

ES 698

ES 698 1000 Amp DC/AC Current Probe Instruction Manual

Model: 698

1. INTRODUCTION

The ES 698 1000 Amp DC/AC Current Probe is a specialized tool designed for safely measuring high amperage in both Direct Current (DC) and Alternating Current (AC) circuits. This device connects to a Digital Multimeter (DMM) or oscilloscope, converting the measured current into a voltage signal that can be read by the connected instrument. It is particularly useful for testing automotive starting and charging systems, as well as other high-current applications.

2. SAFETY INFORMATION

WARNING: Read all safety warnings and instructions before using this product. Failure to follow the warnings and instructions may result in electric shock, fire, or serious injury.

- Always wear appropriate personal protective equipment (PPE) when working with electrical circuits.
- Do not exceed the maximum input voltage rating of 1000V for the output terminals.
- Ensure the current probe is properly connected to your DMM or oscilloscope before taking measurements.
- Never attempt to measure current on uninsulated conductors.
- Do not use the probe if it appears damaged or if the insulation is compromised.
- Disconnect power to the circuit whenever possible before clamping the probe.
- **Proposition 65 Warning:** This product may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

3. PRODUCT OVERVIEW





AAC

1000A

600A

1000A

ADC

600A

OFF



DC ZERO

Yellow: ON
Red: Low Battery



ES

698

AC/DC Current Clamp

INPUT: 1000A MAX

600A OUTPUT: 1mV/A

1000A OUTPUT: 0.1mV/A

COM

OUTPUT





Figure 1: ES 698 1000 Amp DC/AC Current Probe. This image displays the red clamp-style probe with a gray body. Key features visible include the large rotary selector switch for AC/DC and amperage ranges (600A, 1000A), the yellow 'OFF' position, the 'DC ZERO' button, and the 'COM' and 'OUTPUT' terminals at the base. An indicator light for 'ON' (Yellow) and 'Low Battery' (Red) is also present.

The ES 698 Current Probe features a robust design for reliable performance. Key components include:

- **Clamp Jaw:** Opens to 2.125 inches to encircle conductors for non-contact current measurement.
- **Rotary Selector Switch:** Used to select between AC (AAC) and DC (ADC) current measurement modes and their respective ranges (600A or 1000A). It also includes an 'OFF' position to conserve battery life.
- **DC ZERO Button:** Used to zero the DC current reading before measurement, compensating for any offset.
- **Indicator Lights:** A yellow light indicates the unit is ON. A red light indicates a low battery condition.
- **Output Terminals (COM, OUTPUT):** These terminals connect to your DMM or oscilloscope using standard banana plugs. The output sensitivity is 1mV/A for the 600A range and 0.1mV/A for the 1000A range.

4. SETUP

1. **Battery Installation:** The unit is battery-powered. Ensure a fresh battery is installed. The battery compartment is typically located on the back of the unit. Refer to the battery compartment cover for specific instructions on opening and closing.
2. **Connect to Measurement Device:**
 - Connect a banana plug lead from the 'COM' terminal of the current probe to the 'COM' or common input terminal of your DMM or oscilloscope.
 - Connect another banana plug lead from the 'OUTPUT' terminal of the current probe to the voltage input terminal (e.g., 'V' or 'mV') of your DMM or oscilloscope.
 - Set your DMM or oscilloscope to measure DC or AC voltage, depending on the type of current you intend to measure.
3. **Power On:** Turn the rotary selector switch from 'OFF' to the desired AC or DC amperage range. The yellow 'ON' indicator light should illuminate.

5. OPERATING INSTRUCTIONS

1. **Select Measurement Type and Range:** Rotate the selector switch to either 'AAC' (AC Amps) or 'ADC' (DC Amps) and choose the appropriate range (600A or 1000A). Always start with a higher range if the current value is unknown to prevent overloading.
2. **Zeroing (for DC measurements only):** Before measuring DC current, press the 'DC ZERO' button. This compensates for any residual magnetic fields or offsets, ensuring an accurate zero reading when no current is flowing. Perform this step with the clamp jaw closed and not around any conductor.
3. **Clamp Around Conductor:** Open the clamp jaw and carefully place it around a single conductor through which the current you wish to measure is flowing. Ensure the jaw is fully closed. The probe measures current flowing through the conductor, not voltage.
4. **Read Measurement:** Observe the voltage reading on your connected DMM or oscilloscope.

- For the 600A range, the output is 1mV per Amp (1mV/A). For example, a reading of 100mV on your DMM indicates 100 Amps.
 - For the 1000A range, the output is 0.1mV per Amp (0.1mV/A). For example, a reading of 100mV on your DMM indicates 1000 Amps.
5. **Important Note on AC Linearity:** This instrument may exhibit non-linearity at the low end of the AC scale (approximately 0 to 3 Amps). Readings in this range may be less accurate or may not register. For precise low AC current measurements, consider alternative instruments.
6. **Power Off:** After use, rotate the selector switch to the 'OFF' position to conserve battery life.

6. MAINTENANCE

- **Cleaning:** Wipe the probe with a dry, clean cloth. Do not use abrasive cleaners or solvents.
- **Battery Replacement:** When the red 'Low Battery' indicator illuminates, replace the battery immediately to ensure accurate readings. Refer to the battery compartment for the correct battery type and replacement procedure.
- **Storage:** Store the current probe in its zippered carrying case in a cool, dry place, away from direct sunlight and extreme temperatures. If storing for extended periods, remove the battery to prevent leakage.

7. TROUBLESHOOTING

- **No Power / Unit Not Turning On:**
 - Check if the rotary switch is set to an 'ON' position (AAC or ADC range).
 - Verify battery installation and ensure the battery has sufficient charge. Replace if necessary.
- **Inaccurate or Erratic Readings:**
 - Ensure the clamp jaw is fully closed around a single conductor.
 - For DC measurements, perform the 'DC ZERO' procedure before clamping.
 - Check the connections to your DMM or oscilloscope.
 - Confirm your DMM/oscilloscope is set to the correct voltage measurement type (AC or DC) and range.
 - If measuring low AC current (0-3 Amps), be aware of potential non-linearity as noted in Section 5.
- **Red 'Low Battery' Indicator On:**
 - Replace the battery immediately to maintain measurement accuracy.

8. SPECIFICATIONS

Feature	Specification
Brand	ES (Electronic Specialties)
Model	698
Measurement Type	Ammeter (DC/AC Current)
Amperage Range	0 to 1000 Amperes DC or AC

Feature	Specification
Output Sensitivity (600A Range)	1mV/A
Output Sensitivity (1000A Range)	0.1mV/A
Jaw Opening	2.125 inches
Power Source	Battery Powered
Item Weight	1.15 pounds
UPC	855174001540

9. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please contact Electronic Specialties directly.

Keep your purchase receipt as proof of purchase.

You can find more information about ES products by visiting the official ES Store [ES Store on Amazon](#).