

Extech EX310

Extech EX310 Mini Digital Multimeter with NCV Detector Instruction Manual

1. INTRODUCTION

The Extech EX310 is a compact, manual-ranging digital multimeter designed for a variety of electrical measurements. It features an extra-large 2000-count LCD and a built-in Non-Contact AC Voltage Detector (NCV) for enhanced safety. This device is capable of measuring AC/DC Voltage, AC/DC Current, Resistance, Diode, and Continuity, and includes a battery test function for 1.5V and 9V batteries. Its robust design, including a protective rubber holster and tilt stand, makes it suitable for field use.

2. SAFETY INFORMATION

Always adhere to safety precautions when using any electrical testing equipment. Failure to do so may result in injury or damage to the meter or equipment under test.

- The Extech EX310 is UL listed with a CAT III – 600 Volt safety rating.
- Do not apply more than the rated voltage, as marked on the meter, between terminals or between any terminal and ground.
- Always inspect test leads for damage before use. Replace if insulation is compromised.
- Exercise extreme caution when working with live circuits.
- Use the Non-Contact Voltage (NCV) detector as a preliminary check for live AC voltage, but always verify with direct contact measurements when possible.
- Ensure the function switch is set to the correct range before making measurements.

3. PRODUCT FEATURES

- **9-Function Manual-Ranging DMM:** Measures AC/DC voltage, AC/DC current (up to 10 A), resistance, diode, continuity, plus 1.5 V/9 V battery tests.
- **Non-Contact Voltage (NCV) Detector:** Built-in NCV with red LED and audible beeper alerts to the presence of live AC (100-600 VAC) without probes.
- **Extra-Large 2000-Count Display:** Clear, easy-to-read 1-inch digits on a high-count LCD ensure

readability.

- **Rugged, Portable Design:** Compact meter (5.7 × 2.9 × 1.6 in, 9 oz) with protective rubber holster, tilt stand, and low-battery indicator.
- **Reliable Safety & Accuracy:** 0.5% basic accuracy. Designed to UL/CAT II-1000 V & CAT III-600 V safety standards.

4. PACKAGE CONTENTS

The Extech EX310 package includes the following items:

- Extech EX310 Mini Digital Multimeter
- Test Leads
- 9 Volt Battery
- Tilt Stand

5. PRODUCT OVERVIEW (CONTROLS AND DISPLAY)

Familiarize yourself with the components of your EX310 multimeter:

