Art. 63400

Digital Multimeter

Instruction Manual

WARRANTY

This instrument is warranted to be free from defects in material and workmanship. Any instrument found defective within two years from the delivery date and returned to the factory with transportation charges prepaid, will be repaired, adjusted, or replaced at no Charge to the original purchaser. This warranty does not cover expandable items such as batteries or fuses. If the defect has been caused by a misuse or abnormal Operation conditions, the guarantee does not apply.

SAFETY INFORMATION

The multimeter has been designed according to IEC-61010 concerning electronic measuring instruments with a measurement category (CATII 250V) .

ELECTRICAL SYMBOLS

- Alternating Current
- Direct Current
- Caution, risk of danger, refer to the operating manual before use.
- Caution, risk of electric shock.
- Earth (ground) Terminal
- Fuse

- Conforms to European Union directives
- The equipment is protected throughout by double insulation or reinforced insulation.

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WARNING

To avoid possible electric shock or personal injury, follow these guidelines:

1. Do not use the meter if it is damaged. Before you use the meter, inspect the case. Pay particular attention to the insulation surrounding the connectors,
2. Inspect the test leads for damaged insulation or exposed metal. Check the test leads for continuity. Replace damaged test leads before you use the meter.
3. Do not use the meter if it operates abnormally. Protection may be impaired. When in doubt, have the meter serviced.
4. Do not operate the meter around explosive gas, vapor, or dust.
5. Do not apply more than the rated voltage, as marked on the meter, between terminals or between any terminal and earth ground.
6. Before use, verify the meters Operation by measuring a known voltage.
7. When measuring current, turn off circuit power before connecting the meter in the circuit.
8. Remember to place the meter in series with the circuit.
9. When servicing the meter, use only specified replacement parts.
10. Use with caution when working above 30V ac rms, 42V peak, or 60V de.
11. Such voltages pose a shock hazard.
12. When using the probes, keep your fingers behind the finger guards on the probes.
13. Connect the common test lead before you connect the live test lead.
14. When you disconnect test leads, disconnect the live test lead first.
15. Remove the test leads from the meter before you open the case.
16. Do not operate the meter with the cover removed or loosened.
17. To avoid false readings, which could lead to possible electric shock or personal injury, replace the battery as soon as the low battery indicator appears.
18. Remaining endangerment:
    When an input terminal is connected to dangerous live potential it is to be noted that this potential at all other terminals can occur!
19. CATII-Measurement Category II is for measurements performed on circuits directly connected to low voltage installation. Do not use the meter for measurements within Measurement Categories IM and IV.

CAUTION

To avoid possible damage to the meter or to the equipment under test, follow these guidelines:

- Disconnect circuit power and discharge all capacitors before testing resistance, continuity, diode and temperature.
- Use the proper terminals, function, and range for your measurements.
- Before measuring current, check the meter's fuse and turn power OFF to the circuit before connecting the meter to the circuit.
- Before rotating Function / Range switch to change functions, disconnect test leads from the circuit under test.

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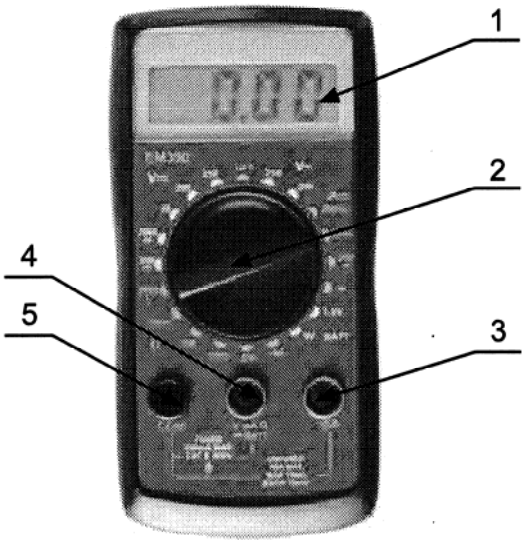
GENERAL DESCRIPTION

This series instruments are compact 3 1/2 digit digital multimeters for measuring DC and AC Voltage, DC Current, Resistance and testing Diode & Audible Continuity. Some of them also provide Temperature measurement or Battery test function, or can be used as a Signal generator (see the following table). Full range overload protection and low battery indication are provided. They are ideal instrument for use in fields, laboratory, Workshop, DIY and home applications.

