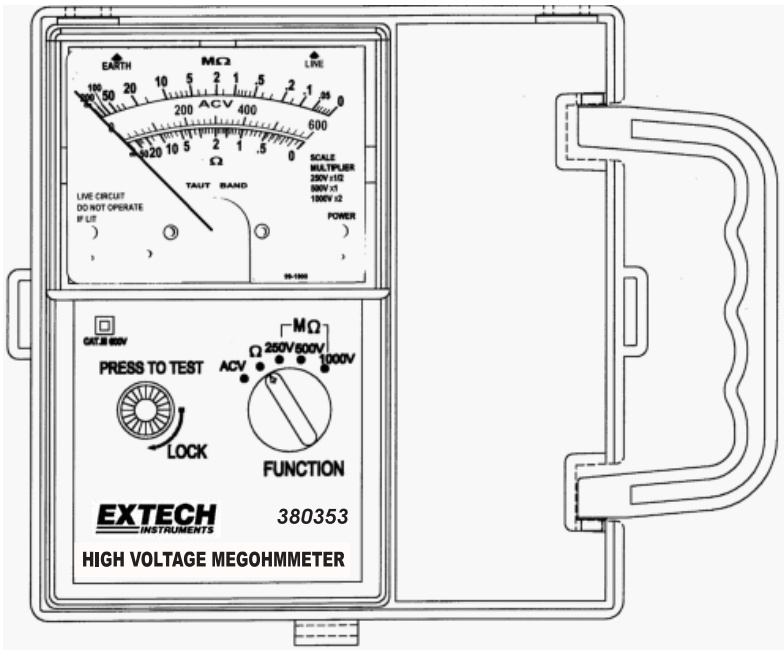




High Voltage Megohmmeter

Analog Insulation Tester
plus AC Voltage and Continuity Tests

Model 380353



Warranty

EXTECH INSTRUMENTS CORPORATION warrants this instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 ext. 210 for authorization or visit our website at www.extech.com (click on 'Contact Extech' and go to 'Service Department' to request an RA number). A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.

Introduction

Congratulations on your purchase of Extech's High Voltage Megohmmeter. This meter is geared toward high voltage insulation testing applications such as appliance testing. In addition to Megohmmeter (Insulation Resistance) measurements, low resistance and AC Voltage can be measured. This professional meter, with proper care, will provide years of safe reliable service.

Safety

1. Circuits under test must be de-energized and isolated before connections are made (except for voltage measurements).
2. Circuit connections must not be touched during a test. Use extreme caution when working near bare conductors and bus bars. Accidental contact with conductor could result in electrical shock.
3. Use caution when working near voltages above 60VDC or 30VACrms.
4. After insulation tests, capacitors must be discharged.
5. Test leads (including alligator clips) must be in good working order, clean and without broken or cracked insulation.
6. When servicing, use only specified replacement parts.

International Safety Symbols



Caution, refer to this manual before using this meter



Dangerous Voltages



Meter is protected throughout by double or reinforced insulation

Rated Environmental Conditions

- Indoor use only
- Installation Category III
- Pollution degree 2
- Altitude up to 2000 meters
- Ambient conditions: Temperature: 32 to 104°F (0 to 40°C); RH: 80% max.

Specifications

General specifications

Display	Taut band multi-scale analog display with status indicators and zero adjust
Live circuit indicator	LED lights when live circuit is sensed
Withstand voltage	Meets IEC-1010 safety requirements for Cat. III 600V
Power source	Eight (8) 1.5 AA cells
Power consumption	Megohmmeter: 190mA; Continuity: 120 mA (approx.)
Fuse protection	250V (1A) for Insulation Resistance and Continuity Tests
Operating conditions	32 to 104°F (0 to 40°C); < 80% RH
Dimensions	6.7 x 6.5 x 3.6" (170 x 165 x 92mm)
Weight	2.1 lbs (970g)
Standards	CE

Low Resistance

Range	Accuracy	Overload Protect.
0 to 50Ω	±5% of reading	250V
Open Circuit V: approx 600mV, Short circuit A: approx. 240mA		