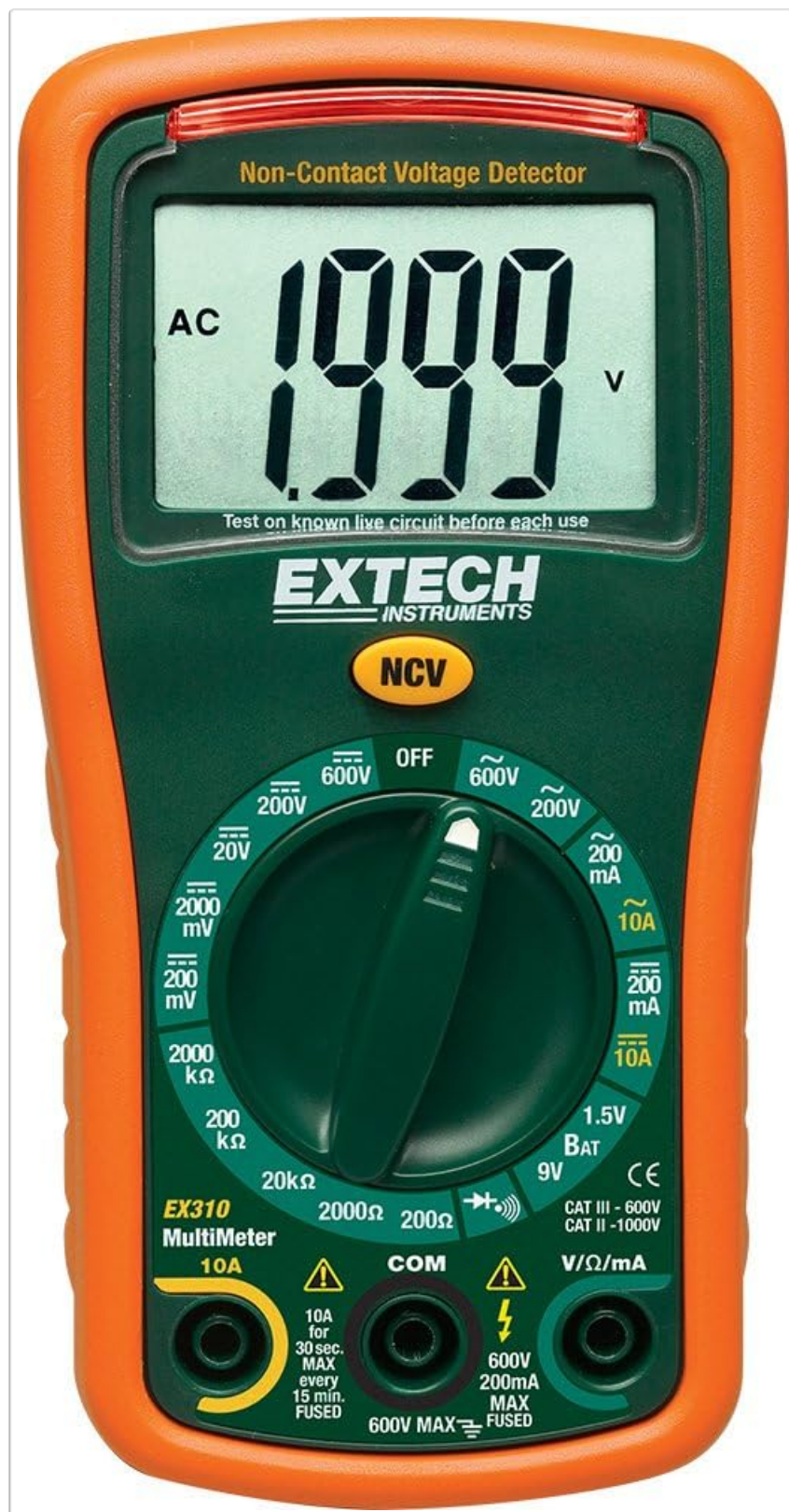


Image: Front view of the Extech EX310 Mini Digital Multimeter, showing the large LCD display, function dial, NCV button, and input jacks.



Image: Close-up of the Extech EX310's function dial, illustrating the various measurement ranges and functions such as voltage, current, resistance, diode, continuity, and battery test.

- **LCD Display:** Shows measurement readings, units, and function indicators.
- **Function Switch:** Rotary dial to select the desired measurement function and range.
- **NCV Button:** Activates the Non-Contact Voltage detection feature.
- **Input Jacks:** Terminals for connecting test leads (COM, VΩmA, 10A).

6. SETUP

6.1. Battery Installation

1. Ensure the multimeter is turned OFF.
2. Locate the battery compartment cover on the rear of the meter.
3. Unscrew the retaining screw(s) and remove the cover.

4. Insert a new 9V battery, observing correct polarity.
5. Replace the cover and secure with the screw(s).

A low battery indicator will appear on the display when the battery needs replacement.

6.2. Connecting Test Leads

Connect the test leads to the appropriate input jacks:

- Insert the black test lead into the **COM** (common) jack.
- For most measurements (Voltage, Resistance, Diode, Continuity, mA Current), insert the red test lead into the **VΩmA** jack.
- For high current measurements (up to 10A), insert the red test lead into the **10A** jack.

7. OPERATING INSTRUCTIONS

Before making any measurement, ensure the test leads are correctly connected and the function switch is set to the desired range.

7.1. AC/DC Voltage Measurement

1. Set the function switch to the desired ACV (~) or DCV (---) range (e.g., 200V, 600V).
2. Connect the red test lead to the VΩmA jack and the black test lead to the COM jack.
3. Touch the test probes to the circuit points where voltage is to be measured.
4. Read the voltage value on the LCD.

7.2. AC/DC Current Measurement

Caution: Never attempt to measure current on a circuit with voltage present across the current terminals. This can blow the fuse or damage the meter.

1. Turn off power to the circuit.
2. Set the function switch to the desired ACA (~) or DCA (---) range (e.g., 200mA, 10A).
3. Connect the red test lead to the appropriate current jack (VΩmA for mA, 10A for 10A) and the black test lead to the COM jack.
4. Open the circuit where current is to be measured and connect the meter in series.
5. Apply power to the circuit and read the current value on the LCD.