FRONT PANEL DESCRIPTION

1. DISPLAYS 3 1/2 digit LCD, Max. reading 1999.
2. FUNCTION / RANGE SWITCH
   This switch is used to select the function and desired range as well as to turn ON/OFF the instrument. To extend the life of the battery, the switch should be set to the "OFF" position when the instrument is not in use.
3. "10A"JACK
   Plug-in connector for the red (positive) test lead for current (between 200mA and 10A) measurements.
4. "VmAQ" JACK
   Plug- in connector for the red (positive) test lead for voltage, resistance and current (< 200mA) measurements.
5. "COM" JACK
   Plug-in connector for the black (Negative) test lead.



GENERAL SPECIFICATIONS

Maximum Display: 1999 counts (3 1/2 digits) with automatic polarity indication Indication Method: LCD display
Overrange Indication: Only figure "1" dispalyed on the LCD
Reading Rate: about 2-3 times/second
Operating Temperature: O'C - 40C (32T-104T), <75% R.H.
Storage Temperature: -10'C ~ 50°C (14T-122T), <75% R.H.
Power Supply: One 9-volt battery (NEDA1604, 6F22)
Low Battery Indication:" E±l" displayed on the LCD
Dimensions: 138 x 70 x 28(mm)
Weight: 115g (including one 9V battery)

SPECIFICATIONS

Accuracy is specified for a period of 1 year after calibration and at 18°C ~ 28°C(64T ~ 82° F) with relative humidity up to 75% Accuracy specifications take the form of:
± [(% of Reading)+(Number of Least Significant Digits)]

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DC VOLTAGE

RANGE	RESOLUTION	ACCURACY
200mV	100µV	±(0.5%+5)
2000mV	1mV	±(0.8%+5)
20V	10mV	
200V	100mV	
250V	1V	±(1.0%+5)

AC VOLTAGE

RANGE	RESOLUTION	ACCURACY
200V	100mV	±(1.2%+10)
250V	1V	

Response: Average responding, calibrated in rms of a sine wave. Frequency Range: 45Hz~450Hz

DC CURRENT

RANGE	RESOLUTION	ACCURACY
200uA	100nA	±(1.0%+5)
2000µA	1µA	±(1.2%+5)
20mA	10µA	
200mA	100µA	
10A	10mA	±(2.0%+5)

Overload Protection: 250mA/250V fused (Range 10A unfused). Measuring Voltage Drop: 200mV

RESISTANCE

RANGE	RESOLUTION	ACCURACY
200Ω	100mΩ	±(1.0%+5)
2000Ω	1Ω	±(0.8%+5)
20KΩ	10Ω	
200KΩ	100Ω	
2000KΩ	1KΩ	±(1.2%+5)

Maximum Open Circuit Voltage: 3.2V.

DIODE & AUDIBLE CONTINUITY

RANGE	DESCRIPTION
	The built-in buzzer will sound if the resistance is less than about 50Q.
	The approximate forward voltage of the diode under test will be displayed on the LCD.

SIGNAL OUTPUT

Signal Output: 50Hz Square wave
Level Output: 3Vpp 

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OPERATING INSTRUCTIONS

DC VOLTAGE MEASUREMENT

1. Connect the red test lead to "VmAQ" jack and the black test lead to "COM" jack.
2. Set the Function/Range switch to desired V ‘ ⎓ “ range. If the voltage to be measured is not known beforehand, set the range switch to the highest range and then turn it down range by range until satisfactory reading is obtained.
3. Connect the test leads to the source or circuit to be measured.
4. The voltage value will appear on the LCD along with the polarity of the red test lead .

AC VOLTAGE MEASUREMENT

1. Connect the red test lead to "VmAΩ" jack and the black test lead to "COM" jack.
2. Set the Function/Range switch to desired V ‘ ~ “ range. If the voltage to be measured is not known beforehand, set the range switch to the highest range and then turn it down range by range until satisfactory reading is obtained.
3. Connect the test leads to the source or circuit to be measured.
4. The voltage value will appear on the LCD.

DC CURRENT MEASUREMENT

1. Connect the black test lead to the "COM" jack. Connect the red test lead to the "VmAΩ" jack if the current to be measured is less than 200mA. If the current is between 200mA and 10A, connect the red test lead to the "10A" jack instead.
2. Set the Function/Range switch to the desired A “ ⎓ ” range. If the magnitude of the current to be measured is not known beforehand, set the Function/Range switch to the highest range and then reduce it range by range until satisfactory resolution is obtained.
3. Turn off power to the circuit which you will measure. Discharge all capacitors.
4. Break the circuit path to be measured, connect the test leads in series with the circuit.
5. Turn on power to the circuit, then read the display. The polarity of the red test lead connection will be indicated as well.
   Note: For measurements >2A, measurement duration must be less than 10 seconds and the interval must be more than 15 minutes.

