

## Saras ANENG 616 (SAA-2854)

# ANENG 616 Smart Digital Multimeter User Manual

Model: ANENG 616 (SAA-2854) | Brand: Saras

## 1. INTRODUCTION

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Thank you for purchasing the Saras ANENG 616 Smart Digital Multimeter. This device is a battery-powered, auto-ranging, true RMS digital multimeter featuring a 6000-count LCD display. It is designed for accurate and reliable measurement of various electrical parameters, making it an essential tool for electricians, hobbyists, and general household use.

This intelligent multimeter integrates multiple functions including AC/DC current, AC/DC voltage, resistance, capacitance, temperature, frequency, continuity, diode testing, and live wire detection.

## 2. SAFETY INFORMATION

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Please read all safety warnings and operating instructions carefully before using this multimeter. Failure to do so may result in electric shock, fire, or damage to the device.

- Always ensure the multimeter is in the correct measurement mode before connecting test leads to a circuit.
- Do not exceed the maximum input values specified for each measurement range.
- Exercise extreme caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. Such voltages pose a shock hazard.
- Before opening the battery cover or case, disconnect the test leads from any circuit and turn off the multimeter.
- Do not use the multimeter if it appears damaged or if the insulation on the test leads is compromised.
- Always use the appropriate terminals, function, and range for your measurements.
- Keep fingers behind the finger guards on the test leads during measurements.
- Do not operate the multimeter in explosive gas, vapor, or dusty environments.
- Replace batteries immediately when the low battery indicator appears to ensure accurate readings.



**Figure 2.1:** Rear view of the ANENG 616 Multimeter, showing the battery compartment and a warning label. The label advises removing inputs before opening the case to prevent electrical shock and fire, and to install fuses with appropriate amp/volt ratings. It also indicates the use of 2x1.5V AAA batteries.

### 3. PRODUCT OVERVIEW

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#### 3.1 Components



**Figure 3.1:** The ANENG 616 Smart Digital Multimeter, accompanied by its red and black test leads and a thermocouple for temperature measurements. The multimeter features a large LCD display and clearly labeled function buttons.

1. **LCD Display:** Large 6000-count display for clear readings.

2. **Function Buttons:**

- **Power Button:** Turns the device on/off.
- **SELECT Button:** Toggles between different measurement modes within a function (e.g., AC/DC, Diode/Continuity).
- **H/⊙ Button:** Data Hold / Flashlight activation.
- **10A Input Jack:** For current measurements up to 10A.
- **COM Input Jack:** Common (negative) terminal for all measurements.
- **INPUT Jack:** Positive terminal for voltage, resistance, capacitance, frequency, diode, continuity, and temperature measurements.

3. **NCV Sensor:** Non-contact voltage detection area.

4. **Flashlight:** LED light for illuminating work areas.
5. **Test Leads:** Red (positive) and Black (negative) leads for connecting to circuits.
6. **Thermocouple:** For temperature measurements.

### 3.2 Display Indicators



**Figure 3.2:** A detailed view of the ANENG 616 Multimeter's LCD display. It shows the 6000-count main reading area, along with indicators for various functions such as AC/DC voltage, current, resistance, capacitance, frequency, temperature, NCV, and battery status.

The large 3.5-inch LCD display provides clear readings and various indicators for the selected function and measurement status. Key indicators include:

- **AUTO:** Indicates auto-ranging mode.
- **TRMS:** True RMS measurement.
- **MAX/MIN:** Maximum/Minimum value display.
- **NCV Live:** Non-Contact Voltage and Live Wire detection indicators.
- **Units:** V (Volts), A (Amperes),  $\Omega$  (Ohms), F (Farads), Hz (Hertz),  $^{\circ}\text{C}/^{\circ}\text{F}$  (Celsius/Fahrenheit).

- **Battery Indicator:** Shows remaining battery life.

## 4. SETUP

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### 4.1 Battery Installation

The ANENG 616 Multimeter requires two 1.5V AAA batteries (not included).