7.3. Resistance Measurement

1. Ensure the circuit or component is de-energized.
2. Set the function switch to the desired Resistance (Ω) range (e.g., 200Ω, 20kΩ).
3. Connect the red test lead to the VΩmA jack and the black test lead to the COM jack.
4. Touch the test probes across the component or circuit to be measured.
5. Read the resistance value on the LCD.

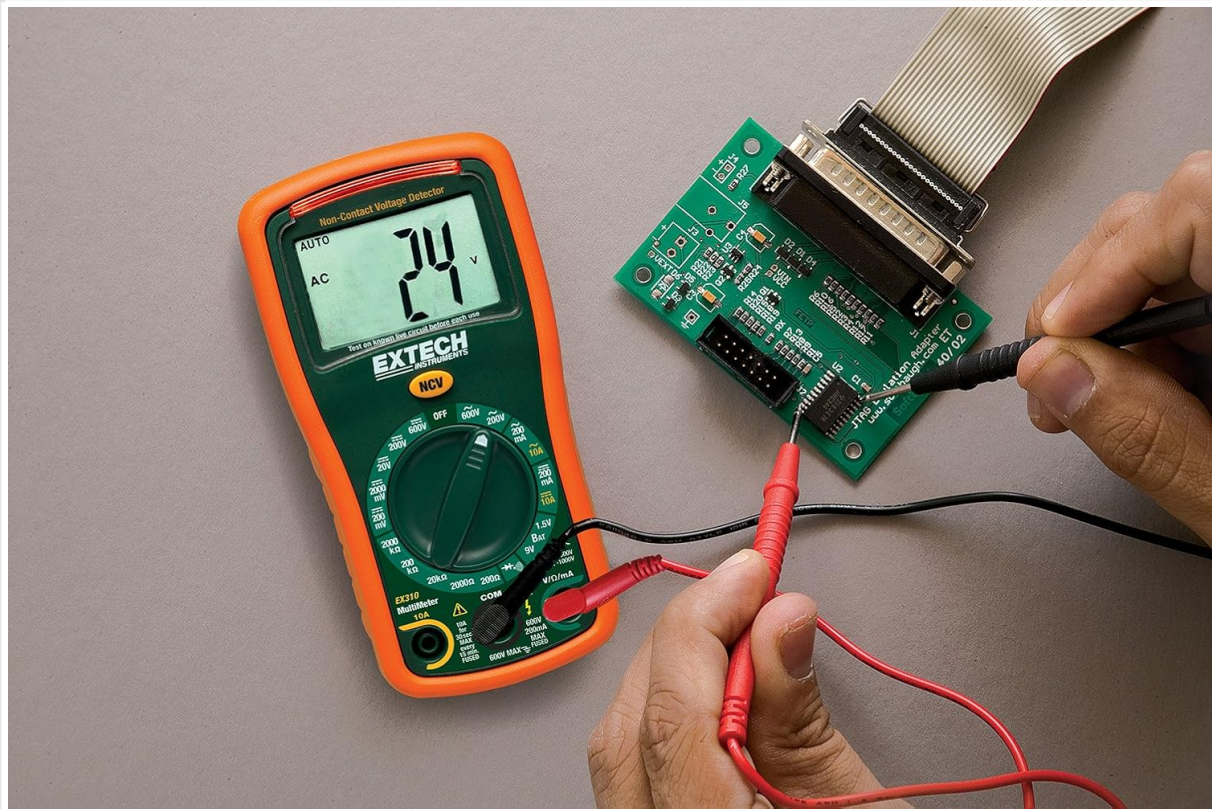


Image: The Extech EX310 Multimeter displaying a reading while test leads are connected to a circuit board, demonstrating a typical measurement scenario.

7.4. Diode Test

1. Ensure the component is de-energized.
2. Set the function switch to the Diode ($\rightarrow|$) position.
3. Connect the red test lead to the V Ω mA jack and the black test lead to the COM jack.
4. Touch the red probe to the anode and the black probe to the cathode of the diode.
5. Read the forward voltage drop on the LCD. Reverse the probes to check for an open circuit (OL).