AC Voltage

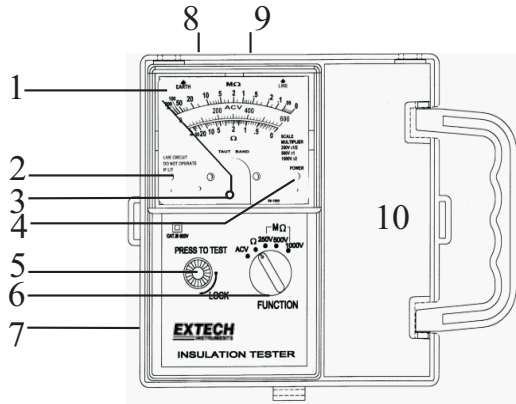
Range	Accuracy	Line Frequency
600VAC	± 5% of full scale	40Hz to 1kHz

Insulation Resistance / Megohmmeter

Voltage (±10%)	Range	Accuracy
250VDC	0 to 50MΩ	± 5% of reading
500VDC	0 to 100MΩ	
1000VDC	0 to 400MΩ	
Short circuit current: 2mA, Overload Protection: 250V		

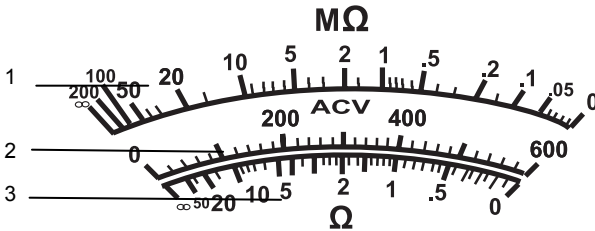
Meter Description

1. Analog Display
2. Live Circuit status LED
3. Pointer zero adjustment screw
4. Power Test status LED
5. TEST pushbutton with Lock function
6. Function select switch
7. Battery/Fuse compartment on rear
8. Test lead EARTH input jack
9. Test lead LINE input jack
10. Test lead storage compartment







Analog Scale Description

1. Black: Megohmmeter Scale: Multiply reading by 0.5 (for 250V range), 1 (500V), 2 (1000V)
2. Red: AC Voltage Measurement Scale (0 to 600V)
3. Green: Low Resistance Scale (0 to 50Ω)




Operation

CAUTIONS

-  Observe all safety precautions when the FUNCTION switch is set to either the 100M Ω (500V) or the 400M Ω (1000V) position.
-  Connect the meter test leads to the circuit under test before operating the TEST switch.
-  Do not touch the clip ends of the test leads when the TEST switch is pressed.
-  Some electrical equipment, especially cables, may retain an electrical charge when disconnected from the line. It is good practice to discharge such equipment with grounding straps, or other suitable devices, before touching or making connections. The meter automatically discharges the test circuits when the spring loaded TEST switch is released.

IMPORTANT NOTE

-  Remove all power to the circuit under test when making resistance measurements. If any voltage is present in the test circuit the red on the meter scale plate will light. Immediately disconnect test leads and turn off power to test circuit.

Function switch

The FUNCTION switch is a five position rotary switch and is used to select the desired range or function.

Test switch

The TEST switch is normally OFF. It is a spring loaded, momentary action for safety. The test voltage generated by the meter is automatically discharged when the TEST switch is released.

Connecting Test Leads

For all functions connect the red test lead to the LINE terminal and the black lead to the EARTH terminal.

Test Lead Check

Set the rotary switch to the low resistance position (Ω). Connect the leads to the meter and short the clip ends of the test leads and read the green resistance scale on the display. Depress the TEST switch and the resistance should read between 0 and 0.5 Ω . The display should read maximum range with the leads open (not shorted). If any readings are obtained other than the readings just described, the test leads should be considered faulty and must be replaced before using the meter. Failure to do so could result in damage to equipment and electrical shock.

Live Circuit Status LED

If the Live Circuit status LED is lit, voltage is present on the device under test. DO NOT proceed to test with voltage present. Shock to the user and damage to the meter or device under test can result if testing is done with voltage present. Proceed with testing only when the voltage is removed from the device under test.