RESISTANCE MEASUREMENT

1. Connect the red test lead to "VmAΩ" jack and the black test lead to "COM" jack.
2. Set the Function/Range switch to desired Q range.
3. Connect the test leads across the load to be measured.
4. Read the resistance value on the LCD.

Note: To avoid electric shock to you or damage to the meter, disconnect circuit power and discharge all capacitors before resistance measurement.

DIODE MEASUREMENT

1. Connect the red test lead to "VmAΩ" jack and the
2. black test lead to "COM" jack.
3. Set the Function/Range switch to “ ⏩ ” range.
4. Connect the red test lead to the anode of the diode to be measured and the black test lead to cathode oufit.
5. The forward voltage drop in mV will be displayed. If the diode is reversed, only figure "1" will be shown.

Note: To avoid electric shock to you or damage to the meter, disconnect circuit power and discharge all capacitors before diode test.

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CONTINUITY TEST

1. Connect the red test lead to "VmAΩ" jack and the black test lead to "COM" jack.
2. Set the Function/Range switch to " •))) " range.
3. Connect the test leads to the two terminals of the circuit to be tested. If the resistance is lower than about 50Q, the built-in buzzer will sound.

Note: To avoid electric shock to you or damage to the meter, disconnect circuit power and discharge all capacitors before continuity test.

SIGNAL OUTPUT

1. Set the Function/Range switch to" ⊓⊔ " range.
2. A test Signal will be Output between "VmAΩ" and "COM" jacks, the Output voltage is approx. 3V p-p with 50KOhm impedance.

MAINTENANCE

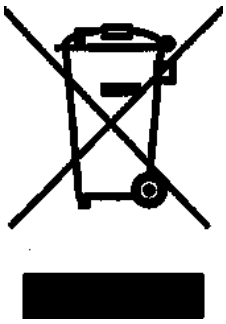
Before opening the case, always disconnect the test leads from all live circuits. To continue protection against fire, replace fuse only with the specified voltage and current ratings: F 250mA / 250V (Fast Blown), 05 x 20mm c Periodically wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents.

BATTERY AND FUSE REPLACEMENT

If" ⊟ "appears on the LCD, it indicates that the battery should be replaced. To replace the battery, remove the screws on the back cover, and replace the exhausted battery with a new one of the same ratings. Reinstall the back cover and the screws. Fuse rarely needs replacement and is blown generally as a result of operator's error. To replace the fuse (F 250mA/250V), remove the screws on the bottom of the case, simply remove the old one, and replace it with a new one of the same ratings. Reinstall the back cover and the screws.

ACCESSORIES

Manual: 1 piece
Test leads: 1 pair



DISPOSAL OF THIS ARTICLE

Dear Customer,

if you at some point intend to dispose of this article, then please keep in mind that many of its components consist of valuable materials, which can be recycled.

Please do not discharge it in the garbage bin, but check with our local council for recycling facilities in your area.

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CE

EU-KONFORMITÄTSERKLÄRUNG
EC DECLARATION OF CONFORMITY
DÉCLARATION „CE“ DE CONFORMITE
DECLARATION DE CONFORMIDAD UE

Wir erklären in alleiniger Verantwortung, dass die Bauart des Produktes:
We declare that the following designated product:
Nous déclarons sous propre responsabilité que ce produit:
Declaramos bajo nuestra sola responsabilidad que este producto:

Digital-Multimeter (BGS Art. 63400)
Digital Multimeter
Multimètre numériques Digital
Multimetro Digital

folgenden einschlägigen Bestimmungen entspricht:
complies with the requirements of the:
est en conformité avec les réglementations ci-dessous:
esta conforme a las normas:

EMC Directive 2014/30/EU

Angewandte Normen:
Identification of regulations/standards:
Norme appliquée:
Normas aplicadas:
EN 61326-1:2013
EN 61326-2-2:2013

Verification No.: 160500256SHA-V1 / EM393B
Test Report No.: 160500256SHA-001

Wermelskirchen, den 07.11.2016

ppa.
Frank Schottke, Prokurist

BGS technic KG, Bandwirkerstrasse 3, D-42929 Wermelskirchen

CE-Erklärung