7.5. Continuity Test

1. Ensure the circuit or component is de-energized.
2. Set the function switch to the Continuity ($\rightarrow|$))) position.
3. Connect the red test lead to the V Ω mA jack and the black test lead to the COM jack.
4. Touch the test probes across the circuit or component.
5. An audible tone will sound if continuity exists (resistance below approximately 30 Ω).

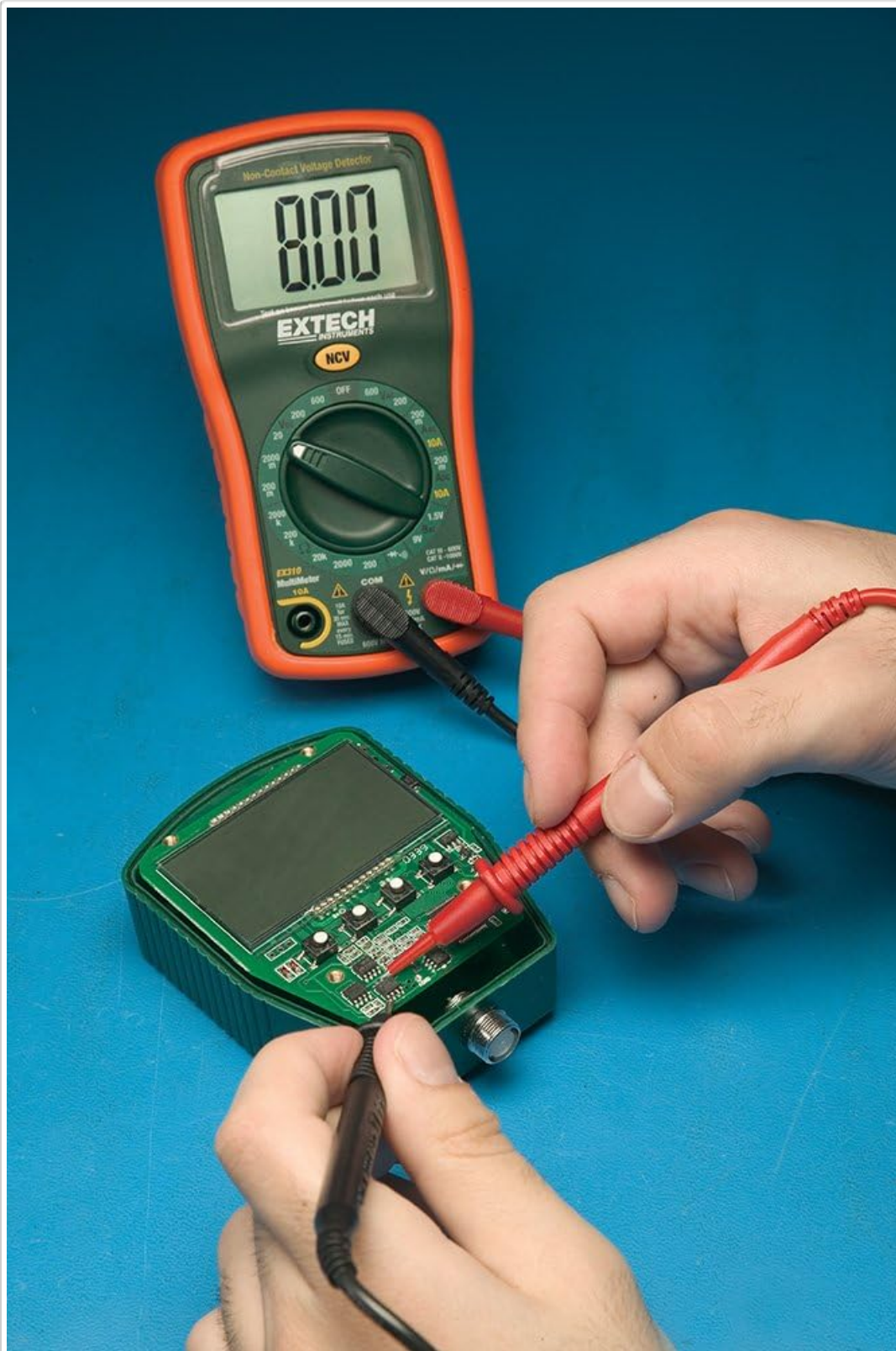


Image: A close-up view of the Extech EX310 Multimeter with its test leads connected to an internal electronic circuit, demonstrating precise measurement capabilities.