1. Ensure the multimeter is turned off and disconnect all test leads from the device.
2. Locate the battery compartment on the back of the multimeter.
3. Use a screwdriver to loosen the screw securing the battery cover.
4. Remove the battery cover.
5. Insert two AAA batteries, observing the correct polarity (+ and -) as indicated inside the compartment.
6. Replace the battery cover and tighten the screw.

### 4.2 Connecting Test Leads

Proper connection of test leads is crucial for accurate and safe measurements.

- For most measurements (voltage, resistance, capacitance, frequency, diode, continuity, temperature):
  - Insert the black test lead into the **COM** (common) input jack.
  - Insert the red test lead into the **INPUT** jack.
- For current measurements (AC/DC Current up to 10A):
  - Insert the black test lead into the **COM** (common) input jack.
  - Insert the red test lead into the **10A** input jack.


**Warning:** Always ensure test leads are securely inserted and that the correct input jacks are used for the desired measurement to prevent damage to the multimeter or personal injury.

## 5. OPERATING INSTRUCTIONS

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The ANENG 616 Multimeter features auto-ranging for most functions, simplifying operation.

### 5.1 Power On/Off

Press the **Power Button** () to turn the multimeter on. Press and hold the Power Button to turn it off. The multimeter also features an auto-shutdown function to conserve battery life after a period of inactivity.

### 5.2 Measurement Functions

The multimeter automatically detects the measurement type (voltage, resistance, continuity, etc.) when in AUTO mode. Use the **SELECT** button to cycle through specific modes if needed.

#### 5.2.1 AC/DC Voltage Measurement (0-600V)

- Connect the black lead to **COM** and the red lead to **INPUT**.
- The multimeter will automatically detect AC or DC voltage. If necessary, press **SELECT** to manually switch between ACV and DCV.
- Connect the test leads in parallel to the circuit or component to be measured.

#### 5.2.2 AC/DC Current Measurement (0-10A)

- Connect the black lead to **COM** and the red lead to **10A**.
- The multimeter will automatically detect AC or DC current. If necessary, press **SELECT** to manually switch between ACA and DCA.
- Connect the multimeter in series with the circuit to measure current.
- **Caution:** Do not measure current on circuits exceeding 10A.

### 5.2.3 Resistance Measurement (0-60M $\Omega$ )

- Connect the black lead to **COM** and the red lead to **INPUT**.
- Ensure the circuit is de-energized before measuring resistance.
- Connect the test leads across the component to measure its resistance.

### 5.2.4 Capacitance Measurement (6nF-60mF)

- Connect the black lead to **COM** and the red lead to **INPUT**.
- Discharge capacitors before testing to prevent damage to the multimeter.
- Connect the test leads across the capacitor.

### 5.2.5 Frequency Measurement (0-10MHz)

- Connect the black lead to **COM** and the red lead to **INPUT**.
- Connect the test leads to the signal source.

### 5.2.6 NCV (Non-Contact Voltage) Detection

- No test leads are required for this function.
- Bring the top part of the multimeter (where the NCV sensor is located) close to the AC voltage source.
- The analog bar index on the display will rise, "EF" may be displayed, and an alarm beep will sound, indicating the presence of AC voltage.

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# NCV non-contact

Analog bar index rises when nearby AC voltage is detected  
Screen EF will show — and an alarm beep will sound



Figure 5.1: The ANENG 616 Multimeter performing NCV (Non-Contact Voltage) detection. The device is held near an electrical outlet, and the display shows the NCV indicator, signifying the presence of AC voltage without direct contact.

## 5.2.7 Diode Test and Continuity Test

- Connect the black lead to **COM** and the red lead to **INPUT**.
- Press **SELECT** to cycle between Diode Test and Continuity Test modes.
- For Diode Test: Connect the red lead to the anode and the black lead to the cathode of the diode. The display will show the forward voltage drop. Reverse the leads to check for open circuit.
- For Continuity Test: Connect the test leads across the circuit or component. A continuous beep indicates low resistance (continuity).

