Response speed Sensing voltage that can be of Overvoltage protection (OVI) Overcurrent protection (OCGI)	H M L H,M,L H L L H,M L L H,M L L L L L L L L L L L L L L L L L L L	10mW 1mW 0.1mW 0.1mW 0.1mW 0.1mW 0.1mW 0.000V to 30.000V 0.0000V to 4.0000V 0.0000V to 4.0000V ± (0.1% of rdg + 0.1% of f.s.) 0.000A to 50.000A 0.00mA to 500.00mA ± (0.2% of rdg + 0.3% of f.s.) 0.00W to 165.00W 0.000W to 165.00W 0.000W to 15.000W 0.000W to 15.000	20mW 2mW 0.2mW 0.2mW 0.2mW 0.2mW 0.000A to 100.00A 0.0000A to 1.0000A 0.000W to 330.00W 0.000W to 330.00W 0.000W to 33.000W 0.000W to 3.000W 0.000W to 50A/μs 500μΑ/μs to 50A/μs 500μΑ/μs to 50mA/μs 50μΑ/μs to 50mA/μs ε rated voltage e rated current e rated power sink temperature reaches 90 °C

Normal sequence Operation mode Operation mode Operation mode Operation mode National number of steps Step secucion time Necolution N	model			PLZ164WL PLZ334WL	
Maximum number of steps 256		Normal sequence	•		
Sequence function Imps: 100ms; 1, 100ms; 1		Operation mode		CC, CR, CV, CP	
Resolution		Maximum numbe	r of steps	256	
Sequence function Fair sequence Content mode CC, CR		Step execution til	me	1ms to 999h 59min	
Operation mode Oc. CR		Resolution		1ms, 100ms, 1s, 10s, 1min	
Step execution time 25ps to 100ms	Sequence function				
Step execution time		<u>'</u>			
Resolution 25/96 (25/96 to 10/0µs) 10/0µs (10/0µs to 10/0ms)			· · · · · · · · · · · · · · · · · · ·		
Other functions Flapsed time display Measures the time from load on to load off. On/Off selectable. Measures the time from load on to load off. On/Off selectable. Measures the time from load on to load off. Can be set in the range of 1s to 999 h 59 min 59 s. or off. On/Off Selectable. Measures from 1 s up to 999 h 59 min 59 s. or off. On/Off Selectable. Measures from 1 s up to 999 h 59 min 59 s. or off. On/Off Selectable. Measures from 1 s up to 999 h 59 min 59 s. or off. On/Off Selectable. Measures from 1 s up to 1999 h 59 min 59 s. or off. On/Off Selectable. Measures from 1 s up to 1999 h 59 min 59 s. or off. On/Off Selectable. Measures from 1 s up to 1999 h 59 min 59 s. or off. On/Off Selectable. Measures from 1 s up to 1999 h 59 min 59 s. or off. On/Off Selectable. Measures from 1 s up to 1999 h 59 min 59 s. or off. On/Off Selectable. Measures from 1 s up to 1999 h 59 min 59 s. or off. On/Off Selectable. Measures from 1 s up to 1999 h 59 min 59 s. or off. On/Off Selectable. Measures from 1 s up to 1999 h 59 min 59 s. or off. On/Off Selectable. Measures from 1 s up to 1999 h 10 s. 1999		· · · · · · · · · · · · · · · · · · ·			
Elapsed time display Measures the time from load on to load off. On/Off Auto load off timer		Resolution			
Communication Communication functions Communication functions Communication function C					
Auto load off timer Measures the time from load on to load off. Can be set in the range of 1 s to 989 his 59 art or off. Can be set in the range of 1 s to 989 his 59 art or off. 28-pin MiL. connector	Other functions	Elapsed time display			
1 connector Can be set in the range of 1 is to \$99 h 59 min 59 a or of 1.	Other functions	Auto load off timer			
EXT cont MODE EXT cont MODE EXT cont ADD CC mode External Voltage Control, 0 to 100% of the rating of Range by 0 to 10V EXT cont ADD CC mode External Voltage Control, 0 to 100% of the Local setting value of the Acting Value of External Voltage Control, 0 to 100% of the Local setting value of the Store Value of External Voltage Control, 0 to 100% of the rating of Range by 0 to 10V MON LOAD CONT INPUT CV mode External Voltage Control, 0 to 100% of the rating of Range by 0 to 10V RANGE CONT RANGE CONT The alarm activates when the Lievel Load On, Switchable to the logic level RANGE CONT The alarm activates when the Lievel of CMOS signal is applied for more than 10µs. The internal circuit pulse by to 5V by 10KΩ ALARM INPUT The alarm activates when the Lievel of CMOS signal is applied for more than 10µs. The internal circuit pulse by to 5V by 10KΩ When it is in the pause condition, the pause can be can be applied for more than 10µs. The internal circuit pulse up to 5V by 10KΩ ALARM CLEAR INPUT ALARM CLEAR INPUT ALARM STATUS On when the load is on. Open collector by the photo coupler RANGE STATUS ALARM STATUS On when the load is on. Open collector by the photo coupler RANGE STATUS ALARM STATUS On when the load is on. Open collector by the photo coupler RANGE STATUS Front panel BNC connector TRIC OUT Pront panel BNC connector TRIC OUT TRIC OUT TO over the couple of the		14			
