

**ZX1030E AC/DC  
Single Phase Standard Power Source**



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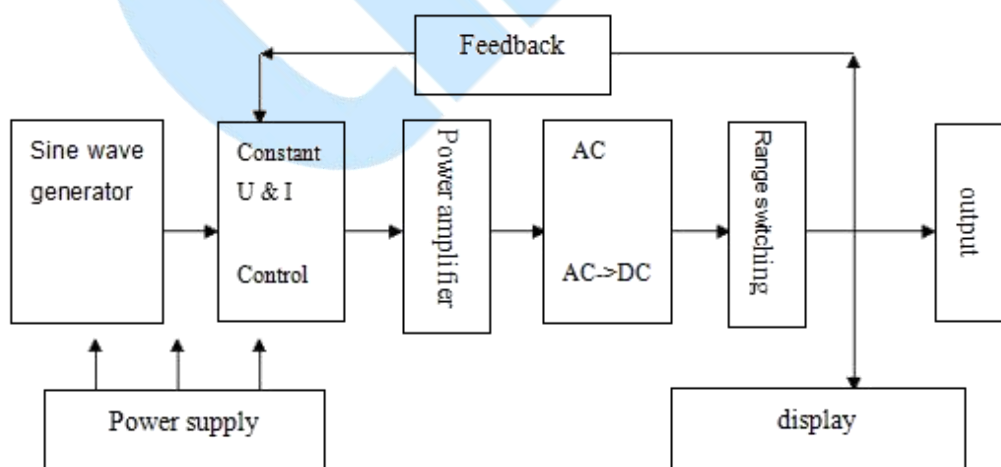
## I Product overview

This device is used for testing and calibrating all kinds of ammeter, voltmeter, ohmmeter under 0.2 class. It can also be used as testing power source, matching with high level standard meters to calibrate ammeter, voltmeter, ohmmeter at 0.2 or higher class. There are two regulation modes: analog regulation (potentiometer) and digital regulation (keyboard).

## II Main Functions

1. 5½ LED digital display output by actual value or by percentage
2. AC/DC current output range: 0~100uA~500uA~2mA~5mA~20mA~50mA~200mA~500mA~2A~5A~20A
3. AC/DC voltage output range: 0~200mV~1V~2V~5V~10V~20V~50V~100V~200V~500V~1000V
4. Three AC frequency for option: 50 Hz, 60 Hz, 400 Hz
5. Auto over load protection, manual resetting function
6. Over load rang is 20% for each level of voltage, current
7. Clamp meter testing: when match with standard coil, can measure AC 0~750A ( above 1000A for part of meters) DC 0~1000A, error:  $\pm 0.3\%$

## III Working Principle



## IV Technique Parameters

1. Stability: DC < 0.01% of full range / 2 min, AC < 0.03% of full range / 2 min

2. AC distortion: < 0.5%
3. DC ripple coefficient: < 0.1%
4. Output frequency and accuracy: 50 Hz、60 Hz、400 Hz: < 1%
5. Voltage Current Output range and accuracy: (23°C±2°C > 10% range)
6. Power supply consumption: AC DC 220V±10%, 50 Hz±1Hz, < 180VA
7. Working environment: temperature 5°C~35°C relative humidity ≤80%
8. Working time: continuous
9. Size and weight: 135×480×420mm 16KG

Output Item	Output range	Rated output	Max output	Accuracy
AC/DC Voltage	0~200mV	10mA	30mA	DC: ±(0.05%rd+0.02% full range) ±0.02mV AC: ±(0.07%rd+ 0.03%full range) ±0.04mV
	0~2V	20mA	60mA	
	0~5V~10V~20V	40mA	100mA	
	0~200V~500V	20mA	60mA	
	0~1000V	10mA	30mA	
AC/DC Current	0~100uA ~500uA ~2mA ~5mA ~20mA~50mA	DC:3V AC:36V		DC: ±(0.07%rd+0.03%full range) AC: ±(0.07%rd+0.03%full range) No accuracy check for current under 2mA
	0~200mA ~500mA	DC:3V AC:12V		
	0~2A~5A~20A	2V		
Standard Resistance	10, 24, 50, 100, 240, 500(Ω), 1/ 2.4/5/10/ 24(KΩ)shall add ×1K、×1 Multiplying rate gear (10KΩ~24MΩ)	0.25W		±0.2%+20mΩ

