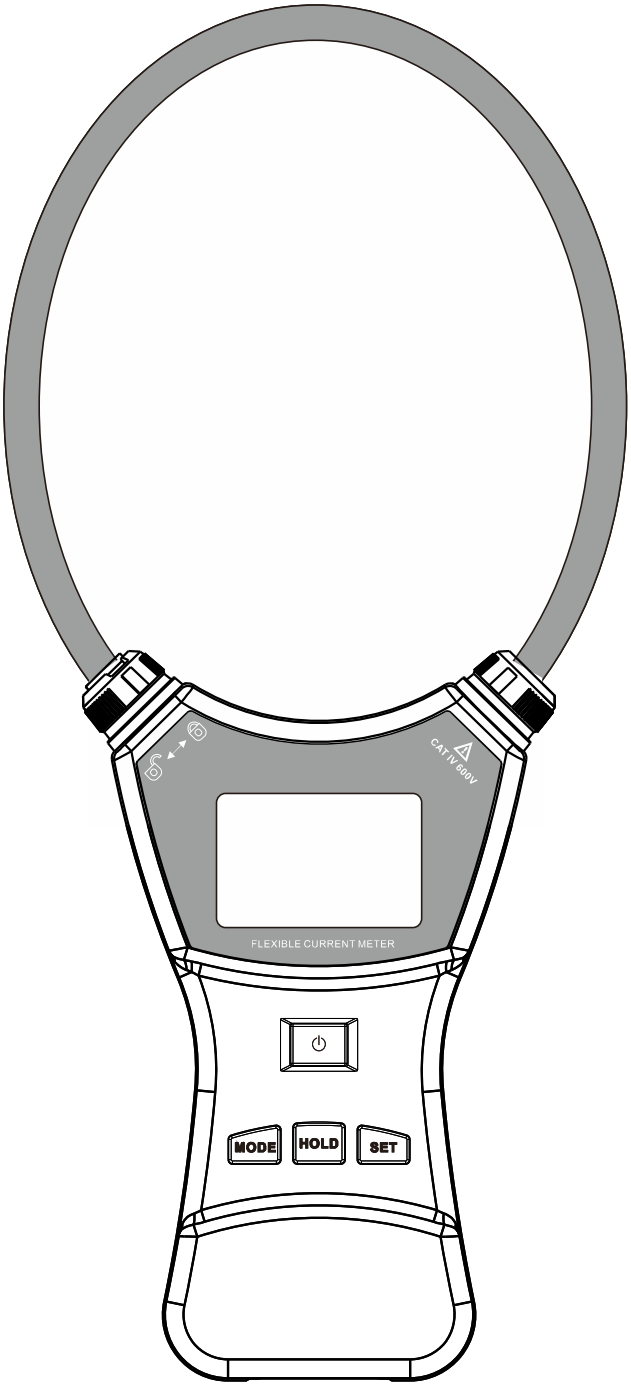
Flexible Current Meter



FR1050

USER MANUAL

Guangzhou Zhengneng Electronic Technology Co.,Ltd

CONTENT

⚠ Warning ⚠

Thank you for purchasing our FR1050 flexible current clamp meter. In order to use this product better, please be sure to:

- Read this user manual in detail.
- Strictly follow the safety rules and precautions listed in this manual.

- **u** In any case, the use of this instrument should pay special attention to safety.
- **u** Pay attention to the label text and symbols on the instrument panel and back panel.
- **u** Do not place and store the instrument for a long time under high temperature and humidity, in a place with condensation and direct sunlight.
- **u** The battery voltage is low, please replace the battery in time.
- **u** If you do not need this instrument for a long time, please remove the battery.
- **u** Replace the battery, please pay attention to the battery polarity.
- **u** Use, disassembly, and repair of this instrument must be performed by authorized personnel.
- **u** Due to the reason of this instrument, if it is dangerous to continue using it, it should be stopped immediately and sealed immediately, and handled by an authorized institution.。
- **u** "⚠" hazard symbol on the instrument and manual, the user must follow the instructions for safe operation.
- **u** The "⚡" extremely dangerous sign in the manual must be operated safely by the user in strict accordance with the instructions.