EXT cont ADD EXT cont CV CV mode External Voltage Control, 0 to 100% of the rating setting value of the rating flange by 0 to ±10V, Adding up the value to the setting value of External Voltage Control, 0 to 100% of the rating of Range by 0 to 10V IMON Current monitor output, 10Vf.s. (HJL range), 1Vf.s. (M range) IMON Current monitor output, 10Vf.s. (HJL range), 1Vf.s. (M range) Current monitor output, 10Vf.s. (HJL range), 1Vf.s. (M range) Current monitor output, 10Vf.s. (HJL range), 1Vf.s. (M range) Current monitor output, 10Vf.s. (HJL range), 1Vf.s. (M range) IMON Current monitor output, 10Vf.s. (HJL range), 1Vf.s. (M range) IMON Current monitor output, 10Vf.s. (HJL range), 1Vf.s. (M range) IMON Current monitor output, 10Vf.s. (HJL range), 1Vf.s. (M range) IMON External range switch input, 2 bit Imon		J1 connector			
EXT cont ADD setting value of the rating Range by 0 to ±10V, Adding up the value to the setting value of ExcCont.		EX.	T cont MODE		
The value to the setting value of ExtCont.		EX	Γ cont ADD	CC mode External Voltage Control, 0 to 100% of the Local	
Input /Output signal		<u> </u>		the value to the setting value of ExtCont.	
Input /Output signal		<u> </u>		of Range by 0 to 10V	
RANGE CONT INPUT The alarm activates when the L level of CMOS signal is applied for more than 10μs. The internal circuit pulls up to 5V by 10kΩ					
Input /Output signal ALARM INPUT The slarm activates when the L level of CMOS signal is applied for more than 10µs. The internal circuit pulls up to 5V by 10kΩ When it is in the pause condition, the pause can be cancelled when the L level of CMOS signal is applied for more than 10µs. The internal circuit pulls up to 5V by 10kΩ ALARM CLEAR INPUT ALARM CLEAR INPUT ALARM STATUS ANGE STATUS ARANGE STATUS		LO	AD CONT INPUT		
Input /Output signal ALARM INPUT applied for more than 10µs. The internal circuit pulls up to 5V by 10kΩ When it is in the pause condition, the pause can be cancelled when the L level of CMOS signal is applied for more than 10µs. The internal circuit pulls up to 5V by 10kΩ ALARM CLEAR INPUT ALARM CLEAR INPUT IT he alarm can be cleared when the L level of CMOS signal is applied for more than 10µms. The internal circuit pulls up to 5V by 10kΩ LOAD ON STATUS RANGE STATUS ARANGE STATUS ARANGE STATUS ALARM STATUS SHORT SIGNAL OUT REV, UVP) or Turns on when the external alarm is applied for more than 10µms. The internal circuit pulls up to 5V by 10kΩ ALARM STATUS SHORT SIGNAL OUT REV, UVP) or Turns on when the external alarm is applied with the external alarm is applied to 10µms on the sternal alarm is applied for when the external alarm is applied separation. MON OUT TRIG OUT Outputs a pulse during sequence operation and switching operation. MON OUT TY 1s(H/L range), 0.1V 1s(M range) solated to the internal common(connected to the chassis potential) Input voltage range Input frequency range 47Hz to 63Hz Power consumption SSVAmax Inrush current 113 Operating temperature range Operating temperature range Operating temperature range 20% to 85% RH (without condensation) Storage temperature range 20% to 85% RH (without condensation) Storage temperature range Primary - input terminal 500 VDC, 30 M or more (ambient humidity of 70% RH or less) Input terminal - chassis S00 VDC, 30 M or more (ambient humidity of 70% RH or less) Primary - input terminal Primary - input terminal Setup guidex-1pc. (Japanese, English), Quick reference(Japanese). Primary - input terminal over-2pcs, Protection dummy plug for J1 terminal: 1pc. Connecting acide to the chassis: 1pc. Conforms to the requirements of the following directive and standard. Low Voltage Directive 2008/96/EC. EN61016-12001 Class I Pollution degree 2 Weight Dimensions (Max.) 214.5(8.45*) Wx124(155)(4.88*) Hx400(455)(15.75*) Dmm		RAI	NGE CONT	External range switch input, 2 bit	
Input /Output signal The internal circuit pulls up to 5V by 10kΩ					
