

Contents

WARNING.....	2
General Introduction.....	3
Main Functions.....	3
Specifications.....	4
Apparatus and Fittings.....	5
1、 Main Instrument.....	5
2、 Current Clamp Sensor.....	5
3、 Voltage Testing Wire.....	6
How to Measure.....	6
1、 ON and OFF.....	6
2、 Measurement Interface.....	7
Measuring Methods.....	8
1、 One-Way Measurement Connection Mode.....	8
2、 Three-PhaseThree-Wire Connection Method.....	9
3、 Three-Phase Four-Wire Connection Method.....	99

WARNING

- Use this instrument with attention to safety in any case.
- Make sure all the accessories are in good condition, without damage, naked or break line before use.
- Cannot be used in the test with voltage over 600 V.
- Make sure the connected plugs of wires have inserted closely into in the interface.
- Do not use in damp condition.
- Banned use in inflammable and the dangerous condition.
- Pull out the test line after it away from the measured wires, no finger touch of the input jacks in case of electric shock.
- Do not use in strong electromagnetic environment, to avoid affecting normal use.
- Do not set the instrument for a long period or storage it in places of high temperature, dewing or under direct sunlight.
- Instrument and current clamp must periodically maintain, keep them clean. Do not use corrosive product or rough thing to wipe the clamps.
- Avoid impact on the current clamp, especially the clamp joints.
- Make full charging if going to be long time without using.
- Use, disassemble, calibration, repair this meter must be conducted by an authorized qualified personnel.
- The instrument shall be immediately stopped using and sealed when danger will be brought due to its own reason. And let authorized qualified organization to handle.
- Do not the scratch the touch screen by sharp high hardness objects, avoid damage to the screen.
- Do not hit or press hard on the touch screen.

General Introduction

SMG3000 three-phase digital volt-ampere phase meter a high precision instrument for measurement of three-phase electric parameters, it can be used to measure the three phase voltage, current and phase angle, frequency, power, power factor and so on.

SMG3000 three-phase digital volt-ampere phase meter adopt high-speed Cortex M3 processor and 24 bits high-speed ADC a for measuring and calculation , A complete graphical interface, true color display with resolution of 320 x 240 and touch screen operation make a friendly man-machine interface. It is easy to carry

Main Functions

- Measure three-phase voltages and four lines of current (contain zero line current) at the same time;
- Measure the three-phase ac voltage phase angle, current phase angle and power phase angle at the same time;
- Measure power grid frequency and phase sequence;
- Discriminate transformer winding, recognize, capacitive load and perceptual load automatically;
- Show hexagon vector diagram; do color sequence analysis;
- Measure active power, reactive power, apparent power, three-phase power and power factor;
- Data storage and view function;
- Data static storage function;
- 3.2 inch TFT color display with finger touch function;
- Lithium battery power supply, rechargeable continuous standby for more than 20 hours.

Specifications

TYPE	MEASUREMENT RANGE	UNIT	ERROR	RESOLUTION RATIO
Voltage	1~600	V	0.5%×measuring range	0.01V
Current	0.001~10	A	0.5%×measuring range	0.0001A
active power	0.001~5000	W	0.5%×reading (PF=1)	0.1W
reactive power	0.001~5000	VAR	0.5%×reading (PF=0)	0.1VAR
apparent power	0.001~5000	VA	0.5%×reading	0.1VA
frequency	45~65	HZ	0.1%×reading	0.01HZ
phase position	0~360	°	±2°	0.1°