## V Operation Instruction

1. The instrument should be placed in a well-ventilated, non-direct sunlight, dry clean place. The power supply voltage is  $220 \pm 10\%$ , the frequency is  $50\text{Hz} \pm 1\text{Hz}$ . Power socket should be well grounded.
2. Counter-clockwise the panel amplitude adjustment potentiometer or external regulator potentiometer to the end. Move up or down the control knob in the lower right part of the panel to turn on panel control or external board control.
3. Turn on the power switch, preheat for 5 minutes (when there is long time no use or humidity is large, the warm-up time should be longer), and then according to the performance and range of the calibration instrument select appropriate switch position.
4. When the "Overload" light is on, counter-clockwise the output regulation potentiometer (when use the external keypad, press 10% down key for 3 seconds to return the output to zero). Then, press the reset button to reset, if no working when press the reset button, it indicates instrument failure or misuse, find the reason before continue to use.
5. When display E--, it indicates over 120% out of range, please counter-clockwise the output potentiometer. (when use the external control keypad need press 10% down key for 3 seconds to make the output back to zero).
6. Resistance "output" provides 20 different standard resistors for proofreading multi-meter resistance center value. Measurement data can not be stored or transmitted.

## VI Attention

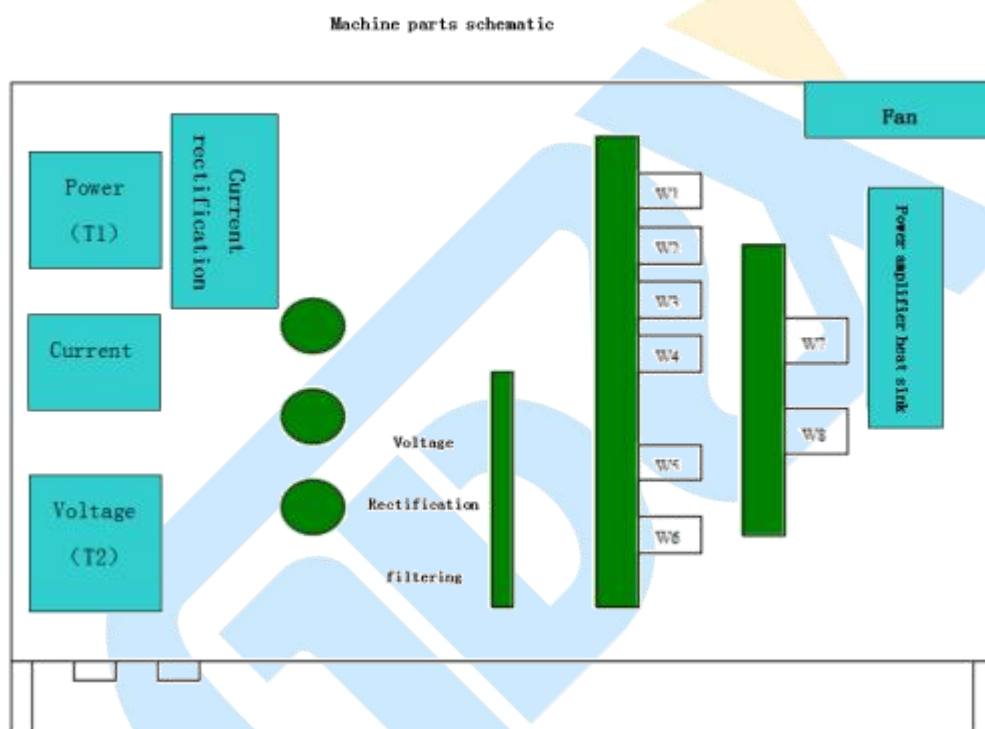
- ◆ When there is output, try to avoid switching various switches, so as not to damage the instrument or calibrated instrument.
- ◆ Current output connection wire current density should be less than  $3\text{A} / \text{mm}^2$
- ◆ Voltage output in the low range, connecting wire cross-sectional area should be greater than  $6 \text{mm}^2$ . When in the high range (250V or more), the connection wire should be with good insulation.
- ◆ When finish the test, counter-clockwise both coarse control and fine control potentiometer to the end, so that the output returns to zero. When use the external control keyboard, press the 10% key for 3 seconds
- ◆ During the use, the voltage output can not be short-circuited, current output can not be

open-circuited.