TRIG INPUT cancelled when the L level of CMOS signal is applied for more than 10µs. The internal circuit pulls up to 5V by 10KΩ LOAD ON STATUS LOAD ON STATUS CON when the load is on. Open collector by the photo coupler RANGE STATUS Range status output. 2bit ALARM STATUS RALARM STATUS RALARM STATUS REV. (UVP) or Turns on when the external alarm is applied for more than 100ms. The internal circuit pulls up to 5V by 10KΩ LOAD ON STATUS On when the load is on. Open collector by the photo coupler RANGE STATUS REV. (UVP) or Turns on when the external alarm is applied for specific pulls are pulls and specific pulls. The proof of the photo coupler Rev. (UVP) or Turns on when the external alarm is applied for properation. IMON OUT Communication function GPIB, RS-232C, and USB interfaces are equipped as standard. Imput voltage range Input voltage range Input voltage range Input frequency range 47Hz to 63Hz Power consumption 95VAmax Inrush current *13 Operating temperature range 9°C to 40°C Operating temperature range 9°C to 40°C Operating humidity range 20% to 85% RH (without condensation) Storage temperature range 20°C to 70°C Storage humidity range 1500 VDC, 30 M or more (ambient humidity of 70% RH or less) Input terminal chassis Input terminal chassis Input terminal chassis Input terminal chassis No abnormalities at 1500 VAC for 1 minute. Primary - chassis No abnormalities at 1500 VAC for 1 minute. Primary - chassis Sotup Quidex 1pc. (Japanese English.) Quick reference (Japanese: 1pc. Englesh: 1pc.), CD-ROM Power cordx 1pc., Set of screws for the load input terminal coverx 1picce, Screws for the long to terminal covers 2pes. Protection dummy pulp for 71 terminal: 1pc. Connection goals to the chassis: 1pc. Conforms to the requirements of the following directive and standard. Low Voltage Directive 2006/68/EC, EN61010-1:2001 Class I Pollution degree 2 Weight Approx. 6.5kg Approx. 6.5kg Approx. 8.0kg Dimensions (Max.)		ALA	ARM INPUT		
March Mar	Input /Output signal	l [
ALARM CLEAR INPUT The alarm can be cleared when the L level of CMOS signal is applied for more than 100ms. The internal circuit pulls up to 50 by 10kΩ		TRI	G INPUT		
LOAD ON STATUS				The alarm can be cleared when the L level of CMOS signa	
RANGE STATUS ALARM STATUS ALARM STATUS ALARM STATUS ALARM STATUS ALARM STATUS ALARM STATUS Belay contact output (DC30V/1A) Front panel BNC connector TRIG OUT Outputs a pulse during sequence operation and switching operation. IMON OUT 1V f.s(H/L range), 0.1V f.s(M range)Isolated to the internal common(connected to the chassis potential) Communication function GPIB, RS-232C, and USB interfaces are equipped as standard. Input voltage range Input frequency range 47Hz to 63Hz Power consumption 95VAmax Inrush current *13 Operating temperature range O°C to 40°C Operating temperature range 100 V AC to 240V AC (90V AC to 250V AC), Single phase of SAmax Operating temperature range 20% to 85% RH (without condensation) Storage temperature range 20% to 85% RH (without condensation) Storage temperature range 20% to 85% RH or less (without condensation) Insulation resistance General Specifications Withstand voltage Primary - input terminal Country - input terminal Primary - input terminal Primary - input terminal Primary - input terminal Primary - input terminal Country - input terminal Primary - input terminal Primary - input terminal Primary - input terminal Country - input terminal Primary - input terminal Primary - input terminal Primary - input terminal Country - input terminal Primary - input terminal Prima		LOAD ON STATUS			
ALARM STATUS SHORT SIGNAL OUT Front panel BNC connector TRIG OUT Outputs a pulse during sequence operation and switching operation. IMON OUT IV Is(H/L range), 0.1V f.s(M range)Isolated to the internal common(connected to the chassis potential) Communication function GPIB, RS-232C, and USB interfaces are equipped as standard. Input voltage range Input frequency range I					
REV, UVP) or Turns on when the external alarm is applied Relay contact output (DC30V/1A)					
SHORT SIGNAL OUT Relay contact output (DC30V/1A)		ALA	ARM STATUS		