Note: Error is ±3° when current is 1mA-5mA

Apparatus and Fittings

1、 Main Instrument

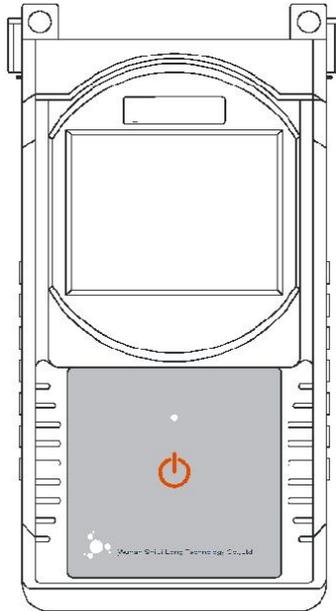


Figure 1 Main instrument chart

2、 Current Clamp Sensor

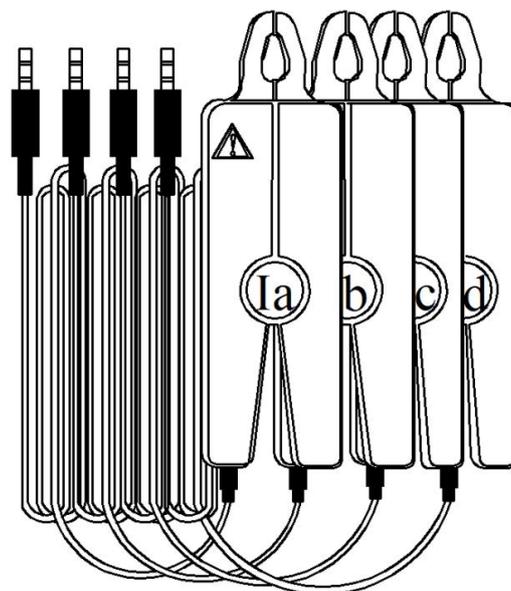


Figure 2 Current clamp sensors

We choose high precision and high stability clamp current sensor for current measurement, this meter can joint 4 current clamp sensors.

3、 Voltage Testing Wire

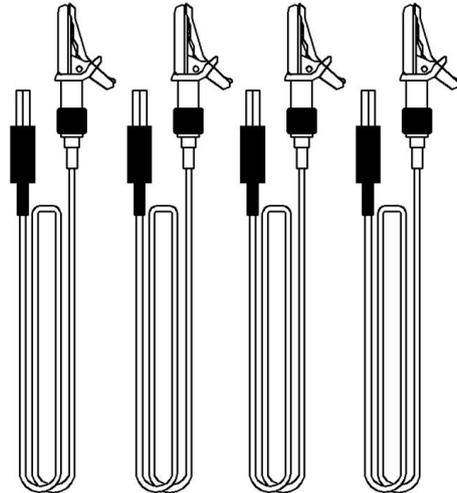


Figure 3 Voltage testing wires

How to Measure

1、 ON and OFF

1. Press the buttons  continuously and enter the boot screen as the following chart:



Figure 4 Boot screen

Press the buttons for 3 seconds and listen to a “tick” sound, then the meter will enter the true state of boot.

2、 Measurement Interface

It appears the measurement interface automatically when the meter is on:

UI&angle	Power	Vector	
	A	B	C
Voltage (V)			
Current (A)			
$\Psi (^{\circ})$			
$\cos \Psi$			
Fre:	Hz	In =	A
	A>B	B>C	A>C
U-U			
I-I			
3P-4W	HOLD	View	Save

Figure 5 Volt-ampere phase measurement interface

If measurement methods choose three-phase three-wire, lightly touch icon with the touching pen and the icon will become , single-phase measurement can be realized with the same operation.

This meter has data hold and storage function, lightly touch icon, icon color turns from gray into red as . Data measurement stops and then appears save icon, lightly touch save icon and store the data. Circulation storage is used; new stored data will deleted the first saved data automatically.

Checking function can help to check the stored data, with purple icon R * * (* * represents 01 and 02... 10), use the previous page icon and the next page icon to scan the data. These functions above are as effective in power measurement interface.

Press the icon , icon turns to blue as the figure shows below, the volt-ampere phase measurement date can also be saved when you click save bottom.

