

SECTION 1. GENERAL

1-1. Introduction

Series PLZ-W Electronic Loads can be operated in constant resistance mode, constant current mode and switching action electronically, replacing the conventional sliding resistors (rheostats). Major features of the PLZ-W series are as follows:

1. Digital Meters.

A digital voltmeter and an ammeter with an autorange of 3 1/2 digits.

2. A 10-Turn Multi-Dial.

Current values and resistance values may be set very precisely with the 10 turn multi-dial having a lock mechanism.

3. Function of Presetting.

Current and resistance values may be preset.

4. Built-in Oscillator for Switching Action.

To be used in the constant current mode. Switching action occurs within the frequency range of 10 Hz - 1 kHz.

5. Display of Loading Power.

Supplied power value is displayed in a digital figure and in the form of luminescent bar graph.

6. Remote Control Functions.

When operated in the constant current mode the instrument may be remotely controlled by either an external voltage or an external resistance. The instrument may also be remotely controlled by an external resistance when operated in the constant resistance mode.

PLZ 150W

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7. One-controlled Parallel Operation.

It is possible to increase current capabilities by operating a number of units connected in parallel simultaneously under the control of a master unit.

8. Protection Circuits Include:

Overvoltage, overcurrent, overpower, overheating, and input terminal connection in reverse polarity.

The PLZ series is offered as a portable desk-top unit and may be integrated into a 19 inch or 500 mm Kikusui standard rack, with the use of the option brackets.

1-2. Specifications

Power Requirements.

Line voltage: 120 V AC \pm 10% 50/60 Hz single phase

Power consumption: Approx. 35 VA (at 120 V AC)

Input.

Loading voltage: 4 - 60 V DC

Loading current: 0 - 30 A

Maximum loading power: 150 W

Operating ambient temperature range: 0 - 40°C (32 - 104°F)

Operating ambient humidity range: 10% - 90% RH

Cooling method: Forced air cooling by means of fan

Isolation from ground: \pm 250 V DC

Modes.

Constant current mode: 0 - 30 A (1st range)

0 - 3 A (2nd range)

Constant resistance mode: 10 - 100 m Ω (1st range) (minimum 0.12 Ω)

0.1 - 1 Ω (2nd range)

1 - 10 Ω (3rd range)

10 - 100 Ω (4th range, the range can be switched to 100 - 1000 Ω , refer page 14.)

Constant voltage mode: 5 - 60 V DC

Constant Current Characteristics.

Stability: 0.1% + 3 mA for loading voltage variation from 4 to 60 V

0.1% + 3 mA for line voltage variation by $\pm 10\%$

Ripple and noise: 4 mA RMS

Temperature coefficient: 0.02%/°C (standard value)

Rise/fall time: 100 μ sec or less (when an internally installed oscillator is used).

Constant Resistance Characteristics.

Stability: $\pm 10\%$ loading voltage variation:

(Stability)	(Input Voltage Variation)	(Setting resistance)
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4 - 10 V	1 Ω
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4 - 30 V	10 Ω
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Stability $\pm 10\%$ variation of line voltage: 0.1% + 6 mA

Temperature coefficient: 0.03%/°C standard value (at the minimum resistance value of a range).

Remote Control.

Constant current: External resistance 0 - 1000 Ω

External voltage 0 - 10 V DC

Constant resistance: External resistance 0 - 1000 Ω

Constant voltage: External voltage 0 - 10 V DC

Protecting Functions.

Overvoltage protection: Approx. 65 V DC

Overcurrent protection: Approx. 33 A DC

Overpower protection: Approx. 170 W

Wrong polarity input protection: By use of a diode

Overheating protection: 100°C $\pm 5^\circ$ C at cooling package

Line input fuse rating: 1 A

Meters.

Maximum significant number for display: 1999

Ammeter accuracy: $\pm(0.5\% \text{ of reading} + 0.1\% \text{ of F.S} + 1 \text{ digit})$
at $20^{\circ}\text{C} \pm 10^{\circ}\text{C}$

Voltmeter accuracy: $\pm(0.1\% \text{ of reading} + 0.1\% \text{ of F.S} + 1 \text{ digit})$
at $20^{\circ}\text{C} \pm 10^{\circ}\text{C}$

Power meter accuracy: $\pm(3\% \text{ of F.S} + 1 \text{ digit})$ at 5 V or more and
5 A or more

Constant voltage mode display: Yellow LED

Parallel operation: Control by one unit (master unit) is
possible

Oscillator.

Frequency: 10 - 100 Hz (1st range)
0.1 - 1 kHz (2nd range)

Duty ratio: 20 - 80% or more (continuously variable)

Operating ambient temperature range: 0 to 40°C

Operating ambient humidity range: 10 to 90% RH

Insulation resistances

Between chassis and line: 500 V DC, min. 30 M Ω

Between chassis and input terminals: 500 V DC, min. 20 M Ω

Dimensions: 220W \times 165H \times 415D (mm) (largest parts)

Weight: Approx. 8 kg

Instruction manual: One copy (in carton)