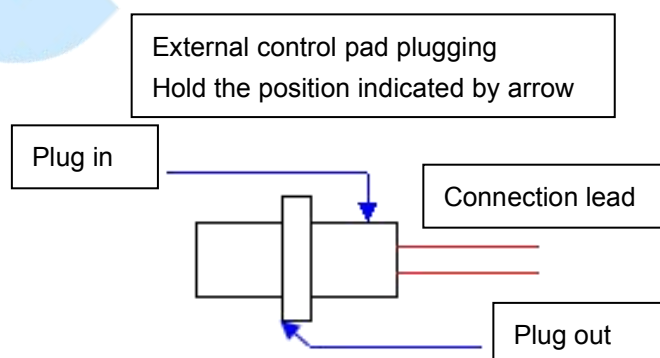
- ◆ High current output time not more than 5 minutes.
- ◆ When there is voltage output, be careful to avoid high voltage electric shock hazard.

## VII Maintenance

1. Instrument normal status check: After reset, the DC display should be 000, AC voltage or AC current (when short circuit), allow figures display (equal to the actual output).
2. Maintenance: In case of failure, please contact the manufacturer in time. In the warranty period manufacturers free repair or replacement.



- W1: Voltage amplitude control
- W2: voltage zero setting
- W3: AC linearity control
- W4: AC amplitude control
- W5: Current amplitude control
- W6: Current linearity control
- W7: power amplifier zero setting
- W8: Oscillator operating point control



**Remark:** Power amplifier heat sink is fixed on the right chassis board, when there is long

time 20A short circuit work (output voltage <0.5V), the right chassis board temperature will soon rise, this is normal. 20A continuous working time should not exceed 5 minutes.

### VIII Functions explanation

#### 1. Output:

From the black jack and the red jack, output the AC and DC voltage and the AC DC current.

From the black jack and yellow jack, output a higher voltage AC current.

From the black jack and yellow I jack, output 0 ~ 1A AC current

from the black jack and yellow II jack, output 0 ~ 0.1A AC current, special for high internal resistance AC ammeter.

2. Output control: there are three (coarse, medium, fine) output amplitude regulation potentiometers on the panel. It work when "inner control / external control" switch is placed in the "inner control" side. It is recommended to use external control. (AC 5mA or less, use black jack and yellow jack II or green jack I output)

3. Display: "value /%" switch to "value" side, the output display will be actual voltage, current value. When dialing to "%", it is range percentage display

4. External control: When the "internal control / external control" switch is dialed to "external control" side, you can plug in the external control socket, use the external control pad for regulation.

5. Resistance output: composed of 22 standard resistors.

The black jack and yellow × 1 jack for output: 10Ω ~ 24KΩ, 11 kinds of resistors;

The black jack and yellow × 1K jack, for output: 10KΩ ~ 24MΩ, 11 kinds of resistors

### IX Clamp Meter Test Coil Explanation

1. Applies to frequency: DC 50Hz (60Hz, 400Hz)

2. Conversion accuracy: ±0.2%

3. Parameters

Index	DC internal resistance	Jaw opening	Power supply request	
			DC	AC
500A (10A 50)	0.2Ω	> 16mm	10A/2V	10A/2.5V

turns)				
1000A (10A 100 turns)	0.24Ω	> 28mm	10A/2.5 V	10A/5V
1000A (20A 50 turns)	0.065Ω	> 28mm	20A/1.3 V	20A/3V
2000A (20A 100 turns)	0.16Ω	> 35mm	20A/3.2 V	20A/5V

#### 4. How to use

- 1) Put AC and DC constant current source output terminal into the test coil jack. Part of the test coil has three jacks for current input, black and red jack for DC or AC current input, black and yellow jack for AC current input (with inductive compensation function)
- 2) Make the tested clamp meter clinch the center coil then put it onto the panel, in a direction that parallel to the arrow.
- 3) AC and DC current source current gear amps multiplied by the number of turns indicated by the coil is the current value of the clamp meter.
- 4) For all the test coils when it works at the maximum allowed value, power-on time should not be more than 3 minutes.
- 5) The power supply current error plus 0.2% is the integrated error.
- 6) The full range might not be able to reach due to insufficient power, but it does not affect the error on the measured value.
- 7) For 400Hz, the test coil is specially customized.

#### X Packing List

- |                                |        |
|--------------------------------|--------|
| ✓ Main Tester                  | 1 set  |
| ✓ Output wires                 | 1 set  |
| ✓ 220V Power Supply Input wire | 1 pcs  |
| ✓ 2A Fuse                      | 2 pcs  |
| ✓ Manual                       | 1 copy |
| ✓ Calibration report           | 1 copy |
| ✓ Warranty card                | 1 copy |



- 
- ✓ Carrying box optional
  - ✓ Standard Coil optional