UI&angle	Power	Vector	
	Active	Reactive	Apparent
A			
B			
C			
Σ			
Note: Active power (W) Reactive power (VAR) Apparent power (W)			
Fre: Hz			
3P-4W	HOLD	View	Save

Figure 6 Power measurement interface

Lightly touch vector diagram icon and enters hexagon vector diagram measurement interface, the hexagon diagram shows the voltage and current vector diagram by color (A phase voltage and current in yellow, B phase voltage and current in green, C phase voltage and current in red).

Judge phase sequence:

Green mark is shown before the voltage value if voltage phase sequence is right; red mark is shown if wrong. Green mark is shown before the current value if current phase sequence is right; red mark is shown if wrong.

Judge load properties:

"L" is shown if it is inductive load; "C" is shown if it is capacitive load, otherwise shows "-".

Measuring Methods

1、 One-Way Measurement Connection Mode

As following:

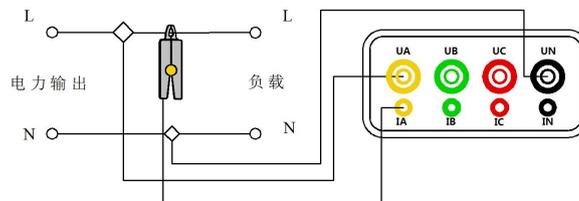


Figure 7one-way measure connection modes

Live line will be connected to the UA phase of the instrument, while zero line is connected to UN when use single-phase electric measurement. Current clamp sensor should be clamped to live line and insert IA access.

2、 Three-PhaseThree-Wire Connection Method

As following:

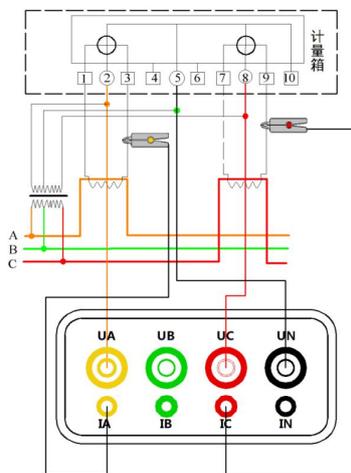


Figure 8 Three phases three lines connection method

Connection for pressure-wire: Use the special voltage testing lines (three groups as yellow, red and black); one end insert the UA, UC, UN phase socket of the equipment in turn, and the other end insert the A phase, C phase and B phase of the circuit being measured respectively.

Note: yellow line joins UV socket, black line joins UN socket, and red line joins UC socket.

Connection for current line: Insert IA, IC clamp to IC, IA socket of the equipment, and clutch the other end to the current circuit being measured.

3、 Three-Phase Four-Wire Connection Method

As following:

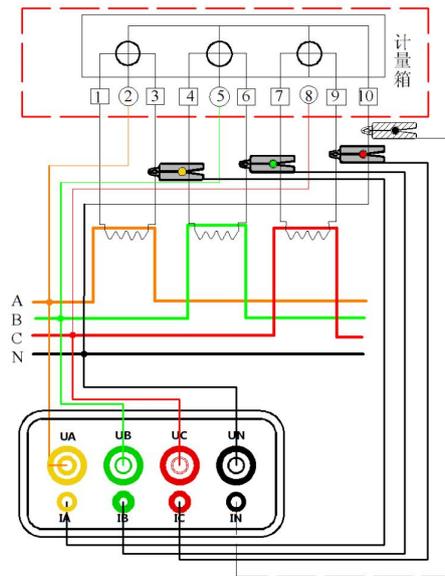


Figure 9 Three-phase four-wire connection method

Connection for pressure-wire: Use the special voltage testing lines (four groups as yellow, green, red and black); one end insert the UA, UB, UC, UN phase socket of the equipment in turn, and the other end insert the A phase, B phase, C phase and zero line of the circuit being measured respectively.

Connection for current line: Insert IA, IB, IC clamp to IA, IB, and IC socket of the equipment, and clutch the other end to the current circuit being measured.

Remarks: