ESSISH ST180

ST180 Digital Clamp Meter User Manual

Brand: ESSISH | Model: ST180

1. Introduction

The ESSISH ST180 Digital Clamp Meter is a versatile and essential tool designed for accurately measuring various electrical parameters. It is ideal for both industrial and household electrical troubleshooting, offering precise measurements of AC/DC Current, AC/DC Voltage, Capacitance, Frequency, Duty Cycle, Resistance, Diode, Continuity, and Live Wire Tests. Its compact design and advanced features make it a reliable instrument for professionals and DIY enthusiasts alike.

Figure 1: ESSISH ST180 Digital Clamp Meter.

2. Safety Information

WARNING: Please read and understand all safety warnings and operating instructions before using this instrument. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- Always ensure the meter is in the correct function mode before making measurements.
- Do not exceed the maximum input limits for any range.
- Exercise extreme caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. These voltages pose a shock hazard.
- Inspect test leads for damaged insulation or exposed metal before use. Replace if damaged.
- Do not operate the meter if it appears damaged or if it is not operating properly.
- Always disconnect power to the circuit and discharge all high-voltage capacitors before testing resistance, continuity, diodes, or capacitance.
- Use caution when measuring current in live circuits. The clamp jaw measures current without direct contact, but other functions may require direct contact.

- Keep fingers behind the finger guards on the test leads during measurements.

3. Product Overview and Components

Familiarize yourself with the various parts of your ST180 Digital Clamp Meter to ensure proper and safe operation.

Figure 2: Labeled components of the ST180 Clamp Meter.

1. **Jaw Opening:** For clamping around conductors to measure AC current. Jaw opening size: 9.7mm / 0.38in.
2. **Jaw Open Trigger:** Used to open the clamp jaws.
3. **Function Dial:** Rotary switch to select measurement functions (AC/DC Voltage, Resistance, Capacitance, Frequency, etc.).
4. **LCD Backlight Bright Screen:** Digital display for measurement readings, with backlight for low-light conditions.
5. **Function Buttons:**
    - **SEL/V:** Single press to switch functions (e.g., AC/DC voltage, Resistance/Diode/Continuity). Long press for flashlight.

- **RANGE:** Switch between auto-ranging and manual ranging.
- **H/BL:** Single press for Data Hold (freezes display). Long press for bright screen (backlight).

6. **NCV (Non-Contact Voltage) Sensor:** Detects AC voltage without direct contact.
7. **LED Lighting:** Integrated LED for illuminating the measurement area.
8. **Low Battery Symbol:** Indicator on the LCD when battery power is low.
9. **COM Input Jack:** Common (negative) input for test leads.
10. **VΩHz Input Jack:** Positive input for Voltage, Resistance, Frequency, Capacitance, Diode, and Continuity measurements.

4. Setup

4.1. Battery Installation

The ST180 Clamp Meter requires 2 AAA batteries (not included). To install:

1. Ensure the meter is turned OFF.
2. Locate the battery compartment on the back of the meter.
3. Use a screwdriver to open the battery cover.
4. Insert 2 AAA batteries, observing the correct polarity (+ and -).
5. Replace the battery cover and secure it with the screw.

4.2. Initial Power On

Turn the function dial from "OFF" to any desired measurement function to power on the meter. The LCD will illuminate.

5. Operating Instructions

The ST180 offers a wide range of measurement capabilities. Always select the appropriate function before connecting the test leads or clamping the jaw.

Figure 3: Key measurement capabilities of the ST180.

5.1. AC Current Measurement (Clamp Jaw)

1. Turn the function dial to the "A~" (AC Current) position.
2. Press the jaw open trigger to open the clamp jaws.
3. Enclose only one conductor (not a power cord with both live and neutral wires) within the clamp jaws.
4. Release the trigger to close the jaws around the conductor.
5. Read the AC current value on the LCD.