TRIG OUT Outputs a pulse during sequence operation and switching operation. IMON OUT 1V 1.s(H/L range), 0.1V 1.s(M range)Isolated to the internal common(connected to the chassis potential) Input voltage range Input voltage range Input frequency range Power consumption SSVAmax Inrush current *13 Operating temperature range O"C to 40°C Operating humidity range Storage humidity range Pomer and specifications Operating humidity range Storage humidity range Power and specifications Primary - input terminal Primary - input terminal Power on sumption Power on sumption SSVAmax Operating humidity range 20% to 85% RH (without condensation) Storage humidity range 90% RH or less (without condensation) Isolation voltage Insulation resistance Primary - input terminal 500 VDC, 30 M or more (ambient humidity of 70% RH or less) Input terminal - chassis Sob VDC, 30 M or more (ambient humidity of 70% RH or less) No abnormalities at 1500 VAC for 1 minute. Accessories Accessories No abnormalities at 1500 VAC for 1 minute. Setup guidex 1pc. (Japanese, English), Quick reference (Japanese, English), Culck reference (Japanese,		SHORT SIGNAL OUT			
Communication function Image: Institute Institute Image: Institute Instit		Front panel BNC	connector		
IMON OUT		TRIG OUT			
Communication function Communication function Communication function Input voltage range 100V AC to 240V AC (90V AC to 250V AC), Single phase Input frequency range 47Hz to 63Hz		IMON OUT		1V f.s(H/L range), 0.1V f.s(M range)Isolated to the internal	
Input voltage range	0				
Input frequency range	Communication function				
Power consumption 95VAmax Inrush current *13 65Amax Operating temperature range 0°C to 40°C Operating humidity range 20% to 85% RH (without condensation) Storage temperature range 90% RH or less (without condensation) Isolation voltage 500 VDC, 30 M or more (ambient humidity of 70% RH or less) Input terminal 500 VDC, 30 M or more (ambient humidity of 70% RH or less) Input terminal 600 VDC, 30 M or more (ambient humidity of 70% RH or less) Primary - chassis 500 VDC, 30 M or more (ambient humidity of 70% RH or less) No abnormalities at 1500 VAC for 1 minute. Accessories Primary - chassis 500 VDC, 30 M or more (ambient humidity of 70% RH or less) No abnormalities at 1500 VAC for 1 minute. Setup guidex 1500 VAC for 1 minute. Setup guidex 1500 VAC for 1 minute. Setup guidex 1500 VAC for 1 minute. Conforms to the load input terminalx-2sets(MB bolts,nuts, and spring washers), Load input terminalx-2sets(MB bolts,nuts, and spring washers), Load input terminal of the following directive and standard. Low Voltage Directive 2006/96/EC, EN61010-1:2001 Class I Pollution degree 2 Weight Approx. 6.5kg Approx. 8.0kg Dimensions (Max.) 214.5(8.45°)W×124(155)(4.88°)H×400(455)(15.75°)Dmm		<u> </u>			
Inrush current *13 65Amax					
Operating humidity range 20% to 85% RH (without condensation)					
Storage temperature range -20°C to 70°C		Operating temperature range			
Storage humidity range 90% RH or less (without condensation) ±500V		Operating humidity range		· · · · · · · · · · · · · · · · · · ·	
Isolation voltage					
Insulation resistance Primary - input terminal 500 VDC, 30 M or more (ambient humidity of 70% RH or less) For input terminal 500 VDC, 30 M or more (ambient humidity of 70% RH or less) 500 VDC, 30 M or more (ambient humidity of 70% RH or less) For input terminal Primary - chassis 500 VDC, 30 M or more (ambient humidity of 70% RH or less) For input terminal Primary - chassis 500 VDC, 30 M or more (ambient humidity of 70% RH or less) For input terminal Primary - chassis For input terminal For input terminal Primary - chassis No abnormalities at 1500 VAC for 1 minute. Setup guidex D. (Japanese, English), Quick reference (Japanese-1pc, Englesh: 1pc,), CD-ROM, Power cordx1pc, Set of screws for the load input terminal coverx1piese, Screws for the load input terminal coverx1piese covers2piese, Proteon during plut terminal coverx1piese covers for the load input terminal coverx1piese covers for the load input terminal coverx1piese covers for the load input terminal coverx					
Primary - chassis 500 VDC, 30 M or more (ambient humidity of 70% RH or less)					
Resistance Input terminal - chassis 500 VDC, 30 M or more(ambient humidity of 70% RH or less)		Insulation			
Primary - input terminal No abnormalities at 1500 VAC for 1 minute.		resistance			
Primary - chassis No abnormalities at 1500 VAC for 1 minute.	General Specifications	Withstand voltage Primary - input terminal		No abnormalities at 1500 VAC for 1 minute.	