7.6. Non-Contact Voltage (NCV) Detection

1. Set the function switch to any position.
2. Press and hold the NCV button.
3. Move the top of the meter (where the NCV sensor is located) close to the suspected AC voltage source (e.g., wire, outlet).
4. A red LED will illuminate and an audible beeper will sound, increasing in intensity as the meter gets closer to the live AC voltage.



Image: A hand holding the Extech EX310 Multimeter near an electrical wall outlet, demonstrating the use of the Non-Contact Voltage (NCV) detection feature to identify live circuits.

7.7. Battery Test (1.5V/9V)

1. Set the function switch to the 1.5V BAT or 9V BAT position.
2. Connect the red test lead to the $V\Omega mA$ jack and the black test lead to the COM jack.
3. Touch the red probe to the positive terminal and the black probe to the negative terminal of the battery.
4. Read the battery voltage on the LCD.

8. MAINTENANCE

8.1. Battery Replacement

Refer to Section 6.1 for detailed instructions on replacing the 9V battery when the low battery indicator appears.

8.2. Fuse Replacement

If the current measurement functions cease to operate, the internal fuse(s) may need replacement. The fuses are typically located beneath the battery compartment. Refer to the full product manual for specific fuse ratings and replacement procedures. Always replace with fuses of the identical type and rating.

8.3. Cleaning

Periodically wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents. Ensure

the meter is completely dry before use.

9. TROUBLESHOOTING

- **No Display:** Check the 9V battery. Ensure it is correctly installed and has sufficient charge.
- **Incorrect Readings:** Verify that the function switch is set to the correct measurement type and range. Ensure test leads are properly connected and making good contact with the circuit.
- **Current Measurement Not Working:** Check the internal fuse(s). Refer to the Maintenance section for fuse replacement.
- **NCV Not Detecting:** Ensure the NCV button is pressed and held. Confirm the presence of AC voltage (100-600 VAC) in the area being tested.

10. SPECIFICATIONS



Image: Diagram illustrating the physical dimensions of the Extech EX310 Multimeter, showing a length of 6.0 inches (15 cm).

Specification	Value
Brand	Extech
Model Number	EX310
Measurement Type	Multimeter
Style	Manual Ranging
Basic Accuracy	+/-0.5%
Display	2000-Count LCD
Safety Rating	UL listed CAT III - 600V, CAT II - 1000V
Power Source	9V Battery
Item Dimensions (L x W x H)	5.7 x 1.6 x 2.9 inches (14.5 x 4.1 x 7.4 cm)
Item Weight	0.704 ounces (0.02 Kilograms)

Specification	Value
Included Components	Test leads, 9 Volt battery, tilt stand





11. WARRANTY INFORMATION

The Extech EX310 Mini Digital Multimeter is covered by a **1-year parts and labor warranty** from the date of purchase. Please retain your proof of purchase for warranty claims. This warranty covers manufacturing defects and workmanship under normal use.

12. CUSTOMER SUPPORT

For technical assistance, troubleshooting beyond this manual, or warranty service, please contact Extech customer support. Refer to the official Extech website or product packaging for the most current contact information.