5.2. AC/DC Voltage Measurement

1. Insert the black test lead into the "COM" jack and the red test lead into the "VΩHz" jack.
2. Turn the function dial to the "V~" (AC Voltage) or "V-" (DC Voltage) position. If the dial has a combined AC/DC voltage setting, press the "SEL" button to toggle between AC and DC.
3. Connect the test leads in parallel to the circuit or component you wish to measure.
4. Read the voltage value on the LCD.

5.3. Resistance Measurement

1. Ensure the circuit is de-energized and all capacitors are discharged.
2. Insert the black test lead into the "COM" jack and the red test lead into the "VΩHz" jack.
3. Turn the function dial to the "Ω" (Resistance) position.
4. Connect the test leads across the component to be measured.
5. Read the resistance value on the LCD.

5.4. Continuity Test

1. Ensure the circuit is de-energized.
2. Insert the black test lead into the "COM" jack and the red test lead into the "VΩHz" jack.
3. Turn the function dial to the "Ω" (Resistance) position and press "SEL" until the continuity symbol (speaker icon) appears.
4. Connect the test leads across the circuit or component.
5. A continuous beep indicates a good connection (low resistance).

5.5. Non-Contact Voltage (NCV) Test

1. Turn the function dial to the "NCV" position.
2. Place the NCV sensor (top part of the meter) near the conductor or outlet you want to test.
3. The meter will emit a slow beep and green light for weak AC signals, and a rapid beep with red light for strong AC signals, indicating the presence of voltage.

5.6. Other Functions

- **Capacitance:** Turn dial to "Capacitance" symbol. Connect leads to discharged capacitor.
- **Frequency (Hz):** Turn dial to "Hz" symbol. Connect leads to signal source.
- **Diode Test:** Turn dial to "Diode" symbol. Connect leads across diode.
- **Data Hold:** Press "H/BL" button briefly to freeze the current reading on the display. Press again to release.
- **Backlight/Flashlight:** Long press "H/BL" for backlight. Long press "SEL" for flashlight.
- **ZERO Function:** Decreases data error influenced by Earth's magnetic field for more accurate measurements. Consult specific function instructions for use.

6. Maintenance

6.1. Cleaning

Wipe the meter with a damp cloth and mild detergent. Do not use abrasives or solvents. Keep the meter dry.

6.2. Battery Replacement

When the low battery symbol appears on the LCD, replace the batteries immediately to ensure accurate readings. Refer to Section 4.1 for battery installation instructions.

6.3. Storage

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

7. Troubleshooting

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Meter does not power on.	Dead or incorrectly installed batteries.	Check battery polarity or replace batteries.
Inaccurate readings.	Low battery; incorrect function selected; external interference.	Replace batteries; ensure correct function mode; move away from strong electromagnetic fields.
No continuity beep.	Circuit not de-energized; open circuit; test leads faulty.	Ensure power is off; check for breaks in the circuit; test leads for damage.
NCV not detecting voltage.	Voltage too low; sensor not close enough; meter faulty.	Ensure voltage is present; place sensor directly over conductor; contact support if issue persists.

8. Specifications

Brand:	ANENG
Model:	ST180
Max display :	4000 counts
Battery Model:	AAA*2
Weight:	124g
Max display :	4000 counts

Figure 4: General specifications of the ST180 Clamp Meter.

Parameter	Value
Brand	ESSISH
Model	ST180
Max Display	4000 Counts
AC/DC Current	Yes
AC/DC Voltage	Yes
Capacitance	Yes
Frequency (Hz)	Yes
Resistance	Yes
Diode Test	Yes
Continuity Test	Yes
Live Wire Test	Yes
Non-Contact Voltage (NCV)	Yes
Auto Power Off	After 15 minutes of inactivity
Power Supply	2 x AAA Batteries
Material	Plastic
Dimensions (L*W*H)	231 x 91 x 40 mm
Weight	Approx. 235g
Jaw Opening Size	9.7mm / 0.38in

9. Warranty and Support

For warranty information or technical support, please contact your retailer or the manufacturer, ESSISH. Keep your purchase receipt as proof of purchase.
For further assistance, you may visit the ESSISH official website or contact their customer service department. Contact details are typically provided with your product packaging or on the manufacturer's website.