I. Brief Introduction

FR1050 flexible current clamp meter is designed and manufactured for field test AC high current and leakage current.It has the characteristics of high precision, good linearity and anti-interference ability.It can replace conventional current meter and large diameter clamp meter to measure high current leakage current.Widely used in electric power, communications, meteorology, railways, oil fields, construction, measurement, scientific research and teaching units, industrial and mining enterprises and other fields.It is especially suitable for current testing in industrial environments where the signal is severely distorted,such as dense line, transformer wall-to-wall core

current test, thick wire cable test, relay protection, thyristor rectification, variable frequency speed regulation, semiconductor switch, power electronic conversion equipment, arc welding, etc.

Flexible current sensor, that is Rogowski Coil, Using advanced Rockwell coil (or Rogowski coil) technology, it is a toroidal coil that is evenly wound on non-ferromagnetic materials. It has no hysteresis effect, no magnetic saturation, high linearity and strong anti-interference ability. The output signal is the current-to-time differential. By integrating the output voltage signal, the input current can be truly restored. The measured current range can be from milliampere to tens of thousands of amps. The flexible current clamp coil part has no exposed metal conductor, non-contact measurement, safe and fast; its small size, light weight, beautiful appearance, soft and flexible, suitable for narrow environment and dense line place; High accuracy, reliability, bandwidth, frequency response, the user can customize the length of the coil according to the needs.

The meter has alarm value setting and alarm indication function, and has functions of reading, saving historical data, etc. The instrument also has functions such as data retention and data storage. It is easy to use and is an indispensable tool for electrical safety testing.

II. Model Specification

Model	FR1050A	FR1050	FR1050E
Coil length	470mm	470mm	950mm
Coil internal diameter	Φ150mm	Φ150mm	Φ300mm
Current range	0A-10000A	0mA-10000A	0mA-10000A

Current resolution	**0.1A**	1mA	1mA

III. Electrical Symbol

	Extremely dangerous! The operator must strictly abide by the safety rules, otherwise there is a danger of electric shock, resulting in personal injury or casualty accident.
	Danger! The operator must strictly abide by the safety rules, otherwise there is a danger of electric shock, resulting in personal injury or casualty accident.
	Warning! Safety rules must be strictly observed, otherwise there is personal injury or equipment damage.
	Double insulation
	AC
	DC

IV .Technical Specifications

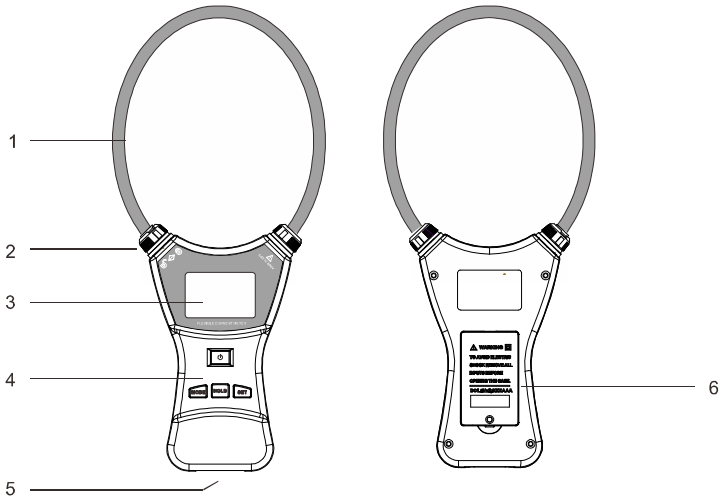
Function	Current test、Leakage current test
Current accuracy	Accuracy ±2%±5dgt (The wire is at the center of the flexible coil，23℃±2℃)
AC voltage	0.0V～750V AC Accuracy±1.5%rdg±3dgt
AC voltage resolution	0.1V
DC voltage range	0.0V～1000V DC Accuracy±1.5%rdg±5dgt
DC voltage resolution	0.1V
Sampling rate	2 times/second