## 5.2.8 Firewire Detection (Live Wire)

- Connect the black lead to **COM** and the red lead to **INPUT**.
- Insert the red test lead into the socket hole.
- The display will show "EF" without a beep for a neutral line, or "---" with an alarm beep for a live wire.

# Zero FireWire

Insert the positive test lead into the socket hole to determine which one is the neutral wire



As shown on the screen, the screen displays "EF" without a beep, indicating the neutral line



The screen EF will display "----" and an alarm beep will sound to indicate that it is a live wire

**Figure 5.2:** The ANENG 616 Multimeter performing live wire detection. The image shows two scenarios: on the left, detecting a "Zero line" where the screen displays "EF" without a beep; on the right, detecting a "FireWire" (live wire) where the screen displays "----" and an alarm beep sounds.

## 5.2.9 Temperature Measurement (0-1000°C / 0-1832°F)

- Connect the thermocouple to the **COM** and **INPUT** jacks, observing polarity.
- Place the thermocouple tip on or near the object whose temperature is to be measured.
- Press **SELECT** to switch between Celsius (°C) and Fahrenheit (°F).

## 5.3 Additional Functions

- **Data Hold:** Press the **H/** button briefly to hold the current reading on the display. Press again to release.
- **Flashlight:** Press and hold the **H/** button to turn the built-in LED flashlight on or off. This is useful for illuminating dark work areas.

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# Flashlight/Bright Screen

The flashlight sees the detected location in the dark  
Bright screen makes screen values clearly visible



Figure 5.3: The ANENG 616 Multimeter in use, demonstrating its flashlight function. The integrated LED illuminates the measurement area, making it easier to work in low-light conditions.

## 6. MAINTENANCE

### 6.1 Cleaning

To clean the multimeter, wipe the case with a damp cloth and a mild detergent. Do not use abrasives or solvents. Ensure the device is completely dry before use.

### 6.2 Battery Replacement

When the low battery indicator appears on the display, replace the batteries as described in Section 4.1. Always use two new 1.5V AAA batteries.

### 6.3 Storage

If the multimeter is not used for an extended period, remove the batteries to prevent leakage and damage to the device. Store the multimeter in a cool, dry place, away from direct sunlight and extreme temperatures.

## 7. TROUBLESHOOTING

Problem	Possible Cause	Solution
Multimeter does not power on.	Dead or incorrectly installed batteries.	Check battery polarity or replace batteries.
Inaccurate readings.	Low battery; incorrect measurement mode; poor test lead connection.	Replace batteries; select correct mode; ensure leads are firmly connected.
"OL" displayed.	Overload or out of range.	Ensure measurement is within the specified range.
No NCV detection.	No AC voltage present; sensor not close enough.	Verify AC voltage presence; move sensor closer to the source.

## 8. SPECIFICATIONS

Parameter	Range/Value
Max. Display	6,000 counts
AC Voltage	0 ~ 600V
DC Voltage	0 ~ 600V
AC Current	0 ~ 10A
DC Current	0 ~ 10A
Capacitance	6nF ~ 60mF
Resistance	0 ~ 60MΩ
Frequency	0 ~ 10MHz
Temperature	0 ~ 1000°C / 0 ~ 1832°F
Material	ABS
Auto Off	Yes
True RMS	Yes
Power	2 * 1.5V AAA Battery (not included)
Product Size	137.4 x 68.4 x 14.5mm (5.41 x 2.69 x 0.57 inches)
Product Weight	105g (3.70oz)

## 9. PACKAGE CONTENTS

The package for your Saras ANENG 616 Smart Digital Multimeter includes:

- 1 x ANENG 616 Multimeter
- 1 x Pair of Test Leads (Red and Black)
- 1 x Thermocouple
- 1 x Zipper Bag
- 1 x User Manual (English)

## 10. WARRANTY AND SUPPORT

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For warranty information and technical support, please refer to the specific terms provided by your retailer or contact the seller directly. Keep your purchase receipt as proof of purchase.