Related Documents - EX310

 <p>EXTECH USER MANUAL MODEL ET40 Heavy Duty Continuity Tester</p> <p>Introduces the features and functions of the ET40 Heavy Duty Continuity Tester. Includes safety information, test procedures, and troubleshooting tips.</p> <p>Copyright © 2014 Extech Inc. All rights reserved. Extech Inc. is a registered trademark of Extech Inc. in the United States and other countries. Extech Inc. is not responsible for any damage or injury caused by the use of this product.</p> <p>EXTECH INC. 3700 W. 14TH AVE. MINNEAPOLIS, MN 55410-1099 USA TEL: 612-546-7000 FAX: 612-546-7001 WWW.EXTECH.COM</p>	<p>Extech ET40 Heavy Duty Continuity Tester User Manual</p> <p>User manual for the Extech ET40 Heavy Duty Continuity Tester. Learn how to safely and effectively test continuity of non-energized components, fuses, switches, relays, wiring, and circuit boards.</p>
 <p>EXTECH USER'S GUIDE MODEL DM100 4000 Count Autoranging Pocket Multimeter</p> <p>Provides detailed instructions for operating the DM100 4000 Count Autoranging Pocket Multimeter. Includes safety warnings, measurement procedures, and maintenance information.</p> <p>Copyright © 2014 Extech Inc. All rights reserved. Extech Inc. is a registered trademark of Extech Inc. in the United States and other countries. Extech Inc. is not responsible for any damage or injury caused by the use of this product.</p> <p>EXTECH INC. 3700 W. 14TH AVE. MINNEAPOLIS, MN 55410-1099 USA TEL: 612-546-7000 FAX: 612-546-7001 WWW.EXTECH.COM</p>	<p>Extech DM100 Pocket Multimeter User's Guide</p> <p>User's guide for the Extech DM100 4000 Count Autoranging Pocket Multimeter, covering safety, specifications, operation, features, and maintenance.</p>
 <p>EXTECH USER GUIDE 600A True RMS Digital Clamp Meters EX650 Series</p> <p>Provides comprehensive information for the EX650 Series of 600A True RMS digital clamp meters. Includes safety warnings, measurement procedures, and troubleshooting tips.</p> <p>Copyright © 2014 Extech Inc. All rights reserved. Extech Inc. is a registered trademark of Extech Inc. in the United States and other countries. Extech Inc. is not responsible for any damage or injury caused by the use of this product.</p> <p>EXTECH INC. 3700 W. 14TH AVE. MINNEAPOLIS, MN 55410-1099 USA TEL: 612-546-7000 FAX: 612-546-7001 WWW.EXTECH.COM</p>	<p>Extech EX650 Series User Guide: 600A True RMS Digital Clamp Meters</p> <p>Comprehensive user guide for the Extech EX650 Series of 600A True RMS digital clamp meters, covering models EX650 and EX655. Learn about operation, features, safety, and specifications for accurate AC/DC voltage, current, resistance, and more measurements.</p>
 <p>EXTECH USER MANUAL MODEL ET20 Dual Indicator Voltage Detector</p> <p>Provides detailed instructions for operating the ET20 Dual Indicator Voltage Detector. Includes safety warnings, test procedures, and troubleshooting tips.</p> <p>Copyright © 2014 Extech Inc. All rights reserved. Extech Inc. is a registered trademark of Extech Inc. in the United States and other countries. Extech Inc. is not responsible for any damage or injury caused by the use of this product.</p> <p>EXTECH INC. 3700 W. 14TH AVE. MINNEAPOLIS, MN 55410-1099 USA TEL: 612-546-7000 FAX: 612-546-7001 WWW.EXTECH.COM</p>	<p>Extech ET20 Dual Indicator Voltage Detector User Manual</p> <p>User manual for the Extech ET20 Dual Indicator Voltage Detector, a 2-Way AC/DC Voltage Tester (100-250V). Provides operation, warranty, and service information.</p>

 <p>The image shows the cover of the Extech DV30 AC Voltage Detector User Manual. It features the Extech logo at the top left, followed by the product name 'DV30 AC Voltage Detector' and 'User Manual'. Below this, there is a list of features and a small diagram of the device. The cover is white with black text and a small illustration of the detector.</p>	<p>Extech DV30 AC Voltage Detector User Manual</p> <p>User manual for the Extech DV30 AC Voltage Detector, detailing safety precautions, operation, specifications, battery replacement, disposal, warranty, and contact information.</p>
 <p>The image shows the cover of the Extech EX810 1000 Amp Klemmeter met IR Thermometer Gebruikershandleiding. It features the Extech logo at the top left, followed by the product name 'EX810 1000 Amp Klemmeter met IR Thermometer' and 'Gebruikershandleiding'. Below this, there is a small illustration of the device. The cover is white with black text and a small illustration of the device.</p>	<p>Extech EX810 1000 Amp Klemmeter met IR Thermometer Gebruikershandleiding</p> <p>Gedetailleerde gebruikershandleiding voor de Extech EX810 1000 Amp klemmeter met ingebouwde IR thermometer. Bevat instructies, veiligheidsrichtlijnen en technische specificaties voor nauwkeurige metingen van spanning, stroom, weerstand, capaciteit, frequentie en temperatuur.</p>