Accessories Acces				No abnormalities at 1500 VAC for 1 minute.	
Safety *14 standard. Low Voltage Directive 2008/96/EC, EN61010-1:2001 Class I Pollution degree 2 Weight Approx. 6.5kg Approx. 8.0kg Dimensions (Max.) 214.5(8.45")W×124(155)(4.88")H×400(455)(15.75")Dmm		Accessories		nese:1pc.,Englesh:1pc.),CD-ROM,Power cordx:1pc.,Set of screws for the load input terminalx2sets(M8 bolts,nuts,and spring washers),Load input terminal coverx-1piece, Screws for the Input terminal cover:2pcs.,Protection dummy plug for J1	
Dimensions (Max.) 214.5(8.45")W×124(155)(4.88")H×400(455)(15.75")Dmm				standard. Low Voltage Directive 2006/96/EC, EN61010-1:2001 Class I Pollution degree 2	
		imensions (Ma)	*		



- Minimum voltage at which the current starts flowing to the electronic load. At the load input terminal. In the M range, it applies for the full scale of the H range Vir: Input terminal voltage or the sensing voltage of the electronic load. When the input voltage is varied from 0.3V to 30V at a current of the rated power/30V Measurement frequency bandwidth: 10 Hz to 1MHz Measurement frequency bandwidth: 10 Hz to 20MHz

- Conversion rate of the input current. At the sensing terminal.
- set=Vin/Rset With respect to a change in the current of 10% to 100% of the rating at an input voltage of 0.3V
- With respect to a change in the current of 10% to 100% of the rating at an input voltage of 0.3V (during remote sensing)
 The minimum time width is 2 us. Between 5kHz to 50kHz, the maximum duty cycle is limited by the minimum time width.
 Time to reach from 10% to 90% when the current is varied from 2% to 100% (20% to 100% in M range)
 Time to reach from 10% to 90% of the input current
 Approximately 35A for the input voltage of AC100 V
 This product is categorized in the "Class I".
 The protective conductor terminal of this product must be connected to the ground. The seafence and he oursembled when it is not connected to the ground. *10

- ▲ Rear panel
 (Not available for the load input terminal on the rear panel)
 (In projective conduction reminal or this product mass the confidence or on the guaranteed when it is not connected to the ground properly.
 In a mode other than CP mode
 In CP mode

KIKUSUI AMERICA, INC.1-877-876-2807 www.kikusuiamerica.com



2975 Bowers Avenue, Suite 307, Santa Clara, CA 95051 Phone : 408-980-9433 Facsimile : 408-980-9409

KIKUSUI TRADING (SHANGHAI) Co., Ltd. www.kikusui.cn Room 216, Building 4, No.641, Tianshan Road, Shanghai City, China Phone: 021-5887-9067 Facsimile: 021-5887-9069

All products contained in this catalogue are equipment and devices that are premised on use under the supervision of qualifi ed personnel, and are not designed or produced for home-use or use by general consumers. Seed Specifications, design and so forth are subject to change without prior notice to improve the qualify. Product names and production may be discontinued when necessary. Product names, company names and brand names contained in this catalogue represent the respective registered trade rame or trade mark. Colons, textures and so forth of photographs shown in this catalogue may differ from actual products due to a limited fi delity in printing. Although every effort has been made to provide the information as accurate as possible for this catalogue, extrain details have unavoidably been omitted due to limitations in space. If I you'll dary misprints or errors in this catalogue, it would be appreciated froy would inform us. Please contact our distributors to confirm specifications, price, accessories or anything that may be unclear when placing an order or concluding a purchasing agreement.