Power	DC4.5V 7# alkaline battery（1.5V AAA×3）
Backlight	Have
Measure mode	Flexible CT
Instrument size	Host size：W/T/H 151*100*35mm（no including coil）
LCD size	45mm×28mm
Coil thickness	Φ8mm(Suitable for places with narrow environments and dense lines, etc.)
Instrument total weight	220g（ϕ150mm caliber including battery）
Overflow display	Over-range overflow function:“OL”symbol display
Data storage	500 groups
Data full	Data full function: "FULL" symbol display
Battery voltage	The battery voltage is 4 grids. When the battery symbol is empty, the battery is lower than 3.15V.
Insulation resistance	More than 100M（1kV）
Line test	Line voltage, insulated outer sheath wire test below 60kV, bare wire test below 35kV
Working temperature and humidity	-10℃～40℃ below 70%rh
Storage temperature and humidity	-10℃～60℃ below 80%rh
Suitable for	IEC1010-1、IEC1010-2-032、pollution level 2、CAT Ⅲ(600V)

safety regulations	IEC61326(EMC standard)

V. Structure

1. Rogowski sensing coil
2. Open coil knob
3. LCD Monitor
4. Button area
5. Voltage input jack
6. Battery cover



VI. Operation Method

1. Power on/off

Press the POWER button to turn it on, the LCD displays, then press the POWER button to turn it off. The instrument will automatically shut down after about 15 minutes of power on to reduce battery consumption. Each time there is a button press, the 15-minute shutdown countdown will start again. If the LCD display is dark after booting, the battery voltage may be too low. Please replace the battery.

2. Leakage Current、Current Measurement

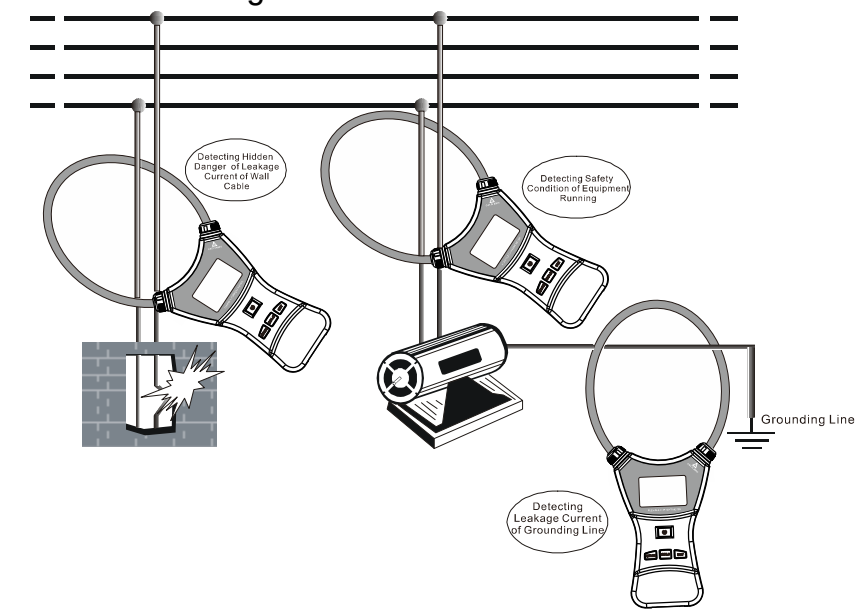
⚡	High pressure, extremely dangerous! It must be operated by trained and authorized personnel, and the operator must strictly abide by the safety rules, otherwise there is a risk of electric shock, resulting in personal injury or casualty accident .
⚠	Danger! Cannot be used to measure currents above the upper limit. Otherwise there is a risk of electric shock, resulting in personal injury or equipment damage.。