Power Test Status LED

When the meter is actively testing, the Power Test status LED will blink. When this status LED is flashing DO NOT touch the test leads or any exposed parts in the testing area. Hazardous voltages exist that can cause shock. If the Power Test LED fails to light, the batteries must be replaced. Refer to the Maintenance section near the end of this manual.

Mechanical zero adjust

The pointer should indicate zero on the green 50 Ω scale when the FUNCTION switch is in the Ω position, when the test leads are shorted together, and when the TEST switch is depressed. If the pointer does not indicate zero, adjust the white plastic mechanical zero screw located on the lens cover.

Megohm Measurements

1. Disconnect all power from the circuit to be tested.
2. Set the FUNCTION switch to the desired test range
3. Connect the alligator clips to the circuit to be tested

CAUTION: If the **LIVE CIRCUIT** indicator lights up at this point, **DO NOT** operate the test button. Remove the alligator clips and disconnect all power from the circuit.



4. Press and hold the **PRESS TO TEST** button to make the measurement. Turn the button $\frac{1}{4}$ turn to the right to lock the test on.
5. Read the value on the **M Ω** scale and apply the range multiplier to determine the Megohm resistance reading.
6. Release the PRESS TO TEST button and allow the device to discharge before removing the alligator clips.

Range	Reading Multiplier
250V	0.5
500V	1
1000V	2

Low Resistance (Continuity) Measurements

WARNING: Do not run this test unless the voltage on the device under test is zero. If the Live Circuit status LED lights when a test is initiated, immediately abort the test and check that the circuit under test is not powered.

1. Set the Function select switch to the Resistance (Ω) position.
2. Connect the red test lead to the LINE input and the black lead to the EARTH input.
3. Perform a zero adjustment using the zero adjust screw on the display as described above.
4. Connect the test lead tips to the circuit under test and read the resistance on the green display scale. The maximum resistance is 50 Ω .

The main application for low resistance tests is the identification of low Ω circuits such as motor runs and start windings which may differ by only a few ohms. With a mid-scale reading of 2 Ω , this test mode can also be used to check relay contact resistance.

AC Voltage Measurements

1. Set the Function select switch to the red ACV 600V position.
2. Connect the red test lead to the LINE input and the black test lead to EARTH.
3. Connect the test lead tips to the circuit under test.
4. Read the voltage value on the red display scale.

Maintenance

Battery Replacement

If the red Power Test status LED no longer lights when a test is initiated, the eight 1.5 V AA batteries must be replaced.

1. Ensure that the meter is not in the test mode and that the test leads aren't connected.
2. Remove the Phillips head screw on the rear battery compartment cover.
3. Remove the battery compartment cover.
4. Replace the eight AA batteries ensuring proper polarity.
5. Affix the rear cover and secure the rear screw.

Fuse Replacements

To test for an open fuse first assure that the batteries are not defective and then proceed as follows:

1. Connect the test leads to the meter and short the clip ends of the test leads.
2. Set the function switch to the ohms position and press the TEST button.
3. If the fuse is open (blown), the pointer will indicate an open circuit (max resistance).
4. To locate the fuse, open the rear battery/fuse compartment via the Phillips head screw located at the center of the meter case.
5. Replace the fuse (250V, 1A fast blow) located in the battery/fuse compartment just above and to the right of the batteries. Secure the battery/fuse cover.

Cleaning

Periodically wipe the case with a dry cloth. Do not use solvents or abrasives. Do not allow water to seep into the meter case.

Calibration and Repair Services

Extech offers complete repair and calibration services for all of the products we sell. For periodic calibration, NIST certification on most products or repair of any Extech product, call customer service for details on services available. Extech recommends that calibration be performed on an annual basis to ensure calibration integrity.



Support Hotline (781) 890-7440

Tech support: Ext. 200; Email: support@extech.com

Repair>Returns: Ext. 210; Email: repair@extech.com

Website: www.extech.com

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