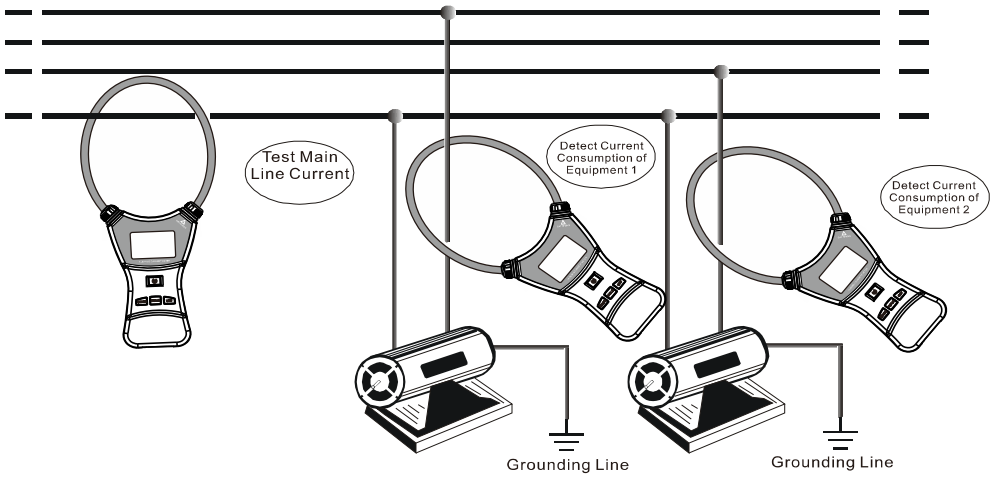
1）Turn on the instrument power.

2）Rotate the coil lock to open the clamp head, clamp the wire to be measured, and rotate to lock it. (Note that the clamp head must be fully closed)

⚠	Clamp the live and neutral wires together to measure the leakage current of electrical equipment. (note that 2 roots)
	Clamp the ground wire to measure the leakage current of the grounding wire of the electrical equipment. (note a single root)
	Clamp the main line to measure the total current of the main line. (note a single root)

（Reference legend）





⚠	Note! For safety, when measuring large currents, after confirming that the test has been performed correctly, move the meter away from the conductor under test.

3）Read the LCD display data. If the "OL A" symbol is displayed, the measured line current exceeds the maximum upper limit of the meter. Please use a higher limit meter for testing.

⚠	For places that are difficult to read, use the data hold function. If the [DH] symbol is displayed, the data hold status must be released before testing.。

3. Voltage Measurement

1）Turn on the instrument power。

2）Press the MODE button to switch to AC V (AC voltage mode) or DC V (DC voltage mode).

3）After the voltage test line is connected, the meter displays the voltage value.。

4.Data Retention、Cancel、Storage、Review、Delete

1）During the test, short press the HOLD button (not more than 3 seconds), display the "HOLD" symbol, keep the current test data, and automatically number the storage, then press the HOLD button to cancel the hold, the meter continues to measure, if the stored data reaches 500 groups, then Press the HOLD button to flash the "FULL" symbol to indicate that the stored data is full. Press the HOLD button to cancel "FULL" flash and return to the measurement mode.

2）Press and hold the HOLD button (about 3 seconds) to enter the data review mode, automatically display the stored first group data, press the SET button to view the next group, or press the MODE button to view the previous set of stored data, no stored data shows "null" , long press the HOLD button to exit the data review mode.

3）Enter the data review mode, press and hold the POWER button (more than 3 seconds), select "Yes" to clear all stored data, and automatically return to the test state after the cleaning is completed.

VII. Battery Replacement

⚠	Warning! Cannot be tested if the battery cover is not covered, otherwise it is dangerous.
	Pay attention to battery polarity, otherwise it will damage the meter.
	The battery is low, please replace it in time.
	Do not use the meter for a long time, please remove the battery.

1）When the battery power is insufficient, the meter displays the battery voltage low symbol, please replace the battery.。

2）Press the POWER button to shut down, confirm that the meter is off, open the battery cover, pay attention to the battery model, replace the new qualified battery, cover the battery cover.

VIII. Accessories

Instrument	1PC
Test pen	1Set（Red, black each one）
Instrument bag	1PC
Detector battery	7# alkaline AAA battery 3 sections
Manual， Certificate	